

Conversion of Residential Neighborhoods Into Affordable Assisted Age-in-Place Communities

by
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Submitted to the Program in Real Estate Development in Conjunction with the Center for Real Estate in Partial Fulfillment of the Requirements for the Degree of Master of Science in Real Estate Development

**At the
MASSACHUSETTS INSTITUTE OF TECHNOLOGY**

SEPTEMBER 2011

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ABSTRACT

The purpose of this thesis is to develop a new senior housing and service product for the aging population of the next decade. The thesis starts with an overview of the senior housing industry in its current condition in 2011. It discusses the demographic characteristics of the population, the senior housing trends across the world, the changing needs and desires of the baby boom generation, the different housing products available for the elderly, the entitlement programs, and financing methods for development and operations of senior housing. Then it focuses on the Boston senior housing and assisted living industry, and looks specifically at 5 active case studies that range from housing to service providers: 2 senior housing projects, 2 assisted living projects and 1 village service provider to understand their specific models of operations, financing and designs. The case studies are analyzed and compared in how they serve the user and the developer from the perspective of affordability for the user, extent of subsidies used by the developer, appropriateness of design, extent of services and ability to service people with dementia or Alzheimer.

The thesis then zooms in even further into the Cambridge, MA community and identifies senior housing problem for the middle income level of society. Using all the tools learned from the global industry and the Boston metro area case studies we suggests a new senior housing product that will solve the challenge of serving the elderly population, while allowing the residents to age in place in an affordable assisted setting.

Thesis Supervisor: Dennis Frenchman

Title: Leventhal Professor of Urban Design and Planning

ACKNOWLEDGEMENTS

Cook Cliff- Cambridge Community Development- Planning information manager
Corneau Sandra- SLR- JFK apartments- Executive director
Frank Gerard- Bechtel Frank Erickson- Principal
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McWilliam Jamie- Neville Place- Executive director
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Neeman Ruth- Levi + Wong design associates INC- Principal
Nowokunski Wendy- The Northbridge Companies- President
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Ricardi Sharon- The Northbridge Companies- VP Operations & Advisory Services
Shwartz Jared- Cohen Florence Levine Assisted living- Assistant administrator
Silverlieb Caren- JCHE- VP of Programs and Services
Waleryszak Mike- Benchmark Quality- Senior director of development
Willet Judy- Beacon Hill Village- Director

I would like to thank all the above developers, operators, designers, and senior housing and care industry professionals for investing their time and effort in explaining their mission of helping the senior community to me. Although each of these experts has their own perspective of the industry, its needs and preferable solutions, the one thing that was common to all is the dedication and commitment to the elderly population, and the true desire to create best products and services for seniors. I thank you all for letting me understand your piece of the industry, and for working to make opportunities for better lives for the elderly.

I would also like to thank my advisor, Professor Frenchman, for helping me make sense of all the information I've been exposed to, structure it and use it for a creative solution that could be developed to maximize the benefits for the elderly as well as the developers. His intuitive guidance toward converting existing housing stock to age in place communities got very strong positive feedbacks and reassurances from many of the industry experts listed above.

Lastly, I would like to thank my husband, Gaddy, for all his love, support and his never ending stream of ideas. As always, he's the one who shows me the light in the dark.

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INTRODUCTION

“Home is a place you grow up wanting to leave, and grow old wanting to get back to” John Ed Pierce

Demographic trends indicate that the world’s population is aging. Advances in medical research extend people’s life spans and the percentage of elderly 65+ in the world population is expected to continue to increase. As the baby boomers reach senior age, a sharp increase in demand for senior housing and assisted living solutions is expected to happen. The characteristics of the elderly of the second decade of the 2000’s are different from previous generations. They are wealthier, healthier, and better prepared to be old. All of these result in a larger need for real estate solutions for the elderly, which will also have to match the specific needs of these population segments. The existing capacity of real estate products for the elderly will be insufficient to meet the demand, and inappropriate for the specific needs of these populations.

Many product types for real estate solutions for the elderly currently exist, but very few of these address the need for seniors to age in place (AARP, 2011), and to receive substantial amount of care in activities of daily living (ADL) as in a traditional assisted living facility, or the need for these solutions to be affordable. Research indicates that seniors have a strong preference to remain in their familiar environment (Jeff Love, 2010), but this environment often does not suit their transforming needs. Their subsequent choice is to move to assisted living facility but these tend to be very expensive because of the extensive services, staff members and very high maintenance. While the 20th century approach was large scale assisted living developments, the 21st century is expected to create a new product. The age wave is creating new architecture and even newer forms of community, worldwide.

Therefore, the purpose of this thesis is to research and propose a new product for senior housing and services for the aging population of the next decade that will be affordable, assisted, and allow aging in place. The thesis is divided into 3 parts. The first intends to give a broad base understanding on the subject and deals with the background of the industry- the demographics, the world trends, the entitlement and funding possibilities, and the current models within the industry. The second part reviews 5 case studies in the Boston MA vicinity that cater the elderly population ranging from senior housing, through assisted living, to service provisions only. These are compared based on their background, development, philosophy, financing and affordability, services, activities, amenities, building and unit design, resident profile, community and marketing strategy, and availability of dementia care. Based on the lessons learned from the current industry practice and the case studies, the third part of the thesis proposes an affordable assisted age in place model for a residential neighborhood in Cambridge MA.

The thesis checks the feasibility of creating other options to elder living beyond moving into conventional assisted living communities by converting existing structures into affordable elderly assisted age in place communities. This thesis focuses on the opportunity for converting residential neighborhood with large elderly population into ‘age in place’ community with high

level of coordinated services similar to assisted living communities. This approach has many advantages for the elders, who can stay in their homes while receiving the services they need and for the community, which maintains its population and viability. As structured, it can also be profitable for the developer in the long run, and will reduce the financial burden on the state in supporting many elderly in nursing homes.

The model is conceptual, but represented specifically on east Cambridge as an example of a typical urban environment where it can be applied. While the thesis focuses on a specific Cambridge neighborhood, we believe the lessons learned from this research could be applied to a generic affordable assisted age in place solution state wide, in suburban, urban, and semi urban environments. The conversion approach intends to enlarge the supply of affordable senior appropriate housing along with supportive and personal care while reuse existing supply of residential construction.

PART 1

Part 1 gives an overview of the senior housing industry in its current condition in 2011. It discusses the demographic characteristics of the population, the housing trends across the world, the changing needs and desires of the baby boom generation, the different housing products available for the elderly, the entitlement programs, and financing methods for development and operations of senior housing. This explains the setting into which specific case studies fit in and are described in detail in part 2.

CHAPTER 1 OVERVIEW OF DEMAND (GENERAL US)

This chapter reviews the general US demographic trends to understand the demand situation: population (growth, marital status, living arrangements, race, geographic distribution), economics (income, poverty, total expenditures, housing, employment, education), Health (life expectancy, healthcare expenses, health insurance and sources of payment for healthcare, residential services). Then it zooms in on the demographic of Massachusetts and Cambridge in particular. This information is used to base the need for extensive and varied senior housing industry and the growing demand for affordable assisted living solutions.

The demographics of aging continue to change dramatically. The older population is growing rapidly, and the aging of the baby boomers (born between 1946 and 1964) will accelerate this growth. This larger population of older Americans will be more racially diverse and better educated than previous generations. Most elderly people are enjoying greater prosperity than any previous generation with an increase in the middle income layers of society. There has been a decrease in the proportion of older people living in poverty, as well as low income group just above the poverty line. The share of aggregate income coming from earning has increased since mid-1980s partly because more elderly people, especially women, continue to work past age 55. (Federal interagency forum on aging related statistics, Older Americans 2010, key indicators of well being, 2011)

Americans are living longer than ever before, yet their life expectancies lag behind those of other developed nations. Older age is accompanied by increased risk of certain diseases and disorders. Healthcare costs have risen dramatically for older Americans.

A profile of the American population, described in detail in this chapter is derived according to current research by the US administration on aging (Administration on aging & Department of health and human services, 2010), the World Bank (World Bank webpage, 2011), the US census bureau (US Census Bureau, 2000), the national center for health statistics (Center for disease control and prevention, 2011), and the bureau of labor statistics (United states department of labor, 2011).

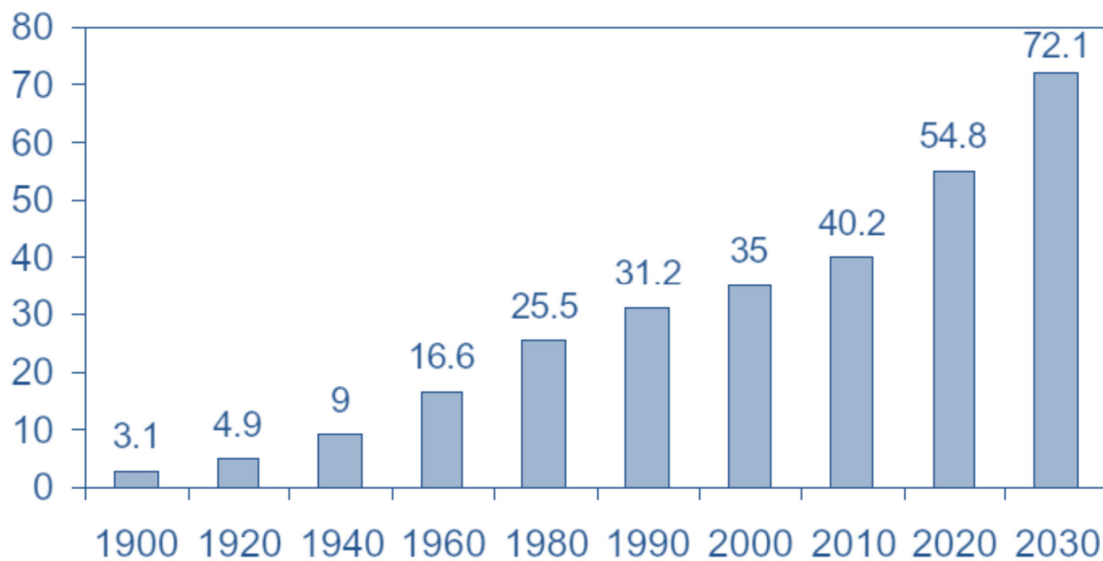
1.1 POPULATION

1.1.1 Future growth

- **Total 65+** - The older population (65+) numbered 39.6 million in 2009, which is 12.5% of the total US population of 307,007,000 people, and is on an increasing trend, although the total US population growth is dropping. Over one in every eight, or 12.9%, of the population is an older American
- **The 65+** will increase from 35 million in 2000 to 40 million in 2010 (a 15% increase) and then to 55 million in 2020 (a 36% increase for that decade)
- **45-65-** The number of Americans aged 45-64 who will reach 65 over the next two decades increased by 26% during this decade
- **Life expectancy-** Persons reaching age 65 have an average life expectancy of an additional 18.6 years (19.9 years for females and 17.2 years for males). A child born in 2007 could expect to live 77.9 years, about 30 years longer than a child born in 1900.

Much of this increase occurred because of reduced death rates for children and young adults

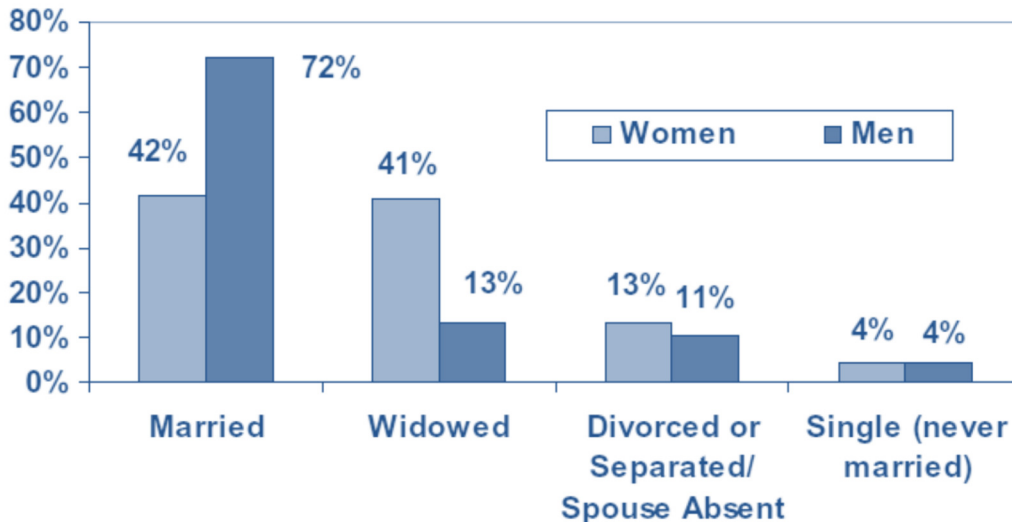
- **The 85+** population is projected to increase from 4.2 million in 2000 to 5.7 million in 2010 (a 36% increase) and then to 6.6 million in 2020 (a 15% increase for that decade)
- **Up to 2030-** The older population will continue to grow significantly in the future with sharp increase between 2010 and 2030 when the “baby boom” generation reaches age 65. By 2030 there will be 72.1M older people, which will be 19.3% of the population at that time
- **After 2030-** The growth of the older population is projected to slow after 2030 when all the baby boomers enter the ranks of the older population. From 2030 onward, the proportion age 65+ will be relatively stable, at around 20%, even though the absolute number of 65+ people is projected to continue to grow. The oldest old population, however, is projected to grow rapidly after 2030, when the baby boomers move into this age group
- **Old elderly-** The older population itself is increasingly older
People ages 65-74 are referred to as “young elderly”
People ages 75-84 are referred to as “middle elderly”
And people ages 85+ are referred to as “old elderly”
- **Men/ Women-** Older women outnumber older men at 22.7 million older women to 16.8 million older men



Number of persons in millions 65+, 1900-2030 (Administration on aging & Department of health and human services, 2010)

1.1.2 Marital status

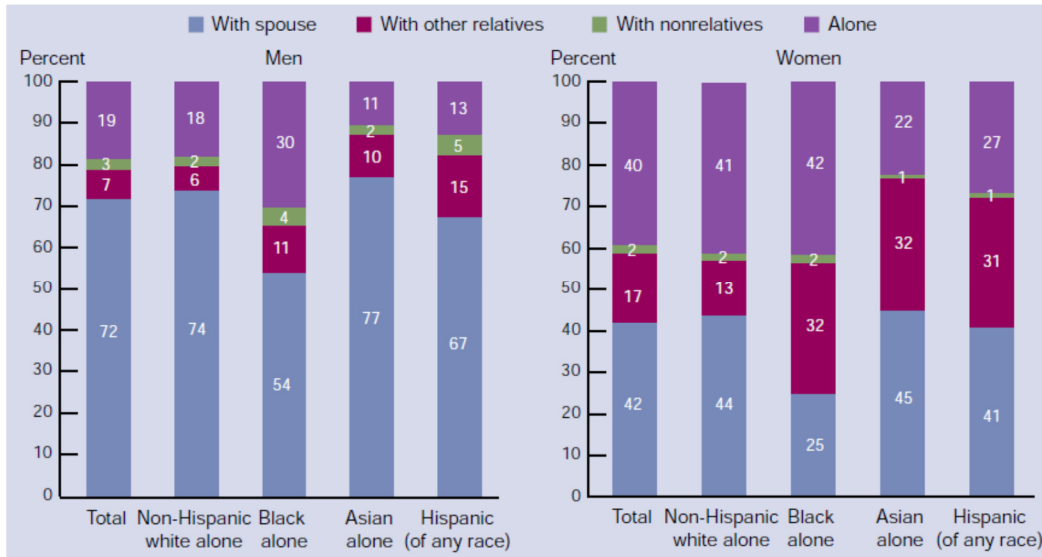
- **Married-** In 2009 older men were more likely to be married than older women- 72% of men, 42% of women
- **Widowed-** 41% of older women in 2009 were widows (8.9M), which were 4 times more than widowers (2.1M)
- **Divorced and separated** older persons were only 11.9% of all older persons in 2009, but it is an increase since the 80s



Marital status of persons 65+ , 2009 (Administration on aging & Department of health and human services, 2010)

1.1.3 Living arrangements

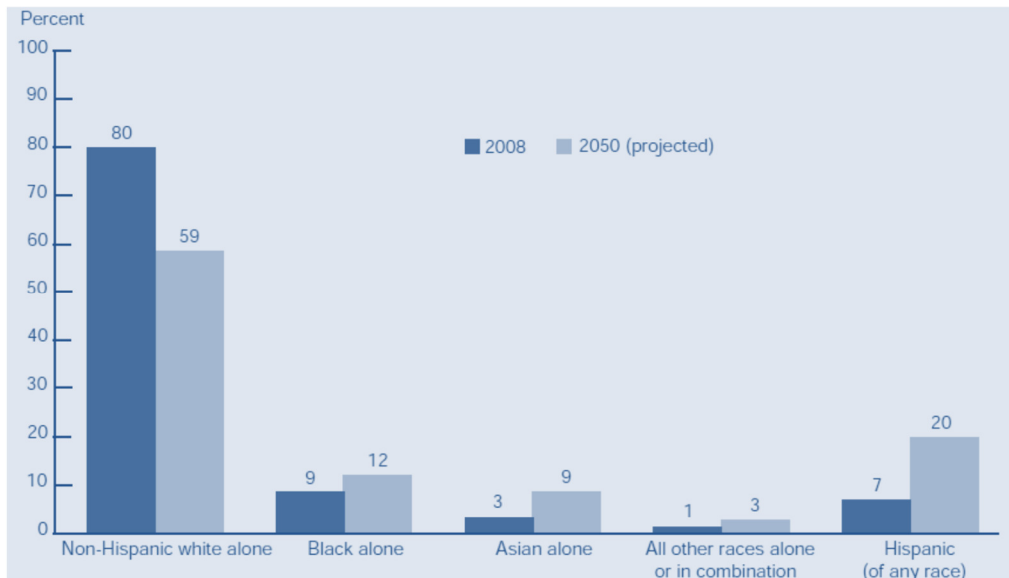
- **With spouse-** Over half (54.8%) of older non-institutionalized persons lived with their spouse in 2009- 11.4M (72%) of older men, 8.7M (40.7%) of older women. Only 28.2% of woman 75+ lived with a spouse
- **Alone-** 30.1% (11.4M) of all non-institutionalized older persons in 2009 lived alone (8.3M women, 3M men). Half of older women (49%) age 75+ live alone. The proportion living alone increases with advanced age. Half of women 75+ and over lived alone
- **Institutional setting-** Only 1.6M (4.1%) of 65+ population in 2009 lived in institutional setting. Percentage increases with age, from 0.9% for persons 65-74 to 3.5% for persons 75-84 and 14.3% for persons 85+
- **Senior housing-** 2.4% of the elderly lived in senior housing with at least one supportive service available to their residents. The rest are living in non-senior designated housing most with spouse or relative, some on their own
- **Type of housing-** The majority of the Americans 55+ live in single family houses. The other quarter live in multi-unit buildings, mobile homes, semi-detached quarters or other types of homes
- **Ownership-** About 60% of the elderly own their residence, 17% rent, 23% pay mortgage, and 1% occupy without payment or rent. (American Association of Retired Persons, 1990)



Living arrangements of the population age 65+ by sex and race, percent distribution 2008 (Federal interagency forum on aging related statistics, Older Americans 2010, key indicators of well being, 2011)

1.1.4 Race composition

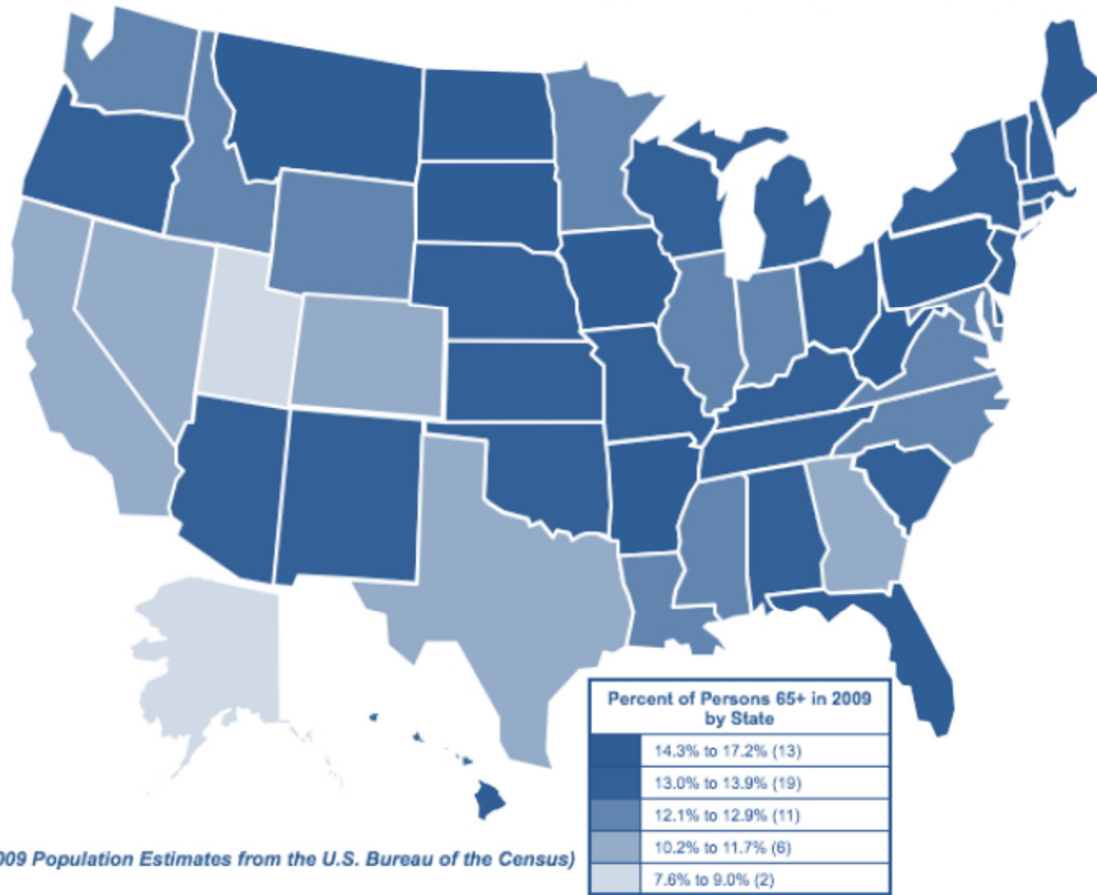
- **Diversity-** As the older population grows larger, it will also grow more diverse, reflecting the demographic changes in the US population as a whole over the last several decades. By 2050, programs and services for older people will require greater flexibility to meet the needs of a more diverse population
- **Current-** In 2009, 19.9% of persons 65+ were minorities 8.3% were African Americans, 7% were Hispanic, 3.4% were Asian or pacific islanders and less than 1% were American Indian or native Alaskan. In addition, 0.6% of persons 65+ identified themselves as being of 2 or more races
- **Projection-** Minority populations are projected to increase from 5.7 million in 2000 (16.3% of the elderly population) to 8.0 million in 2010 (20.1% of the elderly) and then to 12.9 million in 2020 (23.6% of the elderly)



Population age 65+ by race 2008 and projected 2050 (Federal interagency forum on aging related statistics, Older Americans 2010, key indicators of well being, 2011)

1.1.5 Geographic Distribution

- The proportion of the elderly in the population varies considerable by state with some states experiencing much greater growth in their older populations. In 2009, 56.5% of 65+ persons lived in 11 states:
 California 4.1M
 Florida 3.2M
 New York 2.6M
 Texas 2.5M
 Pennsylvania 1.9M
 Illinois, Ohio, Michigan, North Carolina, New Jersey, Georgia- each had over 1M
- **Most persons 65+ lived in metropolitan areas in 2009 (80.6%).** 72% of these lived outside the principal city, and 28% lived in the principal city. 19% of elderly lived in nonmetropolitan areas
- **The elderly are less likely to change residence.** From 2008 to 2009 only 3.4% moved as opposed to 13.8% of the under 65 population. Most older movers stayed in the same county, and 83.7% remained in the same state. Only 16.3% moved out of state



(Source: 2009 Population Estimates from the U.S. Bureau of the Census)

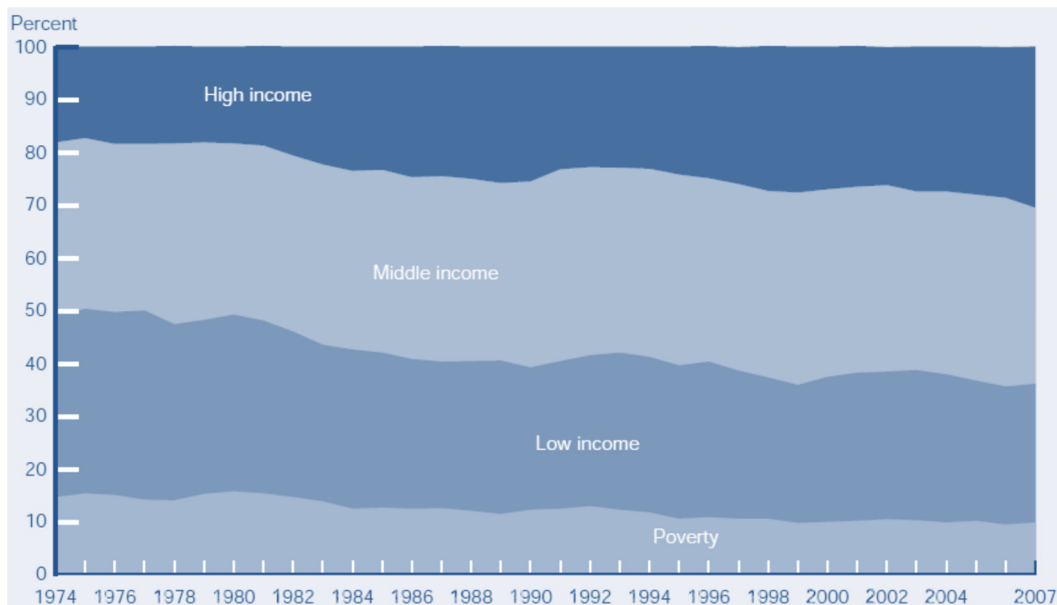
Persons 65+ as a percentage of total population 2009 (Administration on aging & Department of health and human services, 2010)

- Elderly population is less likely to move than the general population. Those who relocate, move nearby-** In spite of the common thought that elderly tend to move south, most elderly people are not geographically mobile. Those who move are more likely to move within the same city, or county than out of state. (American Association of Retired Persons, 1990). 30% Moved because of the desire to change location, 16% because their residence wasn't suitable for their condition, and 16% because they couldn't afford their homes. According to AARP (AARP, 2011) and the 2000 census data (US Census Bureau, 2000), most people 60+ did not move during the previous 5 years

1.2 ECONOMICS

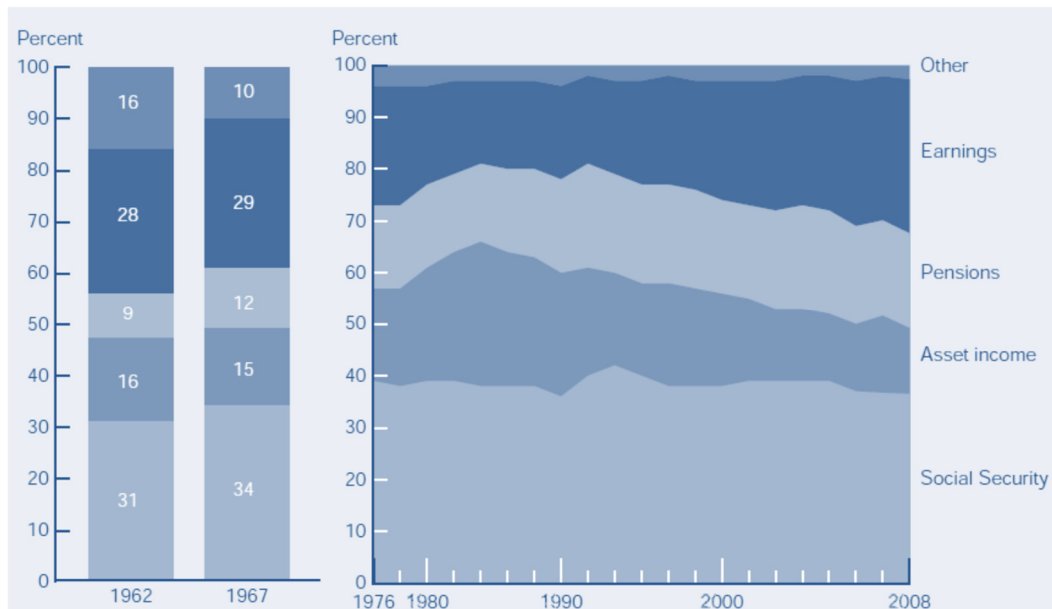
1.2.1 Income

- **The median income** of older persons in 2009 was \$25,877 for males and \$15,282 for females. Median money income (after adjusting for inflation) of all households headed by older people rose 5.8% (statistically significant) from 2008 to 2009. Households containing families headed by persons 65+ reported a median income in 2009 of \$43,702
- **Low income-** About 6.3% of family households with an elderly householder had incomes less than \$15,000 and 62.6% had incomes of \$35,000 or more. 19.8% of elderly reported less than \$10,000 income and 37.8% reported \$25,000 or more
- **Sources-** The major sources of income as reported by older persons in 2008 were Social Security (reported by 87% of older persons), income from assets (reported by 54%), private pensions (reported by 28%), government employee pensions (reported by 14%), and earnings (reported by 25%).
- **Social Security** constituted 90% or more of the income received by 34% of beneficiaries in 2008 (21% of married couples and 43% of non-married beneficiaries). Most elderly Americans are retired from full time work. Social security was developed as a floor of protection for their incomes, to be supplemented by other pension income, income from assets, and to some extent continued earning. Social security provided 37%, earning provided 30%, pensions provided 19% and asset income accounted for 13%. For population age 80+ a larger percentage lived in families with social security income (92%) and a smaller percentage had earning (22%) compared to the population age 65-69.



Income distribution of the population age 65+ 1974-2007 (Federal interagency forum on aging related statistics, Older Americans 2010, key indicators of well being, 2011)

The financial situation of 2008 was the worst economic downturn since the great depression of the 1930s. This could affect income received in 2008 and on. The economic downturn also resulted in rising unemployment, decreasing spending, and falling housing prices with threats of foreclosure. The negative impact on current and future retirees is likely, although the extent is still unclear.

