DARTMOUTH COLLEGE

THE EFFECTS OF THE LACK OF ZONING ON URBAN STRUCTURE IN HOUSTON

A thesis submitted to the faculty of the Department of Economics in partial fulfillment of the requirements for the degree of Bachelor of Arts with Honors.

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CONTENTS

ABSTRACT

This thesis analyzes the effects of the lack of zoning on the urban structure of Houston's metropolitan area. The city's primary land-use controls are deed restrictions, which have been proven to be more stringent than zoning, because of a majority residential vote required to change existing provisions. Many residential neighborhoods in Houston either lack deed restrictions, or the restrictions in place are not enforced. This convinced Houston politicians and residents to consider a zoning ordinance in the early 1990s. After intense debate, zoning failed by a margin of 52 percent to 48 percent in a November 1993 referendum. Research in Houston in December 1995 allowed me to scrutinize the zoning issue through interviews with politicians, lawyers, homeowners and residents, businesses, political activists, and academics. My nine-day stay in the metropolitan area also enabled me to examine Houston's neighborhoods and landscapes first hand. Advocates of zoning believe that the lack of zoning is causing excessive suburban sprawl and devaluing the price of homes not protected by deed restrictions, because non-conforming land-uses can legally locate in residential neighborhoods. Opponents of zoning feel that a zoning ordinance will induce sprawl and that the lack of zoning has benefited Houston economically in terms of low housing costs and business opportunities for residents. In order to see how density and housing prices were affected, I compared the metropolitan area of Houston to three other metropolitan areas that are similar in location, age, land area, and demographics. The control cities in my analysis include Dallas, Phoenix, and Tampa. Information from the 1990 Census of Population and Housing allowed me to conduct empirical analysis on the four cities. The sample data for each metropolitan area consisted of tracts that have a majority of owner-occupied housing. Once data was collected, regressions related to density and housing prices were performed. Utilizing economic theory and formulas, I calculated population density gradients and housing price gradients for each city. The results of my analysis split the difference of what proponents and opponents of zoning would have expected. I discovered that Houston has a higher in absolute value population density gradient than the control cities, and a positive housing price gradient. My calculations reveal that the lack of zoning has not made Houston a comparatively more sprawling city, but it has devalued housing in unprotected neighborhoods. Discussion of urban economic theory and research accompany my results. This thesis also addresses the mechanics behind zoning and deed restrictions, as well as the history of the rejection of zoning in Houston.

CHAPTER 1
INTRODUCTION: HOUSTON AND THE LACK OF ZONING

Houston is the only city in the United States that does not have the land-use control, zoning. Many economists, politicians, lawyers, citizens, political scientists, and, most important, residents and landowners have opinions on what this does to the urban structure and their investments. When I mention urban structure, I ask: how does this affect where people live and work, the prices of homes, and the allocation of resources? As one of the largest cities in America, how does Houston maintain the character and structure of other cities? The city has the reputation as the ultimate unplanned American city. Houston has been one of the fastest growing large cities in the country. Known for having one of the country's most aggressive annexation policies, and for utilizing Municipal Utility Districts (MUDs) as its primary development tool, the city has sprawled to just under 600 square miles.

If you have ever been on an extensive sight-seeing tour of Houston's urban area you would be hard pressed not to agree that Houston is a sprawling, unplanned city that grew very rapidly. I visited Houston for eight nights and nine days in December 1995 to conduct research for my thesis. Living in the city of Houston involved staying at a Holiday Inn, four different Motel 6s in different parts of the city, and two nights in a master-planned community with friends. I characterize the city of Houston as "a-turn-the-corner-city." Every time you turn the corner, you see something different in terms of land use. In the inner-city, I found homes in residential neighborhoods located next to disco bars, nude strip joints, pharmacies, health clubs, industrial factories and manufacturing plants, car repair shops, gas stations, or nursery schools. Residents of

certain neighborhoods could receive religious guidance from a church and then go across the street for a beer at one of the local bars. A mother can drop off her child at a home/nursery school and wave good morning to the owner of a bar taking out the trash from the night before. Trailer parks can be found next to municipal golf courses, vacant lots between modern skyscrapers, and the financial district a stone's throw away from one of Houston's six wards.

In contrast to the inner city areas, I drove about 35 minutes north of the city's center at the speed of 70 miles an hour, where I discovered and explored one of Houston's master-planned communities. The Woodlands, a "master-planned" community started in the 1970s, built off of 15 MUDs (13 residential and 2 commercial), is continually being developed. One cannot find a non-conforming land use or nuisance in this area because it is protected by residential covenants put down by the developer. Although I have not visited every city in the nation, and, of those I have, I have not kept land-use issues in mind; however, Houston is the strangest city I have seen in terms of planning and land structure. Houston does not have zoning, but it does have a form of land-use control that involves covenants. Deed restrictions are Houston's primary tool for addressing noxious and non-conforming land uses. Deed restrictions are known to work in middle to upper-middle class communities such as the Woodlands, but have failed to be implemented or enforced in inner-city neighborhoods, such as the Houston Heights. Failure of deed restrictions has led to the existence of non-conforming and noxious structures in residential neighborhoods.

Have deed restrictions, rather than zoning, made the city of Houston different from any other city in America? Robert Thomas and Richard Murray, political scientists and authors of the book Progrowth Politics--Change and Governance in Houston, argue that Houston has not been growing without planning and direction. They claim that its pattern of growth during the postwar years has not been fundamentally different from many other rapidly growing urban areas such as Phoenix, Arizona (Thomas and Murray,

1991, p.345-46). Richard Murray told me in an interview that Houston is a decentralized city that is organized efficiently. Like any other major metropolitan city, Houston has a clearly defined industrial district, a downtown dominated by an office-employment base and few residents. Thomas and Murray also profess that Houston has satellite suburban office centers, and new residential developments on the urban periphery where land costs are lower and homes more affordable. They say that development patterns of the city are not much different from other cities. What sets Houston apart from other cities is that it has continually rejected traditional public mechanisms of urban planning, primarily zoning (Thomas and Murray, 1991, p. 346).

John Mixon, law professor at the University of Houston and zoning proponent, has a different take on the zoning issue. Mixon has had an active and important scholarly role in Houston's zoning issues and was able to give me an hour of his time to educate me on his opinions. In a paper given to me by Professor Mixon, he states that "Houston is one of the most visually offensive cities in the country" (Mixon, p.1). Mixon has analyzed the zoning issue intensely and was one of the most active advocates for zoning during the early 1990s zoning "war" in Houston, a war which pro-zoning forces lost. From the interview with John Mixon and the written material that he gave me, pro-zoners have cited important drawbacks caused by the lack of zoning.

Mixon feels that "Houston has spread out too far for its own good" (Mixon, p.1). He characterizes Houston as a low density city. Excessive sprawl has exacerbated many environmental problems. There is too much land inside and outside of the core and much of it will remain undeveloped or underdeveloped. Mixon thinks that Houston is losing its urban core to sprawl. He believes that a city is characterized by its core, and the strength of Houston is not in the suburbs--even though they are within the city--but in the inner-city. According to Mixon, as Houston's population continues to grow, no upgrading of the inner city will be possible because families move away from the inner-city for a suburban lifestyle. Offices, businesses, and shopping centers tend to follow the

residential areas. Residential quality has been available only in new subdivisions that are constantly developed farther away from the older city, the city center. He states that "the Houston attitude has been that older areas have little value, and that new commercial uses and garden apartments should be favored over preservation of existing neighborhoods" (Mixon, p.1). Mixon holds that the abandonment of solid neighborhoods has left a shortage of quality housing in the inner city.

Mixon told me that "zoning is 95 percent for providing protection for residents in residential neighborhoods" (Interview with John Mixon, December 12, 1995). Zoning protects worthwhile current investments. A zoning ordinance should protect existing viable and valuable single-family neighborhoods inside the city from inappropriate and destructive adjacent uses. Mixon says that "zoning stabilizes value and protects investments; it does not increase price." He believes that zoned land in Houston commands a higher price because protected land is scarce and in demand.

Jack C. Harris is on the opposite side of the field. Harris is a research economist at the Real Estate Center at Texas A&M University. He says that zoning ordinances increase the value of homes, and, thus, would create a shortage of housing (Harris, 1993, p.8). Zoning ordinances segregate land uses, and limit the density of development on each parcel of land. A limit on the number of homes that can be built in the city will be established. Growing populations will bid up the price of housing available, and, therefore, reduce the standard of living because of higher prices commanded for rent. According to Dr. Harris, higher cost of living will discourage economic development and lead to falling property values. Harris says that zoned cities will have a lower density, and therefore newer development must occur at the fringe. Thus, sprawl will occur more in zoned cities rather than in Houston--exactly the opposite of Mixon's belief.

While doing research in Texas, I met with economist Barton Smith at the University of Houston. Smith is also an opponent of zoning in Houston. He believes that if the city were to be zoned, it should have been done 70 years ago. The economist says

that one of the reasons for Houston's growth is its low cost of living (Interview with Barton Smith, December 14, 1995). Smith states that Houston is one of the largest cities with a low cost of living. With an increase in the cost of living because of a zoning ordinance, Smith believes that a slow down in economic growth will occur. High cost of living in other U.S. cities have choked off growth. Smith agrees with Mixon that it is very expensive to find quality housing in a respectable neighborhood in Houston compared to other cities with zoning. He states however, that migrants to Houston can purchase a new house in the suburbs for less than the cost of renting a quality apartment in the city of Houston.

On the political side, Mayor Bob Lainer and the 14 council members at his side support zoning in Houston. From an interview with Robert Freelow, Jr., senior assistant director of communication for the mayor, Lainer and his staff are in strong support of a zoning ordinance to maintain the character of the city (Interview with Robert Freelow, Jr., December 14,1995). Lainer feels that zoning will provide Houston with an organized structure and create a firm ground for planning and the prevention of non-conforming uses that have traditionally plagued the inner-city.

In an interview with Helen Huey, District A council member, I was able to gain perspective on inner-city growth in Houston. Although Ms. Huey does not deny that Houston is a sprawling city due to MUDs and annexation, she does not support the claim that Houston's inner-city is suffering. She showed me a map containing current developments within Houston's borders. The map reveals that there are significantly more development projects costing over $500,000 in the inner-city than anywhere else in Houston. The majority of the projects involved one building on one lot. As a firm supporter of inner city development, Huey says "statistical reality beats perception; there is a lot of inner-city growth even with annexation and sprawl" (Interview with Helen Huey, December 14, 1995).

Several economists have conducted several studies on the effects of the lack of zoning in Houston. These studies have primarily analyzed housing prices and the effects on the urban structure. In 1981, Richard B. Peiser compares the land development regulations of Dallas and Houston in order to measure the impact on lot prices in the two cities in his paper, "Land Development Regulation: A Case Study of Dallas and Houston, TX" (Peiser, 1981). Peiser takes into consideration that Dallas is more restrictive in development than Houston. Major factors were that Houston lacked a zoning ordinance and that it provided utilities with Municipal Utility Districts, which give developers greater flexibility in subdivision site selection. Peiser's motivation for the study was to see if development regulations have benefits that outweigh the costs. The costs he considers are the direct costs for meeting regulatory requirements, as well as costs related to efficiency of service and financing of development. Among developers, economists, and public servants, it is no secret that zoning adds time and cost to the development process. Benefits are planning and regionalization of utility networks, and the reduction of negative externalities.

Peiser found that regulation affecting land development is more expensive for the developer in Dallas than in Houston, mainly due to the use of MUDs in Houston. His initial findings of per acre development costs for non-problem, single-family lots between the two cities were similar. The Dallas developer was required to pay $31,500 for development. A major difference in development standards is that Dallas suburbs require alleys that cost approximately $1500 per lot. Subtracting this cost for comparative purposes, Dallas developers endure a cost of $30,000. The Houston developer paid $30,000 initially, but is reimbursed about $7,500 by the MUD. MUDs allow for the transfer of private debt to public debt. MUDs are financed by tax-free bonds and all taxpayers in the MUD jurisdiction share in the cost of financing them. Houston's developers enjoy a lower cost of financing development at $22,500 per lot (but the total cost is around $30,000).

After developing his initial findings, Peiser did a case illustration of the full costs of development for one subdivision in each city. Both subdivisions are located on the fringe of urban development. Peiser found that the full cost to a buyer of an identical house built by the same builder was $4500 more in Dallas in 1981. A West Houston home cost $65,000, while a North Dallas home cost $69,500. Major differences in price are explained by the one-time charges in utility connection fees which affect the price of the lot. Utility connection fees reached $13,850 in Houston and $17,550 in Dallas, a difference of $3700. Annual charges for user fees, which include water, sewer, and taxes, totaled $729 in Houston and $386 in Dallas. Higher annual charges in Houston were expected due to the portion of utility costs financed by the MUD and recouped through taxes. When the annual charges are capitalized at the rate for mortgage money in 1981 over a 25 year period, the present value of the user charges is $2495 in Dallas and $4712 in Houston. The full lot cost to a homebuyer in Houston was $18,562, but in Dallas $20,045. With all other costs considered, a lot in Houston was $1000 -$2000 cheaper.

Peiser questions whether the lack of zoning in Houston outweighs the $1000 plus discount per lot. He states that the potential benefits of Dallas are comprehensive planning and regionalization of utility networks, and the reduction of negative externalities associated with environmental and land use controls. Peiser says there is no direct evidence to indicate whether the benefits of Dallas are worth more or less than $1000 plus per lot. He considers the advantages of Houston and its ability to provide utilities for development in its metropolitan area with the use of MUDs. He says "the use of MUDs for utilities and the absence of zoning in Houston appear to contribute to lower lot prices in Houston" (Peiser, 1981, p.415). He mentions that MUDs may be the partial cause of greater urban sprawl in Houston because of the increased pace of scattered development throughout the urban fringe.

Janet Furman Speyrer took a different approach in looking at Houston's housing prices. She analyzed the effects of zoning and restrictive covenants on single-family

housing prices in the Houston metropolitan area in her paper titled "The Effect of Land-Use Restrictions on Market Values of Single-Family Homes in Houston" (Speyrer, 1989). Her paper examines the willingness of consumers to pay for land-use controls, zoning and restrictive covenants in Houston in 1978. Speyrer used a hedonic price index for housing. The price is a function of characteristics of the house, its neighborhood, and regulations. This approach was used to isolate the effects of any particular characteristic. Characteristics that Speyrer considered were physical characteristics of the property and home, physical characteristics of the neighborhood, whether property was sold in a specific period, and whether the property was zoned or restricted by covenants. Her research was possible because there are two cities enclosed by Houston that do have zoning. She was able to compare Bellaire and West University Place to areas in Houston not protected by zoning.

The data in Speyrer's study were 230 individual homes located in the zoned areas of Bellaire and West University Place, and in the nearby unzoned areas within Houston. Her research found that higher prices are commanded for homes in neighborhoods with either zoning or covenants than for comparable homes in neighborhoods that lack these land use controls. A home, which has zoning or restrictive covenants, was estimated at costing $4800 or $5900 more than homes with similar characteristics that lacked both zoning and covenants, respectively. Speyrer's estimation procedures found that a statistically significant difference between the coefficients for zoning and covenants did not exist. Another finding in her research was a coefficient for the variable measuring the distance from the center of Houston, a land price gradient. Speyrer's data suggest that property values decline by 4.5 percent per mile as the distance from Houston's central business district increases. The coefficient was highly significant and is what urban economists would expect because of higher commuting costs of increased distance from the center of the city.

Speyrer's research concluded that homeowners pay a higher premium for land-use controls in the Houston area. She found that land-use interactions do exist and that consumers in zoned or restrictive covenant areas consider the protection from these externalities more valuable than the foregone opportunities for development of their own property. Her empirical work found two possible reasons for her conclusion. First, consumers may be willing to pay premiums to avoid offensive and widespread non-conforming uses that already exist in unrestricted neighborhoods because they previously had no land use restrictions. Second, present uses may not adversely affect the desirability of the property for residential use, however uncertainty about future changes in the composition and character of the neighborhood may warrant the payment for land-use controls.

I will in this work analyze the effects of the lack of zoning on Houston's urban structure, but the approach I will take is different from other economic studies. Comparing Houston to cities with similar characteristics is a plausible way to answer the question of concerned residents and homeowners in Houston. Is Houston different from any other city in the United States because of the lack of zoning? Is John Mixon correct when he says that the inner-city is losing its character because homeowners' investments are unprotected from non-conforming land uses, and residents continue to move further away from the center and thereby promote massive urban sprawl? Or, is Jack Harris correct when he says that protection from a zoning ordinance will increase sprawl and development at the fringe, as well as not increase housing prices?

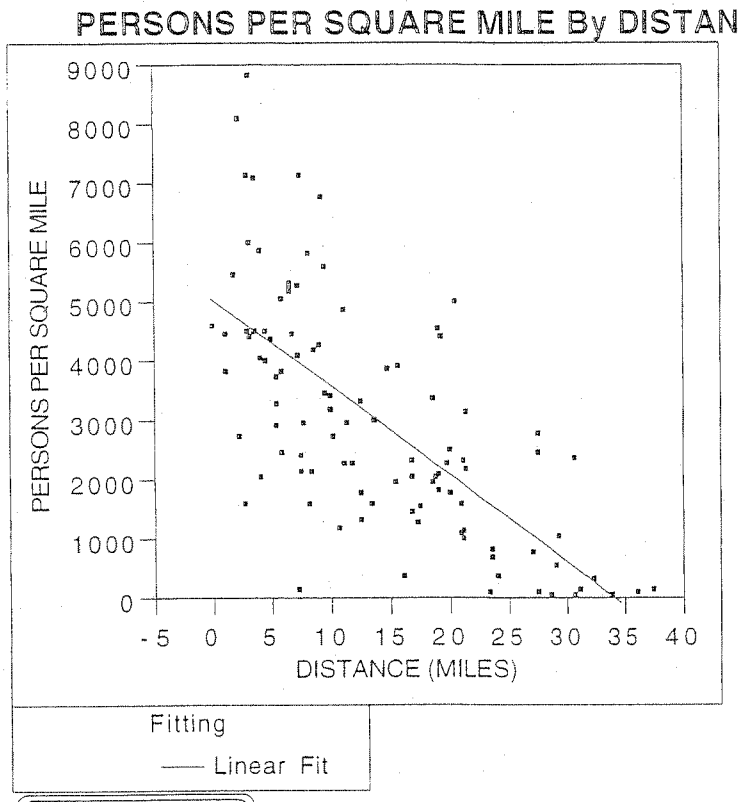
The evidence I have splits the difference: the lack of zoning has not made Houston a comparatively more sprawling city, but it has devalued housing in unprotected inner-city neighborhoods and other areas that lack private land-use protection. In my attempt to demonstrate these contentions, I compare the population density gradient and housing-price gradient of Houston to Dallas, Phoenix, and Tampa. My control cities are all Sun Belt cities that are very similar in age and size. Dallas is one of the largest cities

in Texas, second to Houston, and has been a control city for several economic studies concerning land-use. Phoenix and Houston have been two of the fastest growing cities in the United States for the last four decades and share many of the same characteristics. Tampa, a coastal city, serves as a match for Houston and an excellent control city. The next chapter summarizes the results of my study and the ensuing chapter gives an explanation of data collection as well as the legitimacy of the control cities.

CHAPTER 2
RESULTS OF EMPIRICAL ANALYSIS

Urban economists have studied the structures of cities and have found that every city has a negative population density gradient. Cities tend to have a higher density in the inner city and a lower one out towards the suburbs. This is summarized mathematically by a negative number known as the density gradient. The gradient is the percentage decline in population for each additional mile away from the city's center. The central business district (CBD), the center of the city, is usually the densest part of the entire metropolitan area. Larger densities are found close to the city's center and smaller densities are found in the suburbs.

Some economists, such as William Fischel, believe that the lack of zoning will produce a steeper gradient for Houston compared to the control cities (Fischel, 1985, p. 264). These economists believe that zoning contributes to low-density development and therefore causes cities to be too spread-out. Below you will find a plot of density for a sample of census tracts in Houston, to which an ordinary least squares regression line has been fitted. These tracts were chosen in the northwest quadrant of the city for reasons to be explained later.



HOUSTON DENSITY

Observation	105			
R square	0.48456			
	Estimates	*Standard Error*	*t Ratio*	*Prob>|t|*
Intercept	5072.5217	251.275	20.19	0.0000
Distance (Miles)	-147.6978	15.0096	-9.84	0.0000

The regression shows that the further you move away from the city center, the less dense the population. According to the above data, Houston's estimated density at the core is 5,073 persons per square mile. For every mile that we move away from the CBD, the population residing in a square mile of distance decreases by 148 persons.

