THE COST OF AFFORDABLE HOUSING

An Analysis of Development Cost

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Executive Summary

This study attempts to locate the cost differences in the production of *assisted* versus *unassisted* multifamily housing. Assisted project are those projects receiving state or federal assistance in exchange for rental rate restrictions. This study measures the cost efficiency of the housing development and also the effectiveness of the assistance programs. The sample set studied consists of suburban and rural garden apartments, the most common type of multifamily housing currently in production in California.

> **There is room for improvement in the cost efficiency of assisted projects, both on a per unit and per bedroom basis. Factors contributing to unit cost differences are both product-related and procedural-related. Product factors affect the physical characteristics of the multifamily project. Smaller project scale, lower density, larger units, higher parking ratios, and local construction ordinance requirements are substantial contributors to the higher cost of assisted projects. A better understanding of the cost implications of variations in the product should facilitate improvements in cost efficiency. Procedural factors affect the means of producing housing and strongly influence the project's cost efficiency. The cost of transferring government subsidies,lack of incentives to control cost, and labor rules are the key procedural factors resulting in higher cost for assisted projects.**

The relative cost efficiency of assisted versus unassisted housing depends on the basis of measurement.

	Cost per Unit	Cost per BedRm	Cost per SF
Assisted	$73,800	$29,300	$77
Unassisted	$63,700	$36,100	$73

* Figures exclusive of land cost.

The assistance programs appear to be relatively effective in housing more people, especially large families, but less effective in providing units inexpensively. On a cost per unit basis, assisted projects were about 15% more expensive than unassisted projects. On a per bedroom basis, the assisted projects were 20% less expensive than unassisted projects, which would be expected given that 1) assisted projects have more bedrooms and 2) the cost of bedroom space when compared to kitchen and bath space is relatively low. If bedrooms were added to the unassisted projects, the assisted projects would cost about 10% more than the unassisted projects on a per bedroom basis.

Product Related Differences

The study identified significant differences in product characteristics of assisted and unassisted projects.

	Units/ Project	SF per Unit	BedRm per Unit	Density	Parking Ratio
Assisted	89	958	2.5	16.9	1.8
Unassisted	385	869	1.8	19.8	1.7

Assisted projects generally have fewer units and lower densities. At an average project scale of less than 90 units per project and a project density of less than 17 dwelling units per acre, the scale and density of assisted projects are well below optimal levels for cost efficiency. Unassisted projects achieve much greater economies of scale with an average of 385 units per project. While the average density of 19.8 for unassisted projects is better than that of the assisted projects, it is still below the ideal density range of 25-30 units per acre for cost efficiency in this type of construction -- 2- to 3-story wood frame on slab. The ideal range is directly related to the type of construction.

Assisted units characteristically have more bedrooms and smaller bedrooms. These factors contribute to making assisted projects less expensive on a cost per bedroom basis. In light of the social aim of affordable housing programs to house as many *people* as possible, this result is encouraging. However, a greater number of bedrooms per unit and associated increases in parking ratios only partially account for the higher cost per unit for assisted units. The product related factors of scale and density are more important than unit size and number of bedrooms in influencing total unit cost; scale and density are constrained primarily by local political factors.

Procedure Related Differences

Financing and incentives are the most significant procedural factors contributing to higher development cost for assisted projects. If indirect costs are considered, financing costs for assisted projects receiving tax credits are far greater than unassisted projects due to the extremely inefficient system of transferring government subsidies. **Only about 66 cents of every dollar of value provided by the federal government in tax credits gets to the providers of affordable housing -- and this figure is exclusive of the cost of administering the government programs.** The balance of these funds goes to sophisticated investors as excess returns and to tax credit syndicators.

The selection and reward criteria for state and federal assistance programs serve to dilute the incentive to save cost. The programs we studied do not reward outright waste, but they do foster inefficiency.

Labor rules and experience level of housing providers were also significant procedural factors affecting cost. The state Rental Housing Construction Program (RHCP) requires prevailing wages. Actual wages are usually less than the prevailing wages of record --

developers believe that the prevailing wage requirement increases total project cost by 10%.

Recommendations

The affordable housing assistance programs are working better than generally acknowledged, but there is room for improvement. Specifically, we recommend the following:

> **Reduce the cost of transferring the government subsidy.** Legislators should replace tax credits with direct payments to housing providers out of current expenditures. Short of that, the system of selling tax credits should be improved by increasing their accessibility to the common investor.
>
> **Provide incentives to control cost.** Reward developers based on the number of units and bedrooms provided and the aggregate level of rent reduction provided. Incentives should employ market mechanisms -- allowing developers to profit for providing housing efficiently. Regulating unit cost or bedroom cost is a poor solution -- regulation is rarely an effective means to control cost.
>
> **Improve project characteristics.** Funding criteria should encourage projects with more efficient project characteristics -- most notably, efficient project scale and density. It is important to gain a better understanding how project characteristics affect cost so that policy makers can understand the cost implications of their policies. This study should lay the groundwork for better understanding this relationship.

We hope that this study will serve as a guide for Bank of America, the California Tax Credit Allocation Committee, and the California Department of Housing and Community Development in understanding and controlling the cost differences between assisted and unassisted projects.

I. INTRODUCTION

This paper attempts to identify the factors contributing to higher development cost for projects that receive public assistance. In terms of unit cost and cost per square foot, *assisted* housing projects are more expensive to produce than *unassisted* projects of similar quality. This discrepancy has served as the impetus for this study.

We decided to focus this study on all major components of total development cost (TDC) with the exception of land. Land is extremely site specific and is difficult to analyze without extensive information. The study also excludes projects in major urban centers such as San Francisco because projects in these centers can vary widely in characteristics. Accordingly, projects in suburban and rural locations were selected. Furthermore, garden style, 2- to 3-level projects were selected because such project comprise the bulk of the new affordable housing stock currently in production in terms of number of units.

