Inclusionary Housing Requirements in California:
Examining the Economic Impact on Three Cases

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ABSTRACT

California has recently seen massive housing price gains and rental cost increases due to demand outstripping supply. This trend is echoed throughout the state, and is reflected in the resulting increase in costs to homebuyers and renters. Determining and implementing methods for increasing the supply of housing affordable to families and workers has become a priority for many public, non-profit, and private organizations.

Two primary tools are available to municipalities in California seeking to encourage or require the production of affordable housing: density bonuses and inclusionary housing requirements. Density bonuses are mandated by state law, and allow developers who set aside a minimum percentage of the residential units in a project as affordable to take advantage of a subsequent 25 percent increase in density. The density bonuses are often also packaged with other incentives, such as fee reductions or streamlined permitting processes. Inclusionary housing requirements mandate that a certain percentage of any new residential units be sold at affordable levels. The density bonus program can be viewed as the 'carrot' to encourage affordable housing development, while inclusionary housing requirements are the 'stick'.

As housing prices and rents have risen, they have captured the attention of the media and the public. And as inclusionary housing requirements have become more and more common, they too have received much attention from the media and the public, as well as from private and non-profit organizations arguing for their particular interests. Even with the wide attention that inclusionary housing requirements are receiving, available information continues to be primarily qualitative, with little empirical project-level evidence of the true costs and impacts of such programs. Accordingly, there is little documentation showing what the actual impacts are, only predicted impacts. The goal of this study is to determine and evaluate these impacts.

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I. INTRODUCTION

California has recently seen massive housing price gains and rental cost increases due to demand outstripping supply. This trend is echoed throughout the state, and is reflected in the resulting increase in costs to homebuyers and renters in all corners of the state. The price trend routinely makes news, and is the source of much concern by buyers and renters as well as by public agencies and political organizations. The rapidly rising house prices and rents have serious consequences, as they act as constraints on homebuyers and renters by necessitating a higher percentage of income be spent on housing. The increasing cost of housing can cause some potential homebuyers to be priced out of the market outright and forced to rent, and it can factor into businesses decisions on whether to locate in the state due to the high cost of housing for employees. As a result, determining and implementing methods for increasing the supply of housing affordable to families and workers has become a priority for many public, non-profit, and private organizations.

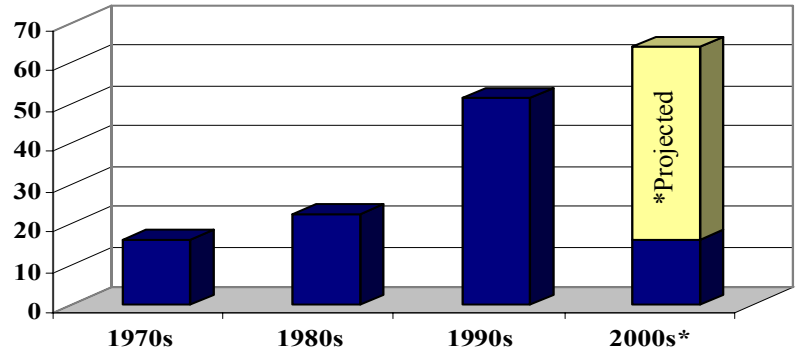
Two primary tools are available to municipalities in California seeking to encourage or require the production of affordable housing: density bonuses and inclusionary housing requirements. Density bonuses are mandated by state law, and allow developers who set aside a minimum percentage of the residential units in a project as affordable (the percentage varies from 10 to 20 percent, based on the targeted income levels of the units) to take advantage of a subsequent 25 percent increase in density. The

density bonuses are often also packaged with other incentives, such as fee reductions or streamlined permitting processes. The density bonus program can be viewed as the 'carrot' to encourage affordable housing development, while inclusionary housing requirements are the 'stick'.

Inclusionary housing requirements in California are mandatory programs, rather than the optional density bonus program. The municipalities adopt ordinances (laws) requiring that a certain percentage, typically between 5 and 20 percent, of any newly created residential units be sold or rented at an 'affordable' level to lower income residents. These residents are usually pre-qualified by the municipality, and there are typically long waiting lists as demand for these units is much greater than supply.

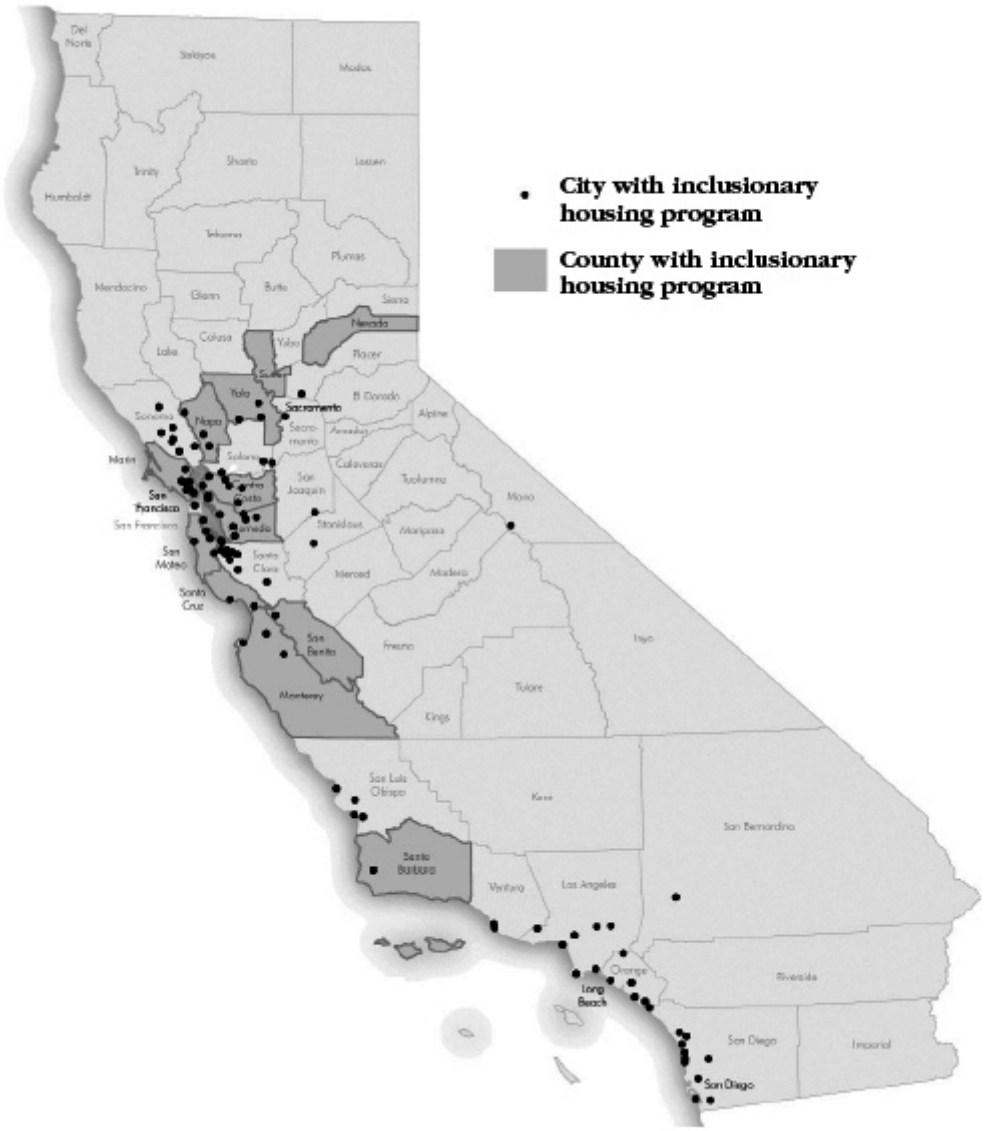
Inclusionary housing requirements in California were initially established in the 1970s by the City of Irvine and Orange County. Significant numbers of municipalities did not adopt inclusionary housing programs until the 1990s, which coincides with the recent housing price boom in the state. Although inclusionary housing requirements are not specifically authorized by any state law, the 2001 court case of *Home Builders Ass'n v. City of Napa 90 Cal.App.4th 188* established inclusionary housing as "a constitutionally valid extension of a jurisdiction's zoning powers" (National Housing Conference, 2004). It is further expected that "the court's decision will likely result in an increase in inclusionary housing ordinances" statewide in the near future (Curtin, 2002). As of 2003, 108 municipalities in California had adopted formal inclusionary housing requirements, including San Diego, which is now the largest city in the country with such a program. As is shown below, the creation of inclusionary housing requirements has in fact increased significantly in recent years:

Municipalities Adopting Inclusionary Housing Requirements by Decade



Data: National Housing Conference

And the following graphic shows that the focus of the program continues to be on urban metropolitan areas with the highest housing prices:



Source: NHC and Greeninfo Network

Inclusionary housing requirements have received much attention from outside organizations with the recent upswing in municipalities adopting requirements. Qualitative arguments are made that the requirements are unfairly applied and that rather than promoting the development of affordable housing, inclusionary programs are actually causing development costs to rise, limiting new supply and raising prices for all (Powell, 2004). However, others maintain that no detrimental effects to supply have taken place, and actually maintain that an increase in development levels takes place after the adoption of an inclusionary housing requirement. They then argue that inclusionary housing programs should be

expanded, both geographically and in terms of required levels of affordability, to address rising housing prices (NHC, 2004).

Even with the wide attention that inclusionary housing requirements are receiving, available information continues to be primarily qualitative, with little empirical project-level evidence of the true costs and impacts of such a program. Accordingly, there is little documentation showing what the actual impacts are, only predicted impacts. The goal of this study is to determine and evaluate these impacts.

This study largely follows the format of a similar study recently completed, "Density Bonuses and Affordable Housing in California: Examining the Economic Impact on Three Cases" (Skiles, 2003). This study will generally follow the methods and models used previously, to better understand the relevant costs, benefits, and impacts of each program across project types, metropolitan areas, and program specifics. The study will also compare the relative costs and benefits of both density bonuses and inclusionary housing requirements where possible, in order to identify appropriate uses for each program and to add to the information available for public policy makers.

II. CASE SELECTION CRITERIA

This study's primary goal is to determine the relative costs and benefits of developments where affordable housing was required to be built, and to compare these impacts across projects and regions, as well as with the same results for projects using density bonuses. As noted earlier, this study follows the general methods established by the previous study "Density Bonuses and Affordable Housing in California: Examining the Economic Impact on Three Cases". This is important to obtain consistent results that can be compared across studies and used to evaluate the costs and effectiveness of density bonus ordinances and inclusionary housing requirements. Three cases are selected, and the following analyses are made:

1. The actual development project is compared with a hypothetical project in which creating the affordable housing was not a requirement. This will identify the absolute cost of the requirement; an opportunity cost that was lost as a result of the municipality's requirement that affordable housing be provided as a condition of project approval.

2. This absolute cost is then compared as a cost-percentage of the entire project, percentage per unit, and percentage per land. These percentage costs are compared across the three cases to identify cost structures and variations in the level of the exaction across municipalities. The percentage

cost comparison will also identify other potential sources of variation, including due to project type (for-sale versus rental), project cost, and project density.

3. The relative costs and benefits (the primary benefit is the wealth transfer to the buyer of the subsidized unit, also represented by the opportunity cost to the developer) is also identified. The results will be used to provide information that, together with the density bonus study will be useful to public policy makers contemplating the relative impacts and effectiveness of the two alternatives of density bonuses and inclusionary housing requirements.

Cases are selected to ensure that they will be useful in carrying out the above analyses. Cases are drawn from different geographic regions and market, cases must be representative of typical projects within their region, and cases are drawn from markets that are stable and relatively large. These criteria match the criteria in the density bonus study as well.

i. Cases are Drawn from Different Geographic Regions and Markets.

Primary interests of this study are 'fairness', efficiency, and applicability of inclusionary housing requirements across regions and markets. Municipalities across the state have varying requirements for levels, types, and affordability of the mandated inclusionary housing component of the development, and thus it can be expected that various levels of costs will be seen across the developments. Cases are drawn from different regions and markets to highlight these differences.

Inclusionary housing can typically be defined as "a mandatory requirement to reserve a specific percentage of housing units for lower income households in new residential developments" (City of West Hollywood). Each municipality in California, including both cities and counties, has the ability to adopt individual inclusionary housing requirements where they are able to set unique standards. For example, municipalities are able to individually mandate whether to have an inclusionary program at all, and if so, they can determine unique definitions of "affordable" sales/rental levels, they can set unique percentage requirements for the number of affordable units to be required, and they can determine whether affordable units are mandated or only 'encouraged'.

