Growth Management and Land Use Controls: The San Francisco Bay Area Experience

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Local land use and growth controls have had a substantial negative impact on the San Francisco Bay Area housing market. These regulations have significantly diminished the availability of development opportunities in the region and forced builders to make major changes in the way they do business and costly alterations in their development projects. Both the empirical evidence reviewed and the case studies documented in this paper indicate that building moratoria, growth management systems, and restrictive zoning practices have helped lead to significantly increased house prices in those Bay Area communities in which they are present. The evidence strongly suggests that land use controls as they are currently utilized in the Bay Area provide a poor policy alternative for reconciling important environmental and fiscal considerations with equally important regional and national housing needs.

INTRODUCTION

The rapid proliferation of stringent local land use controls is a nationwide phenomenon. These local regulations may have had perhaps their greatest impact on the housing market of the San Francisco Bay Area. The extent of this impact is reflected in the tremendous increase in Bay Area house prices in recent years.

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Although as recently as 1970 San Francisco metropolitan area house prices were not much greater than the national average, by the late 1970s they were the highest in the country. approximately twice as high as the national average. Currently, the San Francisco Bay Area remains the nation's most expensive housing market with an average sales price of conventionally financed homes at $131,700.[1] This surge in house prices has been coincident with significant increases in the economic and demographic demand for housing in the metropolitan area. However, it also has been coincident with a dramatic increase in the use of a wide variety of local land use and growth control mechanisms.

To a much larger extent than elsewhere in the country, San Francisco Bay Area residents have attempted to preserve their "quality of life" through downzoning, building moratoria, stringent environmental regulations, sophisticated growth management systems and many other local land use control techniques. The dynamic economic growth and accompanying rapid housing development of the 1950s and 1960s has evolved into a desire to preserve the status quo and protect the natural and "economic" environment from the more damaging aspects of unconstrained suburban development. The consequence of this shift in attitudes and policies towards growth and housing development in the Bay Area has been a sharp reduction in the supply of developable land and a sharp escalation in the price of housing.

In the second section of this paper, the most important types of local land use controls used in the Bay Area are described and analyzed. Also included is an analysis of the results of empirical works that have attempted to quantify the impact of these controls on the housing market. In the third section, the manner in which homebuilders are attempting to cope with this new regulatory environment is examined. A case study that highlights the costly adjustments that builders and the housing market have been forced to make to cope with the Bay Area's stringent control is also examined.

LAND USE AND GROWTH CONTROLS IN THE SAN FRANCISCO BAY AREA

Zoning

Zoning functions through the allocation of neighborhoods to particular land uses and has several asserted purposes. Historically, the primary rationale for zoning has been to spatially separate "incompatible" land uses for the purpose of mitigating the negative effects or nuisances supposedly associated with certain types of land uses. By eliminating or reducing the harmful externalities which would have been present in an unregulated market, this type of zoning, typically referred to as externality zoning, often serves to increase residential property values. In this case, the increase in land values reflects higher levels of residential services consumed.

A second asserted purpose of zoning, which has been especially important in the San Francisco Bay Area, is the preservation of neighborhood character. Zoning ordinances often proclaim this goal as the reason for regulations designed to maintain a "rural atmosphere" and/or protect open space. These techniques tend to reinforce a high degree of homogeneity within a community and to exclude those perceived as economically undesirable by the residents.

Fiscal concerns are another justification for zoning practices. Fiscal zoning, the use of zoning to protect the fiscal concerns of the community as a whole, attempts to exclude development which is perceived as a fiscal burden. Since most multifamily and single-family developments are perceived as generating higher public service costs than revenues, increased fiscal zoning concerns usually mean a reduction in the amount of land zoned available for residential development.

The nature of the property tax itself also serves to encourage fiscal zoning. Property taxes generally vary according to house value, while public services usually show little correlation with house value. Communities can thus minimize income redistribution via the local public sector by excluding low value housing (and low income households) from the community. As a result, critics of traditional zoning assert that zoning is merely a mechanism for the geographic segregation of low and moderate-income families. From this perspective, one can view zoning controls in many parts of the country as working primarily to maintain housing costs at a level high enough to prevent anyone with a lower income than a community's existing residents from finding affordable housing in that municipality. In fact, the recent expansion of land use restrictions would in part make it difficult for a good proportion of existing residents to afford to live in their own houses if they had to buy them at present prices.

Restrictive zoning practices are especially widespread in the San Francisco Bay Area. Despite an enormous supply of vacant land, the Bay Area is confronted with an insufficient supply of residentially developable land. Although much of the land is undevelopable because of its topography or sensitive environmental nature, a large portion of the vacant land is prevented from development but local land use regulations (Dowall and Landis, 1981). Additionally, much of the small amount of land on which development is permitted is zoned for only large lot, low density development. Raw data from a 1975 land use inventory by the Association of Bay Area Governments (ABAG) indicate that the average zoned density of residentially zoned lands in the region's incorporated jurisdictions was only 3.1 dwelling units per acre.[2] Given the amount of land zoned for residential development and the zoned densities existing in 1975, ABAG estimated that the supply of land available for residential development would not be sufficient to meet projected housing demand beyond 1990 (ABAG, 1977). Since 1975, rezonings in many Bay Area communities have removed more land from the residentially developable supply and further reduced the permitted densities of new development in many areas.

Additionally, Proposition 13, California's recent property tax limitation, has served to exacerbate the trend towards growth controls and restrictive zoning practices in the Bay Area. Before the passage of Proposition 13, as Frieden (1979) has pointed out, existing residents in desirable communities which succeeded in restricting new residential development often faced large increases in their property tax bills. This occurred when people attempting to move into those communities bid up the prices of existing homes and thereby engendered increases in the assessed valuations of those homes. Yet, by limiting the property tax rate to 1% of the "full cash value" of the property, with the full cash value defined as the 1975-76 assessed value of the property, and by limiting increases in full cash value for properties not sold to 2% annually, Proposition 13 now allows existing suburbanites to continue to severely restrict homebuilding in their communities while being protected from large property tax bill increases.

The increased fiscal awareness and uncertainties engendered by Proposition 13 and by California's recent government spending limitation, Proposition 4, also have exacerbated the trend towards growth restrictions by many Bay Area communities and led to an intensification of the reliance on fiscal zoning practices. The combination of Proposition 13's limitation on the potential revenues generated by residential development with rapidly escalating capital infrastructure and public service costs has made residential development much less fiscally attractive to local governments. Many Bay Area jurisdictions have consequently altered their approach to zoning and land use planning and now attempt to augment tax base by attracting commercial development while further restricting the land available for residential development, and, especially, for high density residential development.