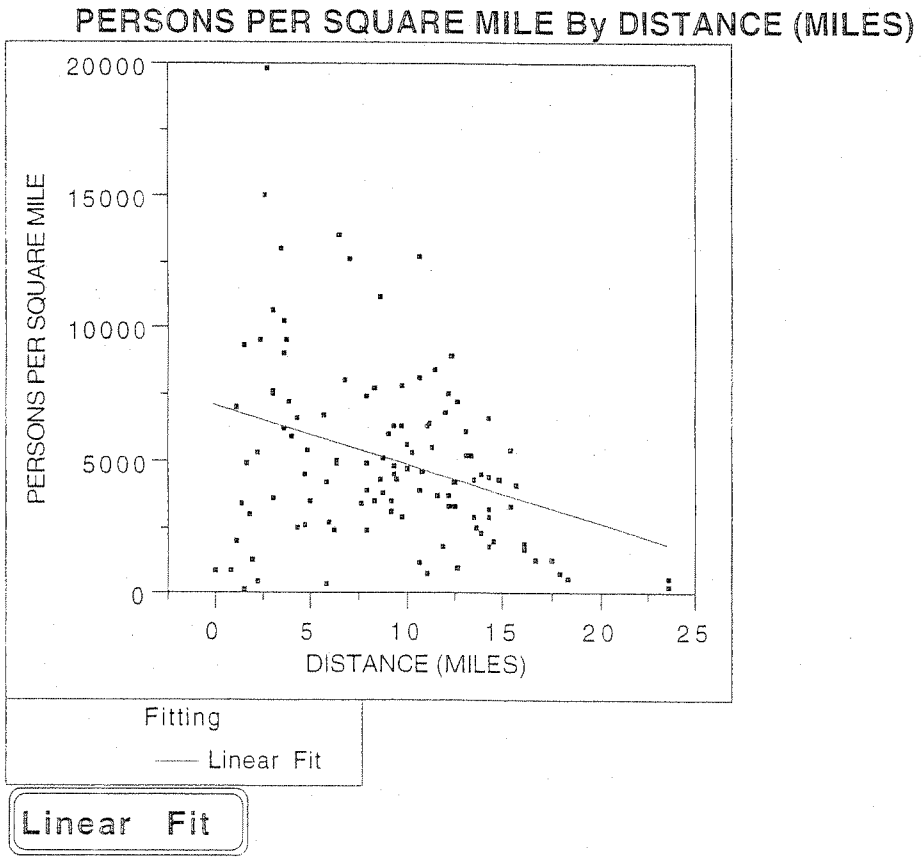
The linear fit of this regression is not sufficient to compare density among cities; however. For this reason, urban economists use a simple formula to calculate density gradients (Mills and Hamilton, 1994, p.135-37). The density gradient can be computed as follows:

$$(\Delta D/\Delta u)(1/D)$$

The change in density per change in distance from the central business district is represented by ($\Delta D/\Delta u$). (1/D) represents the reciprocal value of the average density in our sample. Houston's density gradient is -0.049 (-4.9 percent). For every mile that a person travels away from the central business district, population is expected to decrease by about 4.9 percent. This number allows us to compare Houston to our control cities.

Dallas, Phoenix, and Tampa, all have negative gradients similar to Houston, but the characteristics of each city affect each city's slope. Below you will find plots of density, the density gradients, and a brief explanation of the data produced for the three control cities. The tracts were selected in each city by a similar process, to be described subsequently.

Dallas' density graph:

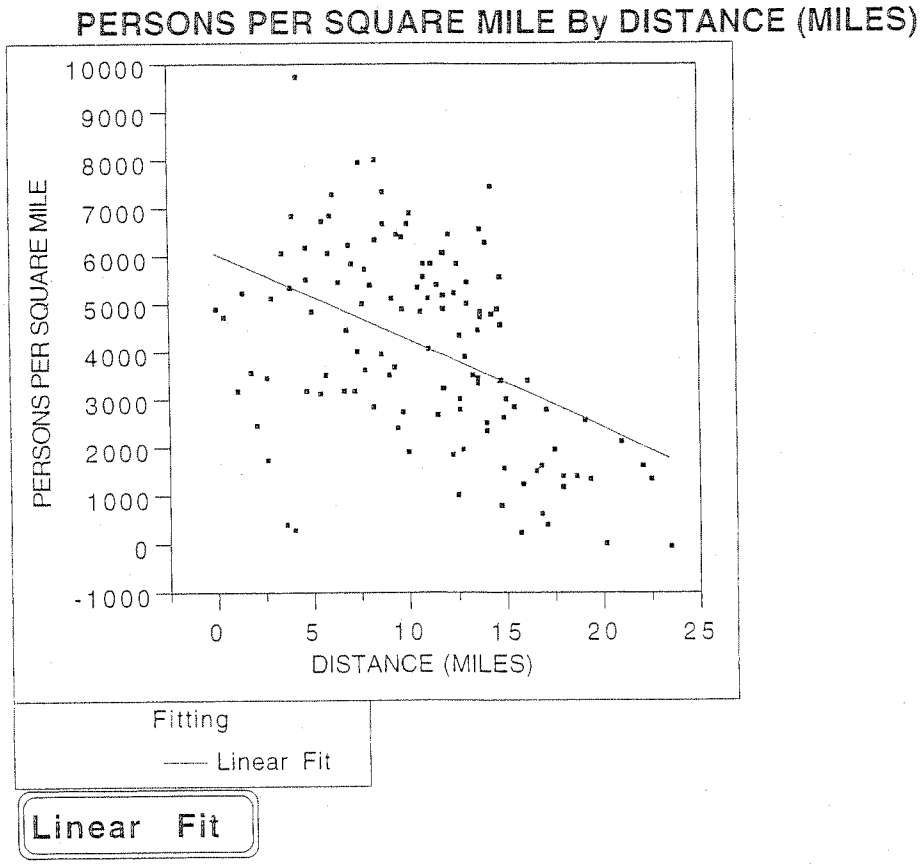


DALLAS DENSITY

Observation	115			
R square	0.107219			
	Estimates	*Standard Error*	*t Ratio*	*Prob>ltl*
Intercept	7128.8051	619.33	11.51	0.0000
Distance (Miles)	-222.0356	60.2726	-3.68	0.0004

The regression estimates a density of 7,129 persons per square mile in the Dallas core. As we move one mile from the city's center, the population decreases by 222 persons. The density gradient of Dallas is -0.043 (-4.3 percent).

The Phoenix plot of population density is:

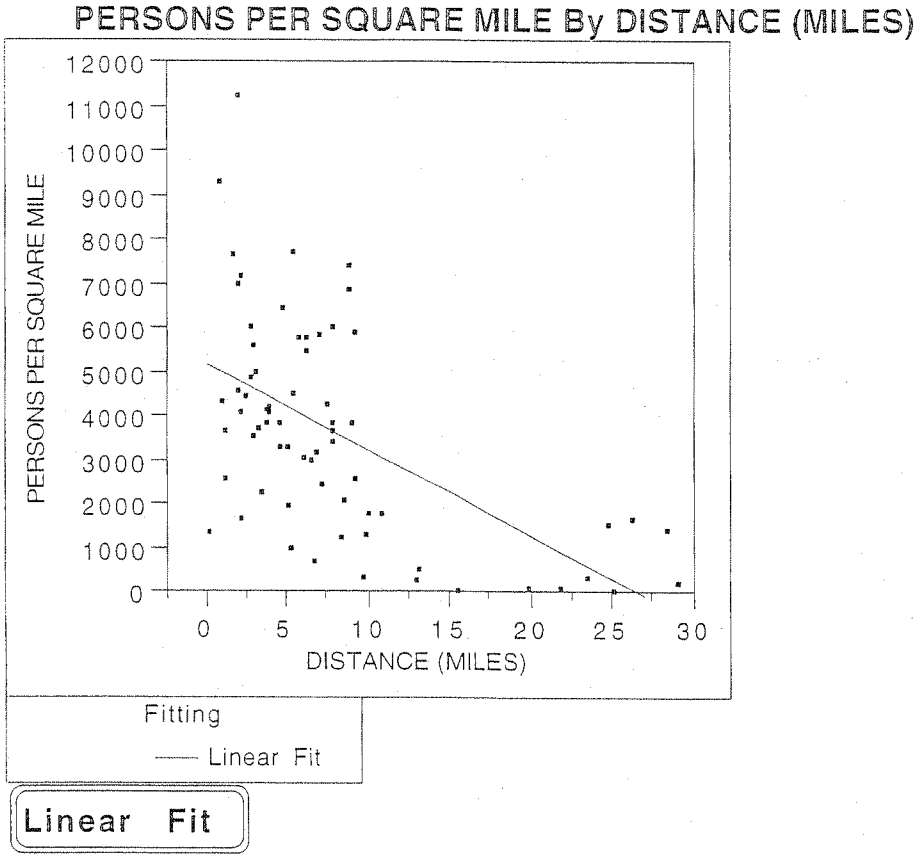


PHOENIX DENSITY

Observation	120			
R square	0.204217			
	Estimates	*Standard Error*	*t Ratio*	*Prob>ltl*
Intercept	6075.9568	393.192	15.45	0.0000
Distance (Miles)	-181.3188	32.9499	-5.50	0.0000

Persons per square mile in the center of Phoenix is estimated at 6076. For every mile from the center the population decreases by 181 persons. The population density gradient for the city of Phoenix is -0.044 (-4.4 percent).

Tampa's density plot is:



TAMPA DENSITY

Observation	68			
R square	0.318797			
	Estimates	*Standard Error*	*t Ratio*	*Prob>|t|*
Intercept	5214.0073	369.004	14.13	0.0000
Distance (Miles)	-195.5534	35.1864	-5.56	0.0000

The regression estimates 5,214 persons per square mile living in the center of the city. For each mile that the distance from the central business district increases, the population decreases by 196 persons per square mile. The density gradient for the city of Tampa is -0.053 (-5.3 percent).

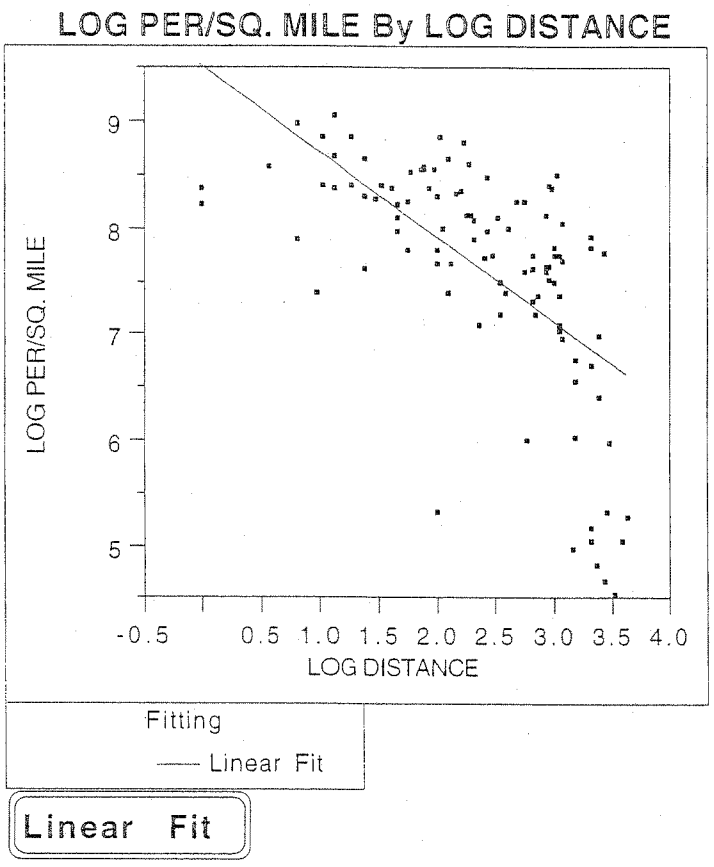
To sum, population decreased per mile from the central business district for all four metropolitan areas.

	DISTANCE COEFFICIENTS	POPULATION DENSITY GRADIENTS
HOUSTON	-148	-0.04899
DALLAS	-222	-0.04326
PHOENIX	-181	-0.04401
TAMPA	-196	-0.05302

A visual comparison of the graphs will show a denser metropolitan area in Houston than the control cities; however, the distance coefficients tell the opposite story. Discrepancies such as these is why urban economists depend on population density gradients. Except for Tampa, the gradients show that Houston has a denser population than the control cities. The unzoned city has, in absolute value, a larger population density gradient than Dallas and Phoenix. (Ensuing chapters will show that Tampa is a denser city because of its location on the coast.)

Economists will argue that the data above has a dimension entity. The major dimension discrepancy is the difference in size of each city. In order to give the data above dimension-less numbers, I took the logarithm of density and distance and ran the regressions in order to obtain an elasticity of density with respect to distance. This will correct for the differences in the size of the cities. I proceeded to examine the change on each city's density gradient and density plot graph. Comparing Houston to my control cities was the next step. Below you will find plots of density and population density gradients for Houston, Dallas, Phoenix, and Tampa in logarithmic form.

Houston's log density plot is as follows:

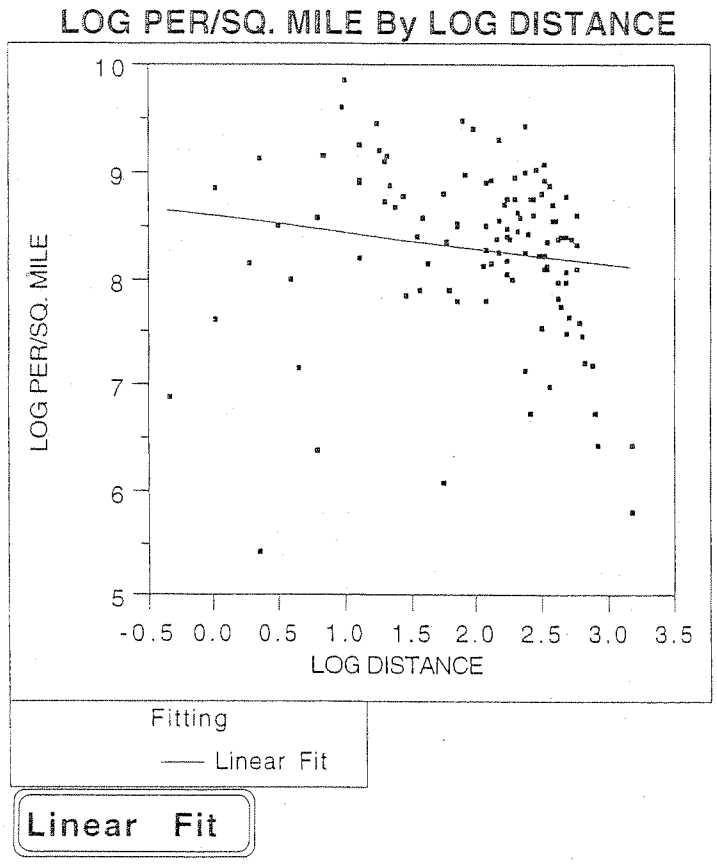


LOG HOUSTON DENSITY

Observation	104			
R square	0.38585			
	Estimates	*Standard Error*	*t Ratio*	*Prob>ltl*
Intercept	9.5324174	0.25002	38.13	0.0000
Distance (Miles)	-0.798862	0.09979	-8.01	0.0000

For every log distance mile we move away from the CBD, the population falls by a log number of 0.799. Houston's logarithmic population density gradient was calculated as -0.104 (-10.4 percent).

Dallas' logarithmic density plot is:

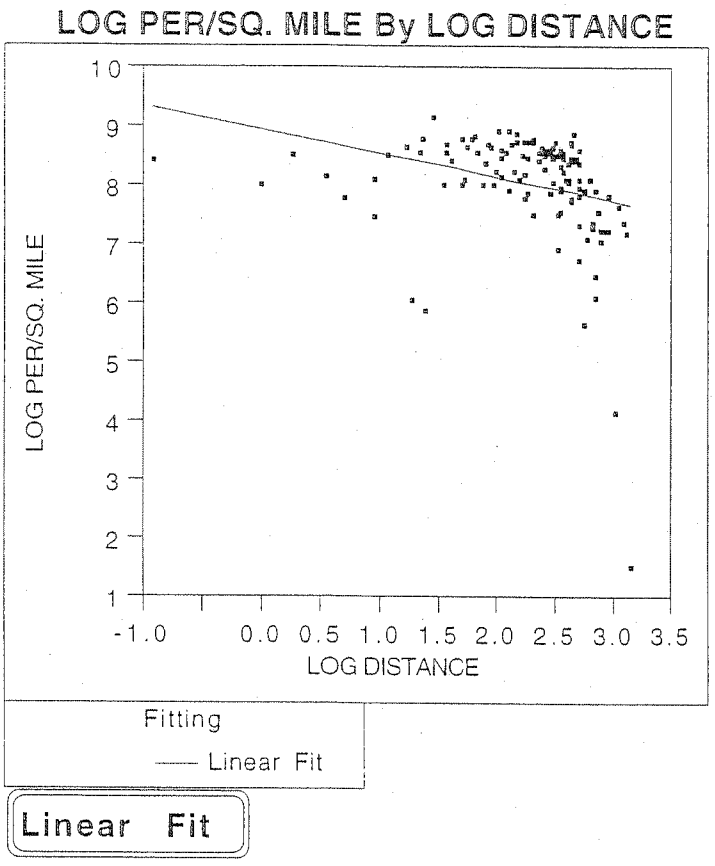


LOG DALLAS DENSITY

Observation	114			
R square	0.018176			
	Estimates	*Standard Error*	*t Ratio*	*Prob>|t|*
Intercept	8.5879112	0.21471	40	0.0000
Distance (Miles)	-0.145443	0.10101	-1.44	0.1527

For each log distance mile from the CBD, the population decreases by the log number of 0.145 in Dallas. The logarithmic population density calculated was -0.018 (-1.8 percent).

The log density plot of Phoenix is as follows:



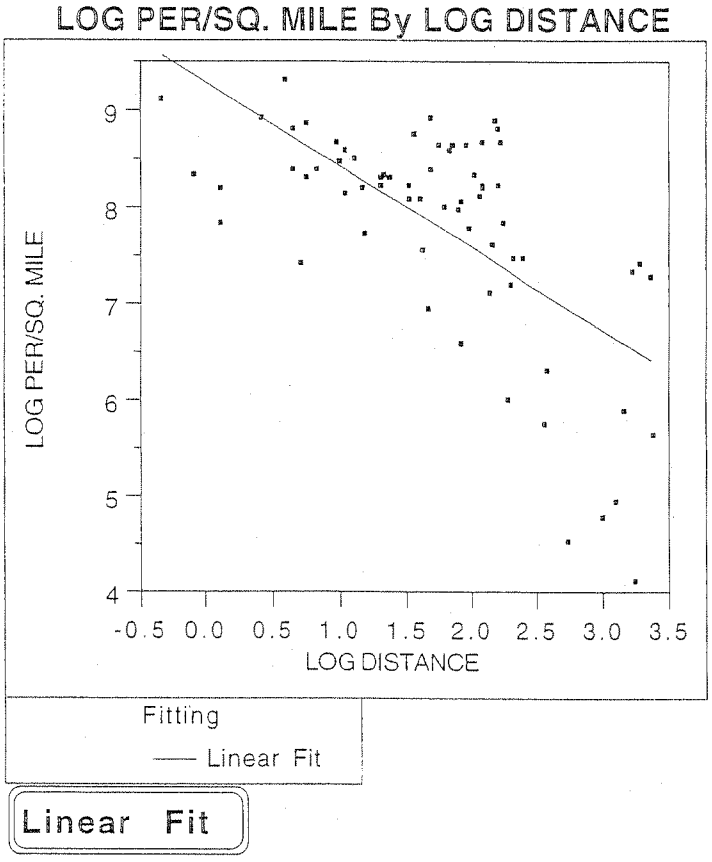
LOG PHOENIX DENSITY

Observation	119			
R square	0.074259			
	Estimates	*Standard Error*	*t Ratio*	*Prob>|t|*
Intercept	8.9635116	0.3004	29.48	0.0000
Distance (Miles)	-0.396008	0.12926	-3.06	0.0000

For every log mile away from the CBD, the population decreases by a log value of 0.396.

The log population density gradient of Phoenix is -0.049 (-4.9 percent).

The log population density plot of Tampa is:



LOG TAMPA DENSITY

Observation	67			
R square	0.412516			
	Estimates	*Standard Error*	*t Ratio*	*Prob>|t|*
Intercept	9.2908802	0.24164	38.45	0.0000
Distance (Miles)	-0.849075	0.12568	-6.76	0.0000

The log population density plot of Tampa shows a decrease of 0.849 for every log mile away from the city's center. Tampa's log population density gradient was computed as -0.109 (-10.9 percent).

Consult the chart below for a summary of the logarithmic distance coefficients and the logarithmic population densities for the four metropolitan areas.

	DISTANCE COEFFICIENTS	POPULATION DENSITY GRADIENTS
HOUSTON	-0.798862	-0.10443
DALLAS	-0.145443	-0.01755
PHOENIX	-0.396008	-0.04898
TAMPA	-0.849075	-0.10855

The data above shows that with dimension-less numbers, Tampa has the steepest population density gradient, but Houston's density gradient is nearly the same. Computing an elasticity of density with respect to distance and calculating the gradient is a more plausible way of analyzing the four different cities. Although the data above shows Tampa has in absolute value a larger population density gradient than Houston, it does not nullify the theory that the lack of zoning will produce a steeper population gradient. Tampa is different from the other control cities because it is coastal. A discussion on why Tampa would be expected to have a steeper gradient than Houston is located in a following chapter.

Zoning affects where people live by controlling density, but it affects neighborhoods more. Neighborhoods are zoned in a specific way that will determine the type of development in an area. A zoning ordinance will outline how many homes can be constructed and what type of activities will occur in the area. How would a zoning ordinance affect the prices of homes in a metropolitan area? Urban economists have developed what is called a housing price gradient. The housing price gradient is the percentage change in housing price for an additional mile in distance from the central business district (CBD) (Mills and Hamilton, 1994, p.137-38). Economic researchers have predicted that there is variation in the housing price due to distance from the central business district. Most have found there is a downward-sloping gradient because the disadvantages of longer commuting are capitalized in housing prices. However, others have found upward-sloping gradients or no variation with distance because of disamenities near the center of the city. According to the conventional urban model, for every mile from the CBD, housing prices decrease by a certain percent. Economists have

estimated this decrease to be between -2% and -4%, but various factors can produce different results. I have examined the suburban housing price gradients of the metropolitan areas of Houston and my control cities Dallas, Phoenix, and Tampa. Urban economists have determined the housing-price gradient to be as follows:

$$(\Delta P/\Delta u)(1/P)$$

Using statistical programs such as Microsoft Excel, I ran regressions on my benchmark city and the three control cities. The dependent variable was value per room in a home. The independent variables were distance from the CBD, age of the housing stock (percent built before 1970), and the density per square mile. As I will explain, the data were taken from census tracts, but the tracts that were included in the study were the ones that were majority owner-occupied housing. I computed several regressions, segregating my sample by way of different values for percent owner occupied housing. Regressions conducted on the following sampling criteria: 1) greater than 50 percent owner-occupied housing; 2) greater than the mean value of owner-occupied housing for each city's set of sample tracts; and 3) the first one-fifth of the distance from the city's center to the rural fringe was omitted. The independent variables used to produce the dependent variable, value per room, are distance from the CBD, and the percentage of homes built since 1970 (age of the housing stock). The dependent variable, value per room, represents the housing price and controls (approximately) for the larger homes found in the suburbs. The second set of regressions computed involved 50 percent owner-occupied housing and the mean values of owner-occupied housing for each city's sample. This set of regressions has the addition of another independent variable. Population density (persons per square mile) was added to the regressions to control indirectly for lot size.