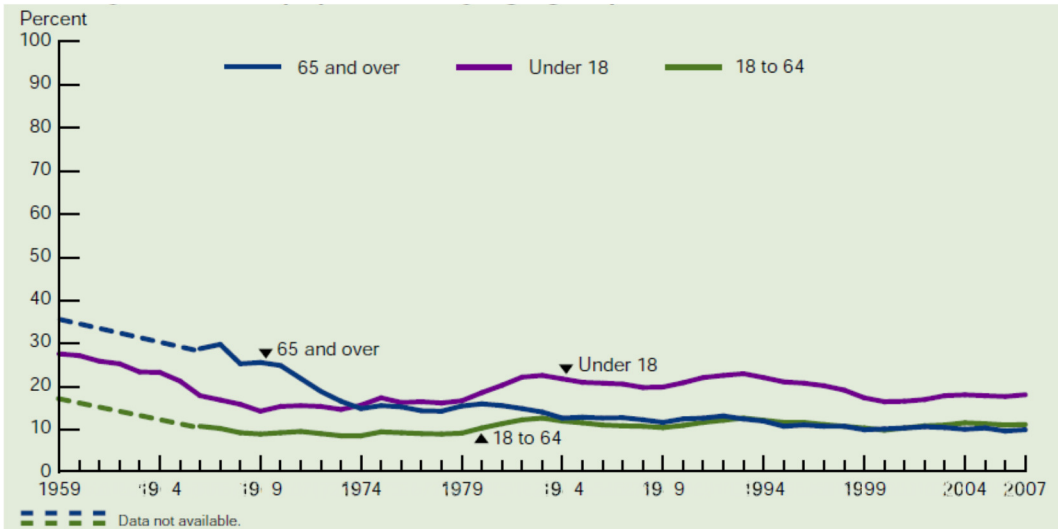


Sources of income for married couples and non-married people who are 65+, percent distribution, selected years 1962-2008 (Federal interagency forum on aging related statistics, Older Americans 2010, key indicators of well being, 2011)

1.2.2 Poverty

- **Definition-** The official poverty definition is based on annual money income before taxes and does not include capital gains, earned income tax credits, or noncash benefits.
- **Declining elderly poverty-** Since 1974 the proportion of older people living in poverty and in the low income group has generally declined so that by 2007 10% of the older population lived in poverty and 26% in low income group. People in the middle income group made up the largest share of older people (33%) the proportion with high income has increased over time.
- **Elderly below poverty-** Almost 3.4 million elderly persons (8.9%) were below the poverty level in 2009. This poverty rate is statistically different from the poverty rate in 2008 (9.7%) and another 2.1M (5.4%) of elderly were classified as “near poor” (income between the poverty level and 125% of this level).
- **Higher poverty rates were found for older persons who lived in principal cities** (11.5%) outside metropolitan areas (10%) and in the south (9.8%).
- **Higher poverty among women or those living alone-** Older women had higher poverty rate than older men. Older persons living alone were much more likely to be poor (15.6%) than were older persons living with families (5.4%). The highest poverty rates

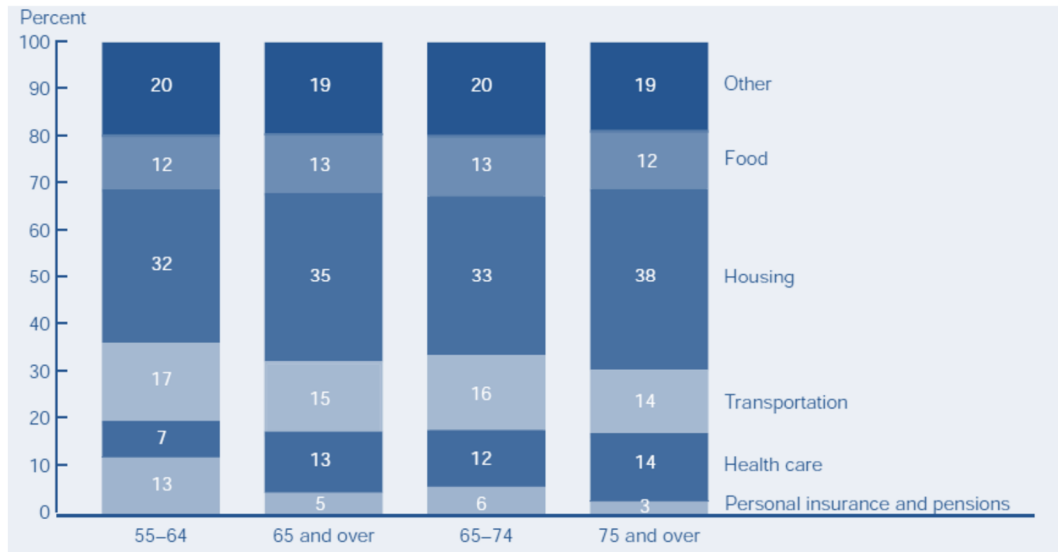
were among Hispanic women (44.6%) who lived alone and also by older black women (33%) who lived alone.



Poverty rate of population by age group 1959-2007 (Federal interagency forum on aging related statistics, Older Americans 2010, key indicators of well being, 2011)

1.2.3 Total expenditures

- **Housing is the largest expense-** Housing accounts for the largest share of total expenditures, 1/3 or more on average for all groups of households with reference person age 55 or older. The share is largest for households with reference person age 75+ even though this group is the most likely to be without a mortgage
- **Healthcare expenditures** increase dramatically with age. Regardless of age group
- **Food-** the share of total expenditures allocated to food is about 12% to 13%



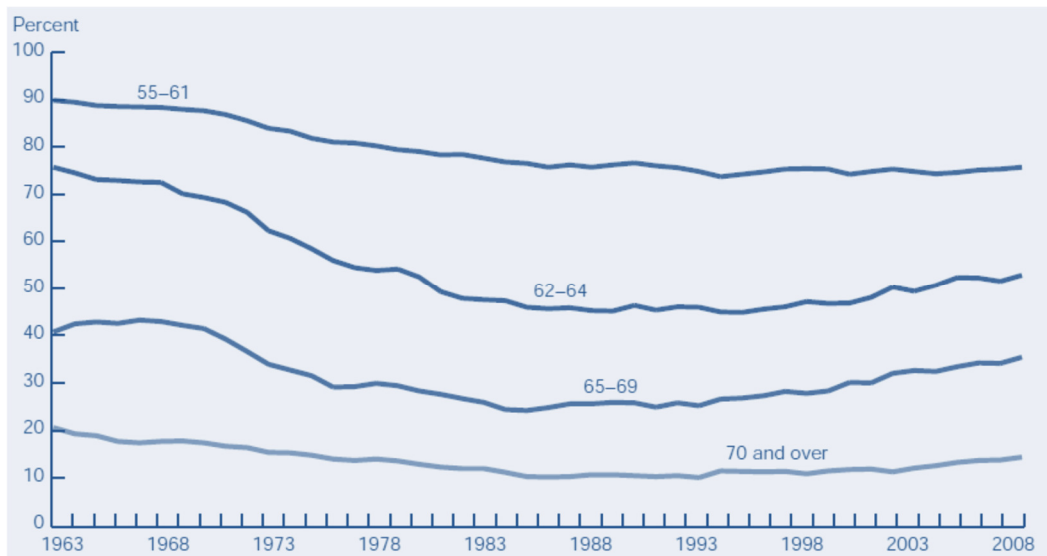
Household annual expenditures by expenditure category, by age of reference person, percent distribution 2008 (Federal interagency forum on aging related statistics, Older Americans 2010, key indicators of well being, 2011)

1.2.4 Housing

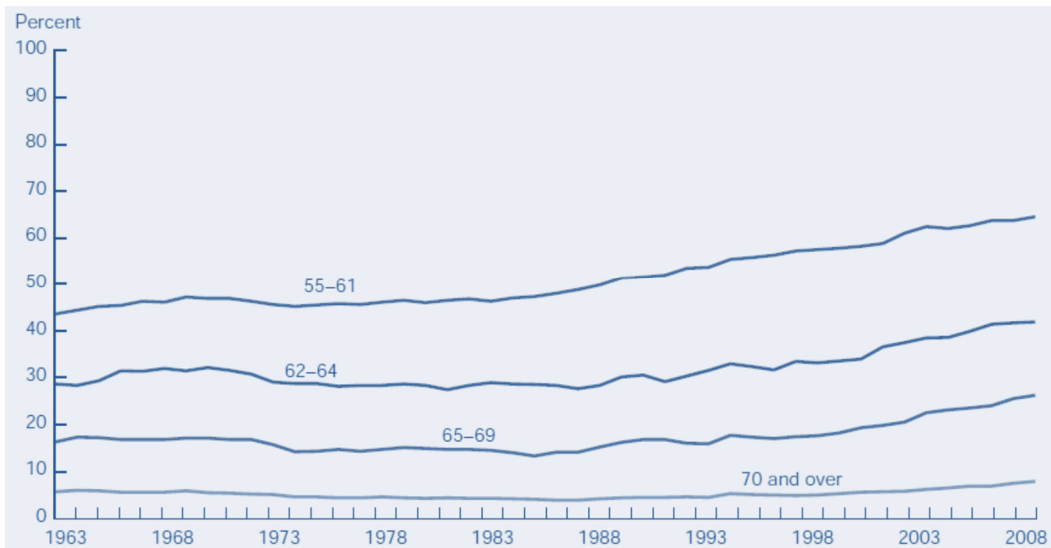
- **Ownership-** Of the 23.1M households headed by older persons in 2009, 80% were owners and 20% were renters. The median family income of older homeowners was \$30,400 and \$15,744 for renters.
- **Median property value-** In 2009 median value of homes owned by older persons was \$150,000 compared to median home value of \$170,500 for all homeowners.
- **Mortgage clear properties-** About 65% of older homeowners in 2009 owned their homes free and clear.
- **Housing problems-** in 2007 40% of households with people 65+ had one or more of the following types of housing problems: housing cost burden, physically inadequate housing, or crowded housing. Physically inadequate housing has become less common. Only 4% of households with people 65+ had inadequate housing, compared to 8% in 1985.
- **Housing cost burden-** The prevalence of housing cost burden or expenditures on housing and utilities that exceeds 30% of income has increased for all US households, but is slightly more prevalent with people 65

1.2.5 Employment

- **Labor force-** Participation in labor force means either working (employed) or actively looking for work (unemployed). Some older Americans work out of economic necessity others may be attracted by the social contact, intellectual challenges, or sense of value that work often provides. In 2009, 6.5M (17.2%) Americans age 65+ were in the labor force (3.6M men 2.9M women) which constituted 4.2% of the US labor force. Since 2000, labor force participation of older women has been gradually rising to the 2009 level, especially in population aged 65-69.
- **Men/ women in labor force-** The difference between labor force participation rates for men and women has narrowed over time.



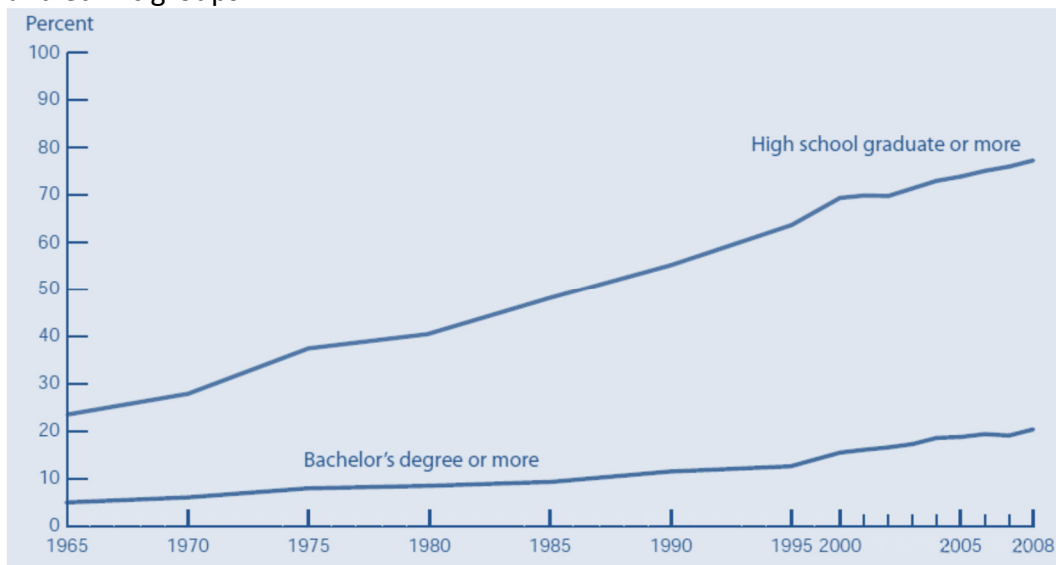
Labor force participation rates of men age 55+ by age group annual averages 1963-2008 (Federal interagency forum on aging related statistics, Older Americans 2010, key indicators of well being, 2011)



Labor force participation rates of women age 55+ by age group, annual averages 1963-2008 (Federal interagency forum on aging related statistics, *Older Americans 2010, key indicators of well being, 2011*)

1.2.6 Education

- **Higher education level-** The education level of the older population is increasing. From 1970 to 2009, the % of older persons who had completed high school rose from 28% to 78.3%. 21.7% in 2009 had Bachelor degree or higher.
- **Difference in education between races-** Despite the overall increase in educational attainment among older Americans, substantial education differences exist among racial and ethnic groups.

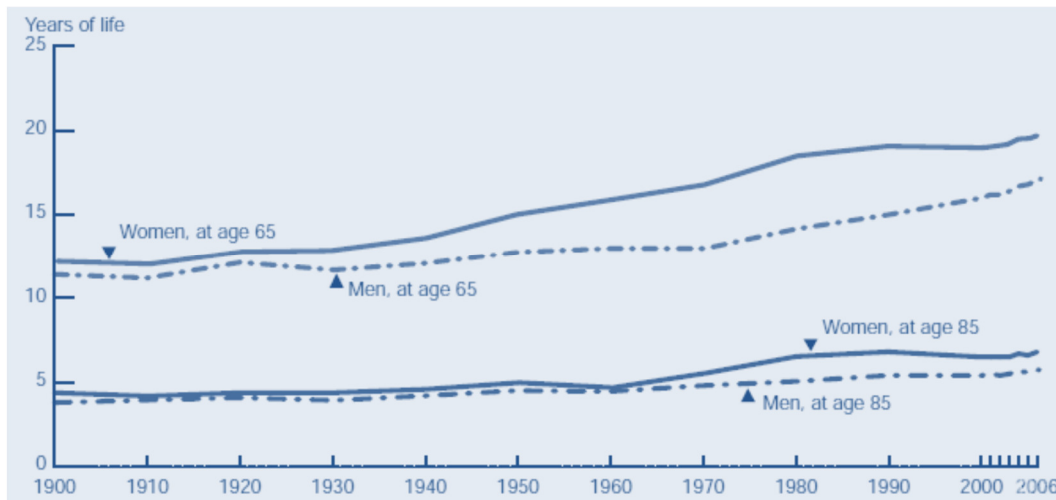


Educational attainment of the population age 65+, selected years 1965-2008 (Federal interagency forum on aging related statistics, *Older Americans 2010, key indicators of well being, 2011*)

1.3 HEALTH AND HEALTHCARE

1.3.1 Life expectancy

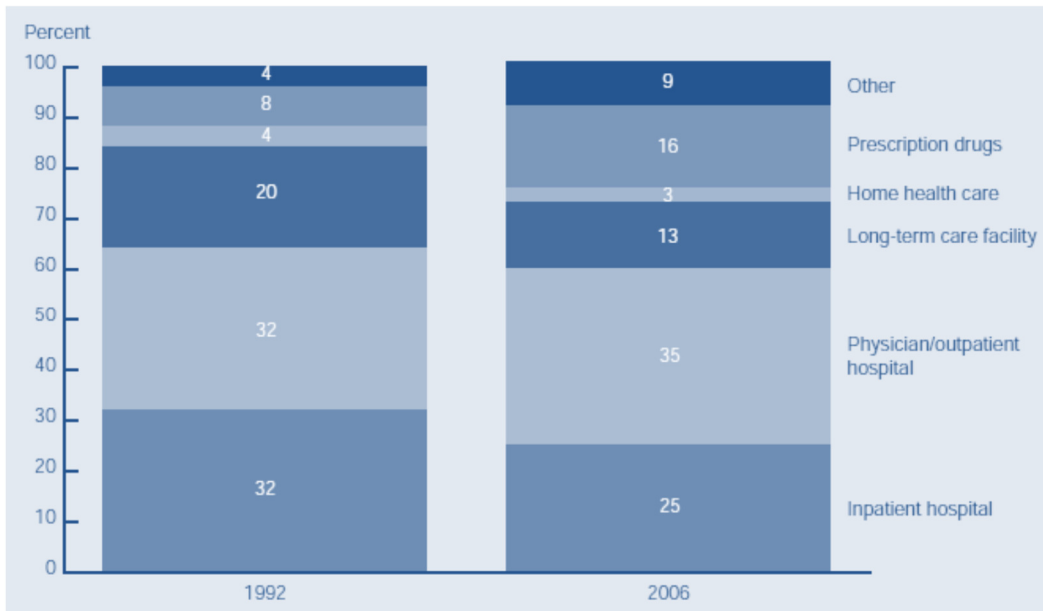
- **Increase in life expectancy-** Life expectancy is a summary measure of the overall health of a population. In the US, improvement in health have resulted in increased life expectancy and contributed to the growth of the older population over the past century. Life expectancies at both age 65 and 85 have increased
- **65+ life expectancy-** Persons reaching age 65 have an average life expectancy of an additional 18.6 years (19.9 years for females, and 17.2 years for males) about 4 years longer than in 1960
- **85+ life expectancy-** is 6.8 year for women and 5.7 years for men
- **Race variation-** Life expectancy varies by race, but the difference decreases with age
- **Life expectancy in relation to other countries-** life expectancy at age 65 in the US is lower than that of many other industrialized nations
- **Death rates** in the US have declined in the past century. But for some diseases death rates among older Americans have increased in recent years



Life expectancy at ages 65 and 85, by sex, selected years 1900-2006 (Federal interagency forum on aging related statistics, Older Americans 2010, key indicators of well being, 2011)

1.3.2 Healthcare expenditures

- **Increasing costs-** Older Americans use more health care than any other age group. Health care costs are increasing at the same time the baby boom generation is approaching retirement age. Average costs varied by demographic characteristics.
- **Low income elderly have higher costs-** Lower income individuals incurred higher health care costs.
- **Costs varied by health status-** Those with 5 or more conditions incurred about 5 times as much expenses (\$25,132) than those with no conditions (\$5,185).
- **Long term facility costs vs community-** Average costs among residents of long term care facilities were \$57,022 compared with only \$12,383 among community residents.
- **Total expense-** Older Americans spent 12.9% of their total expenditures on health (63% for insurance, 17% for medical services, 17% for drugs, and 3.5% for medical supply)

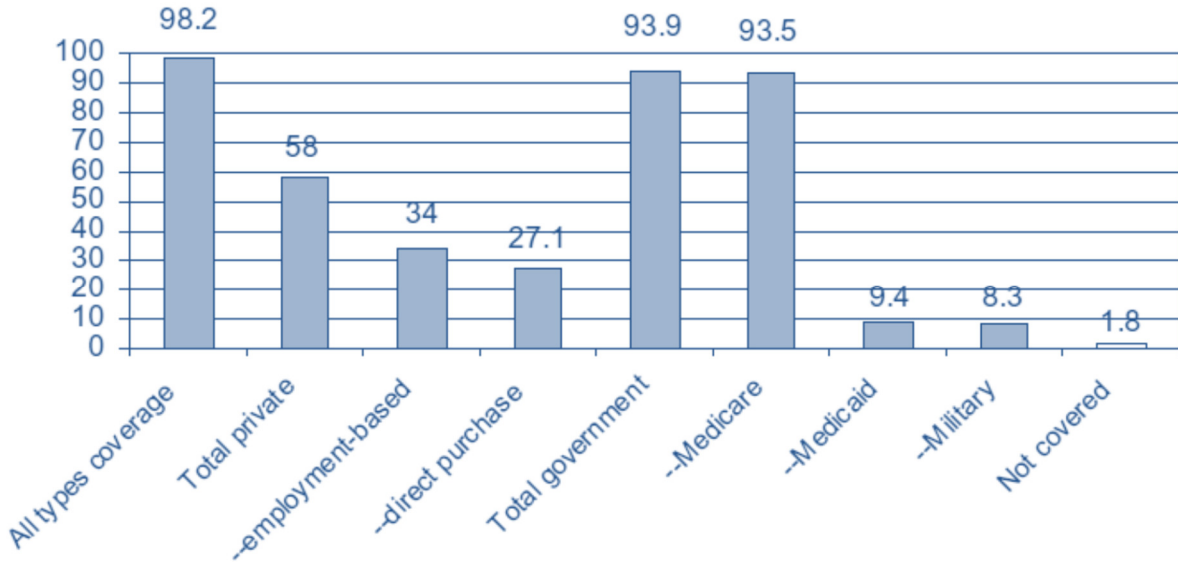


Major components of health care costs among Medicare enrollees age 65+ 1992 and 2006 (Federal interagency forum on aging related statistics, Older Americans 2010, key indicators of well being, 2011)

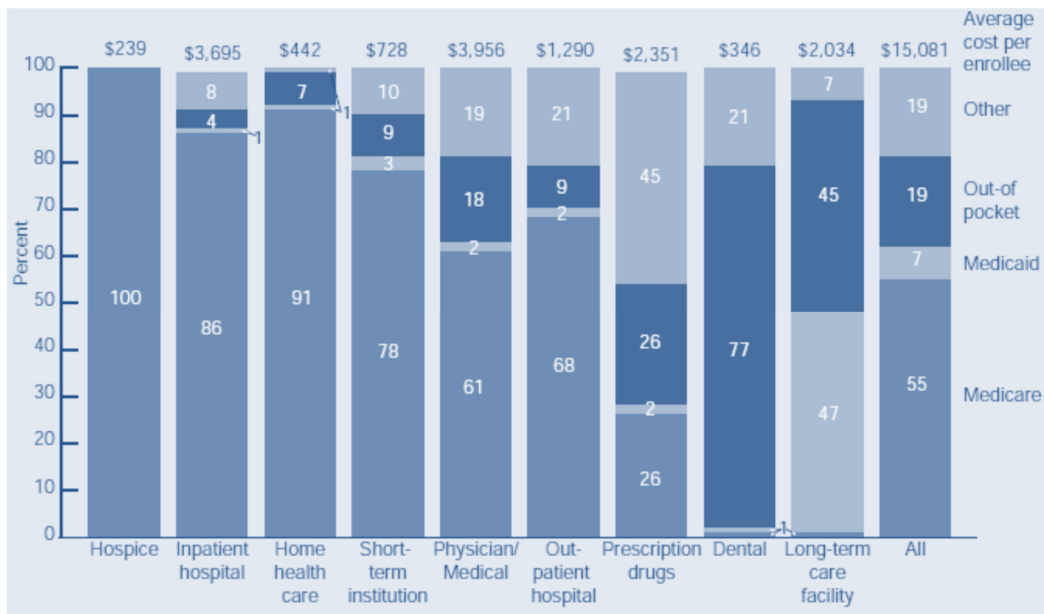
- **Prescription drugs-** Percentage of health care costs going to prescription drugs almost doubled between 1992 and 2006. Average drug costs per person were \$2,107 in 2004.

1.3.3 Health insurance and Sources of Payment for health care services

- **Medicare-** In 2009, 93.5% of non-institutionalized persons 65+ were covered by Medicare as their primary source of health insurance coverage. Many beneficiaries have supplemental insurance to fill these gaps.
- **Other insurances-** 58% had some type of private health insurance. 8% had military based health insurance, 9% on the non-institutionalized elderly were covered by Medicaid. Only 1.8% didn't have coverage of any kind. 86% of non-institutionalized Medicare beneficiaries in 2007 had some type of supplementary coverage.
- **Medicaid coverage in addition to Medicare-** Among Medicare beneficiaries residing in nursing homes, 62% were covered by Medicaid. The percentage with Medicaid coverage has increased from 10% in 2000 to 12% in 2007. Medicaid covered 7% of health care costs of Medicare enrollees 65+ and other payers covered another 19% not including insurance premiums. In 2006, 47% of long term care facility costs for Medicare enrollees 65+ were covered by Medicaid. Another 45% of these were paid out of pocket
- **Sources of payment for health care vary by income-** Lower income individuals rely heavily on Medicaid. Higher income individuals rely more on private insurance.



Sources of health insurance coverage of persons 65+ 2009 (Administration on aging & Department of health and human services, 2010)



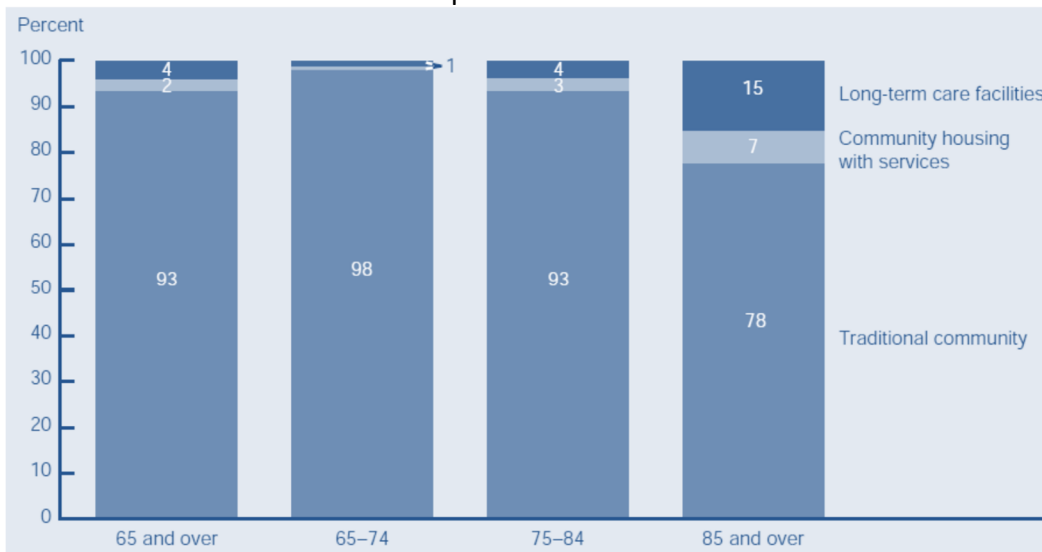
Sources of payment for health care services for Medicare enrollees age 65+ by type of service 2006 (Federal interagency forum on aging related statistics, Older Americans 2010, key indicators of well being, 2011)

Caregiving

11% of older Medicare enrollees received personal care from a paid or unpaid source in 1999. Almost all community resident older persons with chronic disabilities receive either informal care (family/ friend) or formal care (service provider agency). Over 90% of these older persons with chronic disabilities receive informal care and or formal care, 2/3 received only informal care. 9% of this chronically disabled group received only formal services

1.3.4 Residential services

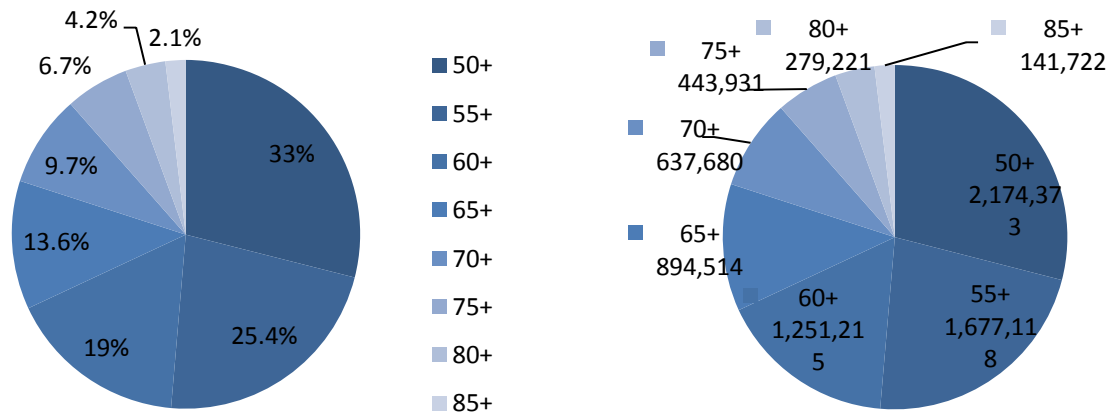
Some older Americans living in the community have access to various services through their place of residence. Such services may include meal preparation, laundry and cleaning services, and help with medications. Availability of such services through the place of residence helps older Americans maintain their independence and avoid institutionalization.



Percentage of Medicare enrollees age 65+ in selected residential settings, by age group 2007 (Federal interagency forum on aging related statistics, Older Americans 2010, key indicators of well being, 2011)

- **Residence in community housing-** In 2007, 2% of the Medicare population 65+ resided in community housing with at least one service available.
- **Residence in long term facilities-** 4% resided in long term care facilities. These numbers were higher for the older age group of 85+ (7% in community housing with services, 15% in long term care facilities)
- **Access to services in community housing-** 87% had access to meal preparation 84% had access to housekeeping/ cleaning services, 72% had access to laundry, 51% had access to help with medications. 65% of these residents reported that there was a separate charge for at least some of the services.
- **ADL limitations-** 46% of individuals living in community housing with services had at least one ADL limitation compared with 25% of traditional community residents. Among long term care facility residents, 83% had at least one ADL limitation. The availability of personal services in residential setting may explain some of the observed decline in nursing home use!
- **Residents' income in community housing-** Residents of community housing with services tended to have similar incomes to traditional community residents, and higher incomes than long term care facility residents.
- **Community housing and service appropriateness-** Over half (56%) of people living in community housing with services reported they could continue living there if they needed substantial care.

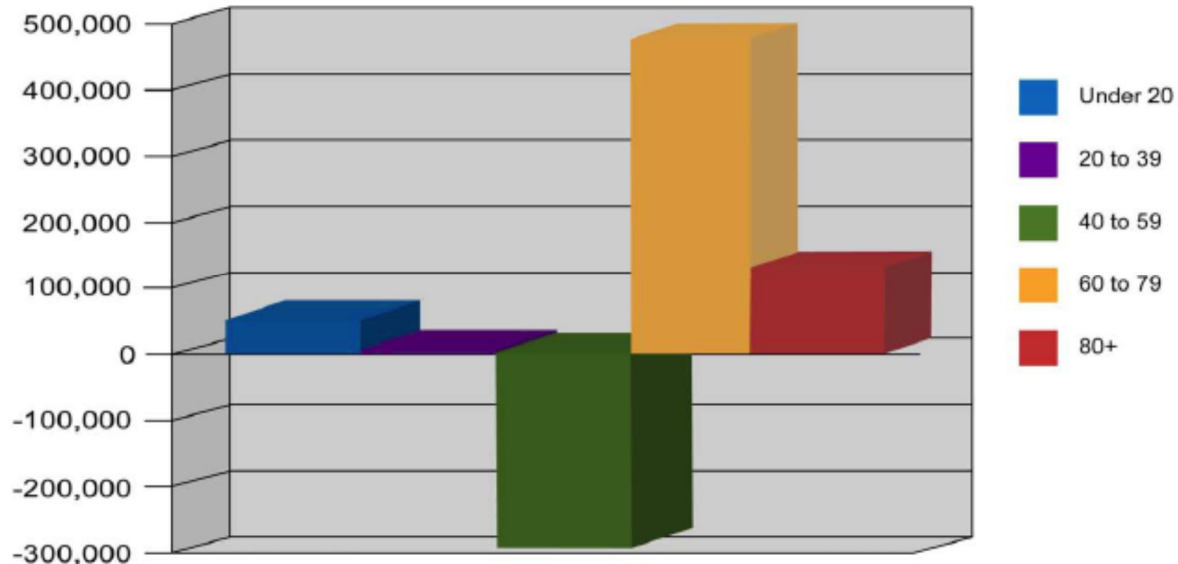
1.4 MASSACHUSETTS



Massachusetts age groups, by percentage 2009 Massachusetts age groups, by absolute numbers 2009
 (Federal interagency forum on aging related statistics, AgingStats.gov, 2011)

Over the next 20 years, Massachusetts population growth will occur almost entirely in the 60+ age groups. Massachusetts population in 2009:

- Number of persons 65+ 894,514
- Percent of all ages 13.6%
- Percent increase from 1999 to 2009 4%
- Percent below poverty 2009 8.8%



Change in Massachusetts population 2010-2030 (Hinderlie, 2011)

Summary:

- Only a small percentage of the elderly currently live in senior housing with at least one supportive service available to their residents.
- Programs and services for the elderly will require greater flexibility to meet the needs of a more diverse population
- Most persons 65+ lived in metropolitan areas in 2009, are less likely to move to a different city or to change residence
- Elderly in cities, tend to have higher poverty rates
- Most elderly are in the middle income group
- Majority of households headed by older persons are owners
- Life expectancy has increased and contributed to the growth of the older population
- Life expectancy at 65 is additional 18.6 years
- Life expectancy at 85 is 6.8 year for women and 5.7 years for men
- Majority of non-institutionalized persons 65+ are covered by Medicare as their primary source of health insurance coverage
- Lower income individuals rely heavily on Medicaid. Higher income individuals rely more on private insurance
- Almost all community resident elderly with chronic disabilities receive either informal care (family/ friend) or formal care (service provider agency)
- Residents of community housing with services tend to have similar incomes to traditional community residents, and higher incomes than long term care facility residents
- Massachusetts population growth will occur almost entirely in the 60+ age groups

All these points indicate that elderly Americans are living longer and enjoying greater prosperity than previous generations. The aging of the baby boomers will accelerate the population growth, to a population that is more diverse, better educated. There will be less elderly under the poverty line and in the low income group. A solution to allow the middle income metropolitan elderly 65+ to live an average of ~20 more years in their homes will be beneficial.

1.5 CAMBRIDGE

The American community survey and the census bureau population estimate show that Cambridge's population of 55+ at 2008 is 20.1% of the total Cambridge population, or 21,225 individuals which is a 31.4% increase from the 2000 census (City of Cambridge, Housing Options For Older Cantabrigians, 2010). Increase in the 55-64 cohort is due to the aging boomers, and increase in 85+ is due to advances in medical care.

