

Implications of Changes to San Francisco's Inclusionary Housing Program

Prepared for:

CITY OF SAN FRANCISCO

DECEMBER 20, 2001

December 20, 2001

Mr. Gerald Green
Planning Director
Mr. Amit Ghosh, Ph.D.
Chief of Comprehensive Planning
Planning Department
City and County of San Francisco
1660 Mission Street
San Francisco, California 94103

Re: Sedway Group's Inclusionary Housing Study Findings

Dear Mr. Green and Mr. Ghosh:

Sedway Group is pleased to submit this report analyzing the implications of potential changes to San Francisco's inclusionary housing requirement. As you know, we have worked collaboratively with the City of San Francisco Planning Department to identify a range of prototypical developments, appropriate to analyze, with respect to the impact inclusionary housing requirements might have on development feasibility.

This report presents our conclusions, along with information regarding typical inclusionary housing requirements in other Bay Area communities competitive with San Francisco. The report also includes a literature review and statistical analysis regarding housing market economics, and information regarding how the addition of owner-occupied housing units, regardless of their affordability, can serve to constrain housing appreciation rates and increase the supply of owner-occupied housing for a wide range of households.

We enjoyed working on this most interesting project. Our collaboration with the City Planning Department was most rewarding, and we hope this study provides all interested parties with information useful to process of establishing public policy on the most important issue of increasing the supply affordable housing in the City of San Francisco.

Mr. Gerald Green
Mr. Amit Ghosh
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Please let us know if you have any questions regarding the study findings. We appreciated this opportunity to work on an issue of such importance to the City of San Francisco, its development community, and its residents.

Sincerely,

Lynn M. Sedway, CRE
Executive Managing Director

Amy L. Herman, AICP
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cc Mr. Marty Dalton
 Hector Chinchilla

LMS/ALH/DAW:skw

Enclosure

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I. EXECUTIVE SUMMARY

STUDY PURPOSE

Many parties to San Francisco's governance structure are currently grappling with an issue of paramount importance to the City of San Francisco (City), its development community, and its residents. The provision of housing affordable to households of relatively limited means has reached a crisis point in the City, with home prices escalating beyond the reach of even moderate-income households. Thus the City of San Francisco is reexamining its inclusionary housing requirements, which currently pertain to only planned unit developments or projects requiring a conditional use permit with 10 or more units. Presently, qualified rental and ownership projects are required to include 10 percent of units below market rate (BMR), with rental units affordable to households earning up to 60 percent of area median income (AMI) and with ownership units affordable to households earning up to 100 percent of AMI.

Inclusionary housing requirements in cities throughout California and the nation have become acceptable and expected among residential developers. Yet these requirements have a significant impact on the feasibility of a market-rate housing project. Moreover, development dynamics differ from location to location. Therefore, an inclusionary housing program that works in one city may not be easily adapted to another. Hence it is a challenge for each city to develop a program that maximizes affordable home production in its market while still encouraging overall home production.

Union Property Capital is in the early planning stages of a large, high-rise multifamily housing project to be built at 300 Spear Street in San Francisco. Accordingly, Union Property Capital, like many developers currently active in San Francisco, is concerned about the impact a revised inclusionary housing program might have on its development feasibility. Toward this end, Union Property Capital retained Sedway Group to conduct an independent analysis of the impact of an inclusionary housing requirement on home production in San Francisco, specifically owner-occupied housing. The City of San Francisco Planning Department (Planning Department) was very involved in the analysis, providing considerable input and direction. The purpose of this analysis is to identify the BMR thresholds that will serve the necessary and dual purpose of increasing the supply of affordable housing while expanding the City's supply of housing. Through commissioning this report, Union Property Capital seeks to provide the City with objective information and financial analysis that reflects real estate and capital market realities that would not otherwise be available to the City. This report contains independent recommendations prepared by Sedway Group as a result of the analysis.

STUDY APPROACH

Sedway Group engaged in three tasks to explore the ramifications of a revised inclusionary housing requirement in San Francisco. These tasks include the following:

- a comparative analysis of inclusionary housing requirements in Bay Area cities competitive with San Francisco and associated affordable home production;
- a financial feasibility analysis of alternative inclusionary housing requirements; and
- an econometric analysis of the determinants of owner-occupied housing prices.

Together, the findings from these three tasks provide a wealth of information useful for the formulation of public policy in San Francisco regarding potential changes to the City's inclusionary housing policy.

While San Francisco needs to formulate a policy appropriate to the City's unique housing market characteristics, it is still important for any new policy to be created within the context of other nearby jurisdictions that also present development opportunities. For example, if the City of San Francisco were to formulate a policy that is overly restrictive relative to other communities, then developers might redirect their investment activities to other markets serving equivalent populations in a less restrictive policy environment. Another useful input to the policy arena is an understanding of the types of inclusionary housing requirements that typically result in the greatest production of affordable housing. This is the level of information resulting from Sedway Group's comparative inclusionary housing requirement task.

Sedway Group worked closely with the Planning Department to analyze the feasibility of prototypical multifamily development assuming various changes to the City's inclusionary housing policy. The goal of the analysis was to demonstrate the financial implications to multifamily development given a range of potential inclusionary housing requirements. In an effort to provide the most useful input possible to the City's Planning Department, Sedway Group collaborated with city staff on the financial feasibility assumptions, such as total project size, parking ratio, tenure type, development costs, and residual land value thresholds. Many iterations regarding the scope of the financial analysis were required with the Planning Department before determining the final set of assumptions that would be most instructive from a policy perspective. This included a meeting to review and refine the underlying development cost assumptions to ensure they were consistent with other City analyses.

Finally, Sedway Group engaged in efforts to evaluate, to the extent possible, the effects of new for-sale housing supply additions in San Francisco on the overall price trend and availability of for-sale housing. The purpose of this research was to indicate if the formulation of housing policies supportive of new home development in San Francisco, regardless of income level, might ultimately result in the availability of housing at many levels, thus increasing the City's supply of affordable housing. This was accomplished through a literature search and formulation of an econometric model determining the extent to which the addition of for-sale housing in significant quantities, especially at higher price levels, has a direct effect on home appreciation rates.

Sedway Group's findings are presented in this study report. All exhibits referenced in the text can be found in Appendix A. Representative cash flows are presented in Appendix B. A bibliography for the literature search is included in Appendix C.

STUDY RESOURCES

Sedway Group relied upon a variety of data sources in preparing this inclusionary housing study. Primary research techniques involved interviews with planners and community development staff representing various Bay Area cities, lenders and equity participants, area real estate brokers, high-rise and low-rise multifamily residential developers active in San Francisco, residential developers with built projects in other Bay Area communities, and affordable housing developers. In addition, numerous meetings and conversations were held with Planning Department staff regarding study scope, assumptions, and approach.

Numerous secondary data sources were also relied upon. These included the following: municipal city codes; ABAG Projections 2000; IREM Income/Expense Analysis: Conventional Apartments; Crittenden Income Property Rates; the Journal of Real Estate Finance and Economics; the Journal of Urban Economics; the Journal of Housing Research; Real Estate Economics Journal; the University of California at Berkeley Center for Real Estate and Urban Economics; Massachusetts Institute of Technology; the Construction Industry Research Board; Economic Sciences Corporation; Federal Housing Finance Board; Regional Economic Information Systems; U.S. Census Bureau; Bureau of Labor Statistics; State of California Employment Development Department; MLS; and F.W. Dodge.

SUMMARY OF FINDINGS

Comparative Inclusionary Housing Survey

Sedway Group surveyed 12 cities to demonstrate the range of inclusionary housing requirements throughout the region and options available to residential developers. Among these, five do not have inclusionary housing requirements while seven do, as follows: Mill Valley; Mountain View; Novato; Palo Alto; San Mateo; San Rafael; and of course San Francisco. The typical BMR requirement among the surveyed cities is 10 percent. Some cities increase this percentage to 15 or 20 percent in certain circumstances, such as site size and the planned removal of existing rental units. The required level of affordability differs for ownership versus rental product. For most cities, ownership product is required to be affordable to households earning 80 to 100 percent of median income while rental product is required to be affordable to 50 to 80 percent of median income. Only one city (San Mateo) provides for ownership units affordable to households at 120 percent of median income.

Among the survey cities, Sedway Group's research demonstrates that inclusionary housing policies have influenced the development of few units of affordable housing. Since the inception of their inclusionary housing policies, affordable housing production reached 10 percent of issued single- and multifamily building permits in two survey cities, while two cities had not developed any affordable housing at the time they were surveyed. In San Francisco, inclusionary housing units have accounted for only 1 to 2 percent of issued residential building permits.

Coinciding with the state-mandated requirement to update their General Plans, many of the cities with inclusionary housing requirements are either in the process of amending their inclusionary housing requirements or planning to hire consultants to assist with the process. As in San Francisco, the planning departments are concerned that not enough affordable housing has been built. As a result, many cities anticipate adopting changes to their inclusionary housing program intended to increase the development of affordable housing. The nature of these changes remains to be determined. In the meantime, if San Francisco's inclusionary housing policy becomes onerous to developers, then developers may choose to seek development opportunities in locations competitive to San Francisco. This includes identified cities that completely lack any kind of inclusionary housing policy.

Financial Feasibility Analysis

Sedway Group conducted financial feasibility analysis for low-rise and high-rise projects with 80 and 260 units, respectively. The analysis was further conducted for projects with a 1:1 parking ratio and a 1:0.25 parking ratio, in accordance with San Francisco's policy and per the Planning Department's request. Given Union Property Capital's focus on ownership housing, the purpose of the financial feasibility analysis was to assess the financial feasibility of alternative inclusionary housing programs

on the provision of ownership housing in San Francisco. However, all residential prototypes were evaluated as both rental and ownership projects because lenders will require a condominium project to work as a rental project to ensure a fallback position if the condominium market experiences a downturn following project initiation. Thus, a project must work as a rental project in order for a lender to be willing to underwrite it as a condominium project.

The analysis indicates that *given prevailing market conditions*, San Francisco's current BMR requirement is feasible only for low-rise condominium development, with 10 percent of units available to households earning up to 100 percent of AMI. The results further suggest that the City's current inclusionary housing requirements for rental housing as well as ownership housing in a high-rise configuration are not feasible. For high-rise development, this is attributable to the much higher development costs relative to low-rise development, which cannot be recouped through an offsetting increase in revenues. This suggests that it is easier to generate affordable housing through low-rise, stick frame construction, with its associated lower risk, than it is through high-rise, concrete steel-frame construction.

