THE DEVELOPMENT OF AN OWNER-OCCUPIED
SHELTERED HOUSING SCHEME FOR THE ELDERLY

January 1984

by

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ABSTRACT

The purpose of this study was to create a new model of retirement housing which takes into account the realities of growing old in Canada. Although old age is commonly perceived as being symonomous with poverty and the lack of physical and mental capability the reality is quite different. Many older Canadians have acquired a substantial financial asset over their working lives - the equity in their homes. Also, the elderly have been increasingly able to live active and largely independent lives. Chronic disease, frailty and loneliness may affect their ability to maintain their existing homes but, in most cases, does not necessitate a move to an institution.

The housing scheme developed takes those factors into account. Based on the assumptions that residential real estate values will continue to increase over the long-term the scheme has the following characteristics: First, the design and management of the accomodation is modeled on the British system of sheltered housing - small projects of independent living units with a resident manager/helper. Second, a condominium legal structure is utilized allowing the older persons to purchase their own units. Third, the financial arrangements include the participation of private developer/investor. Fourth, the financial arrangments allow the owner-occupiers to purchase their units at discounted prices in return for consigning - on an incremental and accumulating basis - a share of their equity to the investor.

The financial viability of the scheme was tested by means of a computer simulation model. Although the return to the private investor is slow in being realized, liquidity is lacking and the cash flow is irregular and not predictable, the scheme has the potential to be an attractive long-term investment. Also the basic model could, within the context of a government program, be adapted for use by non-profit sponsors.

The scheme provides the elderly owner-occupier with the security of lifetime sheltered accomodaiton along with some of the advantages of homeownership. Also, by trading down to the smaller purpose-built units they can "free-up" some capital which could be used to supplement their incomes.

Based on the number of elderly homeowners and the current value of their homes there exists a substantial market for this form of retirement housing. Furthermore, from the results of focus group interviews, there appears to be general support for the concept. However, financial institutions expressed strong reservations about participating in this type of scheme.

ACKNOWLEDGEMENTS

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EXECUTIVE SUMMARY

1. Background

As the population of Canada ages over the next several decades there will be an increasing demand for housing designed specifically for the aged. The providers of this housing must take the following factors into consideration:

o Along with a significant increase in life expectancy there has also been an improvement in the general health of the old over the last decade. Contrary to popular belief most old people are able to maintain a relatively high level of self-sufficiency in their latter years. Although most will not require institutional care many will need a level of security and support which is often unavailable in existing housing.

o Old age is not synonomous with poverty. The financial status of the majority of older Canadians has improved over the years and will continue to improve.

o Nonincome components of economic welfare cannot be ignored in assessing the demand/need for retirement accomodation. The largest proportion of the wealth of older Canadians is in the form of home equity. Currently, this asset can be realized only when the house is sold. Consequently, many older homeowners are unable to benefit from the use of it during their lifetime.

o Although the value of residential real estate varies widely between regions, cities and neighbourhoods, over the long-term it has generally appreciated at a rate higher than that of the Consumer Price Index.

o Homeownership provides the older person with social status, control over their residential environment and a measure of personal and financial security.

o For many older homeowners the family house can become a burden as it is often too large, inconveniently located and difficult and expensive to maintain. It can also be socially isolating.

o The model of "assisted independent living" developed in Britain - sheltered housing - has proven to be very successful in meeting the accomodation needs and preferences of many older people. It consists of specially designed projects of 20 to 50 self-contained units located close to public transportation and neighbourhood amenities. Each project is equipped with an emergency call system and communal space. A resident warden is provided to help in an emergency, co-ordinate services and generally insure the well-being of the residents.

2. Purpose of Study

With the previously noted factors in mind the purpose of this study was to develop a new form of retirement housing based on two assumptions: inflation would continue to be an economic reality; and

residential real estate would continue to appreciate at a faster rate than inflation.

The main objectives of the new housing scheme are:

o To provide a form of financing based on the concept of gradual equity dissavings.

o To provide a form of financing which would encourage the private sector to build retirement housing.

o To provide the government with a means of encouraging greater self-reliance among the elderly.

o To improve the elderly's standard of living by allowing them to use their capital assets during their lifetime.

3. The Proposed Scheme

The principal components of the scheme are:

Tenure:

o The elderly residents and an investor share a financial and legal interest in the housing with the resident retaining some of the rights associated with freehold tenure.

o Residence is restricted to those above a specified minimum age.

Design and Management:

o The projects are patterned after the British style of sheltered
housing with management responsibility and operating costs pos-
sibly shared between residents and an investor/manager.

Financial Arrangements:

o The largest proportion of a project's capital cost comes from the
sale of units. In return for a lower than market price and the
guarantee of sheltered accomodation for life the elderly purchaser
consigns - on an incremental and accumulating basis - a share of
their equity to an investor. This accumulating debt is paid from
the proceeds of the unit's sale when the owner-occupier dies or
voluntarily moves.

o Individual and/or institutional investment accounts for the
remainder of the capital cost of the housing. As each unit becomes
vacant and is resold the investor receives a return made up of a
share of the appreciation in the value of the unit and a "resi-
dence fee" payable by the outgoing owner-occupier or his/her
estate.

o Under non-profit development the investor's share of the capital
cost is provided by conventional mortgage financing with govern
ment guarantees to contribute the necessary funds to meet the
scheduled amortization payments when project revenues are insuf-
ficient.

4. The Simulation Model

A computer simulation model of the financial operation of a proto-typical project was developed incorporating the following steps:

o The determination, by a stochastic or chance process, of the number of "deaths" or unit vacancies which occur each year based on the ages (incremented yearly) and sex of the residents and the fact that a vacated unit is resold to a person of the same age and sex as that of the initially specified resident.

o The calculation of a rebate to the outgoing owner-occupier based on the original purchase price plus a portion of the appreciation less the accumulated annual residence fee.

o A year by year accounting of the project's financial transactions including the number of units sold, revenue from sales, amount rebated and net cash flow to investor.

The sensitivity of the model was first tested given the following two considerations:

o On the basis of historic returns on real estate and other investments and the unique characteristics of this scheme, the minimum real rate of return on capital necessary to attract investors was estimated to be 6 percent.

o Given the importance of future property appreciation to the viability of the scheme it was felt that the risk would have to be

shared by both the investor and the owner-occupiers. This meant that the purchase price, share of appreciation and residence fee had to be chosen so as to insure a minimum return to the investor in the eventuality that the property value would not appreciate over the average length expectancy of the owner-occupiers. On the other hand, if the property appreciated significantly the owner-occupiers (or their estates) should also benefit.

Based on the results of the preliminary simulation the following parameters were chosen for subsequent analysis of the model:

o Project size: 49 units for sale with 1 unit provided for the resident manager.

o Market value: $71,429/unit.

o Price to elderly purchasers: $53,571/unit in a privately developed project and $50,000/unit in a non-profit project.

o Age and sex of owner-occupiers: single women with ages distributed between 70 and 80.

o Projected average annual appreciation rate: between 0 and 9 percent with 6 percent chosen as the most realistic rate.

o Estimated operating costs payable by investor(s): if applicable $30,627 per year - representing 25 percent of project total.

o Owner-occupiers' share of appreciation: 25 percent in private
   project and 35 percent in non-profit project.

o Accumulating residence fee: $275/month in private project and
   $285/month in non-profit project.

5. Four Variants of the Model

Table A outlines the participation of an investor in four variants
of the basic model which were examined using data generated from the
simulation.

Table A

Participation of Investor(s) in Four
Variants of Basic Financial Model

Variant	Initial market value of unit	Investor's share of:		
		Purchase price	Operating costs	Appreciation
1. Private Sector	$71,429	25%	25%	75%
2. Private Sector	$71,429	25%	0%	75%
3. Private Sector (tax incentive)	$71,429	25%	25%	75%
4. Non-Profit (mortgage)	$71,429	30%	0%	65%

The first two variants are for privately developed schemes. In one case the investor pays 25 percent of the total operating costs and in the other the residents pay all the costs. For both these variants the net cash flows and the capital contributions of the investor were used to calculate the internal rate of return (IRR) as the measure of return on investment. A reversionary value of the investor's interest in the property was not included in these calculations.

The third variant was based on the assumption that the proposed scheme could be developed along the lines of a MURB - where the Income Tax Act was changed to encourage construction of rental housing. In return for tax write-offs small investors would be encouraged to purchase shares in the project. Consequently, cash flow data from a simulation were analysed from the perspective of a $5,000 unitholder in a limited partnership with a marginal tax rate of 50.32 percent who bought when construction began and sold twelve years later.

The fourth variant of the model was based on the assumption that a non-profit developer could obtain mortgage financing for the investor's share of the capital cost if the government guaranteed to meet short falls in mortgage payments in those years where insufficient revenues were generated. In other years the project would pay all excess revenues to the government. By discounting the cash flows to and from the government over the term of the mortgage it was possible to examine the feasibility of this approach.

6. Results of the Simulation

Table B summarizes the simulated average annual real rates of return - under several appreciation and inflation scenarios - for an investor in variants 1 and 2 of the scheme. The figures indicate that:

o With the investment term held constant the IRR is a linear function of the rate of property value appreciation.

o Assuming a constant property value appreciation rate the IRR increases logarithmically with the investment term over the thirty year simulation period.

o In the early years the relatively low number and unpredictability of deaths among the owner-occupiers can result in a negative (and highly variable) rate of return.

o The variant in which the owner-occupiers pay all the operating costs offers the investor a significantly better return. He can expect to achieve a minimum average annual real rate of return of 6 percent in 15 years when appreciation is 3 percent and inflation 2 percent and in about 10 years when appreciation is 9 percent and inflation 2 percent.

Table B

Simulated Average Annual Real Rates of Return on Investment[a]
(Percent)

Annual property appreciation (%)	Annual Inflation (%)	Investment term for variant 1				Investment term for variant 2			
		10 years[b]	15 years	20 years	30 years	10 years[b]	15 years	20 years	30 years
3.0%	0.0	-12.7	-1.1	8.4	11.1	-1.6	8.5	13.9	15.2
	2.0	-14.4	-3.1	6.3	8.9	-3.5	6.3	11.7	12.9
	4.0	-16.1	-4.9	4.2	6.8	-5.3	4.3	9.5	10.8
6.0%	2.0	-6.9	4.7	10.3	13.4	2.5	12.7	15.6	17.4
	4.0	-8.6	2.7	8.2	11.3	0.5	10.5	13.4	15.2
	6.0	-12.0	0.8	6.1	9.2	-1.4	8.4	11.3	13.0
9.0%	2.0	-6.7	12.3	16.1	17.7	7.0	17.3	20.3	21.5
	4.0	-8.5	10.1	13.8	15.5	2.9	15.0	18.0	19.2
	6.0	-10.2	8.0	11.7	13.3	1.0	12.8	15.7	16.9

[a]Calculated as IRR based on initial investment of $467,000. The IRR's are averages of six simulations.

[b]Varies significantly between simulations.

Using a limited partnership structure and tax assumptions applicable to a MURB project the analysis of the simulation data indicates that a small investor in a high marginal tax bracket would find the scheme an attractive investment. Assuming that the limited partnership sold its interest in the project after 12 years a $5,000 unitholder's net cash proceeds would be about $7,000. Because of the tax benefits accruing over this period the investment would have a present value of $1,112 (assuming a 12 percent annual discount rate).

Analysis of the non-profit variant of the basic model reveals that the government subsidies (or more correctly, loans), provided in those years when project cash flows were insufficient to meet mortgage payments, would be repaid (with interest) by the end of the mortgage term or shortly thereafter. Generally, the government payments would be required in the early years of the project and repayment would be spread over the later years.

The long-term cost of owner-occupied sheltered housing to elderly purchasers was also examined. Two measures of cost (excluding operating expenses) were calculated for both a non-profit and a privately developed project. Table C summarizes those for ownership periods of from 1 to 15 years assuming an average annual property appreciation rate of 6 percent.

Table C

Financial Position of Owner-Occupier[a]
Assuming 6 Percent Appreciation

Length of ownership (years)	Equivalent monthly rent[b] ($)		Equivalent yearly rent to[c] original payment (%)	
	Non-profit project	Private sector project	Non-profit project	Private sector project
1	448	665	10.8	14.9
5	468	549	11.2	12.3
10	500	571	12.0	12.8
15	537	615	13.0	13.8

	Non-profit	Private sector
[a]Initial purchase price:	$50,000	$53,571
Owner-occupier's share of appreciation:	35%	25%

Owner-occupiers of private sector project pay legal and sales fees equal to 4% of selling price.

[b]Equivalent monthly rent =
$$\frac{\text{appreciated value of investment - amount recovered on sale}}{\text{(months of ownership)}}$$

[c]Equivalent yearly rent to original payment =
$$\frac{\text{appreciated value of investment - amount recovered on sale}}{\text{(years of ownership x purchase price)}} \times 100$$

7. Consumer Attitudes

Two focus groups were organized to record the opinions of elderly homeowners to the proposed retirement housing scheme. Overall, their views were highly positive. Most had few or no reservations about the equity dissaving aspects. The prevalent feeling was that while it would be nice to leave a bequest their main responsibility was to themselves. As one woman succinctly put it, "A person should enjoy their money while they're here."

Many of the respondents stressed their desire for accomodation which allowed them "control" while providing them with "security". For them the ownership feature of the scheme was most important. One woman commented that it would be "...the next best thing to owning a house. It gives you a sense of security."

The supportive and social elements of the housing were also viewed positively. The respondents recognized that, in the words of an 80 year old woman, "Old age is starting to creep up on us" and "an individual's health condition can change very suddenly and dramatically" making some support and assistance necessary. Also, living in a sheltered project was seen as an alternative to "being alone" - a situation which one respondent thought was exacerbated because "neighbours today are all so busy that they haven't the time to take an interest in people around them."

8. Investor Attitudes

In order to ascertain the views of potential investors in this type of scheme eight interviews were conducted with representatives of pension funds, life insurance companies and real estate investment funds. These revealed a general consensus on a number of points. First, there was unanimity in their views on equity investment in residential real estate - particularly in housing for the elderly. In the words of one respondent: "We hate getting into housing. The government has so screwed-up the market - it's unpredictable. It's a sort of risk that, frankly, we don't need." The fact that this was owner-occupied did not moderate their opinion: "Maybe the government will put a maximum price restriction on what the units can be sold for. Then comes the legislation and it's the institutions against 50 little old ladies and guess who wins."

Other concerns mentioned were: management problems, the lack of liquidity and regular cash flows, the relative complexity of the scheme, their preference for short-term investments and the availability of commercial real estate investments offering good rates of return. However, several respondents thought that a project structured like a MURB could prove attractive to investors "playing with fifty cent dollars." Also, the provision of debt financing for such a scheme - with government guarantees - was considered a possibility worth examining.

9. Legal Aspects

In Britain owner-occupied sheltered accomodation is most commonly offered under a leasehold arrangement where the elderly person buys a long-term or life lease to an individual unit in a sheltered project. The lease specifies the responsibilities and obligations of the lessee and the lessor (usually the freeholder of the property) and any financial arrangements between the two concerning resale of the lease.

In Canada the use of leasehold tenure would be unnecessary from a legal point of view and impractical from a marketing standpoint. Here, unlike England where the concept does not exist, condominium provide an appropriate and flexible vehicle for the development of owner-occupied sheltered housing. Under a condominium framework each unit in a sheltered project could be purchased by a share capital corporation, the sole shareholders being the owner-occupier and the investor-owner. A shareholder's agreement would set out the rights and responsibilities of the parties, including arrangements regarding resale.

10. Conclusions

The housing scheme outlined in this report offers elderly home-owners an attractive housing option. Not only does it allow the use of home equity but it provides accomodation which is easier and more economical to maintain, allows for spontaneous social contact with peers, ensures security and support and encourages and sustains independence.

The promotion of the physical and financial independence of the elderly through development of owner-occupied sheltered schemes would also have advantages for society. Public subsidies and tax-transfer programs could be more effectively used to raise the living standards of the asset and income poor. Also, development of sheltered projects would increase the availability of existing family housing in established neighbourhoods and decrease the need for institutional accomodation.

The scheme is not, however, without problems: its financial viability depends upon continuing appreciation of residential property values over the long-term; it generates an irregular and unpredictable cash flow; and an investor might have to wait 10 or 15 years before he would begin to receive a reasonable return on his capital. In spite of these problems the scheme does have considerable potential for development. And this process could be assisted by government incentives to the private and non-profit sectors through tax and other programs.

The potential market for this accomodation is considerable if the level of home equity among elderly Canadians is examined. However, the value of housing varies widely across the country. Consequently, development would be more feasible in the larger urban centres although projects could be tailored to smaller centres. In either case sites within well established neighbourhoods and close to shopping and other amenities would be essential.

The development of a proper marketing strategy would be critical to the success of this scheme. There would undoubtedly be considerable

consumer resistance because of its newness and the tendency of older people to remain in their present accomodation. Consequently, a strategy which emphasized an educational role would be essential. In addition, attention would have to be devoted to identifying particular sub-markets among the elderly and addressing their particular concerns.

Overall, the scheme outlined in this report has considerable merit. However, much work remains to be done before its potential can be realized and an actual project undertaken.

1 INTRODUCTION

1.1 Background to Report

The concept of sheltered housing as a form of "assisted indepen-
dent living" for the elderly has proven highly successful in Britain
(Heumann and Boldy, 1982). First established more than thirty years
ago, sheltered housing schemes currently account for more than 325,000
units which house approximately 5 percent of the country's noninstitu-
tionalized elderly. Schemes are generally neighbourhood oriented, com-
prising 20 to 50 small self-contained units close to public transporta-
tion, shopping and community amenities. Each scheme is equipped with an
alarm system that enables the residents to call for help in case of
accident or illness. Also, a communal lounge is generally provided
where residents can socialize. Probably the most important component of
sheltered housing is the support element. Although variations exist in
the range of services provided, the basic model consists of a resident
warden who is responsible for the maintenance of the building, provides
help in an emergency, keeps an eye on the well-being of the residents
and acts as a co-ordinator of community and other services to the
residents.

Until quite recently sheltered housing was built and managed only
as rental accomodation by local governments and non-profit housing
associations. Less than a decade ago the private sector joined the
public and voluntary sectors in creating several forms of owner-
occupied sheltered housing. An earlier report by the author (Sherebrin,
1982) detailed the nature and extent of this development.

It concluded that owner-occupied sheltered housing provides elderly homeowners with an attractive housing option. Not only does it meet their needs for a safe and supportive residential environment, but it also encourages financial and physical independence. In addition, extensive development of this type of housing may produce significant social benefits. For example, it could lessen the demand for institutional and other types of publicly subsidized accomodation and increase the supply of family housing in older residential areas.

1.2 Purpose of Report and Basic Assumptions

Given the success of this latest approach to retirement housing in Britain the purpose of this study was to develop a model of owner-occupied sheltered housing suitable for widespread development in Canada.

The model developed and described in this report is based on the following assumptions:

o Aging generally limits the physical capabilities of the individual. However, some support services combined with well designed and located housing can ameliorate many of the problems facing the elderly.

o The design and management features of the British model of sheltered housing provides a residential environment which will allow most older persons to maintain a high level of functional independence right up to the time they die.

o Many elderly Canadians are homeowners who have considerable equity in their homes.

o In spite of the fact that many older middle class people have accumulated financial assets over their working lives they are reluctant to dissave. Their wealth - largely in home equity - is seen as a guarantee of security and independence given the uncertainty of how long they will live and the possible expenses they will incur.

o For many elderly homeowners the family house has become too large, with upkeep and maintenance too difficult and expensive. In addition, it may be located in an area that is no longer within convenient walking distance to shops and public transportation.

o In spite of the difficulties associated with owning one's own house, ownership does bestow status and a degree of control over one's environment; considerations that become increasingly important as physical capabilities decline with age.

o The choice of alternative housing for older homeowners is limited. Although private companies, non-profit groups and charitable organizations do provide a range of accomodation types, there is nevertheless a lack of housing designed specifically for those older middle class homeowners who, while experiencing some of the disabilities associated with old age, want to remain in familiar neighbourhoods and live as independently as possible.

o Many elderly homeowners would welcome the opportunity of selling their present homes and purchasing specially designed sheltered accomodation. Furthermore, they would be favourably disposed to purchasing their units at a discounted price realizing that in return their equity in the property would be gradually eroded over time although they would have the security of tenure associated with ownership.

o By selling sheltered housing at a discounted price the potential market would be significantly increased because many owners of low to moderately priced houses would be able to afford this more suitable form of accomodation. As a result there would be a general improvement in the standard of living of older Canadians.

1.3 Outline of Report

This report is organized in five sections and a major appendix. The following section provides the demographic, social, health and economic rationale for developing an equity dissavings form of sheltered housing in Canada.

In Section 3 details of the financial simulation model which was developed to test the concept are described along with a discussion of the choice of parameters used in the simulations.

