Fiscal and design models for housing for large, low income families

by

Michael Thomas Stott

A Thesis Submitted to the
Graduate Faculty in Partial Fulfillment of the
Requirements for the Degree of
MASTER OF ARCHITECTURE

Major: Architecture

Signatures have been redacted for privacy

Iowa State University, Copyright ©, 1992
Ames, Iowa

1992

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

ACKNOWLEDGEMENTS

I would like to give a special thanks to all of those who have contributed to the development of this thesis. Thanks to Bruce Bassler for helping to direct the research into a usable format, to Patricia Burgess for all of her help in editing, to Roger Spears for his critique and help with the design, and to all of the members of the committee, including Lynn Paxson and Robert Findlay, for their pertinent commentary on the social issues relevant to the proposed models in this thesis.

I would also like to thank my friend and business partner, Tim Knapp for his long hours of help and support throughout this long and sometimes grueling process, along with his wife, Lisbeth, for giving him up for hours at a time.

A special thanks to all of my family in Texas, my parents, George and Ann Stott, as well as my wife's parents, Col. and Mrs. Robert E. Wilson, for their phone calls of continous support and encouragement.

Most of all, I wish to thank my dear wife, Jessie for her never-ending support, patience, and perserverence throughout the stress of graduate school and the compilation of this thesis.

CHAPTER I

INTRODUCTION

Context of Housing for Low Income Households

As residential real estate prices continue to soar, so does the amount of rent required of the tenant to offset those costs. When rents increase beyond the ability of a household to pay, the family is forced to move into lower cost housing, which may not fit their needs. However, the problem is compounded when a family cannot afford the rent of the lower cost housing and is forced to live in substandard housing. This poses a very real threat to family members mental as well as physical health and safety. (Fisher, 1959. pp. 8-10).

Statement of Problem

There have been many attempts to address the housing needs of those with incomes at or below the federal poverty line. While some developers have produced single-family homes, most have provided multi-unit structures ranging from duplexes and fourplexes to large, multi-family "projects." The concept, design, and operation of these developments has encouraged studies regarding the social impact of the built environment by sociologists and behavioral geographers. These have proven or disproven many assumptions about what is "good," what is "bad," and how people "should" live. (Gray,

1946. pp. 126-28). Some post-occupancy evaluation studies , also support the idea that some housing built through various public and private programs is generally insufficient is not accomplishing the purposes for which it was originally instigated. Due to current policies, housing for low income housholds has gone ffrom providing housing for the upwardly mobile poor, temporarily down on their luck, to a permanent subgroup of poor families from which it is becoming increasingly difficult to escape. Many government housing developments are in a deteriorating condition, lacking the funds to make cpaital improvements in a timely manner. Because of their condition, they are become increasingly difficult and costly to maintain.

Hypothesis Regarding Housing for Low Income Households

It is the goal of the federal government to provide a "decent" home and suitable living environment for every American family. (Hartman, 1983. p. 31) The provision of housing for low income households might still realize its original purpose, that of serving as a transitional element between the poor and middle classes. It might also accomplish the goal of providing "decent housing... through the implementation of both the fiscal model that incorporates major policy changes, along with a model for design that

incorporates criteria which focus on issues relating to the development of this type of housing.

Method of Research and Implementation

The research initially concentrates on current programs and policies relating to construction, conditions of tenancy, and various operational issues. It then addresses the more tangible issues in relation to existing developments for low income families. These issues pertain more to the quality of the designed environment and the perceptions within that environment.

From the studies and analysis of the pertinent issues, the criteria for both the fiscal and design models has been derived and demonstrated in a theoretical development to be located in the city of New Hope just outside of Minneapolis.

Though these models will be implemented in a theoretical development in Minnesota, it is hoped that the principles, strategies, and criteria may be sucessfully implemented as a framework for other, similar developments around the country.

The user groups for which this model for housing low income households is designed are large, single or two-parent families with four or more children. This particular user group has been cited by officials with the Minneapolis Housing Authority as the largest group with the most immediate need.

CHAPTER II

CRITIQUE OF HOUSING PROGRAMS FOR LOW INCOME HOUSEHOLDS

In "1949,... Congress adopted the national goal of a decent home and a suitable living environment for every American family..." (Hartman, 1983. p. 31). Since that time there have been many attempts to address the needs of low income families. Up until the 1930s, the National Association of Home Builders (NAHB) and the National Association of Real Estate Boards (NAREB) successfully lobbied the federal government to require that all housing in the U.S. be provided through the private sector. (Fisher, 1959. p. 21). However, this began to change. The Housing Act of 1937 "created the basic structure for the nation's system of public housing." (Mitchell, 1990, p. 8). In order to retain support over the years of these two powerful lobbying groups, the federal government involved them heavily in the process.

Construction of Housing for Low Income Households

Involvement of the home builders proceeded in this manner. The private sector was allowed to bid on and construct the government housing developments. However, this policy caused some severe fiscal problems for the program

relating to cost overruns. Consequently, the federal government set cost limits that resulted decreased quality of construction. Indeed, "the most accessible route to additional profit is a reduction in the quality of the product." (Mitchell, 1990. p. 293). The resulting problem was two-fold. First, the quality of some of the developments was so poor that some questioned whether they were better than the tenements they were to replace. Moreover, even enduring poor quality the housing developments continued to suffer from cost overruns. The St. Louis Housing Authority, at one time, was paying more for its low income housing than it was costing private developers to construct luxury housing in the suburbs. This further complicated the fact that tenants with very low income would be occupying these developments. Thus the government would be forced to either charge higher rents and require a larger percentage of a family's already meager income, or pay higher subsidies, increasing project costs even further. (Mitchell, 1990. pp. 291-295).

In the 1960s the federal government began to accept proposals for "turnkey" developments. Developers would include provision of the land, site improvements, engineering and architecture services, working capital, and all construction and supervision. They would then submit their proposal to a Local Housing Authority (LHA), and, upon approval, proceed with construction, doing everything

necessary for the tenant to move in upon completion. According to data obtained for the National Commission on Urban Problems, turnkey developments provided some substantial cost savings in the overall cost of a project in some areas of the country. Cost benefits were also realized from a reduction of elapsed time between conception and completion of a project, saving up to two to three years. (Eaves, 1969. pp. 72-77). In an earlier report, Eaves noted that, "Long delays in housing built under public programs have led to high overhead and carrying charges. Turnkey projects aimed at reducing delays have begun to show promising results." (Eaves, 1969. foreword). This report, however, failed to address the differences in the quality of construction between government developments and private turnkey developments.

From this description of the turnkey option, one might infer that prior to construction, plans and specifications are submitted to the Housing Authority for approval, and when it is deemed by the officials that all requirements for code and standards have been satisfied, the construction of the development may proceed. This provides the Housing Authority with the opportunity to accept or reject elements of the construction based upon adherence to the approved plans and specifications. Theoretically, then, the development might proceed with only minor cost increases in the form of change orders.

The federal government is, under certain circumstances, an easy target for those who would like to pad their pockets through overcharging and cost overruns. Mountains of paperwork, miles of red tape, and communication breakdowns in numerous bureaucreatic channels are some of the reasons contributing to these ignorances and oversights. It is no surprise, then, that developments built by private contractors under the direction of Public Housing Authorities (PHA) were built under contracts which were virtually open-ended and contained no qualitative standards. (Mitchell, 1990. p. 292). Conversely, it suggests that if the federal government would assume the more traditional role of "client" it may benefit from the same competitive ethic enjoyed by investors in the private sector.

Conditions of Tenancy

The Housing Acts of 1937, 1949, 1954, and 1956 reflected strong pressure from NAREB to develop a policy that would include wide ranging conditions on tenancy for public housing developments. These conditions were designed to protect housing interests in the private sector. Realtors did not want anyone living in government-run housing who could afford to live in the least expensive private sector housing. On this premise the government policies set income limits based on local rent levels, which, in turn, were based on

information supplied by the highly influential, local real estate interests. (Mitchell, 1990. pp. 293-94).

A complex procedure was derived by which to determine income limits. Local Housing Authorities would determine the current price of "decent" rental accomodations of varying types and sizes by soliciting information from the local housing market via newspapers and real estate agents.

> The income needed to afford such housing was calculated by a five-to-one ratio (six-to-one for families with three or more minor children). That is, if the going price for a three-bedroom apartment was $100 per month, it was assumed that a family with an income of $500 per month could afford it ($600 per month when there were three or more minor children). The maximum allowable income for admission to public housing was 80 percent of that amount, or $400 per month. (Mitchell, 1990. p. 294).

The reason for this 20 percent gap between the income sufficient to afford needed housing and the maximum allowable income for admission into the developments was to insure that those with sufficient income to live in the private sector would not be allowed to live in public housing. Also, the gap allowed room for a tenants income to grow before they were required to leave the low income developments. (Mitchell, 1990. pp. 293-294).

Because of the income limitations, Congress had to determine what kinds of income should be included in the

calculations. It allowed exemptions for such items as child care, tuition costs, and medical expenses. Exemptions were also based on family size. (Mitchell, 1990. p. 295).

The policies established by Congress stipulated other conditions besides income that tenants had to meet. These conditions were based upon need. The Housing Acts in both 1937 and 1949 gave priority status to war veterans and to families displaced from their homes because of slum clearance. (Mitchell, 1990. p. 295). The elderly were given priority status in 1956, and disabled persons shortly thereafter.

The conditions of tenancy established by the government automatically began to undermine the stability of the public housing system. The result was that most of the "best" potential tenants were excluded from public housing. (Mitchell, 1990. p. 294). Income limitation requirements to enter public housing were necessary to fill the program's initial need. However, one might suggest that Congress erred in establishing limits that were significantly lower than the income required to rent the least expensive, private sector housing for the reasons illustrated in the following example: In doing so it ignored that segment of wage earners who were quite possibly on the verge of self sufficiency, and set them back into the ranks of poverty. There they would require more aid and subsidy than before. If those who initially qualify for housing for low income households increased their

income above the set limit they would be forced out of public housing into the same awkward situation as those already over the income limitation. Therefore, it would be more beneficial, fiscally, for the first group, who are residing in the public housing developments, to remain at their current meager income level and continue to depend on the government for support. In other words, no incentive would exist to increase one's standard of living. Income limitation policies have created some formidable barriers for those wishing to escape poverty, and have contributed to the establishment of a "permanent subgroup of poor... no longer the repectable poor envisioned in the 1937 Housing Act, temporarily down on their luck, but upwardly mobile." (Mitchell, 1990. p. 15).

Precedence and priority given to groups with special circumstances such as the elderly, disabled, or displaced families has some merit in moderation. For example, an entity such as the Local Housing Authority (LHA) might not apply strict priority status to everyone who may fall into one of the special groups, but may instead allow a certain number of units to be reserved for priority circumstances. While this type of policy change may seem insensitive, those who require low income or assisted income housing all have equal rights to standard housing and may have their own distinct needs. It is impossible to generalize the needs of every individual person or circumstance into a specific group.

Operational Issues

The operation of developments for low income households, especially by LHAs, involves several issues relating to the social quality of life for the resident families. The payment of rent, availability of services such as building maintenance and utilities, and overall management of the developments are examples of fiscal operational issues.