A Few Comments on Terminology

Before proceeding, the reader should be aware of two distinctions we have made in approaching this study:

Assisted vs. Unassisted. This study primarily focuses on projects funded in part with federal and state tax credits and the California Rental Housing Construction Program (RHCP)[1] construction loans. We have chosen to distinguish our projects based on whether or not they received assisted financing with rent restrictions. For the purposes of this paper, these projects shall be referred to as assisted projects. We have elected not to use the term affordable since the market rate projects considered in this study do not have high rents, are of similar quality to the assisted projects considered, and would not be characterized as "unaffordable." Please note that assisted projects are produced by both for-profit and not-for-profit providers. Likewise, unassisted projects may be built by either for-profit or not-for-profit developers.

Product vs. Procedural Differences. Cost differences due to product differences such as average unit size, unit type/design, and project quality/materials are distinct from cost differences due to varying procedural requirements and processes such as labor rules and consultant fees, which affect cost by influencing the means of delivering the product. We will address the effects of both product and procedural differences on project cost.

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[1] RHCP is a program of the California Department of Housing and Community Development.

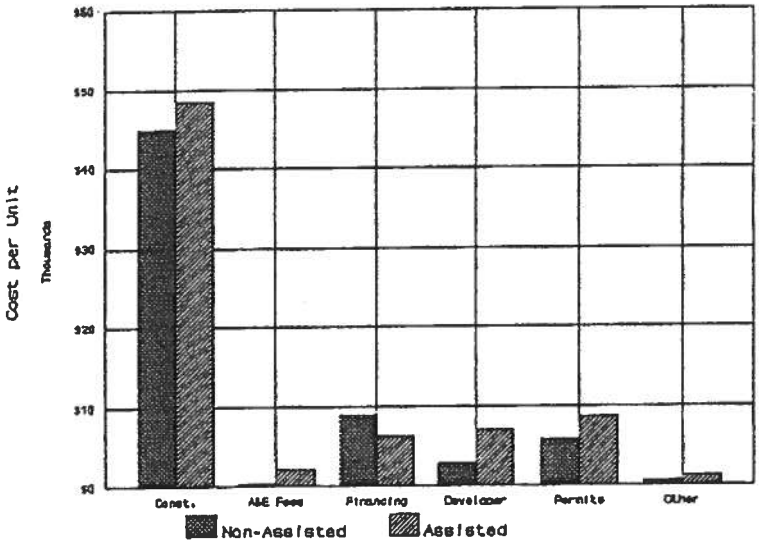
II. HOW DO ASSISTED PROJECTS COST MORE?

By traditional standards, assisted housing projects cost more. The following table shows average total cost by square foot (SF) and by unit for seven assisted projects and four unassisted projects analyzed in this study.

	Cost per SF	Cost per Unit
Assisted	$77	$73,800
Unassisted	$73	$63,700

Closer examination of these differences reveal that no single cost component can explain the difference. The following chart breaks down the major cost components on a cost per unit basis. All expenses with the exceptions of land, operating cost[2] and rent-up reserves are included in the six categories. Financing includes loan and financing fees, construction period interest, direct syndication fees, appraisal cost, and legal fees. Developer's fee includes marketing and developer's overhead. Developer's profit is not included because the focus of the study is cost efficiency.

Breakdown of Direct Cost Components



[2] Operating costs include property maintenance and management.

As this chart indicates, assisted projects are notably more expensive in the cost categories of construction, architecture and engineering fees, development fees, and permits. Assisted projects are notably less expensive in the category of financing cost.

The reason for these cost differences is not clear. Many people believe that assisted projects cost more because of the myriad of procedural requirements. We do not believe that procedural differences account for all of the unit cost differential. For instance, when our projects were considered on a cost per bedroom basis, we found that assisted projects are actually less expensive than unassisted projects.

	Cost per Bedroom
Assisted	$29,300
Unassisted	$36,100

It can be argued that the success of affordable housing programs should be gauged in terms of the number of *people* housed by the program. Accordingly, the number of bedrooms and the cost per bedroom are arguably better measures of effectiveness than cost per unit and cost per square foot measures.

The dichotomy of cost results can be explained by differences in the product. Assisted housing projects differ from unassisted projects physically as well as procedurally. Observe that the following characteristics differ markedly for assisted and unassisted projects.

	Units per Project	SF per Unit	Bedrooms per Unit	Density	Parking Ratio
Assisted	89	958	2.5	16.9	1.8
Unassisted	385	869	1.8	19.8	1.7

Bedrooms per Unit is the total number of bedrooms in the project divided by the total number of units in the project. Density is expressed in terms of units per acre. The parking ratio corresponds to the number of parking spaces per unit.

We feel that these differences are due to differing objectives and external factors such as political constraints.

The next section takes a closer look at factors affecting product characteristic differences and their effects on unit cost.

III. WHAT ARE THE PRODUCT DIFFERENCES?

Assisted and unassisted projects considered in this study did not differ substantially in terms of the overall level of quality. They did, however, differ significantly from each other in terms of the number of units per project, unit sizes, number of bedrooms per unit, and project density. We feel that these differences play a large role in overall cost differences.

Project Scale

The number of units in a project, the project scale, is known to be a factor in cost efficiency. It is generally understood that the project scale should be at least 200 units in order minimize the cost per unit.[3] This is because the marginal effort to build projects with more units is relatively small. The higher unit cost for assisted projects in the cost categories of construction, A&E fees, developer fees, and permit fees are due in large part to inefficiencies in scale. Each of these cost categories has a high fixed cost component.

Redundancy in construction processes for larger projects lower average unit cost. Per unit developer's overhead and fees are particularly sensitive to project scale since a developer's effort increases only marginally as project scale increases. Permitting costs also decreases on a per unit basis as scale increases because the effort required to obtain approval varies little, if at all, with project scale.

As the preceding table indicates, assisted projects averaged only 89 units per project[4] while unassisted projected averaged 385 units. This difference contributes to higher construction cost, architecture and engineering fees, and developer's fees for assisted projects on a per unit basis. Most builders of assisted projects are aware of this inefficiency but build smaller projects due to political constraints.