Section 4 provides the results of the simulations. Four variants of the basic model are analyzed from the perspective of a developer/investor and the financial position of the owner-occupier is examined.

Section 5 provides the results of two focus group interviews conducted with a number of elderly persons in order to elicit their attitudes on the proposed scheme. Also presented in the Section are the comments of representatives of a number of financial institutions regarding the investment opportunities such a scheme would present to the private sector.

Appendix I is a discussion of the legal questions regarding the most appropriate tenure for this type of housing.

2 THE HOUSING NEEDS OF THE ELDERLY

2.1 Demographic and Social Factors

Many concerns have been voiced recently by the media, researchers, planners, service providers and others about an impending crisis created by a rapidly aging population. One concern focusses on the need to provide appropriate housing for our older citizens. This is prompted by a number of factors:

o The increase in the number and proportion of elderly - especially the very old - which has occurred in Canada and is projected to continue over the next several decades, especially, and most dramatically, in the early 21st century as the "baby boom" cohort reaches old age.

The 1981 Census recorded 2,360,975 persons aged 65 years and over. This represents an increase of over 35 percent from the 1971 count and compares to an increase of about 13 percent for the population as a whole. Table 2-1 shows how the current trend is expected to continue well into the 21st century with an increasing proportion of the population surviving to a very old age.

How this increase in the number of older persons will manifest itself as a demand for housing can only be speculated upon. Stone and Fletcher (1980:xiv) suggest that "at most 85 percent of the need for separate dwellings for senior citizens was met in 1976". And that "The proportion met is expected to decrease as the population ages." Also, they indicate that their estimate does not take into account the need

Table 2-1

Trend & Projection - Canada's Older Population, 1961 - 2031

Age	Census counts			Statistics Canada projection B				Economic Council of Canada projection		
	1961	1971	1981	1986	1991	1996	2001	2011	2021	2031
(Thousands)										
65+	1,191	1,745	2,361	2,566	2,889	3,174	3,342	4,191	5,585	6,955
65-69	487	620	844	866	995	998	994	1,352	1,882	2,047
70-74	402	457	633	704	726	864	866	963	1,487	1,837
75-79	274	326	433	487	568	608	698	756	990	1,377
80+	228	342	451	508	600	703	784	1,120	1,226	1,694
Total Pop.	18,238	21,568	24,343	26,259	27,902	29,317	30,656	33,662	36,162	38,014
(Percent of Total Population)										
65+	7.63	8.09	9.70	9.80	10.35	10.83	10.90	12.45	15.44	18.30
65-69	2.67	2.87	3.47	3.30	3.57	3.40	3.24	4.02	5.20	5.38
70-74	2.20	2.12	2.60	2.68	2.60	2.95	2.82	2.86	4.11	4.83
75-79	1.50	1.51	1.78	1.85	2.00	2.07	2.28	2.25	2.74	3.62
80+	1.25	1.58	1.85	1.94	2.15	2.40	2.56	3.33	3.39	4.46

Sources: Statistics Canada (1973, 1974, 1983)

Denton & Spencer (1980)

for housing which provides the full range of facilities and services required by the elderly.

o The continued increase in the number of households headed by persons 65 years or older - particularly one person households.

In 1981, 1.394 million households were headed by persons 65 years or over - an 18 percent increase from 1976 (the total number of households in the country grew by about 15 percent over this period). Although this increase is less than that projected in Tables 2-2 and 2-3 all indications are that older persons will be increasingly disposed to heading their own households rather than living with relatives, etc. And in most cases this will mean living alone.

Between 1971 and 1981 the proportion of persons 75 and over living alone increased by about 77 percent. This trend is particularly evident among older women: "Between 1961 and 1976 the number of women aged 75 and older who lived alone increased three fold from 109,000 to 325,000 and the proportion living alone nearly doubled during the period from 15% to 29%" (Fletcher & Stone, 1982:29). Harrison (1981) attributes this trend toward one-person households as due to a number of social and economic factors; e.g., greater social acceptability, desire for more autonomy, decreased availability of relatives with whom to live due to a decline in fertility and increasing residential mobility and a higher standard of living. The signifigance of the higher standard of living is reflected in the number of owner-occupied dwellings: of those persons 55 years and over living alone in 1976, 45.5 percent owned their homes accounting for 285.5 thousand dwellings.

Table 2-2

Projected Growth of Household in Canada, 1976-1991[a]

Period	Total growth (thousands)	Growth of households headed by persons aged 65+	
		thousands	percent of total
1976-1981	1,066.6	218.4	20.5
1981-1986	989.2	200.8	20.3
1986-1991	886.5	236.5	26.7
1976-1991	2,942.3	655.7	22.3

Source: Statistics Canada (1981)
[a]Series B

Table 2-3

Distribution of Households Headed by Persons Aged 65+

Year	Actual	Projected series		
		A	B	C
	(thousands)		(thousands)	
1976	1180.0			
1981	1394.2	1401.8	1398.4	1395.1
1986		1627.0	1599.2	1591.5
1991		1889.9	1835.7	1823.2
1996		2066.7	2002.8	1985.2
2001		2185.5	2112.3	2089.3

Source: Statistics Canada (1981)

o The decline in the "family support network" available to the elderly.

The family has traditionally been the primary provider of assistance and support to the elderly. While this is still the case a number of factors have eroded the nature and availability of that assistance and support. Probably the most important change is related to the increasing number of widows, unmarried and divorced older women in the population. While older couples can often maintain their independence by caring for each other, single persons must look to children or siblings for help. However, the "family support network" (Fletcher & Stone, 1982) is becoming increasingly less able to provide adequate support for a number or reasons. First, declining fertility rates mean fewer children to assist aging parents. Second, increased residential mobility means that many children do not live close to their parents, and third, the increasing participation of women in the labour force and the continued emphasis on the nuclear family means children have less time and energy to act as support providers to their elderly parent(s). In addition, "young-old" couples increasingly face the prospect of providing support to elderly relatives on both sides of the family. Overall then, any examination of the housing needs of the elderly must take into account the social resources available to the older population.

o The increase in public expenditure expected to be created by substantial expansions in some services and programs.

The impact of an aging population on the national economy has been an area of considerable concern for all levels of government (e.g. Foot, 1979). While the projected demographic and social trends will affect every facet of public expenditure including housing subsidies provided to the elderly, health costs have come in for particular scrutiny.

Schwenger and Gross (1981:133,143) point out that based on their projections for Ontario "institutional and physician expenditures on persons 65 years and over will nearly double (in constant dollars) between 1976 and 2001 and will almost triple by 2026" and that "This phenomenal growth is fed particularly by the institutional sector, in which the aged will require a doubling or tripling of patient days and expanditure by 2001 and 2026 respectively." At the same time they state that "... whereas the elderly use and benefit from social and health services, there appear to be inefficiences: some of their needs are not sufficiently assessed or met, and at the same time for many, the system provides expensive services unsuited to their needs and discouraging to their self sufficiency, self-esteem and initiative." With these concerns in mind the need to develop less costly alternatives to institutional care takes on a high priority.

2.2 The Reality of Aging

Although the demographic and social factors outlined above give legitimate cause for concern about our ability to meet the housing needs of the elderly the possibility of developing innovative solutions to this problem may be partly obscured by two widely held misconceptions concerning old age:

o That old age is synonomous with poverty. Many individuals believe that retirement is a stepping-down from the middle class into poverty. In their view economic deprivation and dependence are seen as inescapable elements of the aging process.

o That the process of aging involves a gradual but progressive loss of functional ability which inevitably results in an extended period of near total dependency before death. Therefore, institutionalization and/or the need for high levels of personal support are unavoidable consequences of growing old.

While both of these views are based on reality it is necessary to examine them in more detail in order to be able to differentiate fact from myth.

2.2.1 The Economic Status of the Elderly

The most widely accepted estimates of poverty among the elderly are based on income statistics. However, a number of economists have recognized the shortcomings of conventional income data as an indication of "economic status" or "economic well-being" (see, for example Morgan, 1965; Moon, 1976). Although current money income is undoubtedly an important indicator of ability to purchase goods and services it fails to capture the other resources available to the elderly. These include in-kind transfer such as medical benefits, tax credits, imputed rent from owned houses and other wealth accumulated over the years.

Wolfson (1981), for example, ignoring non-cash benefits, examined the affect of adjustments for family size, the inclusion of imputed rent from owner-occupied housing and the inclusion of the annuity equivalent of net worth on the distribution of income among various age groups in Canada. He found that the inclusion of imputed rent had the effect of raising the mean income for those 65 years or over by more than 15 percent. The impact of including the annuity equivalent of other assets was even more pronounced, amounting to about a 60 percent increase in average income. His general conclusion was not surprising: that taking some account of wealth significantly affects the economic position of the elderly.

Studies of the affect of wealth on the economic well-being of the elderly are based on the life cycle theory of saving. According to this theory people accumulate wealth when they are young and working and decumulate it when they are old and retired. In reality human behavior does not follow this simple formulation of the model. Dismissing the motive of wanting to leave a bequest (only a small percentage - 4% - of elderly persons stated this as a reason for saving in a recent American study) figures indicate that in 1970 the ratio of savings to mean net worth for those over 65 in Canada was at a rate of +.8 percent (Davies, 1981). In other words older Canadians saved eight dollars for every 1,000 dollars of net worth.

Although "you can't take it with you" and leaving a bequest is apparently not an important objective for the middle class why then do older Canadians not use their assets during their retirement years?

Davies (ibid.) has presented theoretical evidence that where "insurance markets fail to provide annuities sufficiently attractive to out-weigh the greater transaction costs and inconvenience of saving in this form" the slow dissavings or continued savings in old age can be explained in terms of "uncertain lifetimes". Translating from economic theory to human terms it seems that older persons hesitate to use savings knowing that they could live another twenty years and be faced with unforeseen expenses. In short, because people don't know when they will die most will die too rich because they have lived too poorly. Therefore, one way of improving the living standards of the elderly would be to develop a mechanism whereby they could use their wealth (particularly the equity in their homes) while retaining the independence and security that it otherwise represents.

2.2.2 The Health Status of the Elderly

From personal experience we know that aging is generally accompanied by a decline in health. Statistics support this view: in 1979, 86 percent of Canadians 65 years and over reported that they suffered from at least one "health problem" compared to 57 percent of those aged 15-65 and 35 percent of those under 15 (Ableson, et al., 1983). However, health problems do not necessarily result in disability. Among older Canadians 62 percent reported no limitation in carrying out a major activity; 3 percent some limitation; 26 percent substantial limitation and only 9 percent reported that they could no longer do that major activity (ibid.).

Although functional ability does decline with age the relationship is not linear. Recent research in the United States (Manton, 1982:204) indicates that "not only is the rate of aging highly variable among individuals, but that our stereotype of elderly persons seriously underestimates their ability to maintain functional capacity at older ages". Furthermore, "... disability data ... shows no current increase in disability with life expectancy increase at advanced ages and with rates of institutionalization over ages 85." In other words, not only has the life expectancy of older Americans (and older Canadians) significantly increased over the last decade but so has their ability to function in a productive and independent way until experiencing a "drop" shortly before death. This improvement is attributable to the fact that although chronic disease has not been eliminated its severity has been reduced by medical advances enabling the elderly person to maintain "physical homeostasis" until a short time prior to death.

The fact that a large majority of the elderly are able to maintain a relatively high level of functional independence is evident in the institutionalization rates for the aged. According to recent estimates about 8 percent of the population in Canada aged 65 years and over is in some kind of institution on any given day with 80 percent being "long-term residents"; i.e. those who had been receiving care for one month or more (Schwenger and Gross, 1980:251). However, even those figures give cause for concern. On the basis of the 1981 population this represents 189,000 persons. Whether they all require the specialized care provided in institutions is a question which must be asked. Possibly other accomodation would be more suitable and less expensive.

By comparing the above figures to English and American statistics it is evident that we have a greater tendency to institutionalize our elderly: rates of institutionalization in England and the United States are 5 and 6 percent respectively (ibid). In addition, researchers have recently questioned whether many of the elderly in institutions have been suitably placed. For example, a study in London, Ontario (Cape et al., 1977:1286) found that for 8 percent of the individuals in the sample "There was no apparent reason why [they] should have been in any institution." If those requiring only a minimum level of care are also considered the degree of unnecessary instituionalization is even more pronounced. One estimate is that 20 to 30 percent of those currently in institutions could be more appropriately housed in other accommodation (Heumann and Boldy, 1982).

In spite of the fact that most elderly persons do not require institutionalization and many of those who are in institutions in Canada do not need to be there, a large number of older persons do experience difficulties with some of the "activities of daily living". They also experience anxiety and concern about their well-being given the possibility of sudden illness or accident. However, many of these difficulties and anxieties can be ameliorated by the provision of minimal supportive services along with the basic housing they occupy.

2.3 The Financial Position of Elderly Homeowners

2.3.1. Income and Assets

It is not the purpose of this report to provide a detailed analysis of the financial position of elderly homeowners. Furthermore, there is no one source of published data on income, assets and household characteristics of this segment of the population. However, data compiled from a variety of Statistics Canada reports and set out in Tables 2-4 through 2-9 provide some useful insights.

o In 1976 owner-occupied households headed by persons aged 65 years and over numbered 872,000; 62 percent of all elderly households.

o In 1977 the average wealth of elderly homeowners was nearly $67,000 for those without a mortgage and about $74,000 for those with a mortgage.

o In 1977 ninety percent of elderly homeowners did not have a mortgage and equity in their homes accounted for approximately 50 percent of their total wealth with miscellaneous savings representing 28 percent.

o In 1977 the average wealth of elderly non-owner occupied households was $12,625.

o In 1976 the average income for elderly unattached individuals and families who were not homeowners was $4,787 and $9,451, respectively.

Table 2-4

Wealth Composition of Families and Unattached Individuals
by Home-ownership Status for Head Aged 65+, Canada 1977

Component	Home-ownership status				
	Without mortgage	With mortgage	All homeowners	None homeowners	Total
Equity in business/farm/ profession	9.9	8.1	9.7	4.5	9.2
Equity in home	51.3	49.4	51.1	-	46.0
Equity in all real estate other than home	8.7	12.5	9.1	7.3	8.9
Market value of passenger cars	2.4	2.8	2.5	3.9	2.6
Miscellaneous net savings	27.6	27.3	27.5	84.3	33.2
Total	100.0	100.0	100.0	100.0	100.0
Average income in 1976	9,572	13,797	9,980	6,297	8,604
Average asset holding	67,293	84,238	68,930	12,806	47,957
Average debt	372	9,978	1,300	182	882
Average wealth	66,921	74,260	67,630	12,625	47,074
Estimated number '000	788	84	872	521	1,393

Source: Statistics Canada (1980)

Table 2-5

Home Ownership and Income for Family Units with Heads
Aged 65 Years and Over, Canada 1977

	Proportion (percent)	Average income 1976 (dollars)	Average equity in home
Unattached individuals	100.0	4,995	14,915
Homeowners	46.8	5,231	31,839
with mortgage	3.3	5,662	...
without mortgage	43.5	5,198	...
Non-homeowners	53.2	4,787	-
Families	100.0	11,875	27,764
Homeowners	76.9	12,601	36,087
with mortgage	8.5	16,651	...
without mortgage	68.4	12,095	...
Non-homeowners	23.1	9,451	-
All units	100.00	8,604	21,655
Homeowners	62.5	9,980	34,576
with mortgage	6.1	13,797	...
without mortgage	56.6	9,572	...
Non-homeowners	37.5	6,297	-

Source: Statistics Canada (1980)

Selected Statistics	Unattached Individuals[b]			Married couples only[c]			All family units[d]		
	Received pension Income	Did not receive pension Income	Total	Received pension Income	Did not receive pension Income	Total	Received pension Income	Did not receive pension Income	Total
Average family Income In 1979 ....$	9,978	5,699	6,756	17,007	11,122	13,492	15,446	9,418	11,288
Composition of Income:					percent				
Earned Income	5.2	11.6	9.2	14.2	24.7	19.4	19.0	31.4	26.1
Investment Income	26.1	25.5	25.7	25.3	22.4	23.9	23.7	19.6	21.4
Government transfers:	33.4	61.2	51.1	31.9	51.4	41.5	30.2	47.7	40.3
OAS/GIS	22.5	51.0	40.6	20.9	40.6	30.6	19.6	37.2	29.7
CPP/QPP	9.5	6.5	7.6	9.5	7.5	8.5	8.8	6.0	7.2
Other	1.3	3.7	2.9	1.5	3.3	2.4	1.9	4.5	3.3
Pension Income	33.3	0.0	12.2	27.5	0.0	13.9	25.9	0.0	11.0
Other money Income	1.9	1.7	1.8	1.1	1.5	1.3	1.2	1.3	1.3
Incidence of:									
Low Income[e]	14.1	62.2	50.3	4.2	22.3	15.0	7.7	42.7	31.8
Participation In labour force[f]	9.0	7.3	7.7	18.8	21.0	20.1	22.6	22.4	22.5
Income received from C/QPP	66.9	32.8	41.2	83.3	56.3	67.2	76.9	42.0	52.8
Home ownership	45.7	42.7	43.4	77.6	76.2	76.8	65.6	59.0	61.0
Frequency of mortgage Indebtedness among home owners	10.0	6.5	7.4	10.3	8.5	9.2	11.6	9.2	10.0
Estimated number ....('000)	172	525	698	202	300	503	452	1,003	1,455
Sample size	644	2,210	2,854	914	1,698	2,612	1,887	4,917	6,804
Distribution by pension status $	24.6	75.4	100.0	40.2	59.8	100.0	31.1	68.9	100.0

[a]Pension status corresponds to receipt of pension Income which Is defined to Include Income from work-related pension plan(s) sponsored by one or more employers, benefits received from Registered Retirement Savings Plans, annuity payments, pensions paid to widows or other relatives of a deceased pensioner (excepting survivor's benefits paid under the Canada/Quebec Pension Plans), etc.
[b]Individuals aged 65 or over living alone or In a household with unrelated persons.
[c]Couples with husbands aged 65 years and over.
[d]Also includes those elderly couples and Individuals who have children and/other relatives living with them and who are not shown separately In this table.
[e]Proportion of family units who In 1979 had Incomes below the Statistics Canada low Income cut-offs. See Cat. 13-207 "Income Distributions by Size In Canada, 1979" (page 20).
[f]Participation In the labour force of either husband or wife or both at time of the survey.

Source: Canadian Statistical Review, November 1981. Survey of Consumer Finances 1980.

Table 2-7

Distribution of Persons Aged 65 and Over
by the Family Status & Living Arrangements, Canada, 1977[a]

	Estimated number of persons		1977 average income per family unit (dollars)	Proportion living in major cities (percent)
	thousands	percent		
Unattached individuals aged 65+				
In own household				
Homeowners				
Males	63	3.2	5,089	25.0
Females	175	8.8	4,887	29.8
Tenants				
Males	52	2.6	5,970	56.6
Females	217	11.0	5,027	57.7
Not in own household[b]				
Males	42	2.1	5,908	47.3
Females	71	3.6	5,011	32.2
Married couple, Head aged 65+				
With wife also 65+				
Homeowners	480	24.3	9,972	34.2
Other[c]	173	8.8	11,261	51.8
With wife under 65				
Homeowners	137	6.9	10,667	32.0
Other	36	1.8	10,776	62.1
Married couple, with other relatives, head aged 65+				
With wife also 65+				
Homeowners	97	4.9	16,870	28.7
Other	23	1.2	16,578	78.1
With wife under 65				
Homeowners	71	3.6	18,259	33.1
Other	9	0.5	19,128	67.0
Other persons 65+ living with relatives				
Males	75	3.8	5,191	40.1
Females	253	12.8	4,313	47.0
Total	1,975	100.0	.....	41.0

Source: Statistics Canada (1980)

[a]14 major cities
[b]Persons sharing a household with non-relatives
[c]Mainly renters but also small number of lodgers, etc.

