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Limited Equity Cooperatives: An Alternative Method for the Development of Low to Moderate Income Housing

by

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Acknowledgements

Writing papers, articles and reports is an appropriate interface between what goes on in my mind and the world of potential readers. For me, this is the most intriguing duality because as I write for myself often, and with ease, I write for others with as much intensity and deliberation as I live my life. Those who know me well understand that my intensity is in pursuit of understanding; laughter is always in my heart. I acknowledge those who have supported me as I, and my thoughts have evolved, from my undergraduate work, professionally and on through these two years of grad school. Without the strength of community, friendship and family, both here in Texas, and back in Massachusetts, I most certainly would have encountered a different experience.

Specific thanks go to Whitehall Intentional Society, my home and community for the past year. As I studied all sorts of housing issues and worked to complete the written documentation of this professional report, I lived and experienced the ups and downs of this no-equity cooperative. Additionally, unique thanks to H. for allowing me the use of his home as a sanctuary and work space.

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Abstract

Limited Equity Cooperatives: An Alternative Method for the Development of Low to Moderate Income Housing

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The University of Texas at Austin, 2007

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The cost of housing is rising disproportionately to income throughout the country. Alternative methods of providing low to moderate income housing are always being sought to offset the gap created by the varying rates of growth between the cost of housing and income. The purpose of this professional report is to examine the Limited Equity Cooperative (LEC) which by simple definition generally limits the resale value of member shares to maintain affordability over time. This report looks at the specifics the LEC to determine how it can by used to provide a viable solution to an overall shortage for low to moderate income households through an hypothetical test cased using 2007 data for the Metropolitan Boston area.

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Chapter I: Introduction

If all misfortunes were laid in one common heap whence everyone must take an equal portion, most people would be contented to take their own and depart.

Socrates

This paper starts with the assumption that affordable housing is essential to all communities. Policy makers and others working in the field of affordable housing can agree with the statement that there is an increasing need for affordable housing. Society continues to build and supply housing products which fail to keep up with the demand. Alternative models of homeownership have been used historically, however currently they are under represented and under researched. This professional report examines the specific alternative method of the Limited Equity Cooperative (LEC) as a potential solution to the problems caused by the affordable housing gap.

Many discussions about the ways that the affordability crisis is affecting our cities and economies are published by the well known housing advocates such as The Center for Housing Policy, National Housing Institute (NHI) and Policy Link. The concerns of affordable housing are an obvious issue for the low to moderate income earners; affordability is also becoming a problem for the median, and above, income earners. In the "State of the Nation's Housing 2006" report published by Harvard University, the Joint Center for Housing Studies states, "the costs of owning and operating even modest housing far exceed the rents that many low-income households can afford to pay without deep subsidy. As a result, affordable rental housing is disappearing at an alarming rate."[1]

[1] Joint Center for Housing Studies, 2006: 4

The stated goal of the Housing Act of 1949 was "a decent home and suitable living environment for every American family."[2] As a result the quality and ownership of housing increased. Current housing policy continues to promote homeownership, with a conservative understanding that the market is the best method to supply the demand. Hays explains "this means that the market conditions shape the availability and cost of housing beyond and in spite of, actions taken by government."[3] It is the market conditions, i.e. the cost of producing housing that is causing the dramatic increase above available income.

To simply rely on the market to produce enough affordable units to satisfy the increasing demand is not enough. Sometimes a problem requires thinking outside of the box; with a changed perspective, solutions are presented with clarity. The subject of housing is socially and philosophically connected with much broader concepts of the American Dream. It is within this concept that the dichotomy of housing as we know it exists at either ends of a spectrum, ownership or rental.

The alternative exists in the middle. John Emmeus Davis[4] defines shared equity as "resale-restricted owner-occupied housing" in his report to NHI: "Shared Equity Homeownership: The Changing Landscape of Resale-Restricted, Owner-Occupied Housing."[5] His research is the most comprehensive and up-to-date research on the

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[2] Martinez 2000: 467. Martinez cites that the 1949 act's goal was later invoked in the Housing and Urban Development Act of 1968 (42 U.S.C. 1441a); in the Housing and Community Development Act of 1974 (42 U.S.C. 5301); in the Housing and Community Development Act of 1987 (42 U.S.C. 5301); and in the 1990 Cranston-Gonzalez National Affordable Housing Act (42 U.S.C. 12701).

[3] Hays 1995:57

[4] Davis is a co-founder of Burlington Associates, an Equitable and Sustainable Community Development organization that consults with cities and states to assist in their development goals. Among the organizations philosophies are; to encouraging economic self-sufficiency through local ownership and maximum use of local resources; equalizing the benefits and burdens of growth; and leveraging and recycling scarce public fundsBurlington Associates Website: http://www.burlingtonassociates.com/about.html

[5] Davis. 2006: 1

subject of shared equity. Unfortunately, as Davis explains, the subject of shared equity has received relatively little attention compared to the normal forms of tenure such as ownership and rentals.[6] Even with this obstacle, Davis states that the "number of nonprofit organizations developing resale-restricted, owner-occupied housing, the number of private lenders financing such housing, and the number of government agencies using their dollars and powers to assist such housing have steadily increased in recent years." [7]

The specific shared equity model of interest is the LEC. A simple definition of the LEC is that it limits the resale value of the members share. A member owns a share of the cooperative giving rights to a specific unit. The maximum resale value is predetermined by a formula established in the cooperative's by-laws. The National Association of Housing Cooperatives explains that LECs are generally targeted at low to moderate income households for the purpose of preventing speculation, encouraging long-term residency, and preserving affordability for future residents.[8]

The following report proposes a solution to the current problem of rising housing costs compared to income levels, i.e. the affordable housing gap. It examines the details of shared equity, specifically the LEC to inform the discussion about the potentials of this alternative solution. It may be true that all of the shared equity models have equal value and potential in the market today. However, this research is presenting the alternative model of the LEC for low-moderate income housing, not an analysis of the different models. This report shall test the proposition that an LEC is an effective tool for the production of low to moderate income housing units.

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[6] Davis 2006:11
[7] Davis 2006:2
[8] National Association of Housing Cooperatives website: http://www.coophousing.org/glossary.shtml

Methodology

In order to analyze and test the idea that this alternative form of housing production and ownership can reduce the affordable housing gap, this report shall present a literature review on the existing data to identify the problem of affordability, present a potential alternative, and examine funding sources. Additionally, a hypothetical test case examines the development of an LEC by testing its initial financial feasibility.

The major sources for this review are divided into three sections. The problem of affordability is analyzed in three sections policy, production and affordability. Two prominent writers on housing policy, Allen Hays and Alex Schwartz are used as key sources for this discussion. The analysis of the affordable housing gap is informed by Harvard's report "The State of the Nations Housing 2006" and other online sources. The alternative housing model analyzes shared equity and the specifics of the LEC. In addition to Davis's report to NHI, two other well known writers on housing issues, William Rohe and Susan Saegert offer analysis of limited equity cooperatives. The financial concerns and the pro forma examination are largely supported by knowledge gained from the book by Mike Miles (2000) *Real Estate Development: Principals and Process*.

Definitions:

Affordability - The generally accepted national standard definition of affordability is that households spend 30% or less of gross earned income on housing costs (both structure and utilities).

Affordable Housing Gap - The difference between earned income and the cost of housing.

Funding Sources – Public funding is money received through state and local municipalities for the support of affordable housing. Private funding is through banking institutions and/or private investment.

Retention – Retention of subsidy is when the dollars spent on the first client are available at equal value to the next client. For Davis, this is a conversation about the dollars alone, however, if the unit's affordability can be retained, then so too is the original subsidy retained.[9] For the purpose of this examination, the retention of the unit in an LEC is the retention of the original subsidy.

Recapture – Recapture of the subsidy is a requirement that the original subsidy given to the client is returned at the point of sale. A first time buyer is given a loan to offset the difference between income and cost. At the point of sale, the return of the original subsidy is referred to as a recaptured subsidy. Most times, the subsidy is not tied to the unit but the recaptured funds are used to offset the affordability of another unit.[10]

Perspective

As a practicing architect in Massachusetts, experience leads me to believe that our built environment is largely controlled by the visions of institutions and developers, both public and private. A degree in Community and Regional Planning enhances my knowledge of the macro scale influences on how and why we build buildings. This report is an opportunity to explore the subject of developing a model for housing that combines the social issue of affordability with the practical issue of getting it done.

Anticipated Findings

Before beginning this research, I was optimistic that the development of LECs could offer an alternative which could be attractive to both potential investors and future

[9] Davis 2006: 84
[10] Davis 2006: 84

residents. In the development world, the inception of an idea is the starting point for many developments. In this case, the idea occurred some time ago. An idea alone is not enough. Understanding the market need and financial feasibility is crucial. This document exemplifies the praxis between the academic requirements of a field of study and the intention of eventually developing an LEC as an alternative form of affordable housing.

Chapter Outline

Chapter I: Introduced and identified the concepts of an affordable housing need and the potential solution within the alternative model of housing, the limited equity cooperative. Also identified in this chapter is the perspective from which the analysis originates and the methodology used to present the research.

Chapter II: Explores the affordable housing gap and discusses the problems associated with the growing gap between the cost of housing and income. This chapter frames the question of affordability by looking at the broader individual aspects of housing policy, production and affordability.

Chapter III: Examines the shared equity model and presents the limited equity coop as a method of addressing the problems associated with the housing gap.

Chapter IV: Explores the funding sources available for a limited equity cooperative housing development by examining the available public funding sources.

Chapter V: Presents an analysis of the cost associated with the development and operations of a hypothetical test case of an LEC the Metropolitan Boston area.

Chapter VI: Concludes with the lessons learned between the presentation of the problem and the potentiality of the alternative solution.

Chapter II: The Problem of Affordability

"An adequate stock of affordable housing is fundamental to the long term economic prosperity of cities. The challenge is to make scarce public dollars go further even in difficult budget times."

Mayor Michael R. Bloomberg, NY[11]

Housing is an essential aspect of a healthy community. The origin of the planning profession as we know it began with the need to fix the problems of tenement housing. Over the years there have been many changes in policy and support for the production of housing for those in need. Since the National Housing Act of 1934 when the federal government introduced long-term, fully amortized loans and "broadened the segment of U.S. population who could afford a home"[12], the methods of production and ownership have changed very little. Given that the cost of producing traditional homes is leaving many without access to good affordable housing, an alternative is imperative. In order to affect the situation caused by the problems of affordability it is necessary to reduce the cost of housing, and maintain affordability from the first owner through future generations of owners.

Although the idea of homeownership has broad political support at a policy level, it is understood that homeownership is not obtainable by all. The public housing policy of 1937 which authorized public housing authorities (PHA) to finance the development cost of public housing was renewed after World War II with the Housing Act of 1949.[13] Communities that strive to maintain economic stability are aware of the need to provide affordable housing options.

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[11] Housing Facts and Findings. 2003. Fannie Mae Foundation. Vol 5 No 1.
[12] Hays 1995: 85.
[13] Schwartz 2006: 101 - 102

Policy is only a part of the equation. To fully understand the problems related to affordable housing, additional analysis is necessary of what is affordable and to whom. The focus of this research is on low to median income earners, which narrows the criteria for funding sources related to production and delivery of an affordable housing product.

Whether the PHA or private developers are producing the housing, the cost of construction is the same. Some might argue about the efficiencies of the private developer versus the inefficiencies of the public agencies. For this examination, it is assumed that both are equally efficient. Therefore the cost of development is left to other factors such as location, cost of labor, cost of materials, overall economy and interest rates.

The remaining chapter examines three aspects of the affordable housing problem, policy, production and affordability. The sections frame the question of the problem of affordability. There is overlap between the sections due to the intricacies of developing an affordable housing product; however, the intention is to discuss them individually.

Policy

In a broad overview of Federal Housing from 1934 – 1973, Hays explains in chapter 4 of his book *The Federal Government and Urban Housing: Ideology and Change in Public Policy*, that the social welfare programs of the New Deal were different in spirit from the policies of the Kennedy/Johnson administration. The New Deal policies were meant to deal with economic crisis, whereas the Kennedy/Johnson policies were thought to improve upon good economic times by bringing the disadvantaged into the mainstream.[14] It is during the 60's that urban riots and non-violent protests brought the inequality of housing policy to light. An increase in support for disadvantaged households to purchase their own home was followed by the 1968 Act which added

[14] Hays, 1995: 87 - 88

Section 235, a subsidy covering the difference between the normal interest loan and a loan at 1% interest.[15]

Housing policy has changed directions over the years. However, from both the New Deal and the Kennedy/Johnson Administrations, clear support for the social benefits of homeownership contributed to the choice of these "programs as a vehicle to aid urban areas."[16] There was a strong belief at the time, and still today, that homeownership contributes to the economic stability of low to moderate income neighborhoods.

The debate between the conservative and liberal perspective of federal affordable housing policy is as old as housing policy itself. The current position of the federal government, as well as most local governments leans towards the conservative side and in support of minimal intervention in the market. The basic tenants of the conservative view, as Hays discusses, stems from the capitalist notions our society builds the "American Dream" upon. Namely, humans will naturally strive to better themselves and their position in life, and that the market is the best allocator of goods and services.[17]

The administration's policies on housing fluctuate between the conservative position of allowing the market to handle itself and the more liberal position of fully funding, and maintaining affordable housing projects. Private developers interested in affordable housing production need to fully understand how the politics of their region affect future development. For example, in recent years, there has been a move towards private development because housing programs and publicly owned properties have suffered from political neglect. "The federal government's commitment to the production

[15] Hays, 1995: 89
[16] Hays, 1995: 89
[17] Hays, 1995: 17-18. This argument is previously presented in a housing policy debate written by the author in Spring of 2007.

of subsidized housing has been erratic at best and since the 1980s very little new housing has been built with direct federal subsidy."[18]

In 1984 the Reagan administration proposed the Public Housing Homeownership Demonstration as a method of testing the sale of publicly owned units to tenants. Rohe explains that although there were many applications for transfer, only 320 units in total were bought by residents in the four year demonstration period.[19] Of the applications, the majorities were for single family detached units; however five were multifamily of which four were bought as an LEC.

In 1987, a similar section of the Housing Act, Section 21, which stipulated that the units be sold to a qualified resident management corporation (RMC) instead of directly to tenants. The RMC works much like the LEC in terms of having a board made up primarily of residents. This program was short lived, and replaced in 1990 with the Homeownership and Opportunity for People Everywhere (HOPE) 1 program. Rohe explains "that although the program is not a high priority for the Clinton administration, it is continuing to support sales efforts that are under way."[20] Rohe researches three LEC conversions under these programs to understand the potential of cooperatives to provide decent, safe, affordable housing.

Additionally, Schwartz discusses the "devolution" of federally administered housing programs with increasing allocation of funds via Block Grants, Section 8 vouchers and Low-Income Housing Tax Credit (LIHTC) to local municipalities.[21] Established in 1986, the tax credit is not exactly a subsidy; it is only a tax not collected and is one of the largest funding sources for multi-family housing. Reporting on how

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[18] Schwartz 2006: 145
[19] Rohe 1995: 440-441
[20] Rohe 1995: 441
[21] Schwartz 2006: 179. See Chapter IV of this document for more discussion on how LIHTC works.

well the tax credit program was doing from inception to 2002 Schwartz cites Malpezzi & Vandell(2002): "The program accounts for about 28% of all multifamily housing built during this period, and it now accommodates more households than public housing, a program started 50 years earlier."[22]

With the use of LIHTC dollars as the major funding source, private and public/private partnerships are increasingly becoming the method of producing affordable housing. LIHTC funding is for affordable housing apartment rentals. In an attempt to satisfy prevalent housing policies, homeownership, and private development, the product of the LEC can be manipulated to satisfy the criteria of the LIHTC while providing homeownership from the beginning of the project. Through the 1980's programs sought to sell publicly owned properties to tenants as an after thought. Understanding the goal of homeownership of publicly funded affordable housing at the onset of the project requires vision.

Proponents of the shared equity model are interested in fixing some of the problems associated with the subsidy for affordable housing over time. The oldest form of subsidy is, like the LIHTC, claimed as tax relief. For example, homeowners and investment property owners claimed 78.9 billion in 1990.[23] This money year after year is a one time subsidy. Once relief is given, it is removed from the system. The other extreme for public funding is to build and maintain public housing; therefore the subsidy and units can be retained for the life of the project.

The ideas associated with removal and retention of subsidy, are central themes in the shared equity model. The affordability section that follows discusses the gap between the cost of housing and income, as it increases, the demand for affordable housing units

[22] Schwartz 2006: 83
[23] Hays 1995: 78.

increases. This section identifies a connection between the increase of demand for units and local municipalities' ability to retain existing subsidy/units.

The use of LIHTC requires that the development remain affordable for a minimum of 15 years after completion. Schwartz discusses the problems associated with what happens to these units after the compliance period. He explains that there has been recent legislation to make it more difficult for owners to convert tax-credit properties to market rate, but "they by no means guarantee the long-term affordability or viability of this housing."[24] After this period, units can be removed from the overall stock of affordable housing units. Removal of subsidy has also been seen in first time buyer programs, although, many housing authorities have corrected the mistakes of the earlier program by at least requiring a client to repay the original subsidy on sale of the unit. This is referred to as recapture.

Chapter III elaborates on the concepts of removal, recapture or retention of affordable housing units within the context of the shared equity model. For the purpose of this discussion, removal, recapture, and retention refer to the affordable housing unit. The dollars associated with developing the units are interchangeable to the unit itself, for example if you can build another unit to replace one lost with the original subsidy, then it (the unit) has been retained. This can be seen in practice with first time buyer programs, since houses are not always tied to the subsidy, the translation is that any dollar recaptured from the sale of the house can be re-used in the purchase of another house to help make it affordable.

Although homeownership receives wide support from the federal and state level, Schwartz cautions that many of the claims about homeownership have been subjected to little research and analysis. Schwartz explains that much of the research conducted

[24] Schwartz 2006: 96

contains information about the financial benefits of homeownership, but the environmental, psychological, and social benefits have not been adequately examined. He questions a basic assumption that homeownership offers control over one's environment, by pointing out that the LEC, although not full homeownership provides a similar type of control. Here, Schwartz alludes to the dichotomy of the research of either homeownership or rental, pointing out that some of the claims about homeownership are not exclusive to the full equity homeowner. [25]

The financial returns of homeownership are assumed to benefit all homeowners equally. It is acknowledged in some research that many in the lowest income brackets do not benefit financially from ownership in the same way wealthier homeowners do.[26] Often times low income homeowners do not benefit from tax deductions of mortgage interests due to their tax bracket, and the lower value of the home. Nor do lower income residents have the same access to mortgages at reasonable rates, whether due to bad past credit history or other reasons, low income households often end up with sub-prime mortgages in turn affecting the long term gain.

In many cases, affordable housing is built where zoning permits and the land is cheap. Often this means that the housing is built in economically depressed areas. There are methods of limited intervention that can help reduce the costs associated with building in more expensive locations, which allow for a more equitable distribution of affordable housing. In Massachusetts, the Comprehensive Permitting Law (Chapter 40B), allows a developer to by-pass local zoning and review process to build an affordable housing project. As a developer, in order to use Chapter 40B, the city or town must be in default and lacking their share of affordable housing, i.e. 10% of their housing

[25] Schwartz 2006: 252
[26] Belsky 2005: 17

stock at an affordable level (affordability is discussed later in this chapter). The purpose of the permitting law is to equitably distribute housing throughout the Commonwealth for households of low to moderate income.