All development is subject to community review and, in general, large affordable housing projects are not considered desirable by most communities. We postulate that assisted projects are given far more rigorous review. This is because many communities feel that high concentrations of low-income residents are detrimental to their communities and their property values. Many fear that large, low-income

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[3] During the life of the building, scale also influences operating and management costs. A relatively high operating cost lowers operating income and becomes a deterrent to investors. (Keep in mind that rents for assisted projects are based on median income; they are not affected by operating cost.)

[4] If one exceptionally large assisted project had been excluded from the sample set, the average assisted project would be 50 units.

projects will become ghettos -- deteriorating rapidly as they serve as breeders of criminal activity. For better or worse, this fear serves as a constraint on the scale of assisted projects, and therefore, on their cost efficiency. Furthermore, average density for assisted projects is reduced by the Tax Credit Allocation Committee's (TCAC) 2% "set-aside"[5] for projects with ten or fewer units.

99 appears to be a magic number for the scale of developments. When assisted projects break into triple digits in scale, they tend to draw attention and protest. Construction efficiency motivates providers to increase project size to at least 200 units, but, in general, political factors will restrict efficiency gains in scale to 99 units.

Project Density

The number of dwelling units per acre, the project density, also contributes to cost efficiency. Clearly, as project densities increase, the land cost per unit decreases since the land can be allocated over more units.[6] The effects of density on construction cost is more complicated. For 2- to 3-story wood frame construction projects with densities below the mid-twenties (in units per acre), increasing density lowers the cost per unit. As density increases, there is a greater sharing of building elements such as exterior walls and mechanical systems. The tighter configuration also aids construction logistics. When densities exceed the high twenties, these advantages are outweighed by the cost of greater complexity. Coordination becomes difficult. Tasks become more interrelated and interdependent. Structured parking, an expensive feature, becomes necessary. In situations with high land cost, these increases in marginal construction cost can be outweighed by decreases in per unit land costs. For the 2-3 story garden apartment type which is our focus, the least expensive form of construction is wood framing with surface parking. Within this type of construction, densities are potentially maximized within a range of 25-30 units per acre.[7]

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[5] "Set asides" take a designated portion of tax credits out of the general pool and earmark them for special types of projects, such as projects with less than 10 units. Projects in "set aside" categories do not have to compete with projects at large for tax credits, but rather, they compete only with projects in their "set aside" category.

[6] Obviously this is not the case when higher densities can only be achieved through the purchase of additional development rights purchased at a price that does not lower the average cost of development rights per unit.

[7] In general, 50 and 90 units per acre are also critical densities in terms of construction cost. At 50 units per acre, Class III construction is generally required; at 90 units per acre, Class I construction is generally required.

lower than median income families, and it is unlikely that these families would own three cars. However, parking ratios do not vary markedly between assisted and unassisted projects, and therefore do not appear to be a major contributor to differences in cost.

The parking solution was found to be a key design issue related to project cost. Structured parking costs as much as $6,000 to $9,000 per stall, depending on the site conditions and whether the parking area is ventilated naturally or mechanically. From our sample set, surface parking was almost always used[8]; the only assisted project with structured parking had an extremely high cost per unit, $129,000 compared with the unassisted average cost per unit of $64,000. (See Appendix A)

Construction Specifications

At the on-set of this study we felt that specifications would be a significant factor contributing to higher cost for assisted projects. Government housing programs have a reputation with developers for requiring unnecessary and excessive material and construction specifications that raise construction cost. We found that this was not a factor for our sample set. The federal and state tax credit programs do not have building specification requirements. The Rental Housing Construction Program (Proposition 84) does have specification requirements in their Development Guidelines, but their requirements appear reasonable. The guidelines suggest maximum as well as minimum requirements. To some extent, they limit the flexibility of the developer and the architect in choice of materials. However, there is an allowance for substitutions, pending RHCP approval, if the "alternate will substantially meet the intent of these guidelines." The basic intent of the guidelines is to ensure that the project will be durable enough to last. With very few exceptions, substitution of lower quality specifications would result in a product with higher maintenance requirements and a shorter life.[9] The RHCP Development Guidelines do not appear to be a significant factor in raising construction cost for assisted projects, and in fact, the unassisted projects considered in this study would most likely meet their requirements.

Local ordinances and design review requirements are another matter altogether.

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[8] In the typical parking solution, a drive surrounded the buildings, with perpendicular spaces at the edges of the site. Metal roofs on steel or wooden columns covered about 6 spaces each. One space per unit was covered in this manner.

[9] We feel that the requirement for copper domestic water pipes is extravagant because P.V.C., although somewhat new, seems to be an acceptable and much cheaper alternate which is commonly used in similar developments.

With project densities averaging less than 17 dwelling units per acre, assisted projects have a great deal of room for improvement. At 19.8 units per acre, unassisted projects had substantially better densities.

The political factor described in the preceding discussion on scale is likely a contributor to the lower density for assisted projects. Current zoning based on the existing densities of a neighborhood may also be a factor.

Units Sizes and Number of Bedrooms

Assisted projects have larger units and smaller bedrooms but more bedrooms per unit. This is due in part to the selection criteria employed by the TCAC, which favors projects with more bedrooms. Assisted projects average 2.5 bedrooms per unit versus 1.8 bedrooms per unit for unassisted projects, a very substantial difference. Holding all other things constant, adding more bedrooms increases cost, but not by very much. Each additional room would impact the unit cost by less than $1000.

Assisted units also have greater average unit sizes. If kitchen and bathrooms are unaffected, adding additional bedroom floor space is relatively cheap (about $10 per SF), reducing the unit's average cost per square foot because a larger portion of the unit is comprised of inexpensive floor space. As stated previously, assisted projects have a higher, not lower, cost per square foot.

If the figures in this section are applied to the average unassisted unit, it can be seen that unassisted projects could be cheaper on a per bedroom basis. Starting with the average unit cost of $63,700 for the assisted unit we add partition for 0.7 rooms, say $700, and 89 square feet at $10 per SF. This brings us to the average size and number of bedrooms of the average assisted unit at a total cost of only $65,300. On a per bedroom basis this works out to $26,000 versus $29,300 for assisted projects.

Unit sizes and number of bedrooms do not appear to highly influence unit cost. The scale and density factors appear to be more significant.