The analysis also indicates that the City's current inclusionary housing requirement for rental housing, with 10 percent of units affordable to households earning up to 60 percent of AMI, is not feasible given prevailing market conditions and development costs. Instead, rental projects are feasible in a low-rise structure with a 10 percent BMR requirement at 100 percent or more of AMI as well as with a 15 percent BMR requirement at 120 percent of AMI. Further, the only way an inclusionary housing requirement will work for high-rise development of either a rental or ownership nature, albeit marginally, is if 10 percent of the units are affordable to households earning 120 percent of AMI.

Regardless of scenario, the financial feasibility results also indicate that condominium projects developed at a parking ratio of 1:0.25 parking spaces are not feasible. Placing such a requirement on projects within the context of an inclusionary housing requirement is not financially workable. Such projects would not successfully attract a project lender and would therefore not be built in San Francisco.

In spite of these results, Sedway Group recognizes that private-sector development is ongoing and numerous projects have been recently completed. Because of the lengthy development process in San Francisco, recently completed projects are representative of lower development costs, often with land bases at significantly lower costs than those assumed in the feasibility analysis. Since feasibility analyses are reflective of a particular point in time and certain set of assumptions, each project undertaken in San Francisco will bear its own unique set of opportunities and challenges. Because Sedway Group developed a set of models representative of average development costs and average rental rates and sales prices, individual project results may vary.

Determinants of Owner-Occupied Housing Prices

Sedway Group engaged in efforts to evaluate the effects of new for-sale housing supply additions in San Francisco on the overall price trend and availability of for-sale housing. The primary purpose of these efforts was to determine the extent to which the addition of for-sale housing in significant quantities, especially at higher price levels, has a direct effect on home appreciation rates. The objective of this research was to indicate if the formulation of housing policies supportive of new home development in San Francisco, regardless of income level, might ultimately result in the availability of housing at many levels, thus increasing the City's supply of affordable housing.

Sedway Group's literature search identified a body of academic research evaluating the relationship between additions to the for-sale housing stock and housing prices. Some of the more salient findings of this literature are as follows: that stringent development regulations can drive up house values while simultaneously driving home ownership rates down; and that the more new homes constructed per new job lowers median home prices. Sedway Group engaged in an econometric modeling effort for just the San Francisco single-family housing market, predicated upon the literature review's theoretical findings. The results indicated that housing prices in San Francisco are largely a function of per capita income levels, employment growth, and housing stock growth. Specifically, the model results indicated that a 10 percent increase in the stock of owner-occupied housing reduces home prices by 4.1 percent. While per capita income levels and employment growth have a theoretically stronger influence on housing prices, this supply side finding is significant, and is a strong indicator that increasing the supply of housing can indeed help maintain price stability in the market.

The analysis conducted by Sedway Group indicates that housing supply is central to maintaining relative price stability in San Francisco's owner-occupied housing market. While constrained supply is not the sole source of rapidly increasing housing prices, the econometric analysis indicates that an adequate supply of housing units for various household types can substantially moderate the rise in prices. There are several potential policy implications from this analysis, including the possibility of partially offsetting the escalation in owner-occupied housing by increasing density levels. Since land and by extension owner-occupied housing is relatively scarce in San Francisco, higher-density housing projects such as high-rise development could increase the amount of supply and thereby dampen housing price escalation. The degree to which this works, of course, will depend on the level of support or absorption for this type of housing in the San Francisco market. In effect, any policy change that increases the flow of housing stock will mitigate the influence of demand factors and reduce housing prices.

CONCLUSIONS AND RECOMMENDATIONS

Study Results

In summary, Sedway Group's findings suggest that any changes to the City of San Francisco's inclusionary housing policy should at minimum, take into consideration two distinguishing project characteristics:

- project tenure, i.e., renter versus owner; and
- project configuration, i.e., low-rise versus high-rise

The City's current inclusionary housing policy already distinguishes by project tenure. Thus only an additional dimension would need to be added to recognize the very different construction economics involved in high-rise versus low-rise development. However, regardless of tenure, the study findings suggest that the City's current 10 percent BMR requirement and affordability thresholds for renters (60 percent of AMI) and owners (100 percent of AMI) may not be appropriate *given prevailing market conditions*. Specifically, the analysis indicates only the following types of inclusionary housing requirements are financially feasible:

- low-rise rental projects with a 10 percent BMR requirement affordable to households earning 100 or 120 percent of AMI, or with a 15 percent BMR requirement affordable to households earning 120 percent of AMI;

- high-rise rental projects (marginally) with a 10 percent BMR requirement affordable to households earning 120 percent of AMI;
- low-rise ownership projects with a 10 percent BMR requirement affordable to households earning either 100 or 120 percent of AMI, or with a 15 percent BMR requirement affordable to households earning 120 percent of AMI; and
- high-rise ownership projects (marginally) with a 10 percent BMR requirement affordable to households earning 120 percent of AMI.

For high-rise development, the more limited financial feasibility is attributable to the much higher development costs relative to low-rise development, which cannot be recouped through an offsetting increase in revenues. This suggests that it is easier to generate affordable housing through low-rise, stick frame construction, with its associated lower risk, than it is through high-rise, concrete steel-frame construction.

Regardless of scenario, the financial feasibility results also indicate that condominium projects developed at a parking ratio of 1:0.25 parking spaces are not feasible. Placing such a requirement on projects within the context of an inclusionary housing requirement is not financially workable. Such projects would not successfully attract a project lender and would therefore not be built in San Francisco.

Policy Implications

The study's financial feasibility findings suggest that widespread implementation of San Francisco's inclusionary housing requirement at its current 10 percent BMR level, and certainly above this level, may severely undermine new private-sector residential development. The analysis indicates it is only feasible to increase the BMR requirement if the City is also willing to increase the affordability thresholds, but only as it applies to low-rise development. In like manner, it may be feasible to create a policy with a higher BMR requirement and a range of affordability levels for each development. This suggests an alternative approach for the City versus establishing only one set BMR percentage with one affordability level per housing type. However, further analysis would be required to test the practicality of this approach.

Because of the dynamics of the current market, characterized by declining rental rates/sales prices as well as high development costs, Sedway Group believes that implementation of the City's BMR requirement, with or without an increase in the BMR percentage, will slow multifamily residential development. At least until either rental rates/sales prices begin to rise or development costs significantly decline. Exceptions could include cases where property has been held a long time and the developer/property owner has a low land basis. A requirement for a higher percentage of BMR units with the current affordability requirements will reduce cash flow available from a project to service debt. Lower cash flow will be factored into the lender's underwriting, resulting in a smaller loan, or no financing altogether. Development projects must meet the underwriting criteria of lenders and equity participants. If these requirements cannot be met then developers will not have access to the necessary capital to fund project planning and construction. Real estate lenders and equity sponsors will instead commit their capital to alternate investments with less risk. Further, in the event a developer provides substantial equity capital, this equity must meet minimum hurdle rates or the project will not be built. Thus, a policy goal to increase the supply of affordable housing through higher inclusionary housing requirements could result in no, or severely reduced, new residential construction.

In addition to presenting financial feasibility implications of various inclusionary housing approaches, the study results show that increasing the overall supply of housing in the City can help suppress home appreciation rates. While other factors may simultaneously fuel home appreciation, such as job growth, steadily increasing the supply of housing can serve to increase the availability of residential product at a range of price levels. Thus policies designed to increase home production in the City will indirectly increase the supply of affordable housing. This indirect approach can be complemented by another indirect approach entailing the collection of in lieu fees for select projects. Currently, the City of San Francisco's inclusionary housing policy applies to projects with 10 or more units. This is logical given the current 10 percent requirement. However, more revenue could be raised for the provision of affordability housing if the City implemented an in lieu policy for projects of a smaller size, such as 5 – 9 units. Such projects could likely not bear an inordinately high in lieu fee. Yet, some level of fee might be feasible, ultimately generating a respectable pool of revenues to augment existing affordable housing revenue sources in the City.

The City's current inclusionary housing policy is applicable only to planned unit developments or projects requiring a conditional use permit. As a result, relatively few new inclusionary housing units have actually been produced in the City. The City and its residents would benefit from a broadening of this policy, with the inclusionary housing policy applicable to all new residential development with 10 or more units. In all likelihood, this policy change alone would result in the production of far more affordable housing units than would a policy change increasing the percentage of required BMR units.

Another clearly practical policy option without choking off development could include the creation of an off-site option for high-rise development, transferring the requirement for affordable housing to a lower cost development alternative. This would preserve the potential to increase the City's total housing supply while simultaneously increasing the supply of affordable housing. This is a very practical way to acknowledge the increased burden on high-rise development while still facilitating the development of new affordable housing.

II. COMPARATIVE SURVEY OF INCLUSIONARY HOUSING REQUIREMENTS

INCLUSIONARY HOUSING SURVEY OVERVIEW

Sedway Group surveyed twelve Bay Area cities, including San Francisco, to demonstrate the range of inclusionary housing requirements throughout the region and options available to residential developers. Through interviews and a review of municipal codes, Sedway Group collected information on below market rate (BMR) requirements, the number of affordable units produced under various inclusionary housing policies, and the in-lieu fees collected and associated sum currently available since policy adoption.

This analysis is organized into four sections:

- Review of the cities Sedway Group surveyed and the criteria used to select each city;
- Overview of BMR requirements enforced by San Francisco and Bay Area cities Sedway Group considered competitive locations;
- Comparison of the amount of affordable housing production attributed to each cities inclusionary housing policy to the number of single and multifamily issued building permits since policy adoption; and
- Discussion of the amount of in lieu fees collected and currently available to support affordable housing.

Survey results demonstrate that Bay Area inclusionary housing policies have had minimal impact on affordable housing production and that Bay Area residential developers interested in San Francisco development opportunities have multiple options to the extent development becomes prohibitive due to changes in its inclusionary housing policy. Moreover, Exhibit A-1 presents Sedway Group's survey results, summarized in the following text.