Government records and sources indicate that the rents collected in public housing developments are based upon the family's income and not on the size of the living unit. Technically, the percentage of family income required for rent was not limited, yet, in practice the administrators tried to keep them at minimum levels. This continued to be true generally until the 1960s when inflation hit and operating costs on LHAs soared dramatically. As the cost of operating the developments climbed so did the rent required to cover those costs. (Leeuw, 1969. pp. 51-5). This posed a major problem. Tenants had to pay a much larger proportion of their income for rent, even as much as 75 percent in some areas of the country. These high percentage rents led to rent strikes, ultimately resulting in the Brooke amendments in 1969 that established the figure of 25 percent as the maximum percentage which the government could take from a tenant family's income for rent. (Mitchell, 1990. p. 295).

In most U.S. cities that have large, housing developments

for low income households, the operating costs per unit per month exceed the income derived from rents collected in the developments. This is not the case, however, in some cities where the housing stock is much newer and requires less maintenance. "Rents per unit per month vary widely, and tend to vary with the level of costs... the present public housing system as a whole works out so that rents by city are set much more in line with operation costs than with median tenant incomes." (Leeuw, 1969. p. 20).

If a low income housing development is viewed in its original form, that is to say as housing for the upwardly mobile poor, temporarily down on their luck, then rents themselves are transitional. Moreover, if the goal of the LHA is to help families "get back on their feet," it is easy to recognize the merit of rents based on a percentage of income. Theoretically, this would enable a family to budget and save (hopefully with the direct assistance of on-premise financial counselors) and eventually move out of housing developments for low income families into the private sector with an increased ability to deal with financial stresses.

Summary

In the past, numerous problems have plagued federal housing developments for low income households. Cost overruns occurred with come frequency at the onset of the public

housing program as contractors took advantage of federal resources. The quality of construction on public housing developments became very low because private contractors continued to increase their profit margin under the new cost limits set by the federal government. Turnkey developments provided substantial cost savings due to the combining of services and decreased construction time. Evidence suggests that the federal government should provide the quality standards and, in the role of client, employ the private sector on a competitive basis to work within those standards.

Conditions of tenancy were developed to protect private sector housing interests. Income limitations were established by the federal government. These limitations were set approximately 20 percent below the income level needed to rent housing in the private sector. As a result, most of the best potential tenants were excluded from public housing. Income limitations have aided in the formation of a permanent subgroup of poor, no longer upwardly mobile. Giving priority, in public housing, to special groups such as the elderly or disabled, is appropriate if it does not totally exclude the other groups not considered "special." Rents are typically based on level of income. Prior to 1969 there were no limits on the percentage of a family's income that the LHA could withhold for rent. The Brooke Amendments established the maximum level of income for housing costs at 25 percent. Some

cities base their rents on cost of operation rather than level of income. Rents based on level of income are more effective in providing a tenant family with the opportunity to establish some savings.

One might suggest that since the private sector is not providing sufficient standard quality housing at an affordable price, local housing authorities should raise income limits a small percentage above the least expensive private sector housing available. This might enable borderline families in the present system to save money and even raise their standard of living. In theory, this should not greatly affect the private sector housing market except to foster a more competitive arena into which families are provided with more options for standard housing.

CHAPTER III

CRITIQUE OF HOUSING DEVELOPMENTS FOR LOW INCOME HOUSEHOLDS

Problems that exist in housing developments for low income households are the result of many different factors. The location and siting of a "project," the lack of privacy, the lack of security, the absence of a sense of community, and flaws with the physical design all contribute to the social ills associated with this type of housing.

Location and Siting

Segregation is a major issue relating to the location of housing for low income households. Publicly and privately funded housing was designed to correct social ills by pulling a demoralized population out of the slums and putting them in surroundings which would facilitate self-respect, create an awareness of alternative lifestyles, introduce the values of the middle class in society, introduce moral virtues, and also to provide an atmosphere free from harm or accident. (Gray, 1946. pp. 40-48). However, by developing housing for low income families all within a certain section of the city, the goals set forth by the proponents of these developments can never fully be realized. In fact, the low income population is effectively segregated and/or isolated from all of the

values and lifestyles from which they are supposed to learn.

Other problems, dealing with both politics and planning issues, also arise from the grouping of too many housing developments for low income families within one area. Due to the vast array of problems which plague these housing developments, such as juvenile deliquency and problem families (Fisher, 1959. pp. 65-66)., a large concentration of these would constitute a disamenity to an area. It could also result in an increased bias aimed at the ills of public housing, making it much more difficult politically to select future sites in other areas which could provide better services to developments for low income households.

Some attempts have been made to construct low income developments so that with the right programs and management they might blend in with their surroundings. In the 1960's Laurel Homes in Cincinnati was built. This particular development practiced a strict isolation policy. It was sited near some slum areas and after completion of construction and all social programs had been put in place, officials wanted to "prevent the surrounding slum from seeping into Laurel Homes in any form." (Fairbanks, 1988. pp. 105-107). They posted guards around the development to keep "outsiders" from even walking through it. This kept the development from blending in with the surrounding neighborhoods even though "blending in" was the original goal of the Cincinnati Housing Authority.

Privacy Issues

It is important in any housing development to establish spaces or areas to which a person can claim ownership, not necessarily in a fiscal context, but psychologically. Easter Hill Village is a low income housing development located in Richmond, California. Donald L. Hardison and Vernon De Mars, the two young architects who designed the development, made a sincere effort to create housing for low income households which was very different from the stark acres of high-rises that had come to symbolize the public housing movement. Within the development they began to establish some sense of individuality. Small front yards as well as small, fenced-in backyards were provided for the majority of the units. The design objective of this feature was "to give each family control over a piece of private outdoor space." It was justified for the following reasons. First, it would make the unit seem more like a private home. Second, the space itself could be used for either individual or family activities. And third, it could be landscaped by the tenants themselves to suit their own individual needs. It was seen as a very important element toward the idea of greater privacy. (Cooper, 1975. pp. 16-20). The reaction of the residents living in the Easter Hill development who participated in the post occupancy evaluation was surprising. Because of the lack of separation between private and public open space, children

played on some of the tenants front lawns which, at times, caused friction among the residents. One of the features that bothered people most was that some of the residents did not keep their yards clean. Stealing items out of backyards was also common. The general feeling among the residents was that in order to have full privacy they would have to be totally surrounded by yard in a single family house. (Cooper, 1975. pp. 165-70). Interpreting the reactions of the Easter Hill residents is a complicated process. One might suggest that when provided with a close approximation of a detached family home, the residents wanted the "real" thing, meaning a single family dwelling with a large private yard. They were dissatisfied with what was provided. However, the residents' reaction may also be interpreted as dissatisfaction with the seeming lack of control, along with a feeling of inequity among those who may not have had yards.

The issue of anonymity as one aspect of privacy is also important at a larger scale. Many developments for low income families are of such scale and magnitude that when they are compared with their surroundings they stick out like the proverbial "sore thumb." They become easy targets for disdain and prejudice. The residents of these developments are, in some cases, immediately judged and stigmatized as the poor who do not work, but feed off of the institution. One might suggest that it is not as easy to maintain one's privacy

and/or self esteem while under constant judgement and scrutiny. (Cooper, 1975. pp. 16,17).

Security

Social disorders are caused by slums and slum conditions. Such was the cry of public housing proponents in 1946. At that time, preliminary studies of social disorder were being conducted and the trends in design were toward environmental determinism. Indeed, the slums do carry within them an array of problems and conditions which are deemed by the middle and upper social classes to be substandard. It has also been proven statistically that though social disorders such as violent crime and anti-social behavior, along with disease and health hazards, do occur across the spectrum of society, they occur at a much higher rate per capita in slum areas. (Gray, 1946. pp. 124-25).

Standard housing developments for low income households have also harbored their share of programmatic problems and deliquency. Juvenile deliquency and dysfunctional families are ever-increasing in public housing projects. One text points out that, "Supporters of public housing - who originally promoted the federally aided low-rent program by claiming that it would eliminate social disorders - now complain that juvenile deliquency and problem families are so prevalent in certain public housing projects that something

must be done..." (Fisher, 1959. p. 65). It has also been observed that an increasing number of families are moving into public housing developments, bringing with them physical and mental health problems along with anti-social behaviors. As a result of the crime and deliquency that are beginning to take over these developments, they are becoming less and less of a haven and more and more like the slums that they were supposed to replace. In the St. Nicholas House, a federally aided housing development in New York City, it was estimated that seven percent of the 1,526 families living within the development were severely dysfunctional. This percentage was significant because it represented only the present level of a rapidly growing trend. It was also the opinion, based on empirical evidence, that "...it only takes a few, very antisocial families, to make a floor or a building or a project unsatisfactory to parents who are concerned about their children."(Fisher, 1959. p. 66).

Many technologies exist to enhance the safety and security of residents within developments for low income households. Yet even with all of the latest surveillance and alarm equipment in place, total safety and security is also dependent upon the theory that the residents will act together for a common goal. This requires some sort of interdependency and trust, which can only occur in meaningful, interactive relationships. In 1980, this same conclusion was reached by

the designers and planners in the city of Chicago of a three year project designed to improve security within the Cabrini-Green housing development of the Chicago Housing Authority. The "High Impact Program" was implemented to help reduce crime and to also improve the residential desirability of the development. The core of the project involved design changes made to help the residents police themselves. It was noted that without the resident involvment in the project, the security equipment could only provide minimal security. (Security Manual, 1981. pp. 2,3,287,288).

Sense of Community

Governmental policies, or more specifically the policies of local housing authorities in regard to public housing developments, are very slow to change, due to the long list of procedures involved. One development was full of amenities. None of its buildings rose above four stories, it had semi-private entries, there were no elevators or unprotected stairwells, and few of the troublespots and "no-man's land" areas characteristic of much high-rise housing were present. However, the tight regulations of the LHA prevented the residents from expressing any individuality, prevented family and friends from staying over long periods of time, prevented proximity close to friends from former "slum" neighborhoods also housed within the development, and finally prevented or

hampered the growth of community ties and participation because of the transient nature of the development itself (tenants were continually moved in and out based on level of income). If not completely severed, communal ties were effectively monitored by newly imposed regulations. The overall sense of community and identity once shared by these new inhabitants was completely obliterated. Taking into account this small amount of empirical data, one might infer that public housing as a whole destroys the cooperation and sense of community frequently existing in slum areas. (Plunz, 1980. p. 116-117).

Aside from its isolationist policies, Laurel Homes in Cincinnati did experience notable success in the implementation of a "community strategy." Tenant codebooks were issued to the residents which set forth rules to be followed while living in the development and also familiarized the residents with all of the recreational and community facilities available. Community organizations were formed to involve the residents in group activities in a continual effort to create opportunities to establish communal ties. The tenants, under the close scrutiny of the LHA even published their own newsletter, "The Laurel Villa Life," which received praise and respect from housing officials. Two women, Verna Greene and Ernestine N. Rothass were named management aids to J. S. Rafferty (project manager), and were

given the charge to oversee the newly implemented program. Their tasks included advising the several community organizations, counseling tenants on either family or financial problems, and also enforcing the various rules set forth in the tenant codebook. (Fairbanks, 1988. pp. 104-105).

Major changes in policy occurred in the aftermath of a major rent strike in St. Louis in 1969. The Housing Acts of 1968 and 1970 ultimately provided for tenant participation in all aspects of operations within a development. "Service cooperatives would be formed and a management training enterprise would ready the tenants to control the developments. Unfortunately, the vision stopped short of economic self-sufficiency; the prime employer would be the Housing Authority and the ultimate bill would be presented to the federal treasury." (Meehan, 1979. pp. 91,92).