However, a recent study prepared for Suisun City, a small community located in Solano County at the northern end of the Bay Area region, by William T. Leonard of the Hoffman Company of Concord, California and by ABAG casts some doubts over the fiscal justifications used by many communities for restricting fairly high density, moderate-income housing developments.[3] The study compares the projected ten-year costs and revenues to the city of a typical thirty-acre subdivision developed as 10,000 square foot lots with those of a subdivision of the same size developed as 6,000 square foot lots. Exhibit 1 presents the characteristics of the two types of developments and the projected cumulative costs and revenues. As shown in Exhibit 1, this study indicates that Suisun City could reap a 45% fiscal benefit in terms of net revenues through a subdivision development of more affordable 6,000 square foot lots rather than one of 10,000 square foot lots. This result is primarily derived from the fact that the development of 6,000 square foot lots leads to an increase in revenues to the city from increased sales tax revenues and per capita subsidies and to a reduction in average public service costs from the efficiencies associated with serving a slightly larger number of people. It should be noted that the costs and revenues projected in this study are only those to the municipal government

EXHIBIT 1

COSTS AND REVENUES TO SUISUN CITY OF A TYPICAL 30-ACRE SUBDIVISION

Subdivision Characteristics

	10,000 sq. ft. lot	6,000 sq. ft. lot
Dimensions	84' x 120'	60' x 100'
Total lots	108	173
Density per acre	3.60	5.77
Collector Street	900 LF	1040 LF
Neighborhood Street	3600 LF	4650 LF
Storm Drain	2300 LF	2700 LF
Sanitory Sewer	4470 LF	5140 LF
Water	4470 LF	5140 LF

Cumulative 10-year Costs and Revenues

	10,000 sq. ft. lot	6,000 sq. ft. lot
Revenue to city	$6,928,654	$10,440,544
Cost to city	3,248,323	3,774,329
Net Revenue to city	$3,630,361	$ 6,666,215

Note: "LF" signifies "lineal feet."
Source: *California Builder*, January, 1981, p. 12.

and do not include the effects on the school district which might serve to weaken these results. Yet in communities where these results do hold, fiscal justifications for restrictive land use policies serve to a large extent as a cover for more exclusionary motivations.

Zoning ordinances may impact housing costs in several ways. The most important impact is probably on raw (or unimproved) land costs. Density controls and zoning's allocation of land into various uses can serve to restrict the supply of developable land and thereby increase land prices. Minimum lot size regulations often increase the land cost per dwelling unit. Architectural standards and minimum floor areas requirements that are often included in zoning ordinances may work to increase administrative, land development and actual construction costs. Also, various review procedures serve to increase direct administrative costs, while various delays can increase financing costs as well as other holding costs.

Zoning's impact on raw land costs depends on whether or not zoning actually modifies the allocation of land to alternative uses. If zoning does induce significant changes in the amount of land allocated to various uses, then the prices of land in overallocated categories should be depressed relative to prices in the unzoned market, and prices in the underallocated categories will be elevated relative to those in the unzoned market. Ohls, Weisberg and White (1976) have rigorously demonstrated that zoning regulations which restrict the supply of

land available for residential development below that which would be normally exchanged in the market, operate to increase the costs of residential land. Many Bay Area communities severely limit the availability of residentially developable land.

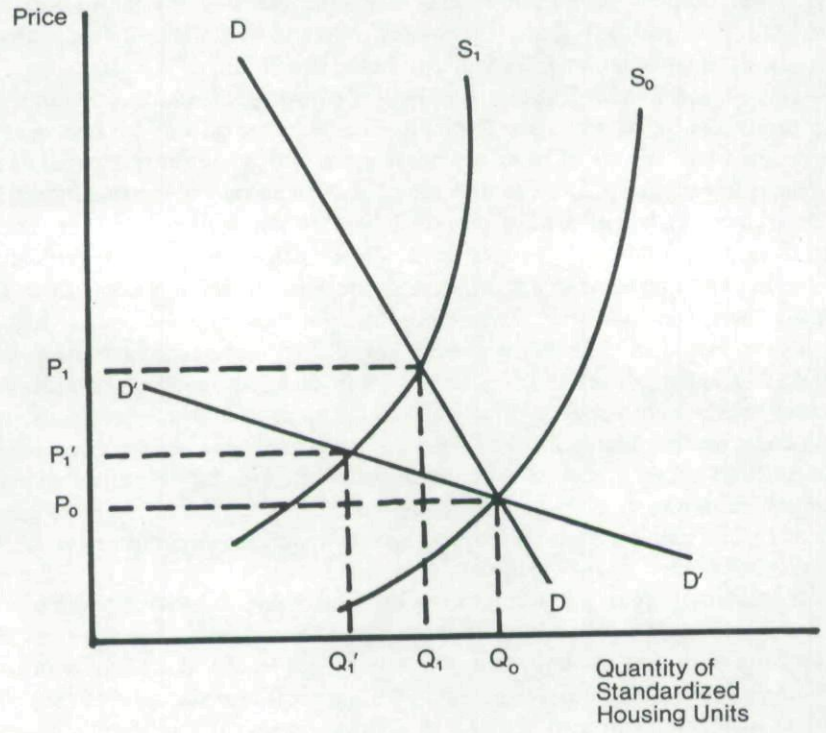
Additionally, Stull's (1974) theoretical work has shown that communities which direct land out of residential and into employment-generating use will tend to increase residential land prices as the supply of available residential land is reduced and as increased employment raises the demand for residential land. The implication of this result for the Bay Area and especially for Santa Clara County's booming high technology center, the "Silicon Valley," is that current zoning and other local development policies that encourage job-generating development while preventing residential development will eventually slow down the region's rate of economic growth. The higher residential land prices engendered by these policies translate into higher housing costs and eventually should be capitalized into higher wage rates as employees are forced to pay these higher housing prices. Zoning practices in the many Bay Area communities that also severely restrict commercial as well as residential development will lead to increased commercial land costs and thereby higher business rents and building costs. Higher wage rates, rents and building costs will make the Bay Area less attractive to business and induce firms to settle in alternative areas and may even encourage existing Bay Area firms to expand elsewhere or leave the region altogether.

The impact of restrictive land use controls, of which stringent zoning regulations are a prime example, on the housing market of the restrictive community is illustrated for a simple flow model of the housing market in Exhibit 2. In period 0 before the imposition of the controls, the flow supply of housing units onto the market is S_0. This curve represents the summation of the relevant portions of the marginal cost curves of the new housing production firms and of the supply schedule for existing units to be placed on sale. The equilibrium in period 0 occurs with Q_0 units being sold at a price of P_0 per unit.