SELECTION OF CITIES

Sedway Group surveyed twelve Bay Area cities, including San Francisco and eleven cities Sedway Group deemed competitive to San Francisco. Cities included in the survey were selected based on the following criteria: cost of construction, potential rental rates and sale prices, and location to significant employment centers. The list of cities surveyed includes:

- | | | |
|------------------|------------------|------------------|
| 1. Burlingame | 5. Novato | 9. San Jose |
| 2. Mill Valley | 6. Oakland | 10. San Mateo |
| 3. Millbrae | 7. Palo Alto | 11. San Rafael |
| 4. Mountain View | 8. San Francisco | 12. Walnut Creek |

Of the twelve cities surveyed, Burlingame, Millbrae, Oakland, San Jose, and Walnut Creek do not have inclusionary housing requirements distinct from the requirements imposed by California

redevelopment law.¹ In speaking with either planning or housing department representatives among these cities, only Oakland is studying the impacts of inclusionary housing requirements on local development and is considering adopting a proposal by September 2002. Walnut Creek does not intend to adopt inclusionary housing requirements tied to residential development, while Burlingame and San Jose support local affordable housing development through strategies such as long-term gap financing.

BAY AREA INCLUSIONARY HOUSING REQUIREMENTS

Percentage Requirements

Of the twelve cities surveyed, Mill Valley, Mountain View, Novato, Palo Alto, San Francisco, San Mateo, and San Rafael, have adopted inclusionary housing policies. Figure 1 on the following page illustrates the BMR requirements for these seven cities. As demonstrated in the figure, the typical BMR requirement is 10 percent; however cities such as Novato, Mill Valley, and Palo Alto require developers to adhere to alternative BMR requirements in certain circumstances.

For example, Novato increases its BMR requirement to 15 percent for ownership residential developments. Mill Valley increases its BMR requirement to 15 percent for residential developments with ten or more units and a gross density of seven or more units per acre. Palo Alto increases its BMR requirement to 15 percent for residential developments on sites greater than 5 acres; for condominium projects the BMR requirement may be increased to 20 percent if rental units are permanently removed from the market.

Also, depending on the size of the development and the income level of either lessees or purchasers, certain cities have stipulated alternative requirements. For example, Novato decreases its BMR requirement for ownership residential developments from 15 percent to 10 percent if the units are made available to households earning 51 percent – 60 percent of median income, and from 15 percent to 5 percent if the units are made available to households earning 50 percent or less of median income.

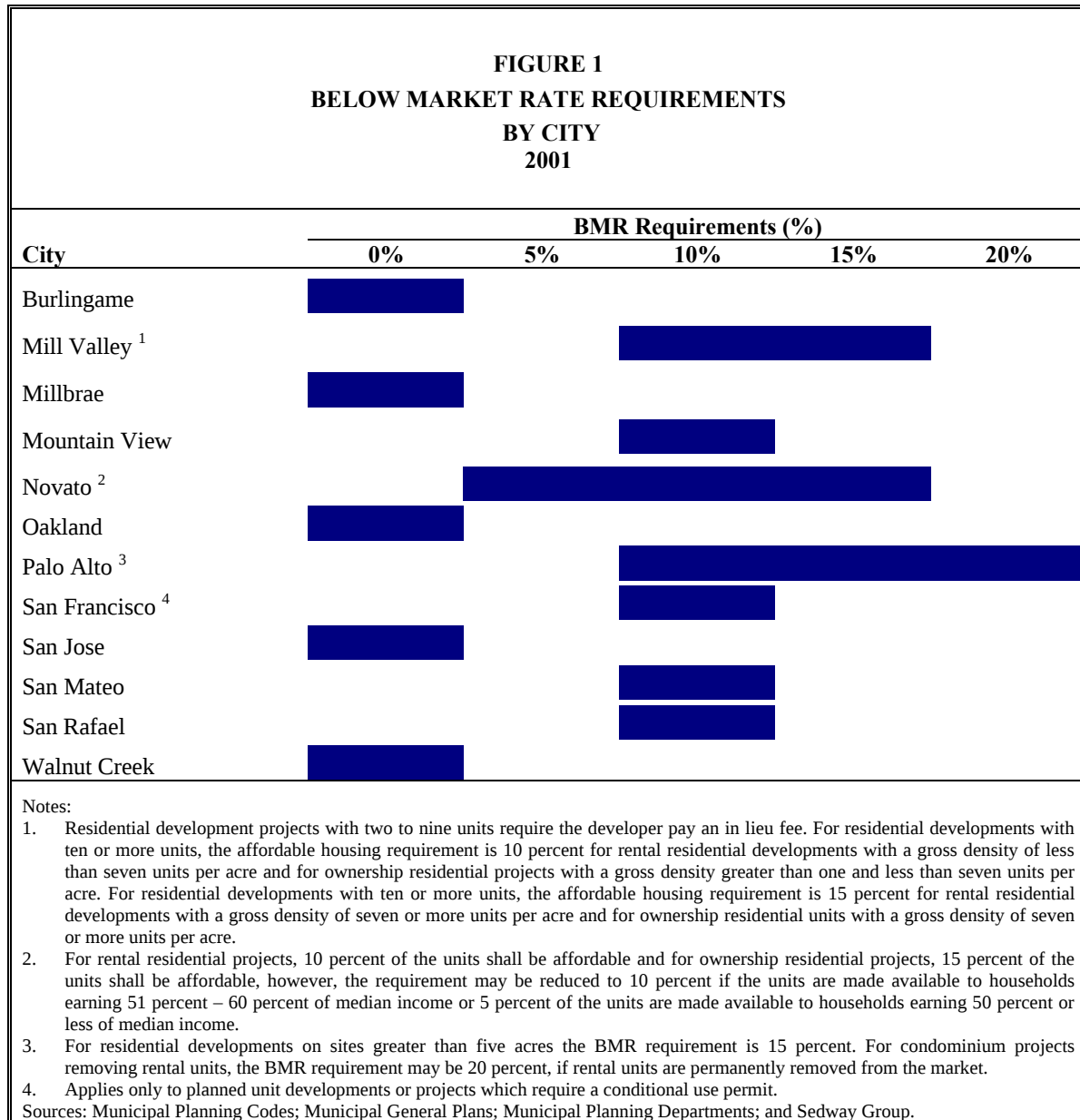
Level of Affordability

In most of the cities with inclusionary housing requirements, the required level of affordability differs for ownership versus rental product. Excepting only San Francisco and San Mateo, ownership product is required to be affordable to households earning 80 to 100 percent of median income. In San Francisco, this range expands to include households earning 60 to 100 percent of median income, while in San Mateo it increases to households earning up to 120 percent of median income.

There is more variability in the income limits for rental housing. The largest share of cities require inclusionary rental housing to be affordable to households earning 50 to 80 percent of median income. This includes Mountain View, Palo Alto, and San Rafael. Novato and San Francisco then require rental units to be affordable to households earning 60 percent or less of the median income while San Mateo requires units to be affordable to households earning up to 80 percent of median income. In

¹ California redevelopment law requires that 15 percent of any units developed within a Redevelopment Project Area must be affordable (6 percent must be for very low-income families and 9 percent must be for moderate-income families or below).

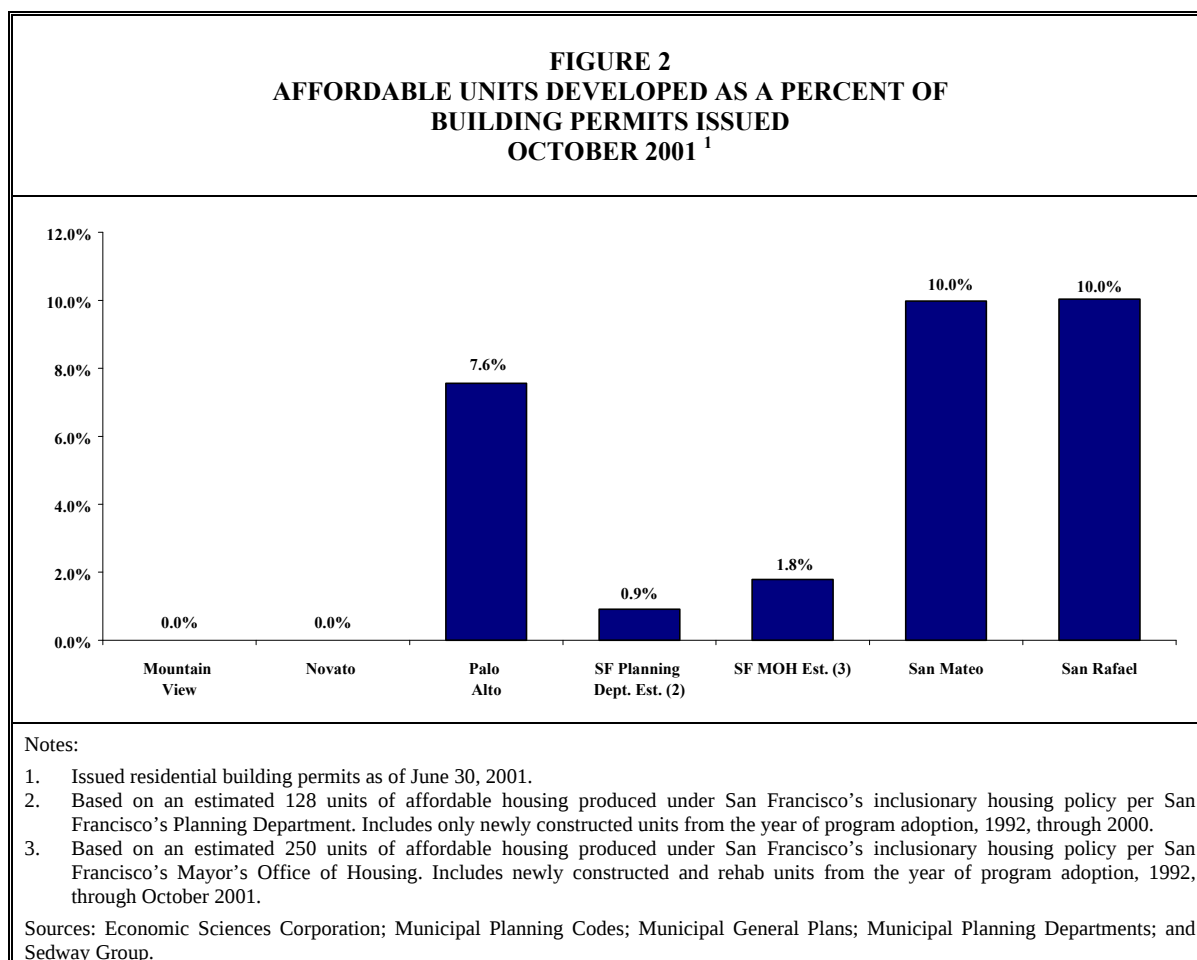
contrast, Mill Valley's requirement is similar to its ownership housing requirement, with rental units affordable to households earning 80 to 100 percent of median income.