The 50 percent owner-occupied housing was the first set of regressions I computed to determine the value per room. Below are summary statistics for the four metropolitan areas:

HOUSTON				
Observations	71			
Multiple R	0.4961718			
R Square	0.2461864			
	Coefficients	*Standard Error*	*t Statistic*	*P-value*
Intercept	8575.82878	646.2269768	13.27061	8.65E-21
Distance (Miles)	122.495659	50.30087749	2.435259	0.017432
% of Homes Built Since 1970	889.034437	1322.424273	0.672276	0.503621
DALLAS				
Observations	62			
Multiple R	0.5936202			
R Square	0.3523849			
	Coefficients	*Standard Error*	*t Statistic*	*P-value*
Intercept	19256.2169	1205.186736	15.97779	1.79E-23
Distance (Miles)	-726.72957	130.6150112	-5.56391	6.23E-07
% of Homes Built Since 1970	7306.45491	1603.607013	4.556263	2.55E-05
PHOENIX				
Observations	95			
Multiple R	0.1411533			
R Square	0.0199243			
	Coefficients	*Standard Error*	*t Statistic*	*P-value*
Intercept	13888.401	1041.063588	13.34059	2.08E-23
Distance (Miles)	132.571715	115.2006513	1.15079	0.252738
% of Homes Built Since 1970	-696.82729	1856.12179	-0.37542	0.708193
TAMPA				
Observations	42			
Multiple R	0.8375140			
R Square	0.7014297			
	Coefficients	*Standard Error*	*t Statistic*	*P-value*
Intercept	6469.0226	580.5099739	11.14369	5.56E-14
Distance (Miles)	-34.048333	58.98604083	-0.57723	0.566942
% of Homes Built Since 1970	10527.5487	1568.141683	6.713391	4.19E-08

The distance coefficients show that Houston and Phoenix exhibit an increase in housing prices as you move away from the central business district. Dallas and Tampa show the opposite effect. The housing price gradient for the four cities are as follows:

CITY	HOUSING PRICE GRADIENTS
HOUSTON	0.01096
DALLAS	-0.05036
PHOENIX	0.00887
TAMPA	-0.00306

The housing price gradients are consistent with the distance coefficients. For every mile a person moves away from the CBD in Houston, housing prices increase by about 1.1

percent. In Phoenix prices increase by 0.9 percent for every mile away from the CBD. Dallas and Tampa produced negative housing price gradients, which is more consistent with urban theory. For every mile away from the CBD, housing prices decrease in Dallas and Tampa by 0.5 percent and 0.03 percent, respectively. The summary statistics show significant t-ratios for Houston and Dallas, though the signs of the coefficients are different.

The second regression set involved using the same independent variables to determine value per room, but involved using a modified sample. Tracts were deleted if they fell below the mean percent of owner-occupied housing of the total tracts used for each city respectively. The mean values for owner-occupied housing of the tracts in the sample are as follows: Houston 58 percent, Dallas 55 percent, Phoenix 66 percent, and Tampa 55 percent. The summary statistics are as follows:

HOUSTON				
Observations	61			
Multiple R	0.5617553			
R Square	0.3155691			
	Coefficients	*Standard Error*	*t Statistic*	*P-value*
Intercept	7721.59327	757.4153484	10.19466	1.03E-14
Distance (Miles)	144.115573	52.15063074	2.763448	0.007584
% of Homes Built Since 1970	1302.34079	1394.390234	0.933986	0.354055
DALLAS				
Observations	53			
Multiple R	0.5149940			
R Square	0.2652188			
	Coefficients	*Standard Error*	*t Statistic*	*P-value*
Intercept	18380.1224	1341.344467	13.70276	6.83E-19
Distance (Miles)	-625.3883	148.4111335	-4.21389	0.0001
% of Homes Built Since 1970	6347.3534	1866.979833	3.399798	0.001302
PHOENIX				
Observations	65			
Multiple R	0.2303822			
R Square	0.0530760			
	Coefficients	*Standard Error*	*t Statistic*	*P-value*
Intercept	13651.4733	1345.401477	10.14677	5.92E-15
Distance (Miles)	221.946291	128.7456382	1.723913	0.089551
% of Homes Built Since 1970	-1586.0061	2142.643511	-0.74021	0.461879

TAMPA				
Observations	40			
Multiple R	0.8350130			
R Square	0.6972468			
	Coefficients	*Standard Error*	*t Statistic*	*P-value*
Intercept	6720.27863	544.4722346	12.34274	4.8E-15
Distance (Miles)	-4.0959003	55.19919556	-0.0742	0.941229
% of Homes Built Since 1970	9127.7468	1504.013998	6.068924	4.15E-07

The results have remained unchanged in terms of positive gradients for Houston and Phoenix and negative gradients for Dallas and Tampa. Using the mean criteria has produced a more exclusive sample than the 50 percent owner-occupied sample. The housing price gradients are:

CITY	HOUSING PRICE GRADIENTS
HOUSTON	0.01293
DALLAS	-0.04436
PHOENIX	0.01452
TAMPA	-0.00037

The more exclusive sample has caused the positive gradients of Houston and Phoenix to become more positive, and the negative gradients of Dallas and Tampa to become less negative. A more exclusive sample has caused all the gradients to increase in a positive direction. For each mile away from the central business district, the value per room in Houston increases by 1.3 percent. The t-ratios in this set of regressions remain strong except for Tampa, and the R-squares are large except for Phoenix.

The third regression set examined the degree of suburbanization without the central and inner city tracts. I excluded the first one-fifth of the sample in terms of miles to the rural fringe from the central business district. The Houston sample extended out about 35 miles; therefore, I excluded the first seven miles of sample tracts. I excluded the first six miles of Dallas and Phoenix because they both sprawled out about 30 miles. Tampa, an urban area of about 20 miles, lost the first four miles of tracts. The results of the regressions are as follows:

HOUSTON				
Observations	75			
Multiple R	0.6006798			
R Square	0.3430611			
	Coefficients	*Standard Error*	*t Statistic*	*P-value*
Intercept	6399.2175	882.6763856	7.249789	3.35E-10
Distance (Miles)	146.100147	39.86651579	3.664733	0.000463
% of Homes Built Since 1970	2777.83395	1292.31334	2.149505	0.034864
DALLAS				
Observations	79			
Multiple R	0.4747475			
R Square	0.2253852			
	Coefficients	*Standard Error*	*t Statistic*	*P-value*
Intercept	19309.5259	1792.184501	10.7743	7.83E-12
Distance (Miles)	-623.38481	178.1957292	-3.49832	0.001483
% of Homes Built Since 1970	6024.52168	2204.051495	2.733385	0.010411
PHOENIX				
Observations	96			
Multiple R	0.3138856			
R Square	0.0985241			
	Coefficients	*Standard Error*	*t Statistic*	*P-value*
Intercept	11093.909	1191.96895	9.307213	5E-15
Distance (Miles)	207.500244	98.28544671	2.1112	0.037381
% of Homes Built Since 1970	1090.02634	1626.481564	0.670174	0.504372
TAMPA				
Observations	44			
Multiple R	0.5606342			
R Square	0.3143107			
	Coefficients	*Standard Error*	*t Statistic*	*P-value*
Intercept	5999.98096	1722.291523	3.48372	0.00115
Distance (Miles)	-15.092651	91.50420572	-0.16494	0.869765
% of Homes Built Since 1970	10657.6573	2704.302542	3.941	0.000294

The regressions again show Houston and Phoenix with positive distance coefficients and Dallas and Tampa with negative distance coefficients. The housing price gradients for the four metropolitan areas are:

CITY	HOUSING PRICE GRADIENTS
HOUSTON	0.01303
DALLAS	-0.03410
PHOENIX	0.01422
TAMPA	-0.00116

The value per room in Houston and Phoenix continue to rise with the increase in distance from the central business district. The opposite is the case with Dallas and Tampa.

These regressions were conducted in order to remove the influence of the central city. Here we are able to segregate the suburbs from the inner-city tracts and examine the effects of the lack of zoning on Houston. Again the R squares are strong for all cities except Phoenix, and the t-ratios are significant for all cities except Tampa.

The first set of regressions showed that two cities with zoning, Dallas and Tampa, carried negative housing price gradients. Phoenix and Houston showed similarities by exhibiting positive housing price gradients. The data shows that a zoned city, such as Phoenix, and an unzoned city, such as Houston, were not different in terms of the direction of housing prices as you move away from the CBD. However, the Phoenix regressions produced very unconvincing R-squares. For the three regressions above, Phoenix carried R-squares of 0.02, 0.05, and 0.10. The first set of regressions also did not control for lot sizes in the four metropolitan areas.

The most plausible results from the first set of regressions are from samples with greater than 50 percent owner-occupied housing and greater than the mean value of owner-occupied housing for each city's set of sample tracts. These are the two criteria I decided to use for the second set of regressions, which involved one other independent variable to determine the price per room. In order to approximate for lot size (information on average lot size per tract is unavailable), I added population density to the set of independent variables.

Restricting the sample for greater than 50 percent owner-occupied housing produced the following summary statistics for the four metropolitan areas:

HOUSTON				
Observations	71			
Multiple R	0.5404390			
R Square	0.2920743			
	Coefficients	*Standard Error*	*t Statistic*	*P-value*
Intercept	6047.49003	1367.466929	4.422403	3.5E-05
Distance (Miles)	192.200154	59.41699832	3.234767	0.00186
% of Homes Built Since 1970	1050.25429	1293.385536	0.81202	0.419533
Persons Per Square Mile	0.47619449	0.228502992	2.083975	0.040814
DALLAS				
Observations	62			
Multiple R	0.6693138			
R Square	0.4479810			
	Coefficients	*Standard Error*	*t Statistic*	*P-value*
Intercept	23885.9755	1842.13403	12.96647	3.49E-19
Distance (Miles)	-898.43273	133.146258	-6.74771	6.28E-09
% of Homes Built Since 1970	7749.95258	1499.778865	5.167397	2.77E-06
Persons Per Square Mile	-0.7293735	0.230140416	-3.16925	0.00239
PHOENIX				
Observations	95			
Multiple R	0.5241496			
R Square	0.2747328			
	Coefficients	*Standard Error*	*t Statistic*	*P-value*
Intercept	20182.1929	1431.725137	14.09642	6.47E-25
Distance (Miles)	-215.52668	117.1273624	-1.84011	0.068908
% of Homes Built Since 1970	1987.28761	1674.167896	1.18703	0.238207
Persons Per Square Mile	-1.0626544	0.187937482	-5.6543	1.67E-07
TAMPA				
Observations	42			
Multiple R	0.8542117			
R Square	0.7296777			
	Coefficients	*Standard Error*	*t Statistic*	*P-value*
Intercept	9164.34688	1463.775334	6.260761	1.84E-07
Distance (Miles)	-82.58009	61.85640302	-1.33503	0.189233
% of Homes Built Since 1970	9100.119	1672.759578	5.440183	2.7E-06
Persons Per Square Mile	-0.5380419	0.270004686	-1.99271	0.052978

We obtain an interesting set of results, when we include lot size in the regressions. Phoenix now produces a negative distance coefficient, as well as Dallas and Tampa. The housing price gradients are:

CITY	HOUSING PRICE GRADIENTS
HOUSTON	0.01720
DALLAS	-0.06226
PHOENIX	-0.01442
TAMPA	-0.00743

Houston continues to show a positive housing price gradient. The value per room climbs 1.7 percent for every mile away from the CBD. The three cities that have zoning exhibit the expected negative housing price gradient. The R-squares are large and the t-ratios are significant for all four cities.

I excluded the sample further by using greater than the mean value of owner-occupied housing for each city's set of sample tracts. The independent variable, population density, was placed in this set of regressions. Summary statistics are as follows:

HOUSTON				
Observations	61			
Multiple R	0.5849218			
R Square	0.3421335			
	Coefficients	*Standard Error*	*t Statistic*	*P-value*
Intercept	5565.32465	1606.599369	3.46404	0.000988
Distance (Miles)	209.52671	67.2230016	3.11689	0.002805
% of Homes Built Since 1970	1214.67816	1380.212269	0.880066	0.382335
Persons Per Square Mile	0.44623344	0.294132522	1.517117	0.134489
DALLAS				
Observations	53			
Multiple R	0.6813687			
R Square	0.4642633			
	Coefficients	*Standard Error*	*t Statistic*	*P-value*
Intercept	24570.4996	1855.674993	13.24073	2.75E-18
Distance (Miles)	-852.85449	138.669131	-6.15028	1.11E-07
% of Homes Built Since 1970	6887.63604	1615.331905	4.263914	8.49E-05
Persons Per Square Mile	-0.9948313	0.233158922	-4.26675	8.41E-05
PHOENIX				
Observations	65			
Multiple R	0.5826094			
R Square	0.3394337			
	Coefficients	*Standard Error*	*t Statistic*	*P-value*
Intercept	19894.2079	1660.47472	11.98104	5.3E-18
Distance (Miles)	-149.23121	130.240089	-1.14582	0.256138
% of Homes Built Since 1970	1576.40075	1906.11705	0.827022	0.411298
Persons Per Square Mile	-1.0660611	0.207310297	-5.14234	2.77E-06
TAMPA				
Observations	40			
Multiple R	0.8493311			
R Square	0.7213633			
	Coefficients	*Standard Error*	*t Statistic*	*P-value*
Intercept	8949.05458	1369.181069	6.536064	9.35E-08
Distance (Miles)	-47.594672	59.07110992	-0.80572	0.425291
% of Homes Built Since 1970	8056.71815	1583.618466	5.087537	9.5E-06
Persons Per Square Mile	-0.4456045	0.252441272	-1.76518	0.085363

The results of the distance coefficients remain the same. Houston is the only city in the sample that increases in value per room for every mile away from the CBD. The housing price gradients for the four metropolitan areas are as follows:

CITY	HOUSING PRICE GRADIENTS
HOUSTON	0.01880
DALLAS	-0.06049
PHOENIX	-0.00976
TAMPA	-0.00436

Dallas, Phoenix, and Tampa all maintain the expected negative housing price gradients with a more exclusive sample. The unzoned city, Houston, continues to produce a positive housing price gradient. Value per room in Houston increases by 1.9 percent for every mile away from the CBD. The summary statistics show significant t-ratios for Houston and large R-squares for all four cities.

The first set of regressions showed that Houston was similar to Phoenix, because they both produced positive housing price gradients. Dallas and Tampa held to the conventional urban-economic theory of negative housing price gradients, because of higher commuting cost the further you reside from the CBD. When accounting for lot size, Phoenix no longer presented a positive gradient. The unzoned city is different from Tampa, Phoenix, and Dallas in terms of housing price gradients. Residents in the Houston metropolitan area have to pay more to live further away from the CBD. Ensuing chapters will explain why Houston residents pay a premium to live further away from the central business district.

CHAPTER 3
DATA COLLECTION AND THE METROPOLITAN AREAS

Data for Houston and the control cities were obtained using the 1990 Census of Population and Housing and the census tract maps that accompany each city's figures. Information in the census guides is organized by Standard Metropolitan Statistical Area (SMSA), which is an urban area that has a population of 50,000 or greater in one or more central cities (Fischel, 1985, p.3). The surrounding area as well as the cities are economically linked to the central city in order to be in the SMSA.

The first step in the data collection process was to locate the majority of owner-occupied housing. I looked at each city's census tract map as an area circle and divided it up into eight pie slices. Each pie slice was divided by a border such as a river or a highway. Tracts that were included in the sample area encompassed everything in the city's borders and the adjacent county. Using the census journals, city data books, and an encyclopedia, I decided which tracts had the majority of owner-occupied housing. The one-eighth of the city that contained the majority of owner-occupied housing tracts to produce a respectable sample was selected. Other considerations involved avoiding areas with major externalities such as airports, wildlife preservation areas, extremely large universities, and Indian reservations.

From my travels in Houston and further research, I determined that the north-northwest eighth of the city was where owner-occupied housing was most prevalent. The tracts for Houston are contained in the boundaries of the North Freeway (I-45) and the Hempstead Freeway (I-290). The Dallas sample involved using the tracts in a north-northeast direction. The wedge boundaries for Dallas are the Central Expressway (I-75)

and the R.L. Thorton Freeway (I-30). In Phoenix, the tracts used for analysis were located in a north-northwest direction. Tracts in the sample are located within in the boundaries of Grand Avenue and North 7th Street. The Tampa sample involved taking tracts in a north-northwest direction. Since Tampa is a coastal city, I examined an area going away from Hillsborough Bay. The northern boundary begins with the Hillsborough River, and continues in a northern direction with North Nebraska Avenue and I-275. The northwest boundary for Tampa is an untitled railroad track that continually shows up on the census tract map.

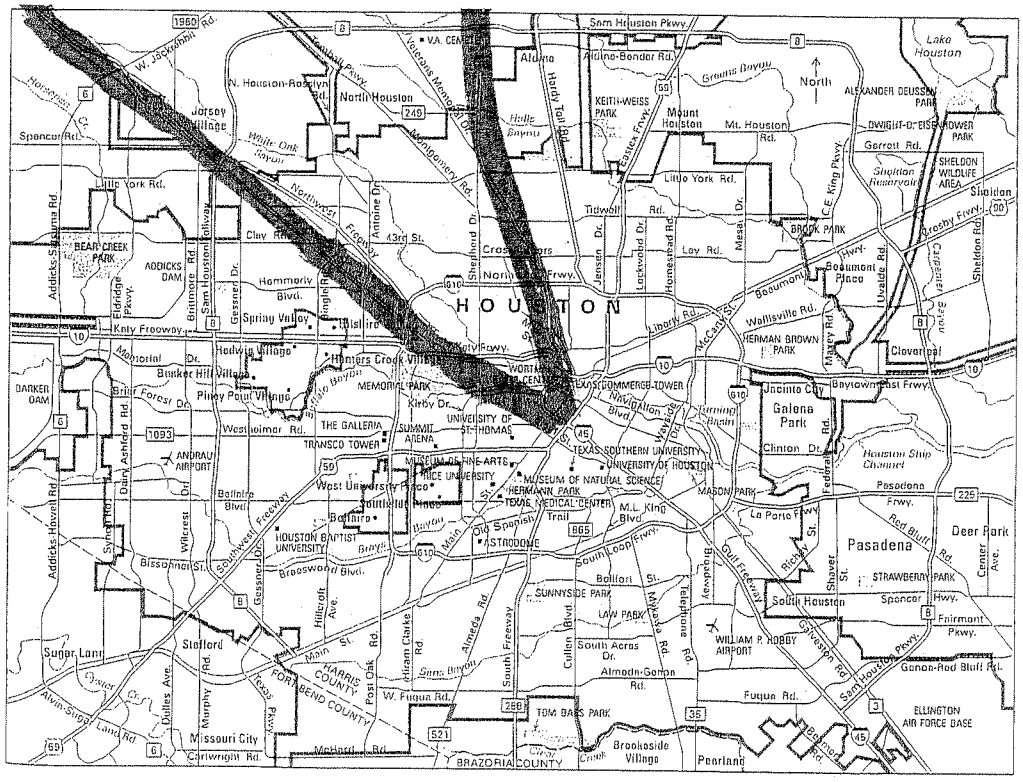


Figure 3.1 Map of Houston and the Designated Area (World Book, 1995, 9: 395)

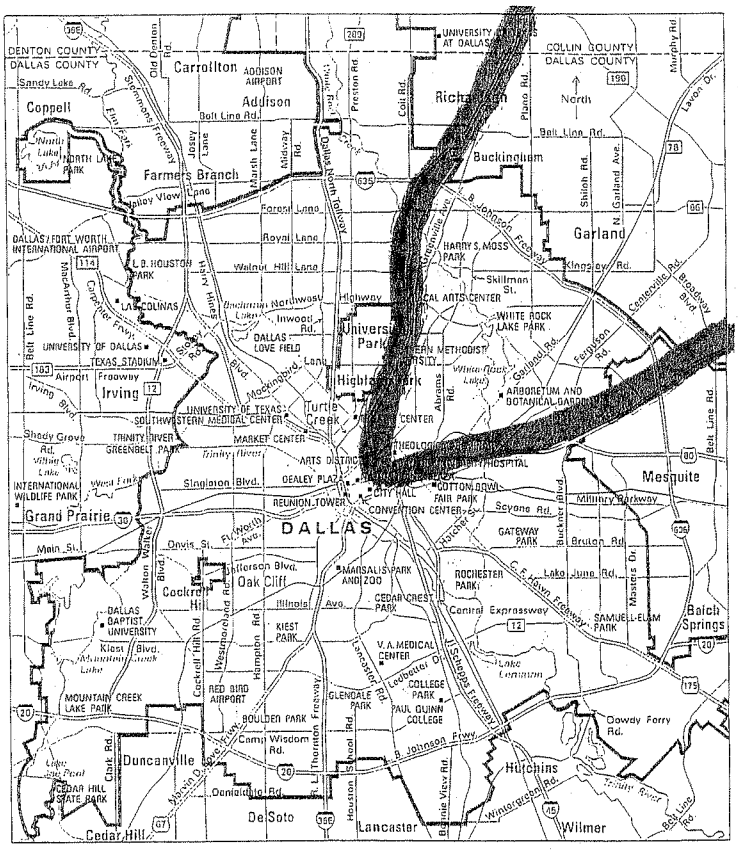


Figure 3.2 Map of Dallas and the Designated Area (World Book, 1995, 5: 13)