TABLE 2-8

Percentage Distribution of One-Person Households With Head 65 Years of Age
and Over Within 1979 Household Income Groups by Tenure and by Type of Dwelling, Canada, 1980

| | Total households | | 1979 Household income group | | | | | | | Median household income | Average household income |
	Estimated numbers '000	Percentage %	Under $2,999	$3,000-$3,999	$4,000-$5,999	$6,000-$7,999	$8,000-$9,999	$10,000-$15,999	$16,000-		
Total Households	510		35	86	218	55	36	53	28	5,228	6,857
%		100.0	6.9	16.9	42.7	10.7	7.0	10.4	5.4		
Tenure:											
Owned	246	48.2	52.3	47.3	48.2	43.7	54.3	46.0	51.2	5,215	6,789
With mort.	18	3.6	5.8	2.0	3.4	2.9	2.2	6.1	4.6	5,417	7,099
Without mort.	228	44.7	46.5	45.3	44.8	40.8	52.1	39.9	46.6	5,200	6,764
Rented	264	51.8	47.7	52.7	51.8	56.3	45.7	54.0	48.8	5,239	6,920
Type of dwelling:											
Single detached	217	42.5	45.8	43.9	42.1	35.7	54.6	39.4	40.2	5,186	6,637
Single attached	20	3.9	4.0	4.3	4.8	3.5	0.7	2.8	2.6	4,928	5,662
Other	273	53.6	50.2	51.8	53.0	60.8	44.7	57.8	57.2	5,288	7,118
Average number of:											
Persons per household	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Rooms per household	4.25		4.50	4.03	4.10	4.20	4.71	4.49	4.83		
Persons per room			.22	.25	.24	.24	.21	.22	.21		

Source: Statistics Canada (1982)

Table 2-9

Percentage Distribution of Households With Head 65 Years of Age and Over Within 1979 Household Income Groups
by Household Size, by Tenure, and by Type of Dwelling, Canada, 1980

	Total households		1979 Household income group									Median income	Average income
	Estimated numbers '000	Percentage %	Under $4,000	$4,000-$7,999	$8,000-$11,999	$12,000-$15,999	$16,000-$19,999	$20,000-$24,999	$25,000-$29,999	$30,000-$34,999	$35,000 and over		
Total Households '000	1,303		141	451	269	135	93	87	40	20	57	8,886	12,304
%		100.0	10.8	34.6	20.6	10.4	7.2	6.7	3.1	2.3	4.3		
Household Size:	1,303	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0		
1 Person	510	39.2	86.1	60.5	22.6	20.7	11.5	10.0	8.0	5.0	6.0	5,228	6,857
2 Persons	612	47.0	12.4	36.3	68.8	60.0	58.1	56.4	52.0	49.5	45.8	10,703	13,803
3 Persons	121	9.3	1.5	2.4	6.2	15.5	20.6	22.9	26.3	27.7	22.6	18,142	20,778
4-5 Persons	46	3.5	0.1	0.7	1.9	2.8	8.5	8.6	11.6	11.0	18.3	21,876	25,231
6 or More Persons	13	1.0	0.0	0.1	0.5	1.0	1.3	2.1	2.1	6.8	7.3	27,824	30,434
Tenure:													
Owned	859	66.0	50.0	59.9	71.3	71.0	69.4	80.0	83.3	75.2	79.2	9,943	13,370
With mortgage	87	6.7	3.6	4.3	6.4	8.7	9.7	11.4	10.5	9.7	13.3	12,591	16,530
Without mort.	772	59.3	46.4	54.7	64.9	62.3	59.6	68.5	72.9	65.5	65.8	9,699	13,012
Rented	443	34.0	50.0	41.0	28.7	29.0	30.6	20.0	16.7	24.8	20.8	7,276	10,240
Type of dwelling:													
Single detached	775	58.0	45.7	51.9	64.8	60.5	58.3	69.1	67.7	66.6	68.8	9,815	13,236
Single attached	58	4.4	4.2	5.1	3.0	2.8	5.4	3.7	11.0	3.6	5.4	7,964	12,859
Other	490	37.6	50.1	42.9	32.2	36.7	36.3	27.2	21.3	29.8	25.8	7,605	10,803
Average number of:													
Persons/Household	1.83		1.16	1.44	1.90	2.06	2.33	2.43	2.53	2.81	3.03		
Rooms/Household	5.02		4.32	4.56	5.10	5.25	5.51	5.77	6.07	5.97	6.30		
Persons/Room	.36		.27	.32	.37	.39	.42	.42	.42	.47	.48		

Source: Statistics Canada (1982)

o In 1976 the average income for elderly unattached individuals and families who were homeowners was $5,321 and $12,601, respectively.

o The average 1979 income of elderly unattached individuals who received pension income was $9,978. Forty-six percent (approximately 78,500) owned their home.

o The average 1979 income of elderly unattached individuals who did not receive pension income was $5,699. Forty-three percent (approximately 224,000) owned their home.

o The average 1979 income of married couples where the husband was aged 65 or over who received pension income was $17,007. Seventy-eight percent (approximately 157,000) owned their home.

o The average 1979 income of married couples where the husband was aged 65 or over who did not receive pension income was $11,122. Seventy-six percent (approximately 228,500) owned their home.

o In 1977 approximately 175,000 elderly women and 63,000 elderly men lived alone as owner-occupiers. Between 25 and 30 percent lived in one of the 14 major cities.

o In 1979 the distribution of elderly owner-occupiers living alone by income was estimated to be:

    59,000   with an income less than $4,000;
    105,000   with an income between $4,000 & $5,999;
    43,500   with an income between $6,000 & $9,999;
    38,500   with an income $10,000 or over.

Overall, a large number of older Canadians are owner-occupiers either living alone or with their spouse. Although many are women with low or modest incomes they have acquired some assets over their working lives; the largest being the equity in their homes. Because of the appreciation of residential properties over the years - particularly during the recent period of high inflation - the ownership of a house has not only provided them with shelter but has proven to be a good financial investment.

A better estimate of current net worth of elderly homeowners can be obtained by examining residential property values. National, regional/provincial, inter-urban and intra-urban variations in house prices and changes in those prices over the last couple of decades are outlined in the next section.

2.3.2 Home Equity

Values of residential property vary widely across the country. Using 1981 MLS sales figures Table 2-10 shows the general trend by province: British Columbia with the highest priced homes, averaging $108,000 and New Brunswick with the lowest, averaging about $43,000. Table 2-11 shows that there are even greater differences between selected cities. For example, the average value of resale homes in Sherebrooke was $37,000 compared to $156,000 in Vancouver.

Not surprisingly when the historic data on residential property prices are examined similar regional and inter-city trends become apparent. Table 2-12 shows that, nationally, prices have risen an

Table 2-10

Average Dollar Value per MLS Transaction by Province/Region,

1971 and 1981

Province/Region	1971	1982	Average Annual Change 1971-81(%)
British Columbia	22,813	108,013	16.8
Alberta	23,549	106,788	16.3
Saskatchewan	15,783	60,567	14.4
Manitoba	18,358	52,366	11.1
Ontario	27,254	72,600	10.3
Quebec	23,829	57,708	9.3
Nova Scotia	...	51,896	...
New Brunswick	...	43,500	...
P.E.I.	...	45,237	...
Atlantic Canada	21,533	49,262	8.6

Source: Canadian Real Estate Association
... Data not available

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Table 2-11

Average House Prices and House Price Changes
In Urban Areas With Aging Population

Centre	LCI 1971 [*]	OADR 1976 [**]	MLS average sale price 1965	MLS average sale price 1972	MLS average sale price 1981	Average annual change 1965-81 %	Average annual change 1972-81 %
Barrie	1.04	.15	13,316		51,297	8.8	
Brandon	1.26		11,000		43,711	9.0	
Brantford CA	1.14	.17		23,140	49,560		8.8
Chatham	1.02	.16	14,667[a]		54,967	8.6	
Chilliwack CA	1.07	.18		18,011	91,935		19.9
Cobourg CA	1.13	.17			49,801[b]		
Cornwall	.96	.16	11,600		43,702	8.6	
Fredericton CA	.95			27,179	44,736		5.7
Kingston CA	.96		16,042		49,761	7.3	
Lethbridge	1.13	.18	11,633		81,494	12.9	
Lindsay	1.26	.24	18,750		46,264	5.8	
London CMA	1.01		13,330		57,802	9.6	
Medicine Hat CA	1.24	.17	10,567		72,292	12.8	
Midland CA	1.06	.17			42,770		
Montreal CMA	.95		22,915		59,941	6.2	
Moose Jaw	1.36	.21	9,735		43,786	9.9	
North Battleford	1.15	.20	9,680[c]		54,781	11.4	
Orillia	1.06	.18	10,747		48,439	9.9	
Owen Sound	1.25	.23	10,184		37,879	8.6	
Peterborough CA	1.11	.17	11,353		45,825	9.1	
St. Catharines/ Niagara CMA	1.02		13,563		50,295	8.5	
St. John CMA	.99			20,488	44,197		8.9
Sherbrooke CA	1.00		18,308		37,393	4.6	
Simcoe	1.30	.22	13,860		51,408	8.5	
Stratford	1.28	.19		23,217	54,564		10.0
Swift Current	1.07	.22		23,578	50,980		9.0
Thunder Bay CMA	1.05			20,230	57,917		12.4
Toronto CMA	.99		18,882		95,291	10.7	
Vancouver CMA	1.22		13,965		156,220	16.3	
Victoria CMA	1.56		12,386		123,260	15.4	
Windsor	.96		12,213		56,237	10.0	
Winnipeg CMA	1.12		13,588		53,830	9.0	
Woodstock	1.15	.18		22,632	51,058		9.5
Yorktown	1.20	.23			52,316		

[a]Chatham-Kent
[b]Cobourg-Port Hope
[c]Battlefords
[*]Life Cycle Index (1971) = Population aged 45+ (Average Urban Can. LCI=.94)
$\qquad\qquad\qquad\qquad\qquad\quad$ Population aged 0-14

Source: Ray, D. Michael (ed.), Canadian Urban Trends, Vol. 1, 1976.

[**]Old Age Dependency Ratio (1976) = Population aged 65+
$\qquad\qquad\qquad\qquad\qquad\qquad\qquad\quad$ Population aged 15-64

Source: CMHC, Social Profiles: Quality of Life Measures for Medium-Sized
$\qquad\qquad\qquad\qquad$ Canadian Cities, 1979.

Table 2-12

Average MLS Sales Index for Province/Region, 1965-1981

Year	B.C.	Alb.	Sask.	Man.	Ont.	Que.	Atl.	Can.	CPI
1965	56.6	60.3	73.3	73.9	61.7	94.8	70.3	64.8	80.5
1966	61.2	64.2	78.5	75.0	70.3	96.8	74.4	71.3	83.5
1967	70.8	68.8	86.8	75.3	78.1	100.2	76.1	77.7	86.5
1968	80.6	80.2	93.7	81.0	87.2	102.0	80.8	86.5	90.0
1969	91.4	92.5	99.4	89.5	94.6	97.7	90.2	94.5	94.1
1970	92.5	98.3	102.3	94.9	94.6	98.2	90.6	95.1	97.2
1971	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1972	112.8	106.4	105.9	106.2	107.3	107.9	107.7	108.2	104.8
1973	138.9	127.7	121.8	116.8	135.2	112.4	118.4	131.4	112.7
1974	189.3	158.4	159.4	149.2	171.5	137.8	141.8	167.0	125.0
1975	221.0	201.5	208.1	181.4	180.6	146.1	162.1	186.7	138.5
1976	244.1	270.0	255.9	215.3	194.3	162.2	182.4	209.0	148.9
1977	250.2	286.9	270.1	233.7	201.8	174.9	185.1	219.2	160.8
1978	259.6	322.9	287.4	248.2	208.0	190.5	184.7	230.4	175.2
1979	284.1	377.4	322.5	263.2	222.5	211.6	198.0	254.2	191.2
1980	349.0	404.5	345.1	270.5	327.2	226.4	209.2	282.4	210.6
1981	473.5	453.5	383.7	285.5	266.4	242.2	228.8	319.5	237.0

Average Annual

% Change 1965-81

| | 14.2 | 13.4 | 10.9 | 8.8 | 9.6 | 6.0 | 7.7 | 10.5 | 7.0 |

Source: From Canadian Real Estate Association Data

average of 10.5 percent a year from 1965 to 1981 while in British Columbia and Quebec the yearly average increases were 14.2 percent and 6.0 percent, respectively. Differences are even more pronounced between cities: Vancouver house prices increased 16.3 percent a year compared to 4.6 percent for houses in Sherebrooke. Table 2-13 shows yearly increases over a sixteen year period for seven selected cities.

Variation in prices and appreciation rates are also evident at the intra-urban level. Table 2-14 sets out residential property values for three areas of Toronto over a 17 year period. Average prices for 1981 ranged from $72,000 to $113,000 and appreciation rates averaged 10.3 percent to 12.8 percent.

Although, at both the national and local levels, there have been years where prices have jumped sharply, there have also been periods when the rate of increase has been less than average. On occasion, as witnessed over the past two years, property prices have fallen. However, one conclusion is obvious: from a long-term and national perspective residential property has proven to be a good investment, increasing in value at an annual rate 3.5 percent greater than that of the Consumer Price Index.

It is difficult, using published data, to be precise about the current value of the homes the elderly own. Average values can be misleading if the elderly are more likely to live in areas where house prices tend to be lower than average. This could be the case in many rural areas and smaller urban centres. On the other hand older residential areas in larger cities may contain a disproportionately large number of elderly owner-occupiers whose properties are worth considerably more than the average value of homes in the city.

Table 2-13

Average MLS Sales Index for Selected Cities, 1965-1981

Year	Vancouver	Edmonton	Regina	Winnipeg	Montreal	Saint John	Toronto	Canada	CPI
1965	52.8	56.1	74.8	73.6	96.7	68.5	59.3	64.8	80.5
1966	57.4	60.8	74.9	74.6	100.5	67.2	69.0	71.3	83.5
1967	67.4	65.7	83.2	75.2	104.5	76.4	77.6	77.7	86.5
1968	77.8	77.0	87.7	80.6	105.9	79.1	86.8	86.5	90.9
1969	90.4	88.7	96.4	89.3	100.0	83.7	94.1	94.5	94.1
1970	91.6	101.0	104.1	94.7	97.7	83.8	94.7	95.1	97.2
1971	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1972	118.9	104.2	103.9	106.1	105.6	107.7	107.1	108.2	104.8
1973	156.8	121.2	122.5	116.9	111.4	124.7	138.6	131.4	112.7
1974	218.6	147.8	160.0	149.7	140.8	159.4	176.4	167.0	125.0
1975	243.5	187.0	206.9	181.6	149.7	181.8	182.8	186.7	138.5
1976	259.5	248.8	253.2	215.0	167.9	202.4	197.4	209.0	148.9
1977	263.7	269.2	265.2	235.4	179.2	197.5	210.6	219.2	160.8
1978	275.8	310.4	273.1	249.3	194.2	185.2	216.6	230.4	175.2
1979	298.1	388.2	288.3	267.2	218.0	222.3	232.5	252.2	191.2
1980	406.8	388.5	298.4	276.7	230.7	219.9	251.5	282.4	210.6
1981	590.1	435.2	329.4	291.7	253.0	232.4	299.5	319.5	237.0
Average annual percentage change 1965-1981	16.3	13.7	9.7	9.0	6.2	8.0	10.7	10.5	7.0

Source: From Canadian Real Estate Association Figures

Table 2-14

Property Value and Inflation Trends
Metro Toronto, 1953-1981

Year	Consumer price Index	Change In CPI	Average price all MLS sales	Average price all MLS house sales	Average MLS Sales		Average MLS House Sales		MLS AREA E-3			MLS AREA W-7			MLS AREA C-10		
					Price Index	Annual change	Price Index	Annual change	Price Index	Annual change	Average price	Price Index	Annual change	Average price	Price Index	Annual change	Average price
1953	67.0	-0.9	14,424														
1954	67.4	0.6	14,627		46.0	1.4											
1955	67.5	0.1	14,952		47.0	2.2											
1956	68.5	1.5	15,043		47.3	0.6											
1957	70.7	3.2	15,732		49.4	4.6											
1958	72.5	2.5	16,085		50.5	2.2											
1959	73.3	1.1	16,615		52.2	3.3											
1960	74.3	1.4	16,329		51.3	-1.7											
1961	75.0	0.9	16,334		51.3	0.0											
1962	75.8	1.1	16,742		52.6	2.5											
1963	77.2	1.8	16,517		51.9	-1.3											
1964	78.6	1.8	17,360		54.6	5.1											
1965	80.5	2.4	18,883	18,035	59.3	8.8	59.0		61.8		15,051	64.2		20,806	74.2		23,820
1966	83.5	3.7	21,942	21,358	69.0	16.2	69.9	18.4	72.4	17.1	17,622	80.3	25.0	26,010	85.3	15.0	27,386
1967	86.5	3.7	24,681	24,078	77.6	12.5	78.8	12.7	82.3	13.7	20,042	86.2	7.4	27,934	87.2	2.3	28,000
1968	90.0	4.0	27,637	26,727	86.8	12.0	87.4	11.0	92.8	12.7	22,589	96.0	11.4	31,117	103.3	18.4	33,160
1969	94.1	4.6	29,931	28,946	94.1	8.3	94.7	8.3	99.6	7.3	24,232	98.6	2.7	31,953	100.1	-3.1	32,136
1970	97.2	3.3	30,141	29,492	94.7	0.7	96.5	1.9	98.6	-9.7	23,998	97.8	-0.8	31,683	109.3	9.2	35,092
1971	100.0	2.9	31,822	30,571	100.0	5.6	100.0	3.7	100.0	1.4	24,341	100.0	2.3	32,402	100.0	-8.5	32,113
1972	104.8	4.8	34,076	32,512	107.1	7.1	106.3	6.3	106.8	6.8	25,996	105.5	5.5	34,199	102.2	2.2	32,829
1973	112.7	7.5	44,105	40,604	138.6	29.4	132.8	24.9	135.4	26.7	32,946	142.1	34.6	46,036	140.0	36.9	44,953
1974	125.0	10.9	56,121	52,806	176.4	27.2	172.7	30.1	175.7	29.8	42,775	188.3	32.5	61,019	199.0	42.2	63,906
1975	138.5	10.8	58,181	57,582	182.8	3.7	188.4	9.0	182.7	3.9	44,461	207.6	10.2	67,273	214.7	7.9	68,949
1976	148.9	7.5	62,805	61,389	197.4	7.9	200.8	6.6	190.8	4.4	46,436	214.2	3.2	69,417	224.1	4.4	71,975
1977	160.8	8.0	67,015	64,559	210.6	6.7	211.2	5.2	196.3	2.9	47,783	217.4	1.5	70,451	234.0	5.2	75,697
1978	175.2	9.0	68,913	67,333	216.6	2.8	220.3	4.3	203.8	3.8	49,606	231.7	6.6	75,069	258.9	9.8	83,132
1979	191.2	9.1	73,992	70,830	232.5	7.4	231.7	5.2	215.9	5.9	52,552	237.9	2.7	77,086	286.5	10.7	91,988
1980	210.6	10.1	80,032	75,694	251.5	8.2	247.6	6.9	229.4	6.2	55,835	272.1	28.4	88,156	370.5	29.3	118,965
1981	237.0	12.5	95,291	90,203	299.5	19.1	295.1	19.2	297.2	29.6	72,339	349.3	-1.9	113,189	507.0	36.8	162,801
Annual average percentage change																	
1953-81	4.6				7.0												
1965-81	7.0				10.7		10.6		10.2			11.2			12.8		
1975-81	9.4				8.6		7.8		8.5			9.1			15.4		

Source: Toronto Real Estate Board Data

Table 2-15

Percentage of Owner-Occupied Households In Selected Cities
With Head Aged 55+ and 65+ by Equity Level, 1974

Equity Level	City Age of Head	Victoria 55+	65+	Vancouver 55+	65+	Edmonton 55+	65+	Regina 55+	65+	Winnipeg 55+	65+	London 55+	65+	St. Cath. 55+	65+	Toronto 55+	65+	Montreal 55+	65+	Quebec 55+	65+	Saint John 55+	65+
$1 - 1,999		0.7	0.0	0.3	0.3	1.9	1.1	7.7	6.8	6.3	8.7	1.1	0.6	1.2	1.2	0.2	0.0	16.2	16.9	18.5	24.8	9.0	10.6
$10,000 - 19,999		3.5	2.6	1.3	2.2	11.3	12.5	36.8	41.9	26.8	28.5	9.2	11.8	18.0	21.0	2.7	3.6	35.4	33.9	30.4	32.5	27.5	31.1
$20,000 - 29,999		10.8	11.3	5.4	8.4	21.6	18.9	*30.0	28.7	*36.5	34.3	29.3	30.2	35.8	38.6	4.8	6.8	21.1	27.1	21.4	19.8	30.8	27.2
$30,000 - 39,999		24.3	29.4	11.3	12.0	*33.5	35.0	17.6	16.0	18.8	16.6	*33.9	32.9	*27.6	25.6	7.9	7.1	*13.7	7.7	*11.0	6.6	*20.2	16.1
$40,000 - 49,999		25.3	25.1	24.6	22.5	19.8	17.7	5.5	3.6	7.0	6.0	14.5	14.2	9.5	9.6	17.5	21.1	9.2	8.2	9.3	8.8	6.5	7.2
$50,000 - 74,999		*26.4	23.3	*42.9	43.4	9.3	12.6	2.1	2.3	2.8	2.8	9.0	8.9	6.7	3.4	*46.3	44.8	2.9	4.3	7.0	6.0	4.4	6.1
$75,000 - 99,999		5.3	4.1	10.9	8.3	1.7	0.9	0.0	0.6	1.1	1.5	1.7	0.2	0.7	0.0	13.1	11.8	0.0	1.5	2.1	1.5	0.5	0.6
$100,000 +		3.9	4.3	3.3	2.8	0.8	1.3	0.0	0.1	0.0	1.6	1.3	1.1	0.0	0.7	7.5	4.9	0.8	0.4	0.3	0.0	1.1	1.1

	Victoria	Vancouver	Edmonton	Regina	Winnipeg	London	St. Cath.	Toronto	Montreal	Quebec	Saint John
MLS average sale price: 1974	52,305	57,861	36,214	26,507	27,619	36,178	31,060	56,121	33,368	30,083	30,308
1981	123,260	156,220	106,630	54,593	53,830	57,802	50,295	95,291	59,941	51,726	51,726
Average annual % Increase 1974-1981	13.0	15.2	16.7	10.9	10.0	6.9	7.1	7.9	8.7	8.1	7.9

Source: CMHC (1974)

*Equity level corresponding to average MLS sale price in 1974.