HOUSING PRODUCTION

Sedway Group's survey demonstrates that inclusionary housing policies have influenced the development of few units of affordable housing. To measure affordable housing production, Sedway Group compared the number of affordable units developed under each city's inclusionary housing policy to the number of single-family and multifamily residential building permits issued. Sedway Group used issued residential building permits as a proxy for development activity recognizing, however, that an issued building permit does not necessarily mean that a unit of housing was developed.

Figure 2 below indicates that affordable housing production does not exceed 10 percent of issued single- and multifamily building permits in any survey city, and two cities included in the survey have not developed any affordable housing under their inclusionary housing policies.²



² Mill Valley is excluded from this analysis because the Director of Community Development is not able to report the number of affordable housing units produced under Mill Valley's inclusionary housing policy.

Novato and Mountain View, the two cities that have not developed any affordable housing units under their inclusionary housing programs, demonstrate the impacts of low in lieu fees and the importance of designing an inclusionary housing policy consistent with local development. Novato, which recently adopted its BMR requirement (1999), believes that developers opt to pay the in lieu fee rather than develop affordable units because the in lieu fee is relatively insignificant, approximately \$3,363.82 per unit.³ Mountain View attributes the paucity of affordable unit production to the lack of projects subject to the city's BMR requirements since adopting the policy in 1999.⁴

Since inception of their inclusionary housing policies, Palo Alto, San Francisco, San Mateo, and San Rafael have developed 189, 128–250⁵, 156, and 278 affordable units, respectively. As a percent of residential building permits (single-family and multifamily) issued since the adoption of each cities' respective inclusionary housing policy, San Mateo and San Rafael have achieved the most success, having enabled the development of affordable units representing approximately 10 percent of issued residential building permits. In contrast, San Francisco's inclusionary housing policy has had limited success increasing the supply of affordable housing, accounting for approximately 1 percent to 2 percent of issued residential building permits. Importantly, since San Francisco's current inclusionary housing policy applies only to planned unit developments or to projects requiring a conditional use permit, the City's inclusionary housing policy may not have impacted many of the projects completed since adoption of the policy in 1992. Palo Alto's inclusionary housing policy, which is the oldest of all the cities surveyed, has enabled the development of affordable units representing approximately 8 percent of issued building permits.

IN LIEU FEES COLLECTION

Sedway Group also gathered information on the amount of in lieu fees that each city has collected and the amounts currently available to support affordable housing development. Of the seven cities with inclusionary housing policies, only four have funds currently available to support affordable housing. Given the cost of construction in the Bay Area, the in lieu fees currently available are not sufficient to significantly increase the number of affordable housing units in each of the cities surveyed.

The four cities that currently have funds available to support affordable housing, and their respective sums, include: Mill Valley (\$73,621); Novato (\$353,000); Palo Alto (\$1,400,000); and San Rafael (\$300,000). While Mountain View provides developers an in lieu fee option, the city has not had the opportunity to collect in lieu fees because there have not been any projects subject to the city's inclusionary housing policy. In contrast, San Mateo does not provide an in lieu fee option to developers. San Francisco officially has an in lieu fee option, however, the Mayor's Office of Housing indicates that developers are not offered this option and instead are required to provide the affordable housing units. Yet, from a time when the in lieu fee option available, the City collected approximately \$150,000.

³ The in lieu fee is adjusted on a yearly basis for changes in inflation.

⁴ Mountain View's inclusionary housing policy applies to residential projects consisting of three or more for-sale units or five or more rental units.

⁵ Since the program's adoption, San Francisco's Planning Department, which only considers newly constructed units, estimates 128 affordable units have been developed through 2000, whereas the Mayor's Office of Housing, which accounts for both new construction and rehab projects, estimates 250 affordable units have been developed through October 2001.

IMPLICATIONS FOR SAN FRANCISCO HOUSING PRODUCTION

Coinciding with the state-mandated requirement to update their General Plans, many of the cities with inclusionary housing requirements are either in the process of amending their inclusionary housing requirements or planning to hire consultants to assist with the process. These cities include Mountain View, Novato, San Francisco, San Mateo, and San Rafael. In all circumstances, planning departments are concerned that not enough affordable housing has been built. As a result, many cities anticipate adopting changes to their inclusionary housing program intended to increase the development of affordable housing. For instance, San Rafael is considering an increase in the percent of affordable units required to be developed from 10 percent to anywhere from 20 percent to 25 percent, while Novato is considering increasing its in lieu fee. South San Francisco recently adopted an inclusionary housing policy where none previously existed. This policy was drafted with a 25 percent requirement and was subsequently reduced to 20 percent during the public process. It remains to be seen the extent to which housing is developed in South San Francisco pursuant to this policy.

In spite of the long-term uncertainty, in the near-term, if San Francisco's inclusionary housing policy becomes onerous to developers, then developers may choose to seek development opportunities in locations competitive to San Francisco. This survey illustrates that of the eleven surveyed cities competitive to San Francisco, five do not have inclusionary housing policies, while the remaining six enforce inclusionary policies with BMR requirements similar to San Francisco's current policy.

III. FINANCIAL FEASIBILITY ANALYSIS OF ALTERNATIVE INCLUSIONARY HOUSING REQUIREMENTS

FINANCIAL FEASIBILITY OVERVIEW

Sedway Group worked closely with the Planning Department to analyze the impacts of potential changes to San Francisco's inclusionary housing policy on the financial feasibility of new residential development. Toward this end, Sedway Group developed cash flow models for prototypical low-rise and high-rise residential development in San Francisco to analyze the impact changes in San Francisco's inclusionary housing policy might have on such measures as the following:

- Return on cost
- Equity internal rate of return (equity IRR); and
- Residual land value.

This analysis was conducted for both rental and ownership (condominium) housing. The rental perspective is important in its own right, but also because lenders will underwrite a condominium project as a rental property to ensure a fallback position if the condominium market experiences a downturn following project initiation. In addition, the Planning Department requested that the analysis include the range of parking ratios currently established by policy throughout San Francisco.

Figure 3, below, summarizes the cash flows developed for this analysis.

FIGURE 3 STUDY CASH FLOWS				
Units	Housing Tenure Type			
	1:1 Parking Ratio		1:0.25 Parking Ratio	
	Rental	Ownership	Rental	Ownership
<i>Low-rise</i>				
80	0	0	0	0
<i>High-rise</i>				
260	0	0	0	0

For each cash flow, Sedway Group analyzed the sensitivity of the equity IRR and residual land value to changes in the BMR and income level requirements. Specifically, Sedway Group measured the equity IRR and residual land value at BMR requirements ranging from 10 percent to 25 percent and income levels ranging from 50 percent of AMI to 120 percent of AMI. Attached separately in Appendix B are cash flow statements for low-rise rental projects at a 1:1 parking ratio (i.e., one parking space for each unit) and 1:0.25 parking ratio (i.e., one parking space for every four units) and high-rise ownership projects at a 1:1 parking ratio and 1:0.25 parking ratio.

LENDER AND EQUITY REQUIREMENTS

In today's uncertain world, lenders are more reluctant to lend and developers are more reluctant to build. In recognition of the role lenders play in the provision of housing, Sedway Group interviewed residential construction and permanent financing lenders, including pension fund advisors, major U.S. banks, and multifamily housing investors, as well as equity participants, to ascertain their underwriting criteria for financing rental and condominium developments in San Francisco. Sedway Group's query included rental criteria as well as ownership because most construction lenders will underwrite a for-sale project as a rental property to ensure a fallback position if the condominium market experiences a downturn following project initiation.

Lenders are concerned with the strength of the cash flow generated from a given project and a sufficient level of returns to support debt. In speaking with lenders, Sedway Group identified three conditions that are required before financing can be approved:

- Loan to Cost ratio in the range of 65.0 – 70.0 percent. This ratio measures the relationship of the loan amount to the total development cost.
- Debt Service Coverage ratio in the range of 1.2 – 1.3. This ratio represents the amount cash flow before debt service (e.g., a lender may require cash flow to be 1.25 the annual debt service) that must be available, as verified through the underwriting process, to pay monthly debt service.
- Return on Cost in the range of 9.0 – 10.0 percent. This represents the ratio of net operating income divided by total development costs and is used by lenders to assess the financial viability of a residential development.

Equity participants, while also concerned with the strength of cash flow, are interested in ensuring that equity IRRs are commensurate with the level of risk associated with their investment. The more risk associated with a development, the higher the equity IRR requirement. Although the required minimum equity IRR varies by each developer and project, in general, developers and equity participants require a rental project to generate an equity IRR equal to or greater than 20 percent. The minimum equity IRR threshold for a condominium project is higher at 25 percent. Because of the higher development costs and the additional risks associated with sell-out, developers and equity sponsors require higher rates of return for ownership projects.

Thus, lender and equity requirements are significant drivers in the analysis and feasibility of new residential development in San Francisco.

KEY ASSUMPTIONS

This section outlines the key cost and revenue assumptions incorporated in the various scenarios used to analyze the impacts of changes to San Francisco's inclusionary housing policy. Exhibit A-2 presents a summary of key cost and revenue assumptions. Sources of the assumptions include data gathered from locally active developers, cost estimators, marketing companies, property records, internal project expertise, and published secondary sources.

Development Costs

There is substantial variation in the costs to develop multifamily residential projects in San Francisco. Key drivers in the cost variations include a low-rise versus high-rise and rental versus condominium orientation. Low-rise projects are typically wood frame construction, whereas high-rise configuration projects utilize concrete and steel, materials that are significantly more expensive and require more intensive labor. Also, condominium projects are more costly to build because unit sizes are larger and the fixtures and finishes are more expensive. Sedway Group's key development cost assumptions are:

- **Base building construction costs.** Base building construction costs range from \$135 per gross square foot of building area (approximately \$124,138 per unit) for a low-rise rental project to \$175 per gross square foot of building area (approximately \$187,069 per unit) for a high-rise rental project. The variations in building construction costs are due to materials, fixtures, and average unit size.
- **Parking construction costs.** Parking construction costs range from \$55.00 per gross square foot of parking area for low-rise projects to \$65.00 per gross square foot of parking area for high-rise projects. The differences in parking construction costs, while also the result of material costs, are influenced by the type of construction. Low-rise projects are typically built above ground with the residential building placed on a podium, whereas high-rise projects are generally underground, requiring excavation and more substantial construction.
- **Total development costs.** For projects with a 1:1 parking ratio, Sedway Group estimates total development costs, excluding land and developer profit, to range from approximately \$207 per gross square foot (approximately \$190,571 per unit) for a low-rise rental project to approximately \$295 per gross square foot (approximately \$315,061 per unit) for a high-rise ownership project.