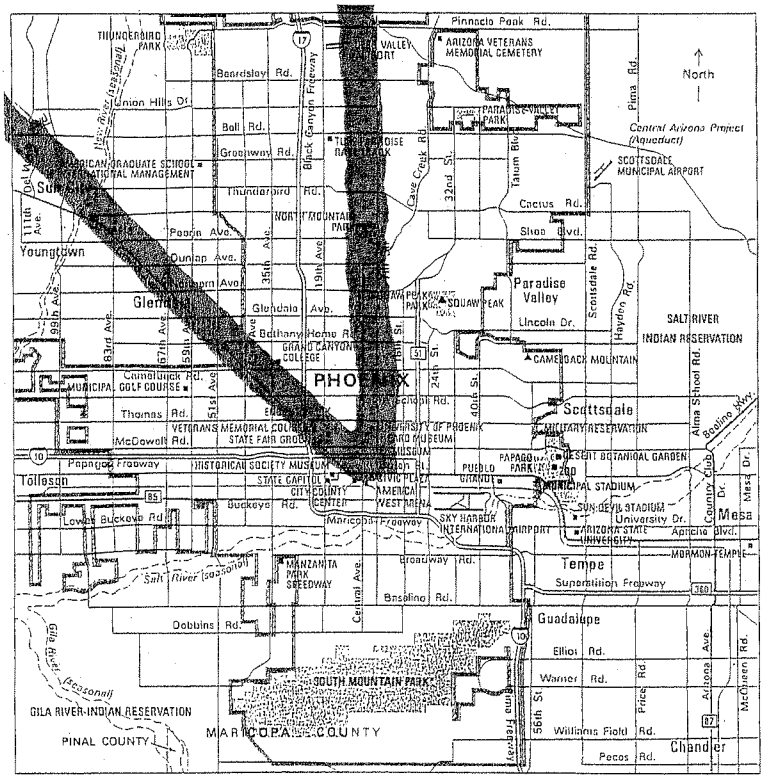


Figure 3.3 Map of Phoenix and the Designated Area (World Book, 1995, 15: 395)

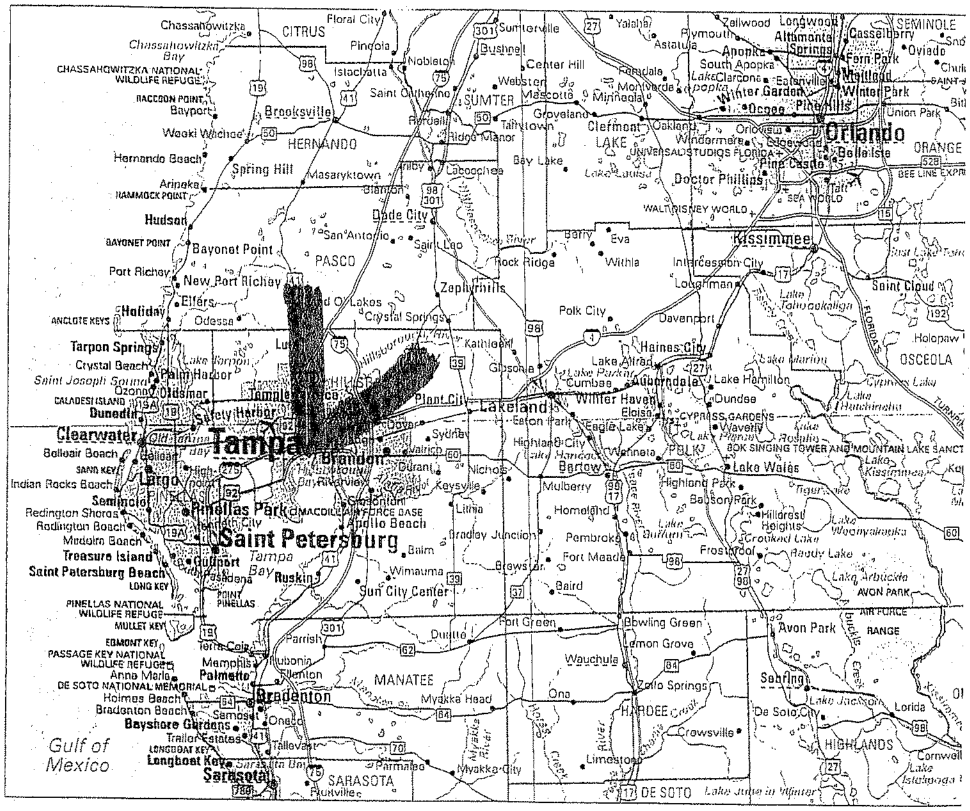


Figure 3.4 Map of Tampa and the Designated Area (World Book, 1995, 7: 248)

I recorded all the tract numbers in each city's designated area. On each map I marked the tract that represented the central business district (CBD). In order to find the distance of each tract in the sample from the CBD, I measured from the center of the CBD to the center of a tract using a ruler and the scale provided on each city's map. The data I recorded for each city's tracts were percent owner-occupied, median value per home, median number of rooms for owner-occupied homes, land area per tract, population per tract, number of homes, and the number of homes built before 1970. This information allowed me to calculate for each tract the value per room, distance from the central business district, population density, age of housing, and other necessary statistics.

Application of multiple regression analysis to determine the "price" of housing in the four metropolitan areas followed data collection. The economists' approach to measuring the many attributes of housing is the hedonic price index, in which the sum of

the value of each attribute is reflected in the value of the house. The hedonic price index approach should reveal reduced-form estimates of willingness to pay for neighborhood and community amenities.

Dallas, Phoenix, and Tampa all have plausible characteristics for urban economic analysis that are similar to Houston. I have based my confidence in the similarity of these four Sun Belt cities on their age, population, size of the land area, and demographics. These are primary characteristics that have been found to affect urban price gradients and population densities.

Mills and Hamilton state that the most important variable governing the steepness of a city's density gradient is the city's age (Mills and Hamilton, 1994, p.408). Old urban areas are said to have much higher density central cities and steeper density gradients than do newer ones. Urban economists such as Muth found by regression analysis that for each decade of additional age increased the steepness of a city's density gradient by 0.08 (Mills and Hamilton). Houston is located in Harris County in southeast Texas, about 50 miles from the Gulf of Mexico (World Book, 1995). Houston is a relatively new city, settled in 1823 and incorporated in 1837. The median age of the city's housing stock is a measure of how some urban economists estimate a city's age. The median date of homes built in Houston is 1975; therefore, the median age of the housing stock is 21 years. Dallas, Texas, is located in Dallas County which is in the northeast of Texas on the Trinity River (World Book, 1995). Dallas was founded in 1841, and incorporated as a town in 1856 and as a city in 1871. The median age of the housing stock is 23 years; thus, the median date of structures built is 1973. Phoenix is the capital of Arizona and is located in Maricope County (World Book, 1995). It is located in the center of the state on a flat desert on the Salt River, and is surrounded by mountains. Like the other Sun Belt cities, Phoenix is a relatively new U.S. city. It was founded in 1870 and incorporated as a city in 1881. The median age of the housing stock is 21 years and the median date of homes constructed is 1975. Tampa, Florida, is located in Hillsborough

County in the west central Florida peninsula (World Book, 1995). As one of the states largest cities, portions of Tampa surround Hillsborough Bay. Tampa's "twin city," St. Petersburg, is located about 15 miles southwest across the bay. The city was founded in 1823 and incorporated in 1855. The median age of the housing stock is 22 years, and the median date of structures is 1974. Houston and the three control cities are nearly identical in age. All of the cities were founded and settled in the nineteenth century, and the median age of their housing stock is within two years of one another.

Like the age of a metropolitan area, population serves as an important variable in economic research (Mills and Hamilton, 1994, p.408). Below are population statistics for the four metropolitan areas taken from the 1990 census.

POPULATION STATISTICS	CITY	METRO. AREA	% CHG. MSA 1980-90
HOUSTON	1,630,553	3,322,025	20.7%
DALLAS	1,006,877	2,676,248	30.4%
PHOENIX	983,403	2,238,480	40.6%
TAMPA	280,015	2,067,959	28.2%

Houston is not only the largest city in Texas, but the largest city in the entire South and Southwest United States (America's Top Rated Cities, 1996). In terms of population, Houston is the fourth largest city in the United States. Dallas is the second largest city in Texas and has a comparable metropolitan area population to Houston. Phoenix has experienced the highest population growth of larger cities in the United States over the last two decades. This fact has currently made Phoenix the seventh largest city in the United States. Tampa has a population of only 280,015 persons, but the metropolitan area which consist of St. Petersburg and Clearwater has a population similar to the other three cities. The city has experienced a tremendous amount of growth over the last decade as well. When comparing the metropolitan area populations for the four cities, you find a respectable comparison in size.

Urban economists have found that bigger urban areas have flatter density gradients than smaller ones (Mills and Hamilton, 1994, p.408). This fact may be due to

the importance of subcenters in larger urban areas. Important data relevant to land area for the four cities is located below (America's Top Rated Cities, 1996).

LAND AREA STATISTICS (sq. miles)	CITY	METROPOLITAN AREA
HOUSTON	598	5,921
DALLAS	378	6,491
PHOENIX	450	14,600
TAMPA	170	2,555

Houston has the fifth largest area in the United States at 598 square miles, including 40 square miles of inland water, and has the ability to grow every year due to its annexation policy. The city of Dallas has an area of 378 square miles, but does not have the aggressive annexation policy that Houston has because of the number of incorporated cities that surround it. Like Houston, Phoenix is a city that continues to grow because of its active annexation policy. The 14,600 square mile metropolitan area of Phoenix is incomparable to the other three, primarily because no other central city is in close proximity. Tampa has an area of 170 square miles, which includes 65 square miles of inland water. Over the last three decades, the city has improved their downtown area with increased development. The urban renewal projects of Tampa have eliminated slums, and created new apartment buildings, a convention hall, a new city library, and office towers. Over a dozen new office buildings were constructed downtown in the early 1980s, as well as office complexes away from the central business district. Tampa's suburbs have also experienced rapid growth in terms of construction and area expansion. Houston and the three control cities are fairly similar in terms of either city or metropolitan land area.

Economists have stressed that the racial mix of cities plays an important role in its effects on density and urban price gradients. Regression analysis has shown that if a large portion of a central city's population is black, the density gradient will be flatter, or the city is more suburbanized (Mills and Hamilton, 1994, p.408). The two charts below

have 1990 census data on the racial demographics of the four metropolitan areas. The first chart has city demographics and the second contains MSA demographics.

CITY DEMOGRAPHICS	% WHITE	% BLACK	% HISPANIC ORIGIN
HOUSTON	52.8	28.1	27.2
DALLAS	55.0	29.5	20.3
PHOENIX	81.7	5.2	19.7
TAMPA	71.0	25.0	14.7

MSA DEMOGRAPHICS	% WHITE	% BLACK	% HISPANIC ORIGIN
HOUSTON	66.4	18.5	21.1
DALLAS	72.7	16.1	14.1
PHOENIX	84.9	3.5	8.1
TAMPA	88.4	8.9	6.6

The four metropolitan areas have similar racial demographics with a few exceptions (America's Top Rated Cities, 1996). Houston and Dallas demographics are very similar; however, Phoenix does not show the diversity we have in the other cities. The city is 81.7 percent white, and blacks only represent 5.2 percent of the population. Statistics in the MSA do not show further diversity in Phoenix. Tampa is moderately diverse within the city boundaries, but MSA statistics tell a different story. Whites encompass 88.4 percent of the population, whereas blacks and persons of Hispanic origin make up only 15.5% of the population combined. With the exception of Phoenix and the Tampa MSA, the cities have similar racial demographics.

As you can see from the analysis above, the cities share qualities that warrant a statement that they are comparable. There is a minor discrepancy in one of the categories, but the most important characteristic--age of the city--fits nearly perfect. Cities were also selected for specific qualities after age was considered. Dallas is compared constantly to Houston by urban economists, and both cities are bound by the same state constitution. For the last three decades, Phoenix and Houston have been competitors for the fastest growing large metropolitan area in the country. Both cities use their power to annex surrounding unincorporated areas, and they have comparable populations and city land size area. Tampa serves as a coastal control city and has

experienced tremendous growth as well. Although every trait is not identical, the four cities are reasonably close in general characteristics.

CHAPTER 4
DEED RESTRICTIONS AND THE REJECTION OF ZONING

Houston is a city whose primary land-use control is deed restrictions. Many opponents of zoning profess that Houston has a land-use device that is stricter than zoning. Proponents of zoning say that deed restrictions are weak and do not provide residential communities with protection. A discussion of the differences between zoning and deed restrictions is warranted.

Zoning is the division of a community into districts or zones in which certain activities are prohibited and others are permitted (Fischel, 1985, p.21-22). Original zoning laws involved a hierarchy of land uses to be protected. Commerce and industry are prohibited from being located in residential zones, and homes are prohibited from being located in industrial zones. Zoning, an important "police power" of a community, is a broad regulatory authority that is derived by the municipality from the state government. This authority is also sometimes derived from home rule charter provisions or state constitutional amendments.

Establishment of zoning laws and any substantial changes in the original laws are carried out by the local legislative body, such as town or city council (Fischel, 1985). Administration and minor adjustments are delegated to the zoning board of adjustment. Members of the zoning board are either appointed by the local legislature or elected. Zoning boards interpret the text of the law and grant exceptions to the law, such as variances and special permits. Planning commissions' responsibilities include reviewing subdivision proposals and making and changing the master plan. In larger communities,

the zoning board and the planning commission are advised by a professional staff of city planners.

Communities have other local police powers that are related to zoning laws. In certain communities builders are subject to subdivision regulations, building and housing codes, and provision of municipal services. Zoning is a more potent device because it permits the community to exclude many uses altogether. Subdivision regulations force a developer to bear certain costs, but does not restrict the right to build. Developers can not buy the right to build under a valid zoning ordinance (Fischel, 1985). Virtually every general-purpose local government in the United States has the authority to adopt zoning and related police power regulations.

In Houston's residential neighborhoods the absence of zoning should be most evident. However, stringent private land-use controls there are in fact considerably more rigid than those applied in most zoned cities. Texas state law permits deed restrictions in residential neighborhoods, and such restrictions are imposed by an agreement signed by residents of a subdivision. The restrictions are usually created by the original developer, and he limits the property uses within the boundaries of the neighborhood. The city of Houston has more than 10,000 separate deed restrictions on file, covering about two-thirds of the residential population, and a large portion of the unincorporated area around Houston is under deed restrictions (Thomas and Murray, 1991, p.351). In every subdivision where a municipal utility district provides services, a set of deed restrictions is part of the developer's package used in establishing the district. If and when annexation occurs, the deed restrictions are still in effect. Most of the developed residential areas in Houston and its extraterritorial jurisdiction (ETJ) are under deed restrictions initially formulated by private developers.

Zoning and deed restrictions are two entities that are different but attempt to do the same thing (Thomas and Murray, 1991). Deed restrictions are adopted for specific periods of time, usually 30 or 40 years. They cannot be amended or modified during

their designated life, except by court decisions or by unanimous consent of those affected. When the restrictions expire, they can be automatically renewed for a certain number of years, unless a majority of residents vote otherwise. Deed restrictions are more rigid and inflexible than zoning rules because of the need for unanimity to establish or change them.

The two different land-use controls have different enforcement mechanisms. Public authorities do not assume primary responsibility in enforcing deed restrictions, but it is their responsibility to enforce zoning. Deed restrictions are monitored and overseen by neighborhood residents. Effective enforcement requires the maintenance of a committee to monitor building and remodeling plans as well as activities that might violate restrictions. If a pattern of violations has been tolerated over time, courts have ruled that deed restrictions become inoperative, and thus residential vigilance is extremely important. Residents have organized homeowner associations, which build up sizable legal funds and keep attorneys on retainer to prosecute violators (Thomas and Murray, 1991). In Houston, city officials are relieved of responsibility for enforcing land use rules and can avoid choosing sides in land-use disputes. Deed restrictions cost the city and the county almost nothing to administer, because the effort and expense of enforcement falls largely on neighborhood residents. They are effectively enforced in affluent and newer middle-class neighborhoods, but are less effective in older and poorer areas. In some low-income areas, provisions were never granted or have lapsed, and in those with such provisions, enforcement is lax.

Deed restrictions only apply to specific residential neighborhoods, whereas zoning extends across broad areas. It is not uncommon to see expensive homes front strip shopping centers, corner service stations and convenience stores, or high-rise office buildings in Houston. This is the result of deed restrictions abruptly ending at subdivision boundaries instead of covering broad areas. Deed restrictions have provided reasonably effective land-use controls in many residential neighborhoods in Houston.

Restrictions are politically attractive because they are most effective in subdivisions with the best local organizations, whose residents are politically attentive and influential, and who are most concerned about preserving property values and the quality of their neighborhoods. Thomas and Murray state that deed restrictions serve their purpose in white, middle-class areas and areas that cast a majority of the votes in city elections (Thomas and Murray, 1991, p.352-53).

The 1965 Texas legislature enacted a law allowing cities with populations greater than 900,000 that do not have zoning to file suit to enforce private deed restrictions. In 1985 this same authority was given to Harris County; however, neither the city nor the county legal department has aggressively utilized their authority until recently. Since the rejection of a zoning proposal in 1993, Houston has placed a tremendous effort into enforcing deed restrictions and having them placed in residential areas that lack them. Although deed restrictions are primarily enforced by law suit brought by civic associations, the city has now taken the authority granted to it by the state Legislature in 1965.

Many Houston residents ask why Houston did not adopt zoning earlier in its history. In order to address this issue, I outline the history of zoning in Houston from the adoption of the first zoning ordinance in New York to the Houston "Zoning War" of the 1990s.

After the Civil War, a movement developed for more systematic planning of American cities. It first started with park development, followed by more intense projects to increase the aesthetic appeal of our cities by creating open spaces, impressive buildings, and wide thoroughfares. New York City adopted the nation's first zoning ordinance in 1916, and by 1931 over 800 cities emulated New York City's decision. Popularity of zoning came with the widespread belief of urban administrators that "'zoning is just about the only realistic tool that communities have with which to carry out the objectives of planning'" (Thomas and Murray, 1991, p.347). Concerned about

maintaining neighborhood quality and preserving property values, the growing population of middle class urban homeowners created a powerful political constituency.

In 1927, when zoning received much national support, Houston established a planning commission that was headed by a prominent society leader and land developer, William C. Hogg. In 1929 the commission created a master plan for the city that proposed a zoning ordinance. Mayor Walter E. Monteith initially supported the plan, but critics surfaced immediately. The Houston Property Owners League organized by real estate interests, developers, and builders, stated that the plan was an infringement on property rights. The city council withdrew the proposal saying that:

> In the apparent state of public opinion, the presenting of a zoning ordinance would be inopportune.... It is the sense of the city council and planning commission that whenever a demand of the majority of citizens for a zoning ordinance shall become apparent, that the same shall be considered (Thomas and Murray, 1991, p.347).

City officials tried to press on with the master plan without the zoning provision, but found that it was not enforceable without zoning power. The master plan was never implemented and the planning commission was dissolved.

The zoning issue returned in 1937. Deed restrictions expired in the fashionable Montrose area, and thus the council responded to local complaints about bad land-use patterns by reconstructing a planning commission of 38 prominent Houston citizens (Thomas and Murray, 1991, p.347-48). This commission recommended a zoning ordinance, but the response was the same as 1929. Association Against Zoning was parented by local realtors, who organized massive turnouts at council meetings to oppose the proposal. Hugh Roy Cullen, wealthy oilman and philanthropist, assisted the group's efforts in threats to defeat any council member who voted for zoning. As a result, the council refused to enact the proposal and disbanded the planning commission once again.

Zoning became an issue again in the late 1940s. The city council decided to sidestep the issue by placing it on the ballot for property-owners to decide. This marked the city of Houston's first referendum on zoning. Support for zoning came from the city's

social and political leaders, such as Houston Chronicle publisher Jesse Jones. The long-time opponents of zoning, the real estate community, resurfaced in the battle to defeat the ordinance. Hugh Roy Cullen was again a key fighter in the proposal against zoning. Voters decided to defeat the zoning ordinance, with 69 percent of the 20,967 voting property owners saying "No" to zoning.

The issue of zoning seemed to resurface every decade. In 1959 Mayor Lewis Cutrer appointed a zoning study group, and after three years of extensive hearings and political research, the group constructed another recommendation for zoning in Houston (Thomas and Murray, 1991). Proponents of zoning based their case on the protection zoning would give private property, and emphasized the broad institutional support for the proposal. The League of Women Voters, the Houston Chamber of Commerce, all three daily Houston newspapers, and the most influential black political group supported the zoning proposition. Opponents again joined forces to create the Greater Houston Planning Association, based on a core group of homebuilders and realtors. Extreme right-wing political groups, such as the John Birch Society, also provided additional power against the proposed zoning ordinance. Opponents based their campaign on the belief that zoning would undermine local property rights and represented an element of the general Communist effort to subvert American values. After a heated campaign, the antizoning coalition won--70,957 to 54,279, or 56.7 percent to 43.3 percent to defeat the ordinance. A table representing the way voters casted their votes is located below.

Precinct Type	Number of Precincts	Voting For Zoning	Voting Against Zoning	% For Zoning
Upper-Income Whites	3	2,350	1,280	64.7
Middle-Income Whites	6	4,762	2,774	63.2
Working-Class Whites	7	1,137	3,579	24.1
Homogeneous Blacks	9	951	3,508	21.3
Predominantly Mex. Americans	3	201	897	18.3
Citywide Totals	—	54,279	70,957	43.3

Figure 4.1 Patterns of Electoral Support for the November 1962 Zoning Proposal (Thomas and Murray, 1991, p.350)

Voters tended to vote along socioeconomic and ethnic lines. Affluent and middle-income precincts voted for zoning by margins of nearly two-to-one, but 76 percent of blue-collar areas populated by whites were against the zoning ordinance. Black and Mexican-American neighborhoods were definitely in the anti-zoners' corner and voted the plan down by margins of about four-to-one.