Cohort	2000	2008	As % of all ages in 2008
55-64	6,866	10,454	9.9%
65-74	4,687	5,385	5.1%
75-84	3,362	3,485	3.3%
85+	1,233	1,901	1.8%
55+	16,148	21,225	20.1%
65+	9,282	10,771	10.2%

- Less than half of 55+ are currently married, higher proportion of married man to woman
- 20% of those between 55-64 of age never married, same proportion between man and woman
- of the 65+ only 13.7% never married and are mostly man
- 43% of 65+ people live alone. 2/3 of these are female
- 18% of Cambridge households include one or more 65+ persons
- 55+ population is less diversified than the general Cambridge population
- 22% of 65+ people speak a foreign language at home
- About 1/5 of the population 55+ was born outside the US
- 8% of residents 55-64 old and 5% of 65+ moved to Cambridge within the last year, more from elsewhere in Mass
- 51% of 65+ have bachelor degree, 17% never graduated from high school. The 45-64 cohort is better educated 65% attain at least a bachelor degree and 6% never finished high school
- The majority of the single person households rent

	all	owners	Renters
55-59	3582	55.7%	44.3%
60-64	3537	64%	36%
65-74	3775	59.5%	40.5%
75-84	2537	59.8%	40.2%
85+	1281	42.9%	57.1%
65+	14712	58%	42%
All Cambridge householders	46617	38.8%	61.2%

- 8,535 of Cambridge households (18% of all of Cambridge) have a 65+ member. 55% of these are single person households
- Older single person households comprise 10% of all Cambridge households
- More than 80% of Cambridge 55+ residents are white. (the whole Cambridge population is 68.4% white)

- 55+ Cambridge residents usually do not live with members of extended family as they age. Many elders have never married, and don't have family members to rely on

65+ living arrangements:

Reside in household	99%
Member of married couple	40.9%
Single head of family household	4%
Relative of head of household	6.5%
Live alone	43.2%
roommate	4.4%
Reside in group quarters	1%

Labor force

	In labor force	employed	Unemployed	Unemployment rate
55-64	70%	66.1%	3.8%	5.5%
65-74	43.4%	42.3%	1%	2.4%
75+	14.9%	14.4%	0.5%	3.1%

Income

- Over 40% of 65-74 old persons are employed, as are 15% of the 75+. These are more likely to work at home than any younger group
- Large income distribution. Women living alone having the lowest median income
- **Median income of 65+ households is \$43,533**

Less than \$10,000	14%
\$10,000-\$14,999	9%
\$15,000-\$24,999	13.4%
\$25,000-\$34,999	8.9%
\$35,000-\$49,999	10.3%
\$50,000-\$74,999	11.1%
\$75,000-\$99,999	7.7%
\$100,000-\$149,999	8.7%
\$150,000-\$199,999	6.5%
\$200,000+	10.4%

- Elders have lower poverty rate than the population as a whole, but 65+ population has higher poverty rate
- **20% of the elderly are below poverty line**
- One in six households headed by a person 65+, 16.5%, falls under the poverty line, many of these are non-family households headed by women

	population	Persons in poverty	Poverty rate
55-64	10,417	1,008	9.7%
65-74	5,365	666	12.4%
75+	5,422	644	11.9%

- Householders 55-64 are equally likely to head a single person household as a multi person household. 2/3 of the 75+ persons head a single person household
- Most owner occupied households 65+ have a vehicle, most such renters do not
- Almost 1/3 of Cambridge households are headed by 55+ people, majority reside in owned homes. Households headed by 85+ are more likely to rent, as are people living alone of any age
- About 1/3 of older householders pay 35% and more of income to housing, another third pays less than 20%

Housing costs as a proportion of income

	Monthly owner costs	Monthly renter costs	All
Less than 20%	54.4%	13.1%	36.6%
20%-24.9%	8.2%	6.6%	7.5%
25%-29.9%	8.3%	20.8%	13.7%
30%-34.9%	5.9%	6.2%	6%
35%+	22.9%	44.5%	32.3%
Not computed	0.4%	8.7%	4%

- About 6% of the 55-64 persons moved in or out of Mass between 2006-2008. Proportion of movers drop in the 65-74 cohort. Out-migration was mostly amenity movers to Florida, NH, Maine. In-migration was also from same states. The reasons for the in migration are unclear. 75-84 cohort has more in migration due to dependency movers returning to receive care from family members, gain access to medical facilities or enter housing that better meets their needs. Most out migration occurs among younger elders, 75+ experience in migration. From 2006-2008 mass experienced ~1000 persons 65+ loss.
- American community survey for current and former Mass residents 55+ confirms that the elderly prefer not to move from their homes, or relocate out of their communities. Cambridge's population is increasing, life expectancy as in the rest of the US, is increasing and the average income and assets of the Cambridge elderly population is also trending up.

In Cambridge, there are many elderly residents, and their percentage in the population is likely to grow. Median income of 65+ households is \$43,533, but about 20% of the elderly are below poverty line. The majority of the elderly population is of middle income. Most elderly own their homes. This suggests that finding a solution for the growing Cambridge elderly population based on homeownership for the middle income population could be beneficial.

CHAPTER 2 TRENDS OF AGING POPULATION

This chapter reviews the trends of senior housing around the world, based on literature, to review the possibilities of housing products available and how different cultures chose to deal with their increasing aging population. We then discuss specific trends apparent in the baby boom population and how their aging will affect and change the senior housing products. This information is used to base the recommendation for assisted age in place model for Cambridge MA.

2.1 WORLD WIDE TRENDS

The population is aging worldwide. The projection for 2050 is that 21% of the world's population, an estimated 2 billion will be aged 60 or older. (Rosenfeld & Chapman, 2008) The aging population worldwide has prompted architects and designers to create new and more geriatric appropriate housing – private homes for aging in place, communities for like-minded people who are getting on in years, and long term care facilities for those who can no longer take care of themselves. The collaborative environment extends beyond architect and designers, older people are beginning to collaborate on the purpose and design of places where they live. New trends in senior housing develop around the world, specifically in 8 countries which have large aging populations (Japan, China, Netherland, Sweden, Denmark, Norway, Brazil, and Israel) that thrive to accommodate the needs of the elderly in new and innovative community solutions.

2.1.1 Japan

Older people don't want to give up their independence nor their single family dwelling. Originally, the prevalent model was the "Nisetai Jukatu" of multigenerational household. But recently there has been a shift toward high tech homes that allow independent aging in place. Japan has been preparing for the age wave, the silver tsunami. The new homes are barrier free, and retrofitted homes are safer and easier to use. They rely on a mix of technologies and human services for these purposes. They link information communication technologies, caregivers and in some cases rooms into collaborative environments. There is an interest in use of robotics, networked appliances, telecommunication systems, bathing service vans and portable hot tubs.

2.1.2 China

Historically, sons were responsible to care for their elderly parents according to the filial piety norm. Due to the one child policy, many elderly people have no one to take care of them. Until 30 years ago, there were no senior apartment buildings, senior daycares and very little nursing homes. Older people lived with relatives, according to their Confucian tradition. Nursing homes were considered for people without descendants, usually in the form of charity institutions. Today these are 95% occupied. 18% of China's older people are living today in senior housing and the industry is expecting 15% growth a year. Senior housing is becoming more popular and socially acceptable. In addition China is encouraging aging in place by making existing housing more senior friendly, and increasing the number of available services. Programs exist to encourage families to take care of aging family members at their homes. The senior population is more affluent, and expects more comfortable and attractive surroundings

leading to more variety in architectural and financing options. The economic growth of the 1980's was followed by large migration from rural countryside to the big cities. Several specialized high rise towers have been dedicated to seniors and disabled persons. The government is responding to the seniors demand to be more independent with upgrading public housing and services in the big cities. Senior daycares and senior recreational programs are becoming more popular and allow greater interaction with the community during the day for those living in their own homes.

Most senior housing is owned by the government. More than half of the privately owned senior housing is family owned and operated. The remainder is corporate large institutions, some of which are beginning to merge into chains. (Rosenfeld & Chapman, 2008). The future for the senior housing industry in China will have more upscale senior housing growth, more corporately franchised nursing homes, growth of home repair industry, and growth in interest in interior design.

2.1.3 Netherland

In Netherland there is the "apartments for life" arrangement that combines services for the frail with conventional housing. It is a creation of an adaptable apartment building where service supports can be increased to a nursing home level to keep residents living independently. Common spaces are open to residents and to other people in the community. Dementia residents stay in their apartments at night and join a daycare group during the day. Services are monitored and delivered by a nurse or personal care assistant. This approach provides autonomy and privacy which appeal to many of the elderly residents. Partnerships between housing developers and providers of long term care are encouraged. Most projects (unlike the US) are financed over a longer period (50-75 years) to make it financially possible to add innovative features to the buildings. Non-profit housing developers are encouraged to pursue mixed use developments as well as more owner occupied housing. Atrium buildings for the elderly are common, which provide outdoor spaces during the winter. (Regnier Victor FAIA, 2002)

2.1.4 Scandinavia- Sweden, Denmark and Norway

Sweden has one of the world's most rapidly aging population with 17.2% of the population 65+ in 2000 (Regnier Victor FAIA, 2002). 90% of the older people live on their own and not with their children. Independence of old age is a value. By law, municipalities have to help older people be independent and continue to live on their own, by social services, community health centers, and health aides. The popular model for senior housing is independent housing with care ("servicehus"). Government reduced the number of beds in hospitals and nursing homes, and increased the number of home health workers. Sweden values equality, in gender and age. Older people are valued members of the Swedish society. The majority (55%) of elders live alone, and about 45% live in age integrated communities. The home care requires structural changes in the home. The Swedish boomers are expected to want more technology, more gated communities, more home health care, and more naturally occurring retirement communities as are happening currently in the US.

Denmark is known for its experiments with co-housing. Senior cohousing is often created by a local group of elderly who want more socially integrated life. Residents eat together and help one another when they are temporarily sick or need a ride. The home care system provides ongoing personal help and health care so the residents don't have to care for their neighbors needs in that sense. The Danish deliver care to a wide variety of housing types and are very liberal in adapting a range of housing forms. They value independence and emphasize larger units with more casual relationship to caregiving (Regnier Victor FAIA, 2002).

Norway focuses on 2 housing types- the first resembles the Danish or Swedish service house and is a large centralized building (100+ units) with housing for the frail and services that are available for older people in the community. The second type is targeted to 55+ people for aging in place. In addition, cooperative ownership is common in Norway. (Regnier Victor FAIA, 2002)

Northern Europe tends to adopt a strategy in which the residents do as much as they can themselves, while in the US there's a tendency for staff to do everything for the residents, which develops the "learned helplessness". The Scandinavian countries have shown ways to deal creatively with their aging populations, and have more government subsidies relative to other countries, but the profile of their populations is very different from the American profile. Their populations are very homogenous, and they don't have the size and scope of the US population to deal with.

2.1.5 Brazil

By 2020 Brazil will have the seventh largest elderly population in the world. For the first time, their elderly population grows more rapidly than the youthful segment. Brazil traditionally was a youth obsessed culture, but now has greater appreciation to aging. Family life is transforming, as more women enter the workforce. Traditionally, elderly lived with or near their families or in nursing homes. Since 1990's assisted living facilities are more common as well as senior residence, which resembles high rise hotel with similar amenities. Still the majority of Brazilians live with the family or age in place in their homes. Although it is illegal to discriminate based on age in Brazil, social norms dictate where elderly should live. Older people were not to expect better housing or speak out for their rights. Now the society is changing to be more receptive to elderly. Affluent older people can retrofit their homes and hire home health workers. Government programs help the needy to get the home health care. Popular senior housing is the "residencial"- modern high rise apartment buildings that look more like apartments than assisted living, which attract mostly the wealthy elderly and are located in the largest cities. These have become a status symbol for the elites. The future of Brazil's seniors will include greater variety of housing option, for healthy old age.

2.1.6 Israel

Israel's population is aging differently than other places, resulting from increased life expectancy as well as migration of elderly. Many of Israel's 267 kibbutzim are becoming NORCs (naturally occurring retirement communities) as their residents age in place together, complete with geriatric health centers and assisted living. In addition Israel created sheltered communities and absorption centers for older incoming immigrants- Supportive neighborhoods where people of similar ethnic backgrounds learn skills in order to assimilate in Israeli life.

Absorption centers and hotels have been converted to additional housing for the elderly immigrants. Many of these have affordable rents and have community outreach services that are provided for the surrounding community as well.

In spite of rapid change to society structure most elderly people still rely on family for social support. But it is not common for the elderly to live with their children. Most elderly age at home with supports from family members and from home care professionals, homemaking services and adult day care centers. Israel sponsors a number of organizations that send volunteers to help the elderly at their homes. There are organizations which help with emergency home repairs, upgrade to home safety and security, and home health workers.

There is also a growth in nursing home construction. The financing and regulation of these has traditionally been government monopoly, but the sector is being deregulated and more private for profit companies enter the industry.

A third of the Israeli kibbutzim, collective settlements, are being retrofitted and made more accessible to retain residents because the original settlers have aged in place. Homes are retrofitted, and long term care facilities are built on site to accommodate the residents. The Kibbutzim originally specialized in farming and manufacturing. Over the years they have become naturally occurring retirement communities (NORCs) allowing architecture to respond to the age wave in Israel. Kibbutz architecture has responded to social and political changes before. It started with the ideals of equality, frugality, and rejection of private property which took shape in common dining areas, children nurseries, barrack like housing for all residents. In the 1980-1990s privatization grew in Israel, the original socialist idea of the kibbutz has weakened. Houses became private, with more of status displays of landscape, gates, etc. Today 75 of the kibbutzim are NORCs, with the original settlers in their 70s and 80s, with 3 distinct architectural forms.

- Addition of subdivisions- for independent living, assisted living and long term nursing care
- Architectural adaptation- retrofitting existing infrastructure to fit the community- adding ramps, installing grab bars in showers, color coding sidewalks for way finding, providing appropriate staff including a geriatric physician
- Design and construction of Alzheimer's units

In addition to these changes the kibbutzim are also looking to attract young families for a balanced community. Many of the converted kibbutzim offer an active retirement lifestyle to fit the new aging population, with opportunity for hikes, sports, spa, restaurants with focus on self-development and social connection.

The Japanese move toward technologically smart homes, the Scandinavian emphasis on independent housing with care, the Dutch experience with combination of services with conventional housing and success with developer-service provider partnerships, and the Israeli success with use of volunteer groups and retrofitting existing kibbutzim's infrastructure to fit the aging residential communities all suggest that there can be a solution that combines service and independent housing for elderly reusing the existing built stock, while upgrading it to fit the needs of the elderly.

2.1.6 Worldwide trends in senior housing

Worldwide senior housing in the 21st century appears to be divided into housing for the upper class and housing for the masses. Family support for the elderly is weakening and family structure is breaking down because of decline in fertility, higher divorce rates, increase in number of living grandparents, and expectations of the state to care for elderly, all of which lead to creation of new forms of senior housing. Nations have developed ways to maintain older people in their homes- home health workers, support services for transportation and emergency home repairs. The desire to age in place is universal, as well as to remain part of the community (Ghantous, 2011).

- **Change of family structure-** As more women enter the labor force, there are less daughters or daughters-in-law that are able to be caregivers. The traditional extended family is changing, increasing the demand for congregate housing, assisted living facilities and nursing homes
- **Desire for independence-** Older people are thinking of themselves differently, enjoying their independence and more reluctant to move in with their children. More elderly people are living alone. The majority of older people around the world say that they want to live independently for as long as possible. Older people worry of being a burden on their families which stirs an interest in finding alternative housing arrangements to allow that
- **Gerontologic and Universal design-** and Increased interest in Gerontologic design (remodeling or modifying an existing space in response to deteriorating health of homeowner) as well as in Universal design (creation of environments that work for people of all ages and all abilities), planning a vision for the future that involves aging in place
- **Link to services-** Housing is regularly linked with community based facilities- service house/ community centers spread throughout the neighborhoods that serve as place for older frail to live. A combination of community center with assisted living housing, serve other elderly from the community who don't live there as well (Regnier Victor FAIA, 2002) Home health services are organized at service houses and day centers for older people living in the neighborhood- working out of service houses home care workers help service people living nearby. Supportive health and personal care services, as well as long term care are paid for by the governments (Regnier Victor FAIA, 2002)
- **Smart homes-** There's a move toward houses for the elderly, which are barrier free, smart homes with robotics and networked appliances that carry heavy objects, do light housework, and even serve tea to help maintain the independence. Networked home appliances show a potential for creating safer, more manageable environment for the elderly
- **Daycare for dementia-** Service houses have day programs for people with dementia- they are picked up from their homes and dropped off at the end of the day and are encouraged to stay as independent as possible (Regnier Victor FAIA, 2002)

- **Small, residential scale housing-** Most housing for the frail are made up of small group clusters- family like clusters of 6-8 units, with 5 common spaces where residents spend most of their time
- **Emphasis on short stays, rehabilitation and respite-** in community based system housing providers help older stay at their homes (Regnier Victor FAIA, 2002)
- **Needs based services-** Some countries exhibit an approach to meet each resident's unique needs - adjusting the schedule to fit the needs of each residents individually, residents encourage to help themselves as much as possible (Regnier Victor FAIA, 2002)
- **Outdoor-** There's a strong preference for relationship to outdoors and nature
- **Single occupancy-** Most new buildings feature single occupancy units
- **Emergency systems-** Efficient regionalized food and emergency call systems
- **45+ -** Adult communities arise in some countries to house people 45+
- **Multigenerational programing-** More opportunities to link with children are provided
- **Mechanical aid-** Lifting devices are becoming more popular
- **Social responsibility-** Municipalities have more influence on planning- most developers in northern Europe are non- profit community providers motivated to create housing as public good rather than to make profit

2.2. THE BABY BOOMER GENERATION TRENDS

As the baby boomers enter their elderly years, they are expected to drive changes to the shape, location and amenities of housing for older people. The product that they will create will be different in how it is financed, designed, marketed and called from the current senior products. The baby boomers do not want to be called seniors. As people live longer, healthier lives, they begin looking for a wider range of housing options to fit their particular needs.

- **Desire to age in place-** All these trends indicate that older people worldwide want control over the homes and communities where they live. People 75+ are interested in making existing spaces better fit their needs, people at ages 60-74 are more open to the universal design idea. A recent AARP survey finds that 83% of people 50+ want to stay in their homes (AARP, 2011). Boomers expect to be working past retirement age, and most of them come to retirement with different attitudes than earlier generations.
- **Live in big cities-** Boomers are more likely to live close to their children and large cities that offer cultural sites, sporting events and fine dining and are more likely to avoid senior only communities. Their attitude to aging is different, they are generally in denial about aging, and do not want to change their lives, but rather continue or just modify the lives they currently lead. Many live in an empty nest and do not need as much space, but do not want to give up on the luxury. They don't necessarily want to retire. Indications exist that these boomers will prefer living in communities that are close to large metropolitan areas, in an aged mixed setting. (Rosenfeld & Chapman, 2008)
- **Some traditional senior housing products will disappear-** The suburban CCRC located behind gates will disappear, the focus will become more urban, cultural, intergenerational to a certain level. Baby boomers tend to have second and third careers, they travel a lot, and will not think of moving to the traditional senior

community. The senior housing industry will be serving people of ages 85-110 when the idea of living at home is less viable for them.

- **Physical aspects-** Boomers want smaller market rate homes that require less maintenance, but allow gracious living. The features that elderly value according to the national older adult housing survey (NAHB research center, 2002), are bedroom on first floor and/or single story living. Home owners in age restricted communities value physical features that help with the decreased mobility issue (grab bars) homeowners in mixed age communities preferred features that relate to energy efficient and occupant comfort (ceiling fans, energy efficient appliances and windows) For safe, comfortable and independent environments all respondents valued first floor bedrooms, central heating and AC, minimal low step entries. These homes may be smaller than the homes they lived in before, but are larger than the homes seniors lived in 20 years ago. There is a steady demand for gourmet kitchens with granite countertops and high end appliances. Boomers prefer houses they can enjoy now, but will be safe and secure as they get older. They are looking for health oriented retirement communities, but with smaller homes that are still luxurious.
- **Universal design-** Boomers wish to create homes and communities that reflect their own needs and interests and are thus open to the simplicity and style of universal design to make them appropriate for all users, with or without disabilities. Their home design preference reflect the need for gracious living in the present and the possibility of a frail or infirm old age down the road. Many of the boomers have their older parents living with them, in a role reversal, which leads to gerontologic modifications.
- **Sustainability-** They are more interested in sustainability and incorporation of energy efficiency and environmentally responsible features to the housing and the range and means of delivery of services for the elderly. Growing infrastructure and programming to bring services to people at home.
- **Increase in services** and community building activities offered by aging in place villages, home services like tele-caregiving, video monitoring, fall detection alerts, memory care, web based education, virtual villages.
- **Use of technology-** integration of technology into daily life, wireless internet access, internet cafes, computer labs.
- **Walk-able lifestyle-** easy access to amenities, increased mobility and freedom.

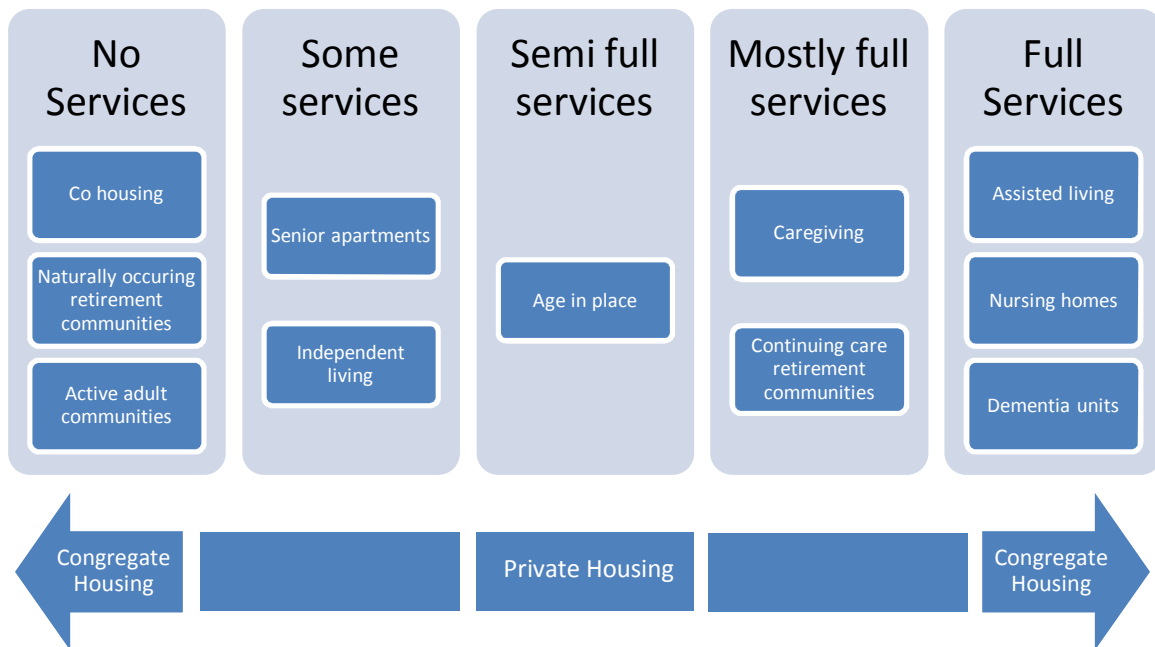
The baby boomers demand is different in characteristics than the existing senior population demand. Their busy, metropolitan, and luxury oriented life styles, suggest that there are opportunities in the building and remodeling industries to meet their special needs to allow them the convenience of living in their own homes. Retrofitting existing homes will become more innovative, sustainable, technologically sophisticated and integrated in the community. This will influence the types of remodeling that aging in place products will entail.

CHAPTER 3 AN OVERVIEW OF EXISTING INDUSTRY PRODUCTS IN THE US

This chapter reviews the existing types of senior housing products currently available in the industry, in terms of the services offered, their physical form, their fees, with a specific focus on assisted living facilities.

Elderly housing options used to be a focus of philanthropy, religious sponsorship and family care, but have changed to include the for profit privatized industry, some of which can result in considerable returns. With the demographic changes, changes to family structures the economic security and care of the elderly has become a responsibility of the government and of service providers that family members may help select and monitor. This has caused many types of senior housing products to develop.

The thesis will provide a broad overview of the existing elderly related real estate product types which have evolved over the last 25 years in the Boston area which reflect overall trends in the US, and offer conventional living choices that deal with extended more healthy life styles but usually involve moving into new setting. They will be described based on their distinctive physical features, financial models, and service provisions.



3.1 COHOUSING- SENIOR HOUSING BY INTENT

Cohousing developments are collaborative living arrangements where residents participate in the design and operation of the community. There are more than 100 cohousing communities in the US, designed and operated by the people who live there, a third of the residents are seniors. These are made of 4-30 intergenerational households. There are 20 elder cohousing communities. These communities give the residents a chance to create a community for themselves, and gives them equity ownership and a sense that they are working toward shared goals and objectives. Although these communities take many physical shapes, many

times they are made up of private homes that cluster close to one another, with common areas within a walking distance.

3.2 NATURALLY OCCURRING RETIREMENT COMMUNITIES- (NORC)- SENIOR HOUSING BY COINCIDENCE

Communities in which the entire building or neighborhood grow old together. These are unintentional communities. These form of clusters of older people living in a defined geographic area that is not specifically designed as elderly housing. Associated supportive services programs deliver community based services to members in their own homes. Their goal is to build communities and retain the independence of members.

These can be either urban or suburban, both have architectural challenges. People find themselves aging in homes that were not intended for older people. The urban response is to try and fit the buildings to be safer and more navigable through supportive service programs. Such programs can provide funds for retrofitting the premises (like fitting lobbies with ramps, lighting and benches in public area). There is no distinctive architecture to the NORCs but these require ongoing repair and renovation to achieve their goals. They provide services such as maintenance, snow shoveling, neighborhood social networks. Villages can range from formal fee based professionally staffed non-profits to informal volunteer groups.

Many of the residents who live there for a long time, have become politically active and friendly with each other and manage to promote social services and amenities to their community.

3.3 ACTIVE ADULT COMMUNITIES

For-sale single-family homes, townhomes, cluster homes, mobile homes and condominiums with no specialized services, restricted to adults at least 55 years of age or older. Rental housing is not included in this category. Residents generally lead an independent lifestyle; projects are not equipped to provide increased care as the individual ages but may include amenities such as clubhouse, golf course and recreational spaces. Outdoor maintenance is normally included in the monthly homeowner's association or condominium fee. (National investment center for the seniors housing and care industry, 2011)

3.4 SENIOR APARTMENTS

These are multifamily residential rental properties restricted to adults at least 55 years of age or older. These properties do not have central kitchen facilities and generally do not provide meals to residents, but may offer community rooms, social activities, and other amenities. (National investment center for the seniors housing and care industry, 2011)

3.5 INDEPENDENT LIVING

Age-restricted multifamily rental properties with central dining facilities that provide residents, as part of their monthly fee, access to meals and other services such as housekeeping, linen service, transportation, and social and recreational activities. Such properties do not provide, in a majority of the units, assistance with activities of daily living (ADLs). There are no licensed skilled nursing beds in the property. These communities have a good image in the public perception. Their residents are 6-8 years younger than other senior

housing types, and 2-6.5% more residents are male. Few or no services are offered other than building maintenance, upkeep of grounds, and security. Most units are rentals, but some communities offer units as condominiums or cooperatives (where the demand for this housing type is affluent). The desire for social interaction is a primary consideration for residents.

3.6 AGING IN PLACE

Most definitions deal with the change that occurs to occupants over time, not the change to the environment itself. But the housing is not static. Most recently elders expect to age in place in environments other than their longtime homes, hoping to move into these environments and avoid future moves, and avoid the prolonged residence which subsequently ends with a move to a higher level of care facility. The term age in place in this context is a misnomer. People tend to think it is forever, but many times it means prolonged stay only. On the other hand, for increasing number of elderly, aging in place actually means in their own place, their private homes. Often the homes that people purchased when they were younger, with stairs and yards, become increasingly unsuited to elderly as their physical capabilities diminish and income becomes fixed. These homes have to be retrofitted to allow the residents to continue their lives there, in an aging in place manner.

3.7 CONTINUING CARE RETIREMENT COMMUNITIES (CCRC)/ ACTIVE RETIREMENT COMMUNITIES

CCRCs are age-restricted properties that include a combination of independent living, assisted living and skilled nursing services (or independent living and skilled nursing) available to residents all on one campus. The majority of the units are not licensed skilled nursing beds. (National investment center for the seniors housing and care industry, 2011)

These facilities combine housing, services and health care allowing seniors to enjoy a private residential lifestyle with the opportunity of independence and assurances of long term health care. These communities are being redesigned to meet the requirements of the boomers with amenities of suburbia such as extra space for guest rooms, home office, exercise area or library but without the maintenance obligations. The average buyer of housing in active retirement communities is 61 years old, 6 years younger than a decade ago. And buyers intend to stay in these houses longer.

Historically, most senior housing development occurred in suburban areas because of the availability of land and the infrastructure requirements. The amount of services requires space and economies of scale as well as sufficient number of residents to support the fixed costs of providing services like dining and housekeeping. A continuing care retirement community has on average 200 or 300 units of independent living. It's harder to develop that kind of property in an urban infill site as the cost of construction goes up (Ron Nyren, 2011). 600,000 Americans live in continuing care facilities that begin with assisted living and offer long term nursing care when needed.

Resident payment plans vary and include entrance fee, condo/coop and rental programs. Most common are either rental basis without any long term commitments nor equity investments, or an investment model that requires a down payment which is returned (principal or 90%) to surviving family when resident passes away.

3.8 CAREGIVING

Informal (unpaid) family caregivers provide the majority of assistance that enables chronically disabled older people to continue to live in the community rather than in specialized care facilities.

3.9 ASSISTED LIVING RESIDENCES (AL)

State regulated rental properties that provide the same services as independent living communities, but also provide, in a majority of the units in addition to housing, supportive care from trained employees to residents who are unable to live independently and require assistance with activities of daily living (ADLs) including management of medications, bathing, dressing, toileting, ambulating and eating. These properties may have some nursing beds, but the majority of units are licensed for assisted living. Many of these properties include wings or floors dedicated to residents with Alzheimer's or other forms of dementia. A property that specializes in the care of residents with Alzheimer's or other forms of dementia that is not a licensed nursing facility should be considered an assisted living property. (National investment center for the seniors housing and care industry, 2011) Shift in Medicaid long term care policy and independent growth in private pay residential care led to increase in alternatives to home care and traditional skilled nursing facilities and creation of many assisted living facilities.

The origin of assisted living is in European model of age in place with long term care. In the US these began in the 1980's as board and care residences as well as continuing care retirement communities, and evolved into free standing assisted living residences. Before that, seniors had only 2 options to move into a nursing home or to move in with a family member. By 2001 most states have enacted federal regulations for assisted living, although with great variations.

Differences in socioeconomic groups have excluded certain segments of the elderly population from receiving housing and medical services. Especially the middle class who are unable to obtain government support and who do not have the financial resources to access upscale retirement communities. This is the largest segment of elderly population with the greatest total purchasing power. Assisted living targets this segment. More than 1 million Americans live in assisted living.

As of today, there are more than 36,000 (Assisted living federation of America, 2011) assisted living communities in the United States, although it is hard to accurately count these communities because of state licensure differences as well as terminology differences. While this was a new idea 25 years ago, it has become the most preferred and fastest growing long term care option for the elderly. Residents of assisted living are physically frail and/or cognitively impaired, while nursing home residents are sick and in need of constant skilled nursing. Most residents are people who lived in the same area in their independent lives, or that their adult children live in proximity to that area. (Waleryszak Mike, 2011)

Assisted living facilities experience high turnover rates due to changing level of physical need of residents, which make them harder to work even in areas of high demand and high fees to cover costs because of the difficulty in predicting the demand. Lenders and investors view assisted living as high risk and are cautious or further investment in this industry. But affordable assisted living is needed by large low and moderate income populations and it is more cost effective than serving these people in nursing homes.

The ALFA, assisted living federation of America, established in 1991 is the principal association in the US promoting the interest of the industry and trying to enhance the quality of life of the residents. They define assisted living as “a special combination of housing, supportive services, personalized assistance and health care designed to respond to the individual needs of those who require help with activities of daily living (ADLs) and instrumental activities of daily living (IADLs) supportive services are available 24 hours a day to meet scheduled and unscheduled needs in a way that promotes maximum dignity and independence for each resident and involves the resident’s family, neighbors, and friends.

In Massachusetts, assisted living is defined as “any entity that provides room and board and arranges for personal care services and activities of daily living for three or more adults”. It has a separate licensure category and is administered under the office of elder affairs.

There is a large abundance of assisted living models, which vary greatly with their design, organization, administration and policies. In addition, state regulations are very different between states. The emphasis is shifting from “assisted” to “living” and integrating these communities better in their neighborhoods instead of building them in remote places. A social model of enhancing the connection of the assisted living residents and the community at large is the more common model.