With this problem in mind a methodology was developed to obtain an estimate of the distribution in the value of homes owned by the elderly in 11 cities. Data on the equity level of owner-occupied homes by age of head was obtained from CMHC's 1974 Survey of Housing Units (see Table 2-15). As 90 percent of elderly owner-occupiers have no mortgage the stated equity levels were assumed to be equal to house values. Estimates of the percentage increases in house prices in each city between 1974 and 1981 were calculated from MLS sales figures and these were used to adjust the eight equity level categories used in the CMHC study. The proportions of elderly households in each equity category were assumed to have remained constant between 1974 and 1981.

Using the 11 sets of bivariate data points - percent of elderly homeowners with homes valued at or above five equity levels - the function (linear, exponential, power or logarithmic) that best fit each of the distributions was determined. The 11 functions were then used to calculate the results presented in Table 2-16.

The distribution of house values of elderly owner-occupiers varies greatly among the 11 cities selected. The proportion of households living in homes worth $70,000 or more ranges from 94.0 percent in Vancouver and 90.7 percent in Edmonton to 13.7 percent in Quebec City and 13.9 percent in Regina. Looking at the data another way, only .2 percent of elderly owner-occupiers own homes worth less than $40,000 in Toronto whereas the proportion is 37.6 percent for Winnipeg and 61.7 percent for Montreal. On the other end of the distribution 75.6 percent of the homes owned and occupied by elderly persons in Vancouver are worth $100,000 or more while in St. Catherines the figure is 2.3 percent.

Table 2-16

Estimated Percentage Distribution in Market Value
of Owner Occupied Homes with Head Aged 65+
in Selected Cities, 1981

City	40	50	60	Market value equal to or greater than 70	80	90	100	110	120	Average Sale Price($) MLS Listings
				(thousands of dollars)						
Victoria			97.5	79.2	64.3	52.2	42.4	34.4	27.9	123,260
Vancouver				94.0	87.9	81.7	75.6	69.5	63.4	156,220
Edmonton				90.7	70.9	55.4	43.3	33.9	26.5	106,630
Regina	57.2	35.7	22.3	13.9	8.7	5.4	3.4	2.1	1.3	54,593
Winnipeg	62.4	36.2	23.2	16.0	11.5	8.7	6.7	5.3	4.3	53,830
London	75.3	44.4	26.2	15.4	9.1	5.4	3.2	1.9	1.1	57,802
St. Catharines	51.0	30.4	18.1	10.8	6.4	3.8	2.3	1.4	.8	50,295
Toronto	99.8	90.7	81.6	72.5	63.4	54.3	45.2	36.2	27.1	95,291
Montreal	38.3	27.6	19.8	14.3	10.3	7.4	5.3	3.8	2.8	59,941
Quebec	36.2	26.2	18.9	13.7	9.9	7.2	5.2	3.8	2.7	51,726
Saint John	44.4	30.9	21.6	15.0	10.5	7.3	5.1	3.6	2.5	44,197

Source: Author's Calculations

2.4 Conclusion

Any assessment of the housing needs of the elderly must examine the circumstances of the large number of older homeowners in this country. While conventional thinking on the characteristics of the old tends to emphasize poverty and disability a more objective analysis indicates that a significant proportion of older Canadians - particularly those who own their own homes - are better off than is generally assumed.

This conclusion should not, however, obscure the fact that many elderly homeowners are experiencing housing related problems. They are caught in a dilemma. While they desire the independence and security that ownership offers, their homes are often no longer appropriate to their changing needs and abilities and have become a burden for them. On the other hand, sale of the house leaves them with few alternatives; none of which provide that important combination of independence and security that they desire.

From a financial standpoint their situation is equally intractable. If they choose to remain in their homes there are currently few practical ways for them to convert their equity into income (see, for example, Bartel and Daly, 1981 and Scholen and Chen, 1980 for a discussion of reverse mortgages, etc.). Consequently they are unable to benefit from what is usually their largest asset. Alternatively, if they sell their property in order to release the capital they lose not only the security of tenure but also an inflation-hedged investment and are faced with an open-ended liability for rental payments. And as tenants they are particularly susceptible to inflation, with their standard of

living progressively deteriorating as prices rise and rents absorb an ever increasing proportion of their income.

An innovative solution to the problem faced by elderly homeowners would be the development of an owner-occupied form of sheltered accommodation which allowed these people to release capital tied up in their existing housing so they may benefit from the use of it during their lifetime.

From a social and health perspective the British system of sheltered housing would serve as a suitable model. It incorporates the necessary support and security function as part of the housing scheme and has proven to be a practical and attractive form of accommodation for many older persons. In most cases it allows the resident to live out his/her life in an environment that encourages independence and dignity while supplying an adequate measure of assistance and protection. Only severe and chronic illnesses and serious functional deterioration requires a move to an institution.

There are, however, few precedents for a financial structure which would meet both the ownership and equity dissaving requirements. Consequently, the primary focus of research must be the development and testing of an appropriate financial scheme for this type of accommodation.

Also, there are legal questions to be addressed. While leasehold is the most common form of owner-occupied sheltered housing in Britain its applicability to Canada must be examined.

3 A MODEL OF OWNER-OCCUPIED SHELTERED HOUSING

Today, older owner-occupier's - if they can no longer live comfortably in their present homes but do not need institutional care - have the following housing options:

o Private market rental projects. These represent the most widely available option. However, with low vacancy rates a suitable unit may not be obtainable in a desirable and convenient location. Also, they raise a number of concerns: rent may be significantly increased; security of tenure is uncertain; and neighbours may prove to be bothersome and unfriendly. In addition, the accommodation lacks the supportive services which may be required and does not alleviate the social isolation which may have prompted the move.

o Subsidized or non-profit rental projects. Although these account for the majority of purpose-built units for the elderly they ordinarily have asset and income restrictions; usually provide only bachelor units for single people; are often large and impersonal; generally do not provide supportive services; and are heavily subsidized by the government.

o Private retirement homes. These provide rental accomodation where future rent increases are likely and security of tenure may be an issue. They are often designed for the more affluent elderly with rental rates of several thousand dollars a month.

They are not generally located in well established residential neighbourhoods and do not provide for independent living - e.g. all meals are supplied.

o Retirement villages. These are located in rural areas and are primarily designed for the younger and more active retiree.

Although these four alternatives may be appropriate to the needs, preferences and resources of many older Canadians the factors documented in Section 2 and summarized below point to a need and a demand for a new form of housing designed especially for older homeowners. First the number of older homeowners is increasing as the population ages. Furthermore, the value of their homes have more than kept up with inflation so that they have substantial equity although their incomes may be quite modest. Second, because frailty and social isolation often characterize the aging process those attempting to maintain a large and otherwise inappropriate family house not only face a major financial burden, but also considerable physical and emotional stress. And third, in spite of increasing disabilities most older people desire to be as independent as possible; in addition to financial independence they also want control over their residential environment and any personal support services they may need.

Taking all of these factors into account a model of retirement housing was devised. It is predicated on two key assumptions: from a long-term perspective inflation will continue to be an economic reality; and residential real estate will appreciate in value at a rate

greater than that of inflation.

The model was designed to achieve the following objectives:

o To provide a form of financing based on the concept of gradual equity dissavings which would enable older homeowners to sell their existing and inappropriate housing and use the capital during their lifetime to improve their standard of living.

o To provide a form of financing which would encourage private developers to build housing more suitable to the needs of older middle class homeowners.

o To provide the government with a means of encouraging greater self-reliance and an improved standard of living among the elderly through appropriate tax incentives and programs for investors in, and non-profit sponsors of, retirement housing.

The principal components of the housing scheme are outlined below. Details of the operation and paramenters of the computer simulation program developed to test the financial viability of a prototypical project are also presented.

3.1 The Principal Components

3.1.1 Tenure

o A form of tenure is created where both the elderly resident and an investor have a financial and legal interest in the housing; or alternatively a non-profit corporation assumes the role of investor/manager.

o The legal framework provides the elderly purchaser with many of the advantages of ownership but without the problems and responsibilities associated with freehold tenure.

o Residence is restricted to individuals/couples above a minimum age and tenure is guaranteed for life.

3.1.2 Design and Management

o The housing consists of self-contained units in small neighbourhood oriented projects designed and managed to encourage a high level of independence while ensuring the resident's physical, social and psychological well-being. Patterned on the British form of sheltered housing each project is provided with a resident manager, an emergency call system and flexible communal facilities.

o Management responsibility is shared by the owner-occupiers and the investor/developer/manager.

o Operating costs are either paid by the owner-occupiers or apportioned between them and the investor.

3.1.3 Financial Arrangements

o The largest proportion of the capital cost of the housing comes from the sale of the units at a discounted price. In return for a lower than market price and the guarantee of sheltered accommodation for life the elderly purchaser consigns - on an incremental and accumulating basis - a share of equity to the investor. This accumulating debt is paid only from the proceeds of the unit's sale when the owner-occupier dies or voluntarily moves.

o Individual and/or institutional investors contribute to the capital cost of the housing with the expectation of receiving a return on their investment as units become vacant and are resold at appreciated prices. These investors expect a rate of return commensurate with the risks involved, the irregular and non-predictable annual cash flows, the lack of liquidity and the long term. They also take the tax implications of their investment into consideration.

o Under a non-profit developer/manager that portion of the project's capital cost not covered by sales of units is provided by a conventional mortgage. However, a government guarantee to meet the scheduled amortization payments when project revenues are insufficient would be required to make such an option possible.

3.2 The Computer Simulation

Two versions of a computer program to simulate the scheme's financial operations were developed and tested. The first was deterministic in that it produced annual financial data based on the number of deaths (and/or fractions of deaths) "determined" by the mortality rates applicable to the ages and sex of the owner-occupiers. Although these data make it theoretically possible to derive a mathematical function relating the rate of return on the investor's capital to model parameters they were not realistic. They provided no indication of the variability which would be expected in an actual project. In addition, the memory of the micro-computer used was not large enough to make optimum use of this program.

The second version of the program proved to be both realistic and efficient and was consequently used for all the financial analyses. It was based on a random or stochastic process which provided an accurate representation of the actual operation of the scheme. However, without running a very large number of simulations - something which was not attempted - the sensitivity of the model could not be fully explicated. Nonetheless, it was possible to acquire considerable insight into the financial performance of a hypothetical project by assigning various values to the ten program parameters:

o number of units in project;

o market value per unit;

o owner-occupier's purchase price;

o age and sex of purchasers;

o age and sex specific mortality rates;

o annual property appreciation rates over the simulation period;

o proportion of unit's appreciation retained by owner-occupier;

o annual residence fee;

o annual operating expenses to be paid by the investor; and

o length of the simulation period in years.

Once this was done the program performed the following operations:

o The determination, by a stochastic process, of the number of "deaths" or "vacancies" which occur in each year over the simulation period.

o The "resale" of each vacated unit at a suitably appreciated price to a person of the same age and sex as that of the initial owner-occupier at first sale.

o The calculation of a "rebate" to the outgoing owner-occupier based on the original purchase price plus a portion of the appreciation less an accumulated annual "residence fee".

o A year by year accounting of the project's financial transactions including the number of units sold, revenue from sales, amount rebated and net cash flow to investor.

A more detailed discussion of the simulation model and the selection of parameters is provided below.

3.3 Model Parameters

3.3.1 Turnover of Units

A key element in the viability of this housing concept is the need for the sheltered project to generate a positive annual cash flow. This only occurs when units originally sold become vacant and are re-sold at current market prices - assumed to be higher than the original sale prices because of appreciation. Units may be vacated for a number of reasons: (1) the death of the owner-occupier; (2) the need for the owner-occupier to seek a higher level of care only available in an institution; or (3) a change in the owner-occupier's personal circumstances or preferences, for example a desire to move to Florida.

Unfortunately, there is little empirical data on which to calculate the probability of the latter two occurances. It is known, however, that as a group, the elderly are less residentially mobile than other segments of the population. Furthermore, on the basis of British studies reported by Sherebrin (1982) it is probably safe to assume that the majority of residents in sheltered housing would live out their remaining years in their own home. Therefore, it was decided to use appropriate age specific mortality rates to derive an estimate of the number of vacancies occuring each year in a typical sheltered housing project.

However, the use of published national or provincial rates presented two major problems. First, the potential purchaser of sheltered housing would likely have a life expectancy considerably above that of the general population. Second, the latest published figures do not

adequately reflect the recent and significant decline in the mortality rate for the older population (Society of Actuaries, 1982).[1] Consequently, the 1983 Group Annuity Mortality Rates prepared by the Committee on Annuities, Society of Actuaries, were used in the simulation model (ibid.: 38, 39).

These age specific rates were derived from the most recent mortality experience of group annuitants insured by a number of life insurance companies. In addition, to reflect the greater life expectancy of annuitants compared to the general population they also include a 10 percent "margin" designed to assure conservatism (see Appendix II). Therefore, excluding the possibility of a medical breakthrough significantly extending the life of the elderly these rates provide a realistic and conservative basis for estimating the number of deaths among owner-occupiers in the simulated project.

The number of units becoming vacant and available for resale in any year would also be dependent on the sex and marital status of the residents. Elderly males have a considerably shorter life expectancy than females.[2] In the case of couples, the unit would only become vacant when the last surviving spouse died and actuarially this

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[1]Between 1971 and 1976 the mortality rate in Canada for 75 year old females declined 1.80 percent.

[2]On the basis of the most recent date (statistics Canada, 1980) a 75 year old woman has a life expectancy of 11.03 years while a man of that age can expect to live 8.55 years.

translates into a longer period than the life expectancy of either spouse. However, because single women would make up the majority of the market for sheltered accommodation and the presence of men and couples would tend to nullify the affect each would have, an owner-occupier population comprised only of elderly women was chosen for the simulation.

Although age specific mortality rates are adequate for predicting the number of deaths in a large population the mortality experience of small groups, such as the residents of the hypothetical project, would be affected by chance. To deal with this fact the model encorporates a stochastic component. First, every resident is assigned the mortality rate corresponding to her age. Then the computer's random number generator selects a five-digit number between 0 and 1 from a rectangular distribution; a number less than the corresponding mortality rate is interpreted as a death; a number greater or equal to the rate means that the resident continues to live in her unit.

Every death is assumed to take place mid-year and the unit is re-sold at the end of the year to another woman who is the same age as the previous resident was when she first moved in. After every yearly iteration the ages of the residents are incremented by one. In order to account for the fact that some residents will find it necessary to move to an institution the model arbitrarily removes those residents who are still alive at age 96.

Table 3-1 shows the probabilities, calculated from simulation results, of specific number of deaths in each year of operation for the project. These probabilities are, in part, determined by the initial ages of the first residents and the assumption regarding the

ages assigned new residents. Although variability in unit turnover can be quite high on a year-to-year basis, long-term variations are more modest. Over a thirty-year period, 29 simulations of the model (assuming a project with 49 units) produced an average of 92.7 deaths with a standard deviation of 6.2.

Table 3-1

Probability of Deaths by Age of Project[a]

Year	Number of deaths[b]										
	0	1	2	3	4	5	6	7	8	9	10
1	.207	.448	.172	.138	.034						
2	.172	.517	.172	.138							
3	.138	.379	.276	.103	.103						
4	.172	.379	.241	.138	.034	.034					
5	.103	.448	.207	.207	.034						
6	.138	.310	.138	.207	.172	.034					
7	.103	.207	.379	.241	.034	.034					
8	.000	.310	.172	.379	.069	.069					
9	.103	.172	.207	.276	.034	.069	.069	.069			
10	.172	.069	.241	.241	.138	.103	.000	.000	.034		
11	.000	.034	.345	.241	.207	.138	.034				
12	.034	.310	.172	.207	.138	.103	.000	.034			
13	.000	.207	.207	.103	.310	.069	.069	.000	.000	.000	.034
14	.103	.034	.138	.276	.310	.138					
15	.000	.069	.138	.241	.241	.172	.034	.034	.069		
16	.034	.103	.069	.448	.138	.069	.069	.034	.034		
17	.034	.103	.138	.207	.207	.138	.034	.138			
18	.000	.034	.103	.276	.138	.138	.207	.069	.000	.034	
19	.000	.103	.103	.207	.207	.138	.138	.069	.069		
20	.034	.034	.103	.241	.034	.207	.207	.138			
21	.069	.034	.103	.276	.172	.138	.138	.034	.000	.034	
22	.000	.069	.241	.172	.138	.172	.069	.138			
23	.000	.034	.103	.207	.207	.172	.069	.000	.138	.069	
24	.000	.069	.138	.241	.276	.069	.103	.069	.034		
25	.000	.069	.172	.310	.172	.034	.138	.069	.000	.034	
26	.000	.103	.172	.276	.138	.172	.103	.034			
27	.000	.103	.103	.207	.310	.103	.069	.069	.000	.034	
28	.000	.241	.207	.103	.172	.138	.138				
29	.034	.207	.207	.172	.172	.172	.000	.034			
30	.069	.138	.172	.345	.034	.103	.103	.000	.034		

[a]Based on 29 simulations for a 49 unit project.
Model assumes that when an owner-occupier dies she is replaced by another woman whose age is the same as the previous owner-occupier's on first residence in the project.

[b]A blank indicates .000 probability.

o The initial age distribution:

age	number	age	number	age	number	age	number
70	6	73	5	76	4	79	3
71	6	74	5	77	4	80	3
72	5	75	4	78	4		

3.3.2 Age Restrictions and Age Mix of Owner-Occupiers

The objective of providing supportive accommodation for the elder-
ly along with the realization that the financial viability of the
scheme requires a "flow-through" of residents dictated that a minimum
age be set for residence. Although a case can be made for allowing
healthy individuals as young as 60 to live in this type of accommoda-
tion, most people around retirement age will likely prefer to continue
living in their present homes. (The attitudes of older people on this
issue is discussed in Section 5). However, as they age they will
increasingly look for housing alternatives which will ameliorate the
economic, social and health problems associated with old age. Conse-
quently, it was decided that it was reasonable, for the purpose of this
study, to "impose" a minimum residence age requirement of 70 years. At
the same time it was recognized that an age mix was not only desirable
from a social standpoint, but necessary to ensure that, at any one
time, only a small proportion of the residents would be very old and
therefore more likely to make heavy demands on the supportive services
envisaged for this type of scheme. In addition, a wide range in the
ages of the residents would be a probable outcome if the units were
sold on the open market. Therefore, an age range of ten years was
chosen with the ages of the initial residents averaging 74.3 years and
distributed as shown at the bottom of Table 3-1.

3.3.3 Size of Project

The decision to limit the size of the simulated project to 50 units (49 to be sold and one occupied by the resident manager) was based on three considerations. First, there was a need to generate a positive cash flow through units changing hands reasonably frequently. The probability of this happening increases with the number of units. Second, there are obvious economies of scale in developing and operating large projects. Third, a major objective was to provide a community oriented project; community oriented in terms of the project not being isolated from the surrounding neighbourhood and in the sense of being small enough to encourage comfortable and productive interaction among the residents. In addition the British experience with sheltered housing has demonstrated that a 50 unit project is perhaps the maximum size that can be handled by one resident manager.

3.3.4 Projected Property Appreciation Rates

A primary determinant of the investor's return and, both directly and indirectly the cost to the owner-occupier - through the purchase price, residence fee and share of any appreciation in the value of the property - is the real estate appreciation rate. This rate is ultimately determined by supply and demand conditions in local real estate markets.

The analysis of the historical data on residential property values and inflation in Canada presented in Section 2 indicates how changes in

the real cost of housing has both geographic as well as temporal components. Some areas have experienced significant price increases over short periods while others have shown more gradual and modest increases. Although this information does not allow for the prediction of future changes in either property values or inflation it does provide a foundation on which to base certain assumptions regarding the long-term relationship between inflation and real estate value.

To briefly review the data outlined earlier: Over the period 1965 to 1981 the value of real estate has, using MLS average sales figures, more than kept up with inflation. The average annual rate of inflation over this period was 7.0 percent whereas the average annual increase in the value of property sold across Canada was 10.7 percent. Only a number of smaller urban centers and Quebec recorded an increase marginally lower than inflation (e.g. 6.2 percent in Swift Current and 6.4 percent in Montreal). Over the shorter period, 1975 to 1981, the average annual increase in a number of provinces and cities was lower than inflation although nationally both averaged 9.4 percent. Given these statistics it seems reasonable to assume that residential real estate has proved to be not only a good hedge against inflation but also, in many areas of the country, a good long-term investment.