The 1962 zoning defeat finally silenced attempts to zone Houston for three decades. Polls in the 1970s and 1980s, however, showed a substantial majority of local voters favoring the general idea of zoning controls. Political leaders did not resurrect the issue until the late 1980s. The advocates of land use control focused their time and energy on issues that were less controversial and more specific. Political scientist Thomas and Murray have come up with reasons explaining why proponents of zoning and comprehensive land-use planning failed in Houston (Thomas and Murray, 1991, p.350-51). They highlight the determined opposition of realtors and some builders who

saw their immediate financial interests threatened by such proposals. The power of this group and political clout was increased by the support of right-wing ideologies opposed to any expansion of local government powers. During my interview with former Mayor Kathy Whitmire, she told me that Houston's large size is the reason residents didn't vote for zoning. She says that no one trust city leaders to deal with local affairs in such a large area. Many of Houston's residents are from the rural South and have a firm opinion that working-class Houstonians should be able to use their property as they saw fit without interference from the government. What was cited as probably the deciding factor, however, is the existence of deed restrictions that greatly lessened political pressures from homeowners for zoning controls.

The city of Houston most recently began to consider a zoning ordinance in January 1990, when Councilman Jim Greenwood organized a committee to study the issue. The committee came to the conclusion that Houston did not need zoning, but former Mayor Kathy Whitmire overruled the task force's findings and became a supporter of zoning. City politicians and others did not know that the 1990s battle for zoning would be the most intense and longest in the city's history. On January 9, 1991, City Council voted unanimously to create a Houston zoning ordinance. A Zoning Strategies Committee began drafting the ordinance in March. In June 1992, Houston's Planning and Development Department planned nine public hearings around the city to discuss and explain an interim zoning plan and the possible adoption of zoning (Houston Chronicle, "O-zone proposal touted as natural model for change, " June 21, 1992). The interim zoning plan was developed to protect neighborhoods from non-conforming land uses or development until a full zoning ordinance is in place. This is the point at which developers, real estate speculators, local business owners, and neighborhood activists came alive and denounced the interim zoning ordinance.

Councilman Jim Greenwood was the architect of the grass-roots efforts to achieve zoning for Houston. He said that "...the plan would preserve the status quo so that when

the zoning ordinance is written there will be some neighborhoods left to protect" (The Houston Post, "Business owners denounce interim zoning ordinance," July 1, 1992). Greenwood said "Houston homeowners for the first time will have the power, through zoning, to influence land uses that affect their property values and quality of life" (Houston Chronicle, "Power for Homeowners," November 13, 1992). He also felt that zoning would enable the city to protect neighborhoods and encourage continued responsible growth of Houston. On July 1, 1992, Houston took the next step to ending its reign as being the only U.S. city without zoning. By a vote of 13-0, the Houston City Council approved the interim zoning plan that prohibited many of the city's residential areas from being converted into commercial establishments (Houston Chronicle, "Council puts strict curbs on developers," July 2, 1992). The zoning ordinance would also be a tool to work out the problem of edge areas in the city of Houston. The lack of zoning has caused the fronting of residential neighborhoods to commercial businesses. The property value of these homes on the edge are diminishing, because homeowners can walk out there front door and see a mega-apartment complex, a night club, used car lots, office buildings, shopping strips, or a variety of other entities across the street (Houston Chronicle, "Areas on edges of residential neighborhoods will be zoning battlegrounds," November 1, 1992). Houston officials fought for a zoning ordinance to preserve neighborhoods as they currently exist and improve the ones that have been hurt by non-conforming uses.

Houston has been built on its entrepreneurial spirit and lack of controls. Many felt the proposed zoning ordinance was a stab in the back to the traditional Houstonian ways. Anti-zoning supporters were led by Barry Klein, a public policy consultant and the president of the Houston Property Rights Association. I met with Barry Klein in December 1995 to discuss the lack of zoning in Houston and his opinions. Klein and supporters were attempting to acquire the 20,000 signatures needed to force a charter-change referendum in the November of 1993 election that would undo any zoning

ordinance in place. City officials will also be required to conduct referendums for any subsequent zoning ordinance proposed if the proposition is passed. Klein does not believe property owners should face land-use restrictions without a vote (Houston Chronicle, "Voters to be polled at polls for petition signatures," November 2, 1992). Many of the Houston Property Rights Association's supporters feel that zoning is a move toward more government intervention. John Mixon, land-use expert and law professor at the University of Houston, says that "zoning is the last chance Houston has to maintain any kind of dignity, growth, vitality and strength in its inner-city neighborhoods" (Dallas Morning News, "An Emotional Zone," October 17, 1993). He says that "I think this is the only way Houston is going to accept what every other city in the country accepts, which is the desirability of protecting neighborhoods" (Houston Chronicle, "Neighborhood zoning draws up complex issues," October 14, 1994).

A widely-expressed view is that Houston's lack of zoning and its wide-open approach to development have penalized the city in comparison with places that are planned more thoroughly. Anti-zoning supporters, however, note that "many of the public safety, convenience and morality issues that are addressed by the typical zoning ordinance are already incorporated into an array of Houston's city ordinances" (Houston Chronicle "Zoning-Houston's done so well without it" December 6, 1992). The proposed zoning ordinance overlapped 18 or more ordinances that deal with land-use issues and regulate a litany of non-conforming uses within the city limits. There are ordinances that deal with broader issues such as maximum dwelling occupancy, development in flood-prone areas, development in the vicinity of public water supply, and tree planting requirements for public areas and parking lots. Opponents of zoning believe that this refutes any argument that Houston's unzoned status results in a free-for-all for local landowners.

On January 8, 1993, the Planning and Zoning Commission voted unanimously to send the completed ordinance to City Council for voters' approval. This vote came after

months of conducting hearings to consider how specific pieces of property would be zoned or dealt with. In order to protect residential neighborhoods, Houston's zoning ordinance would restrict certain land uses to 12 districts (Houston Chronicle, "Zoning ordinance advances," January 9, 1993).

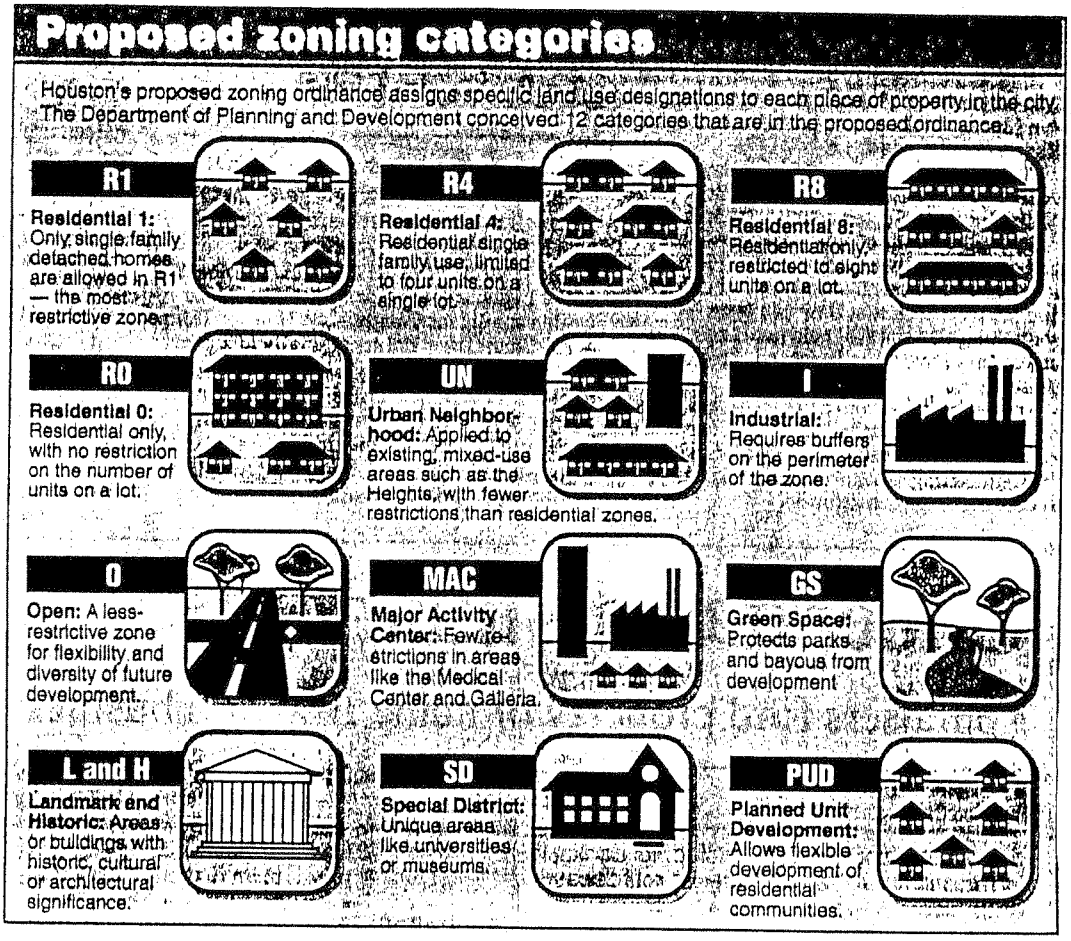


Figure 4.2 Proposed Zoning Districts (Houston Chronicle, "How will city look in 10 years?," August 22, 1993)

The heated battles over the zoning issue began at this point. Mayor Lanier, a land developer before taking office in 1992, and the majority of the council members were in strong support for the zoning ordinance. Anti-zoning zealot Barry Klein had just finished gathering 20,000 signatures to force a referendum. In took from fall 1992 to spring 1993

to gather 26,000 valid petition signatures by the Houston Property Rights Association. Emerging from the periphery to support the Houston Property Rights Association was the Greater Houston Builders Association and some of Houston's most prominent business leaders. The business community was worried about the negative effects zoning would have on the local economy. Local small business owners also fought hard against the ordinance, because many businesses would be shut down if the zoning ordinance was passed.

The consensus was that the business population in Houston was split by the zoning issue. The same arguments for not having the zoning in 1947 and 1962 resurfaced in the 1990s. Opponents of zoning claimed that it would increase taxes, prevent Houston citizens from working in their homes, promote corruption, encourage discrimination, slow down urban redevelopment, breed slums as well as inner-city decay and crime zones, increase housing costs, and hurt Houston's minority communities (The Houston Post, "Zoning has its myths, realities," January 17, 1993). Although the anti-zoning party had their heavy hitters, the pro-zoning coalition had its share of wealthy and prominent business leaders supporting the zoning plan. The largest developers in Houston did not seem to mind the zoning ordinance. Developers supporting zoning in Houston include John Walsh, president of Friendswood Development Co., Gerald Hines, Houston's most successful urban developer and founder and chairman of the leading development company in the nation, James Royer, chief executive officer of Turner, Collie & Braden Inc. Engineers-Planners, and C. Richard Everett, developer (Houston Chronicle, "Group of business leaders supports city zoning plan," March 6, 1993). Remaining neutral in the war because of internal clashes were some of Houston's largest organizations; including the Greater Houston Partnership, the Houston Association of Realtors, and the Greater Houston Builders Association (Houston Chronicle, "Divided by Zoning," October 31, 1993).

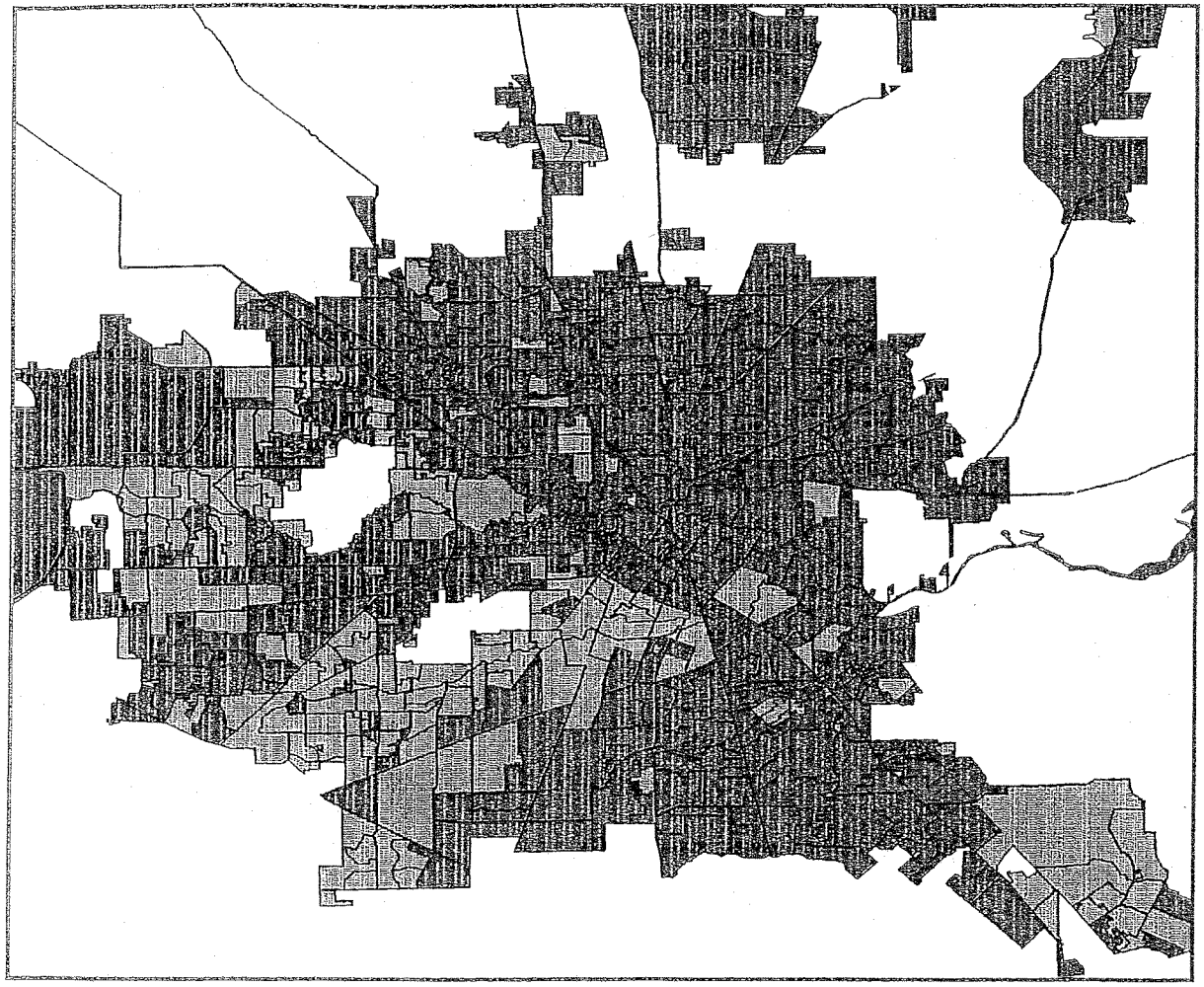
On September 1, 1993, the City Council approved the proposed zoning ordinance by a vote of 14-0 (The Houston Post, "Zoning passes initial council test," September 2, 1993). This was only the first of three times that the council would consider the proposal. The second vote occurred on Wednesday, September 8, 1993, and the zoning proposal was again approved by the City Council by a vote of 15-0 (Houston Chronicle, "Council gives its second approval to zoning ordinance," September 9, 1993). On September 15, 1993, the City Council gave its final unanimous approval to support the zoning of every inch of the city of Houston, the largest city in the nation without this land-use control (Houston Chronicle, "Zoning law gets final council OK," September 16, 1993). However, the Houston City Council also approved voter participation in the zoning decision by placing the issue on the November 2, 1993 ballot. After an intense campaign, November 2 marked the third time zoning had failed at the hands of the voting population. The vote came as a surprise to most, especially after polls conducted earlier in the year showed a 60-40 split in favor of zoning. The 1993 zoning ordinance was rejected by a slim margin of 52.1 percent to 47.9 percent. There were 79,063 proponents of zoning and 86,060 opponents of zoning. The chart below shows a detailed geographic key on how people in Houston voted.

Votes on zoning by group, area

Group	Turnout	For	Against
Low income Black	11.59%	29.21%	70.79%
Middle-income Black	23.16%	62.55%	37.45%
Predominantly Hispanic	13.72%	41.05%	58.95%
Low Mid-income White	17.63%	31.82%	68.18%
Middle-income White	28.96%	56.20%	43.80%
Affluent	34.52%	43.83%	56.17%

Area	Turnout	For	Against
Acres Homes	11.69%	33.72%	66.28%
Astrodome/OST	9.95%	59.19%	40.81%
Canal/Navigation	13.64%	41.72%	58.28%
Clear Lake	19.39%	60.48%	39.52%
Denver Harbor	16.32%	36.98%	63.02%
Fifth Ward	12.25%	27.96%	72.04%
Garden Oaks	28.42%	40.37%	59.63%
Heights	28.89%	49.97%	50.03%
Hiram Clarke/S. Main	15.78%	49.41%	50.59%
Hobby/Glenbrook Valley	19.92%	43.10%	56.90%
Inwood Forest	13.66%	36.83%	63.17%
Kashmere/Settegast	10.65%	31.69%	68.31%
Memorial/Westchester	34.34%	60.61%	39.39%
Meyerland	36.60%	58.35%	41.65%
Montrose	31.09%	46.86%	53.14%
Near Northside	13.05%	37.47%	62.53%
Outer Westheimer	23.25%	47.67%	52.33%
Rice/Braeswood	32.95%	62.90%	37.10%
River Oaks/Tanglewood	35.76%	45.42%	54.58%
Riverside/N. MacGregor	23.88%	61.55%	38.45%
Sagemont	14.69%	44.96%	55.04%
Sharpstown	26.46%	53.72%	46.28%
Spring Branch	24.33%	53.21%	46.79%
Sunnyside/MLK	10.65%	41.69%	58.31%
Third Ward	11.91%	47.67%	52.33%
Westbury	32.81%	51.06%	48.94%

Figure 4.3 Voting Patterns for November 1993 Zoning Proposal (The Houston Post, "Zoning goes down for 3rd time," November 3, 1993)



Red - NO to Zoning Blue - YES to Zoning

Figure 4.4 Geographic Voting Patterns for November 1993 Zoning Proposal (Acquired during Interview with Jerry Wood, Executive Assistant to the Director of Administration, Planning and Development, December 11, 1995)

Zoning failed in 70 percent of the city's precincts and in seven out of nine council districts. As you can see above, the vote was divided mainly on socioeconomic terms rather than on racial background. Low-income and upper-income resident rejected the zoning ordinance while middle-income residents were in strong support of it. Barry Klein was quoted after the election as saying that "It's our special advantage over all cities. We're the only free city in the country" (Houston Chronicle, "Zoning opponents relieved at prospects of 'free city,'" November 3, 1993).

In an effort to keep the zoning issue from resurfacing, a city charter amendment was placed on the January 15, 1994, ballot. Proposition 1 would require City Council to call a six-month waiting period for public hearings and a referendum on zoning before approving any ordinance (The Houston Post, "For voters, the sequel: It's 'Son of Zoning' time" January 3, 1994). The proposal would immediately outlaw all existing interim zoning ordinances as well. The motivating factor for this referendum was to prevent City Council from voting for zoning without allowing the public to vote on the issue. Proposition 1 was passed successfully with 78.6 percent of the electorate voting "Yes" and 21.4 percent voting "No" (Houston Chronicle, "Voters give term limits solid victory," January 16, 1994). Although the vote did not generate much controversy, it was a solid victory for anti-zoners.

After the defeat of zoning, Mayor Lanier and the City Council made unsuccessful attempts to have voluntary neighborhood zoning adopted. These efforts were stopped by the anti-zoning coalitions which stressed the point of "Houston residents voted NO to zoning, get the point." On Wednesday, January 25, 1995, City Council threw in the towel and voted unanimously to remove the word "zoning" from the name of the Planning and Zoning Commission (Houston Chronicle, "Panel Stripped of Z word," January 26, 1995). I consider this date the end of the 1990s zoning war, which lasted more than five years. However, I do not think for a minute that the issue is dead, it is just sleeping with one eye open. Houston's City Council and Planning Department have

decided to concentrate on the chief land-use tool they do have--deed restrictions. The city has decided to put deed restrictions under increased scrutiny and address the problems of neighborhoods that lack them.

CHAPTER 5
HOUSING PRICES AND HOUSTON'S NEIGHBORHOODS

John Mixon, the zoning proponent, feels that many of the land use clashes that occur with deed restrictions can be prevented with a zoning ordinance (Interview with John Mixon, December 12, 1995). He agrees that deed restrictions work well in suburban middle-class neighborhoods, but are nonexistent in the inner-city. Professor Mixon states that the inner-city is deteriorating from the lack of zoning. Homeowners are lacking the protection from non-conforming land uses that zoning would provide, and thus are abandoning the inner-city.

The regressions analysis in this thesis produced a positive housing price gradient for the city of Houston ranging from 1.72 percent to 1.88 percent. This supports Mixon's contentions. The value per room rises by almost two percent for every mile away from the Houston CBD. This is an unexpected outcome by most urban economists. The predicted variation in the housing price due to distance from the central business district is a downward-sloping gradient because the disadvantages of a longer commute are capitalized in housing prices. Dallas, Phoenix, and Tampa's negative housing price gradients are what is commonly expected. The upward-sloping gradient of Houston is apparently the result of disamenities located near the center of the city, which have brought down the value of inner-city housing. The lack of zoning has allowed non-conforming land uses to locate in sections that are not protected by deed restrictions. Most of these areas are located in the older parts of the city around the central business district. Mixon says that Houston homeowners have to pay a premium to locate in areas where their investment will be protected, which is the suburban parts of Houston. The

cost of this protection is reflected in the increase in the value per room of 1.9 percent for every mile away from the CBD.

Professor Mixon pointed me in the direction of City Hall and the Houston Heights in order for me to understand his point. Following Mixon's recommendation, I tracked down Jocelyn Y. Labove. Ms. Labove works in the Legal Department at Houston City Hall Annex as an assistant city attorney. I found her office one flight above the mayor's office, and she was eager to talk about the issue of zoning in which she is a proponent (Interview with Jocelyn Y. Labove, December 13, 1995). Ms. Labove is a resident and homeowner in the Houston Heights and is currently trying to sell her home. Selling her home has proven to be a challenge because of the noxious neighborhood use that has brought down its value. Her extracurricular activity is a legal battle against the nuisance. She encouraged me to take a look at the area and her home.