Even amid major policy changes regarding power and control, an astute observer would recognize the absence of meaningful autonomy. Autonomy, like self sufficiency or as a product of self sufficiency, is an important measuring device used by sociologists to define "community." One may infer that the greater the degree of autonomy existing within an interactive, interrelational group the more likely it is that the group will possess a strong sense of community. (Lyon, 1987. 250-51).

Physical Design

Existing developments for low income households vary widely in size and character. Inherent in many of these developments are circumstances that serve to obstruct attempts at maintaining a physical as well as pyschological sense of either living within, or belonging to a community. One of the physical disadvantages is partially the result of an effort to reduce building costs by designing large scale, high density developments. Studies have been conducted about the affects of high density on family living. While these studies have been somewhat inconclusive, there is widespread speculation among sociologists and psychologists (Plant, 1957; Cappon, 1972) that high density is associated with various pathologies such as crime, disease, and deliquency. However, Loring makes the distinction in 1956 that "...high densities only aggravate or accelerate, not cause or motivate, any tendency to disorganization in a personality or group."(Michelson, 1977. pp. 44-45). Other problems also arise from the design characteristics of a structures themselves. Buildings vary in form. Some are long and narrow with an elevator or stair at each end of a long, double-loaded corridor very similar to a hotel, except that they possess few or no amenities. The stairways and corridors are unprotected and dark, and a very few entrances on the ground level are shared by all who reside within these structures. Others are groups of stark, high

rise towers with each floor composed of a few groups of identical apartments situated around core of elevators and a stair. Given these descriptions, one may already observe a general lack of identity with or to any part of the structure. The building types described as well as others, typcially possess a large quantity of identical units in an effort to provide numbers of units available for occupancy by low income families. What is often lacking in this approach is sensitivity to the widely varying needs of different user groups.

There are some models of multi-family developments for low income families that have been successful in providing for the needs of specific user groups along with developing among their residents a sense of identity. For example, in Easter Hill Village (mentioned earlier in this chapter), the architects, Hardison and De Mars, targeted a specific user group and were sensitive to its needs. "They had some strong ideas on the kinds of dwellings that were suitable for families with children, and thus rejected any idea of building high rise or even walkup apartments..." (Cooper, 1975. p. 3). Going outside of the United States, Sussex, England has examples of high quality, housing for low income households. Public officials in Britain have been conscious of the need to integrate their public housing within the existing framework of owned properties. The result is that tenants feel quite at

home and easily identify with the existing community where they reside. Further study of the Sussex "model" provides insights as to how developments for low income families can be successfully integrated. The subsidized tenants of the townhomes in Sussex appreciate that their townhomes resemble owned residences. The development is located within a convenient distance to shops, services, and work. The units themselves have large kitchens, new landscaping, and are built of warm and attractive building materials. "They are off of the main roads and are served by footpaths that underpass the roads on the way to schools and shops; and they are provided with communal ... amenities (playgrounds, sports facilities, and so forth) for the children. In fact, the recipe is the same as it is for "homes for sale." (Feurst, 1974. pp. 34,35).

The Back of the Hill Rowhouses in Boston possess some physical characteristics which provide a measure of individuality and a sensitivity to the local house-type. The development is, as the name implies, 165 units of mostly affordable housing in the form of rowhouses. A degree of identity is established by landscaping in the medians as well as using iron fences. The facades of the rowhouses themselves are organized into three types using either round bay windows, square bay windows or a projecting porch or balcony. The overall design and density of the development emulates the existing densities and street patterns. Though this is an

affordable housing development and not designed for low income households, some aspects of the physical design have merit regarding their sensitivity to aesthetics and individuality, as well as "blending in" with the existing, surrounding areas. (Record, July 1990. pp. 80-81).

A non-profit developer in California was able to lease land from the local school district on which to build an affordable housing development. The old school was demolished, but the two existing gymnasiums are presently being renovated and remodeled for use as community centers. The development consists of 114 affordable units ranging from one to four bedrooms and two distinct housing types. The construction of the housing units, as was the case in Boston, emulated the construction of the homes and buildings in the surrounding San Fransisco neighborhoods. The variety of plans and house-types provided for a sense of individuality. There are two major ideas that can be taken from this housing complex and applied to low income housing developments. First is the unique manner in which the developer was able to aquire land at a nominal cost. Second, the overall development has its own distinct identity (resembling an Italian hill town), yet it complements the surrounding area. (Record, July 1990. pp. 84-87).

Summary

When housing developments for low income households are all grouped together in a certain area, those households are effectively segregated from the very social classes whose values they are expected to imitate. The "grouping" of developments also potentially creates a disamenity in that area. In the development of this housing, "blending" into an area is viewed as positive, but can be hampered by overstrict isolation policies.

Providing the opportunity for ownership/control of one's space and/or surroundings as well as providing the opportunity for anonymnity, might encourage or build self esteem, and enhance feelings of security both physically as well as psychologically. Social disorders occur at a much higher rate per capita in slum areas. However, public housing developments also experience problems with deliquency and dysfunctional families. Protection from the social disorders can be aided by electronic surveillance and other security devices, but it is ultimately dependent upon the residents to organize and work together for a common cause.

Overstrict regulations and policies can and have destroyed existing relationships and hampered the growth of community ties. They have also restricted opportunities to express individuality. Programmed activities and organizations can help establish new relationships. Overall,

autonomy, one aspect used to define "community," is absent from public housing developments. The physical design of a development can not only provide the opportunity for meaningful relationships and interaction among residents which can result in a sense of belonging, but can also, through its appearance, be characterized as an "ambassador" to the surrounding neighborhoods and areas.

An appropriate response to all of these issues in the design of housing for low income households, together with proper management and policies can help contribute to the success of a development for low income households.

CHAPTER IV

FISCAL MODEL FOR HOUSING FOR LARGE, LOW INCOME HOUSEHOLDS

This fiscal model is comprised of six main criteria. First, "method of construction" discusses both the advantages and disadvantages to various owner - architect/contractor strategies. Second, "opportunity for ownership" discusses a program by which a family may purchase their living unit. Third, "terms of occupancy" outlines the requirements to be met by prospective tenant households. Fourth, "management of the development" determines the rents, conditions, and so forth. And finally, "fiscal amenities" proposes certain functions within the development which can lower some of the costs of day-to-day living.

Method of Construction

The cost and quality of any development is always important, however, for a low income housing development both are essential. There are many ways to facilitate construction. Historically, in the building of public housing, the federal government tried many strategies ranging from virtually open-ended contracts to turnkey developments. In the present, many of the same strategies exist in various

forms. Like the open-ended contracts, a sponsor (agency or owner with funds available for the construction of housing for low income households) may work directly with a builder experienced in housing construction. Design/build firms offer services similar to those offered by the turnkey developers. These two common strategies along, with several other means, would probably all culminate in the successful completion of a housing development for low income households. However, to ultimately control cost and insure quality, the sponsor might choose to employ the traditional process.

Working directly with a builder, the sponsor(owner) can save initial programming and design fees. However, much more of his or her time is required in overseeing the construction process to insure that the project will ultimately suit their needs. It requires that the owner spend the time and effort to fully define just what those needs are. It is also difficult to control construction quality and costs because the scope of the project is typically not well defined. The federal government experienced huge cost overruns due to loose contracts which defined little or no standards. Many times the savings in initial design fees is not actually realized because the builder must make up for his time spent on design and usually adds that into the final costs of construction. (Glover, 1976. p. 38).

The disadvantages seem to outweigh the advantages in the

design/build process as well. Though the cost to the owner is fixed from the start of the project, there is a lot of time and effort put out by all of the design/build firms who submit unsuccessful proposals. The costs incurred would eventually have to be made up through increased mark-up on future projects. (Glover, 1976. p. 39). A report on turnkey developments in 1969, failed to address differences in the quality of construction, however, professional responsibility and accountability are sometimes compromised because the designers and builders belong to the same company or work in a joint venture together. Therefore they might be more apt to make decisions which compromise the integrity of the project in the interest of profit. (Glover, 1976. pp. 39-40).

The traditional Architect/Client process is not new, but it is sometimes discarded in the interest of construction time. It is set up as follows:

1. The sponsor (owner) employs an architect.
2. The design and plans for the development are completed by the architect in close coordination with the owner.
3. The final plans and specifications are let out for competitive bid to no less than five (5) qualified general contractors for one month.
4. The bids are opened and the contract is awarded to the company with the lowest bid.

5. Pre-construction meeting is held between the owner, the contractor, and the architect to determine that the job will be constructed in strict accordance with the plans and specifications.
6. During the construction phase the architect acting as the owner's representative will observe the work of the constractor to insure the quality of construction.
7. Upon substantial completion of the development the architect, again as the representative for the owner will conduct a series of inspections until the development is deemed satisfactory by the architect and thus the owner. At which time a certificate of occupancy is issued by the jurisdictional authority (city, county, etc.).

The traditional architect/client relationship described, in which the architect provides complete construction documents (design, drawings, and specifications), has two distinct advantages. Similar to turnkey development, this process usually results in maximum construction efficiency, yet, unlike the "turnkey" a detailed definition of the project, via the construction documents, insures the client of desired quality. Some minor drawbacks (to the owner) in this

process are issues dealing with project management. The owner must have separate contracts with both the architect and the contractor, thus dividing the responsibility for the final product between them. (Glover, 1976. pp. 26,27).

Within the prescribed process, the cost control strategy should be implemented at the commencement of the design process as it is undertaken by the architect, in close communication with the owner and in adherance to the budgetary requirements. "The more detailed design work that is done, the more definitive becomes the estimate for the project, simply because the work content for the capital investment becomes better defined with each successive stage... this has the long term view of ensuring... that the work is designed with as good a chance as is possible of its capital cost falling within the overall budget..." (Pilcher, 1985. pp. 222-23). Open communication between all who are involved in the building process is vital and basic to establish an understanding and proceed with an effective cost control strategy. "Design and estimating must be a continously combined process. Estimating and communications are inseparable." (Heery, 1975. pp. 111-120).

There is also evidence indicating that the size of a construciton operation has a direct impact upon the efficiency, both in time and money, of a construction project.

Sherman Maisel's study in this field showed that (in the San Fransisco area) construction costs decreased as the size of the builder increase, while overhead and profits saw only a slight increase. (Meyerson, 1962. pp. 112,113). The results of this analysis suggest that shopping for the right contractor may also aid in reducing or controlling costs.

Opportunity for Ownership

Another main criteria for this fiscal model for housing low income households is to provide the opportunity for ownership by ultimately selling the individual living units to the initial occupants. The sponsor of the development, whether public or private, would finance the entire construction cost. Upon completion of the housing development this sponsor would assign a dollar value per unit and set up a payment plan requiring no down payment through which a family might purchase an individual living unit as shown in Table 1.

Terms of occupancy

The units are offered for lease or sale to three different low income groups. Families who currently rent in the private sector and are unable to purchase a house only because monthly expenses (rent being a significant percentage of those expenses) prohibits the saving of money for a down payment constitute the first group. Families whose income level is in

the 20 percent gap between income sufficient to afford housing and the maximum allowable income for admission into public developments for low income households make up the second group. The third group would consist of families who qualify for public housing due to little or no income, but are on a waiting list.