- *Definition of affordability levels; variations across municipalities.*
  Unlike density bonus ordinances, no "model ordinance" exists for inclusionary housing requirements. As a result, municipalities are free to craft and adopt their own programs. While

usually largely similar, individual inclusionary housing programs can have significant differences. One of the most important areas where variation in requirements can have a significant effect on development projects is the definition of "affordable". The typical definitions for affordable are sorted into three categories; very low income levels, low income levels, and moderate income levels. The typical definitions are based on the federal government's Department of Housing and Urban Development's standards for Section 8 programs. California's standards, which the municipalities usually adopt, are (Department of Housing and Community Development, 1996; Powell, 2004):

- *Very Low Income:* Units must be affordable to those making no more than 50 percent of area median income. Rent may not exceed 30 percent of income at this level. Some percentage of very low income units are often reserved for rental developments, and generally not for for-sale developments.

- *Low Income:* Units must be affordable to those making between 50 and 80 percent of area median income. Rent may not exceed 30 percent of income at this level. Some percentage of low income units are often required in both rental and for-sale developments.

- *Moderate Income:* Units must be affordable to those making between 80 and 120 percent of area median income. Rent may not exceed 30 percent of income at this level. Moderate income units are primarily required for for-sale developments, and usually not for rental developments.

Because different municipalities can and do modify these requirements, any variation may be helpful in explaining differences in costs across cases. Alternately, if the cases all have similar requirements then cost differences will have to be caused by something else. It is also worth noting that the affordability levels are based on area median income, so even if the definitions are the same the actual costs will vary across regions.

- *Variation in percentage requirements across municipalities.*

  Again, municipalities can and do modify requirements for percentage of units that must be affordable in inclusionary housing programs. The range is significant, from 4 to 35 percent, with a mean of 13 percent and a median of 10 percent. "Approximately half of all jurisdictions require

at least 15 percent and one quarter require 20 percent or more" (NHC, 2004). With this variation, it is reasonable to expect that costs will vary widely as well.

- *Mandatory versus voluntary versus 'encouraged' requirements.*
  The vast majority of municipalities with formal inclusionary housing requirements have mandatory programs. Only 6 percent have voluntary programs, which allow developers substantial leeway and generally produce many less affordable units (NHC, 2004). 'Encouraged' requirements come about when a municipality does not have a formal program, but makes it clear to the developer that the project will not be supported or approved unless the developer provides some level of affordable units. Often, cities will ask that a higher percentage is provided than is mandated through a formal inclusionary housing requirement.

  For the purposes of this study, it does not matter under which scenario the affordable housing units were required. So long as they were built, it can be reasonably expected that the units were effectively required. With the for-profit developers surveyed for this study, it is assumed they are rational and profit-maximizing, such that were there a way to avoid building the subsidized units they would do so.

Municipalities often also offer alternatives to the creation of affordable housing. These alternatives usually consist of off-site construction of the affordable units, in-lieu fees, land dedication for construction of affordable units, or credit transfers from excess affordable units built in one project to satisfy requirements for another (NHC, 2004). Although these are often potential alternatives for developers, they are not considered as part of this study. This study's primary goal is to determine the relative costs and benefits of developments where affordable housing was required to be built, and to compare these impacts across projects and regions, as well as with the same results for projects using density bonuses.

In addition to comparing across geographical markets, cases also identify differences in product markets, such as for-sale developments versus rental developments, condominiums versus townhouses versus single family houses, and urban versus suburban markets. With such varied development products being built, it is also informative to analyze the relative costs and benefits across these variables. Such information will be important for developers, landowners, and policy makers.

ii. Cases are Representative of Typical Projects in their Region.

The cases selected are typical of development projects in the region. This is important to both assure that the costs identified also likely affected past development projects, but additionally that future development projects will face the same costs. The typical cases are selected so as to minimize the chances that idiosyncratic costs are realized; to ensure that the results of the study are wide ranging and applicable. To this end, cases are representative in terms of product type, size, and cost, construction method, and for-sale or rental developments. Cases receiving government subsidies or other unconventional financing will not be considered.

Using cases that are typical to their individual region result in three very different development projects being selected. Although not immediately intuitive, this will actually aid in comparisons across cases. Comparing the costs of inclusionary housing across three development projects in three different regions will highlight any variation in costs, which the study will attempt to explain. Understanding the magnitude and origination of the costs is highly important to all involved in the development process, and especially developers, landowners, and policy makers.

iii. Cases are Drawn From Markets That are Stable and Relatively Large.

Stable, large markets are necessary for the cases in order to ensure that results are applicable to other projects and to ensure that the cases studied are relevant to and typical of other ongoing and future projects. The study will also seek development projects with typical rents/sales levels, construction costs, and land values. Again, it is expected that the three cases will have varied costs and incomes for each of these categories, which will be analyzed in attempting to explain the magnitude of the costs and benefits of the affordable housing and any variation across markets. It is important that "there is considerable variety in [the] three markets that will make comparisons regarding" inclusionary housing requirements "insightful and [where] enough development has occurred within each market to be able to make conclusions and withdraw data" (Skiles, 2003).

III. METHODOLOGY FOR USING CASE STUDIES

In each of the cases analyzed, a specific methodology is used to understand and evaluate the costs and benefits of the inclusionary housing requirements. Each case is analyzed in terms of:

- A physical description of the project, including the developer;
- An analysis of the municipality's inclusionary housing requirements;
- A financial analysis of the project as built and a hypothetical project without inclusionary housing, using discounted cash flows; and
- An analysis of the project using the Optimal Floor Area Ratio (FAR) Model.

Conclusions are then drawn for each individual case. The costs and benefits will be individually discussed, as well as the overall effect the inclusionary housing requirement had on the project. In the final conclusions of the study, the cases will be compared to one another, as well as to the results identified in the previous study "Density Bonuses and Affordable Housing in California: Examining the Economic Impact on Three Cases". Conclusions will ultimately be drawn about the effectiveness, costs, and benefits for projects using density bonuses versus projects with inclusionary housing requirements.

i. Physical Description.

Physical descriptions are important to understand the background and type of development project being analyzed. The information will include project type, general location, density, construction type, completion date, and other similar information. Unless the developer requests otherwise, project name and exact locations will be provided. A rendering or photo of the project will also be provided.

Additionally, the development time period is provided and a description of the development process is discussed. This information, as well as any negotiations with the municipality or concerned residents, will also help in understanding the ultimate project makeup and form. For instance, if the developer attempts to negotiate a lower percentage of affordable units, and if this negotiation results in delays in permitting, the costs associated with holding the land during this delay can become significant.

As part of the physical description of the project, a description of the developer will also be provided. This information will include the size of the developer, the typical target markets of developments and how this project fits within this market, and any social goals that the developer may have. Part of the goal of this study is to ensure that both the development project and the development organization are typical of the area, making developer selection as important as project selection. With typical projects and organizations, any conclusions will have the widest possible applicability.

ii. Analysis of the Municipality's Inclusionary Housing Requirements.

A complete description of the relevant municipality's inclusionary housing requirement is provided. This information will include the history of the requirement, the general aspects of the requirement, and how the requirement affected the development project. If the municipality's inclusionary housing requirement varies from archetypal requirements, those variations will be described together with the effects they have on the project.

The specific information provided will include the year an inclusionary housing requirement was adopted, whether the requirement is formal, as well as mandatory or voluntary, the percentage and level of affordable units required, whether the requirement varies across rental and for sale development projects, and how the development project conforms to the requirements. Any variations across the individual requirements applied to each case will be useful in making ultimate conclusions about the relevant costs and benefits seen in the study.

iii. Financial Analysis with Discounted Cash Flow Statements of Project as Built and Hypothetical Project without Inclusionary Housing.

In analyzing the development projects, the net present value (NPV) rule will be used. NPV is a measure of the present value of a project net of costs, incorporating appropriate discount rates based on risk, and is the most appropriate way to determine whether to invest or not. Although any project with a NPV of zero or greater results in acceptable returns to the investor, all projects should seek to maximize the NPV (Brealey, 2003). Therefore, results of this study are most relevant in terms of the effect any requirement has on a project's NPV. Each case is analyzed using a discounted cash flow NPV analysis based on realized cash flows. In cases where the project is not yet completed or stabilized, expected cash flows will be used. The cash flows will also include financing costs, as these are typical costs and should be considered. Market rate costs of capital (r; also represented as the market expected return for properties of this type, $E[r_V]$) will be used for the calculations by adding market-observed cap rates (y) with projected growth rates (g) (Geltner, 2001):

$$\mathbf{r = y + g}$$

Construction costs and land values will be discounted using the expected return on the construction loan, $E[r_D]$, which is the actual expected yield and is slightly less than the contracted construction loan rate. The Geltner Canonical Method is then used to establish the required return, or discount rate, of a project during the development period, represented as $E[r_C]$, which is incorporated into the NPV calculation (Geltner, 2003):

$$E[r_C] = \left[\frac{(V_T - L_T)(1 + E[r_V])^T (1 + E[r_D])^T}{(1 + E[r_D])^T V_T - (1 + E[r_V])^T L_T} \right]^{(1/T)} - 1$$

Where: V_T = Expected value of stabilized property at time 'T';

L_T = Expected balance of all construction costs including financing;

$E[r_V]$ = Market expected return for properties of this type (r); and

$E[r_D]$ = Market expected total return on construction loans (actual yield).

Note that this is consistent with the analysis used in the density bonus study (Skiles, 2003). As in the density bonus study, the discounted cash flow analysis will determine a net present value (NPV) for the project with the required inclusionary housing component, and for a hypothetical development without inclusionary housing. Separately analyzing the required returns between the development phase and the stabilized phase allows a more thorough analysis of the costs and effects of the requirement. The variation in costs and income may result in differences in the development period return ($E[r_C]$) for the two versions of the project (Geltner, 2003; Skiles, 2003).

Through the cash flow analysis of the two versions of the project, the exact costs of the inclusionary housing requirement will be identified. These costs include the effect to the project NPV as well as the opportunity cost of the requirement. The opportunity cost is the true cost, and is represented by the wealth transfer to the affordable unit's buyer, or the difference between the market rate sales price (or capitalized rent cash flow) and the mandated affordable price:

$$\textbf{Cost}_{\text{Opportunity}} = \textbf{Wealth}_{\text{Transfer}} = (\textbf{Price}_{\text{Market}} - \textbf{Price}_{\text{Affordable}}) \times \#\,\textbf{Units}_{\text{Affordable}}$$

This represents the foregone revenue to the developer, however is valuable for comparison purposes only as the projects would not have been approved by the municipality without the affordable housing. Therefore, the opportunity cost is identified by comparison with a hypothetical project identical to the as-built project, except without the inclusionary housing requirement.

As discussed earlier, some have argued that this opportunity cost is proportionally borne by the market rate buyers or renters within the development (Powell, 2004). This assumed price or rent increase will be identified as well, and will be compared with the empirical project-level data to determine whether such a cost is being passed on to the market rate buyers and renters.

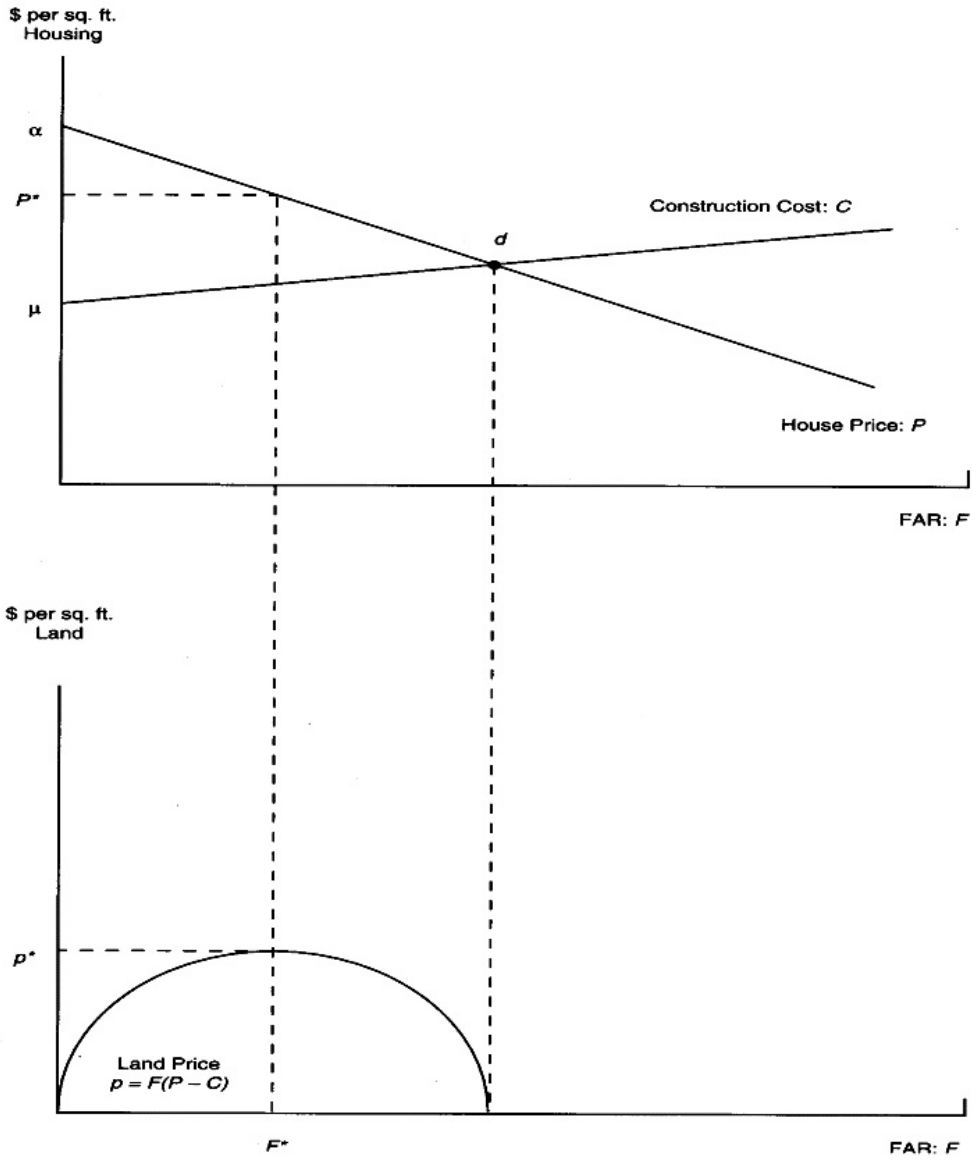
The comparison between the identified costs will help to identify the true costs of the inclusionary housing requirement. A subsequent comparison across cases will help to identify the variations and magnitudes of the variations of the different inclusionary housing requirements across municipalities.

iv. Analysis with the Optimal FAR Model.