In period 1, the imposition of restrictive land use controls leads to an upward shift in the marginal cost curves of the new housing production firms. For a restrictive zoning ordinance, increases in the price of residentially zoned land, minimum lot size and floor area requirements, and increases in delays and administrative requirements can all serve to increase the costs of building new housing. In Exhibit 2, assuming the supply schedule of existing units to be placed on sale remains constant, the result is an upward shift in the market supply curve from S_0 to S_1. For a given set of land use controls, the effect on the price of the community's housing depends on the price elasticity of demand for housing in the community. As shown in Exhibit 2, for a fairly inelastic demand curve, such as DD, land use controls can cause a large price increase (from P_0 to P_1), while for a more elastic demand curve, such as D'D', the price increase is not as large (from P_0 to P_1').

EXHIBIT 2

HOUSING MARKET OF COMMUNITY IMPOSING RESTRICTIVE LAND USE CONTROLS



There have been a number of empirical studies on the effects of zoning on housing values. The results of these studies have been somewhat mixed for different areas of the country. Crecine, Davis and Jackson (1967), Reuter (1973), and Maser, Riker and Rossett (1977) did not find an impact of zoning ordinances on house prices. However, each of these studies has been challenged for methodological problems. On the other hand, Stull (1975), Peterson (1974 a, b), and Frech and Lafferty (1978), each using different techniques, found for other areas of the country a significant impact of zoning on house prices. Additionally, Sternlieb and Sagalyn's (1972) empirical results indicate that large-lot zoning directly raises the price of land per housing unit and also indirectly raises house prices by inducing larger floor areas and house sizes.

Two recent studies (Gabriel and Wolch, 1980; Dowall and Landis, 1981) have examined the impact of restrictive zoning practices on house prices in the San

Francisco Bay Area. Gabriel and Wolch (1980) tried to assess the effect of exclusionary zoning on house prices in the Bay Area through a variable measuring the extent of large-lot zoning on the remaining developable land of each of the 50 jurisdictions in their sample. They conclude from their econometric results that large-lot zoning adds substantially to housing prices. Yet, these results must be accepted with caution since the significance of the large-lot zoning variable is not stable. In fact, the variable proves to be statistically insignificant in equations including an accessibility or house size variable.

Dowall and Landis (1981), using multiple regression techniques, attempted to proxy the impacts of zoning policies on new house prices with one variable measuring the number of acres of undeveloped land zoned for residential development in each community in their sample and an additional variable measuring the average residential density proposed by each community for its remaining undeveloped, residentially zoned land. Zoned densities and land availability were both found to have a significant impact on new house prices in the Bay Area. They conclude that their results indicate new house prices are higher, ceteris peribus, in communities with low density development policies and limited supplies of developable land. Dowall and Landis also conclude that density restrictions appear to have the most important price effects of any zoning controls, and that policies which directly restrict new construction and/or densities in active suburban communities have the greatest overall inflationary impact. However, it must be noted that Dowall and Landis fail to include any local fiscal variables, such as property tax or municipal expenditure variables, in their new house price equations.

In summary, zoning regulations severely restricting residential development have spread rapidly through the San Francisco Bay Area in recent years. The result has been that the Bay Area currently suffers from a short supply of land available for residential development. The empirical evidence tends to support the theoretical predictions that these controls serve to significantly increase house prices.

Subdivision Regulations

Subdivision regulations also add significant costs to land development in the San Francisco Bay Area. Although early subdivision ordinances required only minimal disclosures of surveying and engineering information, current ordinances in the Bay Area and in many other regions of the country demand numerous on-site and off-site improvements and often involve lengthy and complex approval procedures. Sewers, streets, storm drains, water lines and many other public improvements which previously were typically built by local governments have almost universally become the responsibility of the residential developer.

In recent years, the number of required improvements has proliferated and subdivision design standards have been greatly increased. Although more elaborate

subdivision ordinances have generally served to improve residential environments, they have also drastically increased lot preparation costs. Subdivision regulations increase housing costs throught the shifting of public service costs to developers, increased and often excessive improvements requirements, lengthy delays, and the increased administrative and engineering costs associated with various fiscal and environmental impact assessments (ULI, 1977; Seidel, 1978).

The first way that subdivision controls can increase housing costs it through the costs of unnecessary or excessive requirements. If a requirement is truly unnecessary to promote the "health, safety, and general welfare of the public," then the increase in costs must be directly attributed to regulation. However, the determination of whether or not a minimum standard or requirement is necessary or excessive is extremely difficult and clearly represents in part, a value judgment. Babcock and Bosselman (1973) assert that subdivision ordinances frequently impose standards for improvements that add costs beyond what are needed for genuine consideration of public health and safety and which serve the purpose of increasing house prices to exclude moderate and low-income families.

Some empirical work has been done on the impact of increased subdivision requirements on housing costs. In a 1976 study of New Jersey, Seidel[4] (1978) alleges that unnecessary site improvement costs, such as excessive sidewalk and utilities requirements, attributable to subdivision regulations, increased total costs $877.17 per unit or 2.3% of the selling price of a unit. In a study of Jacksonville, Florida for 1976, the Urban Land Institute found that changes in water system standards and street width requirements added $830 to land development costs per unit (ULI and Gruen Gruen & Associates, 1977). Also, excessive requirements, such as excessive street width requirements, that increase the amount of land needed for public improvements also may reduce the number of units that can be developed by reducing the amount of land available for housing units. Although it is quite difficult to separate unnecessary from necessary requirements, the literature suggests that excessive subdivision requirements do impose additional costs in many localities.

Subdivision regulations also can increase housing costs by shifting the public service costs of new development from the municipality onto developers themselves. Communities which have traditionally covered the bulk of public service costs of new residential development have become increasingly conscious of the fiscal impact of land development.

The influence of Propositions 13 and 4 has made this fiscal awareness especially acute in the San Francisco Bay Area. A recent survey of sixty-four San Francisco Bay Area communities revealed that over half of the communities use cost-revenue analysis in decisions concerning new residential development. Additionally, over 60% of the communities indicated that consideration of this factor has become more important since the passage of Proposition 13 (Gabriel, Katz, Wolch, 1980).