Providing housing for all three of these groups is essential for the success of this theoretical model. Allowingfamilies who are first-time home buyers to purchase living units immediately establishes the precedent of ownership within the development. It also provides an immediate, partial return on investment for the sponsors. Families who are forced to endure substandard living conditions due to the income limitations set by the federal government are given the opportunity to improve not only their housing but also their standard of living. Finally, it also serves the needs of families struggling to live on minimum wage incomes or aid given them by the federal government or other humanitarian agencies by providing a better standard of housing and removing the fear of eviction due to increased income.

Management of the development

Of the group of first-time home buyers, the sponsor would require the amount of the house payment in full each month.

Table 1. Site and construction costs, terms of loan, interest rate, and periodic payment per unit

Site Cost/Living Unit	$9,471
Construction Cost/Living Unit (1484 sq. ft. x $44.83 x .93[a] x .93[b])	$57,540
Construction Cost/Living Unit for Covered Parking	$200
Total Amount of Loan	$67,211
Term of the Loan (in years)	30
No. of Payments/Year	12

Interest Rate	Periodic Payment
9.50%	$565.15
9.75%	$577.45
10.00%	$589.82
10.25%	$602.28
10.50%	$614.81
10.75%	$627.40
11.00%	$640.07
12.00%	$691.34
13.00%	$743.49

[a]factor for townhomes/rowhouses when calculating cost/sq. ft., due to shared wall area

[b]factor for construction cost in a given geographic area

(Construction costs and factors taken from R. S. Means Square Foot Cost Estimating Index 1991.)

The first payment would then immediately begin to establish some equity in the unit. Payments from the remaining two groups would be in the form of rent only. The rent payment would be based upon 25% of the family's monthly income. Because there would be no income limitations once a family had moved into the development, they would be free to seek opportunities to increase there income. As income levels increased, the amount of rent obtained would also increase, helping to cover operating and maintenance costs. There would be no opportunity for equity at this point. The remainder of the payment not covered by the rent would be subsidized by the sponsor. As the amount of the rent payment reached the level of the house payment, the residents would be given the opportunity to purchase their living unit upon entering into an agreement or contract which would guarantee a minimum five year occupancy. The sponsor of the development might even offer a specified amount of free equity as a further incentive to stay and purchase the living unit. When the purchase agreement is signed, the monthly rent payment becomes the monthly purchase payment and the resident immediately, at that point, begins to establish equity just as the first-time home buyer group.

At the end of the five year, guaranteed occupancy contract, the owner occupant would be free to sell the unit into the private market. However, the sponsored funding

would be non-transferrable. The prospective buyer would be required to seek financing in the private sector as well. The family who chooses to sell could then take its equity and any profit from the sale to purchase other housing in the private sector.

There are many advantages to providing opportunities for ownership. It creates an incentive to improve one's income and standard of living. Theoretically, some families might be able to take advantage of this low income housing model by eventually purchasing their unit, then, at the end of five years, selling it for a profit. This could effectively propel them into financial stability and enable them to purchase a home in the private sector. For those who live on minimum wage earnings or aid from the federal government it suggests a gradual path to self reliance. As their income increases they become less dependent on federal aid, yet, unlike the present terms of occupancy set forth by the federal government, they are not penalized by being forced to move from their "affordable" home. The sponsor group would be able to divest itself of the development, freeing up money to spend on more low income housing. The small size of this theoretical model may also entice more non-public, non-profit organizations to fund housing developments for low income households.

Fiscal Amenities

The model of housing provided for low income households in Sussex, England had a variety of amenities which were a result of appropriate siting as well as on-site "communal" services. The fact that they were located within a convenient distance to shops and services helped residents save time and transportation costs. This suggests that providing this type of fiscal amenity to a development, contributes directly to its success by providing alternative, less expensive options for day-to-day needs. Locating a development for low income households close to existing shopping areas might help serve this function. Another attraction to a development might consists of the provision of certain services to be shared by the residents of a development, thus saving on individual costs. A central, "community" laundry area is an example of a shared service. Another possibility, due to the large numbers of children who would be living in the development, might be the provision of a community day care facility to be run and staffed by some of the residents within the development. This might decrease the amount of time and money needed to find individual babysitters or day care facilities and also decrease the costs of transporting the children. An on-site, multi-purpose facility such as a "meeting room" with a kitchen and restrooms, as well as exterior playground or greenspace for exercise, might provide the space needed for this type of

activity. The open space within the development may provide the opportunity for recreation for all ages. These types of amenities and services which facilitate a direct cost savings to the resident families of the development will also serve as an attraction to prospective future buyers both within the development as well as from the private sector.

Summary

Method and process of construction, opportunity for ownership, terms of occupancy, proper management, and fiscal amenities are vital to, and should be an integral part of the programming of a new low income housing development. The process by which the sponsor chooses to define and build the development will determine the level of initial cost. (Glover, 1976. pp. 27-19). The strategy to recoup the costs of the development should be planned as the scope of the development is being defined. (Heery, 1975. pp. 12-13). Establishing the terms of occupancy might be accomplished during the planning of the financial strategy. Proper management keeps track of expenses and accounts, and can also help resident families plan their strategy for ownership. Fiscal amenities help the residents conserve their resources of both time and money. Maintenance costs might be determined as building materials are specified. After programming, the next logical step is the actual design and construction of the development.

CHAPTER V

PHYSICAL DESIGN MODEL FOR HOUSING FOR LARGE, LOW INCOME HOUSEHOLDS

The criteria to be implemented in the design of housing for large, low income households can be separated into two parts. One part deals with environmental issues and the other deals with the physical structure.

Environmental Issues

The "environment" of a housing development is made up of both physical and psychological factors. The physical environment of this model deals specifically with certain characteristics of the area in which the development may be located. These include adjacent structures or development, access to the site, and proximity to services. The psychological environment deals with the perceptions and reactions of a user group to to the physically designed environment. Ideas regarding privacy, security, and providing the opportunity to develop a sense of community are some of the issues that can elicit either a positive or negative response to one's surroundings.

The physical environment

There are several criteria which should be reviewed in the selection of a site for a housing development to house low income families. First, upon review of the issues expounded in chapter III regarding segregation, the site should be located in an area which has little or no existing housing of this type. Second, the housing should probably be developed as infill rather than fringe development, serving the two-fold purpose of providing close proximity to existing shopping, schools, and other necessary services. Because housing for low income households has a goal of providing an awareness of middle class values, the development should provide that context of existing, alternative lifestyles. According to housing officials, only about one half of the low income households have access to or own an automobile, therefore the housing development should be to located within a five minute walking distance or approximately one quarter mile from public transportation.

In accordance with the criteria set forth regarding the desegregation of housing developments for low income households, the proposed site for this model is located two miles west and one mile north of downtown Minneapolis in the township of New Hope.

It was determined in conjunction with the Minneapolis Housing Authority (MHA), that, due to the over abundance of

low income housing developments to the North and to the South of the city, a development to the East or West might help to decentralize the low income population. The proposed site is outside and west of the Minneapolis city limits. This move was made as a social reminder that poor and low income households should not be "confined" to the city, but should be provided with options, not unlike the higher income classes.

Solving the infill development issue was not difficult in this area. Since the township of New Hope is completely "landlocked" or surrounded by other townships, it had reached its maximum growth potenial for fringe development. Therefore the criteria of utilizing infill sites for development was met, in this case, by default.

There was some concern voiced by the MHA that higher income groups, especially outside of city limits, would oppose a development for low income families adjacent to their neighborhoods. They feared that the presence of low income households might cause a decline in property values. In order to address these concerns, the proposed site was chosen in somewhat of a transitional zone between a neighborhood and a commercial/retail area. It is separated on all sides from the existing housing areas by either public service buildings or a cemetery. Apartment complexes located in nearby transition zones have also established a precedent for multi-family housing within this small suburban community. Though the

purchase price of the site might be more expensive than land on the fringes of a city, services such as water, sewer and utilities already existing on the site might offset the higher price of the land.

The site is located about 200 yards from a major shopping and services district and only about 100 yards from an elementary school. It is also within a short walking distance to some potential sources of employment in manufacturing, service, or commercial businesses.

As mentioned earlier, only about 1/2 of the the low income tenant families might have direct access to an automobile, therefore, access to public transportation service is crucial to the development so that the residents can both work, and have ready access to other needed services. Access to the public transportation system is adjacent to the closest shopping area.

The psychological environment

The three main psychological criteria that should directly influence the design of a housing development for low income households are the provision of privacy, security, and the opportunity to establish a sense of community among the residents. Within the design, these three criteria overlap so that certain moves made to delineate space may address more than one issue at a time, and sometimes, all three.

Making provisions for privacy is a very important to the success of any housing development. In Easter Hill Village, for example, the design objective of the fenced-in yards was to give each family "control" or psychological "ownership" over a portion of outdoor space. There are many and varying degrees of privacy. At the macro scale (assuming that the housing development itself is the largest context of study) a conscious move should be made to establish a sense of boundry between the surrounding area and the housing development itself. At the micro scale or regarding individual apartments, each living unit, if possible, should be provided with an exterior space or courtyard similar to that provided in Easter Hill Village, in an effort to help establish that feeling of ownership. As a part of the provision of privacy, each unit should be provided with its own entry helping to further delineate its "separatness" within a multi-family development. This provides the opportunity for a person or family to develop a sense of individuality or ownership.

Issues regarding security and the development of a strong sense of community are closely related. The housing model for low income households must provide, for its residents, a strong sense of security. The substandard housing and areas from which some of these families will come are typically racked with violence, disease, crime, drugs, and all manner of health hazards. In order to provide a "better" environment,

the development must provide safe haven from all of these social ills. In the Cabrini Green Housing Development of Chicago it was determined, after a thorough study of security issues, that no matter how much equipment was installed (alarms, surveillance, and so forth), the establishment of security can occur most effectively if the residents themselves band together and organize themselves in order to deal with breaches of security as a group rather than individually. For this reason it is imperative that the design of a housing development for large, low income households provide appropriate opportunities for casual neighboring and interaction which can, in turn, become strong, meaningful, interdependent, communal ties. This positive interaction will not only aid the residents to identify with the development as their community but also provide that sense of security, knowing that each one is "looking out" for the other. If a housing development includes well defined, semi-public, defensible spaces, the residents are provided with a common purpose, that of protection, surveillance, and/or watching out for one another's needs. The sense of boundary, spoken of before and provided by the arrangement of the living units on the site (SEE Figure 8), between the surrounding area and the inside of the development is not impermeable and thus does not perform the function of physically inhibiting would-be intruders. It performs much better as a psychological

barrier. Visitors to the development are given very strong visual cues by the location of the visitor parking and the gate-like entrance into the center of the development. Theoretically the large court-like areas defined within the development become "town squares" or places in which the residents of the development can collectively claim ownership, unique from other spaces outside of the physical arrangement of the structures. The establishment of a strong sense of community is essential because this model for safety and security is based solely upon the theory that residents will act together for a common goal (Public, 1981. pp. 2-3, 287-88). This requires some degree of dependency and trust, which can only occur in meaningful interactive relationships.

Physical Design and Structure

Two criteria should be considered in the physical design and structure of this housing model. The first criteria for this model is that the development should exhibit a degree of efficiency and economy in site planning, exterior design, physical structure, and space planning. The methods by which a sponsor/owner may control costs in and through proper planning and construction have already been discussed. The main goal of this criteria is bring the actual building costs of the housing development down to a level that is fiscally feasible to a developer.