3.9.1 Building characteristics

- a. **Gross building SF** per unit according to ALFA survey in 2000 was 790SF. 45% of the building SF is for residential units and the remainder to all other spaces. In a building with larger dwelling units, the ratios are 60% units and 40% other uses. Smaller units, larger common spaces encourage residents to spend more time outside of their units.
- b. **Unit-** Studio units are 300-317 SF, 1BR is 448-515 SF and 2BR is 597-727 SF. Units typically have a kitchenette with refrigerator, microwave, sink, and possibly stove. Bathrooms have grab bars, elevated toilets, and call buttons.
- c. **Residential character-** sloped roofs, attached porches, residential materials and finishes, Larger common spaces to be broken into smaller spaces, clustered units to enhance socialization (Regnier Victor FAIA, 2002)
- d. **Number of units-** most AL facilities require at least 40-60 units for economies of scale, advantage when all residents know each other as well as the operators know all residents, (90-100 units is usually too many) (Regnier Victor FAIA, 2002)
- e. **Residential privacy and completeness-** small kitchenette and full bathroom make the unit complete. Privacy to be enhanced by encouraging single occupancy, and residents own furniture (Regnier Victor FAIA, 2002)
- f. **Easy orientation and way-finding,** safety and security, accessibility
- g. **Stimulating environment** that is safe but challenging, with sensory aspects – changes to visual, auditory and olfactory sense in the environment (Regnier Victor FAIA, 2002)
- h. **Aesthetics and appearance-** emphasizes personalization and adaptability- flexible environment to fit changing needs- people age differently each with their own needs

3.9.2 Cost

- a. **Rent/ ownership-** Assisted living costs are usually 60% of nursing home rates. Accommodations are usually on a rental basis only, without any long term commitments or equity investments.
- b. **Rates** can vary from \$3000-\$8000 per month depending on the service package.

3.9.3 Resident profile

- a. **Age-** typical resident is 82-87 years old.
- b. **More women residents-** 75-78% of the assisted living population is female. (Assisted living federation of America, 2011). When they are old and frail, a few husbands are around to provide home care, so women are more likely to turn to assisted living. Couples are not very common.
- c. **Resident's income-** 2/3 of the resident population of assisted living have income of less than \$25,000 yearly. (National investment center for the seniors housing and care industry, 2011).
- d. **Length of stay-** Average length of stay in assisted living is between 24 to 30 months.
- e. **Need of assistance-** According to the 30/40/50 rule- 30% are incontinent, 40% are in wheelchair, and 50% have beginning of memory loss. 60% need bathing assistance, and 25% need toileting assistance. People with less serious impairment are better off in the community aided by home health care (Regnier Victor FAIA, 2002)
- f. **Physically and mentally frail-** Usually the care for these groups is separated.

3.9.4 Services and amenities

- a. **Focus-** on health maintenance, physical movement, and mental stimulation- preventive checks, good nutritional habits, and careful attention to medication, as well as activities that stimulate the mind
- b. **Community-** Maintains connections with the surrounding community and provide social interaction
- c. **The core package,** which 90% of the facilities provide, includes:
 - 3 meals a day+ snacks
 - Housekeeping services
 - Assistance with basic ADLs
 - Personal laundry and linen service
 - Medication management assistance
 - Escort service within the building
 - Wellness activities
 - Beauty/ barber shop services
 - Emergency call system
 - Transportation to shopping

US expected future trends in assisted living based on conversations with developers of assisted living and on (Regnier Victor FAIA, 2002)

- Expensive and less available human staff will be replaced by electromechanical devices that provide help and assistance. More use of monitoring systems and diagnostic systems will reduce staff numbers shift to more technology oriented staff. Elderly will be able to manipulate more sophisticated computer devices
- Lift and wheelchair technology will be combined with computer aided mobility devices
- Assisted living services will open up to other elderly in the neighborhoods –reduce stigma, help everyone in the community
- Move to larger units, more elaborate bathrooms
- As a result of increasing life span there are more couples in assisted living. They tend to prefer one unit with separate bedrooms, which leads to an increased demand for 2 BR with smaller living space, and more space for bedrooms
- Elderly daycares will become more common which will allow elderly to stay in their homes for longer before moving to assisted living
- Decentralization of units into small group clusters will continue

3.10 NURSING HOMES -SKILLED NURSING FACILITIES- (SNF)

Licensed daily rate or rental properties that are technically referred to as skilled nursing facilities (SNF) or nursing facilities (NF) where the majority of individuals require 24-hour nursing and/or medical care. In most cases, these properties are licensed for Medicaid and/or Medicare reimbursement. These properties may include a minority of assisted living and/or Alzheimer's/dementia units. (National investment center for the seniors housing and care industry, 2011)

The nursing homes industry began to grow in the 1930's when social security legislation barred the payment of public funds to individuals residing in public institutions. 1950's nursing homes began to increase in number in response to federal legislation extending them financial support. (City of Cambridge, Housing Options For Older Cantabrigians, 2010)

There are 16,094 nursing homes in the us (Rosenfeld & Chapman, 2008) Most area classified as intermediate or skilled nursing units. Intermediate facilities have enough nursing care to qualify for Medicaid reimbursement. Skilled nursing units meet a more rigorous standard, and qualify for Medicare reimbursement. Building codes greatly limit the architecture of these facilities, these codes originated from hospital codes and result in an institutional setting.

The perception of nursing home is usually negative by the people it is supposed to serve, but recently this has begun to change as renovations and improvements have been done to many facilities. But the medical model, with hospital image still prevails among the nursing homes. Recently there is a shift from the medical model toward the homelike and therapeutic environment model. The trend toward homelike nursing homes includes adding of plants and allowing pets indoors ("Edenizing"), making rooms more ergonomically comfortable, and designing furniture according to universal design principals. Corridors and doorways design shifts as well to resemble homes rather than medical institutions, with more personalized

decorating, and architectural features. Rooms are personalized with residents' furniture and choice of colors.

Nursing homes fit people who need 24 hours a day medical care, post-operative recuperation or complex medical care demands as well as chronically ill individuals who can no longer live independently. Of the 3 million seniors who live in group residential setting, about ½ reside in nursing homes. (Gimmy, Brecht, & Clifford, 1998) 30% of these are private paying the rest are getting Medicare or Medicaid reimbursements.

Units are rented on a monthly basis, with a daily rate. An average of 27.5 days of SNF are covered by Medicare, majority of people stay up to 29 days, but significant of the stays end in death. Average length of stay for long term residents is 26 months for women and 19 months for men. This is the most service intensive of the senior housing types. SNF's must be licensed by the state to meet standards of safety, staffing and care procedures. Such facilities can specialize in short term or acute nursing care, intermediate or long term skilled nursing care. SNFs' staff is fully skilled nurses which incur high costs on salaries for these professionals. To reduce costs, many residents are put in shared rooms.

3.11 DEMENTIA UNITS

Early stage Alzheimer's patients as well as people with other memory impairments may be accommodated in a congregate or independent wing of multi-level campus. Many assisted living communities will successfully house early stage residents. As the disease progresses, patients develop argumentative behavior, "sundowning" (afternoon depression) and wandering habits. Communities that are best equipped to deal effectively with this middle stage patient are Alzheimer's and dementia communities. These units work best when they create environments that reduce anxiety and confusion:

- A neighborhood that provides a safe, pleasant, comfortable setting
- Culturally supportive environments
- Way finding and wandering paths
- Technology smart dementia units
- Common enclosed courtyards and garden areas
- Specially designed memory programs and activities that encourage activity and engagement

The variety of senior housing products proves there's not one right solution. None of the products that use existing private residents' housing is fully providing the needed services to reach the absolute level of assistance such as provided in an assisted living community. A combination of NORCs, senior apartments and assisted living characteristics can resemble the affordable assisted age in place model we suggest in chapter 10.

CHAPTER 4 AN OVERVIEW OF ENTITLEMENT POLICIES

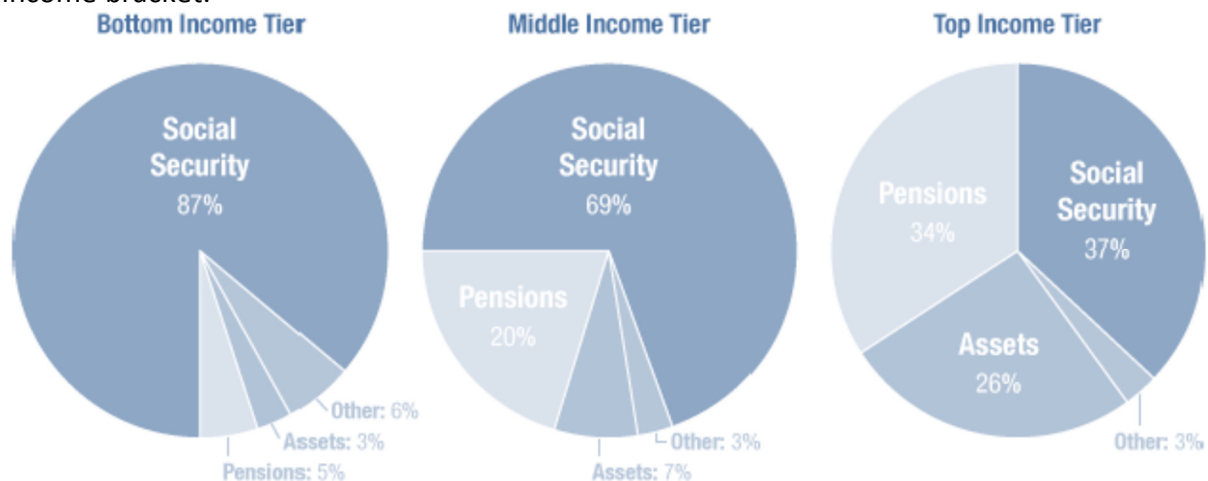
This chapter reviews the entitlement policies that elderly receive in the United States which are used to allow frail elderly to live in assisted living environments. This information is used in the age in place model in Cambridge MA to explain how residents can use the model to allow them to afford the needed level of services.

4.1 SOCIAL SECURITY (SS)

Social security is the major source of income for most of the elderly. 9 out of 10 individuals 65+ receive social security benefits. SS represents about 41% of an elderly income. An estimated 157 million workers, 94% of all workers are covered under SS. 50% of the workforce have no private pension coverage, and 31% have no savings set aside specifically for retirement. People contribute to social security through payroll taxes or self-employment taxes. To be fully insured, a person needs to have at least one work credit (quarter of coverage) for each year elapsed after age 21 and before the year in which he or she attains age 62, becomes disabled or dies. The maximum number of work credits needed to be fully insured is 40. In 2009, benefits were awarded to about 5.7 million persons, 48% of these were retired, and 17% were disabled workers, 35% for survivors or spouses and children of retired or disabled workers. Benefits payable to workers who retire at the full retirement age and to disabled workers are equal to 100% of the PIA (primary insurance amount), a widow/er can get 100% at full retirement age, or reduced benefits at age 60. Spouses, children, and parents receive a smaller proportion of the workers PIA than do widow(er)s. Of all elderly receiving monthly social security benefits, 44% were men and 56% were women. 80% of the men and 61% of the women received retired workers benefits, 1/6 of the women received survivor benefits.

Most Americans saved little, and their SS coverage is not enough. (The ceiling from which people pay contributions to SS over the years is very low, raising it would result in more money that can be distributed to the elderly), and these support mostly the low and middle class who have been working all their lives.

People 65+ rely heavily on SS for their retirement income, even those at the top of the income bracket.



Sources of retirement income for Massachusetts residents (Hinderlie, 2011)

4.2 SUPPLEMENTAL SECURITY INCOME (SSI)

This is a federal income supplement program funded by general tax revenues (not social security taxes) and administered by SSA (social security administration) as the SS and Medicare. It is designed to help elderly 65+, blind and disabled US citizens who have little or no income and it provides cash to meet basic needs for food, clothing, and shelter.

Many people who are eligible for SSI may also be entitled to receive social security benefits, but unlike social security, SSI benefits do not depend on prior work or family's member's prior work. SSI beneficiaries can also get Medicaid to pay for health costs, the application process for both is linked. The exact amounts of the supplements and eligibility requirements differ across states.

Within the SSI program there are 6 living arrangement status for people with very low income that the government has to provide funding to bring up to living arrangement:

- SSIA- live by yourself
- SSIB- shared expenses (husband and wife)
- SSIC- live at home of other person
- SSIE, F- live in nursing home and rest home
- SSIG- live in certified assisted living by GAFC. It was developed specifically for GAFC eligible persons in assisted living facilities. SSIG funds cover costs of housing. (although housing costs may exceed the amount SSIG provides to a resident)

In Massachusetts, average SSI monthly payment to 65+ persons is ~\$400.

4.3 MEDICAID

This program is a joint federal and state program. It is not solely funded by the federal government (like Medicare is), states provide up to half of the funding. It is not an insurance program, but is a needs-based social welfare and social protection program. Medicaid covers a larger range of health care services than Medicare. Some people qualify for both Medicaid and Medicare, Medicaid is sometimes used to help pay for Medicare premiums. People who qualify for both programs are called 'dual eligible'. (Rosenfeld & Chapman, 2008). Funds are paid through community based service waiver programs (HCBS) or state Medicaid plans. Until the 80's Medicaid long term benefits provided mostly nursing homes stays. Now they can provide a larger range of home and community based services to eligible individuals that otherwise would have been served in institutions.

This nationwide health insurance program is operated and administered by the states, with federal financial participation. Within certain broad, federally determined guidelines, states decide who is eligible (Rosenfeld & Chapman, 2008), the amount, duration, and scope of services covered, rates of payment for providers, and methods of administering the program. Medicaid pays for health care services, community based supports, and nursing home care for certain low income US citizens. It does not cover all low income people in every state. It was authorized in 1965 by title XIX of the social security act. It is the largest source of funding for medical and health related services for people with limited income in the United States and the primary subsidy for the service component of assisted living.

In Massachusetts it is known as Mass-Health. The eligibility to the program varies by state. People may be eligible for Medicaid after they "spend down" income on deductible

medical expenses not reimbursed by other insurance. Coverage begins when the deductible is met. Medicaid is for low income:

- Pregnant women
- Children under the age of 19
- People 65 and over
- People who are blind
- People who are disabled
- People who need nursing home care

Each state designs its own waiver program, with its own rates and means of reimbursement as well as income eligibility. However, the Medicaid waivers may not be used to pay rent or raw food costs. It covers services provided in assisted living, either through waivers or the Medicaid state fund. Massachusetts has a flat rate per day for reimbursement for services. (Schuetz, 2003)

Medicaid provides several long term care community options:

4.3.1 PACE- all inclusive care for the elderly

This program centers around the belief that it is better for the well-being of seniors with chronic care need and their families to be served in the community whenever possible. It had started in the 1970's in San Francisco, by the Chinatown north beach community who saw the pressing needs of families whose elders had immigrated from Italy, China, and the Philippines for long term care. They formed a non-profit corporation for community based system of care. The program reorganizes familiar elements of traditional health care system in a way that makes more sense for families, healthcare providers, and government programs. It is a one stop shopping for all health care services. It rewards providers that are flexible and creative in providing the best care, manages to coordinate care for individuals across medical disciplines by an interdisciplinary team of professionals, and meets increasing consumer demands for care and supporting services. The PACE model focuses on keeping elderly at home and out of institutional setting and providing them with their individual level of service needs to allow that.

PACE serves people 55+ certified by the state to need nursing home care, able to live in the community and in a PACE service area. Only 7% of PACE participants nationally actually reside in nursing home. PACE delivers the needed medical and supportive services to people in their homes before they develop a need to move to a nursing home. Services include – meals, personal care, medical care, prescription drugs, social services, hospital and nursing home care when necessary.

PACE programs are partnership between the provider, the state and the federal government. It uses Medicare and Medicaid funds together to cover all services covered by Medicare and Medicaid as well as additional ones. It is not possible to have PACE and Medicare and Medicaid. PACE organizations provide care and services in the home, community and PACE center.

The advantage of PACE is that it provides individualized care based on needs. People can join this program when they are independent, and the help they require will adjust as they age and become frailer. It is managed by Mass Health and CMS (center for Medicare and Medicaid services).

There are currently 8 different PACE programs in Massachusetts, some have residents in assisted living, and some not. The rates are negotiated and vary between the programs. The flexible structure of all these programs allows them to achieve their goals as well as these of many assisted living operators, and many chose to use this subsidy over others (such as GAFC).

PACE can pay for provisions beyond health services- depending on the situation of the individual participant. Its coverage can include home modifications that will help an individual to remain at home. The main disadvantage of the program is the limitation of choice – participants can only use health services and professionals that are directly associated with the PACE program.

In Cambridge, the Cambridge health alliance is the PACE provider.

4.3.2 SCO- senior care options

This program is a partnership between Mass-Health (Massachusetts Medicaid) and Medicare that provides a complete package of health care and social services for low income seniors. Enrollment is voluntary. A team of health professionals develops a plan of total individualized care for each member. Services are provided by a network of medical and other professionals, including a primary care doctor, nurses, specialists, geriatric support coordinator. The program is for 65+ persons who are eligible for Mass-Health standard, live in the SCO service area, and agree to receive health services exclusively through SCO. It is open to people with or without Medicare, those with Medicare must continue to pay their Medicare premiums. The program is open to people living independently, at home with support services, or in long term care facilities. Currently there are only 3 SCO programs in Massachusetts (CCA, Senior whole Health, and Evercare). This program could also cover home modifications if approved as the right solution for a specific individual.

Both PACE and SCO are means tested (based on income) but with looser requirements than Medicaid. They provide more benefits coverage and their philosophy is looking at a person as a whole not just his/her medical needs. (Leoni Margaret, 2011)

4.3.3 GAFC- group adult foster care

Group Adult foster care is a Mass-Health program that pays for personal care services for eligible seniors 60+ and adults with disabilities who live in GAFC approved housing (GAFC assisted living residence or other GAFC housing) It doesn't apply for people in private homes. To qualify, residents must need help with at least one daily personal care task (such as bathing or dressing) It only pays for the cost of personal care services and medication management when a person lives in an approved housing. It does not pay the housing costs. It provides individual care plan, on-going monitoring of needs, personal care services at home each day, medication management, and 24 hour access to services. There is no cost for clients who meet the eligibility requirements. This is the only Medicaid program that provides some funds toward rent.

Its requirements are for 24 h supervision, basic medical supervision, staffing ratio of 3.5 hours per participant per week and qualified program director. To be eligible for this program, a person must be 22+, in risk of institutionalization, in need of help with at least one ADL, and get ASAP approval.

Some developers prefer not to use this subsidy. It is a small program with uncertain future, only about 2000 persons use it currently, and it thus too risky to count on for long term. The rate it effectively provides to cover the needed services has not been updated since 1994 and is extremely low, causing operators to lose money rather than providing any help. The program requires certain number of hours of nurse care hours for each participant, and the operator is required to demonstrate that these have been provided, while in reality not all the residents need this amount of care, and money is being spent on nursing hours that could have been better used elsewhere. The problem with this subsidy is that it doesn't adjust its regulations to fit the changing situation, causing many developers/ operators of assisted living communities to drift away from using it. In addition, GAFC is on the state budget cut list and will likely be reduced in the coming years.

GAFC was mostly intended for people who spent down their assets and reached a low income bracket, to use it from start is difficult to sustain.

4.3.4 OTHER COMMUNITY OPTIONS

Which follow the goal of keeping people out of expensive and unnecessary nursing homes by helping them age in place include:

- **Community first**
- **HCBS- Home and Community based waiver**-Since Medicaid has not updated its regulations since 1960s, the government grants waivers that states can apply for
- **MFP- Money follows the person**- Massachusetts has applied to this program recently. Its concept is that regardless of where the individual gets treated, he'll get coverage. The money follows the person not the providers. This program could also provide a more broad range of services, beyond just skilled medical care, could potentially provide funds for family support etc.
- **AFC- Adult Foster care** program which allows frail elders (and adults with disabilities) to live with a trained paid caregiver (family or non-family member) who will provide their daily needs. Mass-Health compensates the care giver for providing care to Mass-Health member who would otherwise need institutional care.

4.3.5 ASAP- aging services access points (George, 2011)

This is a 35 year old state funded program that has 27 not for profit organizations throughout Massachusetts linking community resources to individuals and their families. Their mission is to ensure that culturally diverse elders particularly those with limited means can remain in their homes or other supportive settings with dignity and independence as an alternative to nursing homes, and they proactively try to pull people out of nursing homes and bring back to their homes, or other supportive settings. Each ASAP has a distinct geographical area that it services.

They provide support services (non-medical) including:

- information and referral

- functional assessments in the home on ADLs and IADLs by case manager
- Interdisciplinary Care Management Team- home visits, medical escort
- Authorize, purchase, monitor home and community based services
- Nursing home pre-admission screening and counseling on community options
- Elder abuse and neglect investigations and intervention
- Medication management assistance
- Help with home delivery meals, grocery shopping, chore service, homemaking, personal care, laundry, money management, companionship
- Personal emergency response system
- Adult daycare health, dementia day care

They serve the client for life, not episode focused, with a holistic approach to support individuals in their homes. ASAP's serve individuals across all care settings, provide one door to many services and supports, they contract external providers for the services, don't have actual employees for the services. They service elderly 60+ with some function impairment – a critical unmet need.

The programs they provide are:

- **State home care basic-** basic services for people 60+ (meal delivery, home making, personal emergency response system). waivers allow higher income people to access these services
- **ECOP- enhanced community options-** for people with need for more substantial care (nursing home level of care), allows people who otherwise will move to nursing home to remain at home. It is intended for people who are not Mass-Health eligible.
- **Choices program-** funded by Mass-Health for people 60+ with complex medical and psychiatric needs, targeted at people who are at a nursing home level of care. There is no limit to the services that can be provided!
- **Supportive housing-** 3 sites where a case manager is on site in an elderly building. Entire building benefits from social and wellness programming
- **Volunteer programs** for companion visits, telephone reassurance calls, service surveys and computer training

There is a small cost sharing payment based on income level that members have to pay. A voluntary donation is requested from elders whose income is at or below the income eligibility guidelines for Medicaid. Those with income at or below 300% of SSI are exempt from all co-payments, including the voluntary. ASAP can provide minor home improvements (like installing grab bars) through a state funded program called "Shine".

4.4 MEDICARE

Medicare is a 100% federal funded program. This nationwide program provides health insurance to people age 65+ people entitled to social security disability payment for 2 years or more, and people with end stage renal disease regardless of income. Medicare eligibility is not related to people's income in any way, but to their age and disability. It was enacted July 30,

1965 as title XVIII, health insurance for the aged of the social security act, and became effective July 1 1966. It covers acute care services and post-acute care setting such as rehabilitation and long term care hospitals and generally does not cover nursing home care. Prescription drug coverage began in 2006. Medicare will not pay for services that are not medical related like home improvements, food etc. Medicare is theoretically similar in coverage for all states. Medicare is for:

- People 65 and over
- People of any age who have kidney failure or long term kidney disease
- People who are permanently disabled and cannot work

Medicare is applied for at the local Social Security office.

- **Medicare part A** (hospital insurance) covers inpatient care in hospitals, critical access hospitals, skilled nursing facilities, and other post-acute care setting such as rehabilitation and long term care hospitals. It also covers hospice and some home health care. There's a requirement for minimum 3 day stay in hospital as inpatient for this coverage, it will cover up to 100 days per benefit period. There needs to be a skilled nursing service provision in order for Medicare to cover these costs. Part A is a fee for service Medicare
- **Medicare part B** (medical insurance) covers doctors' services, outpatient hospital care, and durable medical equipment. It also covers some other medical services that Medicare part A does not cover, such as physical and occupational therapy and some home health care. It pays for some supplies when they are medically necessary. There's a premium that the participant has to pay, and Medicare will cover only 80% of the costs of services.
- **Medicare part C** gives option to beneficiaries to receive Medicare benefits through private health insurance plans, instead of through the original Medicare plan (A and B), these plans are Medicare Choice (Part C) as it was expanded it became known as "Medicare advantage". In addition to offering comparable coverage to part A and B, advantage plans may also offer part D coverage. This program also involves a premium to be paid by participant.
- **Medicare part D** subsidizes the costs of prescription drugs for Medicare beneficiaries. It is part of the Medicare prescription drug improvement and went into effect on January 2006. Beneficiaries can join a prescription drug plan (PDP) for drug coverage only or join Medicare Advantage plan (MA) that covers both medical services and prescription drugs (MA-PD). If they get drug coverage through a former employer, that employer can qualify for a retiree drug subsidy payment from Medicare. It is run by private companies that are approved by Medicare. Each company is different, and covers different drugs.

The intention of this chapter is to give an overview of the available entitlement programs that residents who would potentially join the affordable assisted age in place model could make use of, and the developer could count on for supplementing his supportive services to the residents.

CHAPTER 5 OVERVIEW OF FINANCING METHODS FOR DEVELOPMENT, SERVICE AND OPERATIONS

This chapter reviews development funding sources used by developers for realizing projects as well as subsidies for operations that these developers rely on for the continuous operation of their projects. This info is used to suggest possible funding options in the affordable assisted age in place model in chapter 9.

A variety of funding sources are available for development of senior housing products. But assembling these fragmented funding sources into one development is a constant challenge of achieving affordable projects. Conflicting regulations between agencies, requirements for ongoing monitoring and reporting, complicated operations, difficulty in converting to other uses, and bad publicity in case of foreclosures burden developers and prevent many from entering the senior housing/ assisted living industry.

The primary sources of funding for affordable senior housing and affordable assisted living are the low income housing tax credits and the tax exempt bonds available to cities and states to fund public purposes, with addition of operating and supportive services subsidies. None of these funds are entitlements, and developers have to go through a competitive application process in order to receive the funds. Without special designation for seniors, the assisted living projects compete on money against affordable family housing, independent living and so on, and the funding availability depends on determination of state and local housing priorities.

Although Massachusetts has high housing costs and considerable barriers to development, it has many models of affordable assisted living. The high development costs which require multi layered financing created an industry of experts and consultants of funding programs. Massachusetts has low levels of nursing requirement in assisted living, and relatively expeditious licensing process. The state's main challenges in promoting affordable assisted living are the high costs of development, fierce competition for federal housing funds due to the strong demand for family housing, and the level of Medicaid reimbursement for services, which are inadequate to fully cover costs.

Government funding for senior housing products doesn't seem to change, although the government does seem to drive rebalancing efforts that shift moneys away from institutional setting to more community setting.

5.1 ALCP- assisted living conversion program

HUD assisted living conversion program which started in 2000, provides grants to non-profit owners of HUD section 202, 221,236 or section 8 properties for physical conversion of some or all the units of aging properties into modernized assisted living facilities for the frail elderly. (a private non-profit of an unused/ underutilized commercial property is also eligible) The facility must be licensed and regulated by the state (or municipality if there's not state law and regulation for assisted living)

ALCP provides funds for physical modifications, but not for the supportive service component, these have to be covered by other sources (Medicaid, SSI, state or area agency on

aging etc) which complicates the conversion process for many owners. Typical funding will cover basic physical conversion of existing units, common and services spaces. There must be sufficient space to accommodate central kitchen or dining facility, lounges, recreation and other multiple areas for assisted living residents as well as staff offices.

The section 202 properties have very little units that are wheelchair accessible, little amenities that assisted living facilities offer and this program is structured to adjust these to allow more elderly to age in place. Its advantage is that it builds on existing organizational and physical capacity.

5.2 LIHTC- low income housing tax credits

The low income housing tax credit program which started in 1986 has become the primary federal subsidy for production of affordable housing. Tax credits are allocated to the states on per capita basis, state housing finance agencies award credits to individual developers following a competitive application process. It incentivizes the private markets to invest in affordable housing. Many local housing and community development agencies are effectively using these tax credits to increase the supply of affordable housing in their communities.

This program supports acquisition, new construction, and rehabilitation of existing rental properties consistent with an annual qualified allocation plan and is for non-profit and for profit developers. Tax credits are awarded to developers of qualified projects who sell these to investors to raise capital (equity) for the project, reducing the dependency on debt and thus reducing the level of needed rental income. They can sell the credits to investors or to a syndicator who assembles and represents a group of investors. The developer usually sells rights to future credits (10 year) in order to have up-front cash. The credit purchaser must be part of the property ownership entity usually in a limited partnership setup (credit purchaser is 99.99% limited partner) or a limited liability company, and has passive investment role and no management duties.

The amount of total development costs obtained from the sale of credits varies with the price of the credit. Usually 45% of development costs are tax credit equity, 40% from primary loan and the rest 15% are from secondary soft loans (gap financing)

Disadvantage- The tax credit program does not offer an operating subsidy that can be used to pay for service costs, the properties need to support this from other sources. This leads to a project use of multiple subsidies that complicates the financing of the project. Due to regulatory uncertainty regarding assisted living, LIHTC hasn't been used frequently for assisted living, despite its frequent use for senior housing products. For a project to be eligible it has to be classified as "residential rental property" In 1998 the IRS clarified that assisted living facilities can be treated as residential rental properties and thus be eligible for this tax credit program. Another disadvantage is the fact the financial complexity of the tax credit deal. Senior housing projects using LIHTC usually require extensive layering of subsidies to make the projects economically feasible. Many times the subsidy LIHTC can provide is not enough to support the high development costs of assisted living facilities that result from the extensive common areas.

Advantages- LIHTC is the largest production subsidy available. A substantial industry of developers, syndicators, consultants and investors has evolved around LIHTC that provides expertise and political support that ensure continuation of the program. LIHTC is the largest

subsidy for affordable housing, and thus an important source for affordable assisted living and senior housing

5.3 HUD SECTION 202

This grant program is designed to develop housing for the very low income seniors. This program is funded through capital advance funds that can be used for the construction, acquisition, or rehabilitation of a structure. It provides interest free capital advances to private, non-profit sponsors to finance development of supportive housing for the senior community. It doesn't have to be paid back as long as the project serves very low income senior persons for 40 years. It provides 100% funding for 50 1bedroom units, limited to 540SF. Project rental assistance is needed to cover the difference between the HUD approved operating cost for the project and the tenant's contribution towards rent. Public entities are not eligible for funding under this program.

Disadvantage- this program covers the construction of only 50 senior housing/ assisted living units, and other subsidies have to be provided if more units are developed. Also, realistically, it doesn't cover all the construction cost of the building that is associated with the 50 units (the common areas, corridors etc) but just the units themselves. In addition, it does not provide any subsidy for operations and services.

5.4 TAX EXEMPT BONDS

The most common form is allocated by states and includes low income house tax credits that are exempted from the state's tax credit allocation ceiling. Rents affordable to extremely low income seniors are below the rents achievable with bond financing alone, meaning these bonds have to be paired with an operating subsidy to reach the target income population.

There are 2 types:

- Volume cap tax exempt bonds- states issue limited amount of private activity tax exempt bonds for purposes that include multifamily housing. These also include 4% LIHTCs. These volume cap bonds are issued on a project specific basis, and are required to involve a public entity such as a housing finance agency or housing authority. The proceeds of the bonds and the associated LIHTC are used by private developers.
- Non-profit organizations that comply with the IRS section 5013c (charitable organizations) can issue tax exempt bonds that are not subject to an allocation cap, but do not include tax credits. The non-profit must retain 100% ownership of the property (no option for syndication). At least 20% of the units must be affordable at or below 50% of AMI, at least 75% of the units to be at or below 80% of AMI. These have fewer requirements than volume cap tax exempt bonds and are more readily available (needing no allocation) but these lack the 4% tax credits, and are generally less powerful.

Currently, the tax exempt bonds rates are higher, making them difficult to use and less popular. (Kramer Robert, 2011)

5.5 SECTION 8

This is a project based rental assistance program used frequently by senior housing and affordable assisted living facilities. It operates through several programs, the largest is the

housing choice voucher program, and pays a large portion of the rents and utilities for low income renters. US department of housing and urban development manages the section 8 programs. The housing choice voucher program provides tenant based rental assistance that allows the resident to move between units. It authorizes a variety of “project based” rental assistance programs, under which the owner reserves some or all of the units in a building for low income tenants, in return for a federal government guarantee to make up the difference between the tenants’ contribution and the rent specified in the owner’s contract with the government.

5.6 CHSP- congregate housing services program

It offers grants to states, local governments, public housing authorities, and local non-profit housing sponsors to provide meals and other supportive services needed by frail elderly residents and residents with disabilities in federally subsidized housing. It is a project based rather than tenant based program, intended to prevent institutionalization of frail elderly, and disabled. It fills gaps in existing service systems, and ensures availability of funding for meals and other services. It provides grants for 1 hot meal per day in group setting, 7 days per week. Other services must not duplicate available affordable services. CHSP provides funds up to 40% of cost of supportive services. HUD has not funded applications for new grants under CHSP since 1995 but provided funds to extend expiring grants on annual basis.