Parking Ratio

Parking ratios are slightly higher for assisted projects, because they have more bedrooms. There is a slight impact on parking associated with additional bedrooms in each unit. For example, in one of the assisted projects that we studied, 3 parking stalls were required for each 3-4 bedroom unit. This requirement seems questionable since the larger units are designed for large,

Communities that wish to impede the development of affordable housing can employ building specifications along with zoning as tools to restrain development. In a sense, the local building specification become "exclusionary specifications." In these cases, whether intentional or not, the specifications act as roadblocks to affordable housing.

Incidentally, the typical construction system used in both assisted and unassisted projects was 2- to 3-story wood frame construction on a concrete slab with cedar siding and asphalt shingle roofs. Driveways and parking areas were asphalt.

Design Issues

The configuration of units is a design issue which can be an important factor for consideration. A greater number of units per building results in more shared building elements, and thus, a lower cost per unit. The design tradeoffs for a tighter configuration may include: a reduction in the quality of light in units, a poorer sense of entry to each unit, and in the case of double loaded corridor configurations, the addition of interior common space which increases maintenance cost. In multistory construction, the access to upper floors becomes a design decision with serious cost implications.

Amenities

The amenities for assisted projects are family oriented. A typical assisted project includes a "tot lot", community room (often used for daycare), and a larger open space or playing field for older children.

The amenities for the unassisted projects include at least one pool, community rooms, and may include a well equipped office area for tenants' use. The amenities found in assisted projects cost less -- and accordingly, construction cost should be lower. However, construction cost is higher for assisted projects due to the factors discussed above.

IV. WHAT ARE THE PROCEDURAL DIFFERENCES?

Not all cost differences can be explained by differences in the final product. The legendary bureaucratic obstacles do play a significant role in the process. They require extra management effort, increase consulting and legal costs, impede the participation of qualified potential participants, and most important, contribute to terrific financing inefficiency and reduce incentives for cost efficiency.

Financing

Arthur M. Okun said that [the government] can transport money from rich to poor only in a leaky bucket. The bucket is clearly leaky.

Considering only direct financing cost, assisted units are less expensive than unassisted units. Total *direct* financing cost average $6,400 per unit for assisted projects versus $9,000 per unit for unassisted projects. The bulk of this difference is due to lower construction period interest cost for assisted projects. Interest cost average $5,000 per unit per assisted projects versus $8,100 per unit for unassisted projects. Given that all our assisted projects received RHCP subsidized construction loans, this is an expected result. The project budgets do not reflect the cost to the State of California to provide this subsidy. RHCP loans carry an interest rate less than half of the market rate. If all other factors were held constant, interest cost for assisted projects should be about half the cost of unassisted projects on a per unit basis, as opposed to the observed result of two-thirds the cost.

In comparing project cost, the value of the state's construction loan subsidy should be considered. Further efforts to quantify this cost is recommended. We believe that if the value of the construction loan subsidy is considered, that financing cost of assisted projects are actually greater, not less. The reason we believe this to be the case is because much of the effort required in financing projects does not vary with project scale. A 50-unit project requires as much effort with regards to processing loans and obtaining tax credits as a 200-unit project.

The indirect cost associated with the use of tax credit is staggering. Syndicators typically charge about a 15% commission to sell tax credits to individuals -- the financing cost figures used in this report are inclusive of these commissions. However, the financial cost figures do not represent the difference between the value of the subsidy provided by the federal and state government, and the value of the subsidy received by the developer. Consider the following calculations:

Eligible Cost Basis:	$1,000,000
Annual Tax Credit:	$ 90,000
Total Tax Credits:	$ 900,000

A provider would typically receive between 42 - 46% of the value of the total tax credits:

Subsidy to Builder:	$ 400,000

However, the cost to the federal government is far greater. Assuming that the federal government's long-run average cost of borrowing is 7% per annum and applying this rate to the $90,000 per year in tax forgiveness, the value of the government's subsidy is:

Value of Government Subsidy:	$ 630,000
Cost of Transferring Subsidy:	$ 230,000

The cost of transferring the subsidy is over one-third of the subsidy value and increases the cost of assisted projects by over 20%. The financing cost of $6,400 per unit for assisted projects does not account for this inefficiency. If it did, the financing cost alone would grow to over $20,000 per unit.

The current system of transferring government subsidies through tax credits is extremely wasteful. If our legislative leaders had the political courage to directly fund provider of affordable housing from current expenditures rather than using by a convoluted system of tax forgiveness, they could eliminate the cost of transfer. The tax forgiveness political gimmick has been employed at a very high cost.

Where does all the money go? The principal beneficiaries are sophisticated investors and syndicators. Investors in tax credits enjoy an average return on their investment between 13 - 18% per year -- **this is an after tax return.** The level of risk does not appear to be commensurate with this return. A higher return to the investor translates into less money for the provider. This high rate of return for the investor accounts for about three quarters of the transfer cost. The remaining transfer cost flows to the syndicator as commission fees. Note that the direct cost budget will not always fully represent the fee collected by the syndicator since syndicators will take a portion of the tax credits as part of their compensation.

Keep in mind that the cost figures used in this discussion do not account for the cost of administering the government programs. Adding this cost would further increase the cost of assisted units versus unassisted units.

Incentives to Control Cost

Several people we interviewed stated that lack of proper incentives was a principal cause of the cost premium for assisted housing projects. The importance and the effectiveness of the profit motive is widely appreciated and public assistance can dilute the incentive for cost efficiency.

As presently structured, the tax credit and RHCP programs appear to discourage cost efficiency. If a developer qualifies for tax credits, the reward amount is based on project cost. The more the project costs, the more credits the developer will receive. If a project's final budget is lower than original projections, the tax credit reward is actually reduced. Because tax credits only cover about half of the cost of a typical project, there is still an incentive to control cost, but only half as much.

The incentives problem is exacerbated by the lending criteria of the RHCP. It is our understanding that one of RHCP's principal criteria is project need. In other words, the more an applicant can demonstrate that they need financial assistance, the more assistance they are likely to receive. This policy can serve to subsidize inefficient operators rather than subsidizing dwellers. Rather than "going out of business", inefficient operators can qualify for more tax credits and more RHCP funding because of their relative high cost of doing business.