Second, the development for housing for low income households should emulate or strive to equal or excel existing development in the surrounding area. Many examples serve as precedents to validate this criteria. Public housing in Sussex, England was cited for excellence by the residents because it "resembles owned residences,... in fact, the recipe for the development of public housing is the same as it is for homes for sale." The two other housing developments mentioned in chapter III, the "Back of the Hill" rowhouses in Boston and the California "Hilltown" community were both designed with a "sensitivity to the local house-type" and "to emulate the construction of the homes and buildings in the surrounding ... neighborhood.

Site planning

Typically, land available for infill development bears a higher purchase price than does land on the fringe of a city. However, it also has many of the needed services already available to the site such as water, sewer, and other utilities. The feasibility of the proposed site for this particular model can be seen in Table 2.

This model development consists of a total of thirty-two 2-story, townhouse-type living units. This gives the development a density of approximately thirteen units per acre. A concern was voiced by housing authority officials

that housing for low income households would not be accepted by the residents in the surrounding neighborhoods. It was the concern of the residents that this type of development would not "fit in" and would cause their property values to drop. These issues, through proper planning, can be eliminated. The size of the development iscommensurate with that of some small apartment complexes in the vicinity. Theoretically the size of the proposed model development should be acceptable to the surrounding neighborhoods in that it does not exceed the from the road due to the arrangement of the buildings on the site. However, this outside face serves as an introduction to the development and accomplishes the three-fold purpose of providing a sculptural aesthetic, setting a theme of quality for the development, as well as providing visual privacy for the front of the living units.

Exterior Design

Though all of the floor plans in the development are identical, their expression on the exterior as a whole complexexisting precedents for multi-family housing in the immediate area. Only the outside face of the development is visible is designed to provide visual interest by reflecting the the configuration of the interior spaces. Economy is achieved in this particular model in four areas. The use of rectilinear forms contributes to ease of construction, resulting

Table 3. Feasibility study of site costs for the proposed site of a housing development for low income households.

Site dimensions:	335 ft. x 329 ft.
Total square footage:	110,215 sq. ft.
Cost per square foot:	$2.75
Total site cost:	$303,091.25
Total number of units:	32
Site cost/unit:	$9471.60
Conversion factor:	$\frac{110,215 \text{ sq. ft.}}{43,560 \text{ sq. ft./acre}}$
Total acreage:	2.53 acres
Units/acre	12.7

in a decrease in construction schedules. The low, single sloped roof (the simplest design for sloped roofs) also contributes to ease of construction through the elimination of "special" details. This can also help decrease the time of construction. Since all of the living units are identical, the windows, doors, and all associated hardware can be ordered in bulk contributing to overall cost savings. The materials used on the exterior, split-faced concrete masonry units and a cementious plaster system, as shown in Figure 11, are both widely used exterior building materials requiring no specialized labor crews. No special-order systems or "cutting

edge" materials should be used on this type of development unless they can match or exceed the performance of the specified material and also come in costing less than or equal to the specified material. All of the building materials used on the exterior of the development should be materials that require little or no maintenance. This should help cut down on long range capital improvement costs, in turn, increasing the marketability of the living units.

Physical Structure

As with the materials used on the exterior of the development, the structure and interior finishes should also utilize "common" building systems in an effort to keep, not only material costs at a minimum, but also keep the labor costs low by, again, not requiring specialized assembly crews. The use of standard materials might also facilitate the economical stockpiling of replacement tiles, carpet, and so forth, for maintenance purposes. This could enable residents, through a maintenance "tutoring" effort, to perform their own light maintenance (especially after purchasing their living unit).

Space planning

The organization of space within the living units should be derived according to the two criteria of organizing and

arranging space both effectively and efficiently. To effectively organize space means that the unit might serve the needs of a family by complementing their lifestyle. An opposite example might be forcing a large Asian immigrant family of low income to live according to lifestyle and priorities set by an American middle class family. However, this author does acknowledge the fact that space planning alone cannot serve the needs of all lifestyles. The focus of this criteria is to address needs which may be different from the majority of households. To efficiently organize space one should minimize circulation, leave out any acute-angle corners, and minimize dead space in an effort to make the available area 100% livable. The plans of the living units are derived from a list of living functions. The list of living functions, beginning with the highest priority which governed the space planning of the living units, in this theoretical model is as follows:

1. Food preparation and eating
2. Relaxing and socializing
3. Personal hygiene
4. Sleeping and resting
5. Washing and cleaning

The kitchen is open and has an abundance of counter space which may be utilized for eating as well as food preparation. It is readily accessible to the exterior living space (front

court-yard), to facilitate easy access in the event of outside meal preparation or social activities. On the second level, their are four spaces which may be classified as bedrooms. Each has a closet and are all similar in size. A fifth space, located at the rear of the unit on the first level, is called an auxilliary room. This room can be used as either an additional bedroom or an additional living area. Though it is possible for many persons, even whole families to share one room for sleeping, separate sleeping areas were created to increase privacy and stimulate individualization of the spaces themselves. The bath/utility suite provides ample opportunity for proper personal hygiene, even for a large family. Each of the bedrooms has access to the this area. The auxilliary room is also adjacent to a toilet and lavatory on the first level. This 1/2 bath is located near the kitchen to provide opportunity for "washing up before dinner." An area for washing and drying laundry is provided within the bath/utility suite on the second level in the event that the residents aquire those appliances or if the unit is sold on the private market, effectively making the suite a "service area." The spaces designated for relaxation and socialization are easily accessible to the kitchen area so that the kitchen may also support acitvities in those spaces. A straight stair provides access to the second level. The closet space provided per unit is large enough for immediate use items only. The front

court-yard area may be utilized for storage of larger, less-used, or seasonal items. One overriding issue governs all of the space planning. That issue is cost. The units should be planned in an efficient manor leaving no room for wasted or underutilized area. By adhereing to this criteria the designer can provide maximum living area within a limited space, for a low income family with four or more children.

Emulation of the Surrounding Development

The style of building in this particular development does not emulate the styles of the structures on the surrounding sites. Nor does it emulate the existing styles of homes or multi-family housing in the vicinity. However the style and materials that are utilized do serve to bridge or link the styles of both the adjacent commercial buildings and the typical, vernacular styles of the homes in the area. The quality of construction does emulate that of adjacent commercial structures, however, it is still sensitive, in scale, to the vernacular aesthetic.

Summary

The various criteria by which this model for housing low income families is designed and executed serve the very

important function of helping to create a development that is acceptable to the area in which it is proposed. In an effort to desegregate low income families, smaller developments should be located in suburban-type areas so that these families can enjoy the same opportunities and services as those in higher social classes. This may be accomplished by requiring the use of infill sites for the building of low-cost housing. To do this successfully, the infill sites must be located in close proximity to shops, services, and public transportation.

For the residents of these housing developments, provisions should be integral in the design to establish certain boundaries, creating opportunities for a sense of ownership or privacy. Provisions for security should also implemented along with opportunities for interaction between the residents and their families. Through close, meaningful interaction and a strong sense of community the sense of security is increased.

Economy and efficiency both in the planning and the design of this model for housing for low income households can help to not only decrease initial building costs, but also serve to increase the livability within the development.

One of the major goals in developing housing for low income families is to successfully integrate the development into its surroundings.

CHAPTER VI

CONCLUSION

This conclusion is comprised of checklists to be used for implementing both the fiscal and design models, along with a demonstration showing how these models might be utilized in the development of housing for large, low income households.

Fiscal Model

The user group for which this model has been developed has been defined as single or two parent families with four or more children (See p. 3). This group has been divided further into three distinct income groups (See pp. 34-38).

First time home buyers (Group I) This group currently lives in private sector rental housing. They are not able to purchase a home because they lack the resources to save money for a down payment.

Borderline poor (Group II) These are families whose income is too high to qualify for public housing, yet too low to rent standard housing in the private sector.

Low income poor (Group III) This group consists of families whose main source of income is either a minimum wage job or an income subsidy from the federal government.

Two aspects of the fiscal model, method of financing development and method of financing operating costs will be

derived from these three income groups.

The traditional architect/client strategy for development should be utilized to most effectively control costs and the quality of materials and construction. Cost control is vital to the feasibility of housing developments for low income groups, and must be addressed very early in the design process. Strategies for cost control should be implemented during the design phase of the project. Upon completion of a well detailed set of construction documents, they should be let out for bid to qualified building contractors. Upon selection of a contractor, the owner and the architect should meet with this contractor to discuss more areas of potential cost reduction. At this time any dicrepancies and areas of concern should be solved and or made clear so that the project with minimal cost increases due to change orders throughout the construction phase. It is during the construction phase that the architect should make periodic site visits, as the owners representative, to answer questions and generally insure that the materials being used are identical or equivalent to those specified, in an effort to maintain the standard of quality set in the plans (See pp. 29-33).

Table 3 is a checklist for the fiscal model that addresses the materials to be used in construction, the method of financing the cost of development, and the method of financing operating costs.

Table 3. Checklists and tables used to determine fiscal feasibility

---

3A. Building materials[a]

Exterior

Require little or no maintenance	% x 5[b] =	_____
Require painting or resurfacing	% x 3 =	_____
Require replacement	% x 1 =	_____

Total = $\frac{\text{_____}}{100}$ = ___

Interior

Standard systems requiring little or no maintenance	% x 5 =	_____
Standard systems requiring routine, unskilled maintenance	% x 3 =	_____
Standard systems requiring routine specialized or skilled maintenance	% x 1 =	_____

Total = $\frac{\text{_____}}{100}$ = ___

3B. Method of financing development costs

Income groups

Group I - full amount of house payment is required each month, immediate equity

No. of Group I families available to purchase living units ____

30% - 50% of the development must be occupied by this group

Group II - 25% of income required for rent, no equity is established until rent payment is equivalent to full amount of house payment

No. of Group II families available to rent living units for potential ownership ____

50% - 70% of the development must be occupied by this group

Group III - Same as Group II

No. of Group III families available to rent living unit for potential ownership ____

No more than 20% of the units should be occupied by families in Group III

Table 3. (continued)

3C. Method of financing operating costs

Maintenance of individual living units

Group	Year 1	2	3	4	5	...
I	0%	25%	50%	75%	100%	100%
II	0%					0%
III	0%					0%

To fund exterior maintenance costs as well as interior maintenance costs for the entire development, both the house payments and assigned rents based on % of income are augmented with the equivalent to an "association fee" which collectively covers the maintenance costs. As Group I gradually takes over their own maintenance costs, their fee is reduced accordingly until it reaches 25% of the original fee which will remain a part of the payment to cover common maintenance such as lawn care or other capital improvement expenditures.

[a]standard materials are defined as the quality of building material used on affordable tract homes.

[b]simple factor used to calculate the preference of one building material over another in reference to long term maintenance costs.

Design Model

The implementation of the design model is illustrated in Table 4, again in the form of a checklist. The checklist is necessary to evaluate the proposed development according to certain criteria derived from research in different areas of housing low income households.