One assumption of the study was that changes in the value of the sheltered housing would follow those of the residential real estate market. Therefore, a series of simulations was run based on a range of average annual increases in property values: 0 percent; 3 percent; 6 percent; and 9 percent. With the nominal rate of return calculated from the cash flow figures provided by the model it was then possible to determine the real rate of return assuming long-term conditions

whereby the inflation rate was either greater or less than the property appreciation rate.

The flexibility of the model made it possible to examine the financial performance of the scheme under a variety of economic scenarios. However, because of its stochastic nature and the large number of possible parameter values no attempt was made to undertake an exhaustive evaluation.

3.3.5 Minimum Return on Investment Required

One way to attract private sector investment in the proposed type of housing would be to offer a rate of return which is appropriate to the nature of the scheme and risks involved. It is therefore necessary to determine the minimum pre-tax return on capital to justify an investor's participation in a project. (The tax implications for an investor will be discussed in the following section.) Once this "required" rate has been determined the model's parameter can be adjusted to increase the probability that, even under a less than optimum economic scenario - i.e. where property prices may even fall behind the rate of inflation - the investor will still receive no less than the minimum return.

In calculating the required rate of return, it is assumed that the capital asset pricing model is a close approximation of reality:

$$R = STR + LP + RP$$

where: R   = rate of return

STR = short term rate = $[(1 + r^*)(1+\pi)]-1$

r^* = real rate of interest (3.0%)

π = inflation rate

LP = liquidity premium

RP = risk premium

By calculating the difference in interest rates between six month Government of Canada treasury bills and the average yield of government bonds over the period of 1964 - 1982 the liquidity premium (LP) was estimated to be .88 percent.

The risk inherent in investing in an innovative scheme such as this is difficult to measure. If projects are developed the variability in the yields returned will in themselves affect the investor's assessment of risk and therefore the minimum return which he will accept in the future. However, it is possible using the past performance of the real estate and money markets to make an estimate of the risk premium involved. This was done in two ways. First, RP was assumed to be equal to the risk premium on mortgages. The average annual difference between institutional mortgage rates and rates on long term government bonds were averaged between 1964 and 1982 to give a value of 1.92 percent. To this was added a non-marketability premium of 0.5 percent to give a risk premium of 2.42 percent.

The second estimate of the RP was derived through the calculation of the beta coefficient for real estate in Canada over the period 1966 - 1981. The beta coefficient is a measure of an asset's risk obtained

by comparing its variability over time to that of some standard measure such as a stock exchange index. In this case beta (B) was calculated by regressing the return on real estate (R_{RE}) in Canada from 1966 to 1981 on the return on industrial bonds (R_B).[1] Where R_{RE} = a + BR_B, beta was found to be equal to .457.

Using the formulae:

$$Y_K = i + B(R_B - i)$$

where: Y_k = return on a specific real estate investment

i = risk free rate of return = 7.98%

(average return on 6 month government bonds, 1966 - 1981)

R_B = expected return on industrial bonds = 9.92%

(average return on industrial bonds, 1966 - 1981)

B = measure of the relative undiversified risk of the Candian real estate market compared to the industrial bond market

$$Y_K = 7.98 + .457(9.92 - 7.98) = 8.87\%$$

Because beta is less than one, real estate has represented a less volatile investment than industrial bonds; i.e. residential real estate was only half as volatile as the industrial bond market. Therefore:

$$RP = 8.87 - 7.98 = 0.89\%$$

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[1]MLS sales figures were used to calculate return on residential real estate and yields on industrial bonds were obtained from the Annual Reports of the Bank of Canada.

As in the first case, a non-marketability premium of 0.5 percent was added to this figure to give a risk premium of 1.39 percent.

Using the values for the short term rate (STR), liquidity premium (LP) and risk premium (RP) calculated above, the required real rate of return for an investor (assuming an inflation rate of zero) was estimated to be between 5.3 and 6.3 percent. Therefore, 6.0 percent was chosen as a reasonable rate of return on capital invested in the proposed scheme.

3.3.6 Investor's Interest, Apportionment of Appreciation and Residence Fee

The cash flow generated by the project comes from two sources: the appreciation on the value of the property and the residence fee; both in effect "collected" when a unit is vacated and resold. The amount accounted for by the appreciation component is dependent on the increase in the value of the property and the proportion of this amount that is "rebated" to the outgoing resident. The amount accounted for by the residence fee is dependent on the amount set as an annual fee when the unit is sold and the length of ownership.

Theoretically, there is almost an infinite number of possible combinations of amount of capital contributed by the investor, proportion of the appreciation he receives and level of residence fee he sets. In reality, however, there are some important constraints if the overall objectives of the concept are to be met. First, the price of a unit for an elderly homeowner should be at least equal to and preferably lower than the value of his/her present house (in order to free-up some capital to supplement his/her income). Therefore, the investor's

contribution of capital should be as large as possible. However, the need to assure the investor a minimum long-term yield restricts the amount he can invest because the profitability of the project depends on a cash flow generated, in large part, by appreciation of the owner-occupier's equity in the project. And second, there is the need to spread the risk associated with future inflation and property appreciation between the owner-occupiers and the investor.

Therefore, the determination of the owner-occupiers' equity level (i.e. the proportion of purchase price to the units actual market value) and residence fee was based on the following considerations. First, the residence fee had to be sufficiently large to provide the investor with a minimum return even over an extended period of stable real estate prices. Second, the equity level had to be sufficiently large to ensure that even under the most improbable economic scenario the owner-occupiers' equity would not be "depleted" before the units became available for resale. Third, the residence fee could be regarded as the owner-occupiers' deferred repayment of the investor's capital investment in the project. In other words the investor could be considered to have provided a loan with a term set as the average life expectancy of all residents (estimated at 12 years) requiring no repayment of principal or interest over this time period.

With these factors in mind a series of preliminary simulations was run to determine the affect of the various parameters on project cash flows and investor's return on capital. The result was the adoption of a basic model where the owner-occupiers purchase their units for 75 percent of their market value and receive 25 percent of the appreciation on resale. The residence fee was set at an amount equal to the

annual payment which would be required to amortize a debt equal to 25 percent of the market value of their units over 12 years at an interest rate of 15 percent.

3.3.7 Operating Expenses

Two ways of dealing with project operating costs were considered. First, the fact that the investor has an ongoing interest in the project suggested that he pay 25 percent of specified costs. These costs would include building repair and maintenance, taxes and insurance. Costs associated with the resident manager and utilities would be paid entirely by the residents. This apportionment would be to the advantage of both owner-occupiers and investors: the residents would have control over expenditures related to the support services while sharing the cost and responsibility for building maintenance; the investor, on the other hand, would not be burdened by the "soft" service costs while ensuring that his interests were protected. Second, the fact that the residents "own" their own units and are essentially "borrowing" money from the investor suggested that they pay all the operating costs. Furthermore, this approach would make the scheme a more attractive investment because the investor would not have to be concerned about negative cash flow in those years where there was no turn-over of units.

Both these options were examined in the simulations undertaken. Where operating costs were shared, the investor's portion was set at 3.5 percent of the market value of his 25 percent interest in the project. However, the fact that this amount would increase at the same

rate as the value of the property rather than at the rate of inflation creates a problem: the project's net annual cash flow is underestimated when the annual rate of inflation is less than property appreciation and overestimated when inflation exceeds property appreciation.

3.4 Development Proforma for Simulated Project

The purpose of the proforma outlined in Table 3-2 is to gain a realistic estimate of the costs involved in developing a typical owner-occupied sheltered housing project. In reality, costs - particularly hard costs and interim financing costs - would vary depending on where the project was developed and the interest rates prevailing when development took place. In addition, a project like this one may benefit from lower per unit land costs in jurisdictions where zoning regulations allow higher building densities for senior citizen housing. Also, building quality, unit size, etc. could be tailored to local markets so that elderly homeowners could afford to purchase a sheltered unit with the proceeds from the sale of their family homes.

The estimate of $53,571 as the initial sale price per unit is based on the assumption that if it was sold as a condominium it would have a market value of approximately $71,500 (this assumes a total

Table 3-2

Cost and Financing Information for Simulated Sheltered Housing Project

Capital Costs	Total $	Dollar/Unit
Land	500,000	10,000
Appliances & Carpets	100,000	2,000
Building	1,800,000	36,000
	2,400,000	48,000
Initial Services (Soft Costs)		
Landscaping	150,000	3,000
Legal and Insurance	70,000	1,400
Architect's Fees	97,000	1,940
Bridge Financing		
(land & build.)	300,000	6,000
Commissions/Sales	75,000	1,530
Sub Total	692,000	13,870
Total Costs	3,092,000	61,870
Revenue from Sales	2,625,000	53,571
Developer's Investment	467,000	8,299

profit for the developer of $325,000). The elderly purchaser would therefore be paying 75 percent of this price.

3.5 Calculation of Return to Investor

There is considerable literature on the various measures (and their shortcomings) that have been used in connection with real estate investment analysis (e.g. see Cooper, 1974). In short, different techniques produce different measurers of investment desireability. In this study it was decided to use the internal rate of return (IRR) as the standard measure of return on an investment in an owner-occupied sheltered housing project. Although some potential problems with this technique have been identified (e.g. Messner and Findlay, 1975) the decision to use it was based on the following considerations:

o It is simple to understand and to compute.

o The calculated solution appears to be uniform and unambiguous.

o The measure is a "standard" among financial institutions; and has been widely used for mortgage loan rates, bond rates, etc.

o The measure provides a solution in a convenient form - a rate - which can be readily used or the criterion of comparison with alternative investments.

The internal rate of return is a form of discount cash flow analysis. Essentially, it is compound interest in reverse, it discounts the cash flows arising from an investment at the interest

rate at which they exactly equal the present value of the initial investment. The major assumptions of IRR (Texas Instruments, 1977:58) are as follows:

o The "time value" of money: because it works like compound interest in reverse, the technique is based on the assumption that "money now is better than money later"; future income streams are discounted more, as they are in all present value calculations due to the opportunity cost which arise from the fact that investments are passed by because the income necessary to make them is not yet available.

o The initial investment is the initial cash outlay.

o The income stream resulting from the investment can be reinvested at the calculated IRR.

o Negative cash flows are discounted at the same rate as positive cash flows.

4 RESULTS OF THE COMPUTER SIMULATION

4.1 Development by a Financial Institution as a Long-Term Investment

Investment in owner-occupied sheltered housing is most likely to come from such institutions as insurance companies and pension funds; institutions which have traditionally had long-term investment strategies. Therefore, the primary analysis of the financial feasibility of the concept was done on the assumption that development would be undertaken by such an investor.

Under this assumption the developer/investor is considered to have made a $467,000 capital investment in the hypothetical project (see Section 3.3). The following analysis examines the simulated cash flows and rates of return generated by the scheme over a thirty year period.

Two variations of this scenario are considered:

o The investor pays 25 percent of the operating costs as discussed in Section 3.2.7; and

o The investor makes no contribution toward operating costs - these being paid entirely by the owner-occupiers.

Table 4-1

Simulated Cash Flows - 6 Percent Property Appreciation
(Investor pays 25% operating costs)

Year	Simulation						Mean	Standard deviation
	1	2	3	4	5	6		
	(Dollars)							
1	(25,765)	(25,765)	(20,904)	(25,765)	(16,042)	(30,626)	(24,144)	45,832
2	(21,703)	(21,705)	(32,464)	(186)	(32,464)	(21,705)	(21,705)	10,759
3	27,436	(784)	(34,412)	(17,598)	(17,598)	(34,412)	12,895)	21,838
4	(13,442)	(13,443)	(13,443)	(36,477)	73,480	9,590	1,044	35,018
5	(38,663)	68,513	(38,665)	(9,236)	20,193	20,193	3,723	37,642
6	(4,973)	62,230	31,035	(4,975)	152,650	31,035	44,500	53,648
7	84,925	26,778	84,922	184,898	42,133	42,133	77,632	52,787
8	153,057	(46,051)	53,502	53,502	(46,051)	(46,051)	20,318	74,203
9	65,160	179,129	288,877	81,336	(5,925)	122,143	121,787	93,419
10	141,548	77,117	58,149	12,687	141,547	12,687	73,956	53,080
11	161,523	161,521	107,576	233,644	65,465	89,398	136,521	55,962
12	174,094	159,283	31,170	218,665	21,942	153,103	126,376	73,668
13	291,719	115,007	519,923	124,789	288,208	153,921	248,928	140,940
14	150,030	31,526	95,864	125,142	128,376	500,267	171,868	151,586
15	(1,041)	36,454	70,785	353,547	175,984	216,997	109,571	122,978
16	65,811	836,050	386,116	113,771	504,968	41,480	324,699	285,621
17	335,506	295,435	321,221	510,674	(77,802)	544,260	321,549	202,372
18	517,668	148,127	454,813	258,631	738,738	454,813	428,798	188,435
19	287,937	257,184	(87,418)	186,037	44,590	(20,882)	111,241	141,114
20	366,222	896,153	464,658	504,446	479,520	848,536	593,256	202,410
21	738,354	583,836	159,377	102,744	234,824	165,042	330,696	240,905
22	259,292	485,819	608,555	796,242	421,796	153,297	454,167	212,681
23	298,482	450,015	1,239,290	811,308	868,287	1,289,570	826,159	366,822
24	84,956	378,262	649,801	553,609	743,306	193,614	433,925	237,792
25	823,582	486,865	632,556	1,000,860	572,827	659,006	695,949	170,059
26	766,005	967,416	286,993	208,281	707,262	739,974	612,655	272,062
27	678,405	578,427	527,164	156,582	714,100	797,437	575,186	206,958
28	710,449	83,465	261,658	315,619	428,707	343,327	356,213	189,699
29	383,048	(80,061)	593,797	429,707	482,048	828,345	439,481	273,875
30	1,154,858	(165,946)	957,798	734,758	664,860	448,662	632,498	420,613

4.1.1 Investor Pays 25 Percent of Operating Costs

Table 4-1 shows the cash flows generated from six simulations of the model over thirty yearly iterations. Also, included is the average and standard deviation of the cash flows for each year.

Using the first year of simulation 1 as an example, the annual cash flows were calculated as follows:

o One unit became vacant because of the stochasticly determined "death" of one resident. (Table 3-1 shows that there is about a 45 percent chance of one resident dying in the first year.)

o Because the death was assumed to have occurred in mid year the residence fee owing to the investor was one-half of $3,294 or $1,647.

o The investor's payment to the resident's estate was $51,924 (the purchase price six months earlier less one half years residence fee, i.e. $53,571 - $1,647).

o Resale expenses were assumed to be charged against the outgoing owner-occupier's estate.

o The unit was "resold" after it had appreciated in value by 6 percent. Therefore the investor received $56,785 while paying out

$51,924 for a net gain of $4,861 on the transaction.[1]

o Because the investor paid $625 operating expenses for each unit -
a total of $30,625 for the year - there was a net negative cash
flow of $25,765 for the project.

As the owner-occupiers grow older and die the turn-over in units,
and consequently the cash flows, generally increase. However, the
stochastic element in the program creates a high degree of variability.
For example, in year 15, simulation 1 records a small cash flow deficit
whereas simulation 4 records a positive cash flow of over $350,000.
Although assumptions on the age and life expectancy of the residents
and appreciation rates of the property affect the cash flow level for
any one year the trend is clearly one of increasing revenues over the
long run given an aging group of residents and appreciating property
values.

Table 4-2 presents the IRRs calculated from the cash flows in
Table 4-1. At the end of 10 years all the simulations show a negative
return for the investor ranging from -13.1 percent to -2.1 percent.

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[1]Under an alternate assumption the departing owner (or her estate)
would share in the 6% appreciation accrued in the year the unit was
vacated. In this example it would mean the investor's net gain on the
transaction would be $4,057 leaving a negative cash flow of $26,569
for the project. As far as the rate of return to the investor is con-
cerned this charge would have a small negative effect over the simula-
tion period.

Table 4-2

Simulated Nominal Rates of Return[a]
Assuming 6 Percent Annual Appreciation
(Investor Pays 25% of Operating Cost)

Simulation	Investment term				
	10 years	15 years	20 years	25 years	30 years
1	-2.5%	8.0%	12.6%	15.1%	15.6%
2	-4.6	5.1	12.3	14.7	15.7
3	-2.1	7.9	12.9	15.1	15.6
4	-7.0	8.5	12.7	15.3	15.5
5	-5.0	6.8	12.5	15.3	15.7
6	-13.1	7.3	12.3	14.2	15.1
Average rate:	-5.7	7.3	12.7	14.8	15.5
Standard deviation:	3.7	1.1	0.3	0.4	0.2

[a]Calculated as IRR based on initial investment of $467,000.

However, as the term increases the IRR grows significantly and becomes more stable: after 20 years it averages 12.7 percent; after 25 years 14.8 percent; and after 30 years 15.5 percent.

In order to test the sensitivity of the model to variations in the appreciation of the property, one simulation was run for each of the following rates of appreciation: 0.0 percent; 3.0 percent; 6.0 percent; and 9.0 percent. Also, the IRRs calculated were adjusted to provide real returns given a range of inflation rates. While the great variability in the number of deaths makes the tabulated rates for the 10 year investment term unrepresentative, those for longer terms are likely to be very close to average values which would have been obtained if a series of simulations had been run.

A perusal of Table 4-3 clearly shows that the annual real rate of return to the investor increases logarithmically over time under all appreciation and inflation assumptions. Also, the IRR increases linearly with appreciation when the investment term is held constant.

The previous assumption that an investor would be looking for a minimum real return of 6 percent (see Section 3.2.5) would be met under a variety of conditions. For example, with zero property appreciation combined with inflation of one percent the investor could expect an annual average IRR of 6.3 percent although his money would be tied-up for 30 years. If appreciation averaged 9 percent and inflation 4 percent he could expect to receive his minimum return in 10 to 15 years. Furthermore, if he held his investment for 30 years under these conditions his real return would average more than 15 percent a year.

Table 4-3

Simulated Real Rates of Return on Investor's Equity[a]
For Various Appreciation and Inflation Rates
(Investor Pays 25% of Operating Costs)

Annual appreciation	Annual inflation %	Investment term				
		10 years	15 years	20 years	25 years	30 years
0.0%	-1.0	-20.8%	0.8%	4.8%	7.8%	8.4%
	0.0	-21.6	-0.3	3.8	6.7	7.4
	1.0	-22.4	-1.2	2.8	5.6	6.3
3.0%	0.0	-12.7	-1.1	8.4	10.3	11.1
	2.0	-14.4	-3.1	6.3	8.0	8.9
	4.0	-16.1	-4.9	4.2	6.0	6.8
	6.0	-17.6	-6.7	2.3	4.0	4.8
6.0%	0.0	-5.0	6.8	12.5	15.3	15.7
	2.0	-6.9	4.7	10.3	13.0	13.4
	4.0	-8.6	2.7	8.2	10.9	11.3
	6.0	-10.4	0.8	6.1	8.9	9.2
	8.0	-12.0	-1.1	4.2	6.8	7.1
9.0%	0.0	-4.8	14.5	18.4	19.3	20.1
	2.0	-6.7	12.3	16.1	17.0	17.7
	4.0	-8.5	10.1	13.8	14.7	15.5
	6.0	-10.2	8.0	11.7	12.5	13.3
	8.0	-11.9	6.0	9.6	10.5	11.2
	10.0	-13.5	4.1	7.6	8.5	9.2
	12.0	-15.0	2.3	5.7	6.5	7.2

[a]Based on the IRR calculated from the cash flows generated by one simulation for each property appreciation rate.

$$\text{Real rate of return} = \frac{1 + \text{nominal rate}}{1 + \text{inflation rate}} - 1$$

4.1.2 Owner-Occupiers Pay All Operating Costs

Under this assumption the yearly cash flows for the simulations discussed in the previous section were adjusted to eliminate the investor's contribution: $30,625 was subtracted the first year and then its inflation adjusted equivalent for the remaining years. Using the resulting cash flows Tables 4-4 and 4-5 were constructed.

Table 4-4

Simulated Nominal Rates of Return
Assuming 6 Percent Annual Appreciation[a]
(Owner-Occupiers Pay All Operating Costs)

Simulation	Investment terms				
	10 years	15 years	20 years	25 years	30 years
1	6.85%	14.85%	17.92%	19.19%	19.83%
2	6.00	13.32	18.30	19.55	19.92
3	6.58	14.39	17.59	19.18	19.61
4	4.50	14.93	17.92	19.44	19.76
5	6.63	14.40	18.07	19.52	20.07
6	1.18	13.61	17.16	18.48	19.10
Average rate:	5.29	14.25	17.83	19.23	19.72
Standard deviation:	2.00	.60	.37	.36	.31

[a]Calculated as IRR based on initial investment of $467,000.