Sedway Group assumes there are no differences in per square foot building or parking construction costs for a project with a 1:1 parking ratio versus a project with a 1:0.25 parking ratio. As a result, total development costs across all development types are intuitively lower as significantly less parking is developed.

Revenue Assumptions

Both building type and parking availability influence variations in sales prices, rental rates, absorption rates, and vacancy rates. For condominium and rental projects, a high-rise project is anticipated to achieve higher average sales prices and rental rates than a low-rise development due to more amenities and better views. With respect to parking, Sedway Group's research indicates that condominium units that do not have a deeded parking space sell at an 11.5 to 21.1 percent discount relative to units with a parking space, or an average of approximately 15 percent. For rental projects, as opposed to adjusting average rental rates for units that do not have parking spaces, Sedway Group assumes that projects with fewer parking spaces will endure a higher rate of turnover, yielding a higher vacancy rate, and slower absorption.

For condominium projects with a 1:1 parking ratio, the average sales price for a market rate unit in a low-rise project is \$407,778, while the average sales price for a market rate unit in a high-rise project is \$475,641. For projects with a 1:0.25 parking ratio, the average sales price for a market rate unit in a

low-rise project is \$361,903 while the average sales price for a market rate unit in a high-rise project is \$422,131.

Sedway Group has found that units without a deeded parking space sell at an approximate 15 percent discount to units with a deeded parking space. Thus, in projects with a 1:0.25 parking ratio, sales prices *for only those units that do not have a parking space* are reduced by 15 percent. For instance, in an 80-unit project with a 10 percent BMR requirement, 72 market rate units are developed, however, since 18 market rate units include a parking space, 54 units sell at a 15 percent discount. Also, because condominium buyers are concerned about potential resale values, Sedway Group assumes that these projects will have slightly lower absorption rates. Thus, the absorption rate assumed in the low-rise scenario is reduced from 5 units per month in the 1:1 parking ratio scenario to 4 units per month in the 1:0.25 parking ratio scenario. In the high-rise scenario, the absorption rate is reduced from 7 units per month in the 1:1 parking ratio scenario to 6 units per month in the 1:0.25 parking ratio scenario.

For rental projects with a 1:1 parking ratio, the average monthly rental rate for a market rate unit in a low-rise project is \$2,115 (\$2.64 per net square foot), whereas the average monthly rental rate for a market rate unit in a high-rise project is \$2,390 (\$2.93 per net square foot). With regard to parking, apartment tenants pay an additional fee (\$200 per month) for a parking space. In the 1:0.25 parking ratio scenario, Sedway Group believes that instead of adjusting rental rates, an apartment with fewer parking spaces will require a longer lease-up (absorption) period, and, once fully leased, will experience greater turnover, leading to a higher stabilized vacancy rate. Thus, in the 1:1 parking ratio scenario, for both low-rise and high-rise developments, whereas Sedway Group assumes initial absorption is 20 units per month and the stabilized vacancy rate is 5.0 percent, in the 1:0.25 parking ratio scenario, the absorption rate is decreased to 18 units per month and the vacancy rate is increased to 7.0 percent.

FEASIBILITY OF ALTERNATIVE INCLUSIONARY HOUSING REQUIREMENTS

In evaluating the feasibility of changes to San Francisco's inclusionary housing policy, Sedway Group used two key criteria, equity IRR and residual land value. The relevance of the equity IRR pertains to the lender requirements reviewed earlier, with an equity IRR of 20 or more as the target for rental projects and an equity IRR of 25 or more as the target for ownership projects. Residual land value measures the imputed value of land given the costs of development and anticipated returns. It is an important criterion because it suggests the maximum market price a developer would be willing to pay for land given a specified development program. Consequently, if the residual land value is less than the market price, a development project will generally not be feasible and the developer will not proceed with the project.

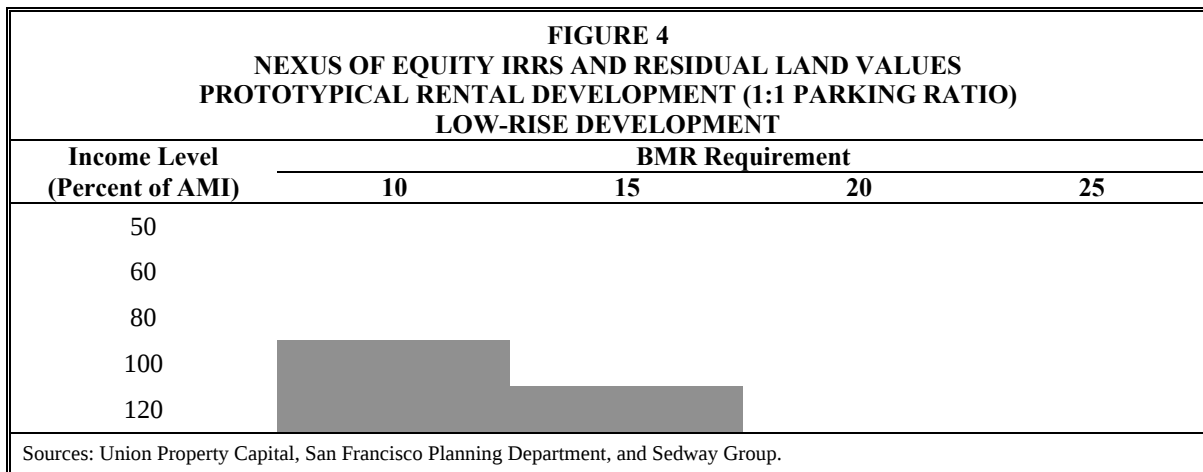
For a project to be deemed feasible, it must meet both the equity IRR and specified residual land value thresholds. Residual land values discounted more than 25 percent relative to the estimated market value were deemed not feasible. The estimated market rate land values were discussed and mutually agreed upon with the Planning Department based on historical and recent land sales.

Since lenders underwrite condominium projects as rental projects, Sedway Group added an additional criterion for condominium feasibility, which is that rental project feasibility for a prototype be a precondition for condominium feasibility.

Prototypical Rental Development

Feasibility Parameters. The relevant feasibility parameters for rental project evaluation include an equity IRR of 20 percent or more and residual land value no greater than a 25 percent discount relative to market value. For the purpose of the rental project analysis, land values are estimated at \$50,000 per unit for a low-rise rental development and \$45,000 per unit for a high-rise rental development. Thus, the minimum residual land values are \$37,500 for low-rise development and \$33,750 for high-rise development.

Feasible Rental Prototypes. The financial analysis results demonstrate different levels of feasibility for low-rise versus high-rise rental projects. The nexus of feasible low-rise rental projects at a 1:1 parking ratio is presented in Figure 4, with feasible projects shaded in gray stripes. In other words, the shaded prototypes are those that meet both the equity IRR and land residual screening criteria.



These results indicate that low-rise rental projects at a 1:1 parking ratio are feasible in the following circumstances:

- 10 percent BMR requirement and income levels ranging from 100 to 120 percent of AMI; and
- 15 percent BMR requirement at an income level of 120 percent of AMI.

As a result of a lengthier development process, higher costs of development, and longer absorption period, high-rise rental projects at a 1:1 parking ratio are not feasible at any level of BMR requirement or income level. However, such a project works marginally at a BMR requirement of 10 percent and an income level of 120 percent of AMI. This project generates an equity IRR of approximately 18.4 percent, below the target equity IRR, and a residual land value per unit of \$35,945, or approximately 20 percent lower than estimated market values.

Not Feasible Rental Prototypes. At current policy levels, with rental units affordable to households earning up to 60 percent of AMI, both low-rise and high-rise rental projects are not feasible. In both the low-rise and high-rise cases, the equity IRRs are narrowly acceptable, approximately 17.9 percent in the low-rise case and 17.1 percent in the high-rise case. However, residual land values per unit are

significantly below threshold levels. In the low-rise case, the residual land value per unit is \$33,620 per unit, representing an approximate 33 percent decline from estimated market values. In the high-rise case, residual land value per unit is \$20,657, approximately 54 percent below estimated market value. These results indicate that high-rise development is even less feasible than low-rise development. This is because the BMR requirement drives down residual land values more in the high-rise case than the low-rise case because of the higher development costs involved in high-rise development without a sufficient increase in revenue.

The lack of feasibility is the result of current market dynamics in which rental rates have precipitously declined, while development costs have remained relatively unchanged⁶. Thus, these results suggest that private-sector residential development is likely to slow in the near-term until either rental rates rise above their current levels or development costs decline.

Parking Ratio Implications. Albeit marginally feasible at a 10 percent BMR requirement and an affordability level of 120 percent of AMI, rental projects, regardless of configuration, are not feasible at a 1:0.25 parking ratio. The income lost by reducing the parking requirement is nearly offset by cost savings.