The development projects are also analyzed with the Optimal FAR Model. This model predicts that the rational developer maximizes land value rather than house value based on the profit-maximizing

equilibrium between higher density (more units; represented by floor area ratio (FAR)), rising construction costs, and falling house prices or rents (Wheaton, 2004). Land value, or residual value after a developer's required return, is the relevant measure as it also represents excess profit, or positive net present value (NPV), should the developer be able to negotiate a lower land price.

The model assumes rising construction costs with increases in density (represented by FAR) and falling house prices with increases in density:



The model predicts the positive slope of construction costs as density increases. This is due to the increased challenges and cost of increased vertical construction, such as the increased cost of changing

from less expensive construction methods (e.g. Type V wood frame construction) to more expensive methods (e.g. Type II steel construction or Type I concrete construction). Independent budgeting and cost estimating guides confirm this relationship (Balboni, 2004). This increase in construction cost is represented in the formula:

$$\mathbf{C = \tau + \mu F}$$

Where: C = Construction costs;

τ = Cost of baseline "stick" construction; and

μ = Marginal impact of floor area ratio (FAR) on cost of construction.

The model also predicts the negative slope of housing prices as density increases based on an assumed preference and willingness to pay for lower density housing and additional square footage within a housing unit. This relationship is modeled with the formula:

$$\mathbf{P = \alpha - \beta F}$$

Where: P = Price;

α = All housing and location factors besides floor area ratio (FAR);

β = Marginal impact of increased FAR on Price/SF; and

F = FAR.

The optimum development density, represent by FAR in this model, is at point F*. This density corresponds to the maximum residual land value, or excess profit, at point p*. The analysis of the projects with the Optimal FAR Model will indicate whether or not the development has maximized the land value by building to the optimal FAR (F*). For those projects that are proposed at densities below F*, a density bonus would be a valuable tool that could be considered in place of the inclusionary housing requirement. If a project is developed at densities of F* or above, a density bonus would not be valuable to a developer because the additional density will lower profits rather than raise them (Wheaton, 2004; Skiles, 2003).

While the model generally holds, it has been found both anecdotally and empirically that the predicted smooth, linear increases in construction costs are often actually horizontal with "break points" where the type of construction changes (e.g. from Type V wood frame construction to Type II steel construction).

This is also true of the decreases in housing prices, such as the differences in prices realized for single family houses versus attached townhouses versus condominiums. For example, it has been found that "in certain projects of medium density (10-30 units per acre), the addition of more density does not always decrease price in proportion" (Skiles, 2003). In each of the cases discussed, each project's position with respect to construction cost and sales price will be analyzed to help further determine where it fits in the Optimal FAR Model.

v. Conclusions

Two sets of conclusions are presented, first on a case-by-case basis, and second on a broader basis analysis of the costs, benefits, and impacts of inclusionary housing requirements. The conclusions will address all aspects of the development, including land costs, construction costs, sales/rental prices, and similar. The information will be presented at the project level and per unit level, and will be compared across cases to establish applicability and fairness of various ordinances, as well as to identify those policies and requirements that lead to the largest cost increases. All conclusions will also be compared against those costs and benefits obtained with the previous density bonus study for policy-level implications.

Critics note that inclusionary housing requirements, which mandate a certain percentage of units be sold at a price less than market value, serve as an effective tax on development. As such, there are three potential bearers of the tax; the market rate homebuyer, the developer, or the landowner. Arguments have been made by various groups that different parties will bear the majority of the cost. This study will also attempt to establish which party bears the majority of the cost, and how it is spread.

The primary goal of this study is to provide project-level, empirical evidence of the costs and benefits of various inclusionary housing requirements across project types and across regions. This evidence will complement existing theoretical and qualitative studies and information, both for and against inclusionary housing. It is hoped that the conclusions of this study will be valuable for all involved in the development process, including landowners, developers, and public policy makers.

IV. CASE I: AVALON AT MISSION BAY
SAN FRANCISCO, CALIFORNIA
DEVELOPER: AVALONBAY COMMUNITIES

i. Physical Description.

The Avalon at Mission Bay is a high-end apartment building completed in 2003 in San Francisco's redeveloping Mission Bay neighborhood. The development consists of 250 apartments ranging in size from a 718 square foot one bedroom unit to a 1,380 square foot three bedroom unit. The building consists of a modern 19 story high-rise tower (Type I concrete construction) and a four story low-rise base (Type V wood frame construction). The first floor of the

Source: www.avalonbay.com

building contains 8,000 square feet of accessory retail, and below ground parking is also provided. In keeping with the urban context of the development, parking is not included in rents for the units, but instead is 'unbundled' and rented separately. Numerous amenities are provided for residents, including an onsite fitness center, a penthouse lounge, and concierge service. Apartments have luxury finishes, such as granite countertops, maple cabinets, and floor-to-ceiling windows. A large number of units have bridge, city, or bay views.

The building is marketed to take advantage of its location in the heart of the up-and-coming Mission Bay neighborhood, with nearby attractions including the new SBC Park baseball stadium, Yerba Buena Gardens, and the San Francisco Museum of Modern Art, as well as its proximity to downtown San Francisco. Apartments are priced accordingly, with beginning rents of $1,800 per month to well over $3,000 per month depending on apartment size. Prices go up substantially based on floor and view.

The Avalon at Mission Bay is typical of larger apartment and condominium buildings being constructed in this area of San Francisco. The site is located within a 303-acre city-designated redevelopment area, which was master planned by the real estate firm Catellus and the City of San Francisco Redevelopment Authority to allow a transition from the historical industrial uses to a mixed-use, vibrant city neighborhood. City-funded improvements including the afore mentioned Yerba Buena Gardens, SF MOMA, and the SBC Park were constructed in tandem with private investment, and currently numerous projects are under construction or being planned. Most of the new buildings are similar in size, scale, and construction to the Avalon at Mission Bay.

The site of this project is also typical of new developments in San Francisco. Mission Bay, together with the Rincon Hill neighborhood (which lies between Mission Bay and downtown) are the only areas in the city with capacity for significant amounts of larger developments such as these. Most other neighborhoods are already built out, have significant neighborhood opposition, or are not zoned to allow such developments. The site also involved a complex negotiation between the developer AvalonBay, the master planner and landowner Catellus, and the City of San Francisco, resulting in a 99 year ground lease ultimately being awarded to AvalonBay. Although complex, such negotiations and agreements are typical of larger scale development in major cities, and can be expected to be repeated in places like San Francisco, San Diego, Sacramento, and Los Angeles.

Developer AvalonBay is representative of the type of organization with the resources and expertise to successfully develop such a project in a city like San Francisco. AvalonBay is a large multi-family Real

Estate Investment Trust, and is publicly traded on the New York Stock Exchange. One of the larger apartment developers in the country, "AvalonBay owns or holds an ownership interest in 147 apartment communities totaling 43,147 units in 10 states and Washington D.C., including 10 properties under construction or reconstruction" (Legg Mason, 2003).

ii. Analysis of the Municipality's Inclusionary Housing Requirements.

The City and County of San Francisco has a population of just under 780,000 people in an area of 47 square miles (www.ci.sf.ca.us). San Francisco is the second largest city in the Bay Area, behind San Jose, and is the fourth largest city in the state. Located on a peninsula between the Pacific Ocean and the San Francisco Bay, the city is almost completely built out with only a few areas remaining with any significant amount of developable land.

San Francisco has seen sustained and recent housing and rental price gains, resulting in it perennially being ranked as one of the most expensive places to live in the country. At the end of 2003, the median housing price reached almost $575,000, an increase of over 11 percent over the year (www.car.org). Rental units, while becoming more attractive due to the high costs of entry for homeownership, have seen similar price gains.

San Francisco's inclusionary housing requirements were originally adopted in 1992 as part of the city's Housing Element chapter of the General Plan. The policy "placed a 10% inclusionary requirement on residential projects of 10 or more units that required a conditional use or planned unit development approval". However, after finding that this policy was not producing adequate amounts of affordable units, in 2002 the city "adopted new policy guidelines that place a 10% requirement on all housing developments over 10 units, and a 12% requirement on developments over 10 units that seek conditional use approval" (www.ci.sf.ca.us).

While these requirements are citywide, additional requirements are placed over certain specific development areas. In the 303-acre Mission Bay Redevelopment Area, 28 percent of all the residential units must be affordable to low or moderate income residents. This requirement was agreed to as part of the original negotiations between the Mission Bay master planner and landowner Catellus and the San Francisco Redevelopment Agency. Catellus, which owned the historically industrial land, was seeking city approval to redevelop the area into a mixed-use neighborhood, and the affordable housing requirement was one of many requirements the city enacted as part of the approval. As a result, of the

6,000 residential units planned for the Mission Bay area, 1,700 will be affordable to very low, low, or moderate income residents. Of these 1,700 units, 1,445 units will be built in partnership with the San Francisco Redevelopment Agency as stand alone, 100 percent affordable projects, and the remaining 255 will be built as a requirement of private developments (www.ci.sf.ca.us). Accordingly, not all buildings will have exactly 28 percent of the units as affordable. At the Avalon at Mission Bay site, Catellus and the San Francisco Redevelopment Agency allocated 250 units of the 6,000 units available. Of these 250 units, 21 were required to be affordable, which results in an inclusionary requirement of 8.4 percent.

As with most other inclusionary housing requirements, San Francisco's requires that the units be essentially undistinguishable from the market rate units. In the Avalon at Mission Bay, the affordable units thus carry the same finishes, are the same size, cost the same to produce, and are provided in both one and two bedroom apartments. The required affordable units are split between low and moderate income families.

iii. Financial Analysis with Discounted Cash Flow Statements of Project as Built and Hypothetical Project without Inclusionary Housing.

The Avalon at Mission Bay is a high end apartment building, and was expensive to build. Total development costs eclipsed $100 million. This equates to approximately $400,000 per unit. This can be attributed to the high cost of land and of Type I concrete construction in an urban center such as San Francisco.

In analyzing this and subsequent development projects, the net present value (NPV) rule will be used. NPV is a measure of the present value of a project net of costs, incorporating appropriate discount rates based on risk, and is the most appropriate way to determine whether to invest or not. Although any project with a NPV of zero or greater results in acceptable returns to the investor, all projects should seek to maximize the NPV (Brealey, 2003). Therefore, results of this study are most relevant in terms of the effect any requirement has on a project's NPV.