Table 4. Checklists to determine the density and size of the development, proximity of precedent housing types, cost of land, and issues of proximity relating to site selection

---

4A. Determining the size and density of the development

Single family, detached home	4-6/acre = 5 7-8/acre = 3 9-10/acre = 1	____
Duplex	8-12/acre = 5 14-16/acre = 3 18-20/acre = 1	____
Fourplex	8-12/acre = 5 16-20/acre = 3 20-24/acre = 1	____
Townhome/Rowhouse	10-12/acre = 5 13-17/acre = 3 18-24/acre = 1	____

Greenspace within the development is a very beneficial amenity (See p. 39)

4B. Locate existing multi-family housing within a one mile radius of the proposed development

5 or more = 5
4 = 4
3 = 3
2 = 2
1 = 1
0 = 0

No. of developments = ____

4C. Cost of land

10% - 13% of the construction cost/unit = 5
14% - 17% of the construction cost/unit = 3
17% - 20% of the construction cost/unit = 1
20%< of the construction cost/unit = 0

(To determine the cost of the land/unit, use the formula shown in Table 2 on page 58.)

Table 4. (continued)

The cost of the land as percentage of the total construction cost/unit = ____% = ____

Refer back to the units/acre figure to determine the type of unit which is most feasible based on density (See p. 57).

4D. Siting the development

Proximity to services: adjacency - 3 blocks = 5
3 - 4 blocks = 3
5 - 6 blocks = 1
6< blocks = 0

Shopping(food and goods)	_____
Schools	_____
Medical facilities	_____
Potential employment	_____
Banks	_____
Social Service offices	_____
Public transportation	_____

Total = $\frac{\text{_____}}{7}$ = ____

Proximity of proposed development to other residential areas: adjacent = 5
within one block = 3
within two blocks = 1
outside of two blocks = 0

Proximity factor = ___

Proximity to other housing developments for low income households: >10 mile radius = 5
10 - 5 mile radius = 3
4 - 2 mile radius = 1
1 - 0 mile radius = 0

Proximity factor = ____

Table 4. (continued)

Calculations to Determine
the Overall Design Factor

The following numbers and information are taken from the figures on the previous two tables.

3A. Building materials

Exterior maintenance factor = ____

Interior maintenance factor = ____

4A. Type of unit and density factor

_____ = ____

4B. No. of developments = ____

4C. Factor from cost of land/unit = ____

4D. Siting of development

Proximity to services factor = ____

Proximity to other residential areas = ____

Proximity to other developments for low income households = ____

Total of all factors = ____

Overall design factor = total $\frac{\text{\_\_\_\_\_}}{8}$ = ____

Interpreting the overall design factor:

4.0 - 5.0 = optimum design conditions exist for development

3.5 - 4.0 = good, suggests that the design of the development will provide most of the necessary services to low income households

3.0 - 3.5 = borderline, suggests that more conditions should be addressed before proceeding with development

<0.3 = According to this model, the development

may not provide the necessary services to low income households, suggesting that one or more of the design parameters such as type of living unit, density, or proximities should be changed to reflect a condition with a higher overall design factor

---

Demonstration

This section will demonstrate how both the fiscal and design models may be implemented into the development of housing for large, low income households in the city of New Hope, Minnesota. The numbers shown on the checklists will correspond with the issues addressed and shown in the figures.

Fiscal model

Table 3. Checklists and tables used to determine design feasibility

---

3A. Building Materials[a]

Exterior

Require little or no maintenance	100 % x 5[b]	= 500
Require painting or resurfacing	____ % x 3	= ____
Require replacement	____ % x 1	= ____

Total = $\frac{500}{100}$ = 5

Interior

Standard systems requiring little or no maintenance	34% x 5	= 170
Standard systems requiring routine, unskilled maintenance	66% x 3	= 198
Standard systems requiring routine specialized or skilled maintenance	___ % x 1	= _____

Total = $\frac{368}{100}$ = 3.68

(See Figures 1 and 2)

3B. Method of financing development costs

Income groups

Group I - full amount of house payment is required each month, immediate equity

No. of Group I families available to purchase living units ____

30% - 50% of the development must be occupied by this group

Group II - 25% of income required for rent, no equity is established until rent payment is equivalent to full amount of house payment

No. of Group II families available to rent living units for potential ownership ____

50% - 70% of the development must be occupied by this group

Group III - Same as Group II

No. of Group III families available to rent living unit for potential ownership ____

No more than 20% of the units should be occupied by families in Group III

Table 3. (continued)

(This housing development will assume the following distribution of income groups: Group I - 30%, Group II - 50%, and Group III 20%.)

[a]standard materials are defined as the quality of building material used on affordable tract homes.

[b]simple factor used to calculate the preference of one building material over another in reference to long term maintenance costs.

Design model

Table 4. Checklists to determine the density and size of the development, proximity of precedent housing types, cost of land, and issues of proximity relating to site selection

---

4A. Determining the size and density of the development

Single family, detached home	4-6/acre = 5 7-8/acre = 3 9-10/acre = 1	____
Duplex	8-12/acre = 5 14-16/acre = 3 18-20/acre = 1	____
Fourplex	8-12/acre = 5 16-20/acre = 3 20-24/acre = 1	____
Townhome/Rowhouse	10-12/acre = 5 13-17/acre = 3 18-24/acre = 1	3

Greenspace within the development is a very beneficial amenity (See p. 44; See also Figures 3 and 4).

4B. Determine existing multi-family housing within a one mile radius of the proposed development

5 or more = 5
4 = 4
3 = 3
2 = 2
1 = 1
0 = 0

No. of developments = 4

(See pp. 50,51; See also Figure 4)

4C. Cost of land

10% - 13% of the construction cost/unit = 5
14% - 17% of the construction cost/unit = 3
17% - 20% of the construction cost/unit = 1
20%< of the construction cost/unit = 0

Table 4. (continued)

(To determine the cost of the land/unit, use the formula shown in Table 2.)

The cost of the land as percentage of the total construction cost/unit = 14.3% = 3

Refer back to the units/acre figure to determine the type of unit which is most feasible based on density (See p. 57).

4D. Siting the Development

Proximity to services: adjacency - 3 blocks = 5
3 - 4 blocks = 3
5 - 6 blocks = 1
6< blocks = 0

Shopping(food and goods)	5
Schools	5
Medical facilities	3
Potential employment	5
Banks	5
Social Service offices	3
Public transportation	5

Total = $\frac{31}{7}$ = 4.43

Proximity of proposed development to other residential areas: adjacent = 5
within one block = 3
within two blocks = 1
outside of two blocks = 0

Proximity factor = 3

Proximity to other housing developments for low income households: >10 mile radius = 5
10 - 5 mile radius = 3
4 - 2 mile radius = 1
1 - 0 mile radius = 0

Proximity factor = 5

(See p. 51; See also Figures 5 and 6)

Table 4. (continued)

Calculations to Determine
the Overall Design Factor

The following information and numbers are taken from the figures on the previous two tables.

3A. Building materials

Exterior maintenance factor = 5

Interior maintenance factor = 3.68

4A. Type of unit and density factor

townhomes = 3

4B. No. of developments = 3

4C. Factor from cost of land/unit = 3

4D. Siting of development

Proximity to services factor = 4.43

Proximity to other residential areas = 3

Proximity to other developments for low income households = 5

Total of all factors = 30.11

Overall design factor = total $\frac{30.11}{8}$ = 3.8

Interpreting the overall design factor:

4.0 - 5.0 = optimum design conditions exist for development

3.5 - 4.0 = good, suggests that the design of the development will provide most of the necessary services to low income households

3.0 - 3.5 = borderline, suggests that more conditions should be addressed before proceeding with development

Table 4. (continued)

<0.3 =	According to this model, the development may not provide the necessary services to low income households, suggesting that one or more of the design parameters such as type of living unit, density, or proximities should be changed to reflect a condition with a higher overall design factor