Prototypical Ownership Development

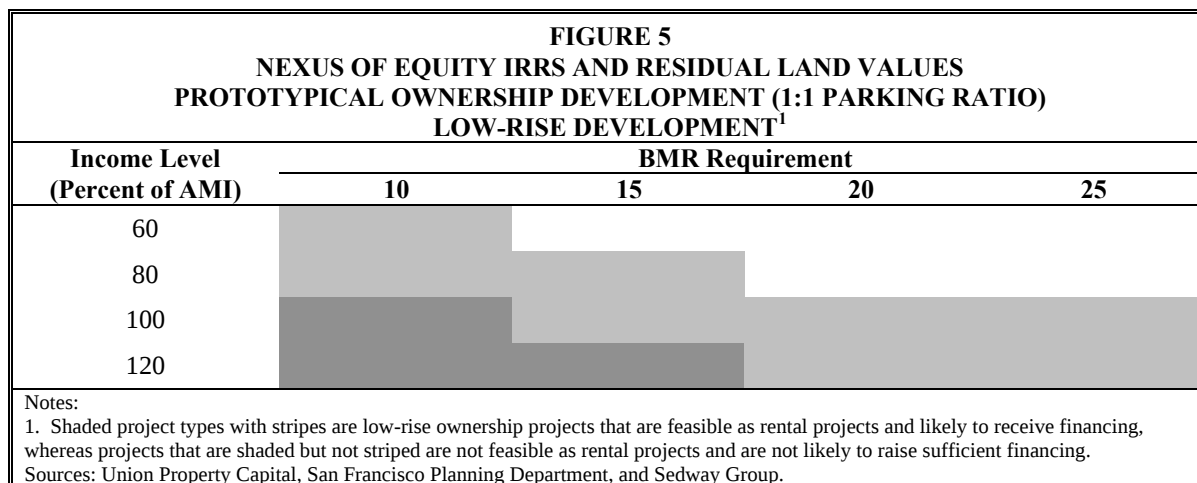
Feasibility Parameters. The relevant feasibility parameters for ownership project evaluation include the equity IRR of 25 percent or more and the residual land value no greater than a 25 percent discount relative to market value. For the purpose of the ownership project analysis, land values are estimated at \$60,000 per unit for a low-rise development and \$55,000 per unit for a high-rise development. Thus, the minimum residual land values are \$45,000 for low-rise development and \$41,250 for high-rise development. In addition, the ownership project must be deemed feasible as a rental project as a precondition to ownership feasibility, pursuant to lender requirements.

Low-Rise Feasibility. Figure 5 on the next page illustrates the nexus of feasible low-rise ownership projects at a 1:1 parking ratio. For low-rise ownership projects, based solely on equity IRRs and residual land values per unit, it appears that this type of development is feasible at a range of BMR requirements and income levels. All of these scenarios are shaded in gray in Figure 5. However, since financing is contingent on condominium projects demonstrating feasibility as a rental project, ***only those low-rise rental projects that are both shaded and striped are likely to receive adequate financing to support development as an ownership project.*** Alternatively, a developer may opt to inject additional equity into a project. However, given the higher returns associated with equity, this is unlikely to occur.

Thus, these results indicate that low-rise condominium projects at a 1:1 parking ratio are feasible in the following circumstances:

- 10 percent BMR requirement and income levels ranging from 100 to 120 percent of AMI; and
- 15 percent BMR requirement at an income level of 120 percent of AMI.

⁶ Although developers and architects believe that construction costs will decline in the near term, current and projected major public works projects (i.e., BART expansion, Bay Bridge retrofit, San Mateo bridge expansion) will limit development costs from falling at the same rate as rents given the continuing demand for construction workers and materials.



High-Rise Feasibility. Similar to high-rise rental, high-rise condominium projects are not feasible at any level of BMR requirement or income level. However, at a BMR requirement of 10 percent and an income level of 120 percent of AMI, such a project is marginally feasible. This project generates an equity IRR of 23.8 percent and a residual land value of \$59,902, representing an approximate nine percent increase from estimated market values.

Market Dynamics Implications. There is a wide disparity in feasibility between rental projects and ownership projects. In both the low-rise and high-rise scenarios, at a 1:1 parking ratio, ownership projects are feasible at a wider range of BMR requirements and income levels than rental projects. This is due to the fact that sales prices have remained relatively unchanged, while rental rates have significantly declined. Sales prices have remained strong for the following reasons:

- **Low interest rate environment.** Sales prices have been buttressed by historically low mortgage interest rates⁷; and
- **Condominium owners are less transitory than renters.** Because of concerns over resale values and community ties, condominium owners are less likely to move during an economic downturn.

Nonetheless, because of the risk that all of the units in a condominium project will not sell, lenders protect themselves against a potentially weak condominium market by ensuring the project is feasible as a rental project.

Parking Ratio Implications. With regard to the 1:0.25 parking ratio scenario, the impact of reduced parking is greater on a condominium project than on a rental project. This is because the revenue reduction⁸ associated with the lack of a deeded parking space is far greater than the decrease in

⁷ As of December 13, 2001, the Federal Home Loan Mortgage Corporation (Freddie Mac) reported that the average 30-year fixed conventional mortgage rate was approximately 7.09 percent. On November 8, 2001, Freddie Mac reported that this same rate was approximately 6.45 percent.

⁸ As stated earlier, Sedway Group assumes that sales prices are reduced by 15 percent for *only* those market rate units that do not have a parking space.

development costs for that parking space. As a result, condominium projects at a 1:0.25 parking ratio are not feasible, regardless of their low-rise versus high-rise configuration.

IMPLICATIONS FOR THE FEASIBILITY OF NEW HOME PRODUCTION

Sedway Group's analysis indicates that *given prevailing market conditions*, San Francisco's current BMR requirement is feasible only for low-rise condominium development, with 10 percent of units available to households earning up to 100 percent of AMI. The results further suggest that the City's current inclusionary housing requirements for rental housing as well as ownership housing in a high-rise configuration are not feasible. For high-rise development, this is attributable to the much higher development costs relative to low-rise development, which cannot be recouped through an offsetting increase in revenues. This suggests that it is easier to generate affordable housing through low-rise, stick frame construction, with its associated lower risk, than it is through high-rise, concrete steel-frame construction.

The analysis also indicates that the City's current inclusionary housing requirement for rental housing, with 10 percent of units affordable to households earning up to 60 percent of AMI, is not feasible given prevailing market conditions and development costs. Instead, rental projects are feasible in a low-rise structure with a 10 percent BMR requirement at 100 percent or more of median income as well as with a 15 percent BMR requirement at 120 percent of median income. Further, the only way an inclusionary housing requirement will work for high-rise development of either a rental or ownership nature, albeit marginally, is if 10 percent of the units are affordable to households earning 120 percent of AMI.

Regardless of scenario, the financial feasibility results also indicate that condominium projects developed at a parking ratio of 1:0.25 parking spaces are not feasible. Placing such a requirement on projects within the context of an inclusionary housing requirement is not financially workable. Such projects would not successfully attract a project lender and would therefore not be built in San Francisco.

These financial feasibility findings suggest that widespread implementation of San Francisco's inclusionary housing requirement at its current 10 percent BMR level, and certainly above this level, may severely undermine new private-sector residential development. The analysis indicates it is only feasible to increase the BMR requirement if the City is also willing to increase the affordability thresholds, but only as it applies to low-rise development. In like manner, it may be feasible to create a policy with a higher BMR requirement and a range of affordability levels for each development. However, further analysis would be required to test the practicality of this approach. Another clearly practical policy option could include the creation of an off-site option for high-rise development, transferring the requirement for affordable housing to a lower cost development alternative. This would preserve the potential to increase the City's total housing supply while simultaneously increasing the supply of affordable housing.

Because of the dynamics of the current market – declines in rental rates and sales prices and high development costs – Sedway Group believes that increasing the BMR percentage without altering the affordability thresholds will slow multifamily residential development until either rents and sales prices begin to rise or development costs significantly decline. A requirement for a higher percentage of BMR units with the current affordability requirements will reduce cash flow available from a project to service debt. Lower cash flow will be factored into the lender's underwriting, resulting in a

smaller loan, or no financing altogether. In the event a developer provides substantial equity capital, this equity must meet minimum hurdle rates or the project will not be built. Thus, a policy goal to increase the supply of affordable housing through higher inclusionary housing requirements could result in no, or severely reduced new residential construction.

In spite of these results, Sedway Group recognizes that private-sector development is ongoing and numerous projects have been recently completed. Because of the lengthy development process in San Francisco, recently completed projects are representative of lower development costs, often with land bases at significantly lower costs than what is being assumed in this feasibility analysis. Since feasibility analyses are reflective of a particular point in time and certain set of assumptions, each project undertaken in San Francisco will bear its own unique set of opportunities and challenges. Because Sedway Group developed a set of models representative of average development costs and average rental rates and sales prices, individual project results may vary.

IV. DETERMINANTS OF OWNER-OCCUPIED HOUSING PRICES

OVERVIEW OF FACTORS INFLUENCING HOUSING PRICES

Sedway Group engaged in efforts to evaluate, to the extent possible, the effects of new for-sale housing supply additions in San Francisco on the overall price trend and availability of for-sale housing. The primary purpose of these efforts was to determine the extent to which the addition of for-sale housing in significant quantities, especially at higher price levels, has a direct effect on home appreciation rates. The objective of this research was to indicate if the formulation of housing policies supportive of new home development in San Francisco, regardless of income level, might ultimately result in the availability of housing at many levels, thus increasing the City's supply of affordable housing.

To conduct this research Sedway Group engaged in a literature search of academic and professional journals to identify previously completed studies in San Francisco or elsewhere in the United States evaluating the relationship between additions to the for-sale housing stock and housing prices. The results of this literature search, including studies conducted at MIT and the University of California at Berkeley, revealed an interesting body of literature based upon econometric modeling. Some of the more salient findings of this literature are as follows: that stringent development regulations can drive up house values while simultaneously driving home ownership rates down; and that the more new homes constructed per new job lowers median home prices.

Sedway Group engaged in a unique econometric modeling effort for just the San Francisco single-family housing market, predicated upon the literature review's theoretical findings. This effort included testing several model formulations to explore the relationship of single-family home prices in San Francisco to supply and demand variables. The results indicated that housing prices in San Francisco are largely a function of per capita income levels, employment growth, and housing stock growth. Specifically, the model results indicated that a 10 percent increase in the stock of owner-occupied housing reduces home prices by 4.1 percent. While per capita income levels and employment growth have a theoretically stronger influence on housing prices, this supply side finding is significant, and is a strong indicator that increasing the supply of housing can indeed help maintain price stability in the market.

THE ECONOMICS OF HOUSING CYCLES

In the following sections, Sedway Group reviews the general economics of housing cycles in an effort to establish a framework for explaining how housing supply affects prices in urban areas, particularly in the San Francisco market. During the late 1990s, the San Francisco metropolitan area, like many urban areas in California, experienced a period of rapid housing price escalation. As indicated in Exhibit A-3, the median price for an owner-occupied structure advanced at an average annual rate of 20.3 percent between 1995 and 2000, compared with an average annual decline of 1.8 percent during the previous five-year period.⁹ The factors leading to the rapid escalation of housing prices in San Francisco during the 1995 to 2000 period are partially explained by a market imbalance that occurred

⁹ Current dollar median prices for detached and attached single-family units as wells as condominiums.

when employment and population, and hence demand, surged while supply grew at a relatively tepid pace.