The major instrument for communities to shift public facilities costs to developers has been the imposition of substantial fees and taxes as well as land and dedication requirements on new developments. The costs of public facilities and of processing the development is passed onto the developer through school impact fees, sewer and water connection or facilities fees, capital improvements fees, park fees, storm drainage fees, construction taxes, subdivision map filing fees and miscellaneous other charges. In the San Francisco Bay Area, Gabriel, Katz and Wolch (1979) found development fees on a standard 3-bedroom home in the summer of 1979 of over $5,000 in some communities and a regional mean fee level of $1,907. A more recent survey of the Bay Area by ABAG found community fee levels ranging from $800 to $6,000 and found that the median per unit fee had risen to $2,800 (ABAG, 1980). Large fee increases are continuing under the continuing fiscal impact of Proposition 13. In fact, recent builder interviews indicate that fees are currently over $7,000 per unit in some Bay Area jurisdictions and that development fees are increasing more rapidly than any other component of building costs.

Requirements for the dedication of land for school and park sites also add substantial costs to development. Land dedication requirements increase land and sometimes improvements costs per unit and also reduce the number of units that can be developed. For example, one developer with a project currently going through the approval process in an outlying Bay Area community indicates that if he is required to dedicate the five acres for parks that the city is requesting, the number of units he could build would be reduced from 297 to 267 and that his per unit costs would be increased by $1,705. In many cities, the developer can often choose between dedicating land for recreation and paying a park dedication fee. In the San Francisco Bay Area, park dedication fees were as high as $1,800 per standard 3-bedroom unit in 1979 (Gabriel, Katz, Wolch, 1979). Although many fees reflect the actual costs of providing services to the new development and, thereby, may be both reasonable and desirable, there are also many examples where the efforts to shift costs appear excessive since the revenues generated by the charge not only cover the costs of services to the new development but provide services for the general community as well. In this latter case, development charges may act as exclusionary instruments raising the costs of housing and extracting surplus from the developers and potential residents for the benefit of existing property owners.

Subdivision requirements as well as other land use regulations can add substantial administrative and delay costs. Increased concerns by municipalities over the environmental, social and fiscal impacts of new development mean that many developers must invest much time and money in analyzing development alternatives and their effects. This increases administrative, planning, engineering and architectural costs. A variety of subdivision regulations also increase the amount of time spent on submittals, reviews and negotiations with public officials. The use of fiscal and environmental impact analysis as well as the lengthy

and uncertain subdivision review procedure have greatly increased the time needed to obtain development approval in recent years and can add prohibitive costs of delay (Frieden, 1979). The carrying costs imposed by delay consists of the interest costs of land development financing, the opportunity costs of the capital tied up in the project, the additional property tax on the land, staff costs and other increased overhead costs. The uncertainty and risk involved in the regulatory process also may increase the developer's required profit margin. Seidel (1978) reports that most homebuilders estimate that each additional month added to the completion date of a unit can increase the final selling price of a unit by up to 1-2%. A national survey of builders regarding the length of time necessary to gain development approval found that in 1970, 72.2% of the developers interviewed obtained approval to develop in less than seven months and only 2.8% required over a year to gain approval. By 1975, only 14.5% were able to gain permission in less than seven months and 58% needed over a year (Siedel, 1978, p. 135). In the San Francisco Bay Area, builder interviews suggest that delays of much longer than a year, and sometimes as long as three to five years, are the norm for large projects in many communities.

In summary, while each particular subdivision regulation may not seem to add that much to housing costs, the entire complex of subdivision requirements utilized in the Bay Area and in many communities throughout the nation can add substantially to housing costs through increases in land development costs, financing and holding costs, administrative costs and fees and taxes.

Growth Management Systems

The conscious and systematic control of growth by local governments has spread rapidly throughout the San Francisco Bay Area and other parts of the country in recent years. Although there are a wide variety of growth management techniques ranging from outright building permit moratoria to fully developed growth management timing ordinances, all serve to greatly increase municipal control over private development decisions. Localities typically justify growth controls in terms of the benefits of improved environmental quality, lower municipal service costs and property taxes, and the preservation of small town character (S. Schwartz, et al., 1979). Proponents also assert that growth control practices enable communities to better control suburban sprawl and the many problems connected with it. Critics respond that growth controls act to exclude low and moderate-income households (Babcock and Bosselman, 1973; Seidel, 1978) and to promote the immediate economic self-interest of property owners in the growth control communities at the expense of losses imposed on current renters and potential buyers and renters of housing in the growth control communities (Ellickson, 1977).

Growth management programs are likely to have an important inflationary effect on housing costs and housing prices. In theory, any growth management

system which works to restrict the supply of land available for development will probably raise the price of developable land and thereby the cost of new housing. Requirements for compliance with the growth management system and increases in the time needed to gain project approval also lead to increased development costs. The supply-depressing effects of growth management programs tend to increase both new housing costs and the price of the municipality's entire housing stock. The less elastic the demand for the community's housing, the greater the impact will be of growth controls on the community's housing prices. Additionally, as Schwartz et al., (1979) have noted, if growth management makes a community appear more attractive to homebuyers, possibly since it is more exclusive, the demand for housing in the community will be increased (the demand curve will shift up and to the right) and house prices will be further increased.

Also, the lack of housing opportunities in the growth control community can be expected to shift demand to nearby jurisdictions with housing that is perceived as substitutable to that in the growth control community. Unless the supply of housing is perfectly elastic in substitute areas, the shift in demand will raise house prices in these areas. The magnitude of the price effect in substitute communities depends on how substitutable the housing in those communities is felt to be and on the elasticity of supply in the substitute areas. A less elastic supply implies a greater impact on prices.

Overall, the impact of growth controls on housing prices in the growth management jurisdiction and in surrounding communities to a large extent depends on the amount of substitutable developable sites available in the surrounding municipalities and elsewhere in the region. If there are plenty of available, alternate sites, then the restrictions imposed by the growth management program may not have a very serious impact on housing prices, but may only influence the location of demand. On the other hand, if development is restricted in much of the region and if demand is strong, such as in much of the San Francisco Bay Area, then growth controls are likely to have a significant inflationary impact.

Communities attempting to control growth often adopt a wide range of policy instruments. Jurisdictions typically combine the stiffening of traditional devices such as zoning and subdivision ordinances with the adoption of a more sophisticated growth management system. Techniques used specifically to control growth include adequate public faciliities ordinances, growth management timing ordinances (in which the timing of new growth is controlled by various regulatory mechanisms), building permit limitations, urban service area designations and building permit moratoria.