Production

Production of housing is the process in which raw land is developed and a product is built to satisfy the needs of the client. In affordable housing, the product is often multifamily. Affordable housing relies on subsidy to offset the difference between the cost of production and the deliverable of an affordable unit. An LEC is an affordable housing product. Saegert points out that "assuring decent, affordable housing for people with low incomes, in most cases, requires some level of subsidy … the same is true for LECs."[27]

To determine the cost of production for a rent restricted multifamily project or a full market multifamily product, a number of factors are considered. Most significantly, the cost of construction, which is the same for both products, unless the unrestricted multifamily is a high-end development in which finishes and material selections would increase the square foot (SF) cost significantly. The cost of construction is determined by the market and is based on the cost of labor, and the cost of materials. Construction estimators often use RS Means as a national source for construction cost; there are modifiers for location, and the use of labor unions.

The cost of debt/equity is a factor in the production of housing. A difference between an affordable housing project and normal unrestricted rental project might be the use of tax financing, or lower rates from equity lenders due to the nature of the product. Otherwise, interest rates remain fairly consistent between the two models.

[27] Saegert 2005: 437. Saegert is citing Turner 1998; Weicher 2001.

The cost of land and land regulation varies from town to town. In traditionally wealthy communities it can be a barrier to the production of affordable housing. A recent article by Edward Glaeser, et al. at Harvard University, which looks at the rising costs of housing prices, suggests that the increase is due to regulation in the Greater Boston area. In 2004, Boston suffered from the highest percent change in home prices in the top 20 metropolitan areas, second to NY City.[28] Glaeser refutes the idea that this increase is due to a lack of land, and reports that although the metropolitan area of Boston is denser than the average, the density is still quite low at 1.4 acres per person. The thrust of the article argues that the regulatory process as the largest barrier to the new construction and is the reason for high home prices.[29]

From the conservative perspective, the Massachusetts state law, Chapter 40B allows for minimal intervention in the market while alleviating some of the regulatory process associated with affordable housing production. Glaeser and Fisher both point towards an increase use of Chapter 40B to get beyond the hurdle of local land use regulations. "A very small portion (1%) of land in 144 towns in the Boston metropolitan area is currently zoned for multifamily housing, and the majority of these towns completely lack land zoned for multi-family developments."[30] Chapter 40B is a crucial tool in the production of multifamily housing in the metropolitan Boston area.

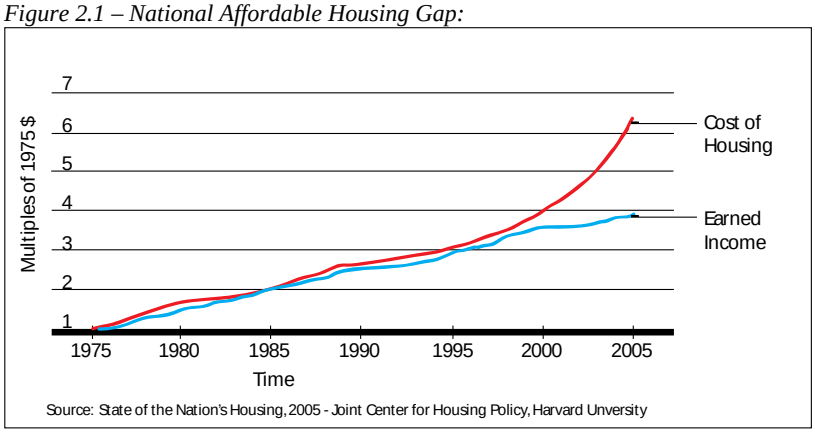
Affordability

Even without a consensus on the definition of affordability, it is clear that the gap between income and cost of housing is increasing at an alarming rate for a large portion of the U.S. population. "The State of the Nations Housing Report for 2006" by Harvard

[28] Glaeser 2006: 1
[29] Glaeser 2006: ii
[30] Fisher 2007: i. Fisher notes that one hundred and one towns out of 144 investigated have no multifamily zoning according to MassGIS. It should be noted that multi-family housing can sometimes be built under other sorts of zoning, like mixed used zoning.

University analyzes the data regarding national housing trends. Reporting that although the majority of Americans pay a manageable share of their income, i.e. less than 30%, the three years from 2001 to 2004 saw an increase of 1.9 million households that paid more than half their income on housing. [31]

Figure 2.1 – National Affordable Housing Gap:



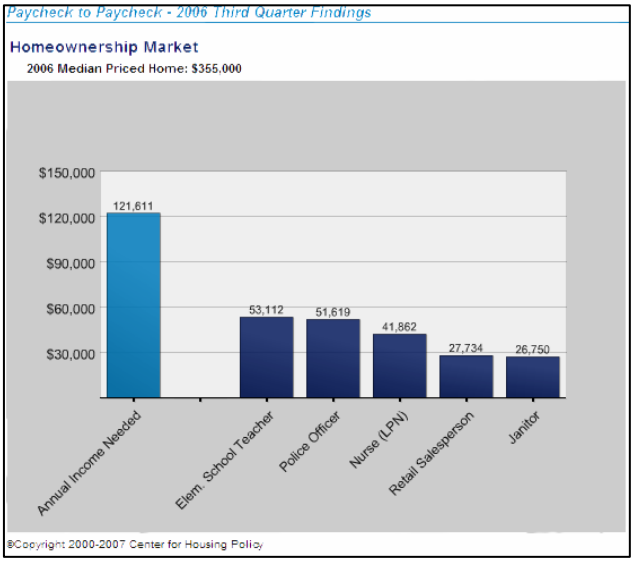
Nationally the cost of housing is rising exponentially, however the earned average income has increased at the same rate as inflation, i.e. not as sharply as housing costs. The national averages in figure 2.1 show that a rise in cost of housing over the past five years is five times the increase in income. Schwartz explains that most years, house prices rise at a rate about half a percentage point higher than inflation, but from the mid 1990's onward house prices have increased at an unprecedented high rate.[32]

Some areas of the country are seeing this increase even more dramatically. According to Paycheck for Paycheck, an online interactive web service that presents wage data for selected metropolitan areas reports that the average home price for the Boston area is $355,000. Figure 2.2 shows five pre selected occupations and their

[31] Joint Center for Housing Studies at Harvard University 2006: 3
[32] Schwartz 2005: 253

median salary.[33] In order to be able to afford the average home price, an annual income of $121,611 is needed.

Figure 2.2 – Boston Homeownership and Wages:



Using the 30% of income as a benchmark for acceptable costs of housing, HUD states the income limits by percentile and matches this to the number of household members. Figure 2.3 shows the Estimated Median Income (EMI) by percent of EMI and number in household for the Boston CMSA. HUD estimates the income by number of persons based on the median family size, for 2007 approximately 3.8 persons. The income limits set by HUD are only for 30%, very low (50%), and moderate (80%), figure 2.3 has been expanded to include limits for low (60%), median (100%) and 110% of median income. Additionally, HUD sets the rents for units considered for tax credits. It is based on the income limits below; however, the monthly rental prices are set by size of unit, not persons within the unit, see figure 2.4 below. Appendix E shows the calculations for persons and income levels, as well as the relationship between the

[33] Website: http://www.nhc.org/chp/p2p - produced by National Housing Conference.

numbers in household with the size of the unit. This data is used later in the pro forma to determine the income of the hypothetical project.

Figure 2.3 – Income Limits for Boston 2007:

2007 Boston Income Limits based on HUD Estimated Mean Income (EMI) of $82,400						
	30%	50%	60%	80%	100%	110%
size of HH	Percentile Income	Percentile Income	Percentile Income	Percentile Income	Percentile Income	Percentile Income
1	**$17,702**	**$29,503**	**$35,404**	**$47,205**	**$59,007**	**$64,907**
2	**$20,201**	**$33,669**	**$40,402**	**$53,870**	**$67,337**	**$74,071**
3	**$22,752**	**$37,920**	**$45,505**	**$60,673**	**$75,841**	**$83,425**
4	**$25,217**	**$42,028**	**$50,434**	**$67,245**	**$84,056**	**$92,462**
5	**$27,249**	**$45,415**	**$54,498**	**$72,664**	**$90,830**	**$99,912**
6	**$29,296**	**$48,826**	**$58,591**	**$78,122**	**$97,652**	**$107,417**
7	**$31,298**	**$52,163**	**$62,596**	**$83,461**	**$104,327**	**$114,759**
8	**$33,325**	**$55,542**	**$66,650**	**$88,867**	**$111,083**	**$122,192**

source: http://www.huduser.org/datasets/IL/IL07/ma-fy2007.pdf

Figure 2.4 – Rents by Unit Type Boston 2007:

2007 Boston Rent determined from Size of Households based on HUD EMI of $82,400							
		30%	50%	60%	80%	100%	110%
Size of Unit	Size of HH	Monthly Rent	Monthly Rent	Monthly Rent	Monthly Rent	Monthly Rent	Monthly Rent
eff.	1	**$443**	**$738**	**$885**	**$1,180**	**$1,475**	**$1,623**
1 bed	1.5	**$474**	**$790**	**$948**	**$1,264**	**$1,580**	**$1,738**
2 bed	3	**$569**	**$948**	**$1,138**	**$1,517**	**$1,896**	**$2,086**
3 bed	4.5	**$656**	**$1,094**	**$1,312**	**$1,750**	**$2,187**	**$2,406**
4 bed	6	**$732**	**$1,221**	**$1,465**	**$1,953**	**$2,441**	**$2,685**
5 bed	7.5	**$808**	**$1,346**	**$1,615**	**$2,154**	**$2,692**	**$2,962**

According to HUD's income limits, an average elementary school teacher earning $53,112, as a single person, no children falls between the 80 – 100 percentile income limits. If this teacher has one or more children, she then falls to the 60 - 80 percentiles. Of the five occupation depicted in the paycheck to paycheck example, the teacher is earning the highest income average.

In addition to determining the income limits, HUD also determines fair market rents (FMR). FMR information is used by HUD to determine acceptable rents for the

Section 8 voucher program which pays the difference between their clients ability to pay based on the 30% rule and the FMR for the unit type. Figure 2.4 shows a comparison between FMR for 2000, 2005, and 2007.

Figure 2.5 – FMR Comparison:

Comparison FMR - HUD			
Size of Unit	2000	2005	2007
eff.	**$669**	**$1,066**	**$1,097**
1 bed	**$752**	**$1,120**	**$1,164**
2 bed	**$942**	**$1,308**	**$1,366**
3 bed	**$1,177**	**$1,593**	**$1,634**
4 bed	**$1,382**	**$1,898**	**$1,795**

source: http://www.huduser.org/datasets/fmr/fmrs/select_geography.odb
source: http://www.huduser.org/datasets/fmr/fmrs/index.asp?data=hist

In Boston, the FMR on the efficiency rose 160.9% in 7 years. Looking back at figure 2.1, the national average home price increased 164.5% from 2000 to 2005. The two seem consistent with each other; however in comparison the increase of income of only 109.2% shows the magnitude of the affordable housing gap.

Conclusion

Policy, production and affordability are intricately connected in the problem of affordable housing. Policy dictates land regulations as well as shifts public funding to or away from the affordable housing production. In current politics, policy drives local politicians to seek both public/private ventures, as well as private developers who can fulfill the demands of the affordable housing need.

The political shift to use LIHTC as the major funding source for low to moderate income housing has a specific long term problem of retention of affordable units after the 15 year minimum period. Without taking care of this problem, the gap will only increase. The only way to meet the demands of an increasing need for housing at the low to

moderate income levels is to supply and retain affordable units for future generations. Overcoming barriers related to land use has not been covered adequately in this report, however in Massachusetts; it is assumed that Chapter 40B is a useful tool in this regard.

Policy is also related to the production of affordable housing. Although policy cannot change the elements of cost of labor and cost of material, it can affect the cost of land directly by forming partnerships with developers to build on publicly owned land and indirectly by supporting changes in local land regulations to increase the amount of affordable land available for multifamily projects.

Chapter III: An Alternative Housing Model

"Every man might help another, without any disservice to himself."

Benjamin Franklin[34]

As discussed in chapter II the existing policy, which promotes the use of LIHTC funding by private developers, lacks the controls to ensure these units remain affordable after the compliance period. As the affordability gap increases, the demand for affordable units also increases. Even considering some of the legislation to control conversion of LIHTC project to full market, the mere chance that affordable unit stock will decrease, exasperates the deficit of affordable units. The alternative of supplying and retaining affordable housing units is found in the shared equity model, which until recently has received little attention in research and practice, because as Davis points, most housing research is focused on the dominant forms of tenure, ownership and renters.[35] Although not as well known, shared equity models have a long history and may offer a solution to today's affordable housing crisis. A closer look at shared equity models, specifically the LEC, is used to analyze the pros and cons of this product in the housing market.

Since 2006, when Davis's report was published, an increase of interest in shared equity is noticeable in online forums and housing journals. Over the past 12 months of this research, significant discussion has ensued regarding shared equity, for example, online discussions on KnowledgePlex on the subject of shared equity mortgages, Policy

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[34] This quote is found on a website titled Cooperative Hall of Fame. "Benjamin Franklin was the prime mover and organizer of the Philadelphia Contributionship for the Insurance of Houses from Loss By Fire – the oldest fire insurance company and operating cooperative in the nation." Website: http://www.coopheroes.org/inductees/franklin.html. The founding date for this coop is 1752. See website http://www.ncba.coop/abcoop_ab_dates.cfm.

[35] Davis 2006: 11

Link, and Shelterforce, NHI's online housing journal has a second series on shared equity.[36] At the onset of this research, conversations with local housing authorities in Massachusetts indicated an increased use of deed-restrictions to control the affordability of units over time.

Given that housing policy has historically been focused on the extremes of the dichotomy between renters and owners, the middle ground has been neglected. Davis expresses this oversight in the first sentence of his report on shared equity as follows:

> Shared equity homeownership is planted in the fertile middle ground between arid dichotomies that have historically dominated American housing policy, where residential property is *either* publicly owned or privately owned; where housing prices are *either* socially controlled or market-driven; where residents are *either* renters or owners (original emphasis).[37]

The following chapter explains the broader aspects of shared equity, and examines the specifics of the LEC as potential to supply low to moderate income housing.

SHARED EQUITY

Shared Equity is about homeownership, which can provide many benefits to low to moderate income households. While there are many names and models for shared equity most of the programs fall within three general categories, deed restricted housing, community land trust (CLT), and limited equity cooperative (LEC). Davis' report covers all three models individually, but also speaks of the general benefits of these models which "place an emphasis on the fair allocation of equity."[38] One of the strongest

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[36] KnowledgePlex website: http://www.knowledgeplex.org/showdoc.html?id=333181 , Policy Link Website: http://www.policylink.org/EDTK/LEHC/default.html , NHI Website: http://www.nhi.org/online/issues/149/scale.html

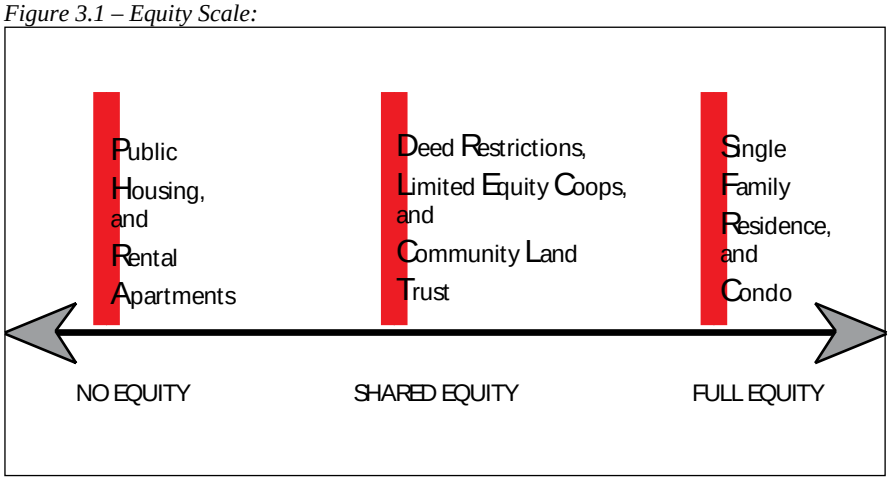
[37] Davis 2006:1

[38] Davis 2006: 3 In addition to identifying case studies of the three models, Davis thoroughly examines the pros and cons of shared equity homeownership. For full analysis see Davis. 2006. "Shared Equity Homeownership: The Changing Landscape of Resale-Restricted, Owner-Occupied Housing"

arguments for the use of the shared equity model is the ability to retain the housing subsidy for future generations.

In general, most people have experience with either end of the ownership scale represented in figure 3.1 below. Renters fall on the no equity end, where single family residences fall typically on the full equity end. Structure type is not the defining factor of equity, for a condo can be full equity just as the single family residence. The conversation about equity is about the value attached to property, either by the market (full equity), or by some other control (limited equity), and of course none at all (no equity).

Figure 3.1 – Equity Scale:



Davis describes the basic meaning of shared equity as an imposed restriction of resale. That is, some restriction that limits the amount of proceeds the seller can earn on a piece of property at the time of sale. The basic reasoning for this is that the restricted sale unit will be affordable to the next buyer. It is a pay it forward scheme that allows one generation of subsidy to continue to the next. Market-rate housing is geared towards the individual, and considering today's housing market, is more and more class divided by those who can afford it. The shared equity model works to correct the imbalance of

individual wealth by allowing for the shared ownership, use, improvement and management of residential property.

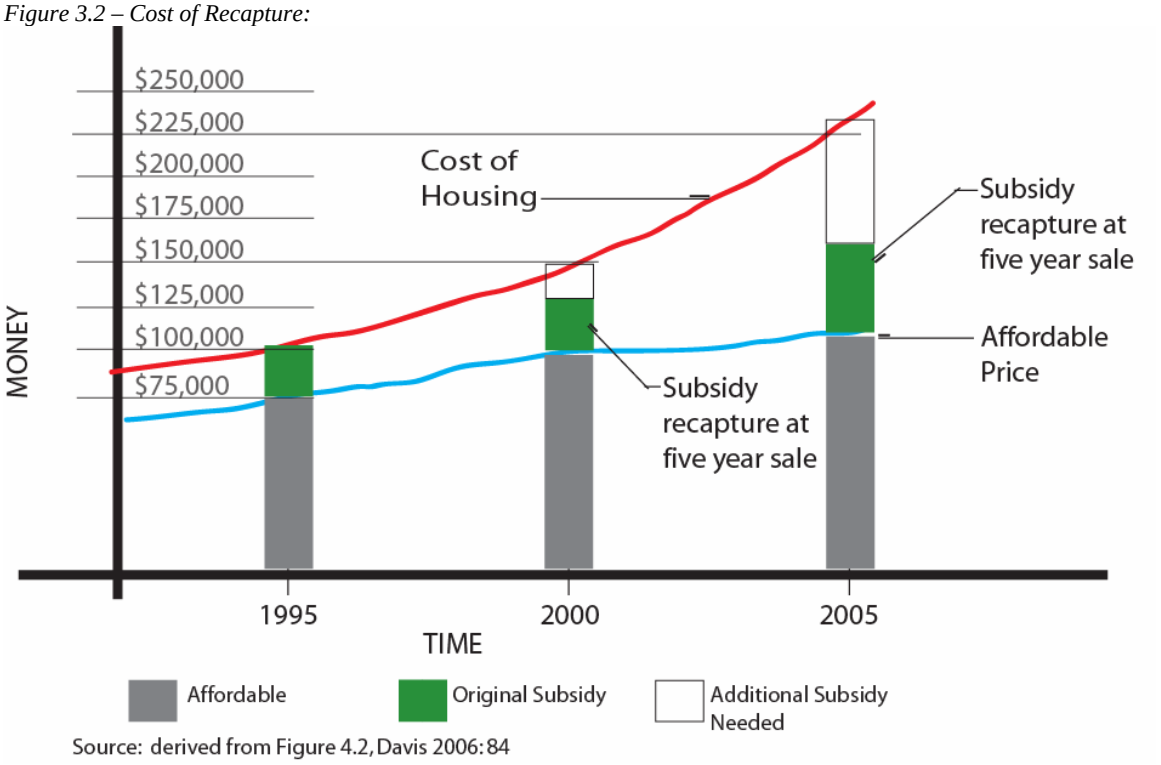
Recapture verses Retention

If federal support is more likely to assist in homeownership then continue with supporting publicly owned housing there is a risk of losing overall affordable housing stock simply because the public isn't building any new publicly owned affordable housing units. The use of tax credits to produce privately owned affordable multi-family housing units also suffers from a similar risk that units might not remain affordable after the compliance period. Homeownership programs that assist low to moderate income buyers with the purchase of their homes are controlled at resale to recapture initial funding. The recapture can help assist another client; however it does not ensure the affordability of the unit to the next buyer, translating to a potential loss of affordable units. Lastly, the increasing costs of housing are increasing the demand for affordable housing units. These factors are exasperating the need for affordable housing. This demand cannot be satisfied by new construction alone. Retention of affordable housing units that have already been constructed and/or subsidized is essential to decreasing the affordability gap.