THE HOUSTON HEIGHTS

The Heights is an 1,765 acre tract that is located four miles north of downtown Houston (Houston Heights, 1991). The area is located in the sample used for regression analysis. As one of Houston's oldest neighborhoods, the Heights has always been a mixed-use neighborhood. In 1891 it was a suburban planned community connected to Houston by electric street-cars. A history pamphlet commemorating The Heights one hundredth birthday states that "it was 'The Woodlands' of 100 years ago." The Woodlands is an exclusive planned community that I also visited. The Heights was planned as a complete town with residential, business, and industrial areas. Residential areas were located along Heights Boulevard and the north-south streets to the east and west of the Boulevard. The east-west streets in the northwest portion of the Heights was reserved for businesses, industries, and worker houses. Textile mills, factories, and other industrial businesses were served by the once-operative railroad track. Although the

Heights was a "Planned Community," it is an area that was never protected by deed restrictions or zoning.

When entering the area, you are greeted by an elaborate brick wall sign on Heights Boulevard that says the "Houston Heights." I expected to find a quaint suburban neighborhood with only a few non-conforming locations, but less than a block down the road I was amazed. While driving in the vicinity of Heights Boulevard I spotted homes located next to various businesses. Businesses that are scattered throughout the area included, car repair shops, gas stations, laundromats, nursery schools, "mom and pop stores," machine and carpet repair stores, and bars. The majority of the businesses I saw are operated outside of the converted home. Large signs at the edge of these businesses' lots provide vivid advertisement.

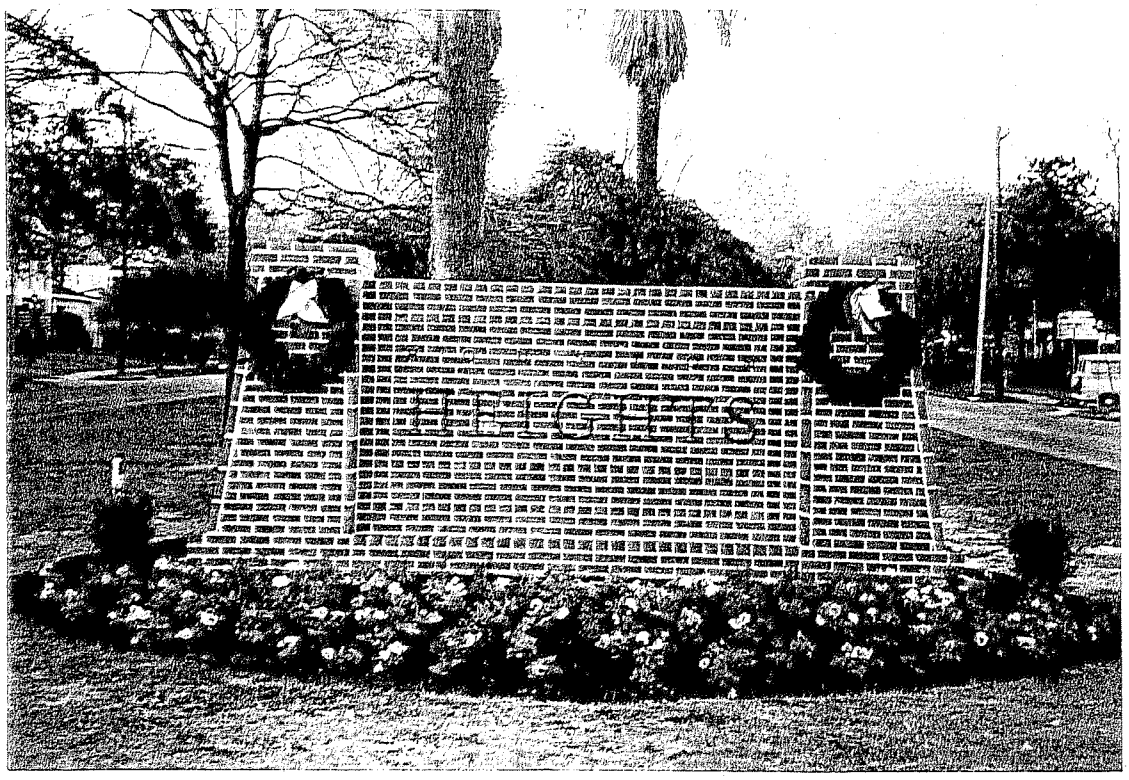


Figure 5.1 The Houston Heights - Entering Heights Boulevard

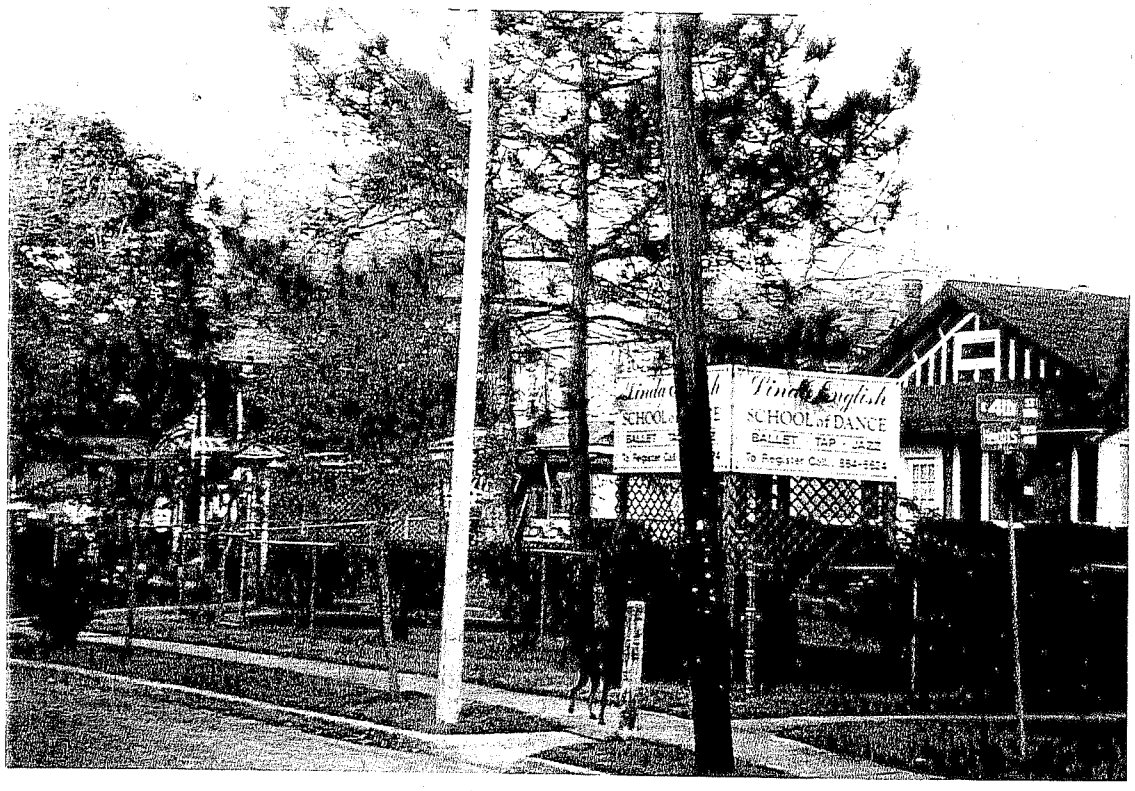


Figure 5.2 Home/Dance School in The Houston Heights

Figure 5.3 Home/Auto Repair Shop and Carpet Repair in Houston

Figure 5.4 Fence Company in a Residential Area of The Houston Heights

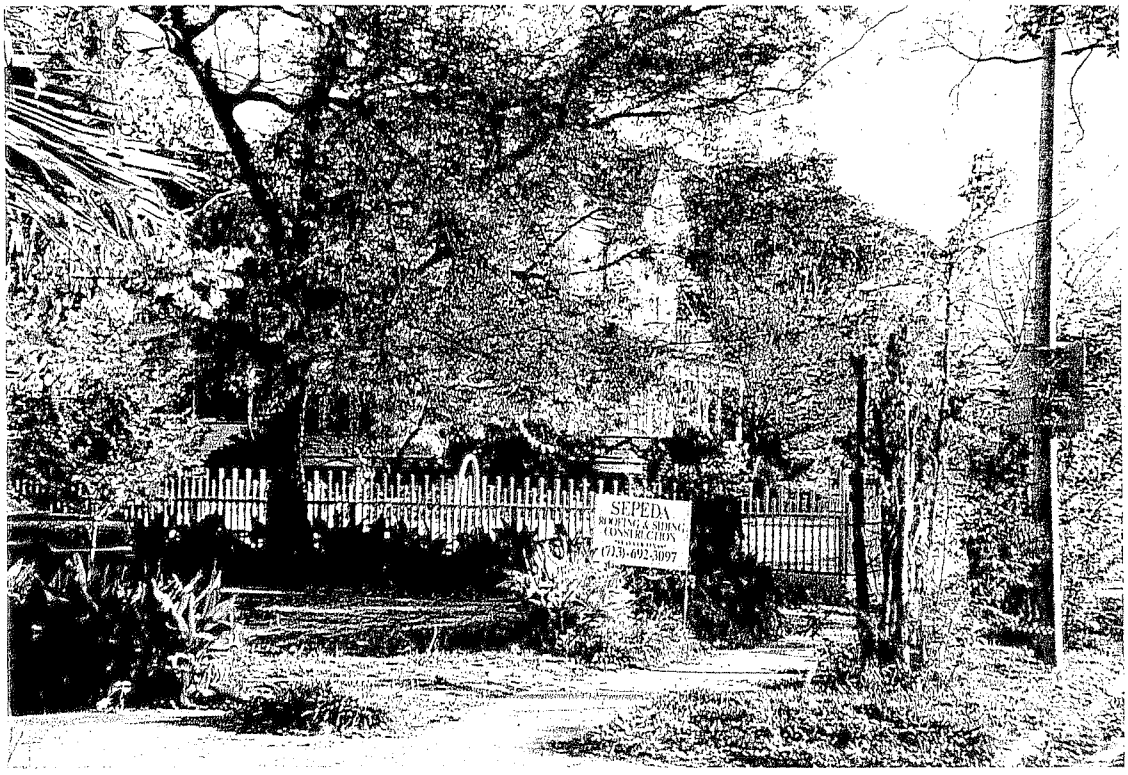


Figure 5.5 Home/Roofing and Siding Construction Company in The Houston Heights

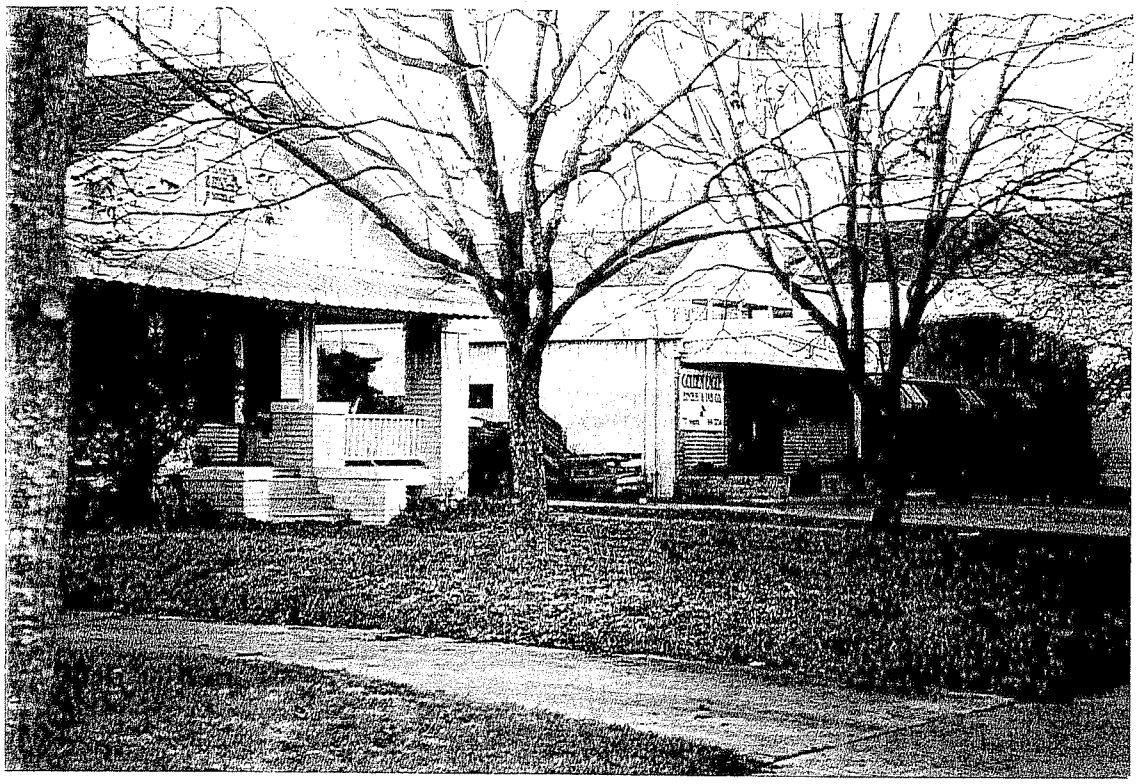


Figure 5.6 Binder and Tab Company in a Residential Area of the Houston Heights

After conducting a brief self-guided tour with my camera and rental car, I stopped at one of Jocelyn Labove's suggested real-estate agencies. Swilley-Hudson & Associates provided me with a brief history of the area and directions to Ms. Labove's home. I proceeded to 745 Tulane, which is a two-bedroom, two-bath home located on an oversized lot (Swilley-Hudson, 1995). The home was built in 1896, but is located in an area of the Heights that was originally planned for a mix of land-uses.

When Jocelyn Labove bought her home on Tulane Street, she and other residents were not concerned about the warehouse distribution center known as Fit-All, a subsidiary of Uni-sun, Inc. Fit-All is a fully operational 24-hour manufacturing plant that produces plastic parts. At the time the neighborhood was being improved by Mayor Bob Lanier's Neighborhoods to Standard program (Houston Chronicle "Residents, warehouse are at odds," June 24, 1995). A goal of the program was to bring Houston residents with

suburban preferences closer to the inner-city. For reasons explained later, Labove expected that the three vacant lots separating her home and the factory would have houses built on them. In June 1995, Uni-Sun was in the middle of constructing a 30-foot tall, 25,000-square-foot warehouse to increase its storage space on the three vacant lots. The storage facility towers over the backyards of homes located on Tulane and Ashland Streets. The expansion of the factory was brought within ten feet of Jocelyn Labove's property line and is fully legal because of the lack of zoning or deed restrictions. Labove agrees with Mixon in that no one wants to chance living near the inner-city because of lack of protection for the homeowner's investment. She feels that the lack of zoning is contributing to the deterioration of the inner-city (Interview with Jocelyn Y. Labove, December 13, 1995).

Figure 5.7 Jocelyn Labove's Home in The Houston Heights

Figure 5.8 Residents of The Heights Protest Fit-All

Residents in this corner of the Heights feel that the factory serves as a major nuisance. Many feel that Fit-All will try to buy their homes at a devalued price in the future, thus a gain to the company and a loss to the residents. Labove feels that "they expected uneducated people that did not have the fire in their bellies to do anything about it" (Interview with Jocelyn Y. Labove, December 13, 1995). Located on nearly every homes lawn are bright orange picket signs that say "Fit-All/Uni-sun Destroys Neighborhoods." Complaints are varied. Residents frequently complain about the deliveries made 24-hours a day by eighteen-wheeler trucks. The streets in this neighborhood are 18-feet wide at best. Trucks have been known to get stuck in the street's open ditches and when their turns have been blocked by parked cars, truckers have knocked on residents' doors at unreasonable hours to demand movement of the vehicles (Houston Chronicle "Residents, warehouse are at odds," June 24, 1995). Noise

from everyday business operations is cited frequently as well. The company has outdoor speakers, large electronic gates and exhaust fans, dumpsters, and forklifts on the shipping docks that contribute to noise pollution. Residents complain of rude employees and, more importantly, of noxious fumes from manufacturing. Labove said that the toxic odor that the company emits into the air during production has made residents sick to their stomachs (Interview with Jocelyn Y. Labove, December 13, 1995). As a mother, she is also worried about the electrical transformer located in the corner of her backyard, which is only separated by a fence. Residents in this area are in strong support of zoning. Many homeowners feel their investments would not be threatened if zoning existed in the area. Sherry Petraitis owns a home directly next door to the factory and is civic president of the area. She is an advocate of zoning and says "anti-zoners always insisted there were no horror stories" (Houston Chronicle "Residents, warehouse are at odds," June 24, 1995).

*Figure 5.9 Homeowner Harmed By Fit-All's Exp*ansion of the Warehouse

In order to develop my opinions of the area and situation, I searched for the President of Fit-All, Gary Watts. I accidentally entered the warehouse from the back entrance, where I smelled a toxic-like substance. I am not a chemist, so I cannot decide whether the smell was toxic or not, but I would not advise taking deep breaths! While walking around the factory looking for directions, I took notice of a well-kept and very clean facility. After receiving directions from a worker, I found the front entrance. On the front entrance of Fit-All, there is a large banner that says "Fit-All Pledges To Support Our Neighborhood With Employment Opportunities, A Clean And Safe Facility, And Community And Charitable Events." From there I located someone who was in direct contact with Mr. Watts. I gave his secretary a copy of the memo my thesis advisor, Professor William Fischel, wrote to explain my project research in Houston. She returned with the memo and explained that Gary Watts was very busy with the company and was unable to give me any time. Though time in Houston was running out, I felt that this lead was too important to pass up, so I decided to poke around further. I proceeded to another one of the company's buildings and found another secretary. Following the Texas way of kindness, she immediately jumped on the phone and found a contact person.

Richard H. Darnell, Fit-All's vice president of operations, came over from the main building to greet me. On our way back to the main building, I explained my project and my background. I told him that I had read articles explaining the situation in this area of the Heights, had spoken to Ms. Labove, and wanted to gain perspective on Fit-All's side of the story in order to draw conclusions on the zoning issue. Mr. Darnell was willing to explain the situation in which he has been heavily involved.

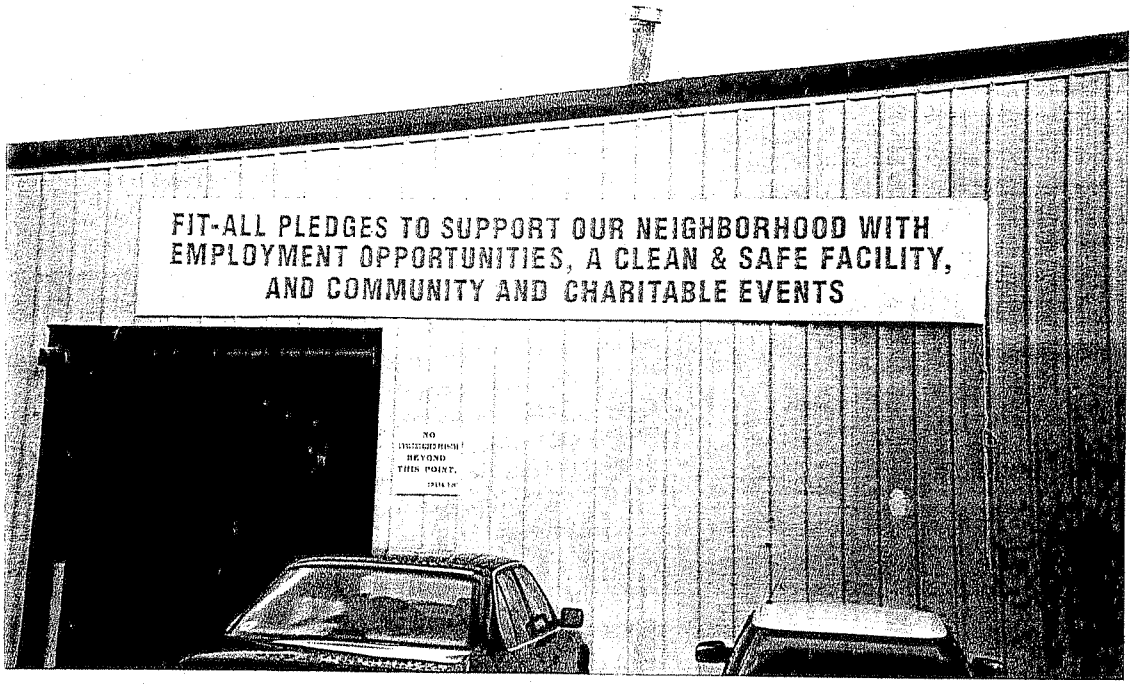


Figure 5.10 Front Door of Fit-All

Darnell is not a native of Houston and has only lived in the metropolitan area for six years. He lives in a suburban area of northwest Houston that is protected by deed restrictions from non-conforming uses. According to the vice president of operations, Fit-All is not in favor of zoning due to the situation they are in. Darnell personally thinks that zoning is a good idea, but questions it in Houston. He asks, "How do you fairly zone something that has never seen this animal?" A clean slate is required according to Darnell, and the Houston city government has to work together with neighborhoods to sort out the many predicaments that have surfaced.

Fit-All has been located in that area of the Heights since 1930 and expansion has occurred since 1975. Darnell explained that the area the company is located was planned for industrial and residential use, and that is why the railroad tracks are located directly behind them (Interview with Richard H. Darnell, December 14, 1995). The

neighborhood confrontation is a direct result of the industrial and residential sector expanding towards each other. The company has purchased a considerable amount of the surrounding property. The three lots that separated the operational facility and Ms. Labove's home were purchased after she moved into the neighborhood. The initial, non-binding agreement was to "maintain green-space" by the manufacturer, but instead the company found it profitable to use the lots for expansion of its warehouse.

The company does not believe that it has brought down the property values of residents such as Jocelyn Labove. Before Fit-All began its intense expansion, the area was known for a very high crime rate and, coincidentally as a result, low property values (Interview with Richard H. Darnell, December 14, 1995). Darnell showed me aerial photos of what the area looked like before and after expansion. He pointed to a house that was torn down to accommodate expansion. The structure was characterized by workers as a "crack house" that housed up to 18 runaway kids. The company began to aggressively purchase property to improve its imagine as well as the neighborhood. Darnell also explained that not every resident is in opposition of Fit-All. One resident supports Uni-sun because his home is no longer robbed during the day. In short, the company feels it has drastically improved this section of the Heights.