As discussed in the Chapter III, the Geltner Canonical Method is used to establish the required return, or discount rate, of a project during the development period, represented as $E[r_C]$, which is incorporated into the NPV calculation:

$$E[r_C] = \left[\frac{(V_T - L_T)(1+E[r_V])^T (1+E[r_D])^T}{(1+E[r_D])^T V_T - (1+E[r_V])^T L_T} \right]^{(1/T)} - 1$$

Using market-observed inputs for stabilized asset expected return (7.5 percent) and construction loan expected return (5.5 percent), the Geltner Canonical Method gives a development period required return of 21.5 percent for this project. Given the currently low interest rate environment this may seem high; however, this was a risky project involving high-rise luxury apartment construction in a dense city. Additionally, it was originally planned and developed during a period of higher interest rates. Nevertheless, the project still obtains a slightly positive NPV marginally above the required returns for a project this risky. The following table summarizes the results of the as-built project:

Total Development Cost, Including Land:	**$103,147,249**
Opportunity Cost of Inclusionary Requirement:	**$4,484,298**
As a Percentage of Total Development Cost:	**4.3%**
As a Percentage of Value per Market Unit:	**4.8%**
As a Percentage of Land Value:	**39.3%**
NPV of As-Built Project:	**$161,201**

The opportunity cost shown of the inclusionary housing requirement is the measure of income lost as a result of the requirement. I.e., it is the capitalized value of the difference in the rent streams between the affordable units and the market rate units. This is the forgone value to the developer as a result of the requirement, and is the true measure of the requirement's cost. As shown above, the opportunity cost of providing the affordable housing is equal to approximately 4.5 percent of total development cost and of the average value per market rate unit. However, the opportunity cost makes up a much more substantial 39 percent of the present value of the ground lease.

Although the opportunity cost is relatively high, it is important to note that the developer still obtained a slightly positive NPV for the project. This is not surprising given that many of the variables were fixed in this case, and that all parties to the negotiations were sophisticated, experienced real estate players. The developer, as well as Catellus and the San Francisco Redevelopment Authority, were all aware of the allocated number of units and the portion that would be required to be sold at affordable levels (as well as the mandated rental levels for those affordable units). The well informed negotiations thus resulted in the developer obtaining only a marginally positive NPV of $161,201. Based on a ten year horizon, and had

this positive NPV (which represents excess profit to the developer, and can be viewed as part of the residual value of the land) been bid to the land, the property level internal rate of return would have only been reduced from 9.22 percent to 9.18 percent. The positive NPV realized by this project is marginal given the overall risk and returns of the project.

In order to analyze the effect of the inclusionary housing requirement on the NPV of the project, it is necessary to create a hypothetical project in which the 8.4 percent affordable housing requirement was not in place. As part of the hypothetical project all other variables, including unit count, market rental rates, and land cost, are held constant. Assumptions are also made that there is sufficient demand to absorb the additional market rate units, which is reasonable given the small number of additional units as a portion of the project and the large number of units in the market as a whole. Such a hypothetical project without an inclusionary housing requirement would have required a lower discount rate ($E[r_C]$) of 18.1 percent, and would have yielded a positive NPV of $3,417,017. The lower discount rate indicates a lower amount of risk in the project without an inclusionary requirement, due to the larger spread between project value and costs. In other words, the requirement to provide affordable housing lowered revenue/value while still keeping costs the same, resulting in more risk. The overall net effect of the inclusionary requirement is the difference between the previous NPV and that obtained with the hypothetical project:

$$\mathbf{NPV_{As\text{-}Built} - NPV_{Hypothetical} = \$161{,}201 - \$3{,}417{,}017 = -\$3{,}255{,}816}$$

Given the nature of the parties involved, and consistent with the as-built project, it is likely that the positive NPV, or excess profit, that would have been obtained had affordable housing not been required would be negotiated away to a higher land price. Therefore, had the landowner Catellus been able to allocate the affordable housing elsewhere to meet city requirements, AvalonBay would have been willing to pay an additional $3.3 million for the project. However, because Catellus had to provide the affordable housing within the 303-acre redevelopment area, the value gained at this site would have been lost wherever the affordable housing requirement was transferred. .

Some have predicted that the entire opportunity cost of the inclusionary housing requirement, earlier identified as $4.5 million, would be passed on to the market rate units within the project (Powell, 2004). The cost predicted by to be passed on to each market rate tenant would be $19,582. This capitalized cost would equate to an average increase of $82 per market rate unit per month for this project. With rents averaging well over $2,500 per month, the predicted increase is just over three percent for each unit. However, this predicted increase is at odds with the market rent concept; that is, that rents are set by the

market regardless of costs. Given the other market forces at work and the small predicted cost increase, it is impossible to conclusively tell whether such a cost is actually being passed on to the market rate tenants or not in this case. However, based on the negotiated land value and the positive NPV the developer is realizing, as discussed above, it appears that the majority of the cost is being passed to the land.

iv. Analysis with the Optimal FAR Model.

In analyzing this project, it is also important to determine whether or not the project has maximized the profit of the development as a function of density. While the above analysis determined that there was a positive NPV for this project, this positive NPV was a function of the number of units proposed, the land price, and the construction costs. Use of the Optimal FAR Model will determine whether additional density could have increased returns (Wheaton, 2004).

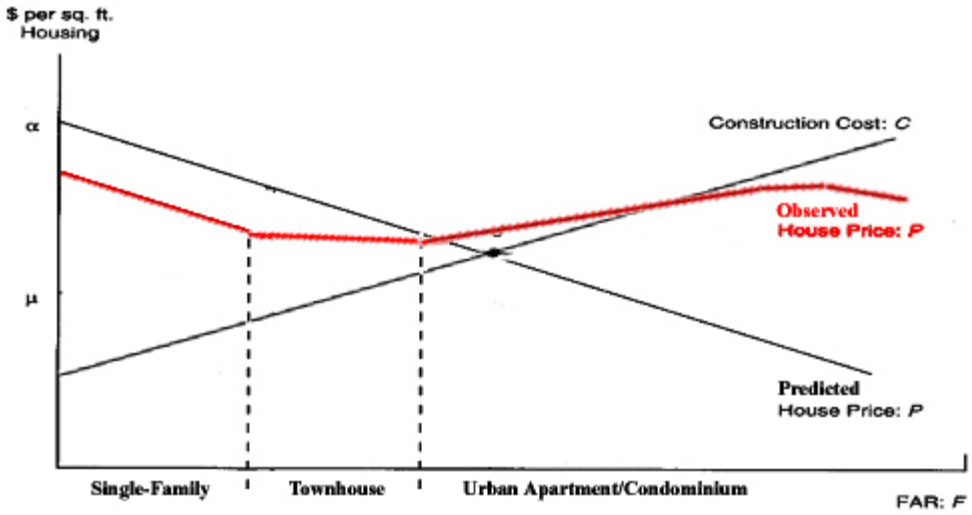
The Avalon at Mission Bay is within the Mission Bay Redevelopment Area of San Francisco, which has a total overall inclusionary housing requirement of 28 percent. As noted previously, the Avalon at Mission Bay contains 250 total units, 21 of which are designated as affordable. Because many affordable units required in Mission Bay are provided offsite, the requirement for this development was 8.4 percent of the total.

The 250 units of this development, including the 21 affordable units, were allocated by Catellus and the city when the site was leased. As such, it is an artificial constraint that may not be reflective of the optimal density for the site. Of the 250 units allocated, AvalonBay built all of them, indicating that the optimal, profit maximizing density for the site is at or higher than the 250 units analyzed. Had the optimal density been less, the developer would have built less.

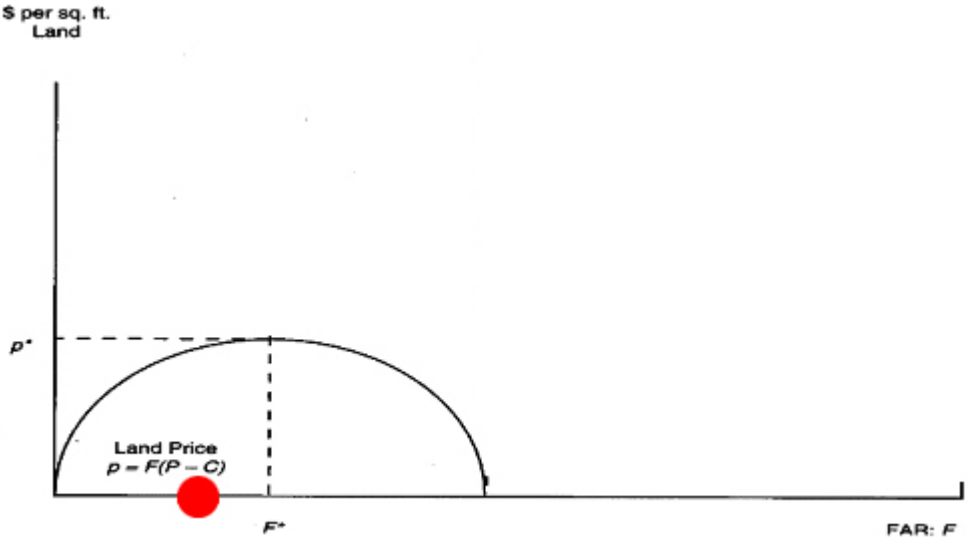
Additionally, in urban environments such as San Francisco, price increases substantially with floors and views. As a result, price and value increase with density to the extent that the additional density adds units above street level with views. This is the case with the Avalon at Mission Bay, where any additional units would result in additional floors above the currently 19 story tower. At the same time, because the building is already constructed with Type I concrete construction, additional height and density could be added with only a marginal increase in construction cost.

The observed price relationship with density is not consistent with the predicted price of the Optimal FAR Model. Rather than the predicted smooth, downward sloping price as density increases, prices for urban

condominiums actually increase with density so long as the additional units increase the number of floors above the street and the number of units with views. The predicted and observed construction costs are consistent in this case:



Resulting in an optimal FAR, which maximizes land value/excess profit, of a higher density than that which was built:



The Avalon at Mission Bay lies to left of the optimal density for the site. As a result, providing additional units could increase the profitability of the project.

The artificially constrained number of units, which was allocated to the site by the city and the master planner, together with the marginally increasing price curve for urban projects indicates that the

developed density is likely less than the optimal density F*. At 19 stories, the Avalon at Mission Bay could have supported significantly more density creating more value before the marginal cost increase surpassed the marginal price increase. As a result, a density bonus program could have been used to increase density on the site, which would result in additional returns to the developer as well as additional land value for the city, in exchange for providing affordable housing.

v. Conclusions

The Avalon at Mission Bay is a large, dense, complex urban project of 250 units, including 21 affordable units required by the city. It is typical of developments that can be expected in cities such as San Francisco. There are no 'easy' developments in such cities. The project shows the impact of the inclusionary housing requirement, as well as the larger market factors working on the development. Specifically, the following findings can be made:

- *The cost of the inclusionary housing requirement was approximately 4.5 percent of the total development cost, and 39 percent of the value of the land.*
  While the inclusionary housing requirement made up only 4.5 percent of the total development cost, as well as the average value of each market rate unit, the requirement represented 39 percent of the value of the land. Therefore, in an efficient market where such a cost would be passed on to the landowner (as would such an effective tax), the landowner would realize a significant reduction in value as a result of this inclusionary housing requirement. This is the case even given the modest 8.4 percent affordable housing requirement.

  In this case, the land value lost, based on a residual value NPV analysis, is $3.3 million. This $3.3 million was actually lost by the landowner Catellus. While the landowner might have been able to shift the required affordable units to an alternate site within the redevelopment area, the value lost would have simply moved to the same new site with the requirement. The value lost was a 'cost of doing business' in the negotiations with the city to allow the redevelopment of the historically industrial site into a new mixed-use neighborhood.

- *The opportunity cost/wealth transfer is high due to the development type.*
  The Avalon at Mission Bay is a luxury apartment development that was quite expensive to build. Market rate rental prices are also at the top of the market. As a result, the requirement to provide affordable housing onsite in units identical to the luxury market rate units results in a high

opportunity cost of close to $4.5 million. As noted above, this high absolute number still only equates to about 4.5 percent of the total development cost.

It is important to realize that the modest cost of the requirement, at approximately 4.5 percent of total development cost, is primarily due to the reduced inclusionary requirement of 8.4 percent for the project rather than the 28 percent required through the Mission Bay area. Had this project required the full 28 percent affordable housing, the opportunity cost would have been substantially higher, and the developer would have negotiated an even lower land price to ensure that the project remained profitable.

- *The cost of the inclusionary housing requirement appears to have been borne primarily by the land value.*

  In this case, the cost of the inclusionary housing requirement appears to have been borne by the land value and not by market rate renters or the developer. AvalonBay, Catellus, and the San Francisco Redevelopment Agency are all sophisticated, informed players in the real estate market, who were all aware of the inclusionary housing requirement and its resulting cost. The negotiations between the parties resulted in a land price and number of units allocation that are in such a balance that AvalonBay was only able to obtain a marginally positive NPV, or excess profit, of less than one percent of the total development cost. This is generally consistent with the residual value theory of land value, where land value is determined by the residual value of the highest and best use on the site after other participants obtain their required returns.

  It is reasonable to assume that, with such players, had the requirement not been in place the negotiations would have resulted in AvalonBay paying a higher price for the land. This price would have brought AvalonBay's positive NPV to approximately the same level it is now. Thus, the market value lost to the land would be $3.3 million.