The problem of recapture is expressed in figure 3.2 below. The subsidy that is given to the client in 1995 is $25,000 to help them buy a $100,000 home. With an increase in housing costs, and a general appreciation, the same home is worth $150,000 in 2000. If the original buyer returns the original subsidy of $25,000, five years later an additional $25,000 is needed to subsidize the next equivalent buyer, because income has not risen sufficiently to cover the difference. Recapture of the original dollar alone does not account for the cost of inflation, nor does it account for the larger problem of the increasing gap between the cost of housing and income. With this system, more money

is continually needed to help future buyers buy at an affordable cost. "Otherwise, fewer and fewer first-time buyers are going to be assisted as the subsidy pool is gradually drained and eventually depleted."[39]

Figure 3.2 – Cost of Recapture:



Source: derived from Figure 4.2, Davis 2006: 84

"Durable affordability and subsidy retention are two sides of the same coin."[40] The ability to retain the original subsidy and/or unit is the main thrust of the shared equity model. Retention occurs when the subsidy invested has a similar value from the first client to the second client, and so on; "locked into the home, stabilizing its price for future generations of lower-income home buyers."[41] The limit on the resale value, either by deed-restriction, CLT or LEC by-laws are the controls in which non-shared equity models are lacking. Figure 3.3 below is a chart taken from Davis's discussion comparing

[39] Davis 2006: 83. Davis is citing a flash animation entitled "Understanding Subsidy Retention" posted at www.burlingtonassociates.com.
[40] Davis 2006: 80
[41] Davis 2006: 81

removal, recapture and retention. For the purpose of this document, removal is not discussed. It is simply a subsidy given to a homebuyer that is not returned, therefore removed.[42]

Figure 3.3 – Comparison of Recapture and Retention:

Removal, Recapture, or Retention:
Three Policies for the Subsidization of Owner-Occupied Housing

	SUBSIDY REMOVAL	SUBSIDY RECAPTURE	SUBSIDY RETENTION
Recipient of the subsidy	Individual homeowner	Individual homeowner	Corporate sponsor, usually a community development corporation, CLT, or LEC
Form of the subsidy	Grant or non-amortizing loan to the homeowner	Loan to the homeowner	Grant or loan to the corporate sponsor
Price paid by homeowner at initial purchase	Total development cost or appraised value of the home	Total development cost or appraised value of the home	Total development cost, minus the amount of the subsidy
Price paid to homeowner when home is resold	Market value of the property	Market value of the property	Price determined by a resale formula contained in a deed covenant, ground lease, or an LEC's bylaws and shares
Disposition of subsidy at resale	Subsidy pocketed by the seller	Subsidy recaptured by the lender (in whole or in part) and then re-loaned to next low-income homebuyer	Subsidy retained in the property, lowering its purchase price for the next low-income homebuyer
Price paid by next homebuyer	Market value of the property	Market value of the property	Formula-determined price paid by the corporate sponsor in repurchasing the home from the first owner
Need for additional investment of public funds (in a rising market) to assist the next low-income homebuyer	More public investment is always needed, since none of the original subsidy is available to close the gap between the buyer's income and the property's increased market value	More public investment is usually needed, since recaptured funds are seldom sufficient to close the gap between the buyer's income and the property's increased market value	More public investment is not needed, if the resale formula has performed as expected in maintaining an affordable price for the next low-income homebuyer

The terms in which the resale restrictions are defined are important to how the original subsidy can be retained. Rick Jacobus discusses in his recent report to the Center for Housing Policy the "different resale approaches under a range of conditions" used in shared equity models.[43] All of the shared equity models must have a resale formula so that the buyer understands the potential value associated with the shared equity purchase. Jacobus defines three models, shared appreciation loan, AMI index resale formula, and affordable housing cost resale formula. All three have varying controls, however, they

[42] Davis 2006: 81-83
[43] For a full comparison of the shared equity resale approaches see the full article by Rick Jacobus 2006. "Shared Equity, Transformative Wealth", pg 14.

share one common goal, the retention of the original subsidy, plus appreciation to offset inflation and housing cost increases.

LIMITED EQUITY COOPERATIVE

The shared equity models, specifically the LEC offers good retention of affordable housing. An LEC can be developed by the private market, which satisfies the conservative political perspective that any intervention should be minimal. The ownership characteristics of the LEC fulfill the American Dream aspirations of both the government and citizens. Unfortunately, the very controls that help make the affordable unit last, i.e. the limited resale aspects are often seen as an "imposed encumbrance on private property [and] considered unacceptably 'un-American'."[44] Even with this obstacle, the LEC is a good alternative to the current model of ownership, for both the developer and the resident.

The following section looks closely at the details of the limited equity coop. Without making a value judgment of all the shared equity models, it focuses on the LEC to examine the details of how it works and how it can be applied in today's market. It is assumed that a private developer can produce this model, and residents can take ownership without further involving PHA. In the sense that there is speculation (development), investment (limited partnership), and ownership, the LEC is extremely similar to other LIHTC projects which private developers build, and investors invest in, only in the LEC model the subsidy is retained for a much longer period of time.

Like other shared equity models, the LEC is good for the local housing authority and the community in which they are developed because they retain the affordable units through the by-laws. Members become trustees of affordability because the LEC is run by the residents not the housing authority. Also, members are required to go through

[44] Davis 2006: 77

training in order to help run the cooperative, which in turn educates them for future ownership outside of the community experience. "Living in an LEC often helps residents learn to be effective in groups and promotes interest in civic participation."[45] Lastly, although their share of ownership is limited, the resale formula usually gives the member at least the money that was invested plus some appreciable profit. Although not full ownership, they still receive more than what could be received from the no equity option available to many low to moderate income renters.

Close attention to the political and social needs of the housing market opens the door for the strategic use of public funding for the production of affordable housing that lasts. Developers who are aware of this need can promote the product of an LEC to satisfy the needs of the market while making a modest return.

History of Cooperatives

Cooperatives have been in existence for decades.[46] However the earliest known modern cooperative is sited in Rochdale England. The general principals that guide many coops today are named the Rochdale Principals after this grocery coop of 1844. See appendix A for a copy of the Rochdale principals.

The growth of cooperative housing, in the United States, stems from New York in 1876; originally cooperatives where developed by wealthy homeowners such that only 50% of the coop was owner occupied, the remainder was housing for rent. After a lull in the cooperative movement, the first fully resident owned cooperatives developed in the 1920's. The exclusivity of the second wave of coops was replaced in the late 20's with the New York Housing Act of 1927 which influenced the development of coops for middle and low income earners. The statute granted tax exemptions on the increase in

[45] Saegert 2005: 430
[46] For a more detailed discussion of cooperative housing see "Brief History of Cooperative Housing", by Richard Siegler and Herbert Levy, website: http://www.coophousing.org/HistoryofCo-ops.pdf

value resulting from new construction of the housing project for a 50 year period. About 1400 units were produced under the Amalgamated Housing Corporation and were considered "models of economy and good living."[47] As Levy explains, they were designed with consumer interest and able to remain solvent through the depression and on through the Second World War.

The cooperative housing movement saw a renewed interest in 1942 when the Emergency Price Control Act containing anti-inflationary device was used to help with the rising rents. Apartment owners converted many buildings into cooperatives to offset the declining returns and rising maintenance costs. In addition, the Internal Revenue Code adopted Section 216 "making deductions for real estate taxes and mortgage interest charges available to the owners of residential cooperative apartments".[48] At the time, the war ended, and housing was in need. Legislation was passed to encourage the building of apartments and cooperatives.

The most significant federal boost cooperatives received was in 1949 to 1950. The Housing Act of 1949 authorized and directed the Federal Housing Administration to insure blanket mortgages on coops. This housing act was amended in 1950 by the addition of Section 213 which allowed coops to take advantage of FHA mortgage insurance. Davis explains that Section 213 became one of HUD's most successful programs with default rates lower than any other HUD multi-family program.[49]

Two additional boosts from the federal government in occur in 1954 and 1968, the addition of Sections 221(d)(3) and 236 respectively. The first provided loans at below-market interest rates (BMIR) and offered 40 year mortgages for developments of five or more units. In a footnote, Davis reports that section 221(d)(3) was successfully

[47] Siegler 1986: 13
[48] Siegler 1986: 14
[49] Davis 2006:26

used to develop cooperative housing, however the majority of housing generated under this section was apartment rental. Section 236 later reduced the BMIR loans from 3% to 1% with a provision that the subsidy was directly tied to the client's income.

According to National Cooperative Business Association website, "more than 6,400 housing cooperative units provide homes for 1.5 million households."[50] To understand the scope of households living cooperatively, a look at the American Community Survey for 2005 reveals that there are 111,090,617 occupied households nationally. This means that 1.4% of these households are currently in cooperative housing.

The last significant federal policy affecting cooperatives was in 1968, Section 236 amendment to Section 221(d)(3). However as Saegert points out the LECs require a mix of "innovative financing and regulatory mechanisms patched together at the federal, state and local levels" in order to face the challenges of low-moderate income households.[51] As discussed in chapter II, in the mid to late 1980s several housing policies were used to transfer ownership of public housing to tenants. Although not specifically for the creation of LECs, many of the conversions through these policies were cooperatives. The following section defines the basics elements that affect the development of the LEC.

The Basics

Using a Toolbox Series sponsored by Northcountry Cooperative Foundation to help residents with the conversion of typical housing to cooperative housing, the book "*Real Estate Development: Principals and Process*" by Mike Miles 2000, and an online guide produced by Cooperative Housing Coalition the following section describes the

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[50] Website: ncba.org/abcoop_stats.cfm – accessed 070718.

[51] Saegert, 2005: 428. For more information on creative financing see Quercia, Roberto, Rohe, William, and Levy, Diane. 2000. "A New Look at Creative Financing". Housing Policy Debate, Vol 11 Issue 4. pp 943-972 Fannie Mae Foundation.

basic concerns of the developer and residents when making a decision to develop a Limited Equity Cooperative.

As with any development, the inception of an idea or a potential site is the beginning stages of the 8-stage development model. In this case the idea is the cooperative as an affordable housing model. The feasibility test examines the site for acquisition costs, construction costs, and potential equity to determine if the idea is possible given these limitations.

In chapter 15 of the Real Estate Development book, the authors explain that affordable housing "formerly infeasible for private developers without massive direct government subsidies, can now be quite attractive to private developers as the result of a combination of new tax and risk-sharing incentives."[52] As with other affordable housing projects, the determination of how much public funding is necessary is crucial to determining feasibility.

There are differences between the LEC and the typical affordable housing product. Mainly, the LEC is an ownership model, and typical multi-family rent restricted projects are built with LIHTC funding as apartment rentals. The basic difference between the two models is that at the end of the 10 year compliance period of normal LIHTC project the cooperative ownership is transferred to its members.

The LEC developed with affordable housing incentives has the extra task of defining the by-laws and controls which allow for the transfer of ownership to the residents and control resale. As discussed in the development guide on the Cooperative Housing Coalition website, "cooperative development involves two parallel processes: physical development and organizational development."[53]

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[52] Miles, et al. 2000: 293

[53] Web based development guide: http://www.chc.coop/chc/chcinfo.nsf/webguide/4

The toolbox discusses the conversion of a regular apartment complex into an LEC. In this scenario, the residents are already living in the building so the conversation about attracting residents is slightly different. Often a developer will determine a market for affordable housing without having specific persons ready to buy or rent. In the case of the LEC, it would be beneficial to have residents involved in the process at the beginning, however, not essential. Saegert's research "indicates that the populations who could be attracted to LECs, and whom research shows to be well served by them, span a broad spectrum of income and ethnicity."[54]

Eligibility of ownership in this LEC model depends on what the development team determines as targeted incomes. This determination has many influences, such as the amount of income the development can earn with rent restrictions or the public funding associated with target levels. Once the LEC defines the unit mix, the by-laws need to clearly indicate how the shares can be bought and sold to maintain the required unit mix. Eligibility is usually determined by household income, and could easily be tied to the income limits set by HUD.

Resale formula is also a significant aspect of the by-laws. The ability for the cooperative to restrict the resale based on a formula is the strength of the LEC. It is with this mechanism that the cooperative maintains affordability over time. Cooperative by-laws are often written so that it is not possible for a 100% vote of members to change the affordability requirements. Rick Jacobus analyses three different resale formulas against market rate resale under a range of conditions to determine which resale formula best serves different projects.[55] Of the three models, the first, shared appreciation is better suited for deed-restrictions; the latter two, AMI index and Affordable Housing Cost

[54] Saegert 2005: 437
[55] Jacobus, 2007: 16

(AHC) are well suited in LEC by-laws. The basic goal for the development team is to develop by-laws that enforce affordability for future residents.

Opportunities and Concerns

The following section reviews some of the opportunities and concerns of the LEC model. The increase of research on the subject of shared equity helps with the discussion. However, more research on the success of coops over time is necessary to gain broader support at the local level. Susan Saegert examines the "niche" for LEC in the low-income housing market by examining much of the research relevant to LECs.[56]

Education of residents and of policy makers is a significant challenge of the LEC model of affordable housing. Saegert reviews an earlier study of LEC conversions of public housing conducted by William Rohe in 1995. She explains that according to Rohe the third most significant obstacle to the success of converting LECs is the "difficulty of explaining and developing interest in joining a housing cooperative." Saegert concludes that "LECs need better public education and marketing campaigns to increase awareness", but even without any more research, "enough evidence exists to indicate that LECs could usefully expand to define a unique and valuable niche in the housing market."[57]

How much wealth is enough? This is the question Jacobus asks in his report to the Center for Housing Policy. There are those that believe that any restriction of resale is not a valid form of ownership and others that believe that without the tools of shared equity, many low-income owners would have no realistic alternative.[58]

Taxation of property is another concern of cooperative ownership. It is possible that the shareholder owning a share of the cooperative is entitled to claim it on their

[56] Saegert, 2005: 428.
[57] Saegert, 2005: 438.
[58] Jacobus, 2007: 33.

income tax return like any other homeowner. Low income earners are often better off taking the standard deduction when filing their tax return due to their income tax bracket. For the first ten years of an LEC which uses tax credits, the property has not technically owned by the cooperative, and therefore taxation is not a cooperative concern. If it is true that the tax credit is not a benefit to lower income earners, the cooperative might file for 501(c)(3) status and potentially eliminate concerns about taxation.

Chapter IV: Understanding the Financial Aspects

"Social entrepreneurship is the art of simultaneously pursuing both financial & a social return on investment (the double bottom line)."

Institute for Social Entrepreneurs[59]

As federal government reduces fund availability and competition for available funding increases, developers with a product that can solve some of the problems of affordability might have an advantage. This chapter shows that funding an LEC is similar to the economics of a typical multi-family rent-restricted project. Developers and PHAs understanding the potential funding sources and the maximum potential of this product can successfully promote the development of LECs.

THE DEVELOPMENT MODEL

Understanding the basic development tools is crucial to understanding how affordable housing developments work. The following section briefly explains some of the key issues for any development. This basic information is used in Chapter V to test the hypothetical test case of an LEC.

Limited Partnerships

There are many forms of ownership a developer can choose in order to make the development happen. "Developers often form a *closely held corporation* (more formally known as an S corporation) devoted solely to a particular project (original emphasis)."[60] This corporation is usually wholly owned by the developer who can then invest in the project. Usually the project needs additional funding such that a limited partnership is

[59]Quoted on KLRU's website which hosts Enterprising Ideas a project of "NOW" on PBS. Website http://www.pbs.org/now/enterprisingideas/entrepreneurs-depth.html

[60] Miles, et al. 2000: 69

necessary. The limited partnership requires a general partner "who bears unlimited liability" and a limited partner "whose liability is limited to their capital contributions."[61] Typically the developer and/or the corporation are the general partner, and investors/ debt equity lenders are the limited partner.

Land Acquisition and Land Development

The purchase of land is usually absent financial institutions and is an arrangement between the seller and the developer. At a point, post construction, refinancing can include the land such that the seller is paid off. Often times the acquisition of land is an area that local municipalities can assist in reducing the costs of affordable housing development costs. Land grants can be at the center of public private relationships.

After land is acquired, the process of taking raw land and preparing it for development is referred to as land development. This generally includes the process of permitting, bringing utilities to the site, streets, sidewalks and grading the land. If subdivision is the goal, the parcels are prepared for a contractor to purchase legal lots and build homes. Many sites are available within already developed areas. As infill projects the land development might include the permitting and variance process necessary to obtain approval, and any upgrades to existing utilities to handle the new development.

Construction Loan

A construction loan allows the developer to build the project. This loan is usually given for a short term, approximately six months to two years. Disbursed in "draws", the lender has more oversight of the work completed in relation to the payments made. Typically a construction loan is unobtainable without the commitment from a

[61] Miles, et al. 2000:69

financial institution for a permanent loan. In other words, if the project is viable and a bank is willing to back it, then the construction loan is given to start the process.

Permanent Loan

A permanent loan is the loan a financial institution agrees to give a developer for the value of the project. Usually a loan to value ratio of 80%, it is similar to the way in which the average homeowner purchases a house. The final loan can be structured in a variety of ways. The permanent loan is used to pay off the construction loan. The income generated by the development is used to pay off the loan.

THE ECONOMICS OF AFFORDABLE HOUSING

The discussion about affordable housing is not about building cheaper units. For the most part the cost per SF for a typical housing unit should be the same as the corresponding affordable unit (this is excluding any upgrade in finishes). If this is so, then it is the subsidy provided by public lenders that allows both the public and private developer to bring the product on line at an affordable rate.