5.7 OTHER

Other subsidies that senior housing projects tend to use are:

- Waiver or reduction of property taxes
- Community development block grant- federal funds are allocated to states and municipalities for use in various community planning and development activities.
- State/ local loan or grant
- Federal home loan bank loans
- Federal block grant programs – such as HUD’s HOME and CDBG programs- can be used in conjunction with a variety of other subsidies. State and local governments can use HOME funds for grants, direct loans, loan guarantees or other forms of credit enhancement, or rental assistance or security deposits.
- Reduced cost or free land
- FHA mortgage insurance- Federal housing administration offers variety of mortgage insurance programs to cover construction and rehabilitation of affordable senior housing. Most program cover long terms mortgages that can be financed with government national mortgage association mortgage backed securities. It lowers the cost of capital by decreasing the risk to lenders, allowing owners to get lower interest rates. These include the following programs:
 - Section 221d3 – for non-profit and for-profit sponsors of new construction or rehabilitation for multifamily rental or cooperative housing for moderate income families, seniors and handicapped
 - Section 221c3- is only for non-profit sponsors

- Section 232- insures mortgages for construction and rehabilitation of nursing homes and assisted living facilities. Used by for-profit, public and non-profit sponsors. This is the only FHA specific for assisted living
- Service coordinators- HUD provides funds for service coordinators to assist seniors and persons with disabilities living in federally assisted multifamily housing

While there are plenty of funding sources out there that a developer can assemble together to develop senior housing or assisted living, both in new construction or as in renovation of existing structures, there is very little availability of funding sources for the operations of the projects.

Even those subsidies that offer long term operation coverage tend to assign their financial help to the housing portion of the operation, rather than the care portion. In addition, those who qualify for many of these subsidizes are very low income people, while those who are just slightly above the poverty line are excluded from these benefits.

Maintaining the auditing and reporting requirements for many of these subsidies is cumbersome and time consuming for operators, who still chose to cooperate with this bureaucracy in order to make use of the capital in their projects.

The intention of this chapter was to give an overview of the currently available funding sources that a developer of senior housing products could use to make the development more affordable. Many of these programs would not fit the proposed age in place model in their current form, and will have to be reformed or adjusted. New programs will have to be created to provide state support to the developer to fit the structure that is suggested in chapter 10.

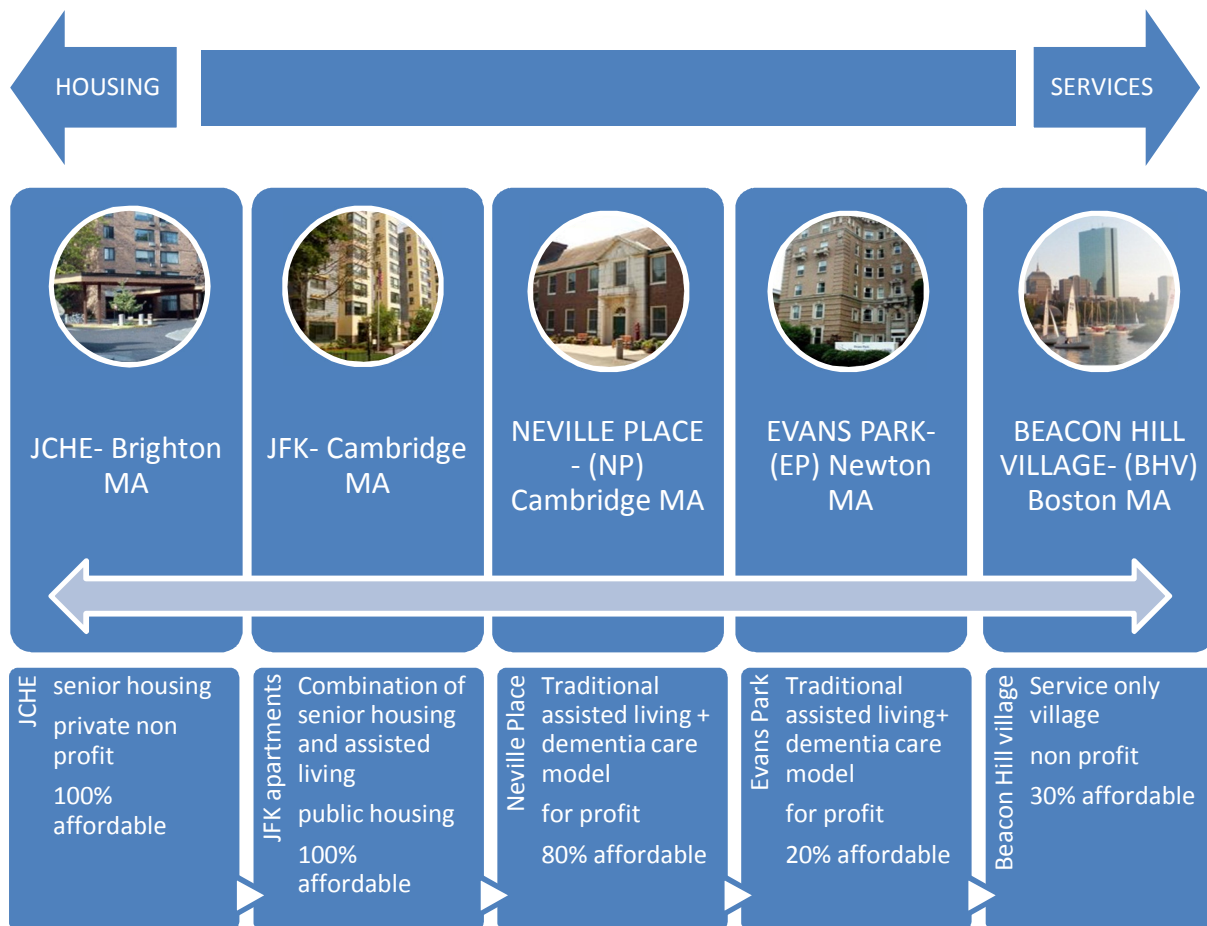
PART 2

Part 2 zooms into the Boston senior housing and assisted living industry, and looks specifically at 5 active case studies: 2 senior housing projects, 2 assisted living projects and 1 service provider to understand their specific models of operations, financing and designs. All these case studies are based on industry products, entitlement programs and financing methods explained in part 1. The case studies will present how all these come together into action in the 2011 market. Lessons learned from these case studies will be applied in a new affordable assisted age in place model proposed in part 3.

CHAPTER 6 CASE STUDIES

This chapter reviews 5 case studies in the Boston metro area, which range in their housing and service provisions for their clients, as well as in their affordability measures. Each case study is reviewed in terms of its background, development, philosophy, financials, affordability, services, activities, amenities, building and unit design, residents, community and marketing, and dementia care. This information is used as reference in the next chapter where these models are compared and analyzed for tools and lessons that can be applied in the affordable assisted age in place model proposed in chapter 10.

A wide variety of options for the elderly exist in the Boston metro area in terms of housing, services and affordability. The research focuses on 5 case studies that range from senior housing with minimal services which are not included in the base rent, through assisted living which provide both housing and services but range in their affordability for the user, up to unlimited service provisions without any physical housing provisions. These case studies are only a small sample of the various facilities that cover this spectrum from independent living to service providers, but each represents a model with distinct philosophy regarding the needs of the senior community. The cases that shift toward the service side are need driven, while those that provide housing are financially driven.

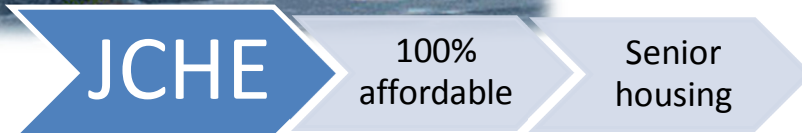




6.1 JCHE- JEWISH COMMUNITY HOUSING FOR THE ELDERLY- BRIGHTON, MA

Info provided by (Caren Silverlieb and Gaye Freed, 2011)

“At JCHE, we understand that older people can live independently as they age if they are in housing that provides much more than just shelter. Understanding the key ingredients for successful aging, our housing is rich with activity and social interaction. JCHE’s housing fosters an independent lifestyle. Residents live in complete apartments with full kitchens. They take pride in their buildings: many of JCHE residents are volunteers. Like every strong community, those who live here look out for one another and work together to maintain a quality lifestyle” (*JCHE website*)



JCHE is a housing provider, who manages to cater very low income populations, and even offer some community services and coordination of many other services. This case study is a good example of use of subsidies and integration of external service providers in an affordable setting. It is a successful example of a development that allows aging in place for its residents, avoids the strict regulations of assisted living, but supports needs of residents beyond basic accommodation.

6.1.1 Background, Development and Philosophy

Jewish Community Housing for the Elderly was founded in 1965 by Boston civic leader Norman Leventhal to provide affordable non-sectarian independent housing for seniors. In the present the JCHE organization houses over 900 residents in the Brighton housing site, and over 1300 in all their locations. They have just finished a new development project in Framingham for additional 150 units. The Brighton community is made up of 3 buildings, with over 700 units. JCHE is a housing entity but in addition provides a wide array of high quality services to its tenants. Their model of housing and services for the low income population has proved to be very successful, resulting in a wait list of over 1000 households. JCHE offers an alternative to assisted living and nursing homes. Seniors live independently in their units, with external aid as needed, they use the JCHE premises to socialize. Their mission is to ease the exorbitant living expenses, isolating housing situations, and diminishing ability to manage everyday life for their residents and allow them to live independently within a supportive and caring community. JCHE model of supportive housing is cost effective. They offer essential but “low tech” support.

JCHE is a housing provider, not a service provider. JCHE is made up of many sub organizations of services and managements. The JCHE service INC is focused on service, and as such is a non-profit entity and tax exempt. For JCHE to use LIHTC which require a for profit organization, they had to create separate entities within the umbrella company that can qualify for these programs.

Unlike assisted living, they are not regulated for services (they are regulated for their housing, staff, and income eligibility). JCHE prefers not having to go through the cumbersome

reporting that regulations demand of assisted living providers. While assisted living is need driven, the JCHE housing model is financially driven by the residents need for housing solutions. Other differences include:

- JCHE doesn't need to have 24 hours awake staff on site (they have on site staff, but not awake medical staff 24 hours a day)
- JCHE doesn't provide meals. Assisted living is required to provide a minimum of 2 meals a day
- JCHE as a housing provider is required to provide fully operating kitchens in the units
- While assisted living facilities have to follow landlord tenant lease and can terminate leases, JCHE rolls the leases as long as tenants are willing to review their income and are eligible for the housing

The facility in Brighton is relatively old, and thus not studied for its development funding sources.

6.1.2 Financials and Affordability

All the main funding sources that JCHE uses for developing its properties, HUD, MHFA, DHCD allow housing agency to put some housing money into resident services. JCHE has identity of interest contracts between the building operations and JCHE services INC. A certain amount of money comes out of the operating budget of the building each month and goes to JCHE services INC to allow operations of specific programs (such as the fitness and wellness department). In addition HUD grants increase the staff of service coordinators. This HUD program is meant to allow more people to stay in housing by allowing them the services they need. JCHE uses CHSP (congregate housing services program) which is a HUD subsidy, for operations. JCHE also uses the HUD 202 and section 8 for its residents rent coverage.

Some of their residents use PACE or GAFC, but JCHE is a housing provider that connects with services but doesn't provide these directly. The ASAP that JCHE work with are the GAFC providers for the qualified residents.

The facility is 100% affordable targeted at low income populations. Most residents pay rent of \$300-\$350 a month. The average rent is \$275. Those that have no income pay less, the minimum is set at \$25 a month. Services require extra payments (computer center is \$15 a year, fitness center is \$25 a year, art is \$1 a week, meals are 10% of income divided by 365 days, ½ hour of personal care is \$1, transportation is \$2 round trip). To be eligible for JCHE housing, income levels have to fall under the HUD restrictions:

	1 BR	2 BR
1 person	\$45,100	
2 person	\$51,550	\$51,550
3 person		\$58,000
4 person		\$64,400

6.1.3 Services

JCHE staff has the advantage of cultural competence. There are English, Russian and Chinese speakers staff members in all departments, which make JCHE very attractive to these communities. There are about 50 staff members on site, some of which are from the corporate offices that are housed in the Brighton facility. There is a 24 hour on call staff (not medical staff) on site to help with any issues that come up.

JCHE is regulated by HUD against having its own services. It subcontracts with suburban home health and maternity agency to use their inexpensive aid for the residents. JCHE service provisions require additional (very low) payment from the residents. For additional cost- onsite exercise classes such as chair aerobics, expressive movement, Tai Chi, and yoga are available. Medicine delivery, adult daycare, transportation services are available for additional cost as well. JCHE's wheelchair-accessible transportation makes it easy for residents in all buildings to travel to purchase groceries and other necessities.

Residents can participate in the Congregate Housing Services Program (CHSP) for a daily lunch, medical escorting and House calls. The assistance available through house calls includes personal care, medication reminders and light housekeeping. There is a modest fee for each service. Many of the JCHE residents qualify for ASAP services (Aging Services Access Points). Boston Senior Home care is the ASAP that covers the Boston region and services these residents. As needs increase residents are offered the JCHE Caring Choices program through the Boston ASAP which includes case management, personal care, escorts, meals, medication reminders, homemaking services.

6.1.4 Activities

A Variety of educational and cultural activities is offered on site such as concerts, dances, movies, entertainers, and holiday celebrations. The buildings offer lectures, concerts, book discussion groups, and classes on a wide range of subjects. In addition there is extensive intergenerational programming. Partners for the intergenerational programs include Harvard School of Medicine, Tufts Medical School and Brandeis University, as well as schools in the area, for mentoring and sharing experiences.

27% of the residents participate as volunteers in the building or community activities.

6.1.5 Amenities

- Variety of gathering spaces
- Fitness room
- On site grocery store
- Cafeteria (used for events, not for regular meals)
- Computer center- with programs in English, Russian and Chinese
- Arts room
- JCHE has recently renovated a portion of the facility and opened a new 100 seat theatre and performance space, a kitchen and activity space for classes and events, and a multi-language library
- Club Genesis Adult Day Health Program, provides a supportive, stimulating, and social environment for older adults who have memory loss and other serious conditions. It has

Russian/English bilingual staff. Residents can pay for this program privately or, if they are financially eligible, Medicaid will cover the costs



Glassed corridor with gym equipment



Sun room meeting space



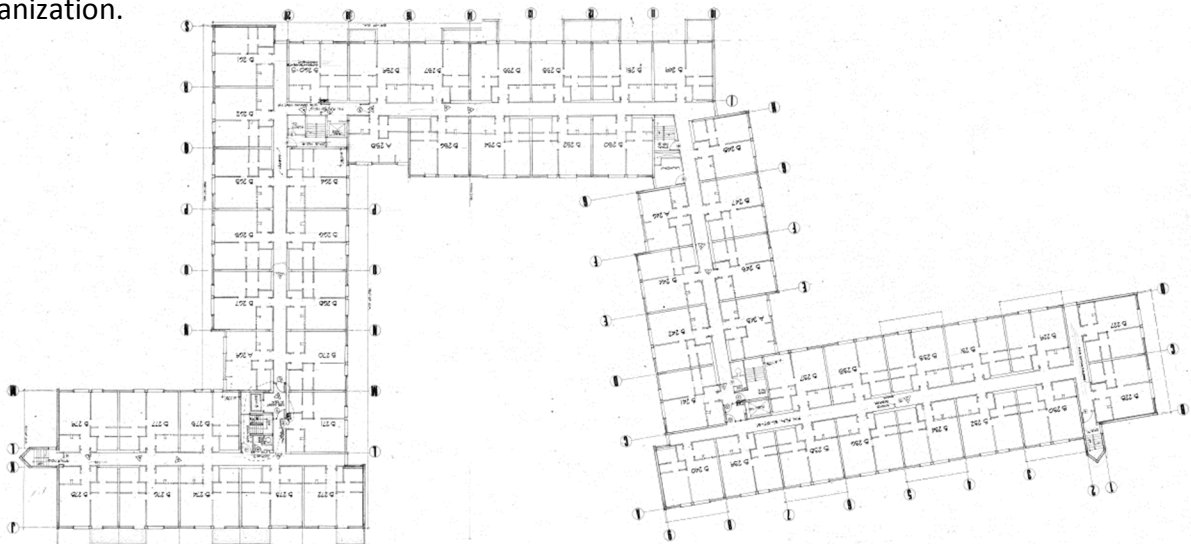
Central dining room



Kitchen in activity space

6.1.6 Building Design/ Units

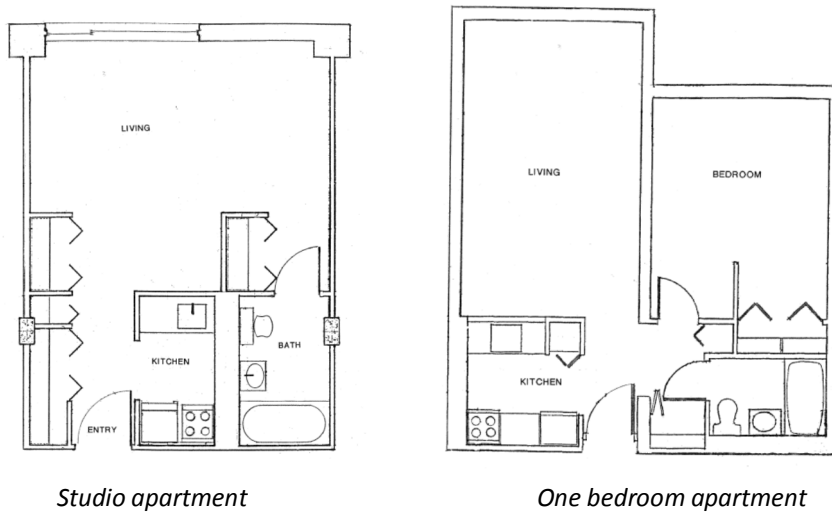
The Brighton campus is made up of 3 buildings: Genesis, Leventhal and Ulin with a variety of unit designs that range in size, number of bedrooms (studio, 1BR, 2BR) and layout organization.



They offer a variety in order to match the different needs of their residents. 1 bedroom units are in high demand, and those on the ground floor with a private outdoor space are in highest demand. All units have complete kitchens.

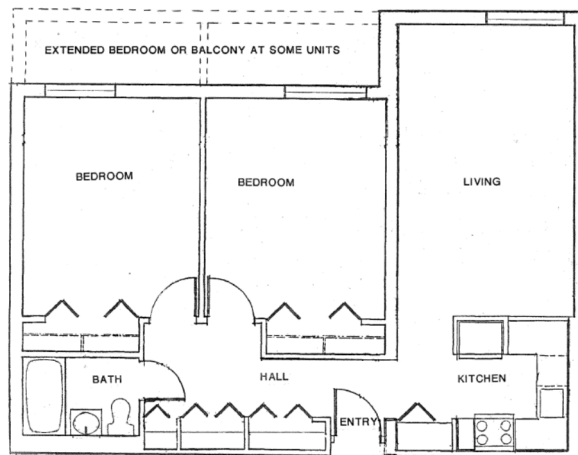
Parking on site is a major problem with which the staff and residents have to deal on a daily basis.

The grounds at JCHE offer well maintained and park-like outdoor spaces, with walking paths and benches. The space is used extensively by residents throughout the year for exercise, gardening, visiting with friends and family, enjoying a rest, and practicing Tai Chi.



Studio apartment

One bedroom apartment



Two bedroom apartment

6.1.7 Residents

The residents of JCHE have very diverse backgrounds most of them are Russian, Chinese, American, and Haitian. The average age of a tenant is 80 years old, and average stay of a resident is 10 years. Average income of elderly in the community is very low \$10,000 yearly. 70-

80% of the residents stay at JCHE for their whole life. Only 2% of its tenants ever leave for a nursing home, usually because of hospital recommendation.

A tenant Councils is actively involved in shaping and improving the JCHE environment. They often help plan special events at the buildings. They effectively alert staff of ways to make the buildings safer and more comfortable and organize charitable activities to raise funds for various community organizations.

Many of the residents are Medicaid eligible, by staying at JCHE instead of receiving institutional care JCHE saves the state tax payers large amounts of money.

6.1.8 Community and Marketing

The senior housing site in Brighton is located conveniently in proximity to Brighton center, bus routes and a green line T station. Within half a mile radius there are 2 important amenities for seniors- St. Elizabeth's hospital and the Veronica smith senior center. The facility is well known in the area, due to length of operation and success stories passed by word of mouth, resulting in a 5 years waiting list.

6.1.9 Dementia

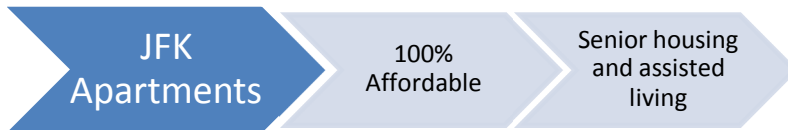
Some of the JCHE residents have a degree of dementia. As long as they are not a danger to themselves or to others, they can remain to live independently on site. These people often have Medicaid programs that allow them to receive many services and personal aid, through ASAP (Aging series access points).



6.2 JFK APARTMENTS- CAMBRIDGE, MA

Info provided by (Corneau Sandra, 2011) (Mullin Peter, 2011)

“John F. Kennedy Apartments features "independent" apartments for the elderly and disabled, as well as one-bedroom apartments for those who want or require the option of personal care services. We offer affordable monthly apartment rentals with a Section 8 subsidy to serve qualifying disabled individuals and seniors with moderate and low incomes. A third-party provider offers a range of assisted care services for elderly residents at an additional cost”. (SLR website)



JFK is a combination of senior housing and assistance to living (not certified assisted living). The initial separation of the components wasn't successful and the structure of operation was changed so all residents can enjoy the amenities and community services, while the assisted living services are still separate. The assisted living is full service, but the independent units only get minimal services. It is a good example of extremely affordable independent living.

6.2.1 Background, Development and Philosophy

The original building has served as affordable senior housing. It was renovated in 2004 through the Cambridge housing authority, to include both affordable public independent senior housing and affordable assisted living options. SLR who manages this community (and Neville place) targets its market at people who have needs for the services, activities and amenities more than their economic problems. Their mission is to develop and manage safe, good quality affordable housing for low income individuals in a manner that promotes citizenship, community and self-reliance.

The renovation of 83 units into 69 unit of independent and assisted living included conversion of undersized studies to 1 bedroom. There is no physical separation between the 2 components of the building- the independent units and the assisted living units. The renovation has updated the building and managed to get investors involved in the process. Exterior balconies were closed down into living spaces for the units.

Source	in 2002 \$
Mass housing tax exempt bonds	12,480,000
Tax credit equity	8,472,202
Mass housing innovation and stabilization fund	1,230,000
Federal home loan bank	250,000
Deferred developer fee	1,430,074
Total	18,482,276

Uses	In 2002 \$
Construction	12,650,823
Architecture and engineering	1,460,000
Legal and financing fees	836,932
Construction loan interest	727,984
Relocation	80,000
Reserves	626,537
Developer fee	2,100,000
Total	18,482,276

info provided by (Cambridge housing authority, 2011)

6.2.2 Financials and Affordability

JFK uses Section 8 subsidy to serve qualifying disabled individuals and seniors with low to moderate income for the assisted living (PACE) units- in a project based voucher form. The other units are getting a housing authority subsidy. Some residents pay as low as \$40 a month for rent, the highest a resident pays is \$576. Total income from unit for the PACE assisted living units is \$1539 per month (where section 8 covers the difference) and \$531 for the independent units. Payment for meals is separate and manages to keep the kitchen operating.

Operating expenses are covered by a subsidy from Cambridge housing authority (CHA)- operating utility subsidy. 44 independent units get utility allowance from CHA that is deducted from their rent, the sum changes every year.

The building is 100% affordable and 100% LIHTC. To Qualify for an independent unit a resident has to qualify with income limits set by LIHTC, to qualify for the assisted living portion of the building, a resident has to qualify for PACE and be serviced through them. The income levels that the population has to conform with in order to qualify for housing in JFK are set by LIHTC:

	60% (Independent)	50% (PACE)
1 person	40,560	33,800
2 person	46,320	38,600

There are residents in the building with income as low as \$6,500 a year.

6.2.3 Services

The assistance to living portion of the property is provided with services through the elders service plan which is part of the PACE program. The PACE program has their own staff present on site. They provide:

- 2 meals per day plus a continental breakfast
- 1-2 hours of personal care per day (help with showering, dressing & personal hygiene)
- 24 h access to scheduled/ unscheduled personal care and emergency assistance
- On site nurse every day
- Self-administered medication assistance, with prescriptions delivered to JFK Apartments
- Assistance accessing/ coordinating transportation, appointments, rehab therapies
- Transportation to shopping through the council on aging
- Health assessments
- Light apartment housekeeping
- Weekly laundering of towels and bed linens (coin-operated washers & dyers are available for personal use)
- Assistance with shopping

There are no services offered for the independent residents, beside the meal program which can be provided for an additional cost, and various social activities that are volunteer based, or funded by the management. Independent residents can hire their own private help as needed.

The dining room used to serve the assisted living residents only, but now offers meal options for all residents. Many of them, including the independent residents, use this option in the winter time, or when preferable menu options are provided. Many of the residents are on the SNAP program, the food stamp program, and can easily access their state food assistance accounts with an on-site food stamp machine in order to use the building meal program.

There are no transportation means provided for the residents. Most residents use the MBTA “the ride” or rely on relatives

There are 7 employees and 1 executive director on site.

6.2.4 Activities

Although some social activities are provided to the assisted living residents in the building, their level is lower than that would be in a traditional, assisted living only facility. Residents of the independent units of the building tend not to participate very much in the common activities or use the common spaces of the building, in spite of the management efforts to encourage their participation. Many prefer to go out to the city for community activities. Organized activities include:

- exercise programs
- sing along with a musician
- BBQ
- Bingo
- Flower organizing class

These are activities that SLR as the management company initiates and covers the expenses for. Any activity initiated by PACE for the assisted living residents is just for the PACE members. There are intergenerational activities that bring school children from across the street to play board games with the elderly, Cambridge police department representatives come to direct the Bingo games etc.

The focus of the activities that are provided on site is to engage the elderly in their community, and the community with them. A tenant council that used to be active, helped provide funds for some activities that SLR couldn't fund. It is not active in the property anymore.

6.2.5 Amenities

The common spaces of the building were originally divided between the senior housing residents and the assisted living, but this separation wasn't successful. They are now common and used by all residents. There is no physical barrier between units and spaces that are used by the assisted living residents and the independent ones. Common spaces are located on the ground floor, there are none provided in the upper floors

- Exterior courtyard
- Library
- Community room
- Quiet room
- Dining room, kitchen and offices
- Laundry room for all residents

No commercial spaces can be rented on-site, because the building is 100% financed by LIHTC which doesn't allow rent income on commercial rental.



Dining room



BBQ patio



Interior of typical unit



Community room

6.2.6 Building Design/ units

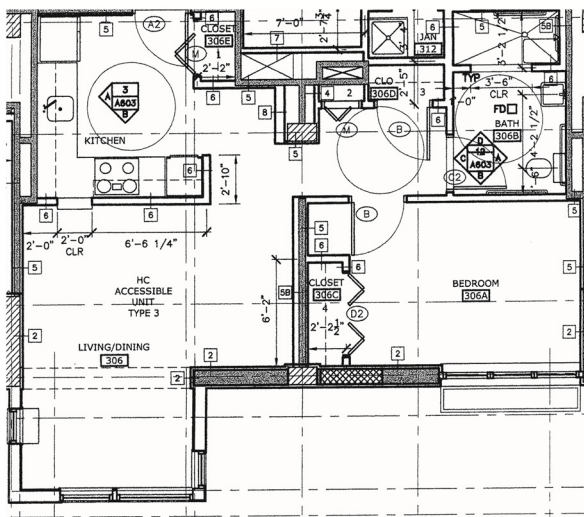
The building has a total of 69 1 bedroom units, 44 of the units are independent apartments for elderly and disabled. 25 are assisted living, located on floors 2,3, and half of 4 and include option of personal care services. Most units are 556 SF, some that are located above the offices, and near elevator are 703 SF because of the building physical organization. All units include full kitchen, (in some units the stoves had to be shut off due to a hazard risk in coordination with families) and 3 emergency cords.

The bottom 2.5 floors of the building are assigned for people who are on the PACE program, and are in assisted living structure with staff and caregivers, provided with 2 meals a day. The rest of the building is assigned for independent senior housing for low income people.

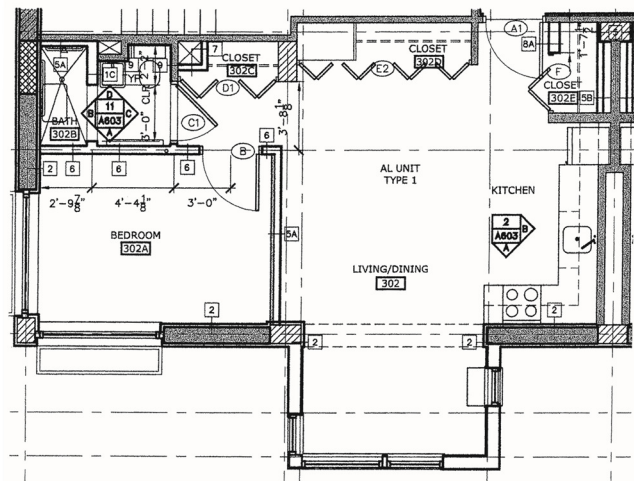
There are ADA compliant units by code, but some wheelchair bound residents live in non-wheelchair accessible apartments without difficulties, in spite of having bottom kitchen cabinets installed, and walk-in shower.

There is plenty of parking provided on site- total of 21 spaces (only 3 residents have a car). There's a huge advantage to the central location which eliminates the need for car.

Efficiency of building is between 70-80%



One bedroom accessible apartment-large



Assisted living apartment- small

6.2.7 Residents

The residents who go to public housing such as JFK apartments, can't afford private "affordable" assisted living. 13% of Mass assisted living are designated affordable (50-60% AMI) but 90% of CHA residents earn less than 20% of AMI and can't afford the monthly average cost of \$3800.

The JFK resident profile is quite representative of the Cambridge community and is very diversified. There are 77 residents in the building made up of 62+ elderly and young disabled individuals, 90% of them have been Cambridge residents before moving to the development.

Occasionally, but quite rarely an independent resident will join the PACE program and will be eligible for their assisted living services. In this case the resident does not have to shift to another physical unit, but his subsidies for the unit will change.

Many of the residents live in the building over 20 years and have lived there throughout the renovation process. Those living alone desire independence, but some become frailer and start needing more help. The building has a 2 year wait list for the 44 public units and a separate list for the assisted living, some of which are still young elderly, with only 6 people on the list due to high turnover.

6.2.8 Community and Marketing

The Community is extremely supportive and positive toward this development. There is a real sense of engagement, between the residents and the schools, churches, neighbors etc. The City of Cambridge helps the development as well, and provides plants and flowers for the residents, transportation to Mayor's picnic etc. The management has experience with contacting the city with various requests and these have always been positively addressed.

Majority of marketing work is done through website and literature, as well as word of mouth. The pleasant appearance of the building on the street attracts many walk-ins as well.

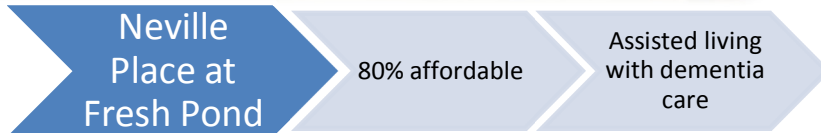
6.2.9 Dementia

There are currently 8-10 residents with mild cognitive impairment living independently in the building. Some of their families provide them with extra help to allow them to remain in an independent living setting.



6.3 NEVILLE PLACE AT FRESH POND- CAMBRIDGE, MA

Info provided by (McWilliam Jamie, 2011) (Mullin Peter, 2011)
 “Neville Place offers local seniors personalized assisted living and a residential Memory Support Neighborhood which caters to individuals with memory loss and Alzheimer’s disease. Residents of Neville Place have the best of both worlds – a convenient location just off the Fresh Pond rotary in Cambridge, MA accessible by public transportation and quiet natural surroundings overlooking Fresh Pond. The site is an “urban jewel” (SLR website)



Neville place’s success is by its ability to provide full assisted living provisions to many low income residents, with a successful integration of operating subsidies and cross resident subsidies to help carry the costs.