- *The Optimal FAR Model does not hold exactly in this case.*

  The Optimal FAR Model makes the assumption that costs increase marginally with density while prices decrease, creating an optimum development density which maximizes land value/profit. This model holds over the entire continuum of real estate development densities; however this case appears to hold exceptions. The project size already mandates Type I concrete construction, which does allow increased density with marginally increasing costs, consistent with the model. Conversely, rent/price actually marginally increases with density as well. The building is located

in a dense urban context where view and distance from the street are primary value drivers, as evidenced by the increase in rents charged by AvalonBay for units with these characteristics. This is the opposite of what is predicted by the Optimal FAR Model.

As a result, the project lies to the left of the optimal density F*. I.e., density could be added to create more value. As noted previously, the site density was artificially constrained through the negotiations between the master planner and landowner Catellus and the San Francisco Redevelopment Agency, which had the authority to regulate the change in land use. Together with the increasing price curve discussed above, it appears that a density bonus could be an effective tool to promote affordable housing by allowing additional density in exchange. Such a density bonus, by increasing the size and profitability of the project, would also increase land values. However, in choosing to allocate a specific number of units to the site, building height, mass, and limiting densities and traffic were effectively set as priorities. The city could have facilitated additional affordable units at the same time as additional profit to both the developer and landowner, but it would have resulted in other externalities such as additional height (creating shadows on the street and blocking other buildings' views), traffic, and infrastructure loads.

V. CASE II: WALNUT/MISSION
FREMONT, CALIFORNIA
DEVELOPER: ROBSON HOMES

i. Physical Description.

The Walnut/Mission project consists of twenty-five attached, for-sale townhouse style residential units on a previously vacant one and one half acre site in Fremont, California. The twenty-five units consist of four unique floor plans within six distinct buildings. The floor plans range from a 1,024 square-foot two-bedroom, two-bath unit to a 1,542 square-foot three-bedroom, two-and-one-half-bath unit. All units have individual entries, and sixty parking spaces are provided for residents and guests. Walnut/Mission is built with Type V wood frame construction. The project consists of overall high quality architecture, site design, and landscaping, and is marketed to moderate income homebuyers in the very expensive San Francisco Bay Area. Market rate sales prices are projected to average just over $475,000 per unit. The developer purchased the site prior to the city's inclusionary housing requirement, and as a result this case will show interesting consequences of the subsequent requirement and its affect on project returns.

Source: Robson Homes

Although the project is marketed towards moderate income homebuyers, the developer is still proposing high quality architecture and design for the project. The site is narrow, averaging just over 150 feet in width, and is constrained by a busy state highway on one side and active rail tracks on the other. These constraints required special site design as well as mitigation for noise and vibration, adding to overall project costs. The architecture is a contemporary craftsman style, incorporating classic craftsman details such as wide eaves and exposed structural members including brackets and headers with modern details and construction. Special attention is also paid to the site design, including special paving, larger than typical tree plantings, and pedestrian pathways and treatments. As with all Robson Homes' developments, a premium is paid for the architecture and site design, as the developer believes that this investment pays for itself when selling the residential units.

The one and one half acre site is typical of those remaining in the San Francisco Bay Area's inner suburbs. The region has become more built out, at the same time as growth into outlying areas has been limited, causing a new focus on smaller, harder to develop infill sites which contain a maximum of only a few contiguous acres. Development on these sites was never optimal before, when larger sites were available or greenfield sites could be developed at lower costs. As housing prices have risen with the constrained supply in the Bay Area, development of these smaller sites has become viable. They are located in suburban cities throughout the state, and their development can be expected to continue.

The Walnut/Mission project is typical of developments in cities such as Fremont and on sites such as this. In these outlying cities, high-rise, high-density projects are usually not feasible. Developers are generally only interested in building single family houses on small lots or townhouses. Condominium style development generally increases the costs of construction, reduces sales prices, and incurs higher insurance and liability costs which are not supportable in the suburban market, even when technically

permitted through zoning. This is consistent with the Optimal FAR Model of development, which is discussed later. As a result, and due to applicable building codes and site development standards imposed through local zoning, maximum development density is effectively limited to approximately 20 units per acre.

Robson Homes is a typical developer as well. A smaller, family owned development company, Robson Homes is based in San Jose, California and focuses on the development of high quality, mid- and up-market single family houses, townhouses, and condominiums. Robson Homes is also flexible, however, and has and will build other development types, including apartments, historic-reuse, and accessory retail. Robson Homes focuses on developments within the southern San Francisco Bay Area.

ii. Analysis of the Municipality's Inclusionary Housing Requirements.

Historically a suburb of San Francisco, Fremont is nonetheless a large city. At over 208,000 people it is the fourth largest city within the San Francisco Bay Area, and at 92 square miles it is the fifth largest city by area in California (www.ci.fremont.ca.us). Fremont lies within Alameda County, on the border of Santa Clara County to the south. Fremont lies approximately 40 miles southeast of San Francisco, and 20 miles north of San Jose.

As other California cities have also seen housing prices rise through the last decade, so has Fremont. Demand has outpaced supply, resulting in large housing price gains throughout the city, region, and state. As part of the state-mandated Housing Element of the city's General Plan, Fremont's "fair share" housing needs were placed at 4,913 units for the years 2001 to 2006. Of these units, 30 percent were needed at low or very low income levels (City of Fremont, 2002). The Housing Element recommended the adoption of an inclusionary housing ordinance to help address this need.

The inclusionary requirement adopted by Fremont in 2002 is relatively strict, generally mandating that affordable units be provided within developments rather than offsite or through in-lieu fees. The ordinance requires that all new developments of seven or greater units provide 15 percent of the units at an affordable level. However, the composition of the 15 percent requirement varies based on whether the projects are rental or for-sale developments. For rental developments, nine percent of the units must be affordable to very low income residents and six percent must be affordable to low income residents. For for-sale developments, the entire 15 percent affordable set-aside is for moderate income residents (defined by the city as those making up to 120 percent of area median income) (City of Fremont, 2002).

As a for-sale development, Walnut/Mission must sell 15 percent of the units at levels affordable to moderate income residents. Of the twenty five units proposed, this results in an inclusionary housing requirement of 3.75 units, which is rounded up to four units. Affordable prices, based on city and state definitions, result in an allowable sales price of $278,000 for the two-bedroom units. As also required by city standards, these units are required to be identical to the market rate units in quality.

iii. Financial Analysis with Discounted Cash Flow Statements of Project as Built and Hypothetical Project without Inclusionary Housing.

The Walnut/Mission project is typical of many developments in the San Francisco Bay Area. The townhouse style development allows the maximum density on the site while still permitting the project to be marketed to buyers who prefer individual garages and entries to their units. The total project cost is projected to be $10 million for the twenty-five units, including land. This amounts to approximately $400,000 per unit.

The NPV rule will again be used in analyzing the project. As noted previously, the land was purchased by the developer from a private seller prior to the inclusionary housing requirement being adopted. However, the project was not proposed until after the inclusionary housing ordinance was adopted, and thus the project was subject to its requirements. This discrepancy resulted in the developer realizing unanticipated costs due to the requirement that 15 percent of the units be sold at affordable levels, and impacts the NPV to the developer. In analyzing the project to determine a NPV, a proper discount rate reflecting the risk of the development, $E[r_C]$, must again be established.

$$E[r_C] = \left[\frac{(V_T - L_T)(1 + E[r_V])^T (1 + E[r_D])^T}{(1 + E[r_D])^T V_T - (1 + E[r_V])^T L_T} \right]^{(1/T)} - 1$$

The Geltner Canonical Method (above) gives a development period required return, $E[r_C]$, of 19.4 percent using market-observed inputs for stabilized asset expected return (7.5 percent) and construction loan expected return (5.5 percent). This is slightly less than the required return for the Avalon at Mission Bay project, however this makes sense given the more straightforward Type V wood frame construction, the lower construction cost and project value totals, as well as the suburban setting of the Walnut/Mission project rather than the complex urban market of the Avalon at Mission Bay. All of these factors lead one

to expect a lower risk for the Walnut/Mission project, and this expectation is confirmed by the Geltner Canonical Method analysis. The following table summarizes the results of the analysis:

Total Development Cost, Including Land:	**$9,964,294**
Opportunity Cost of Inclusionary Requirement:	**$488,000**
As a Percentage of Total Development Cost:	**5.2%**
As a Percentage of Value per Market Unit:	**4.9%**
As a Percentage of Land Value:	**48.6%**
NPV of As-Built Project:	**$97,839**

In this case, the developer has again realized a marginally positive NPV for the project. The positive NPV is relatively small, but is especially significant in this case as the developer purchased the land prior to there being an inclusionary housing requirement. This requirement, as shown above, cost the developer $488,000, and it is reasonable to assume that this unexpected cost should have reduced the developer's NPV substantially. The developer believes that this is in fact the case. They believe that the only reason the project is returning a positive NPV is that the land was purchased for a good price initially, together with the double-digit house and land price appreciation the area has seen during the development period. Had these circumstances been different, the developer believes that the project would be a negative NPV investment, and would not be viable. Similarly, the developer believes that had the inclusionary housing requirement not been present, the project would have resulted in substantial excess returns, in line with those of the hypothetical project discussed later.

Consistent with the Avalon at Mission Bay case, the inclusionary housing requirement results in a much more significant impact measured against land values versus development cost or market rate unit value. Quite similar to the previous case, the requirement makes up approximately five percent of the total development cost and of the value per market rate unit, yet makes up over 48 percent of the land value. This is true even though the opportunity cost of $488,000 is significantly less in this case, due to the proportionally lower land value, construction cost, and project value.

As noted previously, the land was bought by the developer from a private seller prior to the inclusionary housing requirement being adopted, and therefore no inclusionary requirement was budgeted into the original project. This is consistent with the hypothetical project used to determine the effect of the requirement. As part of the hypothetical project without the 15 percent affordable housing requirement, all other variables, including unit count, market prices, and land value, are held constant. Assumptions are also made that there is sufficient demand to absorb the four additional market rate units, which is

reasonable given the small number of additional units as a portion of the project and the large number of units in the market as a whole. It is assumed that the current affordable units would sell at the lower end of the project's market, for $400,000 each. This assumption is based on comparisons of the affordable units with the other market rate units and on information from the developer.

Such a hypothetical project without an inclusionary housing requirement would have required a lower discount rate ($E[r_C]$) of 16.6 percent, and would have yielded a positive NPV of $478,876. The lower required return, based on risk, is consistent with the previous case and again indicates that the project with inclusionary housing is more risky from the developer's standpoint. The positive NPV is substantial, making up five percent of total development cost, and is what the developer would have realized had the inclusionary requirement not been adopted. In this case, it appears that the developer and previous landowner came to the agreed upon land price without an expectation of having to provide the affordable units. Due to exceptional house and land price appreciation after the land transfer, the developer was expecting to realize excess profit above their required returns (i.e. a positive NPV project). When the requirement was adopted by the city, this reduced the developer's NPV to much closer to zero.

The overall net effect of the inclusionary requirement is the difference between the previous NPV and that obtained with the hypothetical project:

$$\mathbf{NPV_{As\text{-}Built} - NPV_{Hypothetical} = \$97{,}839 - \$478{,}876 = -\$381{,}036}$$

This is the difference that the developer would have had to negotiate out of the land price in order to put them in the same place as they were before the requirement. In this case the developer was unable to do so because the land had already been purchased. As both the developer and the landowner at the time that the inclusionary requirement was passed, Robson Homes realized a lower NPV as a result.

To attempt to determine whether the land value or the developer actually absorbs the cost of the inclusionary housing requirement, an investigation into land values and comparable sales before and after the inclusionary housing requirement was adopted would be necessary. While this is beyond the scope of this study, the developer was queried as to their impression of who would bear the cost of the inclusionary requirement. Robson Homes' response was that land prices have continued to rise substantially during the period in question, due to wider market forces, and that no major correction occurred as a result of the inclusionary requirement being passed. The developer believes that land prices move downward only on

wider real estate market shocks, and will not correct for this requirement in the currently competitive market until the first major downturn in housing or land prices market-wide.