Labor Rules

Recipients of RHCP and other HUD sponsored construction financing programs must conform to the prevailing wage requirement. Actual wages are usually lower than prevailing wages of record. According to developers and contractors we interviewed, the prevailing wage requirement increases construction cost by about 15% and total project cost by about 10%.

Tax credits do not trigger the prevailing wage requirement, however, most of the assisted projects in our sample set had both tax credit and RHCP financing, and therefore, were subject to prevailing wage requirements. Timing of RHCP funding allowed one assisted project developer to achieve exceptional cost efficiency; because construction was completed before the project received assistance, it was not subject to any of the accompanying construction regulations.

V. RECOMMENDATIONS

We feel that if acted upon, the following recommendations could aid the affordable housing effort by improving cost efficiency. In making our recommendations we have taken the liberty to ignore political and bureaucratic obstacles. However, we feel it is inappropriate to wish away local political opposition. High concentrations of affordable housing may be poor public and social policy. Clearly there are other concerns aside from cost. A high concentration of low-income households may be a disservice to everyone. The political forum is the proper arena to make this determination.

Reduce the cost of transferring the government subsidy. Legislators should muster the political courage to replace tax credits with direct payments to housing providers out of current expenditures.

Since major political reform is unlikely, efforts should be made to improve the market for tax credits. Three improvement are suggested to increase investor access to tax credits; provide investors greater protection against non-compliance risk, facilitate the pooling of tax credits, and raise the limit on the amount of tax deduction available to the individual investor. If the common investor could buy into a pool of tax credits without having to worry about tax credits being invalidated due to non-compliance by the building operator, investment returns would be driven down dramatically. Given the modest level of non-compliance risk, this insurance could be provided by a third party at a fraction of the interest cost saved.

Provide incentives to control cost. State and federal programs need to take greater account of cost efficiency. Tax credits rewards should be based on how much rent reductions would be provided. Rewards should be based on the number of bedrooms provided and aggregate level of rent reduction provided. This will give builders the incentive to maximize units and bedrooms, minimize rents, and minimize project cost.

Unfortunately, the incentive to minimize cost is subject to abuse -- builders may provide substandard units. Increasing building standards and all the bureaucracy that it would entail is not a good solution. Rather, a adequate level of standards could be ensured by encouraging mixed income projects where the determination of which units will be assisted versus unassisted is made after completion of construction.

Imposing funding limits on a per unit or per bedroom basis merely adds another step to the bureaucratic process. Limits that are realistic today my be unrealistic tomorrow, requiring a waiver or new legislation for worthy projects. Further regulation is rarely an effective method of controlling cost.

Improve project characteristics. Given local political constraints, there is still room for improvement. Although assisted projects may never approach the scale of unassisted projects (385 for our sample set), assisted projects of up to 99 units can usually gain approval without undue attention. Project densities have even greater room for improvement. Densities should be maximized within a given construction system. For example, 3-story, wood frame construction can achieve densities in the high twenties (units/acre). Parking ratios also affect densities. Units designed for large families, with 3-4 bedrooms should not be required to accommodate 3 cars.

It is important to gain a better understanding how project characteristics affect cost so that policy makers can understand the cost implications of their policies. This study should lay the groundwork for better understanding this relationship.

APPENDIX A

Selecting the Sample Set

This study was intended to compare and contrast the cost of delivering "Affordable" housing with the cost of delivering "Market Rate" housing. Since many market rate, unassisted projects could be considered affordable, we chose to refer to the sets of housing projects as *assisted* and *unassisted*. Our study measures the cost efficiency of assisted and unassisted projects, and also considers the cost efficiency of several assistance programs available to builders.

We examined total development costs and their components: construction, architectural & engineering, financing, developer's overhead, permits, and other costs. Because land costs are idiosyncratic and land is frequently donated or obtained at a reduced price for assisted projects, we felt that land cost should be addressed on a case by case basis which is beyond the scope of this report.

We attempted to find assisted and unassisted projects with comparable characteristics. The most common multifamily housing type currently in production is the wood frame multistory garden apartment complex. We decided to focus on this type of project, expecting to find more examples for comparison.

For the set of assisted projects, we used files from the California Tax Credit Allocation Committee (TCAC) and the California Department of Housing and Community Development's Rental Housing Construction Program (RHCP). The most complete files were those of recent, and sometimes incomplete projects. This affected our study in two ways. First, the sample size was limited by the number of well documented, suburban and rural projects. Second, the final project costs for some members of the assisted set may vary slightly from the most current budget estimates. The initial budget determines the maximum funding granted by the TCAC; as a result there is a tendency to pad or inflate this budget. Furthermore, the operating costs and longevity of these projects cannot be determined. However, Code Regulations and Title 24[1], which all projects must meet, should insure that operating costs are comparable. Similarly, the construction requirements of the Rental Housing Construction Program are intended to set a standard for the longevity and ease of maintenance of a project.

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[1] Title 24 is an amendment to the Building Code which relates construction and design to energy consumption in buildings. Title 24 sets standards for insulation, glazing areas, etc. Compliance with Title 24 should reduce the energy consumption which is an important operating cost component of buildings.

We eliminated urban projects because of the varying idiosyncracies of all urban/infill situations. We found that assisted projects were frequently "Special Niche" projects, which meant that the unit and community facility programmatic characteristics varied enough so that many assisted projects were not programmatically comparable with the typical unassisted project. In order to compare similar samples, we also eliminated special niche projects from the assisted set.

We found that the cost of assisted projects fell into three ranges:

	Average Cost/Unit	Average Cost/ SF	Average Cost/Bdrm
Low Assisted	$ 51,000	$ 51	$20,000
Assisted	$ 74,000	$ 77	$29,000
High Assisted	$122,000	$181	$80,000

The Low Assisted subset of the assisted projects was unique; designed and built as unassisted projects, these three projects received tax credits and RHCP assistance after completion of construction, which allowed them to avoid the complications of layers of financing and regulation during the design and construction of several projects. All were built by the same developer. These projects were unusually efficient, even compared to the unassisted project set (30% $/SF, 20% $/Unit, 43% $/Bdrm less expensive than the unassisted average).