6.3.1 Background, Development and Philosophy

Neville Place is a development of Neville Community Partners, a consortium of Cambridge-based housing and health organizations led by the Cambridge Housing Authority. Neville Community Partners developed a senior living campus featuring Neville Place, as well as Neville Center, a skilled nursing facility offering short-term rehabilitation and long-term care services. Neville place is an example of rehabilitation of historic nursing home into affordable assisted living facility. It opened in November 2001. The old nursing home was a financial burden on the city of Cambridge with many operating losses and was repositioned as affordable assisted living. At that time, there were only 2 other assisted living communities in Cambridge and the high demand was pushing for creation of more supply. The underutilized city site was turned into perpetual affordable assisted living. A new nursing home facility to replace the converted building was built on campus as well. The city became a partner to the mission of affordable assisted living and invested the land in the development. Senior Living Residences manages the property. The tax credit investors are the owners of the property. The nearby nursing home is a separate company.

Majority of the units are tax credit units. To allow affordability the property has tight profit margin, as well as some market rent apartments. They are for profit organization but still manage to be affordable, which is a unique combination.

Source	in 2001 \$
LIHTC and historic tax credits	6,280,000
Loan- East Cambridge saving bank	3,345,000
Loan- LISC (Harvard fund)	750,000
Loan- City of Cambridge	675,000
Loan- Mass. Dept of community development	500,000
Loan- Community development economic assistance corp.	500,000
Loan- Cambridge health alliance	547,000
Grant- Federal home loan bank	250,000
Total	12,300,000

Uses	In 2001 \$
Construction	8,242,745
Soft costs+ financing fees	4,057,255
Total	12,300,000

info provided by (Cambridge housing authority, 2011)

Permanent financing to replace the construction loan was from Mass housing partnership. Hard costs \$116,095/unit \$101/SF, Soft costs were substantial in the development due to the mixed financing structure, are about 1/3 of the total development cost, at about \$57,000 per unit. Total development cost \$173,239/unit and \$150/SF.

According to the managers SLR, this structure is hard to achieve. It allows very little debt on the development phase that frees up income for operations rather than debt service payments.

Most assisted buildings of the same size will cost about the same to develop. The difference is mostly in the complexity of the funding, and the ability to take as little debt as possible to allow more flexibility in the operations phase. Neville's advantage in the development was the use of an existing building which reduced some of the development costs.

6.3.2 Financials and Affordability

Neville place financing is typical of the complex financing structure used by many traditional affordable housing development projects, particularly in high development cost areas. They have multiple subsidies for development funding, as well as rental assistance, and Medicaid funds for services. The portion of market rate units provides some internal subsidy.

They have both traditional and dementia sections. The traditional section has 58 units, 39 of which are tax credits. To qualify for the low income tax credit units gross income has to be under \$38,000. The rest of the units are moderate or market rent. For an individual to qualify for moderate unit, income has to be less than \$44,000. Their total return ranges between \$17,000 to \$30,000 a month, clear after the expenses.

Rents: Tax credit- Studio \$3500 per month, 1BR \$4000 per month. These include 3 meals, weekly housekeeping, and one hour of personal care. The actual cost for the resident is substantially lower due to section 8 and Medicaid subsidies.

Market rent- Studio \$3850, 1BR \$4700, these units have no restrictions on the income of their residents. An addition of \$475 a month is charged for services. These market rate units bring sufficient cash inflow to cover the operations and keep up the services to the desired level, and realistically form a sort of internal subsidy.

39 units are for people at or below 60% of AMI

18 units are for people at or below 80% of AMI

14 units are market rate.

Total of 71 units.

Payroll is the biggest expense about 60% of the operating costs, at ~\$30,000 every 2 weeks. The second largest expense is the bills for heat and electricity, as well as the food costs- they cook in house, but order food from vendors.

According to Neville place executive director, Cambridge is very supportive of the mission that Neville place has. It is a unique city, in their AAA bond rating that can get best rates for investment when they sell bonds. It is an example of a better run city in the country, which also manages to support development of affordable assisted living communities. Cambridge charges Neville assisted living a \$110 year for 99 years for the land and building lease.

Neville place have partnered with Cambridge for certain services, like the drivers, which save costs. They provide less menu options, but have made almost no compromises on staff and services. The affordability is achieved by keeping very high occupancy levels. (occupancy of general assisted living is 85%, Neville place occupancy is higher). They have a nurse 7 days a week, 2 people for social programs, but the marketing director and executive director positions are occupied by one person, which saves some of the cost.

Neville place uses 3 operations subsidies:

- **Section 8** federal program processed with Cambridge housing authority- they pay for room and board for the people who qualify. The amount Neville place gets is calculated by reducing a 1/3 of the elderly income from the CHA rates. If a person gets \$1500 from social security, they deduct \$500 from the \$1301 CHA rate for 1BR and provide \$801 monthly. The rate for studio is \$1131. Neville place has 30 vouchers from the CHA. The actual cost to residents is only several hundred dollars a month.
- **Pace program** personalized all inclusive care for elderly – an insurer and provider for residents. They have their own doctors and get money from Medicare and Medicaid. To qualify, an elderly needs to have income and asset worth of less than \$2000 a month. Neville place has 15 residents on this program, which pays for their services. They reserve their studio apartments for pace, residents give all their monthly income to Neville place (~\$2700), keep an allowance of ~\$100.
- **Veterans benefits** both resident or spouse can qualify. They get \$1000 for spouse, \$1500 for serving individual, and \$1800 for couples.

Residents never leave the community because of money issues. Neville place always manages to find a way to make it work for them if their financial situation changes, with aid of the families, subsidies and themselves.

With the current 39 tax credit 1BR units and 18 tax credit studio the facility is highly affordable. For dementia care there is no source of subsidy. GAFC (part of the Medicaid plan)

doesn't recognize cost of Alzheimer care and the additional operating costs of these units, which is larger than \$5000 a month and the memory loss units have no subsidy besides section 8. Neville's experience with GAFC has proved that their funds provide very low reimbursements and require extensive paperwork. To make this subsidy effective, GAFC eligible people have to share a room, which is not the philosophy of privacy that Neville offers.

The combination of multiple housing and health care subsidies has made the goal of affordability to a broad range of incomes challenging. Moderate income households which don't qualify for many of the subsidies, end up having to spend down assets to afford units.

6.3.3 Services

The social impact and the services are the main benefit of assisted living facilities to their residents. Many of the elderly would have been lonely and possibly depressed if were home alone. The social atmosphere helps stage off progression of dementia/ Alzheimer. The residents spend more time in the common areas than in their rooms. Services provided include:

- 3 meals prepared daily - Family-style dining with meal choices
- Daily bed making, housekeeping services, and weekly laundry service (washers and dryers available for personal use)
- Weekly apartment housekeeping and daily trash removal
- Access to on-site trained personal care staff 24 hours a day
- Personal care assistance with ADLs (help with showering, dressing and personal hygiene)
- 24-hour personal emergency response system in every apartment
- Semiannual health assessments by a registered nurse
- Wellness Program, including exercise classes to improve strength and balance
- Self-administered medication management assistance
- Supervised outings with transportation provided
- Hairdressing & barber services
- Dry cleaning services (pick up & delivery)
- Pharmacy delivery service
- Third-party healthcare services, including temporary agency skilled nursing, podiatry, physical therapy & occupational therapy

6.3.4 Activities

A full program of social, educational, cultural and spiritual activities:

- Painting, cooking & computer classes
- Gardening (flowers, vegetables and herbs) in raised planting beds in Community Garden
- Cinema feature, bridge, bingo, poker, games & trivia
- Spiritual discussion group & opportunities for worship
- Social gatherings, parties & seasonal events
- Resident men's & women's clubs
- Educational programs & current event group discussions
- Musical entertainment

- Daily exercise classes
- Shopping, dining & sightseeing excursions
- Intergenerational programs with local schools & scout troops
- Scheduled group outings

6.3.5 Amenities

- Main dining room
- Formal living room
- Country kitchen
- Library
- Recreation room
- Media room



Living room



John A. P. Good Library



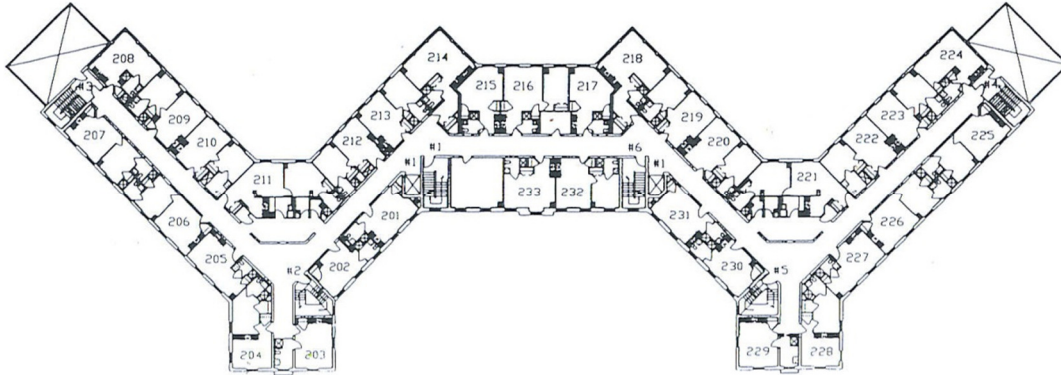
Dining room



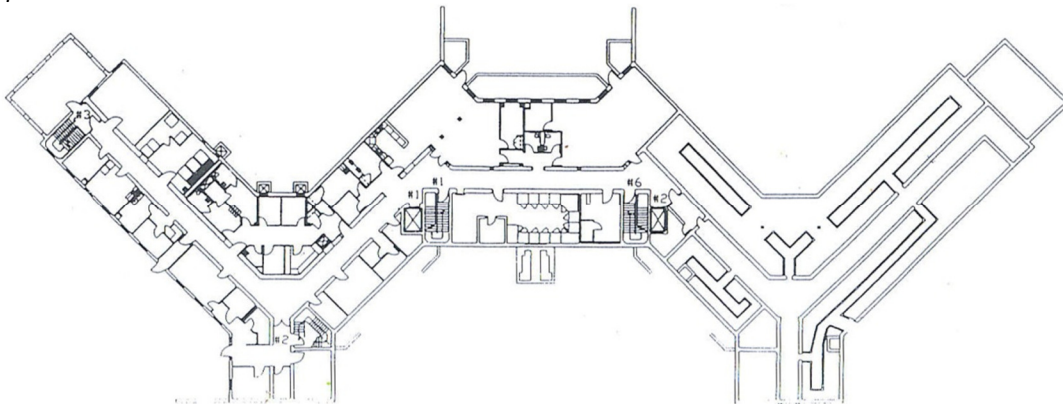
Memory care enclosed interior courtyard

6.3.6 Building Design/ Units

Neville place has only private apartments, no shared units. Abundance of common areas on ground floor as well as in the upper floors like library and computer room as well as outdoor common areas for BBQ's and parties. Behind the building is a beautiful outdoor natural landscape with expansive grounds, mature woodlands, community gardens and a public walking path that follows the perimeter of Fresh Pond.



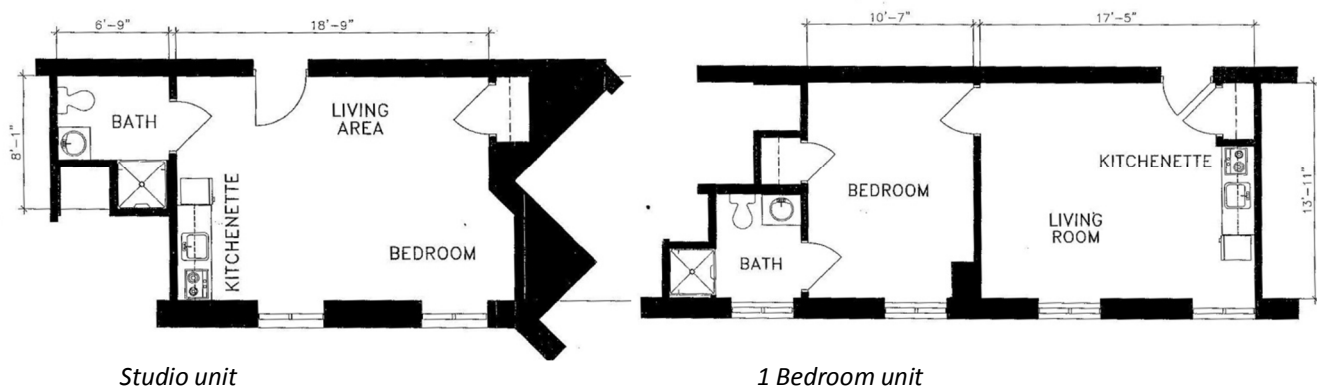
Typical floor plan



Ground floor plan

34 one bedroom units, 24 studio units, 13 dementia (2 shared units) Total of 73 units out of which 58 are for the traditional assisted living. Studio at Neville place is high 400 SF to low 500 SF 1BR is mid 500 SF. 15% are truly ADA accessible (wheelchair). There would be a benefit to have more, but there's a cost implication. About 65% of the building is the actual apartments, the rest if common space and back of house offices.

There's not enough parking. They share the lot with the adjacent nursing home. About 20 spots are for Neville place and 25 for the nursing home.



Studio unit

1 Bedroom unit

6.3.7 Residents

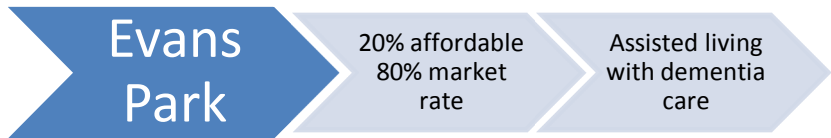
The resident population in Neville place is a true reflection of the Cambridge community. They now have relatively high population of males 65%. 12-15% are minorities (African American, Asian), most residents are catholic, some protestants, about 12% Jewish. Currently they have 74 residents, 2 couples. 80% are from the Cambridge, Belmont, Somerville, Arlington area, the rest that are from outside the area have adult children who live close by. Typical resident is 85+ who need help with ADLs. They wouldn't accept someone who has a continuous risk of falls, who needs injections, need for 2 person transfer from bed, any major medical condition, wound care, or bed turning for sores. Medication assistance is needed by 50% of the residents. It costs \$290 a month of additional charge.

6.3.8 Community and Marketing

Neville place has programing with school volunteers – to sing, “adopted grandparents” program, plant flowers etc. 75% of the marketing is targeted at the adult child, 25% at the seniors. The need for marketing has not been reduced by the affordability. They do a lot of events, art shows and fund raising luaus to attract people. The community in Cambridge is easy to accept the idea of mixed incomes living together and supporting each other. While residents who are market rate payers are aware that their rent covers some portion of the low income units' costs, there has never been an issue with the subject. The market rate units still manage to have a benefit of relatively lower costs by being part of a mixed income community, in comparison to only market rate communities.

6.3.9 Dementia

Dementia residents are in a secured environment, which provides more personal care, higher staff ratio, 2 CNA (certified nurse assistant) for 15 residents which do the toileting, bathing, dressing, and medication. In the industry the common ratios are 1 care for 6-8 dementia residents, and 1 to 16-17 for traditional assisted living residents. The social setting provided for these residents at Neville place is important to stage off the progress of the disease. These residents tend to spend more time in the common areas, under the supervision of the staff.



6.4 EVANS PARK- NEWTON, MA

Info provided by (Waleryszak Mike, 2011) (Golen Chris, 2011) (Kilgannon Mike, 2011)

“At Benchmark Senior Living, we celebrate the experience of aging by providing the very best in personalized services to help our residents live well: Mind, Body and Soul. Our residents enjoy world-class service delivered by caring, compassionate professionals, and all the comforts of senior living in Newton and families enjoy peace of mind knowing their loved one is getting the attention they need while enjoying the benefits of retirement living in Newton”
(benchmark quality website)

Evans Park is a successful example of full service assisted living which provides the best quality of physical space, service, and care to its residents. Although it has a portion of the units which are dedicated for lower income residents, it mostly targets high paying individuals. We use it to understand design issues, amenities and service provisions that high end facilities provide which the aging in place model suggested in chapter 10 strives to achieve.

6.4.1 Background , Development and Philosophy

The community was created 18 years ago by converting a residential hotel built in 1905 and new construction on the site of the city’s original public library building to assisted living facility. Four years ago the developer “Benchmark quality” renovated the building and added the dementia and Alzheimer care unit on the 4th floor

Benchmark unique success is based on the fact that they are not developers only, but also operators. They maintain a high level of service that ensures the success of their communities. They are a for profit company, working with external investors who own most of their properties.

Benchmark’s philosophy it to celebrate the experience of aging by providing the very best in personalized services to help the residents live well, in encompassing aspects of mind, body and soul. They emphasize the importance of social interaction and sense of community in their facilities, as well as the aid with ADLs and medication management.

6.4.2 Financials and Affordability

Benchmark communities, including Evan Park are currently financed with 25%-30% equity of REIT investors (mostly GPT healthcare REIT), and the rest is debt. Their experience with government and state grants was that they tend to complicate the development process, limit the flexibility and pose many restrictions on the development sometimes with no

understanding of the issues. Benchmark focuses on financial models that can be sustainable in the future, rather than collecting funds that are not replicable in the long run.

Benchmark is not looking to develop and sell the properties. They are an operating company that wants to stay active and operate their property. They are for profit- much of the profits go to return on investment to partners. Assisted living in today's market is viewed as a less risky real estate product, and their value is higher. There's still an opportunity to further drop the cap rates in the market, but this market tends to have its cyclical motions just as in other RE products.

Evans Park used tax exempt financing from Mass Housing, which was the senior lender on the development. The debt has been paid in full in 2010. Mass housing actively managed the affordability standards of the community. The restrictions on affordability are still in place even after the debt has been paid in full.

Total development cost in 1994 was \$18 million, total development cost per unit was about \$166,000, and per SF was \$183. Benchmark used a MHFA loan for \$14.5M, with 6.35% interest rate. Total construction cost was \$8,550,000. Operating cost per unit was around \$24,160 in 2002.

The traditional assisted living fee is \$4500-\$6000 (roughly \$150 a day) which includes 3 meals, weekly housekeeping. Additional \$26 a day for care, \$8-13 for medication management 1:25 staff to resident ratio

20% of the units are for residents of low income, based on 4% LIHTC program, targeted at 50% AMI. All the affordable units are in the traditional assisted living. These credits were not significant capital source to the deal. The high end rates provide internal cross subsidy to cover the costs of operating the regulated/ affordable units.

The Harbor (dementia care) fees are \$200 to \$230 a day, with higher level of care than the traditional. 1:5 staff to resident ratio

20-25% of the payment goes to pure real estate service. The rest is spent on food, staff, maintenance etc. The largest operating expense is the salaries, followed by the energy costs.

The developer mentioned that they could subsidize the real estate but not the care. ~2000 a month pays for real estate, none of the care. Individuals subsidize the care. To make it work there's a need for subsidy on care with outside group- it is socially important for the community to create this type of model where everyone in the community shares the expense. But with a wrong model- it can turn to be expensive, time consuming, and even if there's a demand benchmark may prefer not to do it.

23 units out of the 115 are dedicated for low income people. About 20% of the residents are low income. Shared rooms are provided to allow people with less income to join the community.

6.4.3 Services

There are ~65 FTE staff in 3 shifts a day. Staff to resident ratio is 1:25 in the traditional assisted living. These provide the following services:

- Assistance with daily tasks
- 24-hour care staff (CAN- certified nurse assistants. Nurses are on site from 10AM till midnight)

- Restaurant-style dining with 3 meals per day, Dining for special diets, Nutrition counseling, Sensory dining, Texture modified dining, Dining with dignity- very high quality level of food with a well-known chef
- Weekly apartment cleaning and linen services
- Medication management
- Continence management
- Fitness center, Personal training, Yoga and meditation, Dance classes, Strength and balance programs
- Local transportation services- Vans, shared sedans. Assisted living has restrictions to type of medical care they provide. If beyond what is allowed a family member needs to transport the residents. Doctors don't want to come to check patients in the assisted living community, need family members to drive the residents to these appointments.

6.4.4 Activities

Variety of activities for the mind body and soul are provided to all residents:

- Cultural programs- Book discussions, concerts, speakers and live entertainment, food demonstrations , educational seminars, resident presentations, benchmark Connections computer activities
- Religious and spiritual programs and celebrations
- Social - Community celebrations, Support groups
- Lectures & discussions
- Planned leisure & social events
- Recreational activities
- Resident & family meetings
- Strength and balance programs
- Fitness center - yoga and meditation, personal training, dance classes

6.4.5 Amenities

- Fitness center
- Library
- Beauty & barber shop
- Private dining room for special gatherings
- General store
- Recreation room
- Bistro/pub
- Patio, courtyard & gardens
- Movie theatre
- Living room

- Easily accessible washers and dryers for personal use
- Country kitchen



Living room



Restaurant style dining room



Recreation room/ computer lab

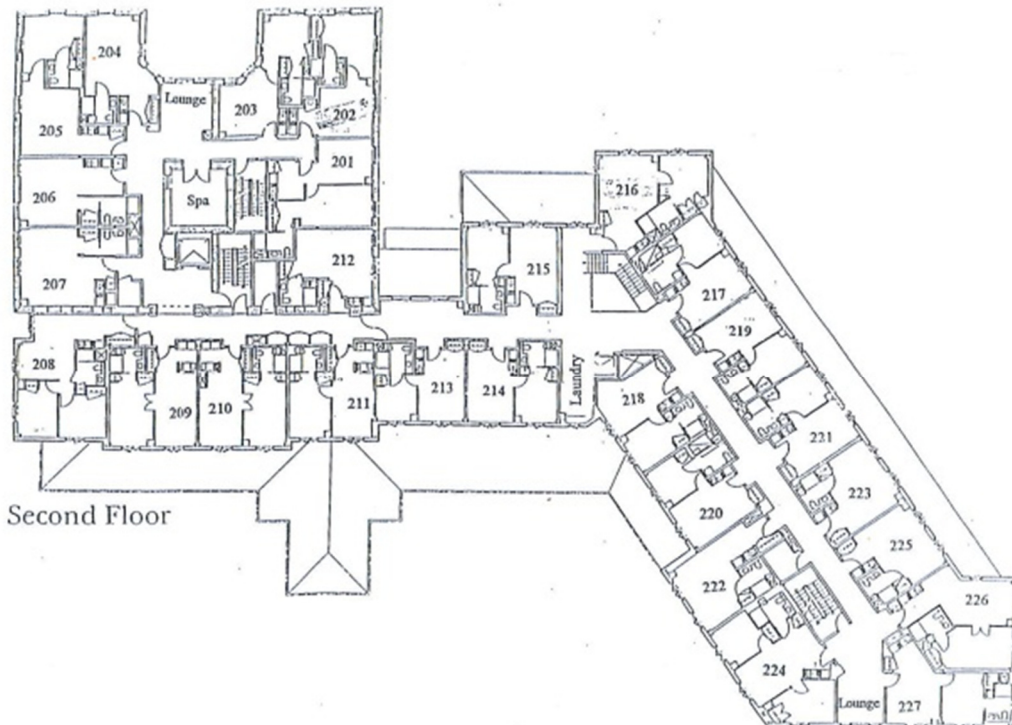
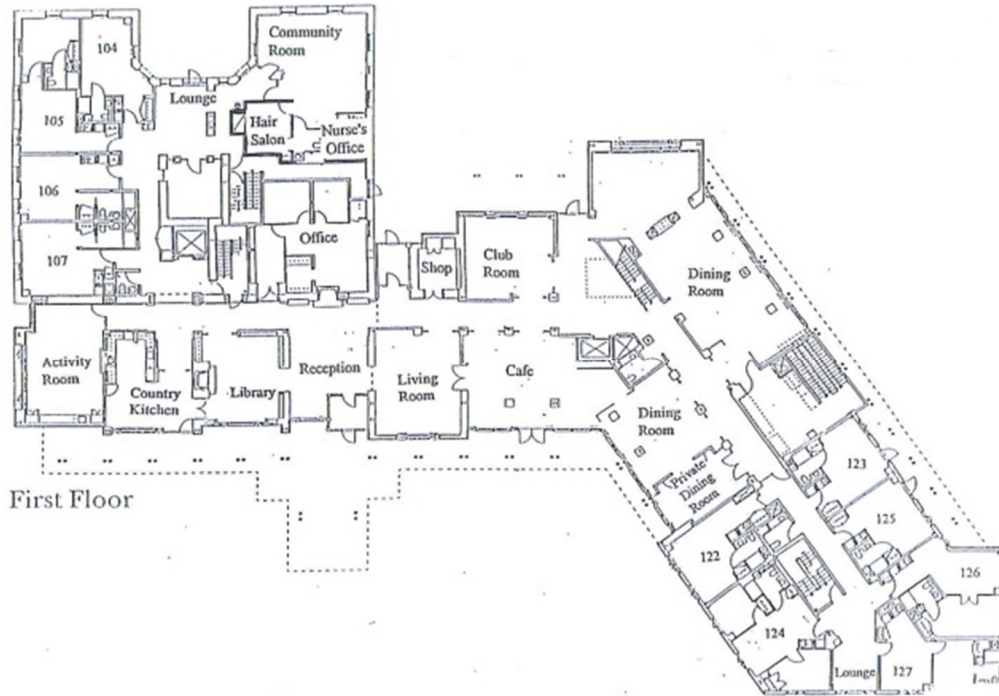


Fitness center

6.4.6 Building Design/ Units

Evans Park provides luxury urban setting living. The majority of the units are 1 bedroom units, there are also studio units and 2 bedroom units. Most profitable is a unit shared with 2 people but it is less popular. These get over market rent, service 2 people and can fit couples, good friends, sisters etc.

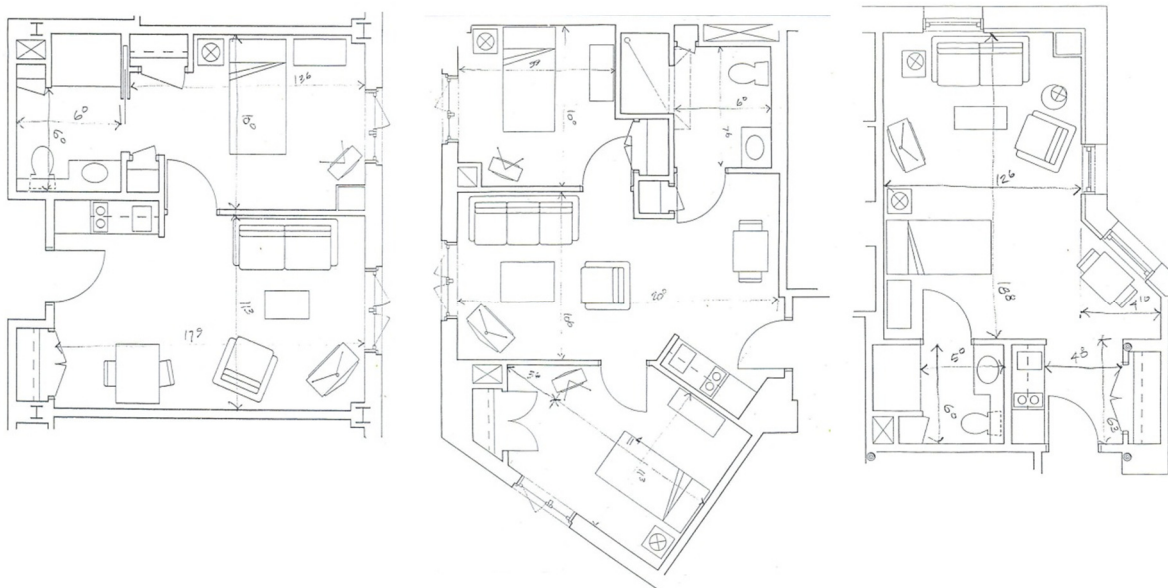
Gross square feet of the building is 104,152 SF which is 906 SF per unit. 50% of the area is rentable area.



An outside porch is fenced to cut some of the street noise while allowing residents to enjoy the outdoors. Dining space, has to accommodate residents in shifts, would have been better if could accommodate all the 116 residents at once. A country kitchen is connected to activity room and is in frequent use by the residents. Gym common space- is used a lot, mostly for physical therapy activities.

Parking- there are 12 or 13 resident drivers which is ~10% of the residents- very high compared to the benchmark portfolio where 2-5% of residents own cars. Ideal ratio is 0.75 spots per units, in Evans Park the ratio is 0.5.

Unit kitchens include cook tops (not recommended) micro and fridge. Benchmark expects to have more demand for computers in the rooms in the future. In many communities there was a need to shut off cook tops for safety. Benchmark residents are beyond the independent stage which allows full kitchens.



Typical one bedroom unit

Typical two bedroom unit

Typical studio unit

Dining with dignity- provide the residents with choices, in food as well as in recreation. There is a large amount of use of viewing windows into public spaces, to see the activity before committing to it, which allows more control and independence for the users.

50% of the space is actually for apartments use, about 50% is common areas, kitchen and back of house. Units have 2 general sizes- Studio is 325-350SF, Shared rooms are 475-550 SF, 1 bedrooms are 450-525 SF (average at 462SF), 2 bedrooms are 625-725 SF (average 637 SF). Dementia units tend to be smaller.

6.4.7 Residents

Currently at Evans Park there are 116 residents. Most people are less independent and almost frail when come in. Most residents originally lived in Newton, or their family/care

providers lives close by. 65% lived within 5-10 miles of the community, 35% parents of adult children in the vicinity of the community.

Residents background- 50% Jewish, 50% other religions- a mix which resembles the wider Newton community mix. The applicants to the traditional assisted living are ~79 years old which is younger age than the benchmark portfolio typical age of 86.

6.4.8 Community and Marketing

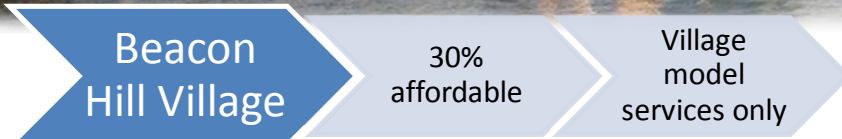
The community is very receptive to assisted living within them. This development creates jobs, doesn't burden the school system nor the fire department or the police, but at the same time pays the needed taxes to the city.

6.4.9 Harbor - Dementia and Alzheimer care unit

Dementia and Alzheimer care is secure and restrictive, with delayed egress. Resident movement needs to be watched. It has programming to fit the level of the dementia. It is on the 4th floor and has elevator key access only. It is organized in a V shape which allows visibility from the common area to most of the floor. JSA architects in NH, who are known in the senior housing industry, did the renovation. "Dinning with dignity" food program is used in the dementia care- they show the visual dish to allow residents on various cognitive levels to make food choices. All residents need help with bathing, a Spa amenity allows a more relaxed setting for this activity (which can be tense for some of the residents). Staff ensures proactive walks to bathroom even at night time. Benchmark has shifted to use more plain wall to wall carpets, with less design. The designs can cause visual illusions of depth to people with poor eyesight, and thresholds between flooring finishes at times seem like a change in level, and may be frightening to harbor residents. The Harbor residents eat in the dining room within their section.

Staff ratios are higher than in the traditional assisted living, and are at 1:5 staff to residents.

There are no low income units available in the harbor portion due to inadequate state and federal operating subsidies and the high operating costs.



6.5 BEACON HILL VILLAGE- BOSTON, MA

Info provided by
(Judy Willet, 2011)

“By organizing and delivering programs and services, Beacon Hill Village allows a growing and diverse group of Boston residents to lead safe, healthy, and productive lives in their own homes as they age”.

(Beacon Hill Village website)

Beacon Hill village is the only case study that is a service provider without a housing component. It is studied for its ability to allow people to age in place by providing them access to the needed services within the community. Although it provides affordable membership fees, the extent to which the services are affordable is unclear. It also does not make use of many subsidies. It provides the aging in place model in chapter 10 an example of scope of services as well as integration and coordination possible within the city.

6.5.1 Background, Development and philosophy

The village is an innovative non-profit organization that enhances the lives of people 50+ in the Back bay, Beacon hill, West end and surrounding neighborhoods. It is the first “village” to develop in Massachusetts, one of the first in the nation, founded by community residents in 2001, on a membership based group to anyone in the downtown Boston area age 50+. This community offers the concept of active retirement to younger member and also provides support systems for members who are frail or impaired. The benefits are provided while people remain in their homes. They live independently but call on services as needed. The association includes people in their fifties up to nineties. It provides information and referral services, social programs, variety of other services and discounts to seniors, and above all a sense of community. It is not an age in place model, but rather an age in the community model- allowing members to stay engaged with the greater community. This is a grass root organization that runs on social capital and the power that comes from connecting people who have energy, creativity, and knowledge to help each other and make the community successful.

6.5.2 Financials and Affordability

The organization is a 501c3 non-profit since 2001. About 27% of the members in the village are of low or moderate income and are on the membership plus program. Annual membership fee is \$890 for a household and \$640 for an individual. Membership plus is open to individuals 60+ whose income is \$45,000 or below, and households with income of \$50,000

or below. Fees for membership plus are \$160 for a household and \$110 for an individual. Reduced membership also provides \$250 credit for any services the member may need through the village. The membership provides discounts to various services, making these more affordable by nature to the members, they can also provide long term care insurance, and prescription drug discounts, although no health service or doctor visit discounts, just referrals.