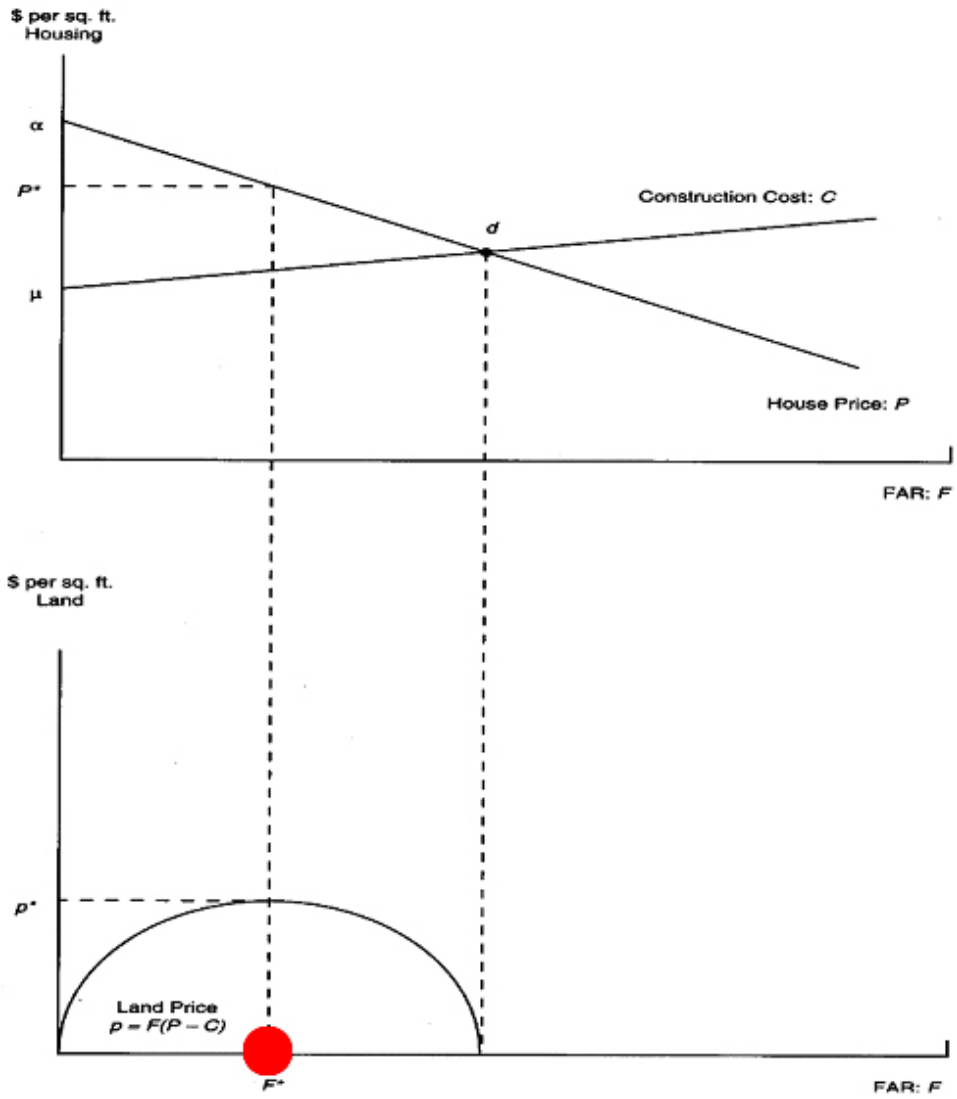
Some have predicted that the entire opportunity cost of the inclusionary housing requirement, earlier identified as $488,000, would be passed on to the market rate units within the project (Powell, 2004). The cost predicted to be passed on to each market rate tenant would be $23,238. With prices for the market rate units averaging over $475,000, the predicted increase is just under five percent per unit. However, this predicted increase is again at odds with the market price concept; where prices are set by the market regardless of costs. Given the other market forces at work and the small predicted cost increase, it is impossible to conclusively tell whether such a cost is actually being passed on to the market rate tenants or not in this case. However, based on the negotiated land value and the marginally positive NPV the developer is realizing, it appears that the majority of the cost is being passed to either the landowner or to the developer, who in this case are the same because the land was purchased prior to the inclusionary housing requirement being adopted. This is reinforced by the developer, who indicated that they were specifically unable to increase prices as a result of the requirement. While they indicated that they would if they could, they did not believe that the market would support such an increase.

iv. Analysis with the Optimal FAR Model.

In analyzing this project, it is also important to determine whether or not the project has maximized the profit of the development as a function of density. While the above analysis determined that there was a slightly positive NPV for this project, this NPV was a function of the number of units proposed, the land price, and the construction costs. As in the previous case, use of the Optimal FAR Model will determine whether additional density could have increased returns (Wheaton, 2003).

Walnut/Mission has a density of 17 units per acre, and in order to develop the desired townhouse style product is effectively limited to this density due to building code and zoning constraints. The project is made up of Type V wood framed buildings, with maximum third floor areas of 500 square feet to avoid building code requirements of a second stairway. Zoning requirements mandate wide drive aisles and deep parking areas, constraining site design. Additional units would have required a switch to a condominium style development without individual entries or private garages. The developer of this project believes that a condominium style project without separate entries and garages would be less profitable than the one being built. Such a change in product would result in the development cost per unit rising substantially due to the increasing cost of construction, as well as increased costs for insurance,

architectural and engineering services, and contractors. At the same time, the change in product type would mean a lower sales price per unit. Larger condominium buildings are not as saleable in the more suburban Fremont market. These viewpoints echo the findings of the density bonus study "that there are thresholds of density that significantly increase construction costs" and decrease sales price, rather than smoothly increasing or decreasing trends (Skiles, 2003).



The Walnut/Mission project lies at the optimal density for the site. Providing either additional or fewer units would not increase the profitability of the project.

This suggests that the developer believes that the project has maximized the land value, and thus the potential profit of the development, as represented by point F* of the Optimal FAR Model. This would indicate that any increase in density would result in an erosion of profits because the increased marginal returns from the additional units (even though sold at lower prices) would be exceeded by the increased

marginal costs of construction. Conversely, lower densities would also result in an overall reduction in profit. As noted earlier, this indicates that in this case, the smooth, downward sloping price assumption and smooth, upward sloping cost assumption of the Optimal FAR Model are actually more horizontal, where costs significantly increase and prices decrease at certain density thresholds. Nonetheless, the model holds across the entire development spectrum (from single family developments to townhouses to condominiums) and it appears that the development has in fact maximized land value/profit in this case. A density bonus would therefore likely not be utilized by the developer for this project.

v. Conclusions

The Walnut/Mission project is typical of infill developments in California suburbs in terms of price, market, size, construction, development process, and inclusionary housing requirements. The project, with 25 total units including four affordable units, shows the impact of the inclusionary housing requirement, as well as the larger market factors working on the development. Specifically, the following findings can be made:

- *The cost of the inclusionary housing requirement was approximately five percent of the total development cost, and over 48 percent of the value of the land.*

  As with the previous case, while the inclusionary housing requirement made up only five percent of the total development cost, as well as the average value of each market rate unit, the requirement represented over 48 percent of the value of the land. Coincidentally, the relative impacts of the requirement are very similar in this case to in the previous case, even though the development type, cost, and inclusionary housing requirement are substantially different. Because the developer of the Avalon at Mission Bay realized similar relative costs while only providing about half the units as in the Walnut/Mission project (on a percentage basis), the developer of the Avalon at Mission Bay actually incurred higher costs proportionally.

  The value lost due to the inclusionary housing requirement in this case, based on a NPV analysis, is $381,036. It is less clear whether the landowner or the developer lost this value, as the land was purchased prior to the requirement. Robson Homes continues to own both the land and the development rights, and while this cost is clearly present as a result of the inclusionary housing requirement, it is difficult to distinguish whether landowner or developer is realizing the cost. It does not appear that the market rate homebuyer is absorbing any of this cost.

- *The opportunity cost/wealth transfer, while proportionally similar to the previous case, actually creates proportionally more affordable units in the Walnut/Mission project.*

  The Walnut/Mission project is approximately ten percent of the size of the Avalon at Mission Bay on a total development cost and a unit count basis. Interestingly, the inclusionary requirement incurs similar relative costs for both projects, approximately 4.5 to 5 percent of total development cost and 40 to 50 percent of land value. On the other hand, the inclusionary housing requirement for the Walnut/Mission project, at 15 percent, is almost twice that of the Avalon at Mission Bay, at 8.4 percent. I.e., if both projects where the same size, the Walnut/Mission project would provide almost twice as many affordable units at the same cost.

  However, this does not tell the whole story. While the Avalon at Mission Bay provided the units to renters at low and moderate income levels, the Walnut/Mission project provides the units to buyers at moderate income levels. The relative municipalities have made choices as to the desired target of the inclusionary housing program, which has skewed the costs somewhat. Additionally, the cities have different area median incomes (AMI) on which the affordability levels are based. While the San Francisco County AMI is $95,000, the Alameda County (including the City of Fremont) AMI is $82,200. Therefore, units at the same affordability level will sell (or rent) for higher in San Francisco than in Fremont. These were the choices that the respective municipalities made in creating their inclusionary housing requirements.

- *The cost of the inclusionary housing requirement appears to have been borne primarily by the landowner or the developer, who were the same in this case.*

  The cost of the inclusionary housing requirement appears to have been borne by the landowner or by the developer, but not by market rate buyers. As shown, the developer, who purchased the land prior to the inclusionary housing requirement, would have originally obtained a large, positive NPV. However, after the requirement was passed, the developer is realizing only a slightly positive NPV. Robson Homes does not believe that any of the costs are able to be passed on to the market rate buyers.

  It is impossible to separate the landowner function of Robson Homes from the developer function, and so it is impossible to conclusively determine whether the landowner or the developer is realizing the cost of the inclusionary housing requirement. However, some anecdotal evidence is present as to who is bearing the cost. The developer indicates that house (and as a result, land) prices in the very hot San Francisco Bay Area real estate market have

continued rising since the purchase of the site, and that this is the only reason the inclusionary housing requirement did not result in a negative NPV for the project. The developer feels confident that the costs of the inclusionary housing requirement are currently being borne by the area's developers, because land prices have not adjusted, and will not adjust until a larger, market-wide correction takes place. While it is impossible to determine whether it is the landowner or the developer that is absorbing the cost, or what portions thereof, it does not appear that the market rate buyer is absorbing the cost.

- *The project appears to conform to the Optimal FAR Model in this case.*

  The Optimal FAR Model makes the assumption that costs increase marginally with density while prices decrease, thus creating an optimum development density which maximizes land value/profit. This model holds over the entire continuum of real estate development densities, although within individual market segments there may be exceptions. This was found in the previous case, as well as in previous studies (Skiles, 2003). The Walnut/Mission project conforms to the Optimal FAR Model in this case. The developer has chosen the maximum density within the construction type and product type viable in this market. A move to higher density would result in substantially higher construction and associated costs, as well as reduced prices per unit. I.e., the developer believes that such a move would result in marginal cost increases larger than the marginal price increases to the land from the additional units, eroding the residual land value/profit for the project. As a result, it is highly unlikely that a density bonus would have been effective in this case, as the developer would not utilize it. The project already lies at the optimal density F*.

VI. CASE III: VILLAGE WALK

BURBANK, CALIFORNIA

DEVELOPER: THE OLSON COMPANY

i. Physical Description.

Village Walk is a dense, mixed-use redevelopment project located in the City Centre neighborhood of Burbank, California. The project consists of 126 for-sale luxury residential units and 14 for-sale affordable units. 14,000 square feet of commercial space is also provided, identified by the developer and the city for a future restaurant. 423 parking spaces are provided total, with 280 reserved for the residential units (two reserved spaces per unit), and the remainder for the restaurant and public use. The site is located on an entire city block of over three acres, although the Village Walk site makes up only 2.5 acres. The remainder of the site will be developed as a mixed-use office and retail building in the future, most likely by a different developer. The restaurant portion of the Village Walk project is developed in such a way to ensure that it can be sold off separately in the future.

The 126 market rate residential units at Village Walk are being developed and marketed as luxury units, and range in size from 1,159 square feet to 1,924 square feet with over 22 individual floor plans. The median market rate price is $609,000, prior to any options, lot or view premiums, or other upgrades. The

14 affordable units are 965 square feet each, with two bedrooms. The units are to be sold at a level affordable to moderate income buyers in the city, making less than 120 percent of area median income (AMI). The mandated sales price for these units is $139,000 each.

Source: The Olson Company

The site was purchased by the developer in the beginning of 2004, with construction beginning shortly thereafter. Property stabilization, with the completion of construction and the sale of all residential units as well as the rental of the accessory retail space, is expected to occur by the end of 2006, for a total development period of two years.

The development site, at 2.5 acres, is typical of those available in suburban centers. Originally owned by multiple landowners, the site was assembled by the City of Burbank for future development. The city was able to assemble the site because it is located in a redevelopment area, allowing the use (or threat of the use) of eminent domain. The city then partnered with The Olson Company to create a mixed-use development to help revitalize the neighborhood. Such land assemblies and public/private partnerships are typical in the development of underutilized land parcels in suburban and urban centers, where land acquisition by the private developer would be too costly and time consuming. Additionally, it allows the city to subsidize the land price in order to obtain higher quality or desired project types.