The following section describes the economics of typical multi-family rental project and discusses the difference between unrestricted, rent-restricted, and LEC in the fourth stage of the development model -- securing permanent financing. Identifying the basic assumptions underlying the multi-family product is an important aspect of the feasibility analysis. As with any development, the project cannot be done if at a minimum it cannot pay for itself.

Multi-Family Unrestricted Rents

In typical full market development the productivity of the property is the starting point in determining the source of returns to lenders and equity investors.[62] This is

[62] Miles, et al. 2000: 81. For more detailed description refer to chapter 5 "Financial Theory: Logic behind Real Estate Financing Decisions" in the book *Real Estate Development: Principals and Process*

referred to as the net operating income (NOI). To determine the potential gross income, the developer must have made assumptions about the types, sizes and number of the units as well as comparable fair market rent (FMR) (Figure 2.5). NOI equals the potential gross income minus the vacancy allowance which equals effective gross income minus operating expenses.

The NOI is then used to determine the loan value by either of two methods, estimating property value and applying loan to value ratio (collateral value), or calculating the debt service (DS) over time and applying a mortgage constant (ability to service). In determining the value of the property over time, there are two possible methods to use. The first is more involved forcing the analyst to consider the future value of the property, discounted cash flow (DCF) the second is using comparable capitalization rates. After determining the value, the developer can apply a loan to value ratio of 70% to get a rough idea of the amount of money a lender is willing to apply to a proposed development.

The second way to determine the loan value is to consider a property's ability to service the debt with the stream of income. This is referred to as the debt service coverage ratio (DSCR). Assuming that the lender is willing to loan up to 80% of the debt service, the coverage ratio is 20% and therefore the DSCR is 1.20. Debt service can be calculated by taking the first year NOI divided by the DSCR. A loan amount can be determined by dividing the DS by the mortgage constant (MC). The MC is the percentage of the original loan amount that is repaid monthly for the given term of the loan in order to get at a zero balance by the end of the loan. After checking both methods of determining a loan value, the lesser loan value is typically the one the lenders will accept.

Multi-family Restricted Rents

When considering a multi-family project with restricted rents, the first source of financing to consider is the LIHTC. More detail about the LIHTC follows in a later section in this chapter; however, it is important to understand that if a project is using LIHTC then there must be a minimum of 20% at the 50 percentile AMI, or 40% at the 60 percentile AMI. In order to determine the amount of credit available for the project the developer must determine the types, sizes, and numbers of units, but also must determine how many of each unit will service what income level. Based on location, and Area Median Income, HUD determines the effective median income (EMI) for a family of four, by state and city. For example, in 2005, HUD determined that the EMI for the metropolitan area of Boston is $82,600.[63]

Figure 4.1 – Applicable Rents by Unit Size for LIHTC Units:[64]

	Size of Households to Units based on Boston, MA Median Income of $82,600								
		30%		50%		60%		80%	
Size of Unit	Size of HH	Factor MHI	monthly rent	factor of MHI	monthly rent	factor of MHI	monthly rent	factor of MHI	monthly rent
eff.	1	21.0%	**$434**	35.0%	**$723**	42.0%	**$867**	56.0%	**$1,156**
1 bed	1.5	22.5%	**$465**	37.5%	**$775**	45.1%	**$930**	60.1%	**$1,241**
2 bed	3	27.0%	**$558**	45.0%	**$929**	54.0%	**$1,115**	72.0%	**$1,487**
3 bed	4.5	31.2%	**$645**	52.0%	**$1,075**	62.5%	**$1,290**	83.3%	**$1,720**
4 bed	6	34.8%	**$719**	58.0%	**$1,198**	69.6%	**$1,437**	92.8%	**$1,916**
5 bed	7.5	38.4%	**$793**	64.0%	**$1,322**	76.8%	**$1,586**	102.4%	**$2,115**

In recent years, the required rent amounts are determined by size of unit, not exactly by number in the household. The number of bedrooms per unit can be adjusted to the typical numbers of occupants per unit type, and therefore the corresponding rent limits are determined using EMI (Figure 4.1). HUD's effective median income is based

[63] http://www.huduser.org/Datasets/IL/IL05/ma_FY2005.pdf
[64] This table was generated using tables 3 – 7, pp 18 – 22 in Joseph Guggenheim's Handbook on Tax Credits for Low Income Housing.

on a family of four, therefore for all other numbers of household is adjusted up or down, depending on size.

The mix of units and affordability is the determining factor of revenue generated. After the appropriate rents are determined, as with the unrestricted multi-family development discussed above, the NOI can be determined and a maximum loan amount set by lenders. In the case with restricted rents, the maximum loan amount will undoubtedly be less then a full market apartment complex. The financing gap is the difference between the loan amount supported by rental income, and the total development costs. Public funding is needed to close the gap. Various programs, including LIHTC, can be used to help subsidize the rental unit, for example persons receiving section 8 vouchers can apply the voucher and bring in the allowable market rate on the unit.

Multi-Family Limited Equity Cooperative

In this research, the goal of the LEC is to provide low to moderate income housing; the same requirements for rent restrictions can be applied. The public funding needed to close the gap is similar to the multi-family rent restricted example above. If tax credits are used on an LEC extra steps are needed to transition the "rental" building to ownership after the compliance period (a minimum of 10 years). The normal tax credit period is 10 years, with an additional 5 years of affordability required of the owners. It is assumed that the building can be sold to the cooperative after the tax credit period is over because the compliance of additional years of affordability is already written into the by-laws.

TYPES OF AVAILABLE FUNDING

The importance of closing the gap is the business of affordable housing production. As with all development, understanding the political and economic position of the area in question is essential to gaining support within the local municipality. Affordable housing developers are competing for funds at all three political levels, local, state and federal. As discussed, these funds are available, but given the current state of housing in the US, they are in great demand. At a bare minimum, a developer must understand what types of funding are available at the preliminary feasibility stage of a development. Realistically, the developer, having a good sense of what is feasible, can pursue more formal political connections to the policy makers and awarding agencies of these funding sources.

The following section describes some of the well known funding sources for multi-family rent restricted projects as they apply to the production of the LEC. This research uncovers potential resources supporting the "idea" of the LEC development; it cannot make the assumption that these sources will be available for any specific development. Additional sources are highlighted that directly relate to the production of cooperatives. Finally, the ownership aspects of the cooperative are discussed in terms of financing available to prospective members for their share of the cooperative.

Debt/Equity Lenders

Cooperatives are unique, so there are some banks who are specifically interested in supporting the development of them. The National Cooperative Bank was chartered by Congress 1978. The goal of NCB is to support the development of cooperatives, specifically its division of the National Cooperative Bank Development Corporation. [65] Appendix B shows examples of four cooperative developments and NCB's involvement

[65] About page of the NCB website: www.ncb.com

at various levels of the development process. Other additional funding might be obtainable through local banks due to the Community Reinvestment Act. The development team will need to seek both construction and permanent financing, so understanding the market and all available debt/equity lenders is necessary for making the best decisions for the project development.

LIHTC – Massachusetts

Every state has tax credits available for the development of affordable housing. They are based on a per capita value and distributed by the state based on evaluation criteria. Each state must publish the allocation plan by year indicating how the credits have been distributed, and how to apply for credits. [66] In Massachusetts the application for tax credits are due in February. Assuming the project is eligible for tax credits, the qualified basis of the project is determined to calculate the amount of equity which can be raised.

Two sources confirm the assumption that housing cooperatives are eligible for tax credits. The Cooperative Housing Coalition (CHC) explains in the online development guide that "the LIHTC program can be used to create leasehold cooperatives with the owner leasing the property to a cooperative corporation."[67] Although, the IRS has confirmed the right of cooperatives to lease the property the stipulation that "the residents hold no ownership interests that entitle them to tax benefits"[68] limits the cooperative's control within the first 10 years.

The relationship between the cooperative and the limited partnership needs to be clearly defined. The cooperative can arrange to purchase the project in advance through

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[66] Massachusetts Allocation Plan: http://www.mass.gov/dhcd/components/housdev/TxCrProg.pdf
[67] Cooperative Housing Coalition website: http://www.chc.coop/chc/chcinfo.nsf/webguide/5.4.1
[68] Guggenheim, 2003: 37.

a right of first refusal at a low pre-determined price.[69] The specifics of the change of ownership can be handled with clear by-laws and formal agreements. CHC monitors the LIHTC program for changes which might directly affect the use of LIHTC funds to be used directly for the development of cooperatives. Until there is a change at the federal level, a developer interested in this model of affordable housing production must take extra steps to ensure a smooth transfer.

Affordable Housing Trust Fund

The guidelines for available funding and types of projects are discussed in the report published by MassHousing[70]. The agency is designed to support the creation of affordable housing units. Thresholds are defined to give the developer a sense of the types of projects acceptable for funding. A project must meet these minimal standards to be considered for funding. Preferences are given to projects that produce "new" affordable units that sustain affordability for a minimum of a 30 year period.

A maximum limit of the lesser of either $1,000,000 or $50,000 per assisted unit will be allowed per project. According to the guidelines, there is a limited amount of general revenue funding available to the AHTF. Applicants should assume that AHTF funds awarded will be bond funds. Therefore, the Trust Fund amount must be deducted from basis on tax credit deals.[71]

Cooperative Members

Although the cooperative cannot legally take ownership of the building for 10 years, it is assumed the cooperative is created from the beginning. Members moving into

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[69] Guggenheim, 2003: 30.
[70] Massachusetts Affordable Housing Trust Fund, 2007 Accessed via website: https://www.mass-housing.com/portal/server.pt/gateway/PTARGS_0_2_391_0_0_18/AHTF_Guidelines.pdf
[71] Massachusetts Affordable Housing Trust Fund, 2007: 3, accessed via website: https://www.mass-housing.com/portal/server.pt/gateway/PTARGS_0_2_391_0_0_18/AHTF_Guidelines.pdf

the LEC are required to pay their share loan for membership. At a minimum, a down payment of 5% of the overall share is required, and a monthly portion of the collected rent is dedicated to membership share allocation. With financial help, the LEC may be able to alleviate the down payment requirement so that it can be paid over time for members finding the down payment requirement a challenge. The cooperative is expected to take over some of the operating expenses, and build equity in order to prepare for the buy-out at the agreed upon date.

Other Additional Financing

A growing trend in green affordable housing offers many opportunities to find financial assistance. The LEC is an affordable housing product, and an underlying goal of the project is healthy communities. Green Communities offers grants for the production of green affordable housing, and although the specifics of the design are not discussed in the hypothetical test case, it can be assumed that the greening aspects of an LEC are achievable, and that the funding would apply.

Chapter V: An Hypothetical Test Case

"There is no harm in repeating a good thing"

Plato

This report has defined a problem and examined a potential solution in the shared equity model of the LEC. It follows that along with the presentation of the academic aspects of the shared equity model a look at the financial feasibility of developing it is a

crucial aspect of the overall potentiality. In order to test certain assumptions an example project in Weymouth Massachusetts is presented.

This chapter tests the feasibility of using public funding such as LIHTC, AHTF, and Green Communities Grants to reduce the overall cost of development. Further analysis examines the investment potential of the additional equity needed by the developer and/or private parties to close the gap. A simple pro forma is used to determine the basic investment potential of the LEC.

This hypothetical uses data specific to Weymouth MA. Weymouth is small town on the South Shore. The town is in Norfolk County and lies 12 mi south of Boston, MA. The town's website reports a population in 1999 of 54,379 a projected population growth to 56,545 persons by 2009.[72] The town is only 21.61 sq. mi, and is considered a mature town, i.e. not much undeveloped land. The town produced a master plan in 2001 which discusses the redevelopment of town villages, and the need for more affordable housing.

Using current MLS data on land values and available lots, some of the basic assumptions regarding permitting, zoning and others aspects important to the formal feasibility are untested. The point of this hypothetical is to express a more elaborate "back-of-the-envelope" pro forma testing the idea that the LEC model can be used to produce low-moderate income housing. As with all developments many more of the details would be examined in phase four of the development process – the formal feasibility or contract negotiation phase.

At a rudimentary level, the developer and investors would need to know if the project can return on the value invested. The basic pro forma tests the initial rate of return based on some assumption of building square footage (SF), number of units, type, cost per SF to build, and most importantly the amount of income the units can generate.

[72] Website: http://www.weymouth.ma.us/about/index.asp

This product has limited income by nature of the model – affordable housing. "NOI is a number not easily manipulated by the owner or manager, as rents, vacancies, and operating expenses are disciplined by the market"[73]; this is even truer with affordable rents set by HUD.

ASSUMPTIONS

By making certain assumptions about building size and site location, the analysis of development costs versus income can reveal information about the LEC model. It is important to understand how one element affects the other. The process of development is often explained in stages, however as Miles indicates the process is not linear.[74] In this case, the starting point is the idea of an LEC, after which a hypothetical site is determined to set another crucial element in the model, i.e. the cost of land. After these two elements are determined other elements of the model can be tested, and changed around to examine varying results – the refinement of the idea. The following section describes the items within the model to give the reader an understanding of how the individual elements affect the decision to build or not.

Site Selection

An MLS search revealed only two land parcels available in Weymouth averaging $2.85 a square foot. For this hypothetical, the larger of the two, at 1.76 acres for $2.60/acre, was selected. It is in a residential area on a main road. The lot is adjacent to the commuter rail tracks, and has approximately 160 ft of frontage. An assumed floor plate is ~8400 SF allowing for an FAR at ~.60. The size of development is determined

[73] Miles, 2000: 81.
[74] Miles 2000: Chapter 1 discusses the 8 stage development model such that the traditional steps taken by a developer are Inception of an Idea, Refinement of the Idea, Feasibility, Contract Negotiation, Formal Commitment, Construction, Completion and Formal Opening, and finally Property, Asset, and Portfolio Management.

by the number of units and types, these variables change under different assumptions; further detail to follow in the description of unit mix. For this examination, the site selection is a fixed variable.

Unit Mix

Unit mix is the mixture of types of units, i.e. efficiency (0 bedroom), 1 bedroom and so on, and the targeted percent income served. This is one of the most important variables in the model because it affects two other variables directly. First, it affects the cost of construction, by determining overall square footage needed to satisfy unit type selection. Second unit mix is connected to the NOI, by controlling the value of rent generated due to targeted income served.

Unit sizes are determined by taking an average of four similar housing projects. These square footages are estimates and can be tweaked during the design phase before a formal commitment from lending sources is obtained. For the initial feasibility test, a generalized understanding of square footage per unit type is enough to examine costs versus income.

There are many factors to selecting the unit mix. Market research is necessary to understand what types of units are needed. Before determining the unit mix to run in the pro forma, scenarios were run that altered the quantities and income limits to analyze the cost of development (construction costs only), versus income. The unit mixture selected for the pro forma satisfied a balance between two criteria, the income generated by square foot and the cost of construction per square foot. The development model shown in appendix F uses scenario 1 for its unit mix calculations.

Additionally, the unit mix attempts to satisfy a balance in residential character. Refer to figure 5.1 for the break down of scenario 1, also, see appendix C for all four scenarios. Due to the desire to maintain mixed income households only one scenario

tested a fully qualified development with 100% of the units satisfying the LITHTC criteria, see scenario 4 in appendix C.

Figure 5.1 – Unit Mix Scenario 1:

Unit type and Affordability Mix - Scenario 1								
Unit Type SF	0 bed 550	1 bed 700	2 bed 950	3 bed 1300	4 bed 1400	total # of units	gross rentable SF	net rentable SF
50%	2	2	2	2	0	8	7000	7140
60%	2	2	2	2	2	10	9800	9996
80%	0	2	0	2	2	6	6800	6936
100%	2	0	2	2	0	6	5600	5712
Total	**6**	**6**	**6**	**8**	**4**	**30**	**29200**	**29784**
	units	SF				Total Development SF:		34353
50%	26.67%	7000						
60%	33.33%	9800						
	60.00%	56.41%						

Income

Applicable rents are determined by HUD as shown in chapter II Figure 2.4. As an LEC, the share of the cooperative needs to be considered as a deduction from the amount of rent each household can pay. Additionally, an $80 utility allowance is deducted from the rent the developer can collect, and will be collected by the cooperative. It is assumed the cooperative can take on some of the maintenance and administrative roles. Therefore utility management shall occur through the cooperative management office. Figure 5.2 shows the allowable rents by HUD compared to the altered rents for the cooperative structure.

Rents for 100 percentile have been adjusted in the pro forma, table 1a appendix F, by subtracting $250 from the identified rent limits in that category because the rents for the area fall between FMR and the corresponding allowable rents in figure 5.2. In an area where higher rents are the norm, this adjustment could be reversed. A goal for all owners in the LEC is to keep the rents low including those rents for median income earners.

Figure 5.2 – Comparison of Rental Income:

HUD Rent Limits by % Income - 2007					
Unit Type	50%	60%	80%	100%	FMR*
0 bed	738	885	1180	1475	1097
1 bed	790	948	1264	1580	1164
2 bed	948	1138	1517	1896	1366
3 bed	1094	1312	1750	2187	1634
4 bed	1221	1465	1953	2441	1795

HUD Rent Limits by % Income minus Coop Share - 2007					
Unit Type	50%	60%	80%	100%	FMR*
0 bed	527	674	969	1264	886
1 bed	579	737	1053	1369	953
2 bed	737	927	1306	1685	1155
3 bed	883	1102	1539	1977	1423
4 bed	1010	1254	1742	2231	1584

By law the cooperative can not have any ownership of the building while the tax credit period is in place. To allow the cooperative to immediately start in the daily operations of the building, the operating expenses have been split, see table 1b and 1b' in appendix F for a break down of the expected expenses for each. The coop will have a certain amount of income and expenses, and the developer will carry those operating expenses related to the overall development. The goal is to allow the cooperative to build equity internally so that at the point of purchase they are in a better position to take over.

It is assumed that an equity fund can be set up to allow the cash flow of the cooperative to grow be managed, as a private equity fund such that earned income appreciates and covers the expenses.[75] More detailed information about the buy-out is discussed later in this chapter. A down payment of $2000 is expected from each member of the cooperative. The equity fund can be structured in a way to allow for those who cannot pay the full down payment to pay it over time. The share of the coop is

[75] Jacobus 2007:12. Jacobus discusses different types of shared appreciation loans, but sticks to those provided by public sector or nonprofit lenders. He cites an article for a recent proposal for privately financed shared equity mortgages by Andrew Caplin, James H. Carr, Fredrick Pollack, and Zhony Yi Tong (2007) "Shared Equity Mortgages, Housing Affordability, and Homeownership." Washington DC. Fannie Mae Foundation. The details of the shared equity mortgage are important to the overall success of the cooperative, but beyond the scope of this investigation.

determined at $40,000, and a monthly payment is determined over a 20 year period at $211. See appendix E for cooperative share calculation.