The village has 4 full time equivalent staff members and many volunteers and providers whom they work with. The village budget is \$435,000 yearly, 70% of that is for staff. This budget is much lower than what it would take AL or CCRC to serve an elderly, which is the reason many of these communities do not have many low or moderate income people. BHV can offer its services to all ranges of income in the population, most of their members are the moderate income level, which don't get a lot of subsidies but can't easily afford help as the higher income people.

To increase affordability in the future, the village is trying to get Medicare and Medicaid funds that otherwise go to nursing homes to do "money follow the person" approach. They work on achieving discount rates for long term care insurance, have some services covered by public funds, and increase the volunteer pool of service providers.

Aging in the community is less expensive than in CCRC or AL that have the real estate, overhead, maintenance costs etc. The village movement is not for money making. It is affordable by keeping costs low and large volunteer pool.

The organization has been established with great subsidizes of wealthy members who initiated the effort. This will not be easily replicable in a typical neighborhood where people don't want to have to pay more for services that they can get publicly, just for the benefit of creating the village structure.

6.5.3 Services

Beacon Hill village provides and coordinates services, programs and activities for its members based on their needs and requests.

- **Concierge services-** information and referral – one stop shopping for all needs, referral to discounted vetted providers for everything from dog walkers to plumbers, volunteers to help around the home
- **Wellness-** exercise classes, discounts to local fitness clubs, personal trainers, discounted home healthcare providers, geriatric care management, preferred access to MGH senior health medical practice, discounts on prescription drugs
- **Affordable transportation-** is the most important service for their members. Beacon Hill village coordinates rides to shopping, doctor visits, rides to anywhere anytime
- **Assistance in living-** provides discounts to providers, and visiting volunteers
- **Household tasks and services-** home repairs, cleaning, cooking, organizing, computer assistance, financial organizing and bill paying, discounts to all providers
- **Meals and groceries-** transportation to grocery shopping, delivery or home preparation of food referrals, discounts at restaurants
- **social, cultural and special events-** tours to museums, lectures by Boston notables, trips, cultural events, educational seminars, travel clubs, singles, film, lunch, dinner group, opportunity to meet new friends, volunteer opportunities in the community

The village has no limit to the number of services a member can request or the type of services. They will try to accommodate any of their requests. This is different from the type of service a resident would get from a social service agency. Some services are provided on a volunteer base, many of the volunteers are village members. If there's a request for a service for which there is no volunteer for, the village coordinates a discounted external provider. The members are encouraged to call directly to schedule a service, can also do it by email or online. Only 5% of the members actually use home care services. If a member has not made contact with the village staff for a few weeks, they will proactively contact the member to make sure everything is OK.

The Beacon Hill Village allows people to age at home with the help needed for that, and provides similar help to what they can expect in assisted living communities. These villages can be in an urban, suburban or rural setting.

6.5.4 Residents

Currently the community has 380 individual members who live independently for as long as they can, but whose lives gradually become intertwined as they grow older (300 memberships). They are residents of the larger Beacon Hill community who intentionally joined together and whose goals change as they get older. Members join the village for the services it provides and for the sense of community, and opportunity to meet people in their community.

The average member is 74 years old. The village has a 85% membership renewal rate. The 15% that don't renew either move away, move to AL or CCRC's or pass away.

The member profile is quite representative of the neighborhood mix around Beacon Hill. Some members are very rich others have very low income levels. The members are diverse in terms of religion, but not so much in their race, also following the profiles of the neighborhoods at which they live. About 50% of the members own their condos, and 50% rent. Almost all live in town houses which are the prevalent housing type of the neighborhood in the service areas of the village.

6.5.5 Community and Marketing

The village services the area that reaches beyond the hill to include the adjacent neighborhoods such as Back Bay, Downtown crossing, North, West and South ends. Being in proximity to the social and cultural programs is important for the success of this village, as well as making it possible for the service providers to access their members.

There is a wide interest of people in the area in the services of the village. But Beacon Hill village has a limit to its service area, and is not accepting members beyond their geographic service area. They help other towns and cities form their own villages, and participate in the village to village network throughout the country, which currently has 65 active villages and 100 in development. All these villages share the goal to help the elderly stay in their own homes as they age.

The city of Boston provides no aid to the village, and the village has no public funds. Each community is different. Some villages in other locations do enjoy financial support from the municipalities in which they work. The city supports program that the village is initiating. The village has connections with the Hale Barnard house which is also a service provider, and they refer people back and forth. The village uses connections with some senior low income

houses to use their facilities for programs. They use community center space, restaurant, and members' homes as well for their programs. Unfortunately there is no senior center in the area that they can collaborate with for programs and services.

The village has extensive marketing efforts and outreach approach- with flyers, open community programs, through realtors, doctors , case managers, lawyers, churches and temples referrals, as well as prospect parties to friends of members and board members.

6.5.6 Dementia

The village is successful in servicing members with dementia who live with a spouse at their home. Once they reach a condition that they can't remain at home anymore, the Beacon Hill village can help arrange their move to an appropriate facility.

CHAPTER 7 COMPARISON AND ANALYSIS OF THE CASE STUDIES

This chapter summarizes the similarities and differences of all the case studies. From it an understanding of the benefits and challenges of each criterion is derived and used in the suggested affordable assisted age in place model in Cambridge MA.

7.1 COMPARISON

This graphic evaluation table is not a general ranking of performance in the industry, but looks at specific criteria relevant to the proposed affordable assisted age in place model.

Services:	Full	Mostly full	Semi Full	Some	None	Not relevant
Payment	low	somewhat low	Medium	somewhat high	High	Not relevant
Income :						
Size:	Large	Quite large	Medium	Quite small	Small	Not relevant

	JCHE	JFK	NP	EP	BHV
Use of subsidies					
Extent use of operating subsidies					
Extent use of care subsidies					
Extent use of service subsidies					
User Affordability					
Resident's fees					
Population average income level					
Services					
Level of services					
Extent of reliance on external providers					
Provision of on-site amenities					
Design					
Unit mix diversity					
Unit spaciousness					
Building efficiency					
Kitchen provisions					
Availability of on-site store					
Proximity to T and bus					
Appropriate parking ratio					
Dementia					
Extent of dementia service					

The following table summarizes the case studies in a comparable format.

	JCHE	JFK	NP	EP	BHV
Background, Development, and Philosophy					
Total Development costs	Older building	\$18M (2002)	\$12.3M (2001)	\$18M (1994)	None
Construction cost	Older building	\$12.65M	\$8.24M	\$8.55M	None
Development cost per unit	Older building	\$260,000 (2002)	\$170,000 (2001)	\$160,000 (1994)	None
Philosophy	Financially driven, housing provider	community, citizenship, self-reliance	enhance residents' independence and dignity, affordable services similar to market rate assisted living	Traditional assisted living with emphasis on social interaction, and personal care	Providing all services as requested and directed by the residents themselves, to allow aging in the community
Financials and Affordability					
Financial structure development/permanent financing	HUD, MHFA, DHCD and other funds	LIHTC, Mass housing tax exempt bonds and innovation fund, FHLB	LIHTC, various loans (Mass dept. of comm. dev., east Cambridge saving bank, LISC, City of Cambridge, Cambridge health alliance, FHLB grant	30% REIT equity, 70% debt (MHFA), LIHTC, no state or federal funding sources used	
Operating subsidies-for rent	Government programs - Section 8, HUD 202	Section 8, CHA subsidy	Section 8- for 30 units, Veterans benefits, city of Cambridge subsidized land lease		
Operating subsidy for care	JCHE doesn't deal with these, since are housing provider and not AL	PACE for the AL residents, none for the independent	PACE – for 15 residents	Some residents are eligible for Medicare and Medicaid	
Operating subsidy for other services	CHSP, Identity of contracts, HUD grant for service coordinators	PACE for the AL residents, none for the independent	PACE – for 15 residents	None, Benchmark funds all services	

Resident's financial model	Rent payment is average \$275/ month \$25/month minimum	Rent ranges from \$40-\$576 a month for the independent housing, average \$531. The AL portion gets income of \$1539, only small part paid by resident	LIHTC units \$3500-\$4000 Market rate units \$3850-\$4700 +\$475 for services	AL fees \$4500-\$6000 + additions for care and medication management Harbor (dementia) \$6000-\$6900	Membership is \$890 for household, \$640 for individual. Membership plus (affordable option) \$160 for HH and \$110 for individual. In addition, \$250 credit for services
Affordability	100% affordable, eligibility by HUD	100% affordable, 100% LIHTC eligibility by LIHTC criteria	80% affordable (55% at or below 60% AMI, 25% at or below 80% AMI)	20% of residents are moderate or low income	27% low/moderate incomes
Population income levels	Very low Income population as low as \$10,000 a year	Very low Income as low as \$6,500 a year	Very low to above average	Mostly average and above	Large range from Boston's richest to poorest
Services (Directly, Contracted, Mixed)					
types	Fitness classes, medication delivery, transportation adult daycare	Only for the AL residents- 3 meals, 1-2h personal care, on site nurse, laundry, shopping, house keeping, medication management. independent residents – option to use meal program	3 meals, housekeeping, laundry, 24h personal care access, 24h emergency calls, assistance with ADLs , wellness program, medication management, hair dresser, barber, pharmacy delivery	3 meals, ADLs assistance, 24h care staff, 24h emergency calls on site nurses, housekeeping, transportation, medication management, fitness classes, hair dresser, barber, pharmacy delivery	Concierge- info and referral – one stop shopping for all needs. Discounts to wellness clubs, household providers, restaurants, meals and groceries, Affordable transportation

Scope of services and Cost of services	Contracted Some services All for extra costs, very low	Mixed For AL- full Through PACE For independent residents- only meals for extra pay	Directly Full. included in fees	Directly Full. included in fees	Mixed. Membership covers volunteer services, and referral to discounted providers
Extent of reliance on external service providers	Full. Regulated against having their own services by HUD. CHSP, JCHE Caring Choice	Semi. Full Through PACE for AL. none for public housing component	Semi. For health care services , transportation through the city of Cambridge	None. Benchmark provides all the needed services and activities	Full. They coordinate the services with providers and volunteers, don't provide it themselves.
Organization and operation- staff, management	Trilingual staff. 50 on site (some from corporate offices), 24 hour staff on site (non medical)	7 FTE + 1 executive director. 24 h emergency call for all building through the PACE employees	Staff ratio by code, nurse 7 days a week, 2 social programmers, same person for marketing director and executive director	65 FTE in 3 shifts	4 FTE and many volunteers, some are members and some external
Activities					
Types	Educational cultural inter-generational programs, provided by JCHE for no extra cost on site concerts, dances, movies, holiday celebrations, lectures, concerts, book discussion groups, classes	Volunteer based/ SLR funded. Not popular. BBQ, sing a long, Bingo, Inter-generational	Social, educational, spiritual covered by fees. painting, gardening, cinema, discussion groups, clubs, musical entertainment exercise classes, group trips, inter-generational programs	For mind, body and soul cultural programs, religious and social programs, lectures, planned social events, recreational activities, fitness classes	Social, cultural and special events

Amenities					
types	Gathering spaces, fitness room, grocery store, cafeteria, computer center, art room, theater, community kitchen, library, adult daycare	Exterior courtyard, library, community room, quiet room, dining and kitchen, laundry room	Dining room, formal living room, country kitchen, library, recreation room, media room	Fitness club, library, beauty and barber shops, private dining for special gathering, general store, recreation room, bistro/pub, patio, garden, movie theater, living room, laundry, country kitchen	none
Building design/ Units					
Original use of building	Senior housing	Senior housing	Nursing home	Hotel and library	No building
Number of units	702 units	69 units: 44 independent living, 25 AL	73 units, 58 traditional , 15 dementia	115 units	No units
Unit mix diversity	1BR, 2BR and Studios	All 1BR	34 1BR, 24 studios	Studio, 1BR and 2BR	
Unit sizes	~540SF	556SF, 703SF	Studio 450-500SF 1BR ~550SF	Studio 325-350SF, no kitchen Shared rooms 475-550SF 1BR 450-525SF 2BR 625-725SF	
Year completed	1965	2002	2001	1996 with dementia addition in 2007	2001
Number of stories	8-10	8	3	6	
Building efficiency	~80%	~75%	~65%	~55%	
Kitchen provisions	full	full	Kitchenette	Kitchenette with cook tops in 1 and 2 bedrooms, not in all studios	

Interior layout and common space	Long double loaded corridors	Common spaces on ground floor only, double loaded corridors on upper floors	Common spaces throughout the building, residential feel to corridors	Common spaces throughout the building, many on ground floor	
Commercial component	Grocery store	None	None	Small gift shop	
Building shape, Exterior space, and site layout	3 inter-connected buildings with common functions and exterior spaces in between	Linear building parallel to street,	W shaped building, widening of corridors, outdoor natural landscape, mature woodland, trails	Large compact building, tight site, very central location, green park on back	
Location within the city	Residential neighborhood	Residential neighborhood	Quiet natural surroundings overlooking Fresh Pond.	Residential neighborhood on main intersection	Covers the Back bay, Beacon hill, West end and surrounding neighborhoods
Proximity to transportation	Proximity to T station and bus route	Very central location, walking distance to central square, proximity to T station and bus	on bus route, convenient location just off the Fresh Pond rotary	Located in Newton center, close to bus routes, I90	
Project design and physical attributes/challenges	Old building, need updating	Just updated, nice external facades attract walk-ins	Beautiful grounds, updated design	Beautiful renovation of historic building	
Parking	~130 spots (ratio of 0.18) a major problem	21 spots (ratio of 0.3)	Parking lot shared with nursing home. ~20 spots (ratio of 0.3) a problem	Ratio of 0.5 spots to units	

Residents					
Resident average age	80		85	79	74
Number of residents	~900	77	74	116	380 individuals (300 memberships)
Age/ disability	62+	62+ and young disabled	62+	62+	55+
Diversity	Russian, Chinese, American, Haitian	Reflective of the Cambridge diverse community	12-15% are minorities (African Americans, Asian)	Reflective of the Newton community, 50% Jewish, 50% others	Reflective of neighborhood profile. Diverse in income, and religion, less in race
Community and Marketing					
Marketing strategy	The facility is well known in the area, due to length of operation and success stories passed by word of mouth, resulting in a 5 years waiting list	Majority through website and literature, word of mouth. The pleasant appearance of the building on the street attracts many walk ins	75% targeted at adult child, 25% at seniors. The need for marketing has not been reduced by affordability. events, art shows and fund raising luaus		extensive marketing efforts and outreach approach-mostly targeted at actual members flyers, open community programs, realtors, doctors , case managers, lawyers churches temples referrals
Dementia					
	Some residents have dementia problems, and are assisted by the local ASAP provider	8-10 residents with MCI (mild cognitive impairment) live independently	Restrictive area 1:8 staff ratio	Restrictive, delay egress floor organized in V shape, plain patterns design, spa 1:5 staff ratio	Can service dementia members who have spouse living with them

7.2 ANALYSIS

While the case studies that have been selected for the thesis are all successful in the industry, they differ in their philosophy and their form of solution for the elderly. We analyze these in terms of the lessons that can be used for the affordable assisted age in place model in chapter 10, rather than in terms of performance ranking between each other.

7.2.1 Development

- **Different philosophies-** Each of the case studies has a unique philosophy, with emphasis from financial help in housing solutions, through emphasis on engagement with the larger city community, social interaction within the resident population of the facility, to independent aging in the community.
- **Unique non replicable financial structures-** All affordable developments have unique financing structures, which make them impossible to replicate. It is impossible to get the exact same teams together and the same conditions for all the sources of funds. Most use tax credits, senior loans and soft money from state and local governments, and some manage to raise substantial charitable donations. To make a development successful, the financial structure has to be self-sustainable. The developments which manage to rely least on debt are those that can later afford more of their operations and allow a larger percentage of their units to be affordable, as been proved in Neville Place.
- **Need for mixed incomes-** Developments need to have mixed income populations, those that are 100% affordable have more risk of not being self-sustainable for the long term. Effectively, market rate units help carry the operating costs of the affordable units. Expenses grow fast, and the income levels don't rise in the same pace, and units for moderate and low incomes don't manage to cover the rise of their expenses. Both Neville place and Evans Park manage to get cross subsidies from the higher paying individuals to support the low income units.
- **Need for housing and service solution-** There is a great need for service supported housing for elderly in the region. Senior housing alone, without any services is not sufficient to allow elderly to age in place. To provide assisted living there's a need for common amenities, service coordination staffing, and experience in providing limited supportive services. For a successful assisted living development the important issues are funding for services and training and coordination of management and service providers.
- **Alternative to nursing homes-** Subsidized senior housing and assisted living facilities are efficient in keeping many elderly out of nursing homes. Many of the residents of current senior housing or assisted living are people who otherwise would need to be in nursing homes

7.2.2 Financials and Affordability

- **Easy to fund development, hard to fund operation-** The case studies differ completely in their development structures, their operating subsidies (and level of services provided) and the targeted population in terms of income levels. Funding of these case

studies and similar projects are difficult, and require multiple sources, and may result in low staff pay and high turnover. While funding an affordable development project for its construction is relatively easy to achieve, finding long term funding sources to cover the operations, both in terms of rent and services, is the real challenge.

- **Development financing-** SLR properties (NP, JFK) highly rely on LIHTC for development costs, with a combination of large number of other sources, in loans, tax exempt bonds and grants to minimize debt service needed for these affordable projects. JCHE has been developed years ago, and their development subsidies do not include LIHTC, but are mostly HUD subsidized with other state and federal funds. Evans Park, which includes a smaller proportion of affordable units of low /moderate income individuals, is very different in its development funding, which is the more traditional split of 30/70 Equity/Debt. They are a public company, traded on the stock exchange, and assume profitable returns for their REIT investors in spite of having 20% of their units set as affordable.
- **Operating financing-** For Evans Park the operation and service financing are less of a challenge compared to the affordable assisted living Neville place. Their income from fees is substantial, less than half of the basic fee is required to cover the real estate portion, the rest is designated for the extensive services and operations of the facility. The Senior housing case studies (JCHE, JFK) which provide less services and activities compared to the assisted living facilities, can charge lower rents from their residents, as well as some additional charge for any service that they may provide. These services are mostly covered by state subsidies such as GAFC, PACE while the rent portion of the operating phase comes from tenants, section 8 or HUD 202. All projects require some level of resident payment for services. Care subsidies are only used by assisted living developers, since the senior housing developers are regulated against providing the personal care. Many of their residents however, are eligible for Medicare and Medicaid and can access care independently.
- **Need for service coordination-** For housing to allow addition of services there's a need for the housing manager to coordinate with external service providers, have in house service coordinators, and have enough common amenities that will allow the services to take place in house. The service coordinator is essential for connecting the management with the service providers. HUD CHSP which is used by JCHE is a major source of funding for service coordinators and some supportive services. All projects seem to rely heavily on the Medicaid funding that their low income individual residents receive. Keeping services costs low is a key in order to maintain a sustainable model. This reflects on the quality of the staff, and the turnover rate.
- **Need for local municipality aid in funding-** The cities in which the case studies exist don't take any financial stand in supporting the senior housing/ assisted living within them, expect for Neville place which gets an affordable land lease from the city of Cambridge. There may need to be more pressure on these tax receiving entities to provide some help to developments that improve the quality of life of their elderly residents. State funding is essential for affordable senior projects. States will need to create funding vehicles that will allow developers to penetrate residential

neighborhoods and base assisted living models on existing built infrastructure of buildings.

- **User affordability in relation to income levels-** since the residents population of all the case studies originates from within the close proximity to the facility, the average level of income of their populations reflect the neighborhood mix of incomes. The fees have to fit the income levels of the populations that will be served. This will reflect on the level and quality of building design and service provisions. In the proposed model, service fees will have to reflect the middle income population that will be served.

7.2.3 Services

- **No one size fits all-** The case studies differ in the types of services they provide, their funding, and the extent they rely on external providers. These prove that there is no one right way to deliver services to older people.
- **Housing regulations don't allow service provisions, need to be external providers-** Senior housing is regulated by the state of Massachusetts against providing services, while assisted living is based on the service it provides to its residents. But, the typical resident profile in all these case studies is quite similar in age, health condition and needs for personal care and other services. While the assisted living providers offer full services to their residents, the housing providers can't offer the same level. But any housing solution for the senior community can't ignore the need for the service component. JCHE addresses this need by offering some services for additional price, and allowing private care or providing assistance with coordinating external services. JFK's model addresses the problem by having external providers continuously on site to provide their eligible assisted living residents. If any of the independent residents become more frail, assuming they can be eligible for the PACE program, they could stay in their apartments but get the additional assistance that is already present in the building.
- **Service staff is the largest expense-** The service component is the most important piece of the industry, and its biggest challenge. Service providers' staff is a large expense and most of the operation's funding sources don't cover it. The challenge is especially great in dementia and Alzheimer care sections, where the needs of the residents grow, and staff to resident ratio is more than doubled.
- **Affordability achieved only by integration of various subsidies-** Typically, assisted living will service people who need help with several ADLs. Those living independently with the same needs, have to receive the help from an external provider, which is either privately coordinated or coordinated by the housing management. Neville place assisted living manages to provide full services almost similar to those provided by Evans Park, for affordable rates by layering many operating funding sources, coordinating volunteers and city providers, and reducing expenses on high paying staff members.
- **Village structure value in information and referral to service, rather than the service itself-** Beacon Hill village model tries to solve the care and need part of the senior housing challenge, while allowing people to age in place. It is hard to evaluate their success, since the scope of services that the membership covers is undefined. Some can

be provided by volunteers, others by external providers to which the member gets a certain discount which varies by provider and there's no limit to what type of service they can be asked to provide. A big value for this model is the information and referral help that it provides, and the ease at which a need can be addressed, not necessarily because of the financial benefit, but rather the reduction of stress, its accessibility and quality of service.

- **Service without social setting is not enough-** Adding service packages to seniors living in residential neighborhoods could have the effect of assisted living and allow them to remain independent and to age in place. But a solution for social interaction between these residents will make the difference between housing with supported services to true assisted living community.
- **Most requested services are meals and transportation-** Public housing projects do not have mandatory meals programs, although JFK does have an on-site food ticket machine and allows the residents to enjoy on site meals. Meals and transportation seem to be the main services that independent seniors are looking for in their senior housing arrangements. Other important services include personal care and assistance with ADLs and medication management, housekeeping and access to 24 hour staff for unexpected issues.
- **Service based on needs-** Service provisions based on needs of individual rather than set packages defined by the facility or the funding sources, tend to be more efficient and cost effective and allow funds to shift to other aspects of operations that need those more and thus improve the total service provisions. Needs based services also allow the residents more independence and sense of control over their lives. This issue is highlighted with the GAFC requirements that prescribe certain number of care hours for eligible resident rather than allowing for the need based care, resulting in wasted workforce hours and high costs.
- **In house staff is higher quality-** Staff that is trained in house, by the developer/operator provides better service than when external providers are used. Owners that provide services directly argue that this approach saves money and provides them with quality control that ensures the success of their project. Those who contract the services, do not have the skilled staff to provide a matching quality service, and are regulated against allowing that.

7.2.4 Activities

- **Inward looking communities have more successful activities-** All the senior housing communities in the case studies provide a variety of activities to their residents. More successful in terms of participation in activities are those communities that tend to be more inward looking, where residents have all their needs fulfilled in house (such as Evans Park and Neville place). In the senior housing properties where the residents leave the grounds often and engage in the greater neighborhood community, the interest in the on-site activities is lower. These properties also seem to be offering less variety of activities. (JCHE, JFK)

- **Independent housing with no services have less sense of community and participation in activities-** In JFK apartments there was the least use of the common spaces and participation in the common activities provided for both the assisted living residents and the independent residents. It is less of a social environment, compared to the other case studies. JFK fits a resident profile of a person who is not interested to mix with his neighbors. It is fully occupied and the lack of social integration among the residents doesn't seem to be an issue for these residents. JCHE on the other hand enjoys a great sense of community within the facility, and participation in common activities is higher.

7.2.5 Amenities

- **All projects offer similar amenities-** the important ones are dining room, library, fitness center, exterior sitting space, common kitchen, living room, and computer space. They vary in the sizes of these spaces, the quality of the design and the level of finishes, and the extent to which the residents tend to use them.
- **Scattered common spaces throughout the building-** The projects that emphasize the social environment and the sense of community (such as Evans Park and Neville place) tend to have common spaces scattered around the building in addition to a critical mass of common space in the ground space in proximity to the building entrance, while the senior housing projects have all common amenities on the ground floor.

7.2.6 Building design/ units

- **Location-** All the cases are conveniently located near public transportation. The senior housing projects are also within walking distance to a T station, and their residents who tend to leave the grounds more frequently than the assisted living residents, have greater flexibility and accessibility to the wider city community.
- **Emphasis on residential appearance-** All case studies, except for Beacon Hill village which is a virtual village without any physical form, have a residential appearance, and are homey and welcoming and fit within their residential neighborhood settings. None of these case studies resemble an institutional setting like a SNF may seem.
- **Economies of scale in number of residents-** Except for JCHE which is made up of 3 buildings each with ~230 residents, the rest of the projects range between 70-100 residents. This is a large enough scale to make use of efficiencies of scale in staff and service provisions, while still keep the facilities easy to control. Most of the units in these projects are 1 bedroom units, some offer studios as well, and Evans Park and JCHE offer 2 bedroom option.
- **Unit mix diversity and unit spaciousness-** Average sizes between all the case studies are ~550 SF for 1 bedroom, ~400 SF for studio, and ~650 SF for 2 bedrooms. Residents of assisted living and senior housing prefer 1 bedroom units. This suggests that an area of 500-600SF per person should be sufficient for supportive living, even within a residential neighborhood setting, and can help in modifications of existing single family/ 2 family and 3 family houses to match the level of need of the residents.
- **Kitchen provisions-** There is no clear directions about the level of functionality that a unit kitchen has to follow. While housing providers are required to provide full kitchens,

it is clear that they are not always fully used and can cause a hazard. On the other hand, kitchens provide independence and sense of control and not including a kitchenette in an assisted living setting can have negative effects. In retrofitted houses, kitchens exist, but will need to be adjusted for better accessibility.

- **Building efficiencies** are higher for the senior housing properties, and lower in the full assisted living facilities, due to larger common spaces and more back of house spaces related to services which are non-rentable spaces.
- **No strong need for integration of commercial space-** None of the case studies has a strong commercial component included in the property. Affordable projects that get funding from HUD, LIHTC are restricted from having a rent yielding commercial component in the project. Evans Park has a small store on site- which reflects the higher average level of income of the residents who desire such a store. JCHE provides a grocery store for the convenience of the residents.
- **Parking ratios-** The building shapes vary and depend on original use and site conditions. Although many residents do not generate a large demand for parking, parking is an issue at all the properties. Ideal ratio for parking will be 0.75 spots per unit.

7.2.7 Residents

- **Average profile-** Average age across the case studies is 80 years old. Number of residents per project varies without a distinct trend. All projects target people who are 62+, JFK also serves young disabled people and the Beacon Hill Village is the only one who provides services and coordination of services to people starting at age 55.
- **Residents are from the local vicinity-** Residents of the senior housing and assisted living project are 90% originally from the same community, usually from a radius of 5-10 miles around the facility, or have adult children living within this range. Their profile is very reflective of the demographic profile of the neighborhoods in which they are located.
- **Ability to allow aging in place-** The senior housing projects (JCHE, JFK) and the service provider (BHV) seem to be more successful at allowing their residents to age in place without a need to move out again to a facility with a higher level of care. Residents in the assisted living facilities move out to nursing home or hospital, and are less likely to age in place.
- **Some nursing home level residents can be accommodated in assisted living and senior housing-** Many of the residents of assisted living communities today, are people that 10 years ago would have been accommodated only in nursing homes. The less institutional setting can still provide them with substantial care and aid, while reduce the government expenses on skilled medical care that is many times not needed.
- **Turnover rates-** Turnover rates in assisted living are much higher than in the senior housing projects. This may be due to the age and physical conditions of the residents when they enter the assisted living home, or because it is still viewed as a temporary stage rather than permanent age in place residence.

7.2.8 Community and marketing

- **Assisted living facilities have greater sense of internal community than senior housing-** Senior housing seems so be much less focused on the immediate community within the facility than assisted living. The independent residents engage with the neighborhood and city level community in addition to their neighbors in the house. Assisted living residents are more isolated from the external community, although are encouraged to go on trips and activities that enable such interactions, and thus depend more on the in house community.
- **Marketing to adult children and elderly-** Marketing of all providers is targeted at the seniors and their adult children. The senior housing products market more to the senior community, while the assisted living products reach out more to the adult children (75% to 25% seniors). All marketing efforts are similar- most are based on the reputation of the facility and word of mouth spreading its success, professional referrals, literature and websites. A pleasant renovated exterior appearance to the building is an advantage in attracting people's interest.
- **Public/ Private housing communities-** Public housing offers an opportunity for a community wide approach to affordable assisted living. Private non-profit owners don't usually have multiple projects in same city, but may have greater experience in the industry.

7.2.9 Dementia

- **All senior products address Dementia and Alzheimer-** Dementia and Alzheimer are conditions which are a part of the natural process of population aging. All the case studies offer housing options, care and services that can support residents with memory loss and Alzheimer as long as they are not a danger to themselves and others. There are dementia residents in the independent living communities who can lead a relatively independent life if they get additional private care (sometimes live-in care). Both assisted living facilities have special restrictive departments for dementia residents that are access controlled for their safety and are designed to maximize their sense of comfort and familiarity, and reduce anxiety.
- **Challenge of operation because of need for more staff-** More staff is needed in these units creating a higher financial burden on the developments and limiting the amount of dementia residents that the facility can operate with. Many residents with mild cognitive impairments live in the traditional assisted living units as well.
- **Lack for subsidies for Dementia and Alzheimer-** Dementia/ memory impairment programs do not have an affordable component (a regulated affordable program). Unfortunately, low income people with dementia/ Alzheimer will often end up in skilled nursing facilities.

PART 3

Part 3 zooms in even further into the Cambridge community, and is using all the tools learned from the global industry and the Boston metro area case studies in suggesting a new senior housing product that will better solve the challenge of serving the elderly population, while allowing the residents to age in place in an affordable assisted setting.

CHAPTER 8 CAMBRIDGE AGING COMMUNITY

This chapter reviews the Cambridge aging community, current services and organizations, existing supply of senior housing, and municipality approach to the growing aging population problem. This information is used to select East Cambridge neighborhood for the suggested affordable assisted age in place model in Cambridge MA for a realistic, efficient operation that is specific to the Cambridge community. The chapter concludes with a short explanation of the problem with aging in place in assisted living and the need to age in place at home.

Cambridge land area is 6.43 Square miles, with a population of 95,802. According to US census bureau Cambridge is the 10th densest city in the US. Density in year 2000 was 16,640 persons per square mile, and 7680 housing units per square mile. In 2010 there were 47,291 housing units in Cambridge, 32.3% of these are owner occupied and 15% of the stock is subsidized in some form. Average annual wage in 2010 was \$82,264 according to the Massachusetts executive office of labor and workforce development.

By 2008, the demographic trend in Cambridge in which the number of elders has been decreasing, has reversed, and there were more than 10,000 seniors in the city, and this increase is likely to continue with the baby boomers retirement age. Today there are close to 11,000 people 65+ in Cambridge, only 44% of which are married, and are diverse racially. By 2030, elders could account for 20% of Cambridge's population. (Cambridge community development department, 2010).

8.1 CAMBRIDGE CURRENT AGING SITUATION

8.1.1 Cambridge organizations for senior aid

The city of Cambridge created a plan to respond to the growing aging population and its desire to age in place. All info provided by (Cambridge community development department, 2010)

- **The living well network (LWN)**- The Agassiz neighborhood initiated an effort to explore the local interest of residents to establish a NORC (a "village model"). It was the first aging in place initiative developed in Cambridge in 2006, which links seniors with people of all ages by encouraging volunteers of all ages. Their goal is to create a social network for seniors. They offer senior computer lounge, snow removal program, cooking with kids programs, as well as other events such as potlucks, health and nutrition education programs, group walks, bird watching etc. Their initial funding came from Cambridge Agassiz Harvard community, culture and recreation fund
- **Cambridge at home (CAH)**- was founded in 2007 as an aging in place village , based on the Beacon hill village model to provide array of services similar to those in a retirement community. It has 280 members and is expanding to neighboring Belmont. It is a non-profit organization with annual membership fee is \$900 for individual \$1200 for couple, open to people 50+. The services are: Information and referral (I&R), grocery shopping trips, exercise classes and walking groups, social events, access to volunteers, social connections, access to health and home care services.
- **Time trade circle**- founded in 2007, works to link members who trade anything from childcare to transportation, for informal support in the community by exchanging

services. No money changes hands, just services, so this model is very affordable. It has 500 members from Cambridge and adjacent towns.