Richard Darnell strongly defends Fit-All's presence in the neighborhood. Both Gary Watts and Richard Darnell sit on the Heights Chamber of Commerce and support various neighborhood activities as well as civic associations and churches. For example, Fit-All is the major sponsor of the Heights five kilometer fun run for community development. Darnell explained that the annual Christmas tree supports needy families in the Heights. The tree is tagged with the names of children and mothers in the area that do not have enough money for holiday gifts. Employees of the company take the tags off the tree and replace it with a gift with the patron's name. I was at Fit-All with 11 days left to Christmas and there was less than six tags left on the company's Christmas tree.

Fit-All also employs from 120 to 140 workers, of which about 20 percent live in the Heights.

The company feels that it has made substantial attempts to satisfy the complaints of residents. Executives of Fit-All have stressed to their workers that penalties will be administered to employees that are found harassing residents or creating a nuisance. They have removed garbage dumps and other unsightly and unseemly structures from residents' views. In order to lower noise pollution, the company has disconnected the outdoor loud speakers and built sound barriers to buffer the noise of exhaust fans and industrial activity.

Jokingly, Darnell told me that "the only thing toxic that the company emits is water and steam" (Interview with Richard H. Darnell, December 14, 1995). I mentioned that I smelled something out back that I felt would make me light-headed, but he did not agree with this. Fit-All takes plastic pellets and puts them through a metal extractor in order to make plastic shapes. There are no chemicals or toxic materials used in the process, but an odor from melting plastic may emerge. The vice president of operations says there is no environmental threat and little waste. The final product encompasses from 97 to 100 percent of the material. According to Darnell, Fit-All is inspected by national, state, and city authorities and holds no violations or compliance failures. When residents complain, public health, police, and fire officials have conducted spot inspections and have found nothing.

In response to the nuisances caused by large eighteen-wheeler trucks and rude truck drivers, Gary Watts has explained that the truckers are not employees of his company (Houston Chronicle "Residents, warehouse are at odds," June 24, 1995). Darnell told me that the company has attempted to acquire property behind them in order to keep truck traffic out of the residential part of the neighborhood, but attempts have failed. Fit-All states that they receive approximately three large truck deliveries a day. The company holds also, that they offset the harms of trucks tearing up the roads and

making potholes by the large amount of taxes Fit-All pays to the city (Interview with Richard H. Darnell, December 14, 1995).

Darnell says that residents such as Jocelyn Labove do have legitimate concerns, but it was their choice to move here. He says the company has done many things to help alleviate the problem, and it is economically unfeasible for them to move. Fit-All feels that they have many supporters, including the media and anti-zoners. The $350,000 that each homeowner is asking for in property and punitive damages are regarded as extortion by the company (Interview with Richard H. Darnell, December 14, 1995).

The case of Jocelyn Labove and other Heights residents versus Fit-All, a subsidiary of Uni-sun, Inc., is still pending. This is just a representation of many non-conforming uses with which residents of Houston's inner-city deal. Mixon and Labove feel that this situation could have been avoided with a zoning ordinance. Stories such as this support Mixon's belief of why residents are abandoning the inner-city. Homeowners of Houston feel they can find protection for their investments the further they move from the central business district. Anti-zoners such as Barry Klein find it a luxury to be located near businesses such as Fit-All. Is the premium that residents have to pay out in the suburbs to be protected worth it? This is a question that can only be answered by the patterns of where people live.

THE WOODLANDS

Houston residents with an urge for suburban life have abandoned the inner-city for places where their homes will be protected from noxious and non-conforming uses. Barton Smith and John Mixon claim that Houston residents have left the inner-city for quality affordable housing that is protected by stringent and enforceable land-use devices. Residents seek places away from the inner-city where deed restrictions work. Prospective homebuyers looking to leave the inner-city can find protection for their investments in the master-planned communities of Houston. Four of the largest and most

successful master-planned developments in the United States are located at the fringe of the city limits of Houston. The Woodlands, First Colony, Kingwood, and Clear Lake City represent prominent areas in Houston that are well protected by deed restrictions (Ingersoll, 1994, p.10).

While in Houston, I spent two days in The Woodlands with a friend from my graduating class at Dartmouth College. The Woodlands encompasses 25,000 acres located 27 miles northwest of downtown Houston in Southern Montgomery County (The Official Guide to Houston, 1995). The area is located in the sample section of Houston which I used for regression analysis. Just as is the Houston Heights. Often dubbed the "Invisible City" because of the dense forest that surrounds the area, The Woodlands has become a refuge for Houston residents seeking suburban life. George Mitchell, founder and president of Mitchell Energy and Development, was the visionary behind the large suburb located at the fringe of the city. The area is built off 15 MUDs (13 residential and 2 commercial), but development continues (Brenckman, 1994). The area will eventually be annexed by Houston. The official opening date of the Woodlands was October 19, 1974. Today the master-planned community has nearly 38,000 residents and over 475 businesses. A subsidiary of Mitchell Energy and Development, The Woodlands Corporation is responsible for the ongoing development of homes and businesses.

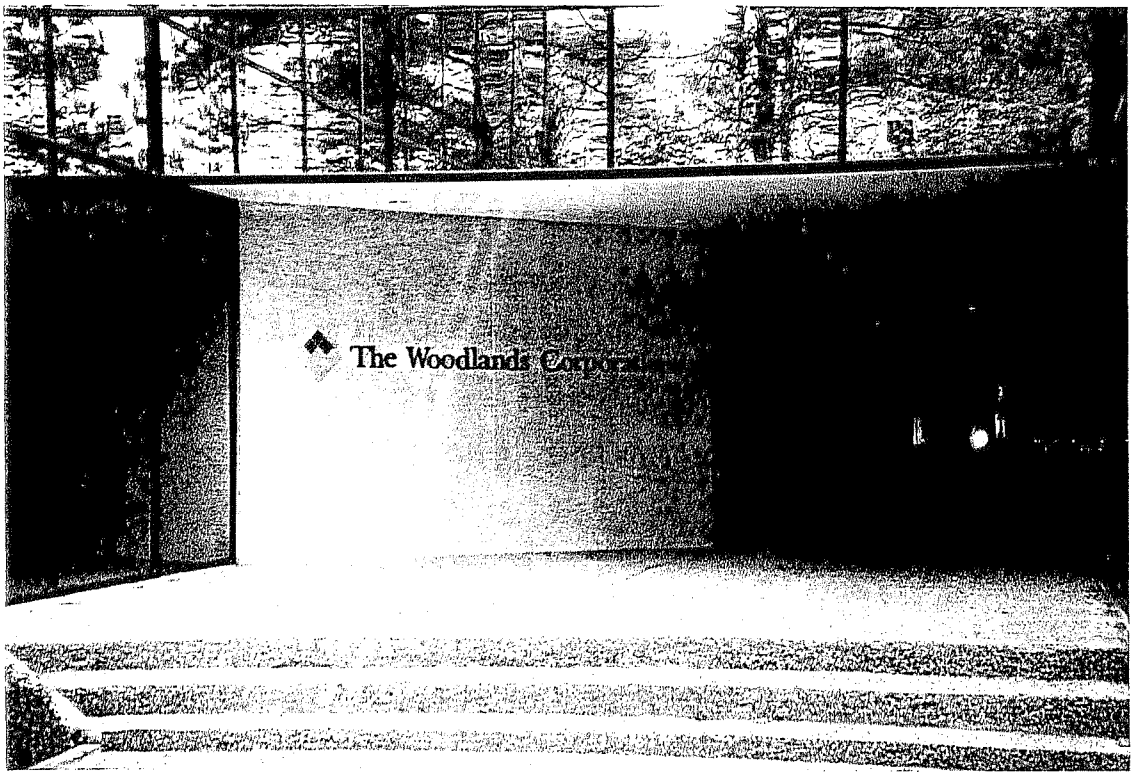


Figure 5.11 Front Door of The Woodlands Corporation

The "Invisible City" has many of the luxuries of Houston but maintains a suburban quality of life. When entering The Woodlands you are greeted by a sign similar to the beautiful brick one located in the Houston Heights. Surrounded by a dense forest, the area has several lakes and ponds, two PGA golf courses, premier athletic facilities accompanied by an Olympic size pool, bicycle paths, and a community pavilion that brings entertainment to the area (The Woodlands, 1995). The master-planned community has its own community college, hospital, schools, churches, and industry. The Woodlands Corporation recently constructed a one-million-square-foot regional mall that encompasses 120 specialty stores, and has planned for more development in the area.

Figure 5.12 Entering The Woodlands

The Woodlands Corporation's deed restrictions have protected the investments of homeowners since the opening day. The deed restrictions of this master-planned community are stringent, detailed, and well-enforced. The Woodlands Community Association, Inc. (WCA) and The Woodlands Association (TWA) are the homeowners' associations for the residents and property owners of The Woodlands (Covenants, Restrictions, Easements, Charges and Liens of The Woodlands, 1993, p.1). The two associations exist in tandem because the WCA holds jurisdiction over the developed areas and the TWA over areas that are undeveloped. Both associations are identical in function and act as one. The associations provide services such as trash collection, recycling, community recreation, neighborhood pools, parks, pathways, and fire and police protection. They also provide the opportunity for residents to participate in local

government by running for positions on the Board of Directors or the Residential Design and Review Committee of the WCA and TWA, respectively.

Figure 5.13 The Woodlands Community Association

The Residential Design and Review Committee's (RDRC) primary function is to enforce deed restrictions in the Woodlands, as well as educate residents of the restriction's existence. The RDRC publishes two documents for the use of Woodland residents and homeowners. The first is a 90-page book titled The Woodlands Residential Development Standards. This book explains in detail the general conditions, the construction standards, and the property use standards of The Woodlands. Homeowners are well-aware of the rules and regulations that apply to home construction, additions, and remodeling. In order for residents to make adjustments or changes to their homes, RDRC approval must be obtained in advance (The Woodlands Residential Development

Standards, 1993, p.1.2). Approval involves a formal application process, a review fee, and, depending on the job, numerous other steps which require time and money. RDRC approval is required for the installation of satellite dishes, decks, air conditioning units, dog houses, fences, play structures, exterior lights, swimming pools, tennis courts, and yard art. A Woodland resident cannot paint his/her home a different color or place a political campaign sign in the yard unless approval is granted. Parking on the streets is prohibited as well as all businesses in the home. Residents are even prohibited from having garage sales. The Woodland's stringent deed restrictions are the primary reason it is a desirable place to invest in a home.

The second document published by the RDRC is Covenants, Restrictions, Easements, Charges and Liens of The Woodlands. This 34-page book outlines the rules, procedures, rights, and functions of the Residential Design and Review Committee and the land it governs. As stated above, residents are the primary enforcers of deed restrictions in communities such as The Woodlands. A Woodland resident who finds a violation of deed restrictions reports it to the RDRC in order to maintain "neighborhood criteria." Homeowners protect their investment, when they report a neighbor's violation. The RDRC will notify the property owner of the violation or breach as well as give the specific actions required to remedy the situation (Covenants, Restrictions, Easements, Charges and Liens of The Woodlands, 1993, p.24). Fifteen days after receipt of notification, the committee's representatives have the power to enter the land, and abate or remove the violation, or breach, at the owners expense if reasonable steps to remedy the actions have not been accomplished. RDRC has the right to enforce the covenants of The Woodlands, and keeps a sizable legal fund as well as attorneys on retainer in the event of judicial proceedings. The Woodlands has not lost a court battle concerning deed restrictions.

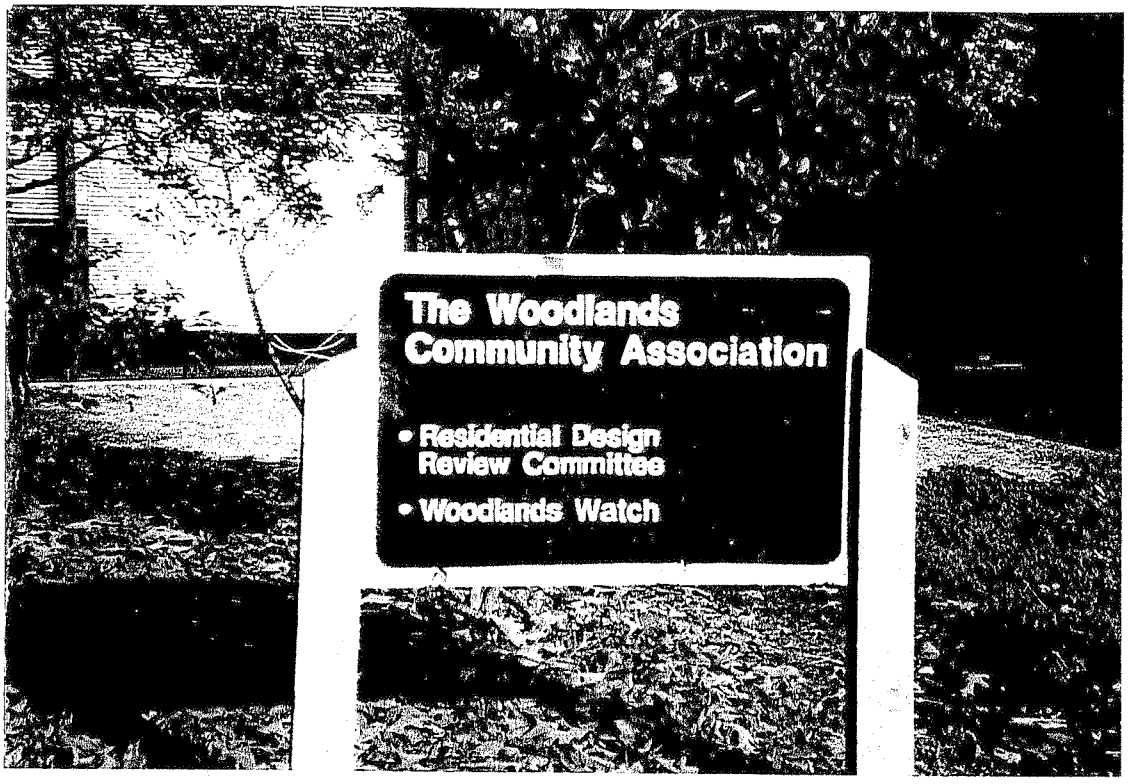


Figure 5.14 The Woodland's Residential Design and Review Committee

The day before I began my research in The Woodlands I interviewed Robert Thomas and Richard Murray, the authors of Progrowth Politics-Change and Governance in Houston. Towards the end of my interview with Richard Murray, we began to talk about master-planned communities and The Woodlands. He characterized it as "the ultimate white-flight community" (Interview with Richard W. Murray, December 14, 1995). One of Mitchell's main goals when developing The Woodlands was to maintain the same ethnic and economic mix that exists in Houston (Brenckman, 1994, p.6). The developer's goal was not even close to being fulfilled. The Woodland's population is 90 percent white, 2 percent black, 5 percent Hispanic, and 4 percent other. The economic range for the area is from middle and middle-upper class to extremely wealthy. In their book, Thomas and Murray state that "deed restrictions serve well in white, middle-class

areas with a high proportion of single family homeowners," such as The Woodlands (Thomas and Murray, 1991, p.352-53).

While doing my master-planned community research in the Houston metropolitan area, I conducted two interviews with employees of The Woodland Corporation. Matt Swanson, commercial/industrial planner, and Charles Wustman, director of market research, gave me valuable insight on the future of the Woodlands. According to the plan, the area will eventually be annexed by the city of Houston. In order for Houston to annex, it must be able to provide comparable existing service to The Woodlands (Interview with Matt Swanson, December 15, 1995). Houston must receive a sizable tax base in order to match the services of the area; therefore, they must wait until the MUDs are paid down. Because of federal civil right laws, Houston cannot dilute minority voting power in the inner-city (Thomas and Murray, 1991). The Voting Rights Act (VRA) is thus a barrier to annexation. Houston is in no rush to annex the area, according to the assistant director of the financial services division of Houston, Peter McStravick, Jr. (Interview with Peter McStravick, Jr., December 13, 1995). Completion of a second park and ride, the Woodland Parkway (completion expected Summer 1996), and development of The Woodlands is likely to come first. Only 62 percent of The Woodlands area has been developed since 1974.

Although it has always been the plan for Houston to annex The Woodlands, residents of the area are not excited about the idea. The reason is not taxes, but schools. According to an April 1995 Woodland's real estate guide, Woodland residents pay higher taxes than residents of Houston (Briefs, 1995). The guide outlined comparative tax assessment and insurance expenses in The Woodlands, in Houston, and in other developed areas. Per $100 valuation, taxes paid by Woodland residents was $2.98. This figure includes county, MUD, school, and college taxes. Houston's tax totaled $2.07 per $100 valuation, but does have a MUD tax. Subtracting the $0.62 MUD tax from The Woodlands will give a comparative tax of $2.36, still larger than Houston. During my

interview with Peter McStravick, Jr., he told me that "people move away from Houston to take advantage of the public school life out there" (Interview with Peter McStravick, Jr., December 13, 1995). Like many inner-city schools, the Houston Independent School District (HISD) has a bad reputation. Of the $2.07 per $100 valuation that Houston residents pay, $1.38 goes to support the HISD. For the Woodlands, the school tax is $1.57. Residents move to communities out of the HISD limit to take advantage of better school systems, and are willing to pay the price.

In theory, taxes in The Woodlands are expected to decrease when the area is annexed by Houston because services will be centralized. Most residents in the Woodlands would rather pay higher taxes than be annexed by Houston. Charles Wustman agreed when he told me that if I were to call 300 Woodland residents and asked them if they would rather pay slightly higher taxes or be annexed by Houston, I would get a 100 percent response asking for higher taxes (Interview with Charles Wustman, December 15, 1995). Woodland residents are afraid that what has happen to areas like the Houston Heights will happen to them in the future. Many residents are afraid that Houston will be unable to provide equal services and will not have the backbone to enforce and preserve the suburban quality of life that Woodland residents enjoy.

Residents located at the suburban fringe areas such as The Woodlands, pay a higher price per room than residents living near the inner-city, the Houston Heights. The Woodland's homeowners have a lower risk of nuisances emerging to negatively affect the value of their homes because of the existence of deed restrictions. An urban economics paper titled "Uncertain Neighborhood Effects and Restrictive Covenants," by William T. Hughes, Jr., and Geoffrey K. Turnbull, concurs with the comparison I have made between the two Houston neighborhoods (Hughes and Turnbull, 1996). The authors provide a theoretical model and empirical analysis of private land use contracts in an urban housing market. A hedonic valuation model for land use contracts in the form of deed restrictions and neighborhood covenants is included in order to develop a theoretical framework for

tying housing consumption risk theory to the empirical hedonic model. Their theoretical research involving uncertain neighborhood effects found that housing prices will be lower in areas where there is a greater risk of possible negative outcomes (Hughes and Turnbull, 1996, p.165). Therefore neighborhoods such as the Heights are expected to have housing devalued. Neighborhoods with stricter covenants, enforcement maintained, or credibly to potential residents will be those neighborhoods with lower consumption risk. Such strictly controlled neighborhoods will have higher equilibrium prices for homes.

Hughes and Turnbull's empirical analysis expected homes with deed restrictions or covenants to have higher housing prices. Data were taken from the housing market of Baton Rouge, Louisiana, during the years 1985-1992. The sample consisted of 1,314, single-family detached homes between the central business district and the urban periphery. The sale prices, housing characteristics, and some neighborhood characteristics are from sales initiated by real estate brokers--only. Hughes and Turnbull identified boundaries of respective areas within their sample and constructed 37 separate neighborhoods between the age of 10 and 42 years old. They tested for specific deed restrictions and covenants to determine the effects on housing prices. They found that restrictions such as underground utilities increased housing prices; however, restrictions imposing lifestyle constraints on homeowners either commanded lower or higher prices. Housing with restrictions on signs, parking, and dumping commanded higher prices, but restrictions on storage, pets, and the mowing of lots commanded lower prices. When the authors used a single index to measure the degree of restrictiveness of the set of deed restrictions imposed by each neighborhood, they found that stricter deed restrictions increased the price of housing. The net effect of restrictions increased housing prices by about six and two percent in 10 and 20 year old neighborhoods, respectively. They found that stricter initial deed restrictions have a negative price effect on neighborhoods greater than 20 years old--if they are not renewed by residents periodically. Hughes and

Turnbull conclude that deed restrictions and neighborhood restrictive covenants reduce neighborhood externality risk and are capitalized in the value of the home (Hughes and Turnbull, 1996, p.171).

The Woodlands is a master-planned community where deed restrictions work. As oppose to the Heights, homeowners' investments are protected from nuisances and non-conforming land uses. The Woodland's Residential Design and Review Committee evaluates constantly its deed restrictions in order to maintain homeowner approval. A Woodland homeowner would not have the problem Jocelyn Labove has selling her home. Residents protect their investments by enforcing deed restrictions through a strong community association and monitoring each other. My research finds that the price of this protection is an increase in the value per room of 1.9 percent for every mile away from the CBD. The lack of zoning has allowed non-conforming land uses to destroy property values in downtown Houston. Residents located further away from the city are willing to pay higher prices in order to protect the value of their homes. The results that I have calculated agree with Janet Furman Speyrer's research that compared areas of Houston that lacked deed restrictions and zoning with those that did not (Speyrer, 1989). She found that higher prices are commanded for homes in neighborhoods with either zoning or covenants than for comparable homes in neighborhoods that lack these land use controls. The difference in value for a home that has zoning and restrictive covenants was estimated at costing $4800 and $5900 more, respectively. The higher price is like an insurance premium. Deed restrictions selectively work in certain areas with certain characteristics, whereas Mixon's argument is that a zoning ordinance will work for every inch of Houston. The lack of zoning has lowered the property values of Houston homes that are not protected by deed restrictions because of the existence of non-conforming land uses.