The High Assisted projects varied from the unassisted projects because they were of an unusually small scale, had a small percentage of units designated as "Affordable", had an unusually high number of bedrooms, or were located in an expensive suburb. The High Assisted projects had idiosyncratic characteristics which substantially affected their cost.

In choosing our sets for comparison, we selected a common building type, 2- to 3-story garden apartments in suburban and rural locations. We started with the best documented assisted projects available.

We eliminated the "special niche" and cost extreme subsets of the assisted projects. The final set of seven projects, although small, should give a fair comparison with the four unassisted projects because the major product variations were eliminated in the selection process. We are comparing the most typical assisted projects available with the most similar unassisted projects.

APPENDIX B

SAMPLE SET SUMMARY INFORMATION

MEASURES OF COST EFFICIENCY
by Project Category

COST PER UNIT

	Const.	A&E Fees	Financing	Developer	Permits	Other	Total
Assisted	$48,451	$2,084	$6,398	$7,069	$8,629	$1,271	$73,827
Unassisted	$44,299	$996	$8,970	$2,913	$5,893	$629	$63,668
Assisted – Low	$39,930	$454	$2,801	$6,495	$1,447	$36	$51,146
Assisted – High	$76,546	$5,912	$22,768	$6,010	$7,417	$3,209	$121,647

COST PER SQUARE FOOT

	Const.	A & E Fees	Financing	Developer	Permits	Other	Total
Assisted	$50.59	$2.18	$6.68	$7.38	$9.01	$1.33	$77.08
Unassisted	$50.95	$1.15	$10.32	$3.35	$6.78	$0.72	$73.23
Assisted – Low	$39.74	$0.45	$2.79	$6.47	$1.44	$0.04	$50.91
Assisted – High	$113.72	$8.78	$33.82	$8.93	$11.02	$4.77	$180.72

COST PER BEDROOM

	Const.	A & E Fees	Financing	Developer	Permits	Other	Total
Assisted	$19,222	$827	$2,538	$2,804	$3,423	$504	$29,289
Unassisted	$25,135	$565	$5,089	$1,653	$3,344	$357	$36,125
Assisted – Low	$15,972	$181	$1,120	$2,598	$579	$15	$20,458
Assisted – High	$50,523	$3,902	$15,028	$3,967	$4,896	$2,118	$80,292

Bank of America
Affordable Housing Cost Study
April, 1992

COST COMPONENTS
by Project

Project	Construction	A & E Fees	Perm. Finc.	Interest	Legal	Appraisal	Developer	Marketing	Syndication	Permits	Other	Total
Assisted												
1	3,738,400	315,031	21,706	498,500	64,000	17,000	47,500	0	0	772,182	200,139	5,674,458
2	3,346,561	153,600	101,700	76,130	10,000	2,500	313,000	0	27,500	145,758	109,947	4,286,696
3	2,814,512	155,000	9,322	316,449	15,000	7,000	560,098	0	65,500	383,904	67,120	4,393,905
4	4,967,527	142,500	0	447,405	30,000	0	902,943	0	70,500	411,405	89,218	7,061,498
5	702,170	82,000	5,000	65,700	0	3,000	125,000	0	20,000	25,000	4,500	1,032,370
6	12,598,100	394,500	273,500	1,542,700	20,000	11,000	2,019,000	0	100,000	3,528,906	273,770	20,761,476
7	2,114,675	60,000	6,750	149,000	10,000	6,000	450,632	0	6,000	125,700	3,000	2,931,757
	30,281,945	1,302,631	417,978	3,095,884	149,000	46,500	4,418,173	0	289,500	5,392,855	747,694	46,142,160
Unassisted												
1	8,285,000	220,000	160,500	1,572,875	115,000	14,500	550,000	100,000	0	470,000	62,125	11,550,000
2	25,296,382	350,000	0	5,017,017	500,000	11,250	1,440,000	531,600	0	2,062,482	0	35,208,731
3	26,524,000	612,000	0	5,099,470	475,000	13,000	1,329,000	0	0	5,100,000	0	39,152,470
4	8,115,214	352,000	0	785,000	40,000	10,000	210,448	324,772	0	1,442,665	857,694	12,137,793
	68,220,596	1,534,000	160,500	12,474,362	1,130,000	48,750	3,529,448	956,372	0	9,075,147	919,819	98,048,994
Assisted – Low												
1	4,933,626	49,200	27,300	290,000	0	3,000	790,000	0	20,000	127,500	2,000	6,242,626
2	3,444,440	35,975	19,300	204,336	0	3,000	560,000	0	20,000	171,596	2,000	4,460,647
3	4,838,773	65,000	26,000	291,125	3,000	0	800,000	0	20,000	180,000	2,000	6,225,898
	13,216,839	150,175	72,600	785,461	3,000	6,000	2,150,000	0	60,000	479,096	6,000	16,929,171
Assisted – High												
1	8,324,822	722,277	729,000	1,691,800	10,000	25,000	413,279	0	446,000	723,878	366,000	13,452,056
2	696,846	36,402	4,417	25,101	3,600	1,296	35,016	0	56,861	14,040	22,920	896,499
3	2,154,002	104,438	10,572	205,443	15,000	5,000	429,170	0	95,000	345,000	48,334	3,411,959
	11,175,670	863,117	743,989	1,922,344	28,600	31,296	877,465	0	597,861	1,082,918	437,254	17,760,514