Village Walk is also a typical project type. It is built to the maximum density possible while still using the less expensive Type V wood frame construction over a Type I concrete base. This effectively limits the building to 4.5 stories due to building codes. Such a height and density is also typically the maximum desired by the communities, who are often concerned over the change from a suburban to a more urban development model. As with many suburban center projects, the developer was also required to provide ground floor commercial space as a result of the city's desire to create mixed-use, pedestrian-oriented centers.

The Olson Company is actively developing residential and mixed-use projects throughout California, with offices in the Los Angeles, San Diego, and San Francisco metropolitan areas. The projects, as with Village Walk, are frequently in suburban centers in first tier suburbs such as Burbank. The Olson Company focuses on market rate for-sale developments, taking the form of condominiums, townhouses, and single family houses. The Olson Company is typical of many other developers in this regard.

ii. Analysis of the Municipality's Inclusionary Housing Requirements.

Burbank is a mid-sized city of 100,000 people located just over ten miles to the north of downtown Los Angeles, and covers 17 square miles. Historically a suburb of Los Angeles, Burbank, like many other suburban cities throughout California, has developed is own employment and retail centers, creating a more heterogeneous, urban environment.

The City of Burbank does not currently have a formal inclusionary housing requirement. The Olson Company was only required to provide an affordable component in this project as part of the negotiations to purchase the site from the city. As such, the developer was able to negotiate many aspects of the inclusionary requirement that would normally be firmly set by an ordinance. Some of the provisions that developer was able to negotiate include:

- The project will provide ten percent (14 units) of the development as affordable, for sale to moderate income residents making less than 120 percent of AMI. As noted previously, requirements are usually higher than this. In fact, the City of Burbank is currently developing a formal inclusionary housing requirement that would mandate that 15 percent of the units be affordable.

- The affordable units are substantially smaller than the market rate units, which is usually precluded by formal inclusionary housing requirements. The 932 square foot units are only approximately 80 percent the size of the smallest market rate units, at 1,159 square feet.
- The finishes provided with the affordable units, while still mid-range, will be of lower quality than the luxury market rate units. This is in contrast to most affordable units provided through inclusionary housing requirements, as illustrated by the previous two cases, in which finishes are generally required to be consistent throughout the project.

Together, these differences allowed the developer to build the affordable units at a slightly lower cost than the market rate units. More importantly however, is the fact that the affordable units are physically smaller than the market rate units, allowing the developer to provide the majority of the square footage to the higher-value luxury units. This is especially relevant given the difference in value created: the affordable units are valued at $144 per square foot, while the median market rate value is over twice that at $378 per square foot. Therefore, allowing the developer to maximize the square footage of the market rate units and minimize that of the affordable units had a substantial result in terms of revenue.

When the city acquired and assembled the development site, it spent $6.7 million to do so. However, the site is being sold to The Olson Company for $3.1 million. As part of the development agreement, The Olson Company also agreed to split all profits above ten percent evenly between the developer and the city, resulting in an expected additional land payment of $1.3 million, bringing the total land cost to $4.4 million. Tax increment financing also allows the city to recoup the costs of subsidizing the land price by collecting the increased taxes the project generates. As a result, "when comparing the total estimated [Redevelopment] Agency costs with the anticipated Agency revenue, the net revenue to the Agency is projected at $5.2 million (in nominal dollars) and $1.5 million (present value... using a discount factor of 6%)" (City of Burbank, 2003). Even though the land was technically sold for a loss, the city, through the powers of its Redevelopment Agency, is able to realize a positive net present value through the project. This is all accomplished within the goals of the project, including removing urban blight and revitalizing the redevelopment area.

The City of Burbank is in the process of adopting an inclusionary housing requirement for new developments. The current proposal is to require 15 percent of new units to be affordable, although the final provisions of the requirement, such as whether the 15 percent will be targeted at very low, low, or moderate income residents, has not been finalized (www.ci.burbank.ca.us). The proposed requirement is currently expected to go before the City Council in early 2005 for adoption.

iii. Financial Analysis with Discounted Cash Flow Statements of Project as Built and Hypothetical Project without Inclusionary Housing.

The suburban center, mixed-use Village Walk development is typical of those being built in cities such as Burbank. The project maximizes density within the 4.5 to 5 story height possible with the less expensive Type V wood frame over Type I concrete base construction type. Including land, total development cost for the project is $69.7 million. Even after removing the commercial component of the costs, this equates to over $475,000 per unit, considerably higher than in the previous two cases. This project is being marketed as a luxury condominium project with a median sales price of $609,000.

As in the previous cases, the NPV rule will be used. In analyzing the project to determine a NPV, a proper discount rate reflecting the risk of the development, $E[r_C]$, must again be established.

$$E[r_C] = \left[\frac{(V_T - L_T)(1 + E[r_V])^T (1 + E[r_D])^T}{(1 + E[r_D])^T V_T - (1 + E[r_V])^T L_T} \right]^{(1/T)} - 1$$

The Geltner Canonical Method (above) gives a development period required return, $E[r_C]$, of 24.8 percent using market-observed inputs for stabilized asset expected return (7.5 percent) and construction loan expected return (five percent). This is slightly more than the required return for the Avalon at Mission Bay project, due primarily to the reduced spread between project value and construction cost. Even given the more straightforward Type V wood frame construction, the Geltner Canonical Method still indicates a higher $E[r_C]$ due to the reduced margin. The following table summarizes the results of the analysis:

Total Development Cost, Including Land:	**$69,714,566**
Opportunity Cost of Inclusionary Requirement:	**$1,343,104**
As a Percentage of Total Development Cost:	**1.9%**
As a Percentage of Value per Market Unit:	**1.9%**
As a Percentage of Land Value:	**25.6%**
NPV of As-Built Project:	**$1,125,572**

The opportunity cost shown of the inclusionary housing requirement is the income lost as a result of the requirement. This is the forgone value to the developer as a result of the requirement, and is the true

measure of the requirement's cost. The opportunity cost of providing the affordable housing is 1.9 percent of total development cost and of the average value per market rate unit. However, the opportunity cost makes up a much more substantial 26 percent of the land value, which is consistent with previous cases. However, this is a somewhat unique case in which the developer entered into a profit-sharing agreement with the city in exchange for a lower initial land cost, and the additional revenue the opportunity cost represents is actually only 50 percent of the forgone revenue. Had there been no inclusionary requirement, as in the hypothetical project discussed later, the increased revenue would have been $2.6 million. Split between the developer and the city, the opportunity cost is $1.3 million each.

In this case the developer is realizing a more substantial positive NPV, of $1.1 million, than in previous cases. This can be attributed to the minimal development period required after purchase of the land. Through negotiations with the city, the developer was able to avoid purchasing the land until after all permits were issued, just before commencement of construction. As a result, the developer was able to avoid the substantial carrying costs of the land, reduce the time value of the money that would have been invested, and significantly reduce their exposure to market and project specific risks prior to groundbreaking. These are significant savings that influenced the positive NPV. The development period for this project was only two years, while that of the Avalon at Mission Bay was four years and the Walnut/Mission project, even though quite smaller, was three years.

In order to analyze the effect of the inclusionary housing requirement on the NPV of the project, a hypothetical project without an inclusionary component is again created. As part of the hypothetical project all other variables, including unit count, market sales prices, and land value, are held constant. Assumptions are also made that the smaller units would sell at the lower end of the market sales rates, and that there is sufficient demand to absorb the additional market rate units. This is reasonable given the small number of additional units as a portion of the project and the large number of units in the market as a whole. As with the original development agreement, it is assumed the developer is required to pay 50 percent of the profits above a 10 percent margin to the city as an adjusted land price. Such a hypothetical project without an inclusionary housing requirement would have again required a lower discount rate ($E[r_C]$) of 20.9 percent, and would have yielded a positive NPV of $1,999,700. The lower discount rate indicates a lesser amount of risk in the project without an inclusionary requirement, due to the larger spread between project costs and value and consistent with previous cases. In other words, the requirement to provide affordable housing lowered revenue/value while still keeping costs the same, resulting in more risk. The overall net effect of the inclusionary requirement is the difference between the previous NPV and that obtained with the hypothetical project:

$$\mathbf{NPV_{As\text{-}Built} - NPV_{Hypothetical} = \$1{,}125{,}572 - \$1{,}999{,}700 = -\$874{,}128}$$

Given the nature of the parties involved, however, and consistent with the as-built project, it is likely that the positive NPV, or excess profit, that would have been obtained had affordable housing not been required would be negotiated away to a higher land price. This is significant because, as with the first case, the city owned the land, and therefore the city could have potentially gained an additional $2.2 million (the $875,000 change in the NPV plus the $1.3 million that would be gained through profit-sharing) had the inclusionary requirement not been in place. This money could have then been used for purposes of providing affordable housing through a variety of means, including new construction of affordable housing, rehabilitation or conversion of market rate units into affordable units, preservation of at-risk exiting affordable unit, or housing vouchers to qualifying families. The city, by structuring the development agreement, land price, and affordable housing requirement as it did, determined that this was the most efficient use of these funds. This is equivalent to $157,000 per affordable unit, and is probably a reasonable use of the funds given the high cost of developing any housing, including affordable housing.

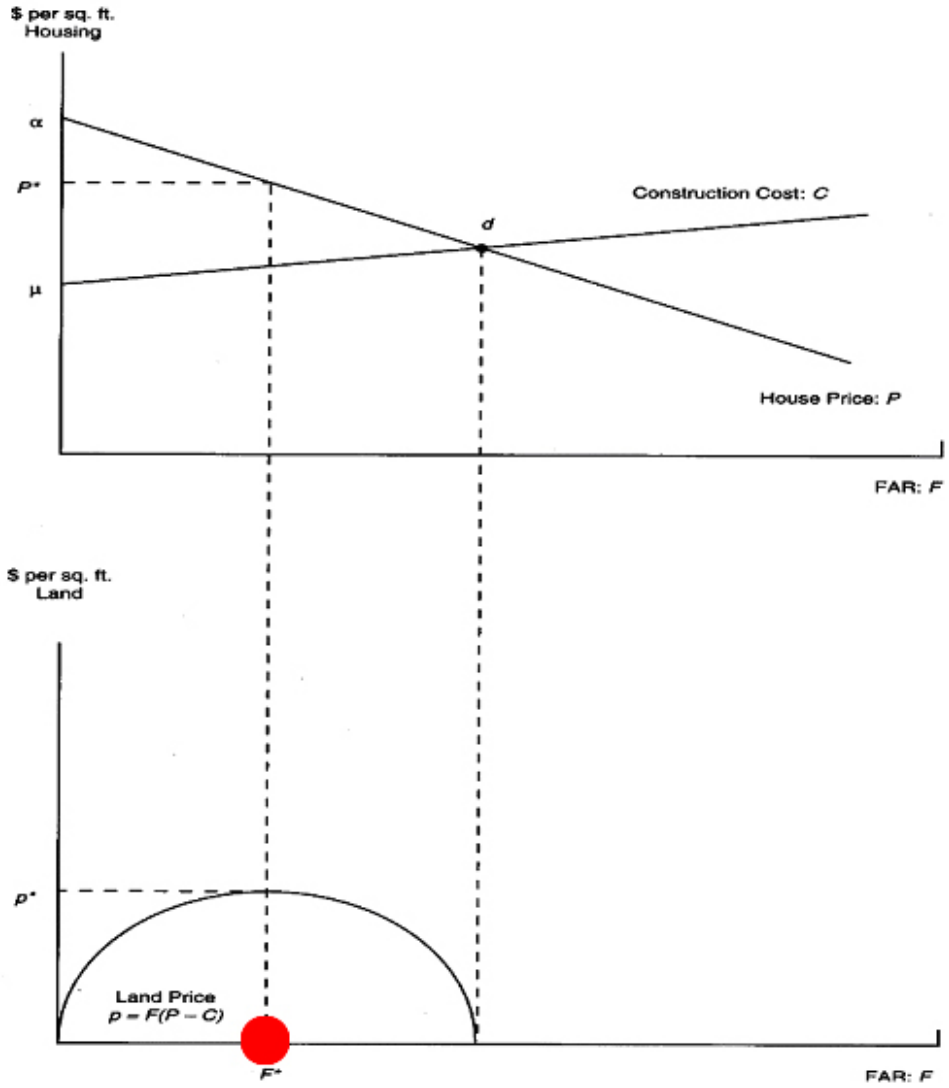
Some have predicted that the entire opportunity cost of the inclusionary housing requirement, earlier identified as $1.3 million, would be passed on to the market rate units within the project (Powell, 2004). The cost predicted to be passed on to each market rate tenant would be $21,319. The predicted increase is just 3.5 percent above the median priced market rate unit of $609,000. Given the other market forces at work, it is impossible to tell whether the cost is being passed on to the market rate tenants. Based on the negotiated land value and the positive NPV the developer is realizing, as well as information form the developer, it appears that the majority of the cost is again being passed to the land.

iv. Analysis with the Optimal FAR Model.