CHAPTER 6
DENSITY IN HOUSTON

In the last chapter I discussed the effects that the lack of zoning has had on communities in the Houston metropolitan area. The Heights is a prime example of the many residential areas in Houston whose housing has been devalued by the existence of non-conforming land uses. The Woodlands is a residential area where nuisances have been prevented by the use of deed restrictions. The master-planned community is an example of one of the predominantly white and middle-income areas where deed restrictions work, but also represent a community where people are willing to pay more to insure the value of their home. John Mixon and his supporters are correct when they say that the lack of zoning has devalued housing in unprotected inner-city neighborhoods and other areas that lack land-use protection. Residents move further away from the city in order to protect their investments and are paying a premium not to live near the central business district. Homeowners are paying for the insurance that deed restrictions provide. The lack of zoning produces a positive housing price gradient for Houston, but also a greater in absolute value population density gradient. Some economist would have expected the outcome of Houston being a less sprawling city because of the fact of a nonexistent zoning ordinance. These economists believe that protection from a zoning ordinance will increase sprawl and development at the fringe due to the restrictions on development in the suburbs.

William Fischel believes that zoning is a constraint on development. In his book The Economics of Zoning Laws, Fischel explains that zoning is a major weapon in

controlling development (Fischel, 1985). There are a number ways in which a community can restrict development with zoning. Minimum lot size is the most frequently used means of regulating density. A large amount of litigation can be found on communities attempting to increase the minimum lot size in order to prevent a developer who has proposed a substantial development on a piece of land from breaking ground. According to Fischel, zoning can alter the land use patterns that we expect to find in the basic urban economics model. He and other urban economists have found that suburban zonings major deleterious effect is to cause excessive spreading out into the rural fringe. William Fischel's "...working hypothesis is that the deleterious effects of large-lot suburban zoning are excessive amounts of suburbanization" (Fischel, 1985, p.264). The major consequence of this is that land values on the rural fringe will rise, but not as much as suburban land values will fall. This induces excessive expenditures on transportation and lower than average land values, which may result in excessive expenditures on housing and a loss of the agglomeration economies that make cities a productive place for economic activity (Fischel).

Fischel offers an example to show that suburban zoning can cause an increase in sprawl. He first sets the boundaries for the location of the central city, the suburbs, and the rural fringe. Where the suburbs end is where the agricultural jurisdiction begins. This area can become part of the suburbs if enough people move there. Fischel poses the scenario that every suburban jurisdiction is only partly developed with housing. Since we are assuming that every suburban municipality imitates one another in land use controls, all of them adopt large-lot zoning that is "too restrictive" (Fischel, 1985). The minimum lot size increases from quarter-acre for the original residents to five-acre for undeveloped land. The cost of five-acre lots will be more than quarter-acre lots, but the average price per acre will fall in the undeveloped area. The assumption was made that the market for five-acre lots is thin. An artificial constraint has been placed on the capital to land ratio

and the density of development is no longer as great as before. Fischel says that the land values of the presently developed lots will rise, but this will be more than offset by the reductions in the value of undeveloped land.

The "would-be" suburban resident are now displaced and is forced to live in the central city or in the rural townships. Fischel states that suburban zoning could cause crowding in the inner cities and/or suburban sprawl in the rural areas. Development occurs in rural townships because of restrictive zoning in the suburbs. Some of this development will be of higher densities than located in the suburbs, and housing and population densities will rise in the central cities as well. The overall pattern will result in crowding in the central city and a widely-spread population in the suburbs and rural areas.

With the lack of zoning and the model above, Houston would be expected to have a higher population density than Dallas, Phoenix, and Tampa--which do have zoning. The next section will address why Tampa has a larger density gradient than Houston. Developers in Houston have two entities that have enabled the city to have a higher in absolute value population density gradient than Dallas and Phoenix. The chart below consists of the population density gradients and the log population density gradients for the four metropolitan areas.

	POPULATION DENSITY GRADIENT	LOG POPUL. DENSITY GRADIENT
HOUSTON	-0.049	-0.104
DALLAS	-0.043	-0.018
PHOENIX	-0.044	-0.049
TAMPA	-0.053	-0.109

Houston developers do not have to consider minimum lot-size zoning, and they have the use of Municipal Utility Districts (MUDs) to assist them in development. These two factors account for the comparatively high population density gradient in Houston.

Figure 6.1 High Density Development in a Houston Residential Area

MUDs are referred to as "developer" districts (Thomas and Murray, 1991, p.128-29). These districts provide land developers with a substantial amount of capital to build service facilities to support residential, commercial, and industrial projects, effectively allowing them to use districts as extensions of their own business to finance this construction. Historically, MUDs have facilitated the development of the Houston suburbs. Suburban development in Houston was shaped by economic conditions, land ownership, and developers' plans. The 1971 Municipal Utilities District Act established more state power in development, but did not effect the developer's role in district creation and operations (Thomas and Murray, 1991, p. 124-25). Houston developers have had the luxury of determining a district's location, the size, and the density of development. Since a zoning ordinance does not exist in Houston, developers have had

the power to build high density residential subdivisions in the middle of the suburbs or any place where land is available. A developer determines whether the subdivision will be quarter-acre lots or five-acre lots. The density of development will most likely be guided by the maximization of profits for the developer. This type of development takes pressure off of developers to move out towards the urban fringe. High density development anywhere within Houston's suburban district is the result of the absence of zoning.

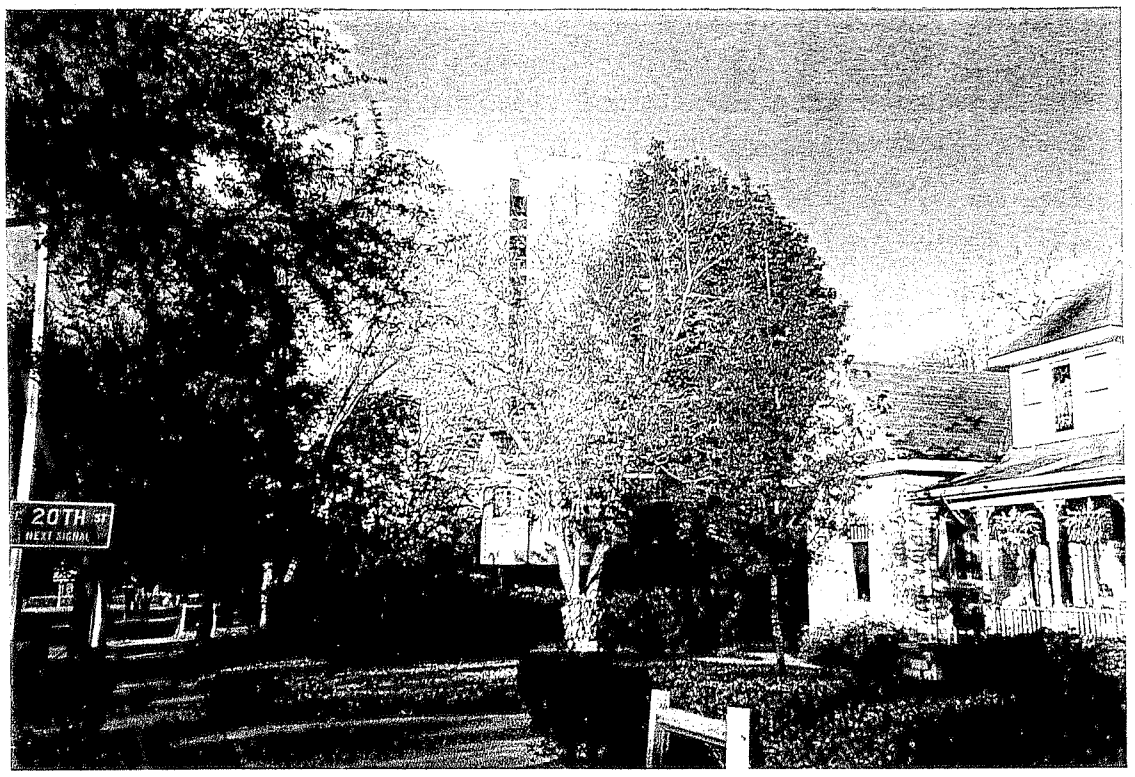


Figure 6.2 High Density Development in a Suburban Neighborhood of Houston

Dallas and Phoenix developers do not have the power to locate high density development in the suburbs because every inch of these two cities is zoned for a specific land-use intensity. Jack C. Harris agrees that zoning ordinances segregate land uses, and limit the density of development on each parcel of land (Harris, 1993, p.8). Therefore,

zoning will established a limit on the number of homes that can be developed in a certain metropolitan area, a restriction on the supply of housing. As the population of metropolitan areas expand, housing will be scarce and development will have to occur at the fringe. Sprawl will be expected to occur more in zoned cities rather than Houston. The density gradients computed from regression analysis show that Dallas and Phoenix are sprawling more than Houston. Zoned cities will have a lower density due to the restrictions it places on housing in an urban area. Because of the lack of zoning and the assistance of MUDs, Houston has a higher density gradient than Dallas and Phoenix. The continued ability of developers to place larger density subdivisions in the suburbs has allowed concentration around the inner-city. John Mixon is not correct when he says that the lack of a zoning ordinance is causing excessive sprawl in Houston. Houston residents are concentrating around the CBD compared to the control cities that have similar characteristics. The lack of zoning is a primary tool that assists developers in keeping Houston a comparatively high population density metropolitan area. The next section will outline the economic reasons of why Tampa would be expected to have a higher population density than Houston.

CHAPTER 7
DENSITY IN THE COASTAL CITY AND THE UNZONED CITY

While comparing the densities of Houston and the three control cities, I found that Tampa had the greatest density. Tampa had a larger density than Houston, Dallas, and Phoenix when regressions were ran with the natural numbers and with the logarithm numbers in order to obtain an elasticity of density with respect to distance. As the only coastal city in the sample, Tampa's density gradient and log density gradient was -0.053 (-5.3 percent) and -0.109 (-10.9 percent), respectively. As the second dense city in the sample, Houston had a density and log density of -0.049 (-4.9 percent) and -0.104 (-10.4 percent). Economists such as William A. Fischel expect Houston to have a greater density because of the lack of a zoning ordinance. The city of Tampa does have zoning, but is a denser city than Houston. The reason is that Tampa is a coastal city. Location near a large body of water will affect the density gradient of Tampa.

A 1986 paper written by Louis A. Rose, "Urban Land Supply: Natural and Contrived Restrictions," addresses the effects large bodies of water have on urban land values (Rose, 1989). Large bodies of water restrict the supply of urban land. Rose measured water's restrictions on supply and tested its effect on interurban land price variation. Tampa is a city that has natural restrictions affecting the availability of land. Hillsborough Bay and the Atlantic Ocean force the majority of urban land development to continue north or west. According to Rose, a body of water close to the urban center decreases the urban land supply, but increases the price of land. Louis Rose's regression analysis involved finding the quantity of land demanded by using the price of land, the

supply of land in the urban area, the population, and the per capita income in the urban area. To explain the interurban price differential, his sample involved 45 urban areas, of which 40 are the most populous urban areas in the United States (Rose, 1989, p.330). Because there were no published estimates of rent gradients when Rose conducted his study, he used population density gradients as a substitute. He qualified this substitution by the urban economic belief that under plausible assumptions, intraurban population density is proportional to rent, and, therefore, population and rent density gradients are the same (Rose, 1989, p.329). Thus a body of water close to the urban center decreases the supply of land and increases the density gradient.

Rose's results provide evidence that natural restrictions on the supply of land affect its price and density. In order to illustrate the extent to which water's preemption of land can affect density and land price, he divided the 40 most populous areas into 24 landlocked areas with indexes greater than .900, and 16 water-bounded areas with indexes less than .900. The mean indexes for the 40, 24, and 16 areas were .873, .974, and .721, respectively. Rose's analysis found that an 11.6 percent increase in the index from .873 to .974 will decrease density by the same percentage, and a 17.4 percent decrease in the index from .873 to .721 will increase density by the same percentage as well. According to Rose, the three coefficients suggest that interurban price variations of 30 to 60 percent may be due to natural restrictions on the supply of land (Rose, 1989, p.333). This data proves that urban areas that are constricted by water will have a higher density gradient because of the lack of land for urban use.

Rose's data suggest large differences between landlocked cities such as Houston, Dallas, and Phoenix, and water-bound cities such as Tampa. The chart below recalls the population density gradients from my regression analysis for the four cities as well as gives the percent differences between Tampa and each individual city.

	POPULATION DENSITY GRADIENT	PERCENT CHANGE FROM TAMPA
HOUSTON	-0.04899	7.60%
DALLAS	-0.04326	18.41%
PHOENIX	-0.04401	16.99%
TAMPA	-0.05302	0.00%

From the data summarized above, Houston, an unzoned city, has a density gradient much closer to Tampa's than the two zoned cities. Dallas and Phoenix's density gradients are 18.41 percent and 16.99 percent smaller in absolute value than Tampa's. Houston's population density gradient is only 7.60 percent smaller compared to the coastal city. I also compared the differences in the logarithm density gradients of the four metropolitan areas. As discussed earlier, this process produces a more plausible result because it accounts for dimension discrepancies. The major dimension discrepancy is the differences in size of each city. Below you will find the population density gradients of the four cities and the comparison to Tampa.

	POPULATION DENSITY GRADIENT	PERCENT CHANGE FROM TAMPA
HOUSTON	-0.10443	3.95%
DALLAS	-0.01755	83.83%
PHOENIX	-0.04898	54.88%
TAMPA	-0.10855	0.00%

As you can see from the data above, the differences between the zoned cities, Dallas and Phoenix, and the coastal city have become much larger. In absolute value, Dallas and Phoenix have density gradients 83.83 percent and 54.88 percent smaller than Tampa's. When comparing the unzoned city (Houston) to the coastal city (Tampa), the result is a population density gradient that is only 3.95 percent smaller in absolute value.

Tampa is a different control city because it is coastal. Louis Rose's work found that there were large differences between the population density gradients of water-bound urban areas and landlocked urban areas. My research agrees with Rose's findings when I compare Tampa to Dallas and Phoenix; however, there is only a small difference when I compare Tampa to Houston. The lack of zoning has produced a greater in absolute value

population density gradient than land-locked, zoned cities. From my data and research, I conclude that an unzoned coastal urban area would have a greater population density gradient than Tampa, and would support my hypothesis that the lack of zoning has caused Houston to have a greater density.

CHAPTER 8
CONCLUSION

If you are ever in the city of Houston and find the urge to hold a conversation, just mention the word "zoning" and I am positive you will find someone to talk to for a long time. I realized this my first day in Texas when I began to tackle this hot Houston issue. While searching for a decent hotel in a safe area, I stopped a Houston police officer. He ended up being the first of 22 interviews I conducted during my nine-day stay in the metropolitan area. After talking for a half an hour about what brings me to Texas, I specifically remember what he told me, word for word: "Every place in Houston is bad and good, because there is no damn zoning" (Interview with unknown Houston Police Officer, December 10, 1995). Here was when I first realized that Houston is different and that I had a lot of work to do in order to understand the city.

While in Houston I acquired many different opinions about the zoning issue. Politicians, lawyers, homeowners and residents, businesses, political activists, and academics all had opinions on what the lack of zoning has done to Houston. The two main points made by zoning proponents were one, the lack of zoning is causing excessive suburban sprawl, and, two, legal nuisances devalued the price of inner city homes. The zoning opponents said that a zoning ordinance would actually induce sprawl and that the lack of zoning has benefited Houston economically in terms of housing prices and business opportunities. I attempted to see who was correct in their beliefs about zoning by using urban economic theory and empirical research. Economic theory and field research in Houston drew me to the conclusion that the lack of zoning causes the devaluation of housing in the inner-city due to the existence of non-conforming land uses,

but preserves a higher density in the Houston metropolitan area because developers are not constrained by lot size regulations.

In order to examine the effects of the lack of zoning in Houston, I familiarized myself with the various studies that have been conducted by urban economists. This led to the selection of three control cities that had zoning ordinances. Dallas, Phoenix, and Tampa were chosen based on the similarities in age, location, population, land area, and demographics. From there, I used the Census on Population and Housing and census tract maps to obtain my data. These data enabled me to scrutinize the effects of the lack of zoning on density and housing prices through multiple regression analysis. Urban economic theory allowed me to calculate from my regression analysis population density gradients and housing price gradients for the four metropolitan areas.

My analysis found a positive housing price gradient in Houston, whereas the control cities produced negative gradients. Negative gradients by metropolitan areas are expected because larger commuting cost to the central business district are capitalized in the price of the home. Some urban economists have found positive gradients because of negative aspects located in and around the city. The positive gradient produced in Houston is the result of non-conforming land uses, which located in residential neighborhoods that lacked deed restrictions. Most of these neighborhoods are older and are located close to the inner city. Homeowners that want to protect their investments move further away from the inner-city into neighborhoods that are heavily protected by deed restrictions. Economic research by Hughes and Turnbull, as well as Speyrer, has proven that neighborhoods with deed restrictions and restrictive covenants have higher housing values (Hughes and Turnbull, 1996) (Speyrer, 1989). This explains why a positive gradient was found in Houston and not the control cities. To illustrate this point, I analyzed two communities that I visited in Houston. One community lacked deed restrictions and the other was heavily protected from non-conforming land uses. The community lacking deed restrictions is located very close to downtown Houston and is

infested with non-conforming land uses. Residents' investments are not protected in this neighborhood. The other community is located at the fringe where homeowners investments are protected. Fringe homeowners pay a premium to enforce the protection of their homes, and this is why I discovered a positive housing price gradient in Houston.

Another result of the empirical analysis showed Houston having a greater (in absolute value) population density gradient than Dallas and Phoenix. Urban economist such as Fischel would have predicted the result of an unzoned city having a denser population. Fischel feels that large-lot zoning in the suburbs causes excessive sprawl because development must move to the fringe (Fischel, 1985). Due to the lack of zoning, Houston developers have had the power to locate higher density subdivisions in the suburbs. No zoning is the reason why Houston is a denser metropolitan area then the control cities. Tampa had a slightly larger gradient than Houston, but this would be expected of a coastal city due to the lack of the supply of land for urban land-use. Although Tampa did have a slightly larger gradient, research by Rose states that a water-bound city should have a much larger gradient then a landlocked city (Rose, 1989). I concluded that an unzoned water-bound metropolitan area would have a larger in absolute value population density gradient than Tampa.

My research has found two different effects from the lack of zoning which has scored points for both zoning proponents and zoning opponents. Compared to cities of similar characteristics, the deficiency of zoning in Houston has devalued housing in inner-city areas because of the lack of protection from deed restrictions, but has not caused excessive suburban sprawl. These are two effects in Houston that no one suggested to me go hand in hand. The nonexistence of a zoning ordinance was either all or nothing from the point of view of zoning proponents and opponents. Economic research backed by a strong data collection process tells me otherwise.

The lack of a zoning ordinance has been a hot issue for the majority of the early 1990s in Houston, and land-use regulations are currently at the top of the Houston city

hall list. After studying the issue intensely for nearly a year, I have developed an informed opinion about zoning in Houston. Barton Smith and I agree that zoning should have been adopted 70 years ago if it were to happen in Houston. I feel that Houston is one of America's most important cities. Its past leaders have developed Houston to be the New York City of the South/Southwest. It is one of the largest American cities with a low cost of living, and this can be accredited to its low housing prices. Of the four metropolitan areas I analyzed, Houston's median housing price was considerably lower than the three control cities. The median values of housing for the tracts in my sample came from 1990 census data and are as follows: Houston $62,300, Dallas $82,700, Phoenix $81,350, and Tampa $66,000. Housing in Houston's residential areas is about $20,000 less than Dallas' and Phoenix's residential areas, and about $4,000 less than Tampa's. I believe that the lack of zoning is the major contributor to low housing cost, and has assisted in Houston's economic dominance over the South and Southwest.

Not adopting zoning has had its benefits in Houston, but it has also produced consequences for the metropolitan area. The major consequence is the location of non-conforming land uses in the city's residential districts and edge-city development, such as strip malls facing high class luxury homes. I do not feel that zoning is the answer to fixing these problems, but a confusing and painful dead end. If zoning had been adopted in 1993, the city's next step would be to expand its legal department for the multiple law suits that would have emerged. I agree with what the mayor and council are trying to do now that zoning has failed. They have begun to concentrate on the one land-use control device Houston does have--deed restrictions. The legal department has stepped up its intensity in enforcing deed restrictions under Mayor Lanier's aegis (Houston Chronicle, "City putting teeth in deed restrictions," September 24, 1994). Changes that have been made include the adoption of a telephone line to report violations. Instead of the previously required written reports, residents can dial (713) 652-3272. A task force to enforce deed restrictions was commissioned and assembled involving representatives of

Houston's legal department, police, and planning departments. The city has called for increased fines of up to $1,000-$2,000 a day per violation and/or criminal prosecution for violators.

Houston is currently working on legislation to have deed restrictions renewed or placed in residential neighborhoods that lack them. In early May 1996, I had an opportunity to meet with Kathy Whitmire, former mayor of Houston and proponent of zoning. She conducted a seminar at Dartmouth titled "The Future of American Cities," and gave my advisor and me 90 minutes of her time to discuss the zoning issue. An interesting topic that she discussed was residential elections that have occurred in individual neighborhoods of Houston concerning deed restrictions. In neighborhoods that lack deed restrictions, or have had them expire, homeowners could vote to have deed restrictions installed or renewed in their neighborhood. Approval of 50 percent of the residential area's homeowners was required to pass the proposal. Homeowners that did not want to be bound by new, or renewed, deed restrictions were given the right to submit a denouncement to the city within six months. The former Houston mayor's family owns a home in a residential neighborhood near downtown that adopted deed restrictions by way of this process. When asked how many people denounced the obligation of following new or renewed deed restrictions, she answered "No one in her neighborhood" (Interview with Kathy Whitmire, May 7, 1996). I think that Houston politicians are taking the right steps to deal with non-conforming land uses in the metropolitan area. Working on deed restrictions is the way to solve many of the nuisance problems in Houston--not zoning.

The question I posed to the reader was: Is Houston different from any other city in the United States because of the lack of zoning? My answer is: Yes! The nonexistent zoning ordinance in Houston has caused the city to exhibit different population density gradients and housing price gradients compared to cities of similar characteristics. The question I ask Houston residents is: Are you happy with this distinction?

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