PROJECT CHARACTERISTICS
by Project

	City	Acres	Total Units	Low-Income Units	Bedrooms	Parking	Total SF All Units	Total Cost
Assisted								
1	Napa	2.80	56	56	112	98	48,076	5,674,458
2	Los Angeles	0.86	40	40	100	60	42,165	4,286,696
3	Coachella	7.49	52	52	130	120	51,040	4,393,905
4	Chico	5.00	76	76	236	198	83,291	7,061,498
5	Selma	1.03	20	20	40	30	17,600	1,032,370
6	Roseville	17.40	328	328	820	558	310,720	20,761,476
7	Ivanhoe	2.47	53	53	138	80	45,740	2,931,757
		37.05	625	625	1,575	1,142	598,632	46,142,160
Unassisted								
1	San Jose	6.84	188	0	284	306	141,148	11,550,000
2	San Jose	18.40	516	0	900	929	432,240	35,208,731
3	Sacramento	38.70	612	62	1,163	979	576,564	39,152,470
4	Santa Rosa	13.68	224	0	367	456	189,016	12,137,793
		77.62	1,540	62	2,714	2,671	1,338,968	98,048,994
Assisted – Low								
1	Fresno	6.51	120	120	300	202	118,008	6,242,626
2	Bakersfield	5.73	88	88	220	211	91,680	4,460,647
3	Madera	8.84	123	123	308	246	122,862	6,225,898
		21.08	331	331	828	659	332,550	16,929,171
Assisted – High								
1	San Ramon	5.68	120	24	144	60	69,691	13,452,056
2	Santa Monica	0.19	7	6	13	13	5,706	896,499
3	Morgan Hill	1.74	19	19	65	48	22,879	3,411,959
		7.61	146	49	221	120	98,276	17,760,514

APPENDIX C

FACT SHEETS FOR ASSISTED & UNASSISTED PROJECTS

ASSISTED PROJECT #1

This suburban apartment complex is located in Napa and has a density of 20 units per acre. This development consists of 2-story garden apartments, with 56 units located on 2.8 useable acres of the 5 acre site. Almost half of the site is not useable due to wetlands and previous uses. Units contain 1, 2 or 3 bedrooms. The average unit contains 2.0 bedrooms. The community facilities include a playing field and tot lot. The 1.75 parking ratio per unit will be accommodated by surface parking with 1 covered space per unit.

Assisted #1	56 Units	48,076 SF	
	$ Per Unit	$ Per SF	$ Total
Construction	66,757	77.76	3,738,392
A&E Fees	5,626	6.55	315,056
Financing	9,289	10.82	520,184
Developer Fee	848	0.99	47,488
Permits	13,789	16.06	772,184
Other	5,020	5.85	281,120
			0
Total	101,329	118.03	5,674,424

ASSISTED PROJECT #2

This project is located in Los Angeles and has a density of 46.5 units per acre. Three-story apartment buildings contain 40 units on 0.86 acres. This project is designed for certain low income groups: large families, working parents, and the elderly. A recreation room is used for childcare and community meetings. All units are accessible to the handicapped. The 1.5 parking ratio per unit will be accommodated by a surface level garage with "podium" apartments above.

Assisted #2	40 Units	42,165 SF	
	$ Per Unit	$ Per SF	$ Total
Construction	83,664	79.37	3,346,561
A&E Fees	3,840	3.64	153,600
Permanent Financing	2,543	2.41	101,720
Interest	1,903	1.81	76,120
Attorney Fees	250	0.24	10,000
Appraisal	63	0.06	2,520
Rent Reserve	1,870	1.77	74,800
Developer Fee	7,825	7.42	313,000
Syndication Fees	688	0.65	27,520
Permits	3,644	3.46	145,760
Other	2,749	2.61	109,947
Total	109,039	103.44	4,361,572

ASSISTED PROJECT #3

This rural project in Coachella as a density of 6.9 units per acre. One- and two-story townhouses contain 52 units on 7.5 acres. This project is designed primarily for families. Most units contain two or three bedrooms. Amenities include a common room, a recreational lot and a tot Lot. The 2.3 parking ratio per unit will be accommodated mainly by surface parking with 50 (about 1 per unit) covered spaces.

Assisted #3	52 Units	51,040 SF	
	$ Per Unit	$ Per SF	$ Total
Construction	54,125	55.14	2,814,512
A&E Fees	2,981	3.04	155,000
Permanent Financing	179	0.18	9,322
Interest	6,086	6.20	316,472
Attorney Fees	288	0.29	14,976
Appraisal	135	0.14	7,020
Rent Reserve	396	0.40	20,592
Developer Fee	10,771	10.97	560,092
Syndication Fees	1,260	1.28	65,520
Permits	7,383	7.52	383,916
Other	1,291	1.32	67,132
Total	84,895	86.5	4,414,554

ASSISTED PROJECT #4

This suburban project located in Chico has a density of 15.4 units per acre. The development includes one- and two-story townhouses, with 76 units located on 5 acres. The project is primarily designed for large families; most units contain 3 or 4 bedrooms. Community facilities include a tot lot, playground, large garden and a community room which is leased to a day care provider. The 2.6 parking ratio per unit will be accommodated by uncovered surface parking.

Assisted #4	76 Units	83,291 SF	
	$ Per Unit	$ Per SF	$ Total
Construction	65,362	59.64	4,967,527
A&E Fees	1,875	1.71	142,500
Permanent Financing	0	0.00	0
Interest	5,887	5.37	447,405
Attorney Fees	395	0.36	30,000
Appraisal	0	0.00	0
Rent Reserve	854	0.78	64,904
Developer Fee	11,881	10.84	902,943
Syndication Fees	928	0.85	70,500
Permits	5,413	4.94	411,405
Other	1,174	1.07	89,218
Total	93,769	85.56	7,126,402

ASSISTED PROJECT #5

This suburban project is located in Selma and has a density of 19.4 units per acre. The development includes one- and two-story garden apartments, with 20 units located on one acre. There are no community facilities. The 1.5 parking ratio per unit will be accommodated by uncovered surface parking and one covered space per unit (in 4-car garages).