Several jurisdictions in the Bay Area have attempted to relieve pressures on the municipal treasury, prevent the overcrowding of facilities, and directly control growth through the enactment of ordinances which mandate the availability of public facilities as a prerequisite for permission to develop. For example, in San Jose, an adequate public facilities ordinance, Measure B, was passed as an initiative in 1973. The alleged original purpose of the ordinance was to help

alleviate overcrowding in various schools by the control of residential development (Seidel, 1978). The ordinance established the availability of school space as a prerequisite for approval to develop and placed a moratorium on residential permits in certain areas unless the permits were approved by the school board and city council. This ordinance added to the growth control program which was put in place through the establishment of the city's urban development policy in 1970. This policy partitioned San Jose into an urban service area, an urban transition area and an urban reserve, with most development limited to the urban service area. Also, much land was designated as vacant and removed from the developable land supply.

The Urban Land Institute and Gruen Gruen and Associates (1977), studied the effects of growth management on housing costs in San Jose. They conclude that between 1967 and 1976 at least 20-30% of the housing cost increases their case study identified could be directly attributed to local growth management policies and that between 1968-1976 the price of one builder's standard unit increased 121.3% with 43.4% of this increase related to growth management policies. Still, these results must be treated with some skepticism because 1) land price increases were fully attributed to growth management, although major portions were probably due to inflation and other market factors, and 2) because the increases in profits and costs attributed to growth management cannot be clearly justified without a control city for comparison.

Other communities in the Bay Area have attempted to control growth through through growth management timing ordinances and/or annual building permit limitations. Growth management timing ordinances have proliferated in the Bay Area in recent years. While in 1972 only one community in the Bay Area, Petaluma, had a fully developed, explicit growth control system, Dowall (1980) notes that three years later thirty-one civil divisions had such measures.

The Bay Area's most notable growth management program is the one present in Petaluma, California, a community located in the southern portion of Sonoma County approximately forty miles from downtown San Francisco. In Petaluma, the growth management system combines ceilings on the annual number of units that can be built by both type and location with various requirements relating to the availability of services, the quality of design, and the fiscal and environmental impact of the community. Gleeson (1979) hypothesizes that the effect of this type of growth control timing ordinance is to segment the land market into distinct submarkets: those parcels that can be developed at a particular point in time and those that cannot because of public action.

Schwartz et al. (1979) examined the impact of Petaluma's growth management program on new housing prices in Petaluma and in the nearby communities of Rohnert Park and Santa Rosa. Schwartz et al. compared housing prices in Petaluma before and after growth control with the corresponding prices in Santa Rosa and Rohnert Park. They used dummy variables for city, time and interactive terms between city, time and housing characteristics to estimate

separate price equations for each city in each time period (before and after growth management). Schwartz et al.'s results show that prices of "standard houses" increased significantly more in Petaluma than in Santa Rosa (by approximately 7% of the pre-growth control value of the home) during the 1969 to 1977 period. The bulk of this price difference is attributed to Petaluma's growth control program.

Petaluma's prices also increased relative to Rohnert Park, but the increase was small and not statistically significant. Schwartz et al. attribute this to the strong interdependence between the housing market of Petaluma and Rohnert Park. A problem with this explanation is that if the new housing supply in Rohnert Park were fairly elastic, then, unless housing in Rohnert Park and Petaluma were perfect substitutes, an effective growth control program in Petaluma would increase prices in Petaluma to a larger extent than in Rohnert Park. Schwartz et al. give no reason for the supply to be at least fairly inelastic in Rohnert Park. However, a possible explanation for a not very elastic supply response in Rohnert Park and consequently for Schwartz et al.'s result is the movment toward growth restriction that occurred in Rohnert Park in the years following the adoption of the Petaluma plan. The direction of suburbanizing population and housing demand from Petaluma to Rohnert Park placed great pressures on Rohnert Park's public-service systems and induced Rohnert Park to drastically increase its development fees including the adoption of a large "bedroom fee" to provide park improvements and of a "school impact fee." In 1977, the problems generated by the spillover of demand from Petaluma provided the justification for Rohnert Park's adoption of its own growth management program which includes a restriction on new development to 650 units per year (Gabriel and Wolch, 1980).

In comparisons of actual houses, Schwartz et al. found that much of the price increases in Petaluma should be attributed to substantial increases in floor area. They concluded that much of this increase in floor area can be attributed to growth control since the evaluation system under which building permit allocations are awarded was heavily biased in favor of high quality and generally larger units. This evidence suggests the Petaluma system may lead to a market reorientation towards larger and more expensive homes geared for higher income buyers. Schwartz et al.'s results must be accepted with caution since some of the price differences attributed to growth control may actually have been at least partially caused by important factors which were not controlled for in their estimation. Part of the price changes could have been produced by changes in property taxes, public-service expenditures, or transportation costs, all of which were omitted from the price equation tested.

Another growth management technique is the creation of "urban service areas" or the designation of an urban limit line. Urban limit lines reduce the supply of developable land by restricting development to serviced areas. The expected effect of this type of growth management system would be to segment

land markets into developable and undevelopable portions. Gleeson (1979) asserts that this segmenting would lead to a divergence in land prices between the developable and undevelopable segments. Also, the restriction on the supply of developable land should cause land prices in the developable portion to rise and, thereby, increase housing costs. San Jose's urban development policy is a prime Bay Area example of this type of program.

A final major growth control tool is the building moratorium. A building moratorium refers to the freezing of the building permit approval process usually in response to a lack of the adequate supply of some essential public service, notably sewers, water or schools. The building moratorium has become one of the most common temporary devices for controlling growth. For example, a recent survey of sixty-four San Francisco Bay Area jurisdictions showed that since 1970 approximately half had imposed some sort of moratorium on residential development for some significant period of time (Gabriel, Katz, Wolch, 1980). For example, the Marin Municipal Water District had a water connection moratorium affecting most development in the majority of jurisdictions in Marin County from June 1973 to March 1978.

The direct impact of a building moratorium is to restrict the supply of new housing. This will tend to increase housing prices with the intensity of the impact depending on the extent and duration of the restriction and the elasticity of demand. Janczyk and Constance (1980) hypothesize that a building permit moratorium also will have important anticipatory impacts that occur before it takes direct effect. They suggest that large builders will in anticipation take out enough permits ahead to time to match the expected flow of demand over time and that prospective buyers will revise their overall expectations of price increases upward. Thus, the anticipatory input will be an outward shift of demand and supply. Overall, the reduction in the flow of new units onto the market caused by a building moratorium can be expected to have a substantial price-increasing effect when growth controls and moratoria are widespread in a region.