Figure 5.3 – Square Foot Calculations:

Square Foot (SF) Analysis - 3 Story Apartment Building			
Base Model - RS Means Model M.010 (pp. 78-79): 3 Story 10' per Story @ 22,500 SF			
Base Model Costs: 3 Story - 10' per Story 36,000 SF @ 520 LF			**$ 114.60**
Building Information			
Total SF	36,500		
Ground Floor Area	12,200		
Perimeter	540		
Structure	wood Frame - Brick		
Story Height	12'		
Adjustments:			
Perimeter	4.05/100 LF	20	**$ 0.81**
Height	1.85/ 1 FT	2	**$ 3.70**
Assume 500 SF has no affect on SF cost			
Common additives:			
30" built in stove/oven	~800/unit		
Dishwasher	~600/unit		
30" Refrigerator	~700/unit		
Total	2100/unit	30	**$ 1.73**
Total Adjustments:			**$ 120.84**
Location Factor - Boston MA		1.15	$ 138.96
Remove Architects Fees @ 8%		($11.12)	$ 127.84
Add Union Increases @ 10%		$ 12.78	$ 140.63
Add Greening Costs @ 2%		$ 2.81	$ 143.44
		Total SF Costs	**$ 143.44**

source: RS Means 2007. RS Means Square Foot Costs: 2007 28th Annual Edition

Cost per Square Foot – Construction

The cost per square foot is determined using RS Means 2007.[76] Building typology is an apartment complex 1 – 3 stories. The project location is in Weymouth MA uses the city modifier of 1.15 for Boston MA. The example model used by RS Means is a three story, 10' floor to floor, 22,500 SF building. Means then provides a chart based on increases and decreases in square footage and perimeter. The example that comes closest to the hypothetical is the three stories, 10' floor to floor, 36,000 SF, 520 lf perimeter. Refer to figure 5.3 for adjustments made to the model building with additional items added and subtracted from the base number. An additional 2% increase was added to account for the use of green technologies.

Public Funding

The question of unit mix directly affects the projects potential public funding sources. As discussed in Chapter IV, most programs are designed to fund projects that help meet their affordability criteria. LIHTC calculations are based on either the number of units at the 50 – 60 percentiles or the square footage of those units at those percentiles. The lesser of the two is the number to use when calculating the project basis. At a minimum, the tax credits are available to projects that meet the requirements of 20% of 50 percentile, or 40% of 60 percentile.

Using scenario 1, the breakdown is as follows: 26.67% of the units at 50%, and 33.33% of the units at the 60%. This scenario meets the minimum requirement, but the overall 60% of units serving those percentiles, is greater than the square footage of those units at 56.41%. Figure 5.4 shows the LIHTC calculations for scenario 1; it uses the lower percentage for the calculation of tax credits. This model assumes a value for the

[76] RS Means 2007: 78-79

credit at 80 cents on the dollar. The value of a tax credit in the 9% bracket is relative to other financial considerations. This model assumes that the value is slightly lower, and therefore more conservative, at 8% instead of the full 9%, refer to line 15 in figure 5.4.

Two other public funding sources are assumed to be obtainable for this development. The first is the AHTF for affordable housing, the criteria for these funds is that all units be below 110% of AMI which as the unit mix diagram expresses, they are all at or below the 100% AMI. The second is the Green Communities grant for green affordable housing. Since the members are going to be long time owners, the additional 2% increase in construction costs[77] are absorbed in the assumed square footage cost used in the development model. The extra funds for construction and planning will help keep the costs of producing a green affordable housing product down.

Figure 5.4 – LIHTC Calculations for Scenario 1:

Development			**Stage**
	1d' - LIHTC Calculations		
	Total Development - normal basis		
5	Land (not eligible)	$	199,760
6	Construction	$	5,232,495
7	soft cost - 75% eligible	$	1,514,079
8	**Total**	**$**	**6,946,334**
9			
10	**Annual Tax Credit Amount:**		
11	% of units reserved for <60% AMI*		57.53%
12	Construction	$	3,010,477
13	Soft Costs	$	653,335
14	**qualified basis for credit**	**$**	**2,663,812**
15	value of tax credit		8.00%
16	additional 30% bonus	-	
17	**yearly income from tax credit**	**$**	**213,105**
18			
19	**Value of credit over 10 years**		
20	yearly income from tax credit	$	213,105
21	market price per $1 credit	$	0.8
22	10 year stream of credit		
23	**total**	**$**	**1,704,840**
	* LIHTC credits can be taken for the lesser of the percent of units or the percent of SF		

[77] Trachtenberg, 2007 in a final paper for a class in Affordable Housing Policy, the author researched the affects of green development on the costs of affordable housing. The statistic quoted comes from Kats 2003:1.

Increases over Time

In order to run the stage 2 analysis shown in appendix F, certain factors that effect how the development performs over time such as escalations in rent and operating expenses need to be determined. For the purpose of this analysis, rent increase is 3%, and operating expenses increases at 5%.

The cooperative equity share was calculated as if it were a mortgage for 20 years based on the $40,000 share. For simplicity, the residents are assumed to stay for the full 20 years, therefore no change in their monthly payment can be assumed. It is unlikely that all 95% of the building will move in and not sell within the 20 years. By assuming no change, the model is forced to assume no change in the income collected through the cooperative. If there were changes in ownership, then it could be assumed, similar to the development model, that the share would appreciate and therefore generate more income for the equity fund, refer to tables1b and 1b' in appendix G.

LEC Buy-Out

Although this is an ownership model of affordable housing, the use of the tax credits disallows the cooperative to have any ownership while the building is within the 10 years of calculated tax credits. Typical LIHTC projects are usually owned by the original limited partnership for 15 years in order to ensure compliance of affordability. Since the LEC by-laws and the cooperative structure ensure compliance of affordability well after the compliance period, the assumption is the cooperative can take ownership after 10 years. A binding legal agreement needs to be made upfront regarding the sale of the building to the residents. The legal aspects of this arrangement are not examined; it is assumed the transfer can take place.

The capitalization rate which is assumed at 8.5% at the start of the project is changed to 10% at year ten, the year the sale calculation is run. The change to 10% is about lowering the pre-negotiated sale price. Since the development is always understood to be an LEC with rent restrictions, the sale at year ten is designed to allow investors to return on their investment and keep the sale price at a controlled value for the cooperative buy-out. The sale price has been determined by the sale calculations used in the pro forma; see stage 2 line item 87 at $3,404,214. The assumed sale is taken as the estimated value at year 10 based on year 11 NOI. This is a conservative assumption.

A similar pro forma was run for an additional ten years to analyze the NOI and cash flow after buy-out. See Appendix G for this pro forma. This model suggests that the LEC is capable of getting a loan for just over $3 million dollars. This is based on the calculated NOI at year 11. Table 1e, appendix G indicates on line 17 that the cooperative needs an additional $829,139 to close the gap between the loan and the purchase price. A limited partnership is possible for an additional 10 years. The after tax IRR is 10.95%. A decent return, however the details are not covered in this examination.

Shared Equity

The share for this model is determined at $40,000. As discussed in the income section above, the share calculation is based on a 20 year mortgage such that the monthly payment of $211 is deducted from the rent calculations. To understand what the potential return on this investment is to the resident, appendix E expresses the share loan appreciation at 4% growth after year 20. It is broken down by allowable share return, i.e. 100%, 80% or less. This is an extremely simple way to show the limited share value at the end of 20 years. A more complex resale formula is necessary to fully control the cost

of housing from one resident to the next.[78] At the very least, this example shows that the investment of $40,000 is worth at least the original investment plus some basic return above a simple savings account.

FEASIBILITY ANALYSIS

The development model used to determine the feasibility of the LEC is an educational model developed by MIT Center for Real Estate to help students understand the aspects of the development process. The exact origin of the spreadsheet is unknown; however, all the formulas and assumptions have been fully examined for accuracy. This model was used and altered where assumptions have been changed to test the idea of the LEC. Some of the assumptions are a site, the unit mix of scenario 1, and the others. See Appendix F for a copy of the model, stages 1a – 1e, and stage 2.

There are many ways to look at a project and determine if it is worth developing. Simple questions about whether the product will produce enough cash-flow to cover the costs plus a percentage of profit are at the basis for the go-no-go decision. In this example, the gross income calculated using the rent chart shown in figure 5.2 is $344,209 and produces an NOI of $269,209, see chart 1b in appendix F, line 5 and 24 respectively.

The NOI is used for a number of other calculations, such as a debt service determination, chart 1c appendix F. A maximum loan amount is determined at $2,533,734 with an annual debt service of $224,689. Additionally, NOI is used in simple ratios to quickly understand how the investment might perform over time. In chart 1e, appendix F, the simple ratios express an overall return on investment at 6.51% with a cash-on-cash return of only 2.78% on the equity needed by private investors. At the very

[78] Jacobus 2007. Refer to Jocubus' article for greater depth on re-sale formulas, how they work and which is best for what scituations.

least these simple ratios suggest that the project is developable without loss, but not much of a profit.

In table 1d, appendix F, the development costs are determined by a series of assumptions. The land value and the cost of construction per SF are fixed variables. Line item 15 indicates the hard costs of construction to be $5,432,255. Add the soft costs, and the total development costs (TDC) is $6,946,334. The public funding of $2,779,840 is necessary to build this building and collect the rent-restricted dollars. Without public funding, there is no way to provide these units at an affordable rate given the costs of production. It is this relationship that allows for the private development of affordable housing to occur. In this model, the equity investment after the subsidy does not return a high value suggesting that the public funding is too little, or that unit mix should be altered. Refer to the stage 2 analysis for more detail.

The stage 2 model analyzes how income performs over time, and incorporates the depreciable value of the property. Depreciation is an after tax consideration, and has its own benefits to investors as a non-cash expense. The discussion of depreciation is beyond the scope of this examination.

Stage 2 analysis reveals return on cash investments by analyzing the cash flow over time until an estimated sale date, after the 10th year, in this case, unleveraged IRR is 5.83%, before tax IRR is 1.63%, and after tax IRR is .31%. All three calculations are important to understanding the development's profitability. However, it is the unleveraged IRR that represents the developer's profit entirely, it includes the loan amount. Generally speaking an investor would like to know how the investment in this property compares to other investments. To show this, the Net Present Value (NPV) of the cash flow is calculated at an assumed rate. In this model, the NPV calculations for the unleveraged IRR is 10%, and the before tax IRR is assumed at 12%. The analysis reveals

a negative $1,011,599 on line 121 table stage 2, in appendix F. Typically, for profit developers would expect an unleveraged IRR of 10% - 15% which would yield a positive NPV given the parameters above.

The negative NPV suggests that a for-profit developer would not pursue this development unless changes could be made to decrease the investment needed, and/or increase the IRR. As suggested above, either additional public funding, or public/private relationship might relieve the equity investment needed by the developer.

Another means of changing the public funding is to increase the amount of units which count towards the LIHTC basis. To test this, the model was run at 100% of the units at or below 60%. The numbers change dramatically, the unleveraged IRR is 9.70%, the before tax IRR is 12.85% and the after tax IRR is 10.68%. A negative NPV of $47,861 is a slight concern, but not enough to stop the project from going ahead. The hypothetical impact of leverage is shown in appendix F. The ROR represents the total rate of return based on the property where the ROE rate of return on equity measure the return on the equity investment.

A not-for-profit developer on the other hand might consider the positive cash-flow good enough to develop the project. Needing investments the non-profit might seek investors to that require a limited return on investment. For example a large employer in the area might be interested in supporting the production of affordable housing for their workers. In this case, the minimal growth might be considered a bonus to the underlying goal of housing employees close to work. Other philanthropists interested in supporting the public welfare and affordable housing cause might offer investments at the minimal return.

Chapter VI: Conclusion

"The best way out is always through."

Robert Frost

At the onset of this research, with a sense of the magnitude of the problem of the increasing affordability gap and a broad understanding of the shared equity model, a solution to the affordable housing problem seemed possible through the development of an LEC. Public funding has been steadily shifting towards homeownership. Even public funding for apartment rentals has been shifting away from publicly controlled housing projects towards the private and public/private developments of affordable housing units. It seems obvious that if a product can satisfy these two political agendas, it might find a "niche"[79] in the housing market. The LEC is presented as a product that satisfies homeownership, albeit an alternative form - - shared equity, and is can be developed by private and/or public/private developers. The analysis of the LEC identifies it as a potential solution to the problems associated with the affordable housing gap.

The increasing cost of housing is a national trend. There is no solution in waiting for the problem to correct itself, the trend shown in figure 2.1., not only shows the dramatic increase in housing costs over the past 5 years, it also shows a steady increase of housing costs from 1970 onward. In other words, the costs of housing are not going to stop rising. If it is unlikely that this trend will reverse itself, then there are only a few methods of closing the gap. One potential solution is to increase income such that more people can afford the rising housing costs. Another possible solution is to build more publicly owned affordable housing projects to satisfy the increasing numbers of people in

[79] Saegert 2005. The term here is used as Saegert defines it in the paper "Limited Equity Housing Cooperatives: Defining a Niche in the Low-Income Housing Market."

need of assistance. Yet another solution, and the one this research promotes, is to build more affordable units with controls attached to decrease speculation and limit the market resale value to ensure future generations a product within their means.

The concept of shared equity, or re-sale restricted ownership might seem "un-American" as Davis indicates[80], however, it is equally un-American to work hard, earn an income and still not be able to afford to live in your town of origin. If the market dictates the value of the homes in a hometown to be more than a young professional, or a new family just starting out can afford, then the problems of the affordable housing gap are affecting more than low to moderate income earners; they are affecting communities.

The traditional understanding of tenure in housing is ownership or rental. A have or have not attitude that completely closes out the middle ground of have a little, not a lot. The shared equity model opens the doors to many who could not afford to own, in the traditional sense, but can afford to invest both money and energy into their home. The values associated with homeownership are extended to a larger group of people that traditionally would have been at the renter end of the spectrum. The concepts of shared equity control the resale value; it does not disallow appreciation of value. A person, who under the traditional dichotomy of renter/owner would have no choice but to pay rent without any return, can pay and get something back. At the most basic level, shared equity allows such a renter to improve upon that system and collect the original investment, plus some restricted appreciation.

This research examines existing data on the subject of shared equity to support the idea of using it to supply low to moderate income housing. Although shared equity has not received the academic research other forms of tenure are granted, key researchers have informed a new conversation on the subject. This report only touches upon the

[80] Davis 2006: 77

social aspects of how residents get along in an LEC over other public housing models. Instead, it assumes that those renters on the cusp of ownership can benefit from the chance to build limited equity, buy into a community, and secure decent housing.

Although the social aspects of an LEC are an important consideration for long term success, this research focuses on the financial feasibility of the private development of an LEC. There are two distinctions between the hypothetical example and past examples of public housing conversions to LECs. The first is that this model is a product that can be built from the ground up by a private developer using public funding to produce affordable units. The second is the goal for this affordable housing product to span a mix of income earners from low, moderate, median and above median households.

From the developer's perspective, the low profit margins might indicate the need for ulterior motives to continue with the LEC development. The negative NPV suggests that the development of LECs might be taken up by non-profit developers or community development corporations. However, this research does not examine all potential public funding sources, or the possibility for public/private partnership in the acquisition of land. At a bare minimum, this research indicates that an LEC with common public funding sources can be constructed such that it does not lose money. Developers are by nature optimistic. As the demand for affordable housing units increase, a product will surely fill the need – this research shows there is a potential for that product to be the LEC.

From the resident's perspective, the dream is homeownership, but the reality is too expensive. The alternative is to share the equity and build a home. The hypothetical shows that it is feasible at today's costs of development and rent restrictions to buy-out the developer at year ten for full cooperative ownership of the building. The cooperative needs to make enough money to handle the long term repairs and maintenance of the building, and the debt service necessary for the buy-out. Cooperative by-laws keep the

units affordable for future residents, while the existing residents build equity. Length of ownership has been assumed at 20 years for the simplicity of the model; however, if a family is ready to move on earlier, then their share is available for their use in the purchase of a new home. As renters there would be no share to take with them.

The alternative model of homeownership – the limited equity cooperative, having been under researched is not a valid reason to discard the potential good this model can provide the market of affordable housing. The research shows that the cost of production is the same from traditional apartment complexes to rent-restricted apartment complexes. The work necessary to differentiate between the LEC and the traditional LIHTC project are required of the developer at the inception of the project, and the residents throughout the life of the cooperative. As the subject of shared equity in the LEC model gains recognition from researchers, it can also gain from implementation.

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RESOURCES

Green Communities – website: http://www.greencommunitiesonline.org/about.asp

Affordable Housing Design Advisor – website: http://www.designadvisor.org

Huduser: http://www.huduser.org/index.html

Section 213 – Mortgages for Cooperative Housing: http://www.hud.gov/offices/hsg/mfh/progdesc/coop213.cfm

Section 216 – Tax deduction for cooperative share: http://www.fourmilab.ch/ustax/www/t26-A-1-B-VII-216.html

Section 8 – For New Construction and Renovations: http://www.hud.gov/offices/hsg/mfh/rfp/s8bkinfo.cfm

Massachusetts Allocation Plan: http://www.mass.gov/dhcd/components/housdev/TxCrProg.pdf

Tax credit rents 2007: http://www.mass.gov/dhcd/components/housdev/want/dvlper_r/TxCrRI.pdf

9% tax credit financing rules: https://www.masshousing.com/portal/server.pt/gateway/PTARGS_0_2_422_0_0_18/RD_9RulesTxExemptBondFin.pdf

Affordable Housing Trust Fund Guidelines – Massachusetts: http://www.mass.gov/dhcd/Temp/AH-TG.pdf

Main Page: https://www.masshousing.com/portal/server.pt

National Association of Housing Cooperatives. http://www.coophousing.org/about_nahc.shtml

National Cooperative Bank: http://ncb.coop

National Cooperative Bank – Buying a cooperative: http://ncb.coop/uploadedFiles/consumerguide.pdf

Policy Link – Limited Equity Housing Cooperatives: http://www.policylink.org/EDTK/LEHC/default.html

Paycheck to Paycheck: http://www.nhc.org/chp/p2p

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APPENDICES

Appendix A – Rochdale Principals

Rochdale Cooperative Principles[81]

The Rochdale Cooperative Principles have served as a covenant for cooperative development since 1966. They are excerpted below.

THE ROCHDALE COOPERATIVE PRINCIPLES

(Wording approved by International Cooperative Alliance in 1966)

- Membership of a cooperative society should be voluntary and available without artificial restriction or any social, political, racial or religious discrimination, to all persons who can make use of its services and are willing to accept the responsibilities of membership.
- Cooperative societies are democratic organizations. Their affairs should be administered by persons elected or appointed in manner agreed by the members and accountable to them. Members of primary societies should enjoy equal rights of voting (one member, one vote) and participation in decisions affecting their societies. In other than primary societies the administration should be conducted on a democratic basis in a suitable form.
- Share capital should only receive a strictly limited rate of interest.
- The economic results arising out of the operations of a society belong to the members of that society and should be distributed in such a manner as would avoid one member gaining at the expense of others. This may be done by decision of the members as follows: (a) by provision for development of the business of the cooperative; (b) by provision of common services; or, (c) by distribution among the members in proportion to their transactions with the society.
- All cooperative societies should make provision for the education of their members, officers, and employees and of the general public in the principles and techniques of cooperation, both economic and democratic.
- All cooperative organizations, in order to best serve the interest of their members and their communities, should actively cooperate in every practical way with other cooperatives at local, national, and international levels.

In Other Words

- Open membership
- Economic democracy
- Limited return on invested capital
- Patronage rebates
- Education
- Cooperation among cooperatives

[81] PolicyLink website: http://www.policylink.org/EDTK/LEHC/Resources.html

Appendix B – LEC Cooperative Case Studies

Example 1:[82]

Case Study of a Student Housing Cooperative

Project Facts

Name: Univ. of Texas Inter-Cooperative Council, Inc.
Location: Austin, TX
Project Description: Housing for students which is owned and managed by the Inter-CooperativeCouncil, an association of cooperatives run by students.
Number of Units and Composition: student houses consisting of 162 total beds
Total Project Cost: $300,000 in total renovations
Ownership Structure: Each student house is owned and operated by the cooperative. Policy is formulated by the board of directors consisting of democratically elected resident-students.
Affordability: Given the cost of a college education, student housing cooperatives help give students the opportunity to pursue a college education by offering decent and low-cost housing and food.