In analyzing this project, it is again important to determine whether or not the project has maximized the profit of the development as a function of density. While the above analysis determined that there was a positive NPV for this project, this NPV was a function of the number of units proposed, the land price, and the construction costs. As in the previous cases, use of the Optimal FAR Model will determine whether additional density could have increased returns (Wheaton, 2004).

Village Walk has a density of 56 units per acre, the maximum density possible for this project while still building the project with Type V wood frame construction over a Type I concrete base. Any additional

density would have required additional floors, at which point building codes would have mandated a switch to Type I concrete or Type II steel construction for the entire building. Such a change would have increased construction costs substantially. Although such a change would have resulted in additional units also being provided, the developer believes that the marginal construction cost increase would have been greater than the marginal price increase for the units with additional height above the street and views (which are primary value drivers, as discussed in the Avalon at Mission Bay case). Additional height and density would have also increased neighborhood concerns over views, school funding, traffic, and other externalities, which would have increase the risk of project approval for the developer.



Village Walk lies at the optimal density for the site. As a result, providing either additional or fewer units would not increase the profitability of the project.

This suggests that the project has maximized the land value, and thus the potential profit of the development, as represented by point F* of the Optimal FAR Model. This also indicates that any increase in density would result in an erosion of profits because the increased marginal returns from the additional units (when sold at higher prices) would be exceeded by the increased marginal costs of construction. Conversely, lower densities would also result in an overall reduction in profit. In other words, construction costs significantly increase while prices actually also marginally increase at certain density thresholds. Nonetheless, the model holds across the entire development spectrum (from single family developments to townhouses to condominiums) and it appears that the development has in fact maximized land value/profit in this case. A density bonus would therefore likely not be utilized by the developer for this project as it would increase marginal construction costs greater than marginal prices.

v. Conclusions

Village Walk, in Burbank, California, is typical of suburban center infill developments in California suburbs. The mixed-use, 140 unit project, including 14 affordable units, was developed in concert with the city, and is aimed at revitalizing the City Centre neighborhood. The project shows the impact of the city's informal inclusionary housing requirement, as well as the larger market factors working on the development. Specifically, the following findings can be made:

- *The cost of the inclusionary housing requirement was approximately two percent of the total development cost, and over 25 percent of the value of the land.*

  The opportunity cost of the affordable housing in this case was substantially less than in the previous two cases, at two percent of development cost and 25 percent of land value. This is the case even though the inclusionary requirement, at ten percent, falls in between the requirements of the previous two development cases. The discrepancy in the relative size of the opportunity cost is a result of the unique profit-sharing agreement that the developer and the city agreed to. This agreement stipulated that the developer would split all profits above 10 percent equally with the city. Without this agreement, the opportunity cost of the inclusionary housing requirement would have been twice what it is currently, bringing it in line with the previous two cases.

  This case continues the trend of the first two cases, where the impact is considerably greater as a percentage of land value than of construction cost. This is especially relevant since again the land value appears to have absorbed the majority of the cost. In this case, the city owned this land and

could have negotiated a higher land price in lieu of requiring the affordable housing. Instead the city effectively determined that this was the most efficient use of the money.

- *The opportunity cost is substantially less than in previous cases as a result of the unique profit-sharing agreement between the developer and the city.*

  As noted above, the opportunity cost in this case is substantially reduced, as viewed by the developer, due to the unique profit-sharing requirement put in place as part of the development agreement. This agreement was required by the city to ensure that the developer did not receive excess profit as a result of purchasing the subsidized land. While reducing the opportunity cost of the inclusionary housing requirement, which is a positive as viewed by the developer, it also reduces the potential upside of the project, which is a negative.

  From the city's standpoint, the profit-sharing requirement actually increases the opportunity cost of the inclusionary requirement. Had there been no requirement, the city could have negotiated a land price $875,000 higher, based on a residual value NPV analysis, plus the $1.3 million that would be gained through profit-sharing.

- *The cost of the inclusionary housing requirement appears to have been borne primarily by the land value.*

  In this case, as with the Avalon at Mission Bay, the cost of the inclusionary housing requirement appears to have been borne by the land value and not by market rate renters or the developer. The Olson Company and the Burbank Redevelopment Agency are sophisticated, informed players in the real estate market who were all aware of the inclusionary housing requirement and its resulting cost. The negotiations between them resulted in a land price and profit-sharing agreement such that all parties were content. The developer was also able to negotiate a low enough land value, even given the profit-sharing agreement, to create a substantial positive NPV for the project.

  It is reasonable to assume that had the requirement not been in place the negotiations would have resulted in The Olson Company paying a higher price for the land. As discussed above, the market value lost to the land would be $2.2 million. This $2.2 million was actually lost to the City of Burbank in this case, as it owned the land. The city therefore effectively made the decision that providing the 14 affordable units was the most efficient use of these funds. This

results in a cost of $157,000 per affordable unit, and is probably an efficient use of the funds given the high cost of developing any housing in California, including affordable housing.

- *The project appears to conform to the Optimal FAR Model in this case.*

  The Optimal FAR Model makes the assumption that costs increase marginally with density while prices decrease, thus creating an optimum development density which maximizes land value/profit. This model holds over the entire continuum of real estate development densities, although within individual market segments there may be exceptions. This was found in the previous cases, as well as in previous studies (Skiles, 2003). Village Walk conforms to the Optimal FAR Model in this case. The developer has chosen the maximum density within the construction type and product type viable in this market. A move to higher density would result in substantially higher construction and associated costs, which would have been greater than the marginal price increases per unit attributable to height above the street and/or better views. I.e., the developer believes that such a move would result in marginal cost increases larger than the marginal price increases to the land from the additional units, eroding the residual land value/profit for the project. As a result, it is highly unlikely that a density bonus would have been effective in this case, as the developer would not utilize it. The project already lies at the optimal density F*.

VII. CONCLUSIONS

As noted in the introduction to this study, inclusionary housing requirements are one of two primary tools available to municipalities in California seeking to provide affordable housing. The use of density bonuses, mandated by state law, is the other tool.

The primary goal of this study is to provide project-level, empirical evidence of the costs and benefits of various inclusionary housing requirements across project types and across regions. The evidence provided complements existing theoretical and qualitative studies and information, both for and against inclusionary housing. The three cases analyzed were chosen to ensure maximum applicability for future projects by using typical developments in typical municipalities throughout the state. It is hoped that the conclusions of this study will be valuable for all involved in the development process, including landowners, developers, and public policy makers.

While individual, case-level conclusions are presented with each case analysis, the following broad conclusions are made:

- *The majority of the costs of the inclusionary housing requirements were borne by the landowner in each case.*

Inclusionary housing requirements, which mandate a certain percentage of units be sold at a price less than market value, serve as an effective tax on development. As such, there are three potential bearers of the tax: the market rate homebuyer, the developer, or the landowner. Arguments have been made by various groups that different parties will bear the majority of the cost. In each of the three cases analyzed for this project, the landowner appears to have borne the majority of the cost of the inclusionary housing requirement. The percentage of land value lost was significant, with the opportunity cost of the inclusionary housing requirement ranging between 25 to 50 percent of the overall value.

This conclusion is consistent with the residual value theory of land price; that is that the value (price) of land is determined based on the residual value of the highest and best use, after risk-based required rates of return are realized by the developer. In such a model, and as was found in this study, the costs of the inclusionary requirement are passed to the landowner. The costs of the inclusionary housing requirements do not appear to have been passed on to the market rate home buyers/renters.

- *Inclusionary housing requirements with similar relative costs can produce different amounts of affordable housing, based on the market and the project.*

  Each of the three cases analyzed had similar relative costs, yet produced different amounts of affordable housing. The Avalon at Mission Bay, with an 8.4 percent of the units mandated as affordable, had an opportunity cost from the inclusionary housing requirement representing 4.3 percent of the total development costs, and 39.3 percent of the land value. Walnut/Mission provided 15 percent of the units as affordable, and had an opportunity cost representing 5.2 percent of total development cost and 48.6 percent of land value. Village Walk provides ten percent of the units as affordable, yet due to the unique profit sharing structure negotiated with the city the opportunity cost only represents 1.9 percent of total development cost and 25.6 percent of land value (without the profit sharing agreement, the relative costs would have been 3.8 percent and 51.2 percent, respectively, which is similar to the costs of the previous two cases).

  As a result, no state-wide model can be used to estimate the costs of an inclusionary housing requirement based on the percentage of units mandated to be affordable. The costs of the requirement are market- and product-specific, and care must be taken by municipalities to thoroughly understand the likely effects of the requirement on land values, as discussed in the previous conclusion.

- *Predicted price and construction costs of the Optimal FAR Model hold market-wide, but not always at the individual project level.*

  The Optimal FAR Model holds across the development market, with rising construction costs and falling house prices with increases in density. However, as has also been found previously, the model does not exactly hold at the individual project level (Skiles, 2003). In the Avalon at Mission Bay case, density could have been added with only a marginal increase in construction costs, as predicted by the model. But the increase in density would have also increased the value of the units, as there would be additional units above street level and with views, which are the primary value drivers in urban markets such as San Francisco. This result is not consistent with the Optimal FAR Model. The only reason that the density was not increased in this case was that an artificial constraint was placed on the site by the allocation of a specific number of units to the project by the city and the area's master planner.

  With both the Walnut/Mission and Village Walk developments, the developers chose to maximize density within the Type V wood frame construction type. Any additional density would have required a change to Type I concrete or Type II steel construction, which would have increased construction costs substantially. This construction cost increase would have been too great to be offset by the additional revenue from the additional units that would be provided. The smooth, marginally increasing construction cost curve predicted by the Optimal FAR Model actually has break points, such as from Type V to Type I construction, where cost increases substantially, and developers will often build to this density but not above.

- *Inclusionary housing requirements add development risk by reducing margins between project cost and project value.*

  In all three cases, a hypothetical project without an inclusionary housing requirement, holding all costs the same, would have been less risky than the project with the inclusionary housing requirement. This is the result of the inclusionary housing requirement reducing project value, and thus the margin that the developer realizes between the value and the cost. In the three cases analyzed using the Geltner Canonical Method, the inclusionary housing requirement increased the development period required return, based on risk, by between 280 and 390 basis points, which is significant. Although a qualitative argument can also be made that the affordable units are less risky due to increased demand and because they are generally managed and sold/rented by the municipality, this was not found to be the case in the analyses.

- *When the municipality owns the land, the use of an inclusionary housing requirement reduces the land value and reduces money that the municipality could otherwise use to provide affordable housing.*

  As shown, the majority of the costs of inclusionary housing requirements are borne by the landowner. As a result, when the municipality owns the land, as was the case for the Village Walk development, the use of an affordable housing requirement will reduce the price the city receives for the land. In the Village Walk case, the value lost by the city was $2.2 million, while 14 affordable units were provided onsite. Had the city not required the affordable units, the $2.2 million could have been used in other ways to provide the affordable housing, such as preservation of existing units, rental subsidies to residents, or new ground-up construction elsewhere. However, the total $2.2 million amounts to $157,000 per affordable unit, which is probably an efficient use of the funds given the high cost of developing any housing in California, including affordable housing.

  Additionally, by requiring the affordable housing within the market rate development, the municipality may also be addressing social goals of ensuring mixed-income neighborhoods and allowing lower income people who work in the area to also live in the area. These social goals are not represented in the quantitative analysis of the inclusionary housing costs, but may nonetheless be significant from the municipality's or neighborhood's viewpoint.

- *Density bonuses may be more appropriate in certain settings than inclusionary housing requirements, and vice versa.*

  A density bonus could have been successfully used in the Avalon at Mission Bay case, but not in the Walnut/Mission or Village Walk cases. In the Avalon at Mission Bay, the dense, urban project could have added density with only marginally increasing construction costs, while the additional units would have increased the value of the project significantly. The project, in which the density was artificially constrained through a negotiated allocation of units by the master planner and city, could have increased both developer and landowner profit had additional density been allowed.

  In the Walnut/Mission and Village Walk cases, the developers would not have been receptive to using density bonuses, because the developers were already maximizing the density within the

construction type and product type which the market demanded. In these more suburban cases, inclusionary housing was the more effective method for providing the affordable housing.

For markets where a density bonus is more likely to be used, it is a more effective tool than inclusionary housing requirements. The use of a density bonus actually increases supply for both market rate and affordable buyers/renters, creating an overall welfare gain (Rubin, 1991), while an inclusionary housing requirement only converts what would otherwise be a market rate unit to an affordable unit. However, density bonuses can result in externalities such as additional height (creating shadows on the street and blocking other buildings' views), traffic, and infrastructure loads which must be balanced by the municipality with the positive aspects of the increased housing supply.

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