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Comparing Table 4-4 with Table 4-2 it is evident that by eliminating the need for an annual contribution by the investor, particularly in the early years when the scheme does not generate revenue, the IRR dramatically improves: after 10 years it averages 5.3 percent and increases to 19.7 percent in 30 years.

Table 4-5

Simulated Real Rates of Return on Investment[a]
For Various Appreciation and Inflation Rates
(Owner-Occupiers Pay All Operating Costs)

Annual appreciation	Annual inflation %	Investment term				
		10 years	15 years	20 years	25 years	30 years
0.0%	-1.0	5.76%	5.50%	9.29%	11.45%	12.04%
	0.0	6.70	4.49	8.20	10.34	10.92
	1.0	7.62	3.46	7.13	9.25	9.82
3.0%	0.0	-1.55	8.47	13.90	14.59	15.18
	2.0	-3.48	6.34	11.67	12.34	12.92
	4.0	-5.34	4.30	9.52	10.18	10.75
	6.0	-7.12	2.33	7.45	8.10	8.66
6.0%	0.0	4.50	14.93	17.92	19.44	19.76
	2.0	2.45	12.68	15.61	17.10	17.41
	4.0	0.48	10.51	13.38	14.85	15.15
	6.0	-1.42	8.42	11.25	12.68	12.98
	8.0	-3.24	6.42	9.19	10.59	10.89
9.0%	0.0	7.01	19.60	22.68	23.44	23.95
	2.0	4.91	17.25	20.67	21.02	21.52
	4.0	2.89	15.00	17.96	18.69	19.18
	6.0	0.95	12.83	15.74	16.45	16.93
	8.0	-0.92	10.74	13.59	14.30	14.77
	10.0	-2.72	8.73	11.53	12.22	12.68
	12.0	-4.46	6.79	9.54	10.21	10.67

[a]Based on the IRR calculated from the cash flows generated by one
simulation for each property appreciation rate.

Real rate of return = $\dfrac{1 + \text{nominal rate}}{1 + \text{inflation rate}} - 1$

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Examining the IRRs set out in Table 4-5 the same trends are apparent as those noted in the previous section; namely, the real rates of return increase over time and with higher rates of inflation. Although the rates of return are considerably higher in this variant of the model, the greatest improvement occurs in the first 15 years. For example, given 9 percent appreciation and 4 percent inflation, the real return after 10 years is 2.9 percent compared to -8.5 percent where the investor pays a share of operating costs. After 30 years the rates of return are 19.2 percent and 15.5 percent, respectively.

4.2 Development for Sale to Small Investors Under a Favourable Income Tax Program (A MURB Type Project)

This section examines the possibility that private investment funds could be channeled into owner-occupied sheltered housing projects by the introduction of a tax incentive similar to that offered under the MURB program.

The financial details obtained from one simulation of the model, where the investor pays 25 percent of the operating costs and appreciation is assumed to be 6 percent annually, are analyzed using the format followed by Clayton Research Associates (1981) to illustrate the functioning of a sample MURB.

4.2.1 Project Cost and Sales Information

Referring back to the outline of project costs provided in Section 3.3 we see that the total estimated project cost was $3,092,000 of

which $692,000 is classified as "soft". If a 25 percent proportion of the total cost were to be raised through a public offering an additional soft cost could be anticipated for commission and sales expenses associated with this venture. In total then about 24 percent of the total cost could be classified as service costs (soft costs). This has important income tax implications for the investor under the proposed MURB type program.

On completion, the sale of the apartments nets $2,625,000 (49 @ $53,571), and the remaining $875,000 is raised by offering limited partnership units at $5,000 each (i.e. 175 Units). There could, therefore, be as many as 175 Unit holders each with a minimum $5,000 investment.

Table 4-6 sets out the value of the project in Year 1. In this case - compared to the proforma in Section 3.3 - the profit factor has been added to each component.

Table 4-6

Value of Assets at Year One
(Dollars)

	Total value of 25% of project	Total value of 100% of project	Per unit value of 25% of project	Per unit value of 100% of project
Land	137,800	551,200	787	3,150
Appliances	27,600	110,400	158	631
Building	496,000	1,984,000	2,384	11,337
Soft Costs	213,600	854,400	1,221	4,482
	875,000	3,500,000	5,000	20,000

Table 4-7

Projected Cash Flow
(Dollars)

Year	Net receipts ($)	Operating expenses ($)	Cash flow before debt service ($)	Debt service principal & interest[a]	Net cash flow	Net cash flow per unit
-2	-	-	-	-	-	-
-1	-	-	-	-	-	-
1	4,861	30,625	(25,764)	-	(25,746)	(147)
2	10,760	32,463	(21,703)	3,902	(24,795)	(142)
3	61,846	34,410	27,436	27,436	-	-
4	23,033	36,475	(13,442)	3,503	(16,945)	(97)
5	-	38,663	(38,663)	5,536	(44,199)	(253)
6	36,010	40,983	(4,973)	10,840	(15,813)	(90)
7	128,367	43,442	84,925	84,925	-	-
8	199,106	46,049	153,056	33,960	119,097	681
9	113,971	48,811	65,160	-	65,160	372
10	193,288	51,740	141,548	-	141,548	809
11	216,368	54,845	161,523	-	161,523	923
12	232,229	58,135	174,094	-	174,094	995
13	353,342	61,623	291,719	-	291,719	1,667
14	215,350	65,320	150,030	-	150,030	857
15	68,199	69,240	(1,041)	-	(1,041)	(6)
16	139,205	73,394	65,811	-	65,811	376
17	413,304	77,798	335,506	-	335,506	1,917
18	600,154	82,466	517,688	-	517,668	2,958
19	375,351	87,414	287,937	-	287,937	1,645
20	458,881	92,659	366,222	-	366,222	2,093
Total	3,843,625	1,126,555	2,717,070	169,292	2,547,778	14,558

[a]Interest is calculated at the end of each year using simple interest at 12%.

4.2.2 Cash Flow

Table 4-7 details the projected cash flow components obtained from one simulation. The assumption is that the project takes two years to develop and is completely sold out by the beginning of the third year, i.e. year 1 of occupation.

Because the project has a cash flow deficit in the early years it is assumed that loans are obtained with repayment of principal and interest (12%) spread over time, as revenues permit.

4.2.3 Taxation Considerations

As outlined by Clayton (1981 : 4) the introduction of the MURB (Multiple Unit Residential Building) program by the federal government brought together three separate but interrelated tax expenditures to encourage the development of rental housing. These were:

o The MURB provision of the Income Tax Act which allowed individuals and corporations not in the business of real estate to deduct losses created by capital cost allowances on rental property from non-rental income;

o The use of capital cost allowance (CCA) depreciation rates on rental buildings as opposed to economic depreciation rates; and

o The deductibility of developer's soft costs against taxable inomce for rental property investors.

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o The deductibility of developer's soft costs against taxable income for rental property investors.

Clayton notes that,

> The MURB provision leads to a much wider use of the CCA provision than would be the case if investors could not deduct rental losses against non-rental income; further, if soft costs were not deductible, they would form part of the capital cost base of the property and would therefore be subject to capital cost allowance as well.

The following analysis of the taxation aspects of the simulation results makes a number of assumptions generally based on the MURB model. Given the unique character of the financing and likely legal structure and considering the number of unknowns associated with taxation regulations and policy the purpose of this exercise is obviously only exploratory.

Soft Costs - The project incurs soft costs totaling $854,400. Under the proposed taxation treatment these would be a totally deductible expense provided they were claimed in the year in which they were incurred.

Capital Cost Allowance - The capital cost allowances - 5 percent for the building and 20 percent for equipment - are presented in Table 4-8. Since the building was under construction in Year -2 CCA was claimed only in that portion estimated completed at the end of the year.

Table 4-8

Capital Cost Allownce By Component
(Dollars)

| Year | Building | | Appliances | | Total |
	Cost	CCA	Cost	CCA	CCA
-2	900,000	22,500	-	-	22,500
-1	1,961,500	70,975	104,000	11,040	82,015
1	1,890,525	94,526	99,360	19,872	114,398
2	1,795,999	898,000	79,488	15,898	105,698
3	1,706,199	85,310	63,590	12,718	98,028
4	1,620,889	81,044	50,872	10,174	91,218
5	1,539,845	76,992	40,698	8,140	85,132
6	1,462,853	73,143	32,558	6,512	79,655
7	1,389,710	69,486	26,046	5,209	74,695
8	1,320,224	66,011	20,837	4,167	70,178
9	1,254,213	62,711	16,670	3,334	66,045
10	1,191,502	59,575	13,336	2,667	62,242
11	1,131,927	56,596	10,669	2,134	58,730
12	1,075,331	53,767	8,535	1,707	55,474
13	1,021,564	51,078	6,828	1,366	52,444
14	970,486	48,524	5,462	1,092	49,616
15	921,962	46,098	4,370	874	46,972
16	875,864	43,793	3,496	699	44,492
17	832,071	41,604	2,797	559	42,163
18	790,467	39,523	2,238	448	39,971
19	750,944	37,547	1,790	358	37,905
20	713,397	35,670	1,432	286	35,956
	677,727		1,146		
Total		1,306,273		109,254	1,415,527

The undepreciated value of the building in Year 1 is the full cap-
ital cost ($1,984,000 from Table 4-6) less the depreciation already
claimed ($1,984,000 - $93,475 = $1,890,000). In subsequent years, the
undepreciated value of the building diminished progressively, as does
the CCA on the building.

Loss for Tax Purposes - Combining all the receipts and expenses (Table
4-7) with the soft cost deductions and CCA deductions (Table 4-8) the
calculation of loss for tax purposes is shown in Table 4-9.

The large losses claimed in the first two years are due primarily
to the deductability of soft costs. Subsequently, deductions due to CCA
are the largest component followed by operating costs and interest pay-
ments. Over the years operating expenses grow to become the largest
proportion of deductile expenses.

There are losses for income tax purposes from Year -2 through Year
7 as well as for Years 9 and 15. In other years the project generates
taxable income.

Table 4-9
Calculations of (Loss) for Income Tax Purposes
(Dollars)

Year	Receipts	Operating expenses	Interest	Soft costs	Capital cost allowance	Total expenses	Income (loss) for tax purposes
-2	-	-	-	590,000	22,500	612,500	(612,500)
-1	-	-	-	264,400	82,015	346,415	(346,415)
1	4,861	30,625	-	-	114,398	145,023	(140,162)
2	10,760	32,463	3,092	-	105,698	141,253	(130,493)
3	61,486	34,410	6,067	-	98,028	138,505	(76,659)
4	23,033	36,475	3,503	-	91,218	131,196	(108,163)
5	-	38,663	5,536	-	85,132	129,331	(129,331)
6	36,010	40,983	10,840	-	79,655	131,478	(95,468)
7	128,367	43,442	12,738	-	74,695	130,875	(2,508)
8	199,106	46,049	4,075	-	70,178	120,302	78,804
9	113,971	48,811	-	-	66,045	114,856	(885)
10	193,288	51,740	-	-	62,242	113,982	79,306
11	216,368	54,845	-	-	58,730	113,575	102,793
12	232,229	58,135	-	-	55,474	113,609	118,620
13	353,342	61,623	-	-	52,444	114,067	239,275
14	215,350	65,320	-	-	49,616	114,936	100,414
15	68,199	69,240	-	-	46,972	116,212	(48,013)
16	139,205	73,394	-	-	44,492	117,886	21,319
17	413,304	77,798	-	-	42,163	119,961	293,343
18	600,154	82,466	-	-	39,971	122,437	477,717
19	375,351	87,414	-	-	37,905	124,319	251,032
20	458,881	92,659	-	-	35,956	128,615	330,266
Total	3,843,625	1,125,555	45,851	854,400	1,415,527	3,441,333	402,292

4.2.4 Individual Investor's Tax Savings

The paper losses incurred for tax purposes in the early years of
the project are only useful to investors who are subject to a high rate
of personal income tax. For individuals in the 50 percent and over mar-
ginal tax brackets the proposed scheme could be purchased with little
out of pocket expense.

An investor purchasing a minimum of 1 Unit ($5,000) could either
pay the total amount at once or purchase by installemnts whereby the
accrued interest on these equity payments would be a tax deductible
expense. The installments required are outlined in Table 4-10.

Table 4-10

Cash Installments Required for the Purchase of 1 Limited
Partnership Unit
(Dollars)

Year	Payment	Interest on[a] remainder	Total payment
-2	2,250	0	2,250
-1	1,050	330	1,380
1	400	204	604
2	350	156	506
3	350	114	464
4	300	72	372
5	300	36	336
Total	5,000	912	5,912

[a]Assumes a 12% interest rate on funds borrowed for purchase of
shares. Interest would be deductible thereby increasing the total
available tax losses.

Table 4-11

Total Payments, Losses and Net Cash Payment Requirements, Minimum $5,000 Subscription (1 Unit) MURB Type Project (Dollars)

Year	Income (loss) for tax purposes per unit	Interest on unpaid portion of equity	Total taxable Income (loss) per unit	Increase (reduction) In income tax per unit	Net cash flow (deficit) per unit	Total cash surplus (deficit) per unit	Total cash surplus (deficit) per unit discounted to year -2 at 12%
-2	(3,500)	-	(3,500)	(1,761)	-	(489)	(437)
-1	(1,980)	330	(2,310)	(1,162)	-	(218)	(174)
1	(801)	204	(1,005)	(506)	(147)	(245)	(174)
2	(740)	156	(902)	(454)	(142)	(194)	(123)
3.	(438)	114	(552)	(278)	-	(186)	(106)
4	(618)	72	(690)	(347(	(97)	(122)	(62)
5	(739)	36	(775)	(390)	(253)	(199)	(90)
6	(546)	-	(546)	(275)	(90)	185	75
7	(14)	-	(14)	(7)	-	7	3
8	450	-	450	227	681	454	146
9	(5)	-	(5)	(3)	372	375	107
10	453	-	453	228	809	581	149
11	587	-	587	296	923	627	144
12	678	-	678	341	995	654	134
13	1,367	-	1,367	688	1,667	979	179
14	574	-	574	289	857	568	93
15	(274)	-	(274)	(138)	(6)	132	19
16	122	-	122	61	376	315	41
17	1,676	-	1,676	843	1,917	1,074	125
18	2,730	-	2,730	1,374	2,958	1,584	164
19	1,434	-	1,434	722	1,651	929	86
20	1,887	-	1,887	950	2,093	1,143	94
Total to End of Year 10	(8,484)	912	(9,396)	(4,728)	1,133	(51)	(686)
Total to End Year 20	473	912	1,385	698	14,564	(7,954)	393

Table 4-11 presents a summary of the payments, tax losses and cash requirements for an investor with a marginal tax rate of 50.32 percent. Explaining the columns individually:

o Income (loss) for tax purposes per unit represents the total income (loss) from Table 4-9 divided by the number of units (i.e. 175).

o Interest on unpaid portion of equity is from Table 4-10 and represents a tax deductible expense.

o Total taxable income (loss) per unit is the sum of columns one and two.

o Increase (reduction) in taxes per unit is the amount of taxes paid or saved by the investor given that he has a marginal tax rate of 50.32 percent.

o Net cash flow per unit is the amount of the project's yearly net cash flow (Table 4-7) which accrues to the investor.

o The total cash surplus (deficit) per unit is the comparison of total payments required from Table 4-10 with the increase (reduction) in taxes and the cash surplus (deficit). For example, in Year 1 the net cash requirement of the investor is $245: although he saves $506 in taxes he still must pay his $604 installment payment and his $147 share of the project's negative cash flow.

o The last column presents the investor's surplus (deficit) discounted at 12 percent to Year -2.

It's clear that an individual in a high tax bracket could make an investment in the scheme at a minimum out-of-pocket cost. Using an annual discount rate of 12 percent the investor has, after twelve years, spent the equivalent of $686 in Year -2. In later years, still ignoring capital appreciation, the project's revenues increase substantially.

4.2.5 Tax Aspects of Project Sale

Table 4-12 presents an example of the project being sold in Year 10.

Table 4-12

Financial Details Relating to Assumed Sale
at end of Year 10 if Entire Project Sold
(Dollars)

	Oringinal capital cost	Undepreciable capital cost	Assumed sale value	Total gain	Recapture	Capital gain
Land	551,200	551,200	2,000,000	1,448,800		1,448,800
Appliances	110,400	10,669	10,800	131	131	
Building	1,984,000	1,131,927	4,257,200	3,125,273	852,073	2,273,800
Soft costs	854,400	-	-			
Total	3,500,000	1,693,796	6,268,000	4,574,204	852,204	3,722,000

Assuming a 6 percent annual appreciation rate the entire project would be valued at $6,268,000. However, the residents would continue to hold a 75

percent interest in the project. Therefore, the assumption is that the investor would be liable for recapture for tax purposes of the CCA depreciation and capital gains tax only on their 25 percent interest.

Table 4-13 outlines the position of a non-resident investor holding one unit in the project when all investors' interests are sold for 25 percent of the project's overall market value.

Table 4-13

Profits, Taxes and Net Cash Position for
Minimum $5,000 Unit Investor
(Assumed Sale of Limited Partnership's Interest in Project)

	Total (Dollars)	Per unit (Dollars)
Recapture (25% of $852,204)	213,051	1,217
Capital gain (25% of $3,722,000)	930,500	5,317
Taxable capital gain ($930,500 x .50)	465,250	2,659
Assuming an incremental tax rate of 50.32% the income tax liability would be:		
Recapture ($1,217 x .5032)		612
Capital gain ($2,659 x .5032)		1,338
Total incremental tax per unit		1,950
Total proceeds from Sale ($6,268,000 x .25) / 175		8,954
Total income tax incurred		1,950
Net Cash Proceeds		7,004
Present value (Year -2) at 12 percent annual discount rate Net cash proceeds after tax		1,798
Discounted total cash deficit over year -2 to year 10		(686)
Total present value of investment		1,112

If an individual investor holding the minimum one unit were to sell his interest the taxation implications would be different. The unit would be treated similarly to stocks so that only capital gains taxes would apply. However, in that case, whoever purchased the units assumes the liability for recapture depreciation. This fact would undoubtedly be reflected in lower per unit prices than the case where the whole building were sold.

Table 4-14

Calculation of Tax and Net Cash Position for
Minimum $5,000 Unit Investor
(Assumed Sale of Investor's One Unit)

	Dollars
Initial Investment	5,000
Accumulated Investor Losses (Table 4 - 11)	(9,396)
Negative Balance	4,396
Accumulated Cash Surpluses (Table 4 - 11)	1,133
Total Negative Balance	5,529
Cash Proceeds from Sale	8,954
Capital Gain	14,483
Assuming a incremental tax rate of 50.32%	
Capital Gains Tax Payable	3,644
Cash Proceeds from Sale	8,954
Net Cash Proceeds After Tax	5,310
Present Value (Year -2) at 12 percent Annual Discount Rate	
Net Cash Proceeds After Tax	1,363
Discounted Cash Deficit Over Year -2 to Year 10	(686)
Total Present Value of Investment	681

Assuming the same sale price as in the previous case, Table 4-14 summarizes the calculations for the determination of the taxes payable and the cash position of the investor.

4.3 Development Under Non-Profit Sponsorship

Another variant of the owner-occupied sheltered housing model was developed on the assumption that private non-profit groups could build and operate this type of scheme if government subsidies were available.

The subsidies envisaged would be in the form of guaranteed payments to the mortgage holder who had provided the debt financing for that portion of the capital cost not covered by revenues from the sale of the apartments at the discounted prices. In the years where the cash flow was insufficient to meet the regular mortgage payments the government would advance the necessary amount. In the years where revenue from the turn-over of units was more than required to meet the mortgage payment, the surplus would be paid to the government.

The parameters chosen for the simulation were:

o As per Table 3-2 the capital cost of the project was set at $3,092.000.

o Units were sold at a price of $50,000 for a total of $2,450,000.

o A mortgage of $642,000 was obtained at 13 percent interest with a term of 20 years requiring yearly payments of capital and interest of $91,391.

o Property appreciation was set at 6 percent annually.

o The yearly residence fee was set at $3,424.

o The owner-occupier received 35 percent of the appreciation realized on resale.

o The owner-occupers paid 100 percent of operating costs.

One simulation was run and the results are set out in Table 4-15. Under the assumptions described above the mortgage would be repaid in 20 years. This would require payments from the government in the first 6 years as well as in Years 10 and 16. However, in the other years the revenues generated would be sufficient to cover the mortgage and make payments to the government. When the payments to and from the government are discounted to Year 1 at 13 percent the government's investment in the project is seen to have been paid off completely. The scheme would also be applicable in the case where a variable rate mortgage was secured. The historic relationship between interest rates and residential property appreciation would insure that revenues from the resale of units would keep up with increases in mortgage rates. In any case the payment to government could continue after the mortgage was repaid.