Supply and Demand as Determinants of Housing Costs

Population growth, favorable mortgage rates, and rising household incomes lead to increased demand for housing. Because a city's housing stock can only adjust slowly to increased demand, housing prices are bound to rise in the short-term when these factors are present. Conversely, once the housing stock expands to meet increased demand, the upward pressure on prices is relieved. In the short run, therefore, prices depend on how quickly new construction can meet increased demand for housing.

Price-swings are also influenced by land availability and development costs. When development costs are low and land is available, large shifts in demand for housing do not necessarily result in much higher long-run prices. Conversely, when development costs are high and/or land is scarce, the cost of new construction is higher, resulting in higher prices, other things being equal.

Development delays make cyclical patterns more severe by slowing the rate of new housing supply. Longer delays make it more likely that the market will overreact, both in terms of price and new construction. Hence, when the land development and construction lag is long, the boom-bust cycle is more pronounced.

There are two primary points at which supply can affect housing prices:

- the supply of land for development; and
- the supply of completed housing units for purchase or rental.

People searching for housing evaluate the available options before determining what they will pay as a mortgage payment or as rent. If there are few options from which to choose, people may bid up the price in order to obtain the housing they desire. Many neighborhoods in San Francisco experienced such "bidding wars" in 1999 and most of 2000, that drove up housing prices and rents.

While acknowledging the interplay of demand and supply variables on local housing markets, the theoretical framework described above implies that supply factors are key in maintaining relative price stability in the housing market. Thus any factor that constrains the flow of supply when demand is high will trigger higher housing and land prices.

The Role of Land Costs

The determinants of the market value of land are somewhat more complicated. Given the market values of different housing types, adjusted for locational factors, land developers will bid on land based on the expected rate of return. In other words, if there is a lengthy entitlement process, owners will absorb the inherent risk into their required potential return, thereby increasing the price of land.

However, the basic supply and demand principles discussed above will also apply to the land market. If land is plentiful, then prices will be lower. This leads to lower sales price for lots and hence lower new housing prices and rents. Conversely, if land is scarce, competition for available lots will bid up prices in both the land and housing markets.

The San Francisco Housing Market

The foregoing analysis provides some context for a discussion of San Francisco's housing market in the 1980s and 1990s. Several factors constrain San Francisco's housing supply. The first of these is the physical configuration of the Bay Area itself, where a significant portion of the land throughout the area is physically unsuited for development because of irregular terrain, unstable soil, or other factors. Development in other areas is constrained by environmental concerns. Much of the coastline adjoining San Francisco is protected by statutes prohibiting any development within 1,000 meters of the coastline. Furthermore, other regulations and statutes make the permitting process and therefore the start to completion time of a project in San Francisco longer than in many other cities in the Western United States.

The accompanying graphs illustrate the movements of San Francisco's key housing demand and supply determinants over time, as well as some related indicators for the city. New demand for housing during the late 1980s through the early years of the 1990s was weak. Employment within San Francisco grew at a relatively slow pace between 1987 and 1990, increasing by an average of 1,800 jobs per year. During the following four-year period, San Francisco's economy faltered and total nonfarm employment contracted by an average of 8,500 jobs per year. In contrast, between 1995 and 2000 the San Francisco County job base grew by a total of 85,400, averaging 14,200 new jobs per year.

As shown in Exhibit A-4, the relationship between the trends in employment and the escalation in single-family prices is strong. When new employment is created in San Francisco, more workers must be accommodated by a slowly adjusting housing stock. This slow adjustment as shown in Exhibit A-5 led to a housing market imbalance, which in turn caused housing prices to spike as buyers and renters competed for limited supply.

The future flow of new supply is determined by the single-family development process timeline. Permit data are often used as a proxy for housing construction activity. According to this metric, as indicated in Exhibits A-6 through Exhibits A-8, the year 2000 represented the 20-year peak of housing permit approvals in San Francisco County. However, multifamily permits represented the lion's share of the permits issued: a mere 81 single-family permits were issued in 2000, the second lowest annual total in 20 years. Between 1996 and 2000, a period of escalating demand, a total of 785 single-family permits were issued, translating into an average annual rate of 157 permits per year, which is roughly on par with the 20-year average of 155 single-family permits per year.

AN ECONOMIC ANALYSIS OF HOUSE PRICE VARIATION

There are significant variations among metropolitan areas in the price of homes with similar characteristics. There are also differences across areas in the rates of change in home prices. In 1995, for instance, the median selling price for an existing home in San Francisco was approximately five times higher than the median sale price for an existing home in most Midwest cities. It is widely recognized that housing is produced and consumed in heterogeneous markets that reflect local characteristics such as zoning restrictions, availability of developable land, income growth, and population growth. However, the discrepancy in housing costs between San Francisco and most Midwest cities, for example, is much greater proportionally than any inter-metropolitan differences in consumer prices, other asset prices, wages, or incomes alone would suggest. Several studies have attempted to measure and explain the root causes for inter-metropolitan differences in median home

prices. In the following section, Sedway Group will review the recent economic literature regarding inter-metropolitan variation in housing prices. A bibliography of the cited resources is included in Appendix C.

Review of Recent Economic Literature

Most of the empirical studies have used an implicit supply and demand framework for analyzing the metropolitan housing market (Ozane and Thibodeau 1983; Manning 1988; Fordura and Kushman 1986; and Rose 1989). These authors have generally estimated reduced form price equations, using independent variables such as income, population, population growth, prices of other goods, construction costs, taxes, and amenities. The common approach has been to see how differences in these variables between metropolitan areas would affect local supply and demand conditions, leading to different prices in each metropolitan market. Obviously, variations in these variables can explain regional housing cycles as well as differences in prices and construction activity across regions (Abraham and Hendershott 1992 and Tesarek 1991). For example, Abraham and Hendershott, using a pooled time-series cross-section regression analysis, explained that economic variables such as employment and income growth, inflation of real construction costs, and change in real, after-tax interest rates accounted for about 40 percent of the variation in regional housing prices. Although only a limited number of studies have addressed supply-side constraints and the effects on housing prices, a few studies have attempted to analyze the fluctuations in housing prices with a particular focus on supply-side determinants.

Measuring Regulation and Other Supply-Side Constraints

Of particular importance in analyzing the San Francisco housing market is a study conducted by Malpezzi (1996). In the 1996 study, Malpezzi attempts to estimate the costs and benefits of development regulation on housing prices. The results in that study suggest that past a particular threshold, more stringent regulation drives house values up while simultaneously driving home ownership rates down, because supply constraints cause asset prices to increase faster than rents in heavily regulated cities.

In an effort to measure the regulatory environment in the major metropolitan areas in the United States, Malpezzi developed a regulatory index using the unweighted values of seven variables collected by Linneman, Summers, Brooks, and Buits (Buits et al., 1991). See Exhibit A-9 for a list of the variables. Updating the data, Malpezzi developed the MSA-specific regulatory index contained in Exhibit A-10. The lowest possible score an MSA could receive was a 7 (indicating a market with limited development restrictions). On the other end of the spectrum, the highest score a metropolitan area could receive was a 35, indicating a highly regulated environment. As shown, San Francisco and Honolulu have the highest regulatory index scores of 29. In fact, many of the metropolitan areas with high regulatory indices are located in California. This supports research by Fischel (1995) who developed a theory that California is different from the rest of the nation in matters of development regulation. Fischel argues that most of the housing price appreciation in California's major cities cannot be attributed to fluctuations in demand. Although the simultaneity of demand factors contributes to the housing markets in California, there is a high correlation between the regulatory index and the quality-adjusted housing prices of the major metropolitan areas.

Malpezzi's study is consistent with the theory that house price levels for both renters and owners are related to physical constraints, population, employment, income, and demographic factors, as expected. However, the key finding is that supply-side constraints as measured in the regulatory index

are highly correlated to above-average median home prices in a metropolitan area. The models predict that a city with a high regulatory index will have a quality-adjusted home price that is in the range of 31 to 46 percent higher than other metropolitan areas.

In this analysis, Sedway Group focused on a few oft-cited recent studies. However, a number of other authors have also concluded that supply-side issues are the major contributors to quality-adjusted regional home price differences. Most notably, using pooled cross-sectional data from the American Housing Survey, Potepan (1996) identified construction costs as having a strong impact on inter-metropolitan price variations. The study estimated that a 10 percent increase in construction costs would lead to a 6.7 percent increase in median home prices.¹⁰ Moreover, a more recent study by Landis and Deng (2000) found that the lower the level of new housing construction relative to job growth from 1995 to 1999, the larger the increase in sales prices. This was particularly the case among coastal metropolitan areas in California.

THE NEW ECONOMY AND HOUSING PRICES

As noted, the above-cited research also implies that the economic base of a metropolitan area influences the housing market through changes in overall employment and per capita income. In particular, the growth of information technology and the so-called “New Economy” industries has transformed the landscape and thus the housing market for many metropolitan areas, including San Francisco’s. The structural base of New Economy regions is heavily dependent upon high-tech industries, particularly microelectronics, telecommunications, Internet-based firms, and the burgeoning biotech industry. To date, there has been a limited amount of empirical research on the impact of a local area’s economic base on its housing price appreciation.

Relevant Empirical Research

However, one recent study by Landis and Zook (2001) analyzed the structural base of 47 metropolitan areas throughout the country, for the purpose of exploring the impacts of the New Economy on housing markets. The number of Dot.com firms per 1,000 private workers in a metropolitan area was selected as the indicator to represent an MSA’s New Economy quotient. As indicated in Exhibit A-11, housing markets were arrayed into quartiles according to the number of Dot.com firms per private worker. California MSAs account for 6 of the 11 MSAs represented in the top quartile of metropolitan areas with a high quotient of New Economy firms. They include San Francisco, San Jose, Oakland, San Diego, Orange County, and Los Angeles.

New Economy Home Prices. Applying the National Association of Realtors data to the quartiles, as summarized in Figure 6, median home prices in the top quartile appear to be significantly above other MSA groupings. According to the National Association of Realtors, the median home price among the top quartile New Economy metropolitan areas in 2000 was \$235,600, versus only \$98,000 in the bottom New Economy quartile.

¹⁰ Potepan’s study also found a strong correlation between household income and median single-family home prices. The study suggests that a metropolitan area with income levels 10 percent higher will have median home prices that are 6.4 percent higher.