Financing Terms

Type & Amount of Loan(s): $ 300,000 working capital line of credit which converts to a multi-year term loan.
Loan-to-Value Ratio: Loan is not secured by real estate but rather by a combination of primary and secondary liens on cash/operating reserves.
Debt Service Coverage Ratio: n/a

Additional Capital Sources

n/a

Project History

Borrower began as an association of independent student cooperatives in the 1930's, and was incorporated as a nonprofit corportion in 1970. Today, it is run by students and operates with the primary objective of keeping housing costs affordable to students.

Borrower is experienced in managing renovations of student houses. To facilitate completion of rehabilitation according to schedule, an operations manager oversees all improvements. In order to facilitate disbursements, the borrower submits a refined scope of work and copies of all contracts. At completion, the borrower certifies and provides documentation that all planned rehabilitation was done according to city requirements and professional standards, and is also lien free.

Impact of Empowerment

Student housing cooperatives enjoy high occupancy rates because they offer decent and low-cost housing at rates well below market. They not only give students the opportunity to pursue their college education, but also the opportunity to live, learn, and participate in a real cooperative. From their experience with housing cooperatives, many students go on to pursue leadership positions in the cooperative movement.

NCBDC's Role

NCBDC provided flexible financing designed to meet interim and long-term financing goals at terms which would enable the cooperative to keep rates affordable for student-residents. Partially securing the financing with cash rather than real estate helped to keep transaction costs down. Renovations to the student cooperatives and the resulting draws under the working capital line of credit occur during the low-occupancy summer period. The fixed-rate term loan helps to fix future debt service.

For More Information

Contact NCBDC's Affordable Housing Team at 800-417-7786. You can also download the case studies from NCB's website at www.ncb.com.

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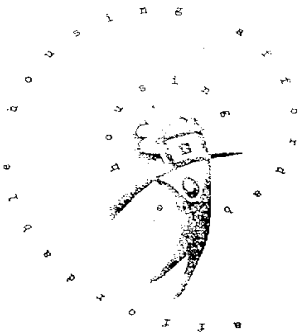
[82] Source: Zeitler, Jeff. 2000: "Cooperative Housing Conversions: A guide for residents interested in converting to cooperative ownership", Appendix A.

Example 2:[83]



Case Study of a Limited-Equity Housing Cooperative

Project Facts

Name: Adelante Mt. Pleasant Cooperative Inc.
Location: Washington, DC
Project Description: Adelante is a limited-equity affordable housing cooperative located in a working class, multi-cultural neighborhood in Washington.
Number of Units and Composition: 16 units (4 one-bedroom; 4 two-bedroom; 8 three-bedroom)
Project Size: 25,145 sf. gross building area with 17,552 sf. rentable
Total Project Cost: $1,700,000
Ownership Structure: The property is owned through a non-profit, resident-controlled corporation. The co-op is governed democratically by a board consisting of residents, which assists residents resolve problems.
Affordability: Co-op residents' household incomes are well within the area median. Carrying charges were made affordable through a Section 8 income assistance program administered by the DC Department of Public & Assisted Housing, and significant acquisition and construction financing provided by DC Department of Housing and Community Development.

Development Team

Sponsors & Legal Services - Harrison Institute for Public Law, Latino Economic Development Corp. (LEDC)

Financing Terms

Type & Amount of Loan(s): $30,000 Business Planning Advance from NCBDC; $561,000 interim acquisition/construction loan from NCBDC; $772,700 permanent loan through NCB Mortgage Corporation
Loan-to-Value Ratio: 75%
Debt Service Coverage Ratio(s): 1.15 to 1.0 on annual debt service requirements before required reserve contributions; 1.10 to 1.0 on annual debt service requirements after required reserve contributions; 1.05 to 1.0 on all debt service requirements and required reserve contributions

Additional Sources of Capital

Local Initiatives Support Corporation (LISC); DC Department of Housing and Community Development ; Washington Gas; Co-op members cash equity

Project History

Property is located in a neighborhood which has suffered from overcrowded and substandard housing, and, racial and cultural misunderstandings. These circumstances ultimately led to an eruption of civil disturbances in 1991. Tenants were organized by local advocacy groups and purchased the property as the pilot project of the 500-unit Multi-Cultural Home Ownership Demonstration Program proposed to the U.S. Civil Rights Commission.

The tenant group was initially assisted by Adelante Advocacy Center, a local Hispanic advocacy group, and a local consultant. Harrison and LEDC assumed sponsorship and supervised the completion of renovations. NCBDC extended interim acquisition financing before the group secured construction financing from DHCD under the First Right to Purchase and HOME programs. NCB provided the ultimate permanent financing.

Impact of Empowerment

Long-term, low-income residents were able to secure financing to take ownership of and to upgrade their homes. They were empowered to assume responsibility for the quality of their living environment. It also helped to stabilize a culturally-rich urban area in transition.

NCBDC's Role

NCBDC negotiated pro bono legal services, provided forgivable pre-development money to cover development costs, and provided acquisition and construction financing. We then secured fixed-rate, long-term permanent financing through an affiliate, NCB Mortgage Corporation.

For More Information

Contact NCBDC's Affordable Housing Team at 800-417-7786. You can also download the case studies from NCB's website at www.ncb.com.

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[83] Source: Zeitler, Jeff. 2000: "Cooperative Housing Conversions: A guide for residents interested in converting to cooperative ownership", Appendix A.

Example 3:[84]

Case Study of a Limited-Equity Housing Cooperative

Project Facts

Name: 1425 T Street Cooperative Association, Inc.
Location: Washington, DC
Project Description: 1425 T Street is a limited-equity housing cooperative located in a working class, multi-cultural neighborhood in Washington, DC

Number of Units and Composition: 30 units (7 one-bedroom; 17 two-bedroom; 6 three-bedroom)
Project Size: 32,620 sf. gross building area with 22,000 sf. rentable
Total Project Cost: $5,200,000

Ownership Structure: Resident-controlled and membership-owned not-for-profit corporation established as a limited-equity cooperative. The co-op is governed democratically by a board comprised of five residents.
Affordability: Cooperative residents have household incomes within 50% of the area median. HOME financing requires annual incomes remain within 80% of the area median. Affordability will be maintained during the first 15 years as the cooperative retains equity appreciation. In addition, carrying charges are affordable through Section 8 program subsidies.

Development Team

Sponsor - Washington Inner City Self-Help (WISH); Legal Services - Harrison Institute for Public Law

Financing Terms

Type & Amount of Loan(s): NCBDC had a 20% share in a $1,181,941 Project LEND construction loan; 1,300,000 permanent loan at a long-term fixed rate through NCB Mortgage Corporation.
Loan-to-Value Ratio: 75%
Debt Service Coverage Ratio(s): 1.15 to 1.0 on annual debt service requirements before required reserve contributions; 1.10 to 1.0 on annual debt service requirements after required reserve contributions; 1.05 to 1.0 on all debt service requirements and required reserve contributions

Additional Capital Sources

Project LEND (Lenders' Efforts for Non-Profit Development), a consortium of banks in Washington, DC, spearheaded by NCB; DC Department of Housing and Community Development (DHCD); Local Initiatives Support Corporation (LISC); Unitarian UAHC; and Potomac Electric Power Company.

Project History

Through years of neglect, the property had become a haven for various kinds of criminal activity. It was acquired by the cooperative at public auction as settlement of court judgement against the former owner/landlord.

As an experienced developer, WISH organized the residents, sought the construction and permanent financing, and put together the development team. WISH continues to monitor the co-op by providing training of the co-op residents through 1999.

Impact of Empowerment

Enabled long-time residents to secure ownership of their homes and to train them to assume responsibility for their building. Residents determine the quality of their living environment, they control everything from carrying charges to the entrance and expulsion of neighbors. Planned improvements were completed and residents are enjoying larger living units and new common areas in a well-kept building. The property is fully-occupied and operating according to financial plan.

NCBDC's Role

NCB spearheaded the formation of Project LEND which ultimately led to the financing. With financing, residents were able to acquire the property and conduct extensive rehabilitation which included increasing the size of units by reducing the number from 40 to 30. Thanks to permanent financing, the residents now own the building they call home.

For More Information

Contact NCBDC's Affordable Housing Team at 800-417-7786. You can also download the case studies from NCB's website at www.ncb.com.

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84 Source: Zeitler, Jeff. 2000: "Cooperative Housing Conversions: A guide for residents interested in converting to cooperative ownership", Appendix A.

Example 4:[85]

ROXBURY CORNERS COOPERATIVE HOUSING, Boston, Massachusetts

Roxbury Corners stands on two parcels of land in the Lower Roxbury section of Boston's South End historic district. The westerly parcel has a new structure of four-and-a-half stories; two rehabilitated buildings and a new four-story addition stand on the other parcel. Surrounding buildings are multi-family, low-income housing projects in high- or low-rise blocks that date from the last 25 years and 19th century brick row houses with front stoops and mansard roofs. At 65 dwelling-units per acre, Roxbury Corners is less dense that many of the nearby buildings.

Roxbury Corners was part of the South End Housing Initiative, the goal of which was to develop good, multi-family, affordable housing with some form of homeownership within the context of an overheated real estate market that excluded many people with low incomes. Community groups participated extensively in a series of community meetings and voiced their concerns about architectural design, security, parking, and site planning. The United South End/Lower Roxbury Development Corporation (UDC) was created in 1979 to participate in a wide range of business and real estate development activities that create employment and housing opportunities for people with low and moderate incomes and people of color. Prior to the construction of Roxbury Corners, this section of Lower Roxbury was abandoned. Now, almost 6,000 square feet of commercial space is leased to businesses that provide goods and services previously unavailable in this part of the neighborhood.

According to Syvalia "Val" Hyman, III, President and CEO of UDC, Roxbury Corners has had a significant positive impact both physically and socially on the neighborhood. Mr. Hyman recommended that affordable housing should always be designed from the beginning, "with the highest quality products and amenities. It is virtually impossible to significantly upgrade already specified products and amenities in a development, even when funding is available."

The development had to undergo review by the Landmarks Commission in respect to set-backs, height, materials, and architectural detailing--all of which had a major effect on the design. Because so many agencies, as well as the non-profit developer and the development consultants, had the right to review the design, the process was quite lengthy. According to architect Fernando J. Domenech, "It was a great challenge to design buildings that met the desires and expectations of many groups with very different agendas. Also, affordable housing developers do not have a real project until their financing is in place, and then they must move quickly to obtain occupancy in time to meet their tax credit deadline. Given the complexity of this development, preparation of construction documents under those constraints was very difficult."

Daniel DeSantis, a neighbor, stated in a recent interview: "Over the past few years, I have had the opportunity to mix with the residents of Roxbury Corners over crime issues in the neighborhood. Boston's South End is an ethnically and economically diverse community so the people at Roxbury Corners are not significantly different. Someone's income should not be a concern to neighbors. I think it is very important for affordable housing to blend in with the surrounding structures so that residents feel they live in a place as good as everyone else's. Roxbury Corners achieves this very successfully."

Project Summary: Roxbury Corners Cooperative Housing

SPONSOR
United South End/Lower Roxbury Dev. Corp. [UDC]

ARCHITECT
Domenech Hicks Krockmalnic

CONSULTANTS:
Landscape Architect: Halvorson Company
Development Consultant: The Community Builders

CONTRACTOR
Peabody Construction

PROPERTY MANAGEMENT
The Community Builders

FUNDERS:	TYPE:
Boston Redevelopment Authority	Loans/grants
City of Boston Neighborhood Hsg. Trust	Linkage loan
Massachusetts Housing Finance Agency	First mortgage
Hsg. Innovations Fund Prog. (HIF)	Loan
EOCD/ Retail Dev. Action Loan	Loan
Low Income Housing Tax Credits bought by NYNEX, Boston Bank of Commerce, State St. Bank and Trust Co.	Equity

DEVELOPMENT TYPE:
New constr. and rehab. limited-equity for-sale flats and townhouses.

RESIDENT PROFILE:
Families: 63% low-, 17% mod.-income, and 20% market-rate.

DENSITY: 18 units per acre

DEVELOPMENT PROFILE

Type	#/Units	Size (sf)	Rents
Studio	2	368-410	$390
1 BR	5	562-650	$600
2 BR	25	860-1,070	$747-850
3 BR	19	1,126-1,425	$845-1,096
4 BR	3	1,490-1,615	$1,096
Total	**54**		

Community: 850, includes office.
Parking: 19, surface
Retail: 5,000
Total site area: 36,224 (.83 acres)

CONSTRUCTION TYPE
Two buildings: four-story steel frame with brick and precast block and plank.

DEVELOPMENT COSTS:
Land cost: $350,000; Constr. costs: $7,020,832; Other costs: $2,020,773; **Total development costs $11,602,227** ($190,200/unit); Completed May 1991.

[85]Website: http://www.designadvisor.org/gallery/roxbury.html

Appendix C – Unit Mix Scenarios

Unit type and Affordability Mix - Scenario 1

Unit Type	0 bed	1 bed	2 bed	3 bed	4 bed	total # of units	gross rentable SF	net rentable SF	annual income ($)
SF	550	700	950	1300	1400				
50%	2	2	2	2	0	8	7000	7140	85,665
60%	2	2	2	2	2	10	9800	9996	137,953
80%	0	2	0	2	2	6	6800	6936	110,232
100%	2	0	2	2	0	6	5600	5712	98,328
Total	**6**	**6**	**6**	**8**	**4**	**30**	**29200**	**29784**	**432,179**

	units	SF
50%	26.67%	7000
60%	33.33%	9800
	60.00%	56.41%

Total Development SF:	34353
Total Hard Costs:	5,125,226
Total Cost per Rentable SF*	175.52
Total Annual Income per Rentable SF	**14.80**

*note: this number is the total hard costs/rentable SF it does not include soft costs and developer fees and OH&P
* check 80% and 100% rent calculations against FMR if FMR is lower use it to calculate income

Unit type and Affordability Mix - Scenario 2

Unit Type	0 bed	1 bed	2 bed	3 bed	4 bed	total # of units	gross rentable SF	net rentable SF	annual income ($)
SF	550	700	950	1300	1400				
50%	0	3	2	3	0	8	7900	8058	90,569
60%	2	2	1	2	2	9	8850	9027	124,302
80%	2	2	0	1	1	6	5200	5304	95,412
100%	2	0	2	3	0	7	6900	7038	117,936
	6	**7**	**5**	**9**	**3**	**30**	**28850**	**29427**	**428,219**

50%	26.67%
60%	30.00%

Total Development SF:	33941
Total Hard Costs:	5,066,343
Total Cost per Rentable SF*	175.61
Total Annual Income per Rentable SF	**14.84**

Unit type and Affordability Mix - Scenario 3

Unit Type	0 bed	1 bed	2 bed	3 bed	4 bed	total # of units	gross rentable SF	net rentable SF	annual income ($)
SF	550	700	950	1300	1400				
50%	2	3	4	6	0	15	14800	15096	170,396
60%	4	2	4	4	4	18	18200	18564	253,151
80%	4	2	0	2	0	8	6200	6324	119,808
100%	4	3	2	6	4	19	19600	19992	331,152
	14	**10**	**10**	**18**	**8**	**60**	**58800**	**59976**	**874,507**

50%	25.00%
60%	30.00%

Total Development SF:	69176
Total Hard Costs:	10,113,990
Total Cost per Rentable SF*	172.01
Total Annual Income per Rentable SF	**14.87**

Unit type and Affordability Mix - Scenario 4

Unit Type	0 bed	1 bed	2 bed	3 bed	4 bed	total # of units	gross rentable SF	net rentable SF	annual income ($)
SF	550	700	950	1300	1400				
50%	2	2	2	2	2	10	9800	9996	114,961
60%	4	4	4	4	4	20	19600	19992	275,907
80%	0	0	0	0	0	0	0	0	0
100%	0	0	0	0	0	0	0	0	0
	6	**6**	**6**	**6**	**6**	**30**	**29400**	**29988**	**390,868**

50%	33.33%
60%	66.67%

Total Development SF:	34588
Total Hard Costs:	5,158,873
Total Cost per Rentable SF*	175.47
Total Annual Income per Rentable SF	**13.29**

Appendix D – Income Limits Boston 2007

2007 Boston Income Limits based on HUD Estimated Mean Income (EMI) of $82,400												
	30%		50%		60%		80%		100%		110%	
size of HH	factor of MHI	Percentile Income	factor of MHI	Percentile Income	factor of MHI	Percentile Income	factor of MHI	Percentile Income	factor of MHI	Percentile Income	factor of MHI	Percentile Income
1	21.48%	**$17,702**	35.81%	**$29,503**	42.97%	**$35,404**	57.29%	**$47,205**	71.61%	**$59,007**	78.77%	**$64,907**
2	24.52%	**$20,201**	40.86%	**$33,669**	49.03%	**$40,402**	65.38%	**$53,870**	81.72%	**$67,337**	89.89%	**$74,071**
3	27.61%	**$22,752**	46.02%	**$37,920**	55.22%	**$45,505**	73.63%	**$60,673**	92.04%	**$75,841**	101.24%	**$83,425**
MFI	30.00%	**$24,720**	50.00%	**$41,200**	60.00%	**$49,440**	80.00%	**$65,920**	100.00%	**$82,400**	110.00%	**$90,640**
4	30.60%	**$25,217**	51.01%	**$42,028**	61.21%	**$50,434**	81.61%	**$67,245**	102.01%	**$84,056**	112.21%	**$92,462**
5	33.07%	**$27,249**	55.12%	**$45,415**	66.14%	**$54,498**	88.18%	**$72,664**	110.23%	**$90,830**	121.25%	**$99,912**
6	35.55%	**$29,296**	59.26%	**$48,826**	71.11%	**$58,591**	94.81%	**$78,122**	118.51%	**$97,652**	130.36%	**$107,417**
7	37.98%	**$31,298**	63.31%	**$52,163**	75.97%	**$62,596**	101.29%	**$83,461**	126.61%	**$104,327**	139.27%	**$114,759**
8	40.44%	**$33,325**	67.41%	**$55,542**	80.89%	**$66,650**	107.85%	**$88,867**	134.81%	**$111,083**	148.29%	**$122,192**

Source: developed using huduser.org, and LIHTC Handbook by Guggenheim, pg 18 - 22.
Adjusted for 2007 data MFI is approx. 3.75 people and the% change by person is adjusted slightly

2007 Boston Rent Potential determined from Size of Households based on HUD Estimated Mean Income of $82,400													
		30%		50%		60%		80%		100%		110%	
Size of Unit	Size of HH	Factor MHI	monthly rent	factor of MHI	monthly rent	factor of MHI	monthly rent	factor of MHI	monthly rent	factor of MHI	monthly rent	factor of MHI	monthly rent
eff.	1	21.5%	**$443**	35.8%	**$738**	43.0%	**$885**	57.3%	**$1,180**	71.6%	**$1,475**	78.8%	**$1,623**
1 bed	1.5	23.0%	**$474**	38.4%	**$790**	46.0%	**$948**	61.4%	**$1,264**	76.7%	**$1,580**	84.4%	**$1,738**
2 bed	3	27.6%	**$569**	46.0%	**$948**	55.2%	**$1,138**	73.6%	**$1,517**	92.0%	**$1,896**	101.2%	**$2,086**
3 bed	4.5	31.9%	**$656**	53.1%	**$1,094**	63.7%	**$1,312**	84.9%	**$1,750**	106.2%	**$2,187**	116.8%	**$2,406**
4 bed	6	35.6%	**$732**	59.3%	**$1,221**	71.1%	**$1,465**	94.8%	**$1,953**	118.5%	**$2,441**	130.4%	**$2,685**
5 bed	7.5	39.2%	**$808**	65.3%	**$1,346**	78.4%	**$1,615**	104.6%	**$2,154**	130.7%	**$2,692**	143.8%	**$2,962**

Appendix E – Cooperative Share Calculation

Assumptions for Share Loan Calculation:

Cost Breakdown	
# of months owned	240
Original Purchase	40,000.00
Loan Amount	38,000.00
Purchase Costs:	
total	2,000.00
Monthly Costs Average	219.08
(including down payment)	
Property Tax	0.00
Insurance	0.00
Principle	37,322.01
Interest	13,257.29

Potential Share Loan Value at End of Year 20, (4% appreciation):

	Cooperative Model Share Sale Formula			
	100%	**80%**	**60%**	**50%**
	Monthly Costs	Monthly Costs	Monthly Costs	Monthly Costs
	210.75	**210.75**	**210.75**	**210.75**
End results with appreciation @ 4%		3.20%	2.40%	2.00%
Sale price	87,644.93	75,102.42	64,277.52	59,437.90
loan balance	677.99	677.99	677.99	677.99
proceeds	86,966.94	74,424.43	63,599.53	58,759.91
total costs	52,579.30	52,579.30	52,579.30	52,579.30
reciepts	0.00	0.00	0.00	0.00
sale proceeds	-86,966.94	-74,424.43	-63,599.53	-58,759.91
cash spent	-34,387.64	-21,845.13	-11,020.23	-6,180.61
cash spent/mo	-143.28	-91.02	-45.92	-25.75

Appendix F – Development Model Scenario 1

DISCLAIMER: THESE SPREADSHEETS ARE INTENDED FOR EDUCATIONAL USE ONLY. USERS SHOULD CONSULT WITH PROFESSIONAL ADVISORS AND SHOULD NOT RELY ON THE INFORMATION CONTAINED HEREIN FOR INVESTMENT DECISIONS. ANY COMPUTATIONS SHOULD BE INDEPENDENTLY VERIFIED.