Gabriel and Wolch (1980) attempted to assess the impact of local government growth controls on house prices in the San Francisco Bay Area. They proxy local government constraint on development by a dummy variable reflecting city council attitudes toward growth. The variable is interpreted as reflecting existing resident attitudes regarding rwoth and as indicating the presence or absence of local controls associated with the development process, such as municipal processing delays, ambiguous approval requirements and explicit growth management systems. They estimated a reduced form house price equation over a cross-section of fifty Bay Area jurisdictions with mean 1976 community housing price as the dependent variable. In addition to the attitudes toward growth variable, their equation includes square feet of living space, age of housing, property tax rate, school expenditures per unit of daily attendance, percent minority children enrolled in local schools, accessibility, vacancy rate, development fees, and extent of large-lot zoning as independent variables. The variable

measuring city council attitudes towards growth is consistently significant, and the estimated coefficient suggests that house values were about $4200 (or 8% of mean sample house value) lower in 1976 in those Bay Area communities whose local representatives took pro-growth stances. This variable appears to capture some of the aggregate impacts on house prices of local growth management practices.

Katz and Rosen (1980), using 1979 house sales transactions data, also attempted to assess the impact of growth management systmes and building moratoria on house proces in the San Francisco Bay Area through a number of econometric tests on a sample of sixty-four Bay Area communities. A growth control index measuring the existence, duration and stringency of growth management systems and building moratoria in each community was developed to proxy the effects of these regulations. The growth control index proved to have a large positive effect on house prices and to be highly statistically significant for equations using all (both new and existing) sales transactions data. Katz and Rosen's econometric results indicate that explicit growth management plans and building moratoria have served to increase house prices by approximately 18 to 28 % in those Bay Area communities in which they are present.

Although the ostensible goal of most growth control systems is to reduce the fiscal, social and environmental costs associated with new development, these costs do not easily disappear. The result often is that these controls serve to shift the costs of growth onto other communities, developers and prospective residents.

For example, in recent years, pressure from neighborhood and environmental groups to preserve small town "community character" and open space has provided a major rationale for a number of growth management plans. Frieden (1979) reports that rather than showing a commitment to guide the growth of the San Francisco area according to environmental principles, many environmental groups have shown hostility to growth or development of any kind. Frieden and many builders assert that the result of increased environmental regulation in the San Francisco Bay Area has been for the developers to move to the fringes of the region and to build small conventional developments that do not attact much attention. This frequently leads developers to move out to exurban agricultural areas and to develop what is often prime agricultural land. Thus, the net impact of some of the regulations in the Bay Area may be to lead to a return to old-style suburban sprawl, with its longer commuting trips, greater energy consumption, and potentially greater air pollution.

Overall, the empirical evidence from the Bay Area suggests that growth management techniques can have a significant inflationary impact on house prices. One final point is that growth management systems that restrict development opportunities and especially those which limit the number of building permits available annually may confer increased monopoly power on those developers able to gain permission to build. This enhanced monopoly power may enable

developers to increase profit margins and consequently implies an even greater increase in prices.

HOW BUILDERS COPE WITH LAND USE REGULATIONS IN THE SAN FRANCISCO BAY AREA

Although a number of studies have examined the motivations for the adoption of restrictive land use controls by local governments and the effects of these controls on housing prices, little work has focused on the manner in which residential developers respond to these controls. Builders could potentially react in a number of ways to these regulations. For example, builders could avoid developing in heavily regulated areas, they could attempt to continue with business as usual, or they could drastically alter their development practices to meet the local regulatory environment.

In this section, we present a general appraisal of how developers have attempted to cope with land use controls in the Bay Area. Additionally, we focus on a case study of builder coping behavior for a particular Bay Area development. The analysis in this section is based on structured interviews with a number of Bay Area developers. Overall, the interviews indicate that increasingly stringent land use and growth controls have significantly changed the way builders do business and altered the criteria they use for making decisions concerning development location and design.

Through approximately the mid to late 1960s, local land use regulation in the Bay Area was basically a legalistic process in which local governments issued a set of specific subdivision design and lot size requirements. This process implicitly granted the developer a "right" to develop his land if he followed the specified requirements, and developers knew they could almost be certain of approval if their plans met these typically minimal requirements. Thus, the development decision was basically a function of the market strength in the area under consideration and of the availability of public facilities. The local land use regulatory environment was only a very minor consideration in development decisions.

Yet, over the last decade or so, local land use regulation in most Bay Area communities has evolved from a fairly legalistic process into basically a discretionary licensing system. Under these new sets of regulations, local officials typically have discretionary control over the allocation of a limited number of building permits, and the development approval decisions are based on relatively ambiguous standards concerning the quality of the development and its social, fiscal and environmental impacts on the community and other surrounding areas. Developers are no longer viewed as having the "right" to develop even if the meet certain explicitly specified requirements. In fact, under many of these new growth control systems, the underlying assumption seems to be that the "privilege" of development approval should be granted for only a limited number of units each year and to only those builders who submit plans or alter

their plans to best match the interests of local officials and politically active residents.

The result of these changes has been that the local land use regulatory and political environment has become a crucial factor that builders must consider in making their development decisions. Builders indicate they respond to local regulations by altering the entire structure of their developments for the purpose of gaining development approval. These alterations include changes in the design of the development, the number and types of units to be built, and in the amenities and public improvements to be included in the project. Builders typically respond to local controls by building fewer, larger and more expensive units and by adding costly amenities and improvements which they believe add little or no benefit to the development. Additionally, the uncertainties and numerous delays involved in the approval process have forced developers to alter their land purchase agreements and seek more flexible financing arrangements. Builders indicate that at high interest rates the tremendous holding costs imposed by lengthy approval processes combined with the risk that a project may not be approved prevent many projects from even being initiated. Overall, builders suggest that lengthy project approval process and uncertainty of approval create the biggest disincentive to develop in restrictive areas.

Over time, through their own practice and through the experiences of other developers, builders have come to understand which cities and counties in the Bay Area are most difficult to gain approval and build in and which are less troublesome. The result of this experience has been two general types of coping behavior. The first type of coping response, utilized principally by some of the smaller, less sophisticated developers, has been simply to avoid the more difficult communities and to concentrate on building in the less restrictive areas. This typically means building small developments at outlying areas of the region, where the projects are unlikely to attract much attention from homeowner or environmental groups.

The second general coping response utilized by many developers, including most of the larger, more sophisticated ones, has been to continue attempting to develop in the more restrictive areas and to try to improve their chances of development approval by devoting extensive resources towards gaining expertise in and working through the regulatory processes in the jurisdictions in which they would like to build. Developers who build in these more difficult areas typically have an individual or staff almost entirely concerned with doing what needs to be done to assure development approval. This often means negotiating with local officials over the size and design of the project, adding expensive amenities to make projects more attractive to local officials or to gain points in growth management point systems, attending numerous public hearings, and preparing substantial proposals and impact reports.