4.4 The Cost to the Owner-Occupier

Table 4-16 was constructed to examine the owner-occupier's investment over a number of years and under several rates of appreciation. Two measures of housing costs were calculated for the two previously described variants of the basic model (privately developed

Table 4-15

Simulated Cash Flows and Payments to and from Government
for a Non-Profit Type of Sheltered Housing Project
(Dollars)

Year	Turnover of units	Net cash flows	Payments from government	Payments to government	Payments discounted at 13% to year 1	
					From govern.	To govern.
1	0	–	91,391	–	80,877	–
2	0	–	91,391	–	71,573	–
3	1	12,576	78,815	–	54,623	–
4	2	36,381	55,010	–	33,739	–
5	1	2,161	89,230	–	48,430	–
6	2	59,643	31,748	–	15,249	–
7	3	107,564	–	16,173	–	6,875
8	3	126,133	–	34,742	–	13,069
9	2	96,800	–	5,409	–	1,809
10	1	54,932	36,459	–	10,740	–
11	2	123,299	–	31,908	–	8,318
12	4	274,261	–	182,870	–	42,189
13	5	378,452	–	287,061	–	58,608
14	2	166,076	–	74,685	–	13,494
15	4	269,864	–	178,473	–	28,536
16	0	–	91,391	–	12,931	–
17	6	615,314	–	523,923	–	65,605
18	3	234,463	–	143,072	–	15,854
19	6	576,265	–	484,874	–	47,549
20	2	166,454	–	75,063	–	6,514
21	6	500,543	–	500,543	–	38,441
Total	55	3,801,181	565,436	2,538,796	328,162	346,853

and non-profit). It is important to note that neither of these measures includes normal operating expenses. The first measure, equivalent monthly rent, is the difference between the value of the investment after capital appreciation and the amount received on sale divided by the number of months the unit was owned. The second, equivalent yearly rent to original payment, was calculated by first dividing the difference between the value of the investment after capital appreciation and the amount received on sale by the number of years the unit was owned. This figure was then divided by the purchase price and multiplied by 100 to give a percentage measure of the cost of accomodation to the resident owner.

The relatively high costs evident in Table 4-16 for one year's residence in the privately developed project is a result of the assumption that fees representing 4 percent of the selling price would be incurred. Over longer time periods this expense does not have such a significant impact. In fact, the equivalent monthly rent actually declines over the 15 year period for appreciation rates of 2 and 6 percent.

Overall, Table 4-16 demonstrates that at low rates of appreciation the cost of the accomodation is relatively low and stable over time. However, as would be expected given the apportionment of appreciation between the investor and resident, the cost of the accomodation to the resident rapidly increases at higher rates of appreciation and over longer time periods. For example, for the non-profit scheme the equivalent yearly rent to original payment is 8.15 percent after one year. After 15 years, assuming 10 percent annual appreciation, the figure is 20.06 percent.

Table 4-16

Financial Position of the Owner-Occupier In Privately Developed and
Non-Profit Projects After 1, 5, 10 and 15 Years Assuming
2, 6 and 10 Percent Annual Rates of Property Appreciation

Project Type	Years of Ownership Rate of Appreciation ($)	1 Year 2	6	10	5 Years 2	6	10	10 Years 2	6	10	15 Years 2	6	10
Non-Profit													
Initial Market Value/Unit $71,429	Value of Purchaser's Investment ($)	51,000	53,000	55,000	55,204	66,911	80,526	60,950	89,542	129,687	67,293	119,828	208,862
Initial Purchase Price Per Unit $50,000	Recoverable Upon Departure ($)	46,926	47,626	48,326	34,701	38,799	43,564	19,593	29,600	43,650	4,693	23,080	54,242
Share of Appreciation 35% Cummulative Monthly Residence Charge $285	Difference as Equivalent Monthly Rent ($)	340	448	556	342	468	616	345	500	717	348	537	859
	Equivalent Yearly Rent to Original Payment	8.15%	10.75%	13.35%	8.20%	11.24%	14.78%	8.27%	11.99%	17.21%	8.35%	12.90%	20.06%
Private Sector													
Initial Market Value/Unit $71,429	Value of Purchaser's Investment ($)	54,642	56,785	58,928	59,147	71,690	86,277	65,303	95,938	138,949	72,100	128,386	223,779
Initial Purchase Price Per Unit $53,571	Recoverable Upon Departure[a] ($)	48,359	48,810	49,259	36,129	38,733	41,826	20,952	27,384	36,418	5,909	17,729	37,761
Share of Appreciation 25% Cummulative Monthly Residence Charge $275	Difference as Equivalent Monthly Rent ($)	524	665	805	384	549	741	370	571	854	368	615	1,033
	Equivalent Yearly Rent to Original Payment	11.73%	14.89%	18.05%	8.59%	12.30%	16.60%	8.28%	12.80%	19.14%	8.24%	13.77%	23.15%

[a]After deduction of legal and sale fees equal to 4% of selling price.

5 CONSUMER AND INVESTOR ATTITUDES

5.1 Attitudes of Potential Consumers

5.1.1 Methodology

In developing a new product it is important to test the market. While a structured questionnaire survey was considered, the relative complexity and innovativeness of the scheme suggested that a more qualitative research strategy be used. Therefore, an assessment of the attitudes of senior homeowners was sought by conducting two focus group interviews.

The focus or group interview technique used was based on what Calder (1977) calls the "phenomenological approach" where the object is to obtain a "systematic description ... of how consumers interpret reality in their own terms." The problem of generalizability is not considered and would have to be addressed by conducting additional group and/or undertaking quantitative surveys based on the analysis of this preliminary investigation.

Each group consisted of about eight individuals who were recruited through two senior citizen organizations in the northern part of the City of Toronto: a local branch of the Second Mile Club and HINTS (Housing in North Toronto for Seniors). Almost all were homeowners or had owned their homes until recently; their average age was above 70; and nearly three-quarters were women.

The purpose of the study and details of the proposed housing model were initially explained to the group and then discussion was

encouraged on a number of related topics. The researcher, acting as group moderator, endeavoured to encourage participation and interaction among group members. The interviews lasted approximately two hours and were tape recorded.

Although the discussion was focused on a number of topics selected by the researcher as most relevant to the study, the objective of obtaining the participants' "view of reality" was kept in mind when the subject area was broadened during the interviews. As a result the topics discussed reflect both the concerns of the researcher and the participants.

5.1.2 Results

The main topics which were discussed by the focus groups fall under the following headings:

o Dissaving during retirement and the desire to leave a bequest

A basic concern related to the successful marketing of this type of scheme is the attitude of seniors to the concept of dissaving - the process whereby the wealth accumulated during one's working life is spent during retirement. The proposed scheme would not be of interest to seniors who wish to leave as large an estate as possible and continue, in some cases, to save a portion of their retirement income. However, for those who are less concerned about leaving a large bequest the purchase of this type of retirement home may be very attractive; particularly since it does allow for a rebate to their estates if they do not live for a long time after purchase and/or the value of the property increases.

The views of the participants on this issue are best expressed in the words of one woman: "There is a nice balance to be gained. You have to look after yourself first." Although one man was firm in his desire to maintain full ownership of his residence so that he could "will it to my daughter", others were less adament. Typical comments were:

> It's nice to leave your children something.
>
> I want to leave something to my nieces.
>
> I would like to leave my children something. I'd like to leave a little in trust for my grandchildren so that the road won't be so hard.

A number of people felt that many seniors are "... influenced by what their children say. They save and save and leave everything to their children and spend nothing on themselves." On the other hand several people felt that while the desire to leave a bequest is very common, "it is becoming less important as a lot of seniors are giving to their children during their lifetime."

The most prevalent view was expressed in the following comments:

> A person should enjoy their money while they're here.
>
> My son says: 'We don't want your money. You worked so hard to bring us up. We would rather see you spend it and enjoy some of it'.
>
> As far as my children are concerned if I come out even at the end they will be happy.
>
> My experience is that the money goes for a big car or they join the yacht club.
>
> My children say: 'Don't worry about us'.

o Tenure and financial aspects of the proposed scheme

Central to the concept is the idea that many elderly homeowners wish to maintain their status as owners. It has been assumed that even a form of ownership other than freehold would be seen as providing a degree of independence and security not available in rental accommodation. In the group discussions this view proved to be the prevalent one. Words such as "control" and "security" were often used to express opinions about the advantages of home ownership and the features of the proposed scheme.

> Ownership provides control ... rather than be at the mercy of landlords, rent review, government...

> To be in control is very important. If I had a chance I would have bought another house but this (the sale of his house and move into an apartment when his wife suffered a stroke) was an immediate situation.

> Although I'm a renter at the moment I would be interested in buying into this type of project. You have security. Security is very important.

> I think it is the next best thing to owning a house. It gives you a sense of security.

In addition to the importance of security and control the financial aspects of ownership are viewed positively:

> I would favour some form of ownership - not to gain a profit but to keep up with rising costs ... As a hedge against possible increases in costs that you have no real control over when your income is stable.

Some possibility of appreciation is attractive although it may not materialize. Everyone wants to make money.

The fact that someone could shelter some of his investment income by having it in a project like this has some appeal.

There would be no means test. This would appeal to a lot of people.

Uncertainty about rent controls, inflation and the adequacy of savings were recurrent themes:

I think the rent controls worries you when you go into an apartment.

Seniors move from houses into apartments thinking that they would be there forever but have found that their rents have increased fantastically. What can they do? It would be better to invest in something like this.

We don't know how long our savings are going to last.

Tenancy, however, was not without its supporters. One woman expressed her satisfaction with her private rental unit. Another thought that "A lot of people like the idea of renting. My sister moved to Heritage Lodge and has become so active."

o The decision to change residence

Understanding the process by which older people change residence is of primary importance in tailoring housing to fit the special needs of this group. Overall, the question of health, beig alone and the ability to maintain their homes were seen as principal considerations

A number of group participants felt that "being alone" was an important consideration in changing one's residence:

> I realize that a person shouldn't be alone. I find that neighbours today are all so busy that they haven't the time to take an interest in people around them.

> I can't see those people living alone. I've had too much experience with them having strokes and being found later.

> There comes a time when you are alone and need some place to go.

Also, the difficulty and expense of maintaining one's house as well as the lack of local options were frequently mentioned:

> You're suddenly faced with a big house that needs a new driveway or something.

> A lot of people don't want to think about not being able to deal with their house.

> So many seniors have been up here (North Toronto) for so many years. They have gotten to the point where they can't keep up their homes. They want to stay in the area. When you have been up here for so many years it's quite an experience to have to go someplace else.

The question of setting a minimum age for the purchase of a sheltered unit produced the following comments:

> People are being forced to retire early with the present economic difficulties. That gap between 65 and 70 is a difficult five years. I would suggest strongly that age limits be lowered, if possible, to bring it down towards the 60's.

> Don't you think you are going a bit high starting at age 70. A lot of people have deteriorated by 70.

> You can't be too rigid. You're going to have a variety of persons who want to buy-in. What do you do when a 70 year old man marries a 40 year old woman?

However, one man suggested that "the years 65 to 70 are the most peculiar years - the transition from employment income to retirement income." He went on to say:

> Many people have a fantasy of what they want to do when they retire. There should be a period when a person retires and becomes acclimatized. I don't think that individuals should think of getting into this type of scheme right on retirement. There are enough cultural and economic shock factors that they have to deal with without taking on relocating their housing. There should be a 5 year period to give him time to adjust.

o Management of an owner-occupied sheltered project.

The discussions on the topic of how a sheltered project should be managed and the types of services that might be provided is best summed up in the statement of one woman: "We want control over our living conditions." While there was general agreement that "There is a certain moral and physical support provided by seniors among themselves", the importance of employing competent and sympathetic staff was stressed:

> The kind of people that are dealing with older people makes a difference. The kind of person that would be around to do service should be interested in what my needs were ... It could be important to me to have some control over the kind of person the manager would arrange to have to come and do these things. It would be a great advantage paying communally for these services which are usually very hard to get.

It is important to have privacy and have some shelter - have somebody noticing what's going on and noticing if the steps are free of snow. There will be somebody around to help. It's very hard for people - even with large incomes - to find a housekeeper. I know a number of older women who are getting slightly frail and need a housekeeper but they can't find one; can't get someone on weekends or to prepare a meal at night. How do you do your shopping? Or if you can't see very well or have a little arthritis in your knee ...

The question of what would constitute an appropriate age mix for the residents was also discussed in the context of management. One man thought, "There should be a wide age mix", because "In any group only about 10 percent are going to take an active part in the management of the building and you can't depend on the people who are eighty and over."

o Project location, site criteria and design factors

There was general agreement among the participants that a project be located "in the city ... not in the suburbs." Centrality and accessibility to transportation and community amenities were considered very important. The need for a level site was also noted. One 80 year old woman said that although she had lived in her present home for 13 years it was only last summer that she noticed a small hill on the street outside her door which made walking difficult.

There was also agreement on the desirability of having some kind of greenery around - possibly a roof garden to provide an opportunity to raise a few plants. One avid gardener said that if a garden was

provided he would consider selling his house and buying into such a project.

Several people indicated that they consider a balcony to be important. And most agreed with one woman who believed that a "recreational area planned-in is very important as far as socialization is concerned."

There was less uniformity of views regarding the most appropriate size of units. One woman commented that,

> You don't want a very tiny place. You always want a bedroom and den or two bedrooms. Then you are free to invite someone overnight. Or if you need care you have someone.

Another stated:

> I don't think you need more than one bedroom, I have a friend who moved into a one-bedroom apartment. She now thinks that it's as much work as a house.

It was generally agreed, however, that "Some people like a lot of space and some people like it "cozy" and, furthermore, "there are those who would prefer lesser amenities and a lower price."

5.1.3 Conclusions

In general, participants in both focus groups expressed very positive views on the proposed owner-occupied sheltered housing concept. As most of the subjects were, or had recently been, homeowners there was a strong feeling that living in one's own detached

house was the most desirable form of accommodation - all things being equal. However, there was also the realization that their ability to cope was becoming more problematic and the possibility of having to move to more appropriate accommodation was something that should be considered. Perhaps the most contentious issue was the question of the timing of a move. While some people thought that retirement would be the most opportune time to "adjust one's housing", others felt that the impetus to move to sheltered accommodation would come only when the ability to manage in one's present housing was seriously impaired.

Most importantly there were no comments to suggest that this approach to dissavings or "paying your own way" was viewed negatively. In fact, one woman stated that "some people spend all their money and then expect someone to look after them." The prevalent tone was that of a group of middle class people who were willing and able to pay for their housing and home support services without additional government assistance.

5.2 Attitudes of Potential Investors

5.2.1 Methodology

Eight interviews were conducted with pension fund administrators, insurance company investment officials, a pension fund investment consultant and a real estate investment fund manager concerning the possible role of financial institutions and pension funds as equity investors in the development of owner-occupied sheltered housing.

A semi-structured interview approach was used: the scheme was first described and then the respondents were asked for their views on a number of issues.

5.2.2 Results

The respondents views are grouped under the following headings:

o Political considerations

There was unanimity among those interviewed that there is currently little interest in equity investment in residential real estate because of the risk of government intervention. Comments varied from, "Commercial real estate doesn't have the political risks associated with residential", to the more blunt assessment that,

> We hate getting into housing. The government has so screwed-up the market - it's unpredictable. It's a sort of risk that, frankly, we don't need.

The fact that the proposed scheme would differ substantially from a conventional rental project was not considered to provide sufficient protection from government controls. As one respondent put it:

> Maybe the government will put a maximum price restriction on what the units can be resold for. Then comes the legislation and its the institution against 50 little old ladies and guess who wins.

o Management problems

There was also a consensus on the undesirability of managing a residential property - particularly one with elderly residents. Some typical comments were:

> It's easier for a pension fund to take its money and build a major commercial project and not have to worry about the social good or social bad of having to pass on certain increases ...

> You are talking about old people and they may not be able to look after their units as you might like ... You don't want to have to worry about turn over of people and having to resell it and the costs associated with turnover ...

> We are not interested or skilled in managing housing. Our talent is managing money.

o The availability of more attractive investments

Other investments were seen as providing a better return with less work:

> Pension funds are investing money in shopping centres and other commercial properties. They are not only getting rent and potential appreciation but also are getting a percentage of sales.

> Today I can buy a 19 year triple A bond which will yeild a 14 percent coupon ... I can get a risk free bond and not have to worry about anything.

> It's something that would require a lot of convincing on the part of a potential investor that he was going to make a buck. If he can go and buy a mortgage that gives him 13-1/4

percent for the next five years he knows where he is five years from now. If he buys a building that we put to him maybe he makes 8-1/2 percent to 10-1/2 percent for the next five years and then he increases the rents. He knows that business and what his chances of success are. Not to say that they won't take risks but when they do take one it requires a lot of time and effort on someone's part.

What we have out there is a vast array of investments ... At this point I consider this project to be fairly risky ... I would want a minimum 20 percent rate of return, regular cash flow and the ability to sell may interest. Personally, I think these are far better investments than this. If I'm going to put money in real estate I'm going to put it into a major shopping centre complex, office tower - something in the urban core.

o Economic outlook and investment decision

Several respondents felt that recent economic trends would discourage investment in the scheme:

> The concept of deflation is gathering steam. That's one of the problems today with real estate. Major developers are finding it difficult to attract equity or risk capital because the major inflation of the late 60's and 70's is over - although right now it may be cyclical it may, in fact, be secular. People are driving smaller cars and buying smaller houses. It's a new era. People today are more concerned about guaranteed cash flow and less concerned about worrying where inflation will be.

> I think that we learned over the last three years with real estate markets to look for a high current coupon and less capital gains rather than anticipating a lot of inflation and capital gains. That's our experience.

> We are buying income schemes rather than looking for capital appreciation. Your scheme banks a fair deal on capital appreciation.

> Time horizons today are very short. We could go through a complete business cycle in 6 months. It's a tough sell for long-term investments.

Our investment time horizon - if you push it out to even 5
years - tends to be very dicey. We tend to be under the gun
on a one or two year basis. Our parent is publically traded
and they are very conscious of the profits we report. Our
parent likes us to turn over real estate so they can show a
gain.

In the last few years people have tended to have very short
time horizons on investment - the average term of our bond
portfolio is under 8 years ... It's really dictated on our
perception of the government's ability to deal with
inflation.

o Liquidity and cash flow considerations

The importance of liquidity and cash flow considerations in

investment decisions was mentioned by a number of respondents. These

comments suggest that a long term and irregular cash flow do not, in

themselves, preclude investment in this type of scheme:

Liquidity is important depending on where your fund is
situated. If you start laying employees off then the fund
may have to be dug into fairly deeply. If the company
continues to grow and prosper and the average age falls then
it is a totally different situation.

If you can't offer an investor liquidity you must compensate
with a greater rate of return - a liquidity factor may be .3
or 4 percent.

I don't think that irregular cash flow is that sensitive to a
company like ours because we would match that against
whatever liabilities we had ... There are a lot of
investments we have where there is no cash flow for 15
years.

One would say, looking at the liability, that an immature
fund has less need of cash flow than other funds.

You must offer a transferable type of investment which has
some marketability; for example, shares or bonds which would
provide a secondary market for investment.

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o Other comments

The following opinions were also offered on the proposed scheme:

> One problem is that of doing something that has not been done before and that's a big strike against you because you spend as much time explaining the probabilities, etc. as you do on the merits of the real estate itself.   Second, there are those who say they do not invest in complicated deals because they might 'miss something'. So you've narrowed your market. Thirdly, your talking residential and people don't like residential.

> You would have to consider whether this type of investment were permitted under the Pension Benefits Act.

> The social value is very attractive to us. We take that into account when we are doing investing. If more income could be generated earlier or where the total return is less but we get more earlier it would be more attractive.

> From the standpoint of pension funds it's probably easier to use a debt structure rather than an equity structure ... If CMHC guaranteed financing - that's a possibility.

> It may be something which you can offer as a tax shelter. If you can get a tax ruling such that any money put in by an individual or taxable corporation may be written off at 50 percent, or whatever ... People tend to be a little less picky on total return when it comes to tax shelters ... They worry about playing with 50 cent dollars as opposed to making a score. If you can get this set up as a MURB you can syndicate ... You need long-term investors who do not need liquidity.

> I see today far better opportunities in commercial and residential developments. That could change. If by law a pension fund were forced to set aside so many dollars to put into socially beneficial projects like this then perhaps they would take a second look.

5.2.3 Conclusions

The interviews with eight representatives of institutional investors suggest that none would currently consider an equity

investment in any kind of residential real estate. Their concern centres primarily on the possibility of government intervention to limit the investors return. Also, they perceive the problems and costs of residential management, particularly for elderly residents, as not worth the effort given the availability of commercial real estate and other investment opportunities.