List of Tables

Development Income
Stage 1a - Rent Summary

Unit Type	50%	60%	80%	100%	No. of Units	Unit (s.f.)	Total s.f.	Annual Mkt Rent
0 bedroom	2	2	0	2	6	550	3,300	$ 52,335
1 Bedroom	2	2	2	0	6	700	4,200	$ 48,125
2 Bedroom	2	2	0	2	6	950	5,700	$ 73,546
3 bedroom	2	2	2	2	8	1,300	10,400	$ 123,248
4 bedroom	0	2	2	0	4	1,400	5,600	$ 65,072
Common Areas					25% of units	243	7,300	
Rental Income								$ 362,326
Other income								
Total Income					30		36,500	**$ 362,326**

LIHTC Applicable Units		**SF Calculation**
50 percentile units	26.67%	7000
60 percentile units	33.33%	9800
Total	60.00%	57.53%

Cooperative Income
Stage 1a' - Rent Summary

Unit Type	50%	60%	80%	100%	No. of Units	Unit (s.f.)	Total s.f.	Annual Mkt Rent
0 bedroom	2	2	0	2	6	550	3,300	$ 15,174
1 Bedroom	2	2	2	0	6	700	4,200	$ 15,174
2 Bedroom	2	2	0	2	6	950	5,700	$ 15,174
3 bedroom	2	2	2	2	8	1,300	10,400	$ 20,232
4 bedroom	0	2	2	0	4	1,400	5,600	$ 10,116
Rental Income					30		sub total	$ 75,869
Ultilities							$ 80	$ 28,800
other income							$ 10	$ 3,600
Total Income							total yearl	**$ 108,269**

Development
Stage 1b - Pro Forma NOI

			Factor			Rev & Cost
3						
4	**Income**					
5	Gross Potential Rent		30	Units	$	362,326
6	Less: Vacancy		5%		$	18,116
7	Adjusted Gross Rent				$	344,209
8						
9	Other Income (Laundry & Vending)				$	-
10	**Total Cash In**				**$**	**344,209**
11						
12						
13	**Expenses**					
14	Management Fee	$	400	Per Unit	$	12,000
15	Administration	$	-	Per Unit	$	-
16	Property Maintenance and Mgmt.	$	-	Per Unit	$	-
17	Resident Services	$	-	Per Unit	$	-
18	taxes	$	1,500	Per Unit	$	45,000
19	Insurance	$	300	Per Unit	$	9,000
20	Replacement Reservce	$	300	Per Unit	$	9,000
21	Utilities	$	-	Per Unit	$	-
22	**Total Expenses**	**$**	**2,500**		**$**	**75,000**
23						
24	**Net Operating Income**				**$**	**269,209**

Cooperative
Stage 1b' - Pro Forma NOI

			Factor			Rev & Cost
3						
4	**Income**					
5	Gross Potential Share		30	Units	$	108,269
6	Less: Vacancy		5%		$	5,413
7	Adjusted Gross rent				$	102,856
8						
9						
10	**Total Cash In**				**$**	**102,856**
11						
12						
13	**Cooperative Expenses**					
14	Management Fee	$	-	Per Unit	$	-
15	Administration	$	800	Per Unit	$	24,000
16	Property Maintenance and Mgmt.	$	500	Per Unit	$	15,000
17	Resident Services	$	200	Per Unit	$	6,000
18	taxes	$	-	Per Unit	$	-
19	Insurance	$	-	Per Unit	$	-
20	Replacement Reservce	$	-	Per Unit	$	-
21	Utilities	$	980	Per Unit	$	29,400
22	**Total Expenses**	**$**	**2,480**		**$**	**74,400**
23						
24	**Net Operating Income**				**$**	**28,456**

Development
Stage 1c - Maximum Debt Calculation

3	**Pro Forma NOI and Value**		
4	Pro Forma NOI	$	269,209
5	Capitalization Rate		8.50%
6	Value (NOI/Cap Rate)	$	3,167,168
7			
8	**Loan Terms**		
9	Interest Rate		7.50%
10	Amortization (years)		25
11			
12	**Using Loan to Value (LTV)**		
13	Maximum LTV		80.00%
14	Maximum Loan Based on LTV	**$**	**2,533,734**
15			
16	**Using Debt Service Coverage Ratio (DSCR)**		
17	Monthly NOI	$	22,434
18	Maximum DSCR		1.10
19	Maximum Monthly Payment (NOI/DSCR/12)	$	20,395
20	Maximum Loan Based on DSCR	**$**	**2,759,795**
21			
22	**Maximum Loan (Lesser of LTV or DSCR Result)**		
23	Maximum Principal	$	2,533,734
24	Monthly Payment	$	18,724
25	Annual Debt Service	$	224,689

Development Financing Gap
Stage 1e - Simple Ratios

4	Net Operating Income	$	269,209
5	Total Project Cost	$	4,135,533
6			
7	**Overall Return (Overall Cap-rate=NOI/Total Project Cost)**		**6.51%**
8			
9	Net Operating Income	$	269,209
10	Annual Debt Service	$	224,689
11	Cash Throw-off (CTO or BTCF)	$	44,520
12			
13			
14	Total Project Cost	$	4,135,533
15	Permanent Mortgage	$	(2,533,734)
16	Equity (Financing Gap)	$	(1,601,799)
17			
18	**Cash-on-cash Return (CTO/Equity)**		**2.78%**
19			
20	**Development Profit**		
21	NOI	$	269,209
22	Overall Cap-rate (@ sale)		10.0%
23	Capitalized Value	$	2,692,093
24	Total Project Cost	$	4,135,533
25	Development Profit (Subsidy Required)	$	(1,443,441)

Development
Stage 1d - Development Costs

	Development Costs						
4		Land Area (acres)		1.76			
5		Land Cost (per acre)	$	113,500			
6		Number of Units		30			
7		Total Square Footage		36,500			
8		Construction Period (years)		1.25			
9		Land per unit	$	6,659		$	199,760
10							
11				*Rate*	*No. of Months*		
12	Land Carry (note 1)			8.00%	3	$	3,995
13	Approval Fees			300	per unit	$	9,000
14	Construction Hard Cost		$	143	per s.f.	$	5,219,500
15		**Total Hard Costs**				**$**	**5,432,255**
16							
17	Soft Costs:						
18		Arch, Structural and Environ Engineering		5.91%	percent of development Cost	$	321,209
19		Surveys, Permits, Title & Recording Fees		1.478%	percent of development Cost	$	80,289
20		Legal and Accounting	$	1,250	Per Unit	$	37,500
21		Marketing	$	1,000	Per Unit	$	30,000
22		taxes	$	250	Per Unit	$	7,500
23		Insurance during construction	$	275	per unit	$	8,250
24		management training/ coop structure					
25		Loan Origination Costs		2%	Permanent Loan Amount	$	50,675
26		**Total Soft Costs**				**$**	**535,423**
27							
28	Developer Overhead			5%	Hard Cost * 1.25 Yrs	$	326,219
29	Contingency			10%	Hard Cost * 1.25 Yrs	$	652,438
30		**(exclude Interest and Operating reserve) TDC**				**$**	**6,946,334**
31							
32	Sources and Avaliable Deductions:						
33		Tax Credit				$	(1,704,840)
34		AHTF				$	(1,000,000)
35		Green communities grants			planning	$	(25,000)
36					construction	$	(50,000)
37		**Total Public Funding**				**$**	**(2,779,840)**
38		**TDC after Public Funding**				**$**	**4,166,494**
39							
40	**Estimate of Construction Interest (note 2)**						
41		Permanent Loan	$	2,533,734			
42		Construction Interest		7.50%			
43		Construction Period (Years)		1.25			
44		Average Draw		65.00%			
45	Estimated Construction loan interest						154,399
46	**Total Project Cost before Operating Reserve**						**7,100,734**
47							
48	**Estimate of Operating Reserve (note 3)**						
49		Gross potential Rent (monthly)	$	30,194			
50		Lease-up Period (months to reach stabilized		12.00			
51		Average Occupancy during Lease-up		77%			
52		Estimated rent during lease-up			280,155		
53		Estimated op. expenses during lease-up			75,000		
54		NOI during lease-up			205,155		
55		Construction interest during lease-up			19,795		
56		First Year Operating Reserve Required					(185,360)
57							
58	Total Project Cost with public funding					**$**	**4,135,533**
59	**Total Project Costs**					**$**	**6,915,373**

Development			Stage
	1d' - LIHTC Calculations		
	Total Development - normal basis		
5	Land (not eligible)	$	199,760
6	Construction	$	5,232,495
7	soft cost - 75% eligible	$	1,514,079
8	**Total**	**$**	**6,946,334**
9			
10	**Annual Tax Credit Amount:**		
11	% of units reserved for <60% AMI*		57.53%
12	Construction	$	3,010,477
13	Soft Costs	$	653,335
14	**qualified basis for credit**	**$**	**2,663,812**
15	value of tax credit		8.00%
16	additional 30% bonus	-	
17	**yearly income from tax credit**	**$**	**213,105**
18			
19	**Value of credit over 10 years**		
20	yearly income from tax credit	$	213,105
21	market price per $1 credit	$	0.8
22	10 year stream of credit		
23	**total**	**$**	**1,704,840**

* LIHTC credits can be taken for the lesser of the percent of units or the percent of SF

	Development Financing Gap		
	Stage 1e - Simple Ratios		
4	Net Operating Income	$	269,209
5	Total Project Cost	$	4,135,533
6			
7	**Overall Return (Overall Cap-rate=NOI/Total Project Cost)**		**6.51%**
8			
9	Net Operating Income	$	269,209
10	Annual Debt Service	$	224,689
11	Cash Throw-off (CTO or BTCF)	$	44,520
12			
13			
14	Total Project Cost	$	4,135,533
15	Permanent Mortgage	$	(2,533,734)
16	Equity (Financing Gap)	$	(1,601,799)
17			
18	**Cash-on-cash Return (CTO/Equity)**		**2.78%**
19			
20	**Development Profit**		
21	NOI	$	269,209
22	Overall Cap-rate (@ sale)		10.0%
23	Capitalized Value	$	2,692,093
24	Total Project Cost	$	4,135,533
25	Development Profit (Subsidy Required)	$	(1,443,441)

Note: line 1d'/14 deducts the $1,000,000 AHTF funds from Total Qualified basis.

Development
Stage 2 Analysis

3	**Project Costs**	
4	Total Project Cost	$6,915,373
5	Total Proj. Cost before Op. Reserve	$7,100,734
6	Land Cost	$199,760
7		
8	**Financing Assumptions**	
9	Equity	($1,601,799)
10	Mortgage Principal	$2,533,734
11	Interest Rate	7.50%
12	Amortization	30
13	Annual Debt Service	$224,689
14		
15	**Public Funding**	($2,779,840)
16	Tax Credit	($1,704,840)
17	AHTF	($1,000,000)
18	Green communities grants	($25,000)
19		($50,000)
20		
21	**Depreciation Assumptions**	
22	Building Basis	$4,121,134
23	Life (in years)	27.5
24	Acceleration Factor	1.0
25	Straight line (calculated)	$149,859
26		

27	**MORTGAGE CALCULATION**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
28											
29	Beginning Balance (note 6)	2,677,872	2,653,187	2,626,585	2,597,918	2,567,025	2,533,734	2,497,859	2,459,198	2,417,537	2,372,641
30	Ending Balance	2,653,187	2,626,585	2,597,918	2,567,025	2,533,734	2,497,859	2,459,198	2,417,537	2,372,641	2,324,259
31	Amortization of Principal	24,686	26,602	28,667	30,893	33,291	35,875	38,660	41,662	44,896	48,381
32	Interest	200,003	198,087	196,022	193,796	191,398	188,814	186,028	183,027	179,793	176,307
33											
34	**DEPRECIATION CALCULATION**										
35											
36	Beginning Balance (note 7)	4,121,134	3,971,274	3,821,415	3,671,556	3,521,696	3,371,837	3,221,977	3,072,118	2,922,259	2,772,399
37	Less: Annual Depreciation	149,859	149,859	149,859	149,859	149,859	149,859	149,859	149,859	149,859	149,859
38	Ending Balance	3,971,274	3,821,415	3,671,556	3,521,696	3,371,837	3,221,977	3,072,118	2,922,259	2,772,399	2,622,540
39	Cumulative Depreciation Taken	149,859	299,719	449,578	599,438	749,297	899,156	1,049,016	1,198,875	1,348,735	1,498,594
40	Cumulative Straight Line	149,859	299,719	449,578	599,438	749,297	899,156	1,049,016	1,198,875	1,348,735	1,498,594
41	Recapture	-	-	-	-	-	-	-	-	-	-
42	Remaining Book Value	4,171,034	4,021,175	3,871,316	3,721,456	3,571,597	3,421,737	3,271,878	3,122,019	2,972,159	2,822,300
43											
44											

46	**ANNUAL CASH FLOWS**			**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
47													
48	Gross Rent	(inflation rate)	3.00%	362,326	373,195	384,391	395,923	407,801	420,035	432,636	445,615	458,983	472,753
49	Vacancy	(vacancy rate)	5.00%	(18,116)	(18,660)	(19,220)	(19,796)	(20,390)	(21,002)	(21,632)	(22,281)	(22,949)	(23,638)
50	Adjusted Gross Income			344,209	354,536	365,172	376,127	387,411	399,033	411,004	423,334	436,034	449,115
51													
52	Operating Expenses	(inflation rate)	5.00%	75,000	78,750	82,688	86,822	91,163	95,721	100,507	105,533	110,809	116,350
53	Other Expenses			-	-	-	-	-	-	-	-	-	-
54		Total Expenses		75,000	78,750	82,688	86,822	91,163	95,721	100,507	105,533	110,809	116,350
55													
56	Net Operating Income			269,209	275,786	282,484	289,305	296,248	303,312	310,497	317,801	325,225	332,765
57													
58	Annual Debt Service			(224,689)	(224,689)	(224,689)	(224,689)	(224,689)	(224,689)	(224,689)	(224,689)	(224,689)	(224,689)
59													
60	Before-Tax Operating Cash Flow			44,520	51,097	57,795	64,616	71,559	78,623	85,808	93,113	100,536	108,077
61													
62	**Tax Calculation**												
63													
64	Net Operating Income			269,209	275,786	282,484	289,305	296,248	303,312	310,497	317,801	325,225	332,765
65	Interest			(200,003)	(198,087)	(196,022)	(193,796)	(191,398)	(188,814)	(186,028)	(183,027)	(179,793)	(176,307)
66	Depreciation			(149,859)	(149,859)	(149,859)	(149,859)	(149,859)	(149,859)	(149,859)	(149,859)	(149,859)	(149,859)
67													
68	Taxable Income (Loss)			(80,653)	(72,161)	(63,397)	(54,351)	(45,010)	(35,361)	(25,391)	(15,085)	(4,427)	6,599
69	Passive Loss Offset **(note 9)**			-	-	-	-	-	-	-	-	-	(4,427)
70													
71	Taxable Income			-	-	-	-	-	-	-	-	-	2,171
72	Passive Loss Carryforward			(80,653)	(72,161)	(63,397)	(54,351)	(45,010)	(35,361)	(25,391)	(15,085)	(4,427)	-
73													
74	Taxes		28.00%	-	-	-	-	-	-	-	-	-	608
75													
76	**After Tax Cash Flow**												
77													
78	Before-Tax Operating Cash Flow			44,520	51,097	57,795	64,616	71,559	78,623	85,808	93,113	100,536	108,077
79	Taxes			-	-	-	-	-	-	-	-	-	(608)
80													
81	After-Tax Operating Cash Flow			44,520	51,097	57,795	64,616	71,559	78,623	85,808	93,113	100,536	107,469
82													