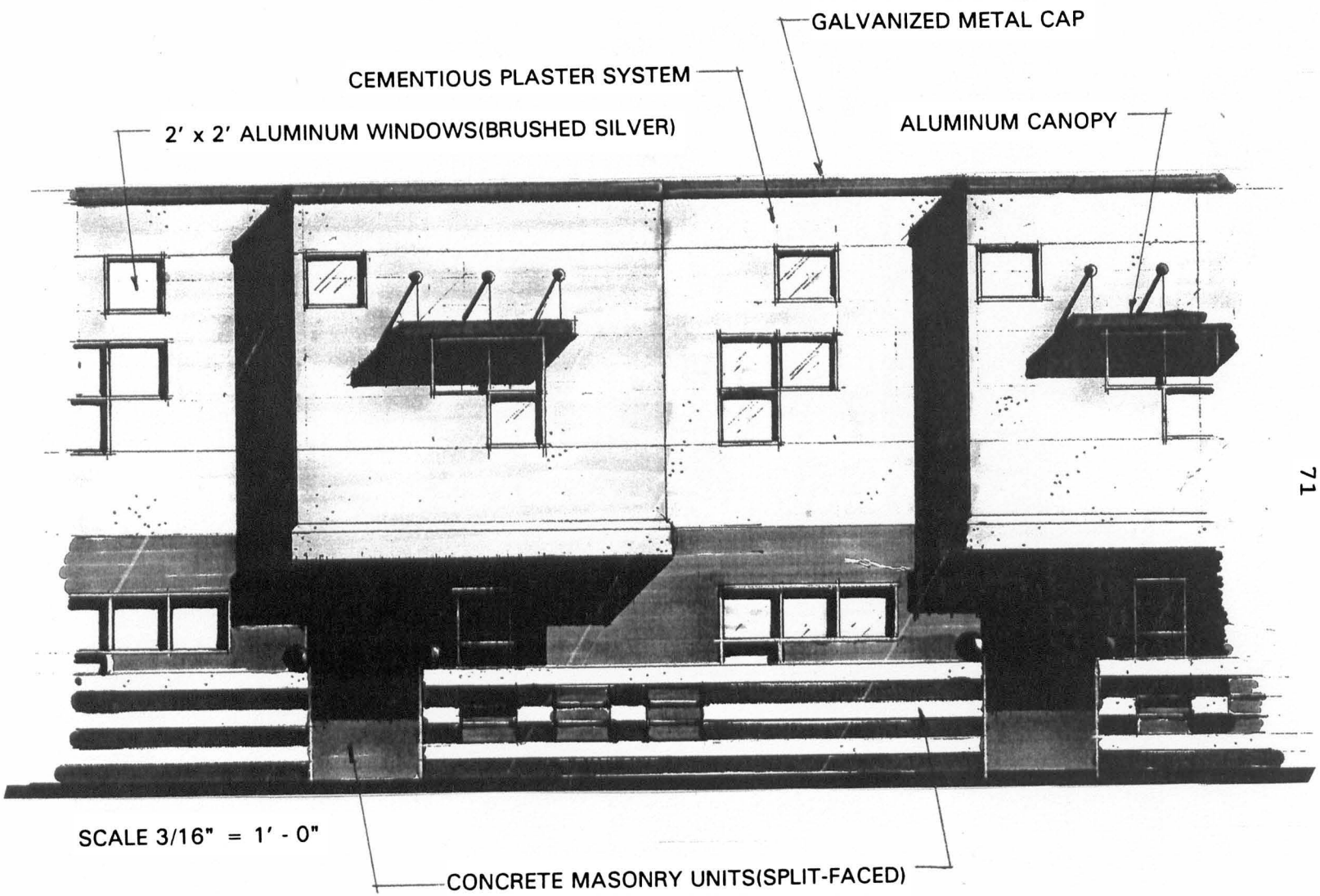

Figure 1: Front elevation

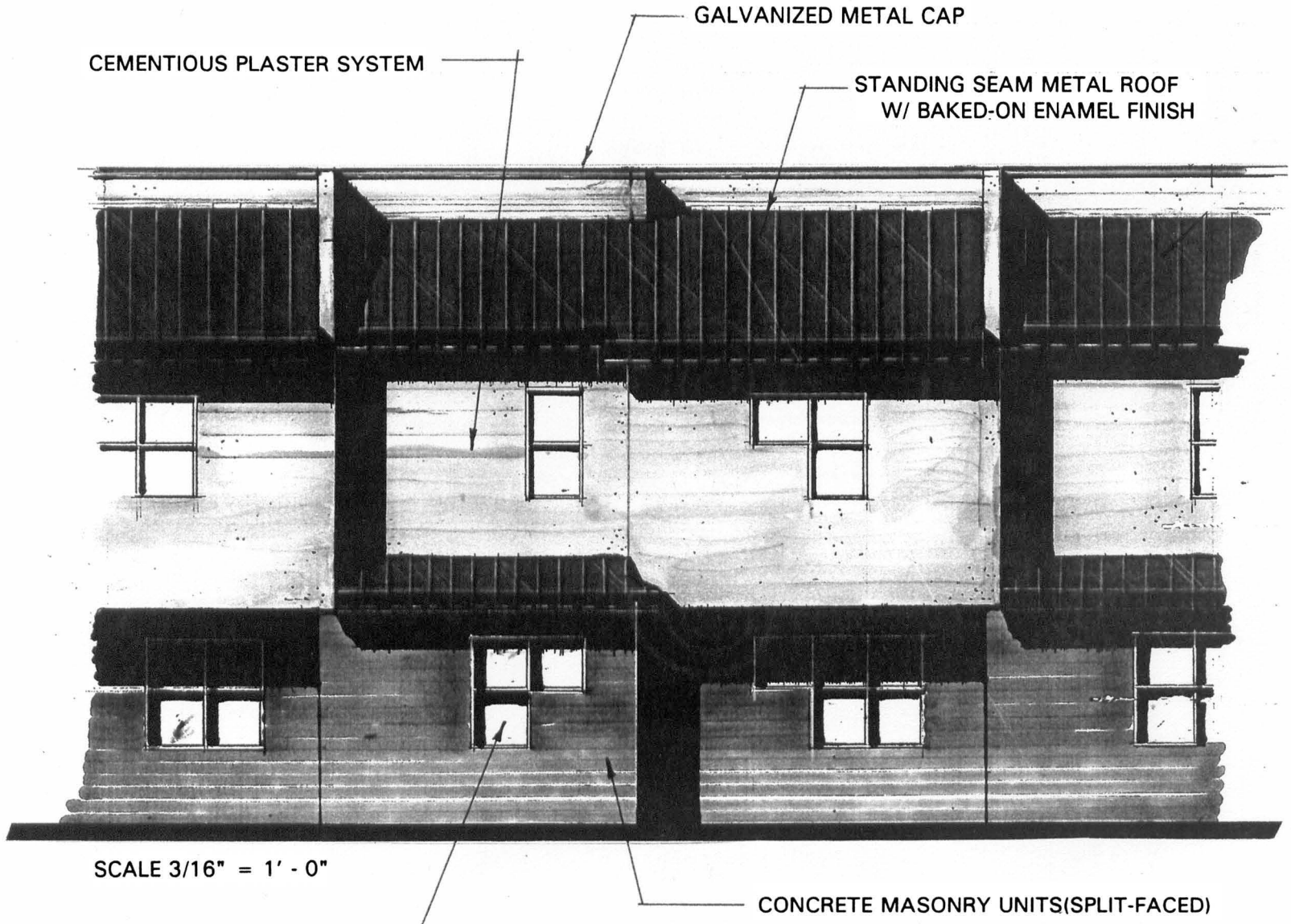

Figure 2: Rear elevation

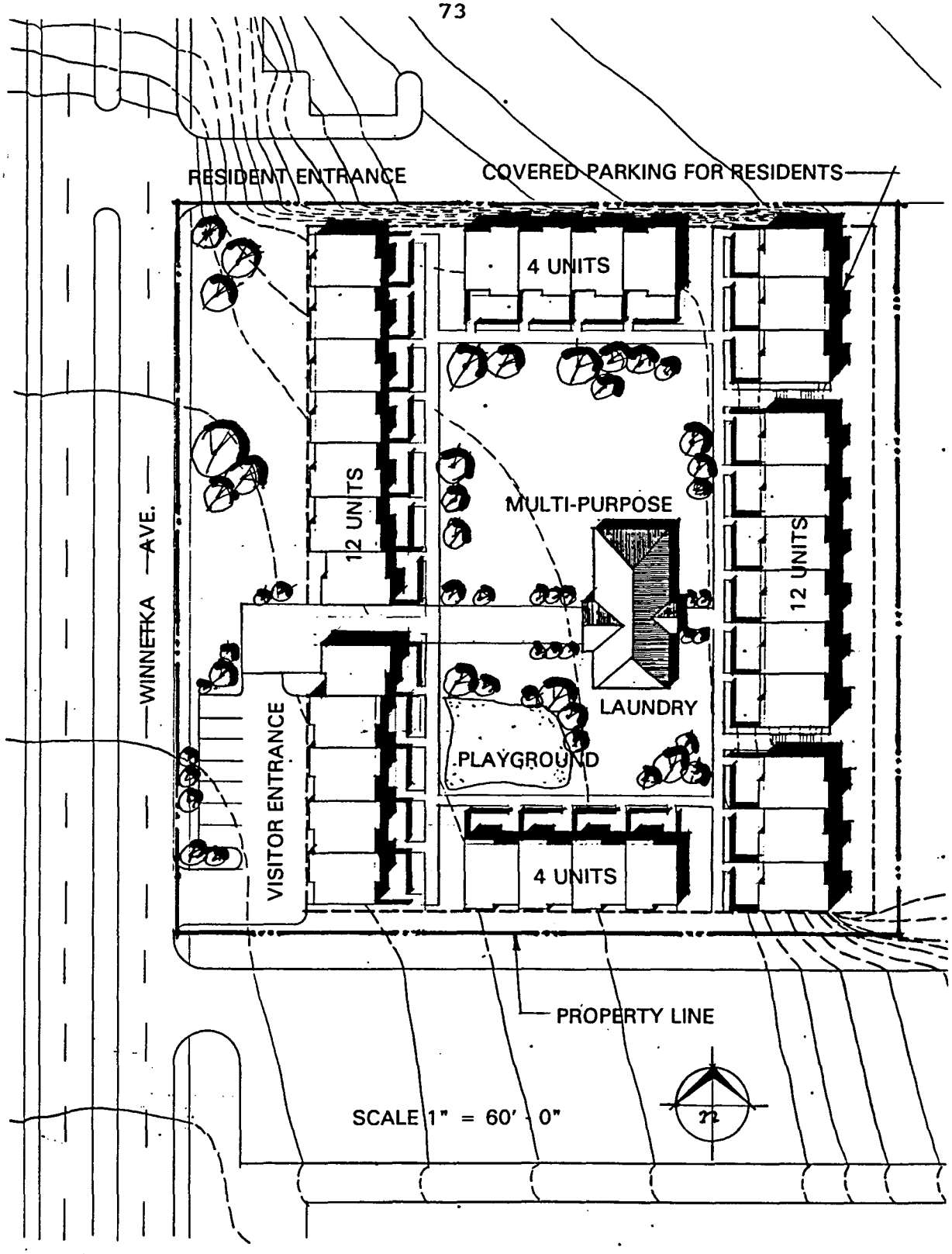

Figure 3: Site development plan

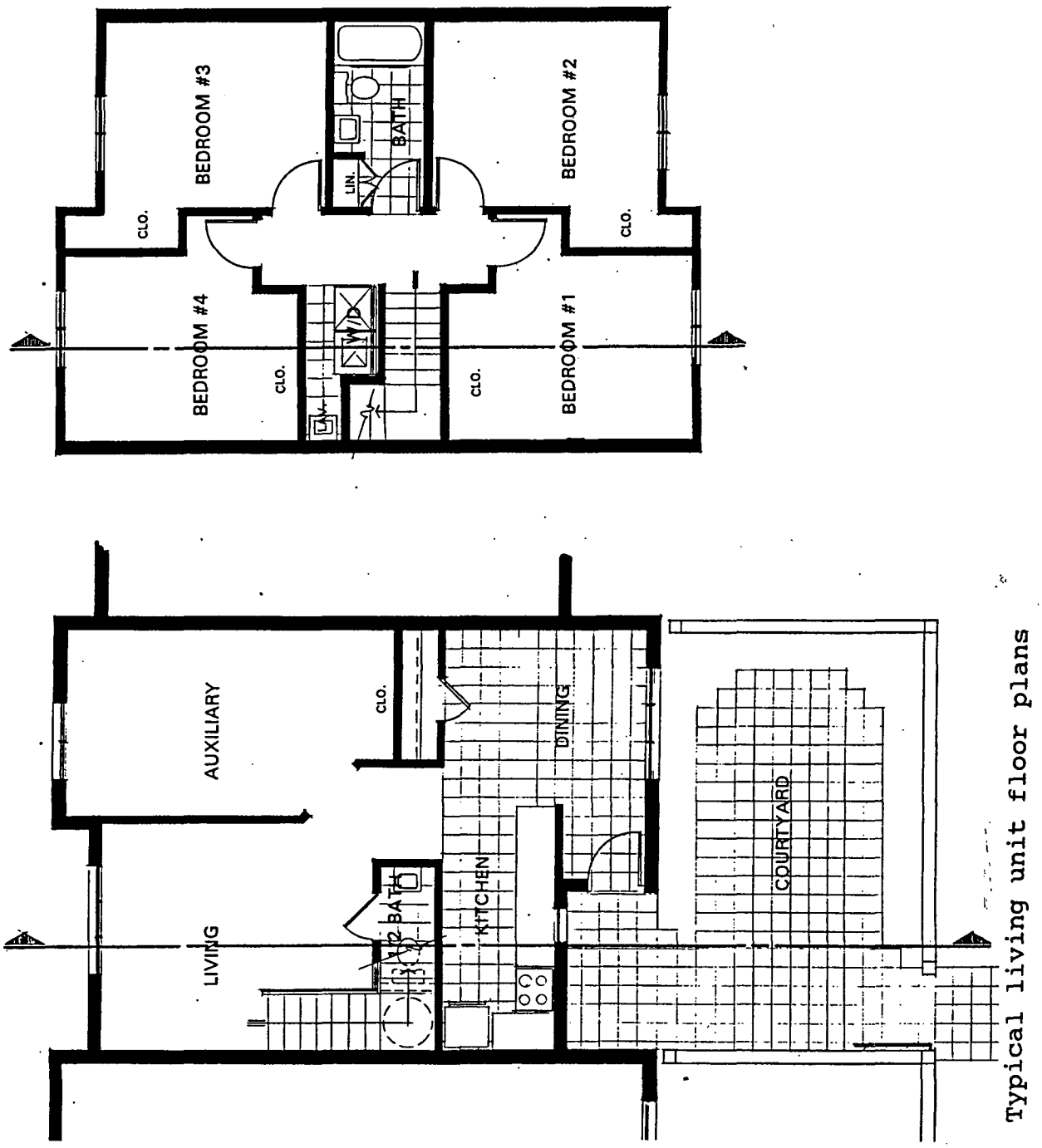

Figure 4: Typical living unit floor plans

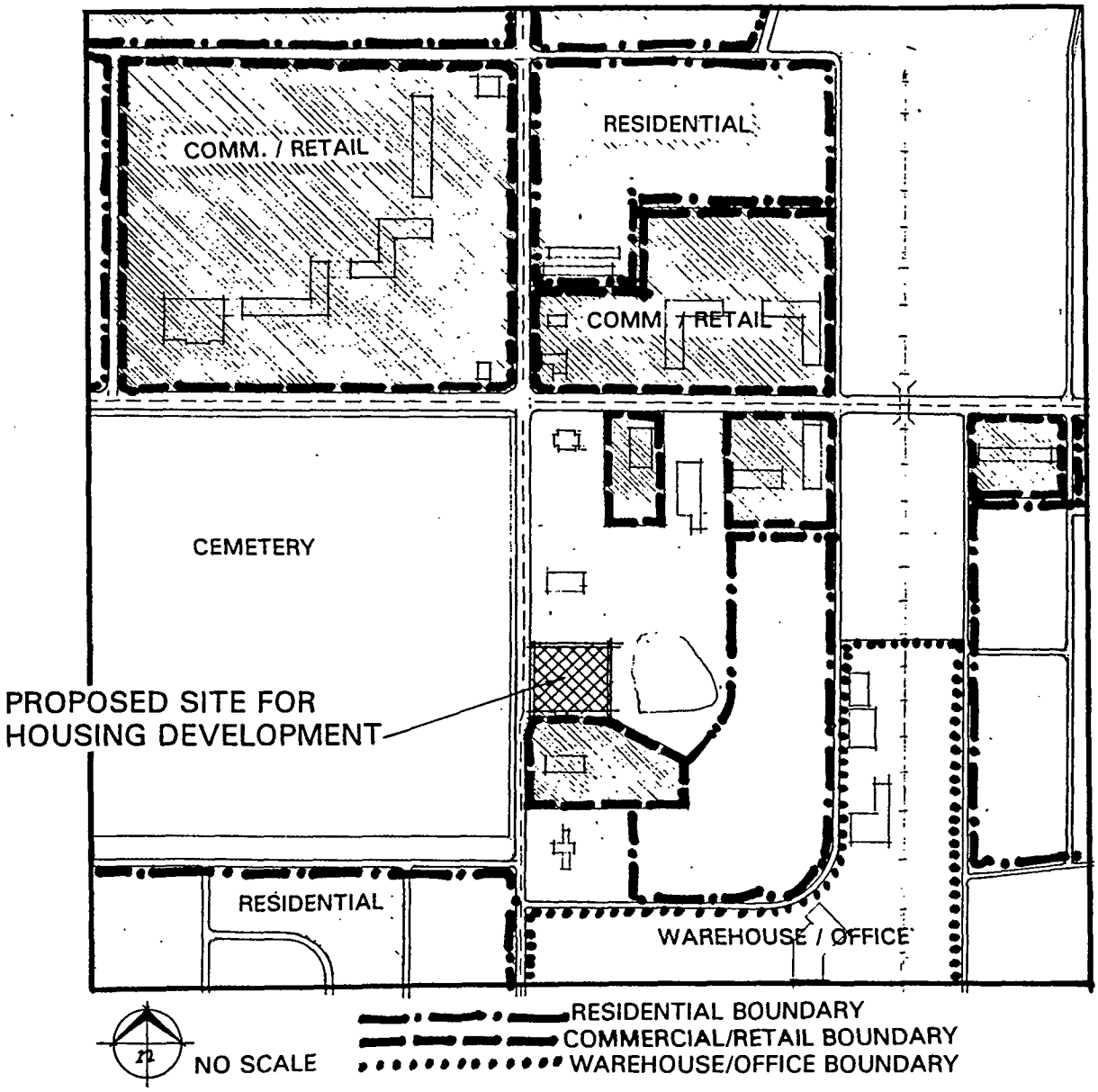

Figure 5: Area map I - Surrounding development

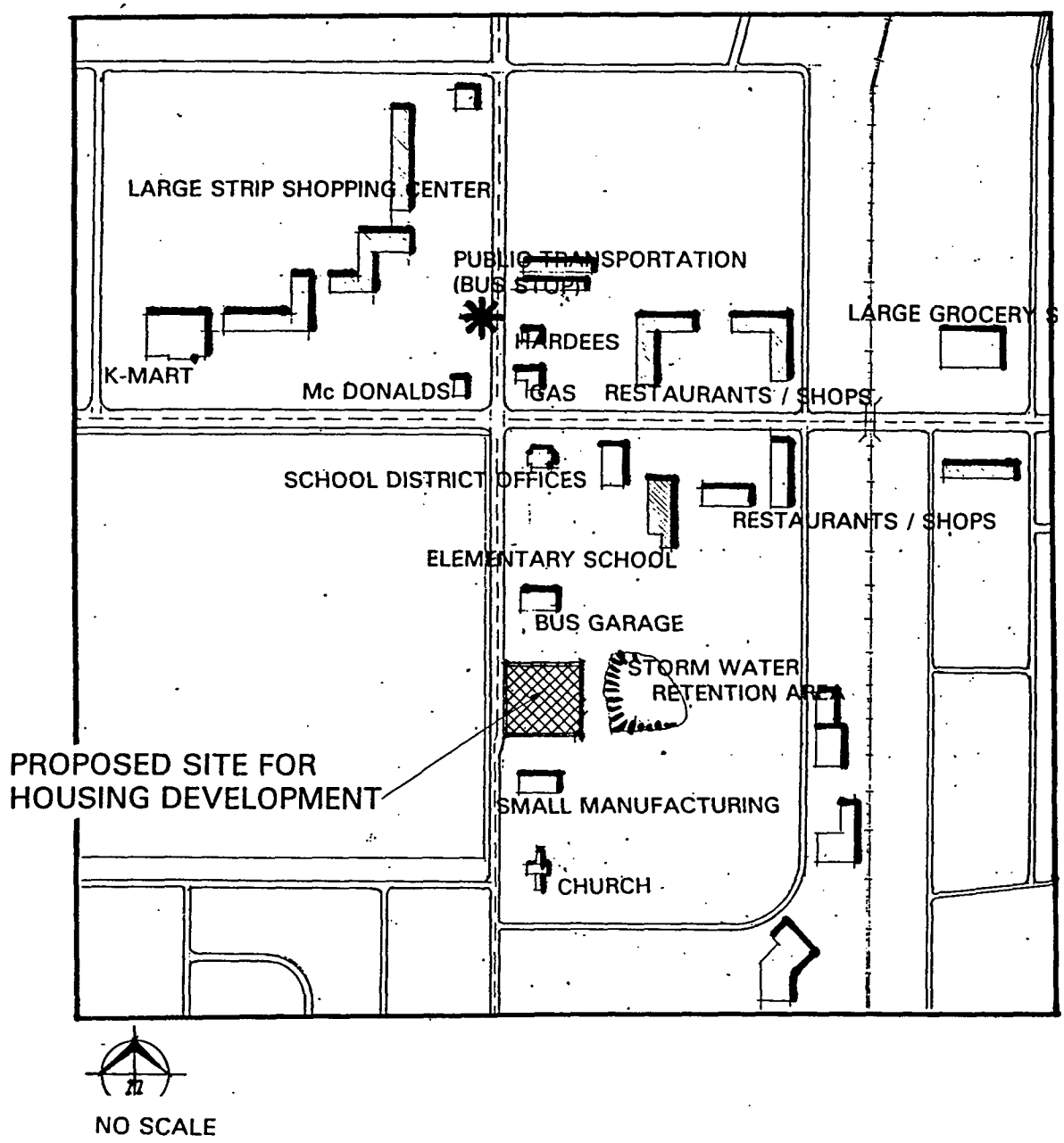

Figure 6: Area map II - Proximity of services to the proposed site

BIBLIOGRAPHY

Booth, P., and Crook, T. (1986). *Low Cost Home Ownership: An Evaluation of Housing Policy Under the Conservatives.* Vermont: Gower Publishing Co., Ltd.

City of Chicago, The. (1981). *Public Housing Security Manual: Planning for the City of Chicago, Jayne M. Byrne, mayor.* University of Illinois at Urbana-Champaign.

Cooper, C. (1975). *Easter Hill Village, Some Social Implications of Design.* New York: The Free Press.

Canty, D. (1990). The Return of the Row/Affordable California Hill Town. *Architectural Record, Vol. 178 no. 8;* 80-82, 84- 87.

Eaves, E. (1969). *How the Many Costs of Housing Fit Together.* Washington D.C.: U.S. Government Printing Office.

Fairbanks, R. (1988). *Making Better Citizens, Housing Reform and the Community Development Strategy in Cincinnati, 1890 - 1960.* Chicago: University of Illinois Press.

Fisher, R. (1959). *Twenty Years of Public Housing, Economic Aspects of the Federal Program.* New York: Harper & Brothers, Publishers.

Glover, M. (1976). *Alternative Processes; Building Procurement, Design, and Construction.* Champaign/Urbana: IF Team and the University of Illinois.

Goetze, R. (1983). *Rescuing the American Dream, Public Policies and the Crisis in Housing.* New York: Holmes and Meier Publishers.

Gray, G. (1946). *Housing and Citizenship.....A Study of Low-Cost Housing.* New York: Reinhold Publishing Corporation.