Assisted #5	20 Units	17,600 SF	
	$ Per Unit	$ Per SF	$ Total
Construction	35,109	39.90	702,170
A&E Fees	4,100	4.66	82,000
Permanent Financing	250	0.28	5,000
Interest	3,285	3.73	65,700
Attorney Fees	0	0.00	0
Appraisal	150	0.17	3,000
Rent Reserve	250	0.28	5,000
Developer Fee	6,250	7.10	125,000
Syndication Fees	1,000	1.14	20,000
Permits	1,250	1.42	25,000
+Other	225	0.26	4,500
Total	51,869	58.95	1,037,380

ASSISTED PROJECT #6

This suburban project is located in Roseville with a density of 18.9 units per acre. This development consists of two-story garden apartments, with 328 units located on 17.4 acres. The project is designed for large families with young children; units contain 2, 3 or 4 bedrooms. The average unit contains 2.5 bedrooms and 947 SF. The community facilities include a community building (which will contain a rec room, kitchen, laundry, and manager's office), two swimming pools, two spas, 3 play areas (with basketball and volleyball courts) and a day care center (with its own play area and child's wading pool).

Assisted #6	328 Units	310,720 SF	
	$ Per Unit	$ Per SF	$ Total
Construction	38,409	40.54	12,598,152
A&E Fees	1,203	1.27	394,500
Financing	5,842	6.17	1,977,200
Developer Fee	6,155	6.50	2,019,000
Permits	10,759	11.36	3,528,906
Other	929	0.98	273,770
Total	63,297	66.82	20,791,528

ASSISTED PROJECT #7

This rural project in Ivanhoe has one- and two-story garden apartments buildings. With 53 units on 2.47 acres, the development has a density of 21.5 units/acre. This project is designed primarily for families. Most units contain two or three bedrooms. Amenities include a tot lot and landscaping. The 1.5 parking space per unit ratio will be accommodated by surface parking.

Assisted #7	53 Units	45,740 SF	
	$ Per Unit	$ Per SF	$ Total
Construction	39,900	46.23	2,114,675
A&E Fees	1,132	1.31	60,000
Permanent Financing	127	0.15	6,750
Interest	2,811	3.26	149,000
Attorney Fees	189	0.22	10,000
Appraisal	113	0.13	6,000
Rent Reserve	1,014	1.17	53,742
Developer Fee	8,502	9.85	450,632
Syndication Fees	113	0.13	6,000
Permits	2,372	2.75	125,700
Other	57	0.07	3,000
Total	56,330	65.27	2,985,501

UNASSISTED PROJECT #1

This suburban project in San Jose has two- and three-story garden apartment buildings. With 188 units on 6.84 acres, the development has a density of 27.4 units/acre. This project is designed both for families and adults, although no unit contains more than 2 bedrooms. Units average 1.5 bedrooms and 750 SF. Amenities include a swimming pool with a jacuzzi, community rooms including office equipment for residents' use (computers, fax machines, etc.), a tot lot and generous landscaping. The 1.6 parking spaces per unit is accommodated by surface parking.

Unassisted #1	188 Units	141,148 SF	
	$ Per Unit	$ Per SF	$ Total
Construction	44,069	58.70	8,285,000
A&E Fees	1,170	1.56	220,000
Permanent Financing	854	1.14	160,500
Interest	8,366	11.14	1,572,875
Attorney Fees	612	0.81	115,000
Appraisal	77	0.10	14,500
Developer Fee	2,926	3.90	550,000
Marketing	532	0.71	100,000
Permits	2,500	3.33	470,000
Other	330	0.44	62,125
Total	61,436	81.83	11,550,000

UNASSISTED PROJECT #2

This suburban project, also in San Jose, has two- and three-story garden apartment buildings. With 516 units on 18.4 acres, the development has a density of 28.0 units/acre. This project is designed both for families and adults. The unit mix includes one, two, and three bedroom apartments. Units average 1.7 bedrooms and 836 SF. The 1.8 parking space per unit ratio will be accommodated by surface parking.

Unassisted #2	516 Units	431,520 SF	
	$ Per Unit	$ Per SF	$ Total
Construction	49,024	58.62	25,296,382
A&E Fees	678	0.81	350,000
Permanent Financing	0	0.00	0
Interest	9,723	11.63	5,017,017
Attorney Fees	969	1.16	500,000
Appraisal	22	0.03	11,250
Developer Fee	2,791	3.34	1,440,000
Marketing	1,030	1.23	531,600
Permits	3,997	4.78	2,062,482
Other	0	0.00	0
Total	68,234	81.59	35,208,731

UNASSISTED PROJECT #3

This suburban project in Sacramento is comprised of two- and three-story garden apartment buildings. With 612 units on 38.7 acres, the development has a density of 16.1 units/acre. The unit mix includes one, two, and three bedroom apartments. Units average 1.92 bedrooms and 942 SF. The 1.6 parking space per unit ratio is accommodated by surface parking, with one covered space per unit.

Unassisted #3	612 Units	576,564 SF	
	$ Per Unit	$ Per SF	$ Total
Construction	43,340	46.00	26,524,000
A&E Fees	1,000	1.06	612,000
Permanent Financing	0	0.00	0
Interest	8,332	8.84	5,099,470
Attorney Fees	776	0.82	475,000
Appraisal	21	0.02	13,000
Developer Fee	2,172	2.31	1,329,000
Marketing	0	0.00	0
Permits	8,333	8.85	5,100,000
Other	0	0.00	0
Total	63,975	67.91	39,152,470

UNASSISTED PROJECT #4

This suburban project in Santa Rosa is comprised of two- and three-story garden apartment buildings. With 224 units on 13.68 acres, the development has a density of 16.4 units/acre. This project is designed primarily for adults. The unit mix includes one, two, and three bedroom apartments. Units average 1.64 bedrooms and 844 SF. The 2.0 parking space per unit ratio is accommodated by surface parking, with one covered space per unit.

Unassisted #4	224 Units	189,016 SF	
	$ Per Unit	$ Per SF	$ Total
Construction	36,229	42.93	8,115,214
A&E Fees	1,571	1.86	352,000
Permanent Financing	0	0.00	0,
Interest	3,504	4.15	785,000
Attorney Fees	179	0.21	40,000
Appraisal	45	0.05	10,000
Developer Fee	940	1.11	210,448
Marketing	1,450	1.72	324,772
Permits	6,440	7.63	1,442,665
Other	3,829	4.54	857,694
Total	54,187	64.22	12,137,793

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Although we have learned a great deal about affordable housing and its challenges, this study is merely the first step in a long and challenging process of better understanding a very complicated and important issue.