84	**SALE CALCULATION**												Year	10
85														
86	**Before Tax Cash Flow from Sale**													
87	Sale Price (cap rate of 10.0%, using next year NOI)			10.0%										3,404,214
88	Commission			0.00%										-
89	Adjusted Sales Price													3,404,214
90	Remaining Mortgage Balance													(2,324,259)
91	**Before-Tax Cash Flow from Sale**													1,079,955
92														
93	**Taxes**													
94	Adjusted Sales Price													3,404,214
95	Remaining Book Value													(2,822,300)
96	Total Taxable Gain													581,914
97	Passive Loss Carryforward													(4,427)
98	Total Gain													586,341
99		Total Depreciation Taken												1,498,594
100		Recapture Tax @ 25%		25%										(374,649)
101		**Capital Gain**												(912,253)
102														
103		Tax on Capital Gain		20%										(182,451)
104														
105	**After-Tax Cash Flow from Sale**													
106	Before-Tax Cash Flow from Sale													1,079,955
107	Total Tax (recapture + capital gain)													(192,198)
108	**After-Tax Cash Flow from Sale**													**887,757**
109														
110														
111														
112	**INVESTORS RETURN MEASURES**			**Investment**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
113														
114	**Unleveraged IRR**		$	(6,915,373)										
115	Project Cost		$	(4,135,533)										
116	Net Operating Income				269,209	275,786	282,484	289,305	296,248	303,312	310,497	317,801	325,225	332,765
117	Adjusted Sales Price													3,404,214
118		Total Before-Tax Cash Flow	$	(4,135,533)	269,209	275,786	282,484	289,305	296,248	303,312	310,497	317,801	325,225	3,736,979
119														
120	Unleveraged IRR			**5.83%**										
121	Net Present Value @ 10.0% (note 5)			($1,011,599)										
122														
123														
124	**Before Tax IRR**													
125	Equity		$	(1,601,799)										
126	Before-Tax Operating Cash Flow				44,520	51,097	57,795	64,616	71,559	78,623	85,808	93,113	100,536	108,077
127	Before-Tax Cash Flow from Sale													1,079,955
128		Total Before-Tax Cash Flow	$	(1,601,799)	44,520	51,097	57,795	64,616	71,559	78,623	85,808	93,113	100,536	1,188,031
129														
130	Before-Tax IRR			**1.63%**										
131	Net Present Value @ 12.0%			($863,485)										
132														
133	**After Tax IRR**													
134	Equity		$	(1,601,799)										
135	After-Tax Operating Cash Flow				44,520	51,097	57,795	64,616	71,559	78,623	85,808	93,113	100,536	107,469
136	After-Tax Cash Flow from Sale													887,757
137		Total After-Tax Cash Flow	$	(1,601,799)	44,520	51,097	57,795	64,616	71,559	78,623	85,808	93,113	100,536	995,225
138														
139	After-Tax IRR			**0.31%**										
140														
141	**Simple Return Measures**													
142	NOI/Project Cost	**ROR**			6.5%	6.7%	6.8%	7.0%	7.2%	7.3%	7.5%	7.7%	7.9%	8.0%
143	Before Tax Cash Flow/Equity	**ROE**			2.8%	3.2%	3.6%	4.0%	4.5%	4.9%	5.4%	5.8%	6.3%	6.7%

Hypothetical: Impact of Leverage

		Scenario 1		Scenario 4
Leveraged Return				
NOI	$	269,209	$	194,039
Annual Debt Service (DS)	$	(224,689)	$	(161,950)
Before-Tax-Cash Flow (BTCF)	$	44,520	$	32,089
Equity Investment	$	1,601,799	$	601,486
Percentage ROE		16.81%		32.26%
Unleveraged Return				
NOI	$	269,209	$	194,039
Total Capital Invested	$	4,135,533	$	2,427,732
Percent ROR		6.51%		7.99%

Notes

1. Land carry refers to interest paid to the land seller as part of the land purchase contract.
2. This calculation is a preliminary estimate of interest during construction. A more accurate estimate will be made as part of the Stage 3 analysis, and Stage 4 (not shown).
3. Operating Reserve during lease-up represents the subsidy that will be required to cover operating costs and debt service before the project reaches break-even occupancy.
5. Net Present Value equals the present value of future cash flows, less the initial investment. The unleveraged NPV represents the development profit.
6. The permanent mortgage balance was determined based on value and cash flow. During the development period, only interest would be paid on the construction loan. Amortization would begin upon the funding of the permanent loan, after stabilization.
7. The depreciable basis is the total project cost, excluding land costs and operating losses during the lease-up period. The remaining book value includes the land cost. Personal property is included in the depreciable basis here for simplicity. It can be tracked separately. Also, apartment buildings may be brought on-stream at different in successive months as construction is completed. A separate depreciation spreadsheet may be added to account for these nuances. That level of accuracy, however, is inappropriate for early Stage 2 analyses since other assumptions are at best good approximations.
8. The operating reserve includes funds needed to cover operating costs and debt service during the lease-up period.
9. Current tax laws treat real estate as passive income and limit the amount of loss one can take. Passive losses can only be taken against other passive income (with minor adjustments for small investors). In this example, passive loss limitation rules do not apply since taxable income is positive. Stage 3, Table 15, shows the treatment where Taxable Income is negative. See Brueggeman and Fisher (2002) for more information.

Appendix G – Cooperative Buy Out Model

DISCLAIMER: THESE SPREADSHEETS ARE INTENDED FOR EDUCATIONAL USE ONLY. USERS SHOULD CONSULT WITH PROFESSIONAL ADVISORS AND SHOULD NOT RELY ON THE INFORMATION CONTAINED HEREIN FOR INVESTMENT DECISIONS. ANY COMPUTATIONS SHOULD BE INDEPENDENTLY VERIFIED.

List of Tables

Cooperative Income
Stage 1a - Rent Summary

Unit Type	50%	60%	80%	100%	No. of Units	Unit (s.f.)	Total s.f.	Annual Mkt Rent
0 bedroom	2	2	0	2	6	550	3,300	$ 52,335
1 Bedroom	2	2	2	0	6	700	4,200	$ 48,125
2 Bedroom	2	2	0	2	6	950	5,700	$ 73,546
3 bedroom	2	2	2	2	8	1,300	10,400	$ 123,248
4 bedroom	0	2	2	0	4	1,400	5,600	$ 65,072
Common Areas					25% of units	243	7,300	
Rental Income								$ 362,326
Other income							$ 90	$ 32,400
Totals					30		36,500	**$ 394,726**

LIHTC Applicable Units		SF Calculation
50 percentile units	26.67%	7000
60 percentile units	33.33%	9800
Total	60.00%	57.53%

Cooperative Equity Fund Income
Stage 1a' - Rent Summary

Unit Type	50%	60%	80%	100%	No. of Units	Unit (s.f.)	Total s.f.	Annual Mkt Rent
0 bedroom	2	2	0	2	6	550	3,300	$ 15,174
1 Bedroom	2	2	2	0	6	700	4,200	$ 15,174
2 Bedroom	2	2	0	2	6	950	5,700	$ 15,174
3 bedroom	2	2	2	2	8	1,300	10,400	$ 20,232
4 bedroom	0	2	2	0	4	1,400	5,600	$ 10,116
Rental Income					30		sub total	$ 75,869
Ultilities							$ -	$ -
other income							$ -	$ -
Total Income								**$ 75,869**

Cooperative
Stage 1b - Pro Forma NOI

3			Factor			Rev & Cost	Adjusted for 10 yrs
4	**Income**						
5	Gross Potential Rent		30	Units	$	394,726	$ 515,027
6	Less: Vacancy		5%		$	19,736	$ 25,751
7	Adjusted Gross Rent				$	374,989	$ 489,276
8							
9	Other Income (Laundry & Vending)				$	-	
10	**Total Cash In**				**$**	**374,989**	**$ 489,276**
11		Adjusted 3% increase yearly up to year 10			$	489,276	3%
12							10
13	**Expenses**						
14	Management Fee	$	400	Per Unit	$	12,000	
15	Administration	$	800	Per Unit	$	24,000	
16	Property Maintenance and Mgmt.	$	500	Per Unit	$	15,000	
17	Resident Services	$	200	Per Unit	$	6,000	
18	taxes	$	1,500	Per Unit	$	45,000	
19	Insurance	$	300	Per Unit	$	9,000	
20	Replacement Reservce	$	300	Per Unit	$	9,000	
21	Utilities	$	980	Per Unit	$	29,400	
22	**Total Expenses**	**$**	**4,980**		**$**	**149,400**	
23		Adjusted 5% increase yearly up to year 10			$	231,768	5%
24	**Net Operating Income**				**$**	**257,508**	10

Cooperative
Stage 1b' - Pro Forma NOI

3			Factor			Rev & Cost
4	**Income**					
5	Gross Potential Share		30	Units	$	75,869
6	Less: Vacancy		5%		$	3,793
7	Adjusted Gross rent				$	72,076
8						
9						
10	**Total Cash In**				**$**	**72,076**
11						
12						
13	**Cooperative Expenses**					
14	Management Fee	$	-	Per Unit	$	-
15	Administration	$	-	Per Unit	$	-
16	Property Maintenance and Mgmt.	$	-	Per Unit	$	-
17	Resident Services	$	-	Per Unit	$	-
18	taxes	$	-	Per Unit	$	-
19	Insurance	$	-	Per Unit	$	-
20	Replacement Reservce	$	-	Per Unit	$	-
21	Utilities	$	-	Per Unit	$	-
22	**Total Expenses**	**$**	**-**		**$**	**-**
23		Adjusted 5% increase yearly up to year 10			$	-
24	**Net Operating Income**				**$**	**72,076**

Cooperative
Stage 1c - Maximum Debt Calculation

3	**Pro Forma NOI and Value**		
4	Pro Forma NOI	$	257,508
5	Capitalization Rate		8.00%
6	Value (NOI/Cap Rate)	$	3,218,844
7			
8	**Loan Terms**		
9	Interest Rate		3.00%
10	Amortization (years)		20
11			
12	**Using Loan to Value (LTV)**		
13	Maximum LTV		80.00%
14	Maximum Loan Based on LTV	**$**	**2,575,075**
15			
16	**Using Debt Service Coverage Ratio (DSCR)**		
17	Monthly NOI	$	21,459
18	Maximum DSCR		1.10
19	Maximum Monthly Payment (NOI/DSCR/12)	$	19,508
20	Maximum Loan Based on DSCR	**$**	**3,517,531**
21			
22	**Maximum Loan (Lesser of LTV or DSCR Result)**		
23	Maximum Principal	$	2,575,075
24	Monthly Payment	$	14,281
25	Annual Debt Service	$	171,376

Cooperative Financing Gap
Stage 1e - Simple Ratios

4	Net Operating Income	$	257,508
5	Total Project Cost	$	3,404,214
6			
7	**Overall Return (Overall Cap-rate=NOI/Total Project Cost)**		**7.56%**
8			
9	Net Operating Income	$	257,508
10	Annual Debt Service	$	171,376
11	Cash Throw-off (CTO or BTCF)	$	86,132
12			
13			
14	Total Project Cost	$	3,404,214
15	Permanent Mortgage	$	(2,575,075)
17	Equity (Financing Gap)	$	(829,139)
18			
19	**Cash-on-cash Return (CTO/Equity)**		**10.39%**
20			
21	**Development Profit**		
22	NOI	$	257,508
23	Overall Cap-rate (@ sale)		10.0%
24	Capitalized Value	$	2,575,075
25	Total Project Cost	$	3,404,214
26	Development Profit (Subsidy Required)	$	(829,139)

Cooperative
Stage 2 Analysis

3	**Project Costs**			
4	Total Project Cost	$3,404,214		
5	Total Proj. Cost before Op. Reserve	$0		10
6	Land Cost	$260,641	199,760	3.00%
7				
8	**Financing Assumptions**			
9	Equity	($829,139)		
10	Mortgage Principal	$2,575,075		
11	Interest Rate	3.00%		
12	Amortization	20		
13	Annual Debt Service	$171,376		
14				
15	**Social Equity**	$0		
16	Tax Credit	$0		
17	AHTF	$0		
18	Green communities grants	$0		
19		$0		
20				
21	**Depreciation Assumptions**			
22	Building Basis	$3,143,572		
23	Life (in years)	27.5		
24	Acceleration Factor	1.0		
25	Straight line (calculated)	$114,312		

26											
27	**MORTGAGE CALCULATION**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
28											
29	Beginning Balance	2,575,075	2,479,647	2,381,316	2,279,994	2,175,590	2,068,011	1,957,160	1,842,937	1,725,240	1,603,963
30	Ending Balance	2,479,647	2,381,316	2,279,994	2,175,590	2,068,011	1,957,160	1,842,937	1,725,240	1,603,963	1,478,997
31	Amortization of Principal	95,428	98,331	101,322	104,404	107,579	110,851	114,223	117,697	121,277	124,966
32	Interest	75,947	73,045	70,054	66,972	63,796	60,524	57,153	53,679	50,099	46,410
33											
34	**DEPRECIATION CALCULATION**										
35											
36	Beginning Balance (note 1)	3,143,572	3,029,261	2,914,949	2,800,637	2,686,325	2,572,014	2,457,702	2,343,390	2,229,079	2,114,767
37	Less: Annual Depreciation	114,312	114,312	114,312	114,312	114,312	114,312	114,312	114,312	114,312	114,312
38	Ending Balance	3,029,261	2,914,949	2,800,637	2,686,325	2,572,014	2,457,702	2,343,390	2,229,079	2,114,767	2,000,455
39	Cumulative Depreciation Taken	114,312	228,623	342,935	457,247	571,559	685,870	800,182	914,494	1,028,805	1,143,117
40	Cumulative Straight Line	114,312	228,623	342,935	457,247	571,559	685,870	800,182	914,494	1,028,805	1,143,117
41	Recapture	-	-	-	-	-	-	-	-	-	-
42	Remaining Book Value	3,289,902	3,175,590	3,061,279	2,946,967	2,832,655	2,718,343	2,604,032	2,489,720	2,375,408	2,261,097
43											
44											

					1	2	3	4	5	6	7	8	9	10
46	**ANNUAL CASH FLOWS**													
47														
48	Gross Rent	(inflation rate)		3.00%	515,027	530,478	546,392	562,784	579,668	597,058	614,970	633,419	652,421	671,994
49	Cooperative Equity Fund Share				-	-	-	-	-	-	-	-	-	-
50	Vacancy	(vacancy rate)		5.00%	(25,751)	(26,524)	(27,320)	(28,139)	(28,983)	(29,853)	(30,748)	(31,671)	(32,621)	(33,600)
51	Adjusted Gross Income				489,276	503,954	519,073	534,645	550,684	567,205	584,221	601,748	619,800	638,394
52														
53	Operating Expenses	(inflation rate)		5.00%	231,768	243,357	255,525	268,301	281,716	295,802	310,592	326,121	342,428	359,549
54	Other Expenses				-	-	-	-	-	-	-	-	-	-
55			Total Expenses		231,768	243,357	255,525	268,301	281,716	295,802	310,592	326,121	342,428	359,549
56														
57	Net Operating Income				257,508	260,597	263,548	266,344	268,968	271,403	273,629	275,626	277,373	278,845
58														
59	Annual Debt Service				(171,376)	(171,376)	(171,376)	(171,376)	(171,376)	(171,376)	(171,376)	(171,376)	(171,376)	(171,376)
60														
61	Before-Tax Operating Cash Flow				86,132	89,222	92,172	94,968	97,593	100,027	102,254	104,251	105,997	107,470
62														
63	**Tax Calculation**													
64														
65	Net Operating Income				257,508	260,597	263,548	266,344	268,968	271,403	273,629	275,626	277,373	278,845
66	Interest				(75,947)	(73,045)	(70,054)	(66,972)	(63,796)	(60,524)	(57,153)	(53,679)	(50,099)	(46,410)
67	Depreciation				(114,312)	(114,312)	(114,312)	(114,312)	(114,312)	(114,312)	(114,312)	(114,312)	(114,312)	(114,312)
68														
69	Taxable Income (Loss)				67,249	73,241	79,183	85,060	90,860	96,567	102,165	107,636	112,962	118,124
70	Passive Loss Offset				-	-	-	-	-	-	-	-	-	-
71														
72	Taxable Income				67,249	73,241	79,183	85,060	90,860	96,567	102,165	107,636	112,962	118,124
73	Passive Loss Carryforward				-	-	-	-	-	-	-	-	-	-
74														
75	Taxes			28.00%	18,830	20,507	22,171	23,817	25,441	27,039	28,606	30,138	31,629	33,075
76														
77	**After Tax Cash Flow**													
78														
79	Before-Tax Operating Cash Flow				86,132	89,222	92,172	94,968	97,593	100,027	102,254	104,251	105,997	107,470
80	Taxes				(18,830)	(20,507)	(22,171)	(23,817)	(25,441)	(27,039)	(28,606)	(30,138)	(31,629)	(33,075)
81														
82	After-Tax Operating Cash Flow				67,302	68,714	70,001	71,152	72,152	72,989	73,647	74,113	74,368	74,395
83														

85	**SALE CALCULATION**												Year	10 (note 2)
86														
87	**Before Tax Cash Flow from Sale**													
88	Sale Price (cap rate of 10.0%, using next year NOI)			10.0%										2,800,196
89	Commission			0.00%										-
90	Adjusted Sales Price													2,800,196
91	Remaining Mortgage Balance													(1,478,997)
92		**Before-Tax Cash Flow from Sale**												1,321,199
93														
94	**Taxes**													
95	Adjusted Sales Price													2,800,196
96	Remaining Book Value													(2,261,097)
97	Total Taxable Gain													539,099
98	Passive Loss Carryforward													-
99	Total Gain													539,099
100		Total Depreciation Taken												1,143,117
101		Recapture Tax @ 25%		25%										(285,779)
102		**Capital Gain**												(604,018)
103														
104		Tax on Capital Gain		20%										(120,804)
105														
106	**After-Tax Cash Flow from Sale**													
107	Before-Tax Cash Flow from Sale													1,321,199
108	Total Tax (recapture + capital gain)													(164,976)
109		**After-Tax Cash Flow from Sale**												**1,156,223**
110														
111														
112														
113	**INVESTORS RETURN MEASURES**			**Investment**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
114														
115	**Unleveraged IRR**		$	(3,404,214)										
116	Project Cost		$	(3,404,214)										
117	Net Operating Income				257,508	260,597	263,548	266,344	268,968	271,403	273,629	275,626	277,373	278,845
118	Adjusted Sales Price													2,800,196
119		**Total Before-Tax Cash Flow**	$	(3,404,214)	257,508	260,597	263,548	266,344	268,968	271,403	273,629	275,626	277,373	3,079,041
120														
121	Unleveraged IRR			**6.57%**										
122	Net Present Value @ 10.0%		$	(680,880)										
123														
124														
125	**Before Tax IRR**													
126	Equity		$	(829,139)										
127	Before-Tax Operating Cash Flow				86,132	89,222	92,172	94,968	97,593	100,027	102,254	104,251	105,997	107,470
128	Before-Tax Cash Flow from Sale													1,321,199
129		**Total Before-Tax Cash Flow**	$	(829,139)	86,132	89,222	92,172	94,968	97,593	100,027	102,254	104,251	105,997	1,428,669
130														
131	Before-Tax IRR			**14.50%**										
132	Net Present Value @ 12.0%		$	270,948										
133														
134														
135	**After Tax IRR**													
136	Equity		$	(829,139)										
137	After-Tax Operating Cash Flow				67,302	68,714	70,001	71,152	72,152	72,989	73,647	74,113	74,368	74,395
138	After-Tax Cash Flow from Sale													1,156,223
139		**Total After-Tax Cash Flow**	$	(829,139)	67,302	68,714	70,001	71,152	72,152	72,989	73,647	74,113	74,368	1,230,618
140														
141	After-Tax IRR			**10.95%**										
142														
143	**Simple Return Measures**													
144	NOI/Project Cost	**ROR**			7.6%	7.7%	7.7%	7.8%	7.9%	8.0%	8.0%	8.1%	8.1%	8.2%
145	Before Tax Cash Flow/Equity	**ROE**			10.4%	10.8%	11.1%	11.5%	11.8%	12.1%	12.3%	12.6%	12.8%	13.0%

Notes

1. The depreciable basis is the total project cost, excluding land costs. The remaining book value includes the land cost. Personal property is included in the depreciable basis here for simplicity. It can be tracked separately. That level of accuracy, however, is inappropriate for early Stage 2 analyses since other assumptions are at best good approximations.
2. The year 10 is in addition to the first ten years of development ownership. It is actually year 20, and coincides with the years estimated for the share loan.