Developers indicate that they are willing to incur these expenses and experience these delays because they know that if they do gain approval they often

find themselves with virtual monopoly power in the area. Given the region's very strong demand for housing, this means they can market their homes at a price high enough to more than make up their extra expenses.[5] The result has been that in areas utilizing growth restrictions the real competition between builders is no longer in the marketplace for home sales and the homebuyer's dollars but within the regulatory process for scarce building permits.

The following case study presents a fairly typical example of how builders have had to alter the structure of their developments to cope with local regulatory constraints.

CASE STUDY OF DEVELOPMENT A IN CITY A[6]

This case study concerns a development covering approximately 300 acres in City A, a medium-sized jurisdiction in an outlying part of the Bay Area region. The development was originally planned and initiated at the beginning of the 1970s as part of a much larger planned unit development project. The land was zoned for a maximum of three dwelling units per acre and plans were established to build approximately 700 single-family units. At that time, the city was open for development and experiencing moderate growth although it imposed extremely costly public improvements requirements and had a burgeoning growth restriction movement. The city set out numerous public improvements requirements for the development, including a number of new major streets and water mains and extraordinarily large pavement widths.

Yet, the rapid pace of growth the city had experienced in previous years had generated strains on the school system as well as some sewage disposal and air pollution problems. The result was that before this project received approval a serious backlash against growth had set in and an anti-growth ballot initiative was passed in 1972. The strongly no-growth city council enacted the mandate by establishing a restrictive growth management system with an annual limit on new construction of 2% of the existing housing stock. In practice this means a maximum allowable development of 300 to 350 units a year. Political opposition to growth, the growth management system, and the developer's own financial problems prevented this project from gaining approval in the early 1970s. The city then established a sewer moratorium for all lots not yet on record and the project sat unattended under this moratorium for the next five years.

Finally, the city council elections of 1978 brought in a council with a much more favorable attitude towards growth. The new council repealed the sewer moratorium and authorized the maximum allowable units per year (350) for the next two years. The building permits were allocated on a "first come, first serve" basis, with development A having 100 permits allocated to it for the two-year period. However, the owners of the land could not make the project feasible since the city would not proportionately reduce the public improvements requirements that had been originally established when it was assumed the project

would be approved for about 700 units. These "extraordinary" public improvements requirements, which according to the eventual developer, Builder A, add little or no benefit to the individual houses in the project, meant that the project could only be feasible if the extraordinary costs could be spread out over at least 300-400 units. Yet, the city would give no guarantee that additional permits over the initial 100 would be allocated to the development in the future.

At this point, Builder A took out an option to buy the land and adopted a strategy that provides an excellent example of how developers must alter their way of doing business to match the local regulatory environment. In the first place, Builder A drew up detailed cost estimates of the impact of public improvements requirements. Using these estimates in negotiations with local officials, Builder A was able to get some minor reductions in the public improvements requirements. Additionally, the city established a point system competition by which the 300 to 350 units a year authorized would be allocated in future years. Points were based on the provision of a mix of housing types, amenities, public improvements, energy conservation, design and the possession of a previously approved tentative map. Builder A then spent three months and about $10,000 preparing documents for the competition. Numerous design changes were made to increase the project's point total, including increases in lot sizes, the addition of numerous amenities to the units, and the addition of a much larger than necessary water main. Almost all the design changes served to add significant costs to the development. After approximately a three-month delay, the results of the competition were issued and Builder A was allocated seventy-five permits for 1980 and guaranteed future allocations of 150 permits for the next two years. Thus, given the intial 100 permits, Builder A now had a total of 325 permits.

As a result, the combination of the density restriction of three units per acre with the heavy public improvements requirements meant that the project remained prohibitively expensive to undertake. To finally make the projet feasible, Builder A needed to make a deal with the city in which 108 acres slightly removed from the rest of the development were dedicated to the city in exchange for the right to transfer the units intended for the dedicated land over to the remaining portions of the development. This was facilitated by increases in the allowable density on much of the remaining land in the development of up to six units per acre. Builder A indicated that in the absence of severe density restrictions and permit limitations, he would have preferred to build approximately 1,000 units spread over the entire development. Yet, given the local restrictions, Builder A found that by this land dedication deal he was able to eliminate a costly water main and the need to add several streets and extend other streets. Through higher density development, Builder A was able to reduce the per unit improvement costs enough to make the project practicable. Of course, the land dedicated to the city was removed from the supply of developable land.

Additionally, substantial development fees have added significant costs to the project. For the first 100 units that have already been built, development fees amounted to approximately $7,100 a unit. Exhibit 3 presents a breakdown of the development fees on a typical unit. Also, Builder A indicated that restrictive setback requirements forced him to increase lot sizes to an even greater extent than planned. Thus, the development has proceeded with 1,000 to 1,400 square foot single-family units being built on larger lots with an area of about 7,000 square feet.

Builder A was willing to go through this costly, time-consuming, aggravating regulatory process because he knew that if he could get approval and make the project workable, he would have a tremendous market position with little competition. City A's land use control system has engendered sharp competition between builders to get the limited number of building permits, but virtually eliminated competition for those that gain development approval. For example, in the point system competition in which Builder A received his needed additional permits, sixteen developers submitted proposals, and only four were allocated permits. Thus, although developers proposed projects covering well

EXHIBIT 3

DEVELOPMENT FEES ON A TYPICAL SINGLE-FAMILY UNIT IN DEVELOPMENT A FOR 1980

Fee Description	Amount
Building Permit Fee	$ 278.50
Electrical Inspection Fee	35.00
Plumbing Inspection Fee	68.00
Mechanical Inspection Fee	16.00
Residential Construction Tax	857.00
County Water Fee	830.00
County Storm Drainage Fee	120.00
City Water Storage Fee	428.00
City Storm Drain Fee	306.00
City Sewer Connection Fee	1785.00
School Fee	570.00
Tentative Subdivision Map Fee	7.50
EIR (Negative Declaration) Fee	2.00
Final Subdivision Map Fee	55.00
Extraordinary Fees (fees peculiar to this development including special bridge fee)	1782.77
TOTAL	$7140.77

over 1000 units, only 348 building permits were allocated. These restrictions have meant that, despite high interest rates and a relatively depressed housing market, Builder A is having no problem selling for $86,000 to $96,000, units which he had anticipated marketing for $70,000 to $75,000. The result, as this case study indicates, has been that homebuyers face higher prices and less selection.