The present short time horizon for institutional investment was also mentioned as a factor which would discourage participation in owner-occupied sheltered housing development. This consideration and preference for an immediate and regular cash flow were not seen as unsurmountable problems. However, most respondents felt that the combination of high risk, high administrative costs and the greater time required to deal with an innovative and relatively complicated scheme such as this would demand a higher internal rate of return than the 16 percent (based on a projected 6 percent annual rate of inflation) that's currently offered on commercial real estate investments.

Although the respondents were unanimous in their reservations on making an equity investment in this type of scheme several noted the possibility of developing a debt instrument which might be attractive to institutional investors. This would, however, require some sort of government involvement. Also, the development of an approach based on a MURB type program for private investors was suggested as another possibility for financing this type of housing.

A number of recent studies have examined the feasibility of re-
verse mortgages as a means of enabling older homeowners to adjust their
income and wealth position while remaining in their own homes (e.g.
Bartel and Daly, 1981 and Scholen and Chen, 1980). Although this method
of converting home equity into a regular cash flow has the potential
for helping low income homeowners it is not a solution to such problems
as: the difficulty and expense of heating and maintaining a house;
social isolation; lonliness; frailty and the worry and uncertainty of
living alone.

The housing scheme outlined in this report offers elderly home-
owners an attractive option. Not only does it allow the use of home
equity but it provides accomodation which is easier and more economical
to maintain, allows for spontaneous social contact with peers, ensures
security and support and encourages and sustains independence. Although
the actual level, intensity and form of the supportive services can be
tailored to meet the particular requirements of the residents, the fact
that the elderly will be "paying their own way" will encourage devel-
opers/sponsors to devote greater attention to producing products that
better satisfy the range of needs and preferences which exists in the
community.

In addition to improving the well-being of the elderly the scheme
offers broader social benefits. The cost of various government tax-
transfer programs could be reduced if "poor" elderly homeowners had
easier "access" to their major financial asset - the equity in their
homes. Government subsidies could then be more appropriately directed

to those older Canadians who have inadequate incomes and few assets. Also, the development of owner-occupied sheltered housing would increase the availability of existing family housing in older neighbourhoods where schools and recreational facilities may be underutilized. This would not, however, be at the expense of "exiling" older people to distant and unsuitable locations as the small scale of the projects make them easy to integrate into local communities.

Although the proposed concept of owner-occupied sheltered housing has many desirable features the study identified a number of practical problems associated with its development. These are principally related to the financial aspects of the scheme. First, its financial viability is particularly dependent upon continuing capital appreciation/ inflation over the years. Given present economic conditions investors are particularly cautious about long-term investments, particularly in residential real estate.

Second, the return to the investor, while substantial in the long-term, is slow to be realized and unpredictable on a year to year basis. Even for schemes where all operating costs are paid by the owner-occupiers the investor would not realize an acceptable average rate of return on his capital for up to 15 years. However, the simulation results on which these conclusions are based are themselves predicated on quite conservative assumptions. If, for example, units "turned-over" more frequently as a result of an older and more mobile resident population the investor's position would improve considerably.

Third, given the newness of the concept, the associated risks and the conservative nature of most investors, development of this housing

may require the initiative of government. It could take two forms: tax incentives to developer/investor and programs designed to enable non-profit sponsorship of projects. However, once the viability of the concept was proven the private sector would be in a position to proceed on its own and develop a variety of schemes to meet the diverse demands of a rapidly growing market. In fact, the financial structure described in this study is particularly flexible and lends itself to refinements which would increase the marketability of the scheme to investors and owner-occupiers alike. For example, risk could be reduced by indexing the residence fee to the prime interest rate, basing the residence fee on the investors share of the property's appreciation, adjusting the level of investor participation, or some combination of the above. Overall, both the public and private sectors have important roles to play if this concept is to be developed.

The affordability of the accomodation for older homeowners and consequently the size of the market are questions which must be examined more closely. In many cases the existing home equity of older people and those approaching retirement is currently of sufficient value to allow them to buy into a sheltered housing scheme. Nevertheless, this capability varies quite widely across the country. Those living in larger urban centres are generally in a better financial position than those in rural areas or smaller centres and there are substantial variations within cities. However, the scheme offers considerable flexibility. Projects can be designed to fit particular segments of the market. For example, unit size and quality of construction can be adjusted without compromising the primary objective of providing affordable, secure and supportive accomodation.

In additon to the value of existing housing the distribution of owner-occupied sheltered accomodation will also depend on the availability of suitable sites. Because the elderly are more sensitive to environmental conditions it is essential that development takes place within well established neighbourhoods on level sites which are close to shops and public transportation. In many urban areas sites with these attributes may not be readily obtainable. Special zoning provisions could, however, be adopted to encourage the development of these projects.

Although the development of projects within existing neighbourhoods will assist marketing efforts a number of factors suggest that there may be considerable consumer resistance. First, new products are suspect. Sheltered housing for the elderly is still largely unknown in Canada. In addition, the concept of home equity conversion or dissavings has only recently received limited public attention. And second, elderly homeowners are often relunctant to move from their houses. Therefore, a marketing strategy must fulfill a basic education function, allowing the potential purchaser to become familiar with the physical, financial and social attributes of the scheme. Also, due consideration must be given to the fact that older people will perceive and evaluate the scheme within the context of those "push" and "pull" factors which influence their decision on whether or not to change residence. For example, a large market may be tapped among the healthy young-olds if the independence and long-term security aspects of the housing is emphasized. On the other hand, focusing on the supportive elements of the scheme would generate interest among those older people

who are experiencing difficulties in maintaining their homes.

Although many details remain to be looked at - particularly a legal structure based on a "special purpose condominium" - the scheme outlined has considerable merit. While not providing a universal solution to the problems of the elderly it has the potential of becoming a desirable housing option for the growing number of elderly homeowners in the population.

A.   "Leasehold" Sheltered Housing

One of the objectives of this study was to determine from a legal point of view whether "leasehold" sheltered housing, as that concept has been developed in Great Britain, has any relevance in the Canadian setting.

In a previously published work, "Leasehold Sheltered Housing for the Elderly in Britain",[1] there is a full description of the four types of leasehold sheltered housing schemes in Great Britain. These are loan stock schemes, sheltered housing for sale schemes, shared ownership (LSE) schemes and equity-sharing schemes.

Each of these schemes is a variation on one basic concept: in return for a capital investment an elderly person obtains a long term lease (i.e. 60, 99 or even 150 years) to a sheltered housing unit in a small housing project, usually made up of between 20 and 50 specially designed one and two bedroom units.

From a legal point of view, an analysis of the appropriateness of such "leasehold" arrangements in a Canadian setting must begin by an identification of the reason for the "leasehold" approach in Great Britain.

According to Sherebrin, "sheltered housing" for the elderly was initially developed by municipal councils and by non-profit housing associations in the form of rental housing: the "sheltered" aspect being found in the specially designed, self-contained units linked to a resident warden/caretaker by an emergency alarm or intercom system. The grouping together of the elderly tenants allowed the more efficient

delivery of social, medical and other support services (i.e. meals on wheels etc.) while allowing each elderly person the sense of freedom and independence that comes from occupying a self-contained unit. In the rental context all maintenance of the units and other facilities is the responsibility of the landlord, thus the elderly tenant is not burdened by the physical and/or financial strain accompanying such a responsibility.

The "leasehold sheltered housing" schemes noted above have been develped in Great Britain to meet the perceived needs of those elderly persons who would not qualify for the "rental sheltered housing" being built and managed by municipal councils and non-profit associations because of higher incomes or asset base or because of the desire by these elderly persons to have the greater independence and equity growth sharing that is an incidence of "owning" one's own unit.

Apart from the "ownership" aspect relating to the individual unit, all other attributes of "rental" and "leasehold" sheltered housing projects are the same. As a result, the legal consequences of a person "owning" a dwelling unit and not "owning" or being responsible for the maintenance of the grounds around it or any of the other common facilities in the housing project had to be addressed, within the British common law and statutory setting.

In Great Britain, the notion of owning a house or dwelling unit on lands that are leased on a very long term lease (i.e. 50, 99, 199 years) is well established. Furthermore, in Great Britain the legislatively created concept of condominium[2] does not exist. Thus, "leasehold" sheltered housing schemes were developed as the most reasonable response to the legal and institutional setting in Great Britain.

In Canada, where all jurisdictions have enacted condominium legislation, resort to the British "leasehold" concepts discussed by Sherebrin is unnecessary from a legal point of view, for reasons which will become apparent later and is likely impractical from a financial and marketing point of view.

The remaining part of this analysis will focus on the way in which the concept of condominium housing can be put to use in the "sheltered housing context". In choosing to consider "condominium" as a logical vehicle for the delivery of sheltered housing, the writer is not ignoring the possible application of other forms of housing, such as co-operatives, incorporated apartment companies (a variation on the co-operative) co-ownership and short term leasehold.

Each of the foregoing housing forms has distinct weaknesses in comparison with the condominium form of housing if an underlying objective is to ensure both security of tenure and participation in the enhanced equity of the property.

In summary, the benefits over similar forms of housing which make condominium a worthy candidate as a vehicle for the delivery of sheltered housing for the elderly are:

1. ownership of the individual housing unit in fee simple;

2. co-ownership of the common elements;

3. individual mortgage on the housing unit;

4. individual tax assessment and collection;

5. right to enforcement of positive covenants (of repairs, maintenance etc.);

6. participation, if desired, in the management of the condominium;

7. central administration of repairs, maintenance, recreational facilities etc. (and individual units, if desired).

B.   "Condominium" Sheltered Housing

In a typical highrise or townhouse condominium housing develop-
ment, the individual apartment suites or townhouses are known as
"units". Each owner holds legal title in fee simple to the unit. A
"unit" in a townhouse development may be defined to include a modest
backyard area in addition to the individual townhouse suite.

All parts of the housing development which are not defined and
sold as "units" are known as "common elements". In an apartment build-
ing the grounds, the lobby, the elevators, the hallways, the recrea-
tional facilities, the basement and the central heating and air con-
ditioning facilities are likely to be common elements. In a townhouse
development, depending on its actual form (i.e. stacked townhouses,
street townhousing etc.) some or all of the above elements will be
common elements.

All common elements are held by the owners of individual units as
tenants in common and such interest in the common elements cannot be
separaed from the ownership of the unit.[3]

(a) Financing the Purchase of the Dwelling Units

Without reviewing the financial details involved in actually buy-
ing the land upon which the condominium development will be constructed
and in building the project, it is sufficient for this study to note
that ultimately each unit owner obtains title to the unit plus a pro-
portionate interest as tenant in common of the common elements; both
legal interests being basically indivisable and subject to any mortgage
that was required to make the purchase. Thus, any financial arrange-
ments inherent in the sheltered purchase arrangements can be managed on
a unit to unit and individual basis.

As a result, if the financial scheme anticipates that elderly occupant(s)/owner(s) will be assisted by an investor who wishes to participate in the capital appreciation of the unit (as opposed to receiving interest and periodic principal repayment on the mortgage loan), such arrangements can be readily established unit by unit to meet the individual investor. For instance, each unit could be purchased by occupant(s)/owner(s) and investor(s)/owner(s) as tenants in common in accordance with an agreed upon proportionate interest or each unit could be purchased by a share capital corporation, the sole shareholders being the occupant(s)/owner(s) and the investor(s)/owner(s). A shareholder's agreement would set out the rights and responsibilities of the parties including arrangements regarding resales.

In short, the condominium "ownership" relationships appear to offer the flexibility in arranging financing that is necessary for the financial schemes discussed elsewhere in this study. Furthermore, it is a form of housing that is well known and accepted by all kinds of financial institutions.

(b) Management of the Housing Project

Management of a condominium project is the responsibility of the condominium corporation which is created by the registration of the "declaration" and the "description" respecting the project.[4]

The principal duties of the corporation are:

1. to manage the property and any assets of the corporation;

2. to control, manage and administer the common elements;

3. to effect compliance by the owners of units with the provisions of the Condominium Act, the declaration, the by-laws and the rules.[5]

Each unit owner and unit mortgagee has the right to the performance of any duty of the corporation. Thus, a unit owner can compel compliance, if the corporation is lax.

In the first instance, the corporation is responsible for repairing both units and common elements after damage while it is also responsile for maintaining the common elements. The unit owner is responsible for maintaining the unit.[6] However, the "declaration" for the condominium may alter this relationship by requiring the owner to repair his or her unit after damage and to maintain the common elements or by requiring the corporation to maintain the units.[7] In any event, the corporation is authorized and required to make any repairs that a unit owner is obligated to make and which are not made within a reasonable time.[8]

The significance of this management responsibility is that it is possible to so arrange matters in establishing a condominium that the elderly unit owner is able to rely on someone else with respect to those matters which are so often a worry and a drain, both financially and emotionally (i.e. landscaping, snow removal, painting, repairs etc.). Such expenses would be collectible as a separate charge from each unit owner.[9]

In addition, the provision of a warden and the provision of central recreational and health facilities can be arranged and managed by the corporation as part of the common elements.

Notwithstanding that the corporation may be responsible for the management of the project, the individaul unit owner has the opportunity to participate in such management decisions to the extent that he or she may wish because the corporation is run by a board of directors of at least three persons, elected by the unit owners.[10] The by-laws of the corporation can require that only unit owners may be members of the board

of directors. The Act also provides a mechanism for ousting a board of directors that has lost the confidence of those unit owners owning a majority of the units in a project.[11]

As a final note on the matter of management, the board of directors may determine to proceed by way of self-management, hiring outsiders for specific tasks (i.e. maintenance of the grounds, repairs to services etc.) or by hiring professional management. The advantage of the latter is the obtaining of experienced personnel and continuity and stability, where members of the board of directors may change frequently.

The question of which approach is to be taken is entirely within the jurisdiciton of the board of directors.[12]

In summary, considerable flexibility is available in establishing management responsibility under the Condominium Act so that one can fine-tune a project to the particular management and financial formula felt appropriate to any particular market while ensuring an adequate method of delivering a level of recreational, social and health care that is suitable for a particular project.

(c) Establishing Special Purpose Condominiums

It is quite permissible to provide in the "declaration" establishing a condominium for a unique specification of those items which constitue common expenses.[13] (as opposed to those expenses which relate soley to the operation of common elements). Furthermore, special provisions relating to:

o the occupation and use of the units and common elements (ie.

   age restrictions relating to owners and occupants of units);

o gifts, leases and sales of units;

o the obligation to repair and maintain units and common elements;

may be established in the declaration.[14]

The declaration may not be amended except with the consent of all owners and all persons having registered mortgages against the property.[15]

Thus, one can establish a special arrangement for any particular condominium and assure any potential owner of the stability of that arrangement over time.

(d)   Government Supervision of the Condominium Project

A condominium, being a creature of statute, must meet fairly rigorous government standards to proceed. Furthermore, the Act provides fairly reasonable safeguards for unit owners once the condominium is established. Some of these have been reviewed already. In this work, it is not appropriate to thoroughly review all of the others; however, since the physical planning of a sheltered project is very important, a word about the role of government in this regard is in order.

In Ontario, a description of a condominium may not be registered unless it is approved, or an exemption from such approval has been given, by the Minister of Municipal Affairs and Housing (or a delegate).[16]

As a result of the foregoing, a condominium project is given the same thorough review on planning grounds as is a plan of sub-division.[17] Many municipalities have developed special policies relating to condominium projects that take into consideration the unusual characteristics of this form of housing. These policies relate to the provision of special amenities such as play and recreational areas for children and adults, and to parking requirements, garbage collection arrangements and many other features. In order for a project to be approved, these policies must be satisfied.

Were "sheltered" housing for the elderly to be provided in the condominium form, special policies could be developed for such housing and be made a requirement of the approval of such projects. Thus, the public interest in ensuring that such "sheltered" projects meet the real physical recreational, social and medical needs of the occupants could be satisfied.

D. Conclusion

It is concluded that from a legal point of view the highly adaptable condominium form of housing is the favoured vehicle for the delivery of "market" sheltered housing for the elderly for the many reasons discussed above.

There seems to be little reason from a legal point of view to import the "leasehold" approach from Great Britain when we have in Canada an apparently more appropriate and flexible tool.

Co-operative, in particular non-profit co-operative, housing may be appropriate for "assisted" sheltered housing, however an investigation of the "assisted" model was not part of the terms of reference for this study. Thus, no conclusions have been drawn in this regard.

FOOTNOTES

1. D. Sherebrin, August, 1982, Canada Mortgage and Housing Corporation.

2. The term "condominium" refers to a system of ownership whereby each dwelling unit in a multi unit project is owned individually while all other property associated with the project (i.e. the common elements) is held in common by all unit owners; each owner holding as a tenant in common. A condominium may be capable of being established at common law, however, two fatal weaknesses are inherent in such a scheme that render it impractical. Firstly, since the common elements are owned by tenants in common, a person could bring an action for partition of the common element and end the condominium. Secondly, positive covenants (i.e. covenants that require someone to do something, such as repair as opposed to negative covenants which merely forbid someone from doing something, such as not to disturb someone else) cannot be made to run with the land and therefore ultimately become unenforceale against subsequent owners of the units (although enforceable against the original owner as a matter of personal contract). The legislatively created condominium prohibits, except in rare cases, the partitioning or dividing of common elements and makes positively covenants enforceable aginst subsequent owners of units.
The Condominium Act R.S.O. 1980 c.84 s.7(1) and s. 7(5).
The Ontario legislation is used as the basis for the analysis in this study.

3. The Condominium Act R.S.O. 1980 c.84 s.10(1)

4. The Condominium Act R.S.O. 1980 c.84 s.12(1), (2), (3)

5. The Condominium Act R.S.O. 1980 c.84 s.12(5)

6. The Condominium Act R.S.O. 1980 c.84 s.41(1), (2), (3)

7. The Condominium Act R.S.O. 1980 c.84 s.41(5)

8. The Condominium Act R.S.O. 1980 c.84 s.41(6)

9. The Condominium Act R.S.O. 1980 c.84 s.32

10. The Condominium Act R.S.O. 1980 c.84 s.15(1)

11. The Condominium Act R.S.O. 1980 c.84 s.15(8), 19

12. Usually the initial property manager of a condominium is chosen for a project by the developer of the project by the entering into of an agreement before registration of the project or soon after. Section 39(1) of the Act gives the corporation, once the declarant no longer controls the majority of units, the right to terminate such agreements, on the giving of 60 days' notice in writing.

13. According to the Act, "common expenses" are defined as "the expenses of the performance of the objects and duties of the corporation and any expenses specified as common expenses in this Act or in a declaration. (s.1(1) (h))

14. The Condominium Act R.S.O. 1980 c.84 s.3(3)

15. The Condominium Act R.S.O. 1980 c.84 s.3(4)

16. The Condominium Act R.S.O. 1980 c.84 s.50(2)

17. The Planning Act, 1983 s.50

APPENDIX II: AGE SPECIFIC MORTALITY RATES

Age	Group Annuity, 1983[1] Male	Female	Canada, 1975-1977[2] Male	Female
60	.00916	.00424	.01843	.00872
61	.01006	.00470	.02007	.00950
62	.01113	.00521	.02188	.01039
63	.01239	.00577	.02380	.01137
64	.01387	.00639	.02582	.01242
65	.01559	.00706	.02800	.01357
66	.01758	.00782	.03039	.01488
67	.01980	.00868	.03306	.01638
68	.02223	.00970	.03598	.01802
69	.02482	.01092	.03910	.01978
70	.02753	.01239	.04248	.02172
71	.03035	.01413	.04614	.02393
72	.03337	.01616	.05013	.02646
73	.03668	.01848	.05435	.02921
74	.04039	.02109	.05879	.03214
75	.04460	.02399	.06357	.03540
76	.04939	.02718	.06882	.03915
77	.05476	.03067	.07466	.04353
78	.06068	.03446	.08102	.04846
79	.06713	.03855	.08780	.05381
80	.07407	.04295	.09514	.05976
81	.08148	.04766	.10316	.06644
82	.08932	.05269	.11198	.07403
83	.09753	.05807	.12153	.08240
84	.10605	.06381	.13172	.09147
85	.11484	.06992	.14268	.10138
86	.12417	.07657	.15453	.11229
87	.13387	.08446	.16741	.12435
88	.14407	.09194	.18121	.13746
89	.15486	.10135	.19588	.15152
90	.16631	.11175	.21151	.16668
91	.17821	.12308	.22826	.18309
92	.19046	.13563	.24624	.20092
93	.20301	.14958	.26531	.22005
94	.21790	.16510	.28557	.24038
95	.23409	.18242	.30695	.26207
96	.24844	.20176	.32966	.28528
97	.26395	.22204	.35381	.31015
98	.28080	.24390	.37414	.33101
99	.29915	.26819	.39058	.34778
100	.31919	.29519	.41100	.36894

1 Society of actuaries, Committee on Annuities, "Exposure Draft: Development of the 1983 Group Annuity Mortality Table - An Interim Table for Group Annuity Annual Statement Valuation".

2 Statistics Canada, Life Tables, Canada and Province 1975-1977.

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