Hartman, C. (1983). *America's Housing Crisis, What is to be Done?* Boston: Routledge & Kegan Paul

Heery, G. (1975). *Time, Cost, and Architecture.* New York: McGraw Hill Book Company.

Karn, V., Kemeny, J., Williams, P. (1985). *Home Ownership in the Inner City, Salvation or Despair?* Vermont: Gower Publishing Company, Ltd.

Knighton, V. (1969). *Housing Related to Patterns of Living in a Model Cities Area.* Masters Thesis, Iowa State University, Ames.

Leeuw, F. (1969). *Operating Costs in Public Housing: A Financial Crisis.* Washington D.C.: The Urban Institute.

Lyon, L. (1987). *The Community in Urban Society.* Philadelphia: Temple University Press.

Meehan, E. (1979). *The Quality of Federal Policy Making: Programmed Failure in Public Housing.* University of Missouri Press.

Mitchell, J. (1990). *Federal Housing Policy & Programs Past and Present.* New Jersey: Center for Urban Policy Research.

Myerson, M. et. al. (1962). *Housing, People, and Cities.* New York: McGraw-Hill Book Co., Inc.

Plunz, R. (1980). *Housing form and Public Policy in the United States.* New York: Praeger Scientific.

Pilcher, R. (1985). Project Cost Control in Construction. London: Collins Professional and Technical Books, USA: Sheridan House, Inc.

Reid, M. (1962). *Housing and Income.* Chicago: The University of Chicago Press.

Seager, A. (1967). *The Social Effects of Income Mix as a Design Determinant of Urban Housing.* Masters Thesis, Iowa State University, Ames.

U.S. Department of Housing and Urban Development, Office of Policy Development and Research. (1990). *Report to Congress on Alternative Methods for Funding Public Housing Modernization.* Washington D.C.: U.S. Government Printing Office.

Woman's Foundation, The (1945). *Improved Family Living Through Improved Housing, A Consultants' Report.* New York: The Office of the Woman's Foundation.