CONCLUDING REMARKS

Local land use and growth controls have had a substantial impact on the Bay Area housing market. These regulations have significantly diminished the availability of development opportunities in the region and forced builders to make major changes in the way they do business and costly alterations in their development projects. Both the empirical evidence reviewed and the case studies documented in this paper indicate that building moratoria, growth management systems and restrictive zoning practices have helped lead to significantly increased house prices in those Bay Area communities in which they are present. These results should not be surprising given the widespread use of these controls in the region, a phenomenon which severely limits the supply response in neighboring communities. Still, the current empirical research provides only preliminary estimates of the effects of these regulations on the Bay Area housing market. Further research is needed to examine important issues such as the process by which demand frustrated by growth controls spills over into surrounding and other areas and the effects of anticipatory responses made by builders and homebuyers to the future imposition of growth restrictions.

Overall, the evidence strongly suggests that land use controls as they are currently utilized in the Bay Area provide a poor policy alternative for reconciling important environmental and fiscal considerations with equally important regional and national housing needs. The spread of these techniques to other metropolitan areas clearly will have severe negative consequences on the availability and affordability of housing for the maturing post-World War II baby boom cohort currently entering the housing market.

NOTES

1. *Real Estate Week,* June 19, 1981, p. 6.

2. This figure was derived from data on the original reporting sheets of ABAG's 1975 Local Land Use Policy Survey.

3. *California Builder,* January 1980, p. 12.

4. Seidel considers to be unnecessary those costs which an "experienced developer" would consider to be unnecessary to protect the "health, safety and general welfare" of the public.

5. Although a builder may earn monopoly profits on any particular project that gains approval, over the longer run competition in the permit approval process should mean that

expenditures on projects that fail to gain approval will tend to offset these monopoly gains. Thus, builders may still earn normal profits in the long run.

6. The city name is withheld for the purpose of preserving the anonymity of the developer.

REFERENCES

Association of Bay Area Governments, *Summary Report Provisional, Series 3* (Berkeley, CA: ABAG, March 2, 1977).

Association of Bay Area Governments, *Development Fees in the San Francisco Bay Area: A Survey* (Berkeley: ABAG, February 1980).

Babcock, Richard F. and Fred P. Bosselman, *Exclusionary Zoning: Land Use Regulation and Housing in the 1970's* (New York: Praeger Publishers, 1973).

California Builder, January 1981, p. 12.

Crecine, John P., Otto A. Davis and John E. Jackson, "Urban Property Markets: Some Empirical Results and Their Implications for Municipal Zoning," *Journal of Law and Economics* 10 (1967): 79-99.

Dowall, David E., "The Effects of Land Use and Environmental Regulations on Housing Costs." In *Housing Policy for the 1980's,* edited by Roger Montgomery and Dale Rogers Marshall (Lexington, MA: Lexington Books, 1980), pp. 113-125.

Dowall, David E., and John Landis, "Land-Use Controls and Housing Costs: An Examination of San Francisco Bay Area Communities," *Center for Real Estate and Urban Economics Working Paper No. 81-24* (Berkeley: University of California, March 1981).

Ellickson, Robert C., "Suburban Growth Controls: An Economic and Legal Analysis," *The Yale Law Journal* 86 (January 1977): 385-511.

Frech, H. E. and Ronald N. Lafferty, "Community Environment and the Market Value of Single Family Homes: The Effect of the Dispersion of Land Uses," *Journal of Law and Economics* 21 (1978): 381-94.

Frieden, Bernard J., "The New Regulation Comes to Suburbia," *The Public Interest,* no. 55 (1979), pp. 15-27.

Gabriel, Stuart, Lawrence Katz and Jennifer Wolch, "Local Land-Use Regulation and Proposition 13: Some Findings From a Recent Survey," *Center for Real Estate and Urban Economics Working Paper No. 80-4* (Berkeley: University of California, September 1979).

Gabriel, Stuart, Lawrence Katz and Jennifer Wolch, "Local Land-Use Regulation and Proposition 13," *Taxing and Spending* (Spring 1980): 73-81.

Gabriel, Stuart and Jennifer Wolch, "Local Land-Use Regulation and Urban Housing Values," *Center for Real Estate and Urban Economics Working Paper No. 80-18* (Berkeley, CA: University of California, November 1980).

Gleeson, Michael E., "Effects of an Urban Growth Management System on Land Values," *Land Economics,* 55 (1979): 350-65.

Janczyk, Joseph T. and William C. Constance, "Impacts of Building Moratoria on Housing Markets Within a Region," *Growth and Change,* 11 (1980): 11-19.

Katz, Lawrence and Kenneth T. Rosen, "The Effects of Land Use Controls on Housing Prices," *Center for Real Estate and Urban Economics Working Paper No. 80-13* (Berkeley, CA: University of California, September 1980).

Maser, Steven M, William H. Riker and Richard N. Rosett, "The Effects of Zoning and Externalities on the Price of Land: An Empirical Analysis of Monroe Country, New York," *Journal of Law and Economics,* 20 (1977): 111-132.

Ohls, James C., Richard Weisburg and Michelle J. White, "The Effect of Zoning on Land Value," *Journal of Urban Economics,* 1 (1974): 428-44.

Peterson, George E., "The Influence of Zoning Regulations on Land and Housing Prices" (Washington, DC: The Urban Institute, 1974a).

————, "Land Prices and Factor Substitution in the Metropolitan Housing Market" (Washington, DC: The Urban Institute 1974b).

Reuter, Frederick H., "Externalities in Urban Property Markets: An Empirical Test of the Zoning Ordinance of Pittsburgh," *Journal of Law and Economics,* 16 (1973): 313-49.

Schwartz, Seymour I., David E. Hansen, Richard Greer, William G. Moss and Richard Belzer, "The Effect of Growth Management on New Housing Prices: Petaluma, California" (Davis, CA: Institute of Governmental Affairs, University of California, 1979).

Seidel, Stephen B., *Housing Costs and Government Regulations* (New Brunswick, NJ: Center for Urban Policy Research, 1978).

Sternlieb, George and Lynne B. Sagalyn, *Zoning and Housing Costs: The Impact of Land Use Controls on Housing Prices* (New Brunswick, NJ: Center for Urban Policy Research, 1972).

Stull, William J., "Land Use and Zoning in an Urban Economy," *American Economic Review,* 64 (1974): 337-47.

————: "Community Environment, Zoning, and the Value of the Single Family Home," *Journal of Law and Economics,* 18 (1975): 535-557.

Urban Land Institute and Gruen Gruen and Associates, *Effects of Regulation on Housing Costs: Two Case Studies* (Washington, DC: Urban Land Institute, 1977).