FIGURE 6
HOUSING PRICES BY DOT-COM FIRMS/1000 JOBS QUARTILE

	All Metro Areas	Top Dot.com Quartile	2nd Dot.com Quartile	3rd Dot.com Quartile	Bottom Dot.com Quartile
Median MSA Housing Price, 2000 (1998\$)	\$156,640	\$235,568	\$151,294	\$128,999	\$98,012
Median MSA Housing Price, 1993 (in 1998\$)	\$131,531	\$190,818	\$127,090	\$113,273	\$95,345
Percent Change in MSA Housing Price, 1993-2000	9.1%	6.8%	10.5%	11.1%	7.5%

Source: Landis and Zook (2001); National Association of Realtors; and Sedway Group

The New Economy Model Rationale and Results. The authors of the study developed a regression model to estimate how much of the difference in median home prices could be reasonably attributed to the economic structure of an MSA. The model results suggest that demand and supply variables alone explained 67 percent of the variation in median home prices in 2000. Per capita income had a strong positive influence on median home prices: for every \$1,000 difference in average real per capita income between metropolitan areas, median prices in 2000 were \$12,000 higher. Ease of construction – as measured by the ratio of building permits to job growth – had a negative effect: the more new homes constructed per additional job, the lower the median home price in 2000.

The predictive powers of the model were significantly increased when the New Economy Index was added to the equation. Including the new economy variable increased the model's fit. With the New Economy Index, the model explained 82 percent of the variation in year 2000 median home prices, versus the earlier 67 percent. The interpretation is as follows: for every additional dot.com company per 1,000 workers, the MSA median home price in 2000 increased by \$10,000. Furthermore, controlling for supply and demand factors, median home prices in the top New Economy MSA quartile were \$44,000 higher than in other MSAs.

The Landis and Zook study lends empirical support to the idea that the industrial base of an MSA does affect the interplay of supply and demand in the housing market. Although their results confirm the basic supply-demand principles developed earlier in this chapter (i.e., that high rates of job and income growth coupled with a slow housing stock adjustment period lead to higher housing prices) the model also reflects the fact that New Market economies may be more sensitive to market imbalances than other metropolitan areas with a different economic base. Specifically, the model seems to explain the realities in the San Francisco market in 1999 and 2000.

However, as the authors note, although home ownership rates in 1998 were lower in New Economy MSAs than elsewhere, they were also lower 5 years ago, before the Internet boom began. Therefore, even though the changing structure of the Bay Area economy may have exacerbated a long-standing imbalance between supply and demand in the San Francisco housing sector, it does not appear to have been the root cause. Moreover, increased housing production in New Economy MSAs, as in other MSAs, has the expected effect of increasing housing affordability and homeownership rates by dampening price acceleration.

MODELING THE SAN FRANCISCO HOUSING MARKET

Sedway Group tested several model formulations to explore the relationship of single-family home prices in San Francisco to supply and demand variables. Sedway Group tested several model formulations in an effort to develop a series of equations that best explain the historical fluctuations in owner-occupied housing prices in San Francisco since the 1980s. This section of the report outlines the methodology and results from two of the most relevant model structures.

First, Sedway Group employed a stock adjustment approach to modeling the San Francisco housing market. Typically, the stock of housing cannot be adjusted quickly enough to match changes in demand; the result is a continual discrepancy between the demand, or "desired stock" of housing, and the actual amount of inventory. In effect, the housing market is in disequilibrium. While this discrepancy can be estimated in a straightforward manner, market imperfections often stretch the adjustment process over a long period. Episodes of excess demand and rising market prices are followed by similar periods of excess supply.

In real estate markets, stock adjustment models have been widely applied. This work follows the framework of several studies, including Di Pasquale and Wheaton (1991). Often, real estate markets experience long periods of excess supply or demand. When economic growth accelerates, the available construction resources are unable to meet the immediate demand for housing supply. By the time residential units can be delivered to market, underlying demand may have changed, resulting in an excess supply or demand for owner-occupied housing units. Demand for housing in San Francisco can be modeled as a function of demographic or economic factors. In addition, demand for owner-occupied housing is a function of the alternative accommodation, namely rental housing. Therefore, when multifamily rental rates rise (all else being equal), the demand for owner-occupied units rises, which in turn causes owner-occupied housing prices to increase. Similarly, when incomes rise, the demand for single-family housing increases, prompting a decline in the demand for multifamily units.

Model Specification A¹¹

The San Francisco model is an econometric model of housing demand, prices, and inventory change. To measure the effects of employment and wage growth on housing demand, Sedway Group developed a system of equations to measure net demand, regional construction activity and median home prices. The key equations are presented in the following paragraphs.

The key behavioral equation, for demand, is produced by estimating the amount of single-family housing that would be "desired" at a given point in time based on a number of explanatory variables, including: employment, interest rates, and per capita income. We use the symbols $Dlog(X_t)$ to denote the first difference in period t of the log of the series, X . In Sedway Group's formulation, desired owner-occupied stock is $owner_dstk_t$, employment is emp_t , real per capita income as $rinc_t$, the mortgage rate is $rate_t$, and multifamily rent is mul_rent_t .

$$1) Dlog(owner_dstk_t) = a Dlog(emp_t) + b Dlog(rinc_t) + c Dlog(rate_t) + d Dlog(mul_rent_t)$$

¹¹ The data used in these models derive from a variety of sources, in particular the Construction Industry Research Board, Economic Sciences Corporation, Federal Housing Finance Board, Regional Economic Information Systems, U.S. Census Bureau, Bureau of Labor Statistics, State of California Employment Development Department, MLS, DRI/WEFA, and F.W. Dodge.

This equation makes the change in demand for owner-occupied housing from one period to the next a function of changes in employment, per capita income, interest rates and the cost of rental accommodations.

The price equation, described below, makes the price of owner-occupied housing in any given period a function of the owner-occupied desired stock and the single period lag of prices (owner_pr_t).

$$2) \text{Log}(\text{owner_Price}_t) = \text{log}(\text{owner_dstk}_t) + \text{log}(\text{owner_pr}_{t-1})$$

Although the specification described above is theoretically appealing, the explanatory power of the model as it relates to home prices is relatively weak: it explains only 57 percent of the variation in median home prices. When the lag structure of the price variable is extended to 3 or 4 periods, the explanatory power of the equation increases. However, this formulation does not address the issue of supply directly. Therefore, Sedway Group tested other formulations, as represented in Model B, outlined in the following section.

Model Specification B

In specification B, the demand for owner-occupied housing is assumed to be a function of the following variables: (1) housing prices; (2) employment growth; and (3) inflation-adjusted per capita income. Expanding on the theory that in the long run demand must equal supply, the price equation is determined by the above factors plus the size of current stock.

After testing several specifications, the linear form was adopted because it provides a reasonably good fit and the coefficients are easily interpreted. Model B's specification indicates that 79 percent of the variation in owner-occupied housing prices in San Francisco since the mid-1980s is explained by the changes in employment, per capita income, and supply. The interplay between supply and demand in the San Francisco housing sector, as suggested by model B, is illuminating. The results are as follows:

- a 10 percent increase in per capita income leads to a 7.5 percent increase in house prices, all else being equal;
- a 10 percent increase in employment results in a 6.5 percent increase in house prices; and
- a 10 percent increase in the stock of owner-occupied housing reduces prices by 4.1 percent.

These results indicate that per capita income levels and employment growth have a theoretically stronger influence on housing prices than growth in the housing stock. However, the results further indicate that growth in the housing stock significantly contributes to the model's predictive abilities, indicating that increasing the supply of housing can indeed help maintain price stability in the market.

Housing Market Implications

The conceptual framework established earlier in the chapter supports Sedway Group's econometric results. All else being equal, an increase in demand for owner-occupied housing in San Francisco will lead to increased housing prices. Examples of factors increasing demand include increases in employment, income, and the number of households seeking accommodation. Factors that adversely affect supply will also increase the cost of housing. For example, increases in the cost of labor, materials, or the imposition of regulatory controls will raise housing prices.

The analysis conducted by Sedway Group indicates that housing supply is central to maintaining relative price stability in San Francisco's owner-occupied housing market. As this series of explanations indicates, constrained supply is not the sole source of rapidly increasing housing prices, although an adequate supply of housing units for various household types can substantially moderate the rise in prices. There are several potential policy implications from this analysis, including the possibility of partially offsetting the escalation in owner-occupied housing by increasing density levels. Since land and by extension owner-occupied housing is relatively scarce in San Francisco, higher-density housing projects such as high-rise development could increase the amount of supply and thereby dampen housing price escalation. The degree to which this works, of course, will depend on the level of support or absorption for this type of housing in the San Francisco market. In effect, any policy change that increases the flow of housing stock will mitigate the influence of demand factors and reduce housing prices.

ASSUMPTIONS AND GENERAL LIMITING CONDITIONS

Sedway Group has made extensive efforts to confirm the accuracy and timeliness of the information contained in this study. Such information was compiled from a variety of sources, including interviews with government officials, review of City and County documents, and other third parties deemed to be reliable. Although Sedway Group believes all information in this study is correct, it does not warrant the accuracy of such information and assumes no responsibility for inaccuracies in the information by third parties. We have no responsibility to update this report for events and circumstances occurring after the date of this report. Further, no guarantee is made as to the possible effect on development of present or future federal, state or local legislation, including any regarding environmental or ecological matters.

The accompanying projections and analyses are based on estimates and assumptions developed in connection with the study. In turn, these assumptions, and their relation to the projections, were developed using currently available economic data and other relevant information. It is the nature of forecasting, however, that some assumptions may not materialize, and unanticipated events and circumstances may occur. Therefore, actual results achieved during the projection period will likely vary from the projections, and some of the variations may be material to the conclusions of the analysis.

Contractual obligations do not include access to or ownership transfer of any electronic data processing files, programs or models completed directly for or as by-products of this research effort, unless explicitly so agreed as part of the contract.

This report may not be used for any purpose other than that for which it is prepared. Neither all nor any part of the contents of this study shall be disseminated to the public through publication advertising media, public relations, news media, sales media, or any other public means of communication without prior written consent and approval of Sedway Group.

APPENDIX A: EXHIBITS

APPENDIX B: REPRESENTATIVE CASH FLOWS

APPENDIX C: SELECTED BIBLIOGRAPHY

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