- **Central connect village-** founded in 2009 in order to help elderly network with other local seniors, focused on volunteer network to help participants with daily needs as meals, transportation, and home repairs.
- **Staying put- Cambridge and Somerville** – Volunteer association for information sharing among residents related to aging in place issues.
- **Housing for elderly and disabled** by Cambridge housing authority (CHA) affordable aging in place model, manages 15 state and federal funded properties for seniors and disabled individuals. It has minimum age (58) and income limits (80% of AMI). It offers services on as needed basis.

In addition, Cambridge provides wide array of services to the elderly community – 2 senior centers and various supportive services:

- Citywide senior center
- The north Cambridge senior center
- East end house (EEH)- community center
- Mass alliance of Portuguese speakers (MAPS)
- Somerville Cambridge elder services (SCES)- for information referral and service provider to seniors
- SCM door2door community transportation- nonprofit organization that provides transportation to area seniors for medical appointments and shopping trips
- Silver threads run by the salvation army for low income local seniors activities
- Paine senior services (PSS)- organization for assistance to seniors

8.1.2 Cambridge housing stock

Information provided by (City of Cambridge, Housing Options For Older Cantabrigians, 2010)

- **Residential elevator buildings-** many of these, not specifically designed to serve as retirement or elderly housing, provide features sought by older residents such as one floor units, no yard to maintain, proximity to stores, services and medical care, and facilities like health club within the building. There are 99 such properties which are not owned by the CHA or Universities, out of which 16 have some affordable units, with 9642 units.
- **Cohousing developments-** Like elevator buildings, cohousing developments in Cambridge provide a number of amenities that appeal to older residents. Many of these developments seek to include older residents as part of an effort to create multigenerational neighborhoods. These communities can provide support to an elder that elsewhere may require payment. Cambridge has 2 senior cohousing developments with a total of 72 units.
- **Cambridge housing authority elderly housing-** State and federally subsidized housing developments that serve elderly and disabled. Household must have annual income of

less than 80% AMI to qualify. Cambridge has 1189 CHA units for the elderly and disabled.

- **Other over 55 subsidized housing-** There are 3 privately operated publically subsidized developments that serve the elderly and disabled adults. Units are reserved for low and moderate income individuals, total of 238 units.
- **Assisted living residences-** Mass ranks only 42nd out of the 50 states in the number of assisted livings units per 1000 persons 65+. Although generally subject to little regulation and oversight elsewhere in the US, in Mass the executive office of elder affairs (EOEA) licenses privately operated assisted living residences. There are 4 assisted living communities in Cambridge with a total of 278 units, which include some affordable units. Their residents are somewhat less disabled compared to statewide. Only 30% had dementia, and half did not require assistance with ADLs. The turnover rate in Cambridge assisted living is relatively low.

	Units	Address
Cadbury commons	68	66 Sherman st, area 9
The Cambridge homes	44	360 Mt. Auburn st, area 10
Neville place	71	650 Concord ave, area 12
Youville house	95	1573 Cambridge st, area 6
Total units	278	

- **Nursing homes** Regulated by the federal government and licensed by the state. Cambridge currently has 336 nursing home beds within 3 facilities.

Remaining in the same community, if not the same home, is preferred by most Mass residents. The city of Cambridge provides city amenities of urban life like walking and public transportation, ready access to wide variety of amenities like stores, restaurants, cultural activities, proximity to medical facilities. Elderly who move are either amenity movers, looking to improve their lifestyle, or dependency movers who move because of health problems, loss or partner or financial problems.

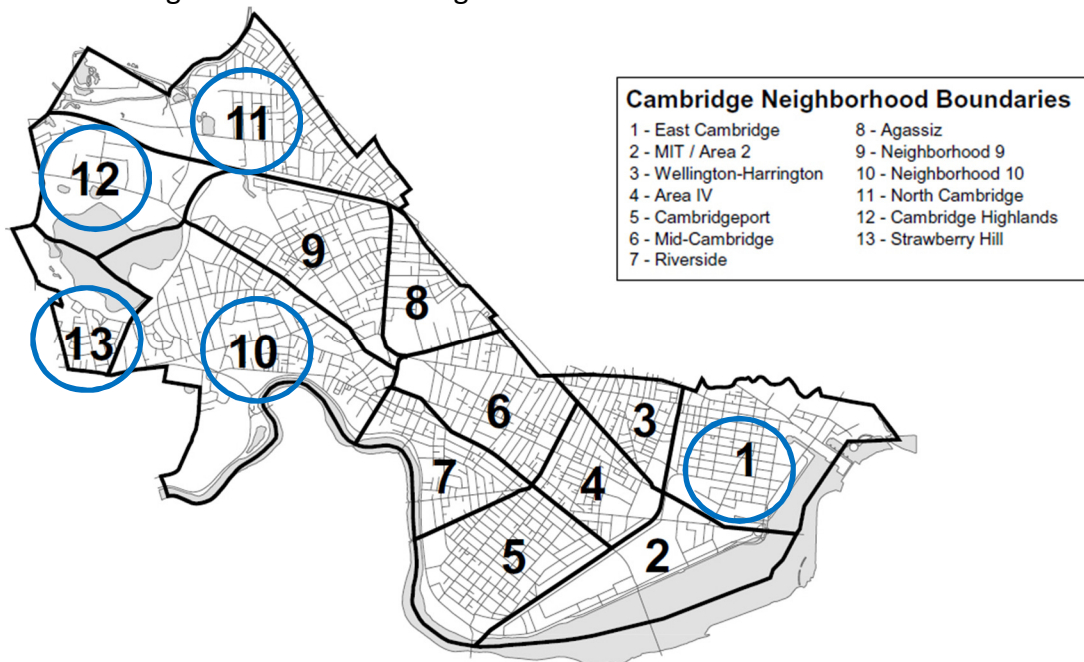
Cambridge has a shortage of supply of senior housing units. With over 10,000 seniors and a total of only slightly above 2000 senior designated units. On the other hand, there is a large system of supporting programs and organizations that aid the elderly. These can support a need for an aging in place solution for the Cambridge senior population.

The following Cambridge data is provided in order to demonstrate the neighborhood selection process that leads to East Cambridge as an example of the affordable assisted age in place model. A developer would need to assess the prospective locations for his model development in a similar manner in order to evaluate the appropriateness of the location to the structure of the model.

Cambridge neighborhoods: Data for 2000 from (City of Cambridge, Neighborhood Demographics Profile, 2004)

	45-64	% of neighborhood population	65+	% of neighborhood population
East Cambridge (area 1)	1,307	17.9%	1,020	14%
MIT (area 2)	98	1.8%	84	1.5%
Wellington Harrington (area 3)	1,239	16.9%	786	10.7%
Area 4	1,169	16.1%	448	6.2%
Cambridge port (area 5)	1,941	19.3%	828	8.2%
Mid Cambridge (area 6)	2,372	17.5%	959	7.1%
Riverside (area 7)	1,231	11.3%	541	5%
Agassiz (area 8)	873	16.7%	218	4.2%
Area 9	2,463	20.9%	1,117	9.5%
West Cambridge (area 10)	2,329	28.6%	1,364	16.7%
North Cambridge (area 11)	2,301	20.5%	1,347	12%
Cambridge Highlands (area 12)	116	23.3%	128	25.7%
Strawberry hill (area 13)	571	22.7%	442	17.6%
All of Cambridge	18,010	17.8%	9,282	9.2%

The 5 neighborhoods with the oldest population are Cambridge highlands, Strawberry hill, West Cambridge, East Cambridge and North Cambridge.



These 5 neighborhoods have the following break downs of ages, poverty level and % of owner occupied homes within them:

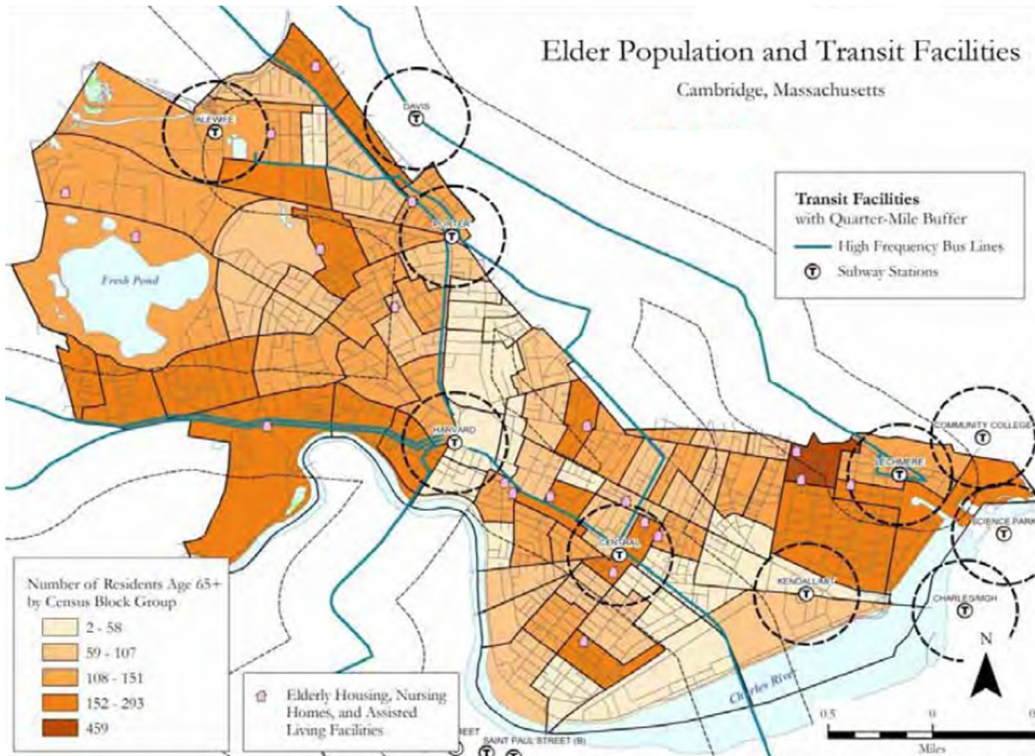
	# of 45-64	# of 65+	% of persons in poverty in the neighborhood	% of owner occupied homes
East Cambridge (area 1)	1307	1020	17%	28%
West Cambridge (area 10)	2329	1364	5%	51.3%
North Cambridge (area 11)	2301	1347	7.8%	34.2%
Cambridge highlands (area 12)	116	128	1%	48.9%
Strawberry hill (area 13)	571	442	6.6%	36.9%

Of the total 65+ Cambridge population, 1,166 people are poor- 12.9% of this age group. (The Department of Cambridge Community Development, 2011)

Home values in these 5 neighborhoods are:

	Single Family Median Price	2 Family Median Price	3 Family Median Price	Condo Median Price
East Cambridge (area 1)	400,000	438,676	-	440,000
West Cambridge (area 10)	1,475,000	1,072,500	-	450,000
North Cambridge (area 11)	422,000	610,000	529,750	369,500
Cambridge highlands (area 12)	680,000	465,000	-	357,500
Strawberry hill (area 13)	515,000	570,000	-	387,000

85% of the residential properties is 1,2,3 family houses, which provide 1/3 of the housing units. 23% of the units are in mid-size building (4-25 units) 40% of housing unit stock is in building over 25 units, Cambridge mix of housing is heterogenous.



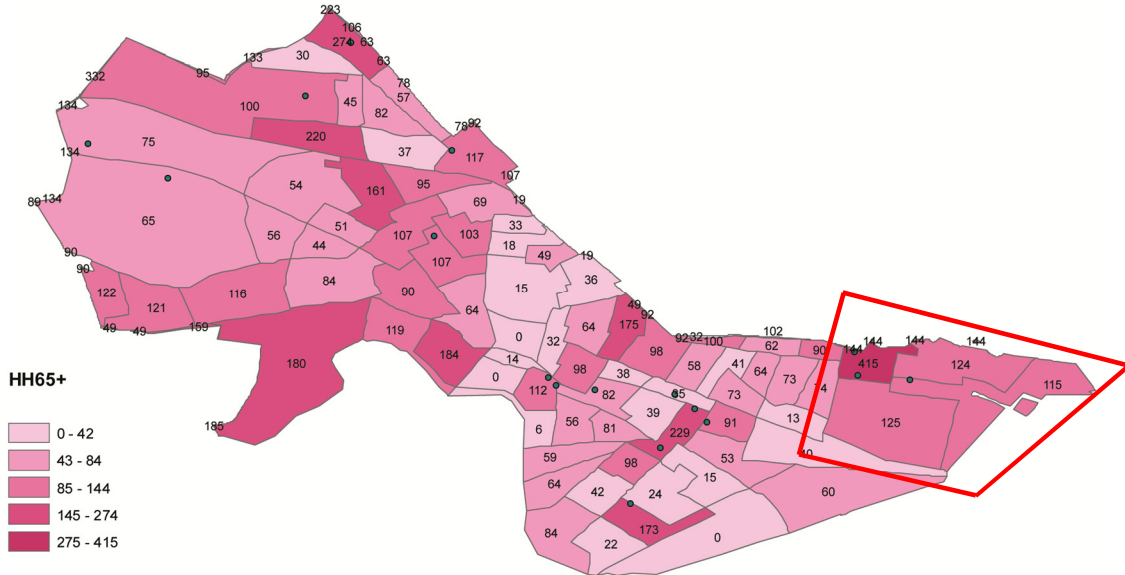
Cambridge elder population and transit facilities (Cambridge community development department, 2010)

Out of the 5 neighborhoods that have a relative large elderly population, East Cambridge and North Cambridge have proximity to transit facilities. Strawberry hill, Cambridge highlands and west Cambridge either have small absolute number of elderly residents, or are not located in proximity to a transit station which will make aging in place for local residents harder.

Since East Cambridge has more residents who are 65+ than North Cambridge, this will be the focus of the model that is proposed in chapter 10.

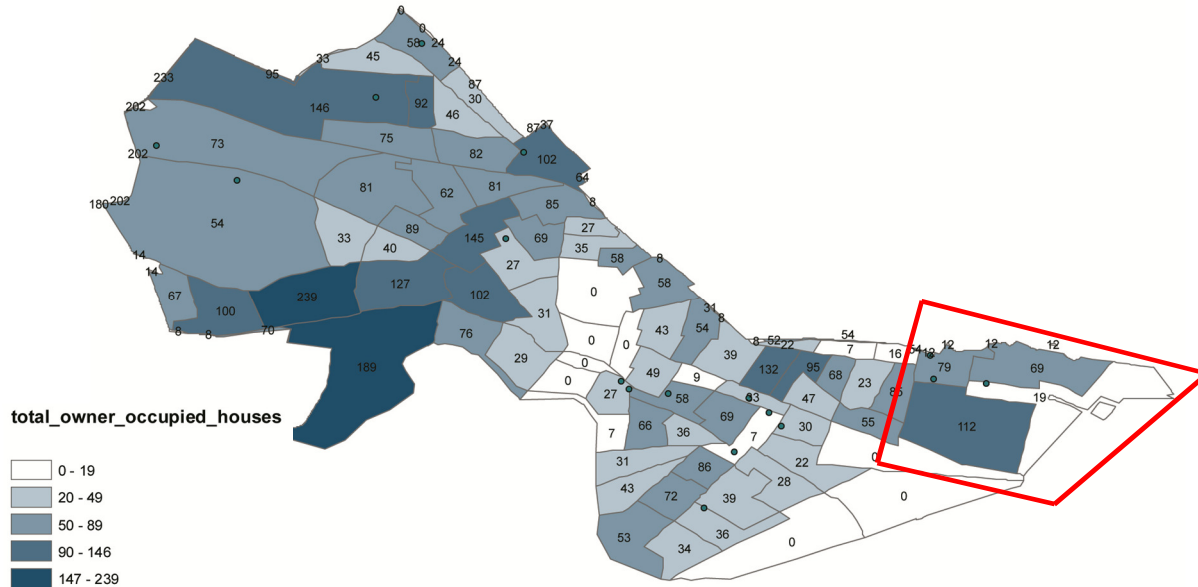
8.1.3 East Cambridge

In East Cambridge there are 779 households 65+. A higher density of 65+ households occurs at the northwest corner of the neighborhood.



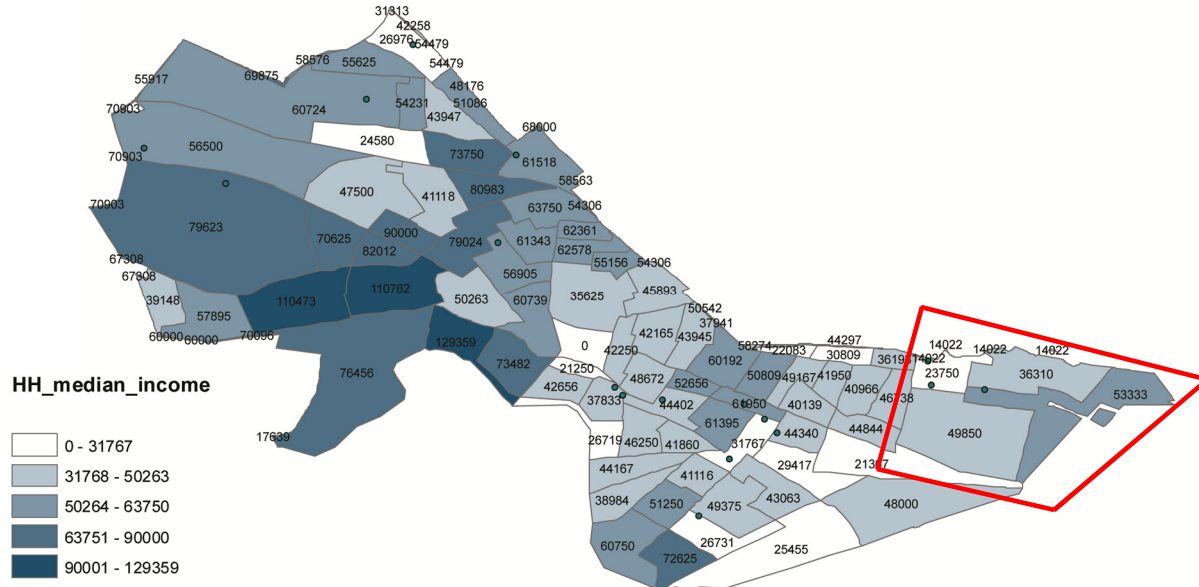
Cambridge households 65+, GIS based on US Census 2000

Owner occupied houses are mostly in the south west part of the neighborhood.



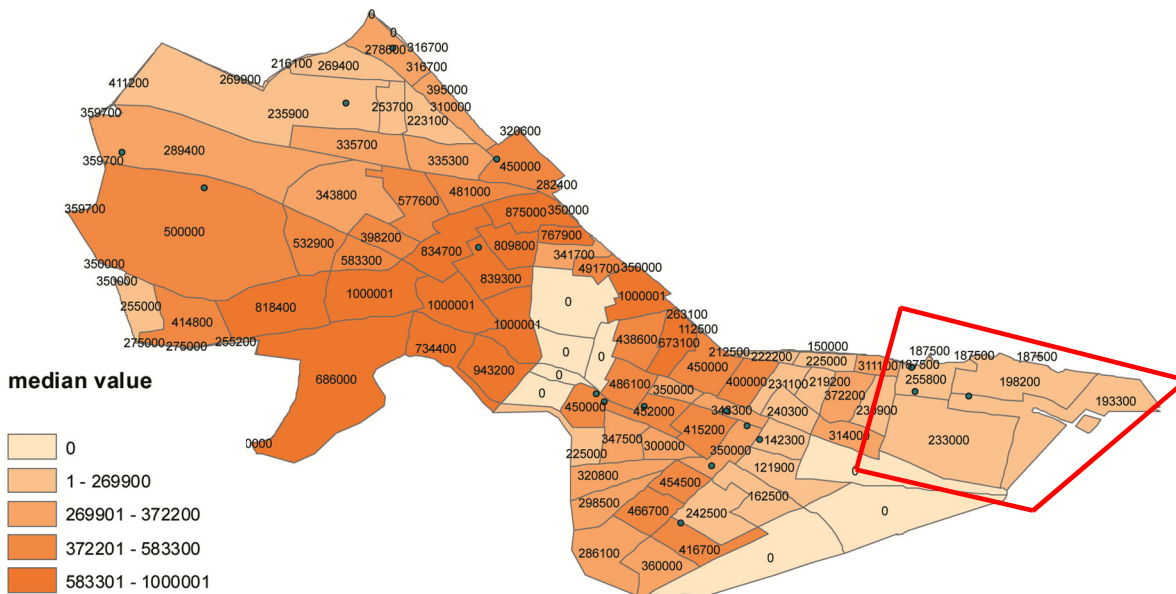
Cambridge owner occupied houses, GIS based on US Census 2000

Median income of households in the neighborhood varies. In the north-west portion that has the majority of the elderly households, the median income is low at \$23,750. The eastern section of the neighborhood has a higher median income level of \$53,333 but there are no owner occupied properties. The south west section of the neighborhood with the majority of the owner occupied 65+ households has median income of \$49,850.



Cambridge median income, GIS based on US Census 2000

Property median value in the whole East Cambridge neighborhood is up to \$269,900



Cambridge properties median value, GIS based on US Census 2000

8.1.4 Municipality approach

Cambridge has formed a commission called the silver ribbon commission for aging which brings together people from the policy, planning and development of senior housing products around the city to discuss the existing situation, the needs of the aging population, and trends in housing. These will advise on city's approach and actions for the future regarding the elderly population. In spite of this wide interaction of city officials, discussions with the community development department have revealed that the city currently views the supply and demand for senior housing to be balanced and has no active plans for any new senior housing projects and does not prioritize this product type over other types of housing developments. However, the community development department will consider any proposal for senior housing that will be brought forward, but no private developer at this stage is pursuing these developments within Cambridge. The municipality has no incentive measures for private developers to pursue commercial or residential projects. Housing is allowed in all of Cambridge zoning districts, and in some is more encouraged than commercial. Unfortunately, there is very little unused land or underutilized buildings in Cambridge to allow new housing construction.

Cambridge community is appealing for people to live in, and is constantly attracting new residents. Elderly housing has never caused any controversy in the community, like multifamily housing can stir. The variety of housing types and elderly housing types is an advantage in Cambridge which provides a choice of living arrangement for its residents. Many elderly residents have expressed their interest in cohousing solutions, and shared housing but there is no private developer who is currently interested in following this direction.

The municipality doesn't favor senior housing over other housing types, and there is no evidence for specific neighborhood impact that senior communities have on their surroundings. The wide spread of T stations and bus stations around the city is making all town locations within ½ to ¼ of a mile distance to transportation nodes. This makes aging in place generally easier for Cambridge residents in terms of transportation and mobility across the city.

Developers mentioned that the municipality, although not officially prioritizing assisted living or senior housing over other housing types, does tend to prefer senior communities over multifamily rental projects because these don't impact traffic, don't burden the school system and have little fire activity. Senior housing and assisted living are low intensity use for the city, but provide the desired RE taxes. (Although Cambridge particularly doesn't rely much on the residential RE taxes, each larger base is from commercial RE taxes)

8.2 THE PROBLEM

8.2.1 Global aging problem

According to AARP the current trend in the elderly population across the country is a preference to "age in place" (AARP, 2011). There is an increased awareness to the help available when aging in place, which can lead to growing demand for maintenance services and new housing projects that include services. Developers will need to address the affordability and accessibility issues to attract new residents, as well as to modify existing residences to fit the needs of the elderly. Developers will need to market assisted living facilities to the single

elderly who are more receptive to moving and aging in place options to 65+ people who can still live independently and transform their environment to be more appropriate for their future needs. Those most wanting to stay at their homes are 75+ age group, income of less than \$12,000 widowed, and those living in NORCs. Those living in NORCs enjoy their environment the most compared to elderly living in other types of residences and will less likely need to move. Most of these wanting to stay at home are also the most vulnerable (poor, old old, widowed) and pose a challenge on public policy in terms of the means to accommodate their desires.

Some of the problems in addressing the global demand for senior products in the coming future include:

- **Last move-** As seniors move to more appropriate housing, they don't want to have to move again, and their care needs are increasing. The care component is the challenge in realizing affordable senior housing (Kramer Robert, 2011)
- **Lack of assisted living supply-** There is a huge demographic driver just in order to meet current penetration rate of senior products, there is a need to build at rate of 5 times today's rate of development to match the future demand (Kramer Robert, 2011)
- **New demand characteristics-** The last 20 years of the industry will not be able to describe what the next product will need to be to fit the baby boomer generation (Kramer Robert, 2011)
- **Inappropriateness of subsidies-** Government subsidies don't seem to be changing, although there is an effort of the federal government to move toward rebalancing, and shifting money away from institutional setting toward community setting (Kramer Robert, 2011)
- **Older population-** Population that will need serving will shift from 65-85 years old to 85-110 years old, who will be more frail, and in need of care. This population no society has experience in caring for
- **Prolong stay instead of age in place-** While assisted living communities wish to allow people to age in place, realistically they don't manage to ensure that for the long term. This creates uncertainty for the residents. Prolonged residence is not fully aging in place.
- **Expensive fees-** The combination of housing with extensive personal care services is very costly and operationally demanding, making it unaffordable for many elderly persons, and thus not a realistic choice for aging in place for the majority of the elderly population
- **Difficult development funding-** It is hard to fund affordable assisted living projects, due to many financial and regulatory barriers and conflicting funds that need ongoing monitoring
- **Need more nonmedical long term solutions-** With the growth of the frail elderly population, congregate living facilities will likely not meet their needs. However many will not need the intense care levels provided in nursing homes. Only 37% of the nursing home residents actually need the level of care that is being provided. (Gimmy, Brecht, & Clifford, 1998) and could be served by other senior housing products if were available.

The frail elderly can't pay for unnecessary package of services. There is need for more long term care assistance and less acute medical care

- **Change to family structure-** As the baby boomer woman reach elderly age, their income will be higher, but many will not have family members to rely on and the need for senior housing solutions will grow even more

The situation is now changing. The commission of affordable housing and health facility needs for seniors in the 21st century recommended to congress to: preserve existing housing stock, expand successful production, rental assistance, service and supportive housing models, link shelter and services, reform existing federal financing program, and create and explore new housing and service programs.

Banks are starting to get back into the lending business, partnerships with health care oriented real estate investment trusts (REITs) are setting a new model for financing of housing assets. For small and medium sizes operators, government funding is still the cheapest source of debt capital in senior housing market. HUD and other federal agencies will continue to direct funding into local organizations that will drive services to help local markets bloom. (Kessler, 2011)

8.2.2 Local aging problem

In Cambridge the situation is not very different.

- **More elderly-** The Cambridge population is aging, living longer and requiring more services. There were 10,771 persons 65+ in Cambridge in 2008, a number that is on a rising trend. 60% of these are homeowners, 43% live alone and 40% are married. This is the pool for demand for senior housing.
- **Expensive costs of housing-** There are many low and moderate income elderly. Median costs of housing is larger than median income.

From US census	Annual median housing costs	Annual median income for elders 65+	Difference
US	\$11,000	\$19,000	+\$8,000
Boston	\$16,000	\$13,000	-\$3,000

- **Expensive assisted living fees-** Assisted living average annual cost in Massachusetts is \$51,000 and nursing home average annual cost in Mass is \$107,000. Assisted living is mostly unavailable to most poor and minority elders.
- **Small supply, growing demand-** It is hard for elderly to afford life at this stage. Demand for appropriate affordable housing is large, but availability is limited. Cambridge currently has only 2041 units throughout town that are designated for the elderly, including public senior housing, 55+ private owned subsidized housing, assisted living and nursing homes. There are just 4 assisted living facilities in Cambridge, which are mostly occupied and only a portion of the units is affordable. Total number of assisted living units that are available is 278. Occupancy in Cambridge's 4 existing assisted living facilities is high. This suggests there's a surplus of demand relative to the available supply and more housing solutions for the elderly will be needed in Cambridge

- **Large middle class-** There is a large elderly population of middle class, who are unable to obtain government support but don't have enough financial resources to access upscale retirement communities. They are the largest demographic segment with a great purchasing power. The majority of the demand will come from low-moderate income home owners who live alone in the city of Cambridge.
- **No free land for new construction-** Cambridge's housing stock consists of many 1-6 unit housing. There's very little open land for new construction. Inevitably- more NORC's will appear
- **No senior housing projects in pipeline-** The city of Cambridge has no plans for addition of new senior housing projects, or for prioritizing these developments over other housing products, in addition there are no private developments in the pipeline for assisted living or senior housing in Cambridge
- **Increasing need for services-** Similar to the US aging trend, the seniors in Cambridge have a preference to stay in their homes, but their need for services will increase, making staying at home either very difficult or impossible without a service system to support them.

In Cambridge there is a need for a model of age in place for the future, for the majority of the population, since only a few will have an option or means to move to assisted living and a housing gap will inevitably be formed without such an option. East Cambridge has been selected as the most appropriate neighborhood for the structure of the model that will be presented in chapter 10.

CHAPTER 9 GENERAL INSIGHTS AND RECOMMENDATIONS

This chapter summarizes the insights about the industry, as well as the recommendations based on literature, demographic, various interviews with assisted living providers, developers and designers, case studies analysis and Cambridge specific situation. These conclusions and insights will inform the development of a demonstration proposal for affordable assisted aging in place in East Cambridge, which is detailed in the next chapter.

Demographic data, world-wide approaches, availability of funding sources, entitlement rules, lessons learned from the case studies, and various conversations with developers, operators, designers and experts in the field have led to a recommendation for affordable assisted age in place model for the city of Cambridge. The recommendations are divided in terms of development and philosophy, financial, affordability, regulations, services activities and amenities, design, community and marketing, residents, and dementia care.

9.1 DEVELOPMENT AND PHILOSOPHY

9.1.1 Change in demand characteristics require a new type of product

- a. Growth of baby boomer and advances and improvements in medicine and health care result in longer life spans, creating larger demand for housing solutions for the elderly
- b. There is a lack of informal family based care opportunities- middle aged women who traditionally took care of their parents are more involved in work outside the home. Adult children provide the majority of the care to older people, followed by spouses
- c. baby boomers are looking for different provisions from these that currently exist in senior housing products

9.1.2 Age in place product type

- a. The desire of the wide elderly population is to age in place, usually in their own place which should lead to a new senior housing product
- b. Assisted living facilities as they are today, don't always provide the aging in place that elderly look for when physical condition of resident worsens, there's a need for a continuum care solution
- c. There is a lack of affordable housing for the Boston area elderly, and lack of informal supports, greater need for social and medical care compared with MA and the nation. New products that will be available in the short run will need to appear
- d. Many elders feel more independent at their own homes. Loss of home can lead to loss of independence and then to loss of sense of control
- e. Keeping elderly in their retrofitted homes will need to be supplemented with a central building, a service house, which will provide common amenities, base for service staff, and several traditional units of assisted living.

9.1.3 Provide alternative to nursing homes and expensive assisted living

- a. The older the population, the more formal service intervention needed for personal independence- the older elderly are in better shape today than in the

past and prefer to stay in assisted living than nursing homes. Nursing homes will care for a small fragment of the population, while home care and assisted living will care for the majority

- b. Assisted living costs are about 50% of skilled nursing care costs. One of the long term care challenges is to make it more affordable.
- c. Assisted living facilities supply doesn't meet the growing demand, and their expensive fees are a barrier for many elderly people, fees will have to match the population they intend to serve
- d. The states have a great interest in reducing the nursing home costs for which they are mostly accountable. They would support a system that helps keep elderly out of nursing homes

9.1.4 Combine housing and services

- a. Senior housing by itself without provision of services is not a viable model. Even very affordable senior apartment developments make services available for their residents by integrating external providers into their operations
- b. The most important aspect of assisted living facilities is the provision of social settings for interaction, and sense of community. For aging in place model to be able to replace assisted living facilities, it has to resolve the socialization goal
- c. Many companies that manage assisted living facilities can in fact manage housing with fewer services, and the demand for housing types that combine independent living with services is likely to increase

9.2 FINANCIALS

9.2.1 Ensure self-sustainable development

- a. Any development has to be self-sustainable financially. One time funding opportunity that doesn't secure the future operations of the project is not recommended
- b. A model will be self-sustaining as long as it keeps the level of occupancy up and avoids the need for financing

9.2.2 Minimize debt and make use of tax credits state aid

- a. It is better to use as little debt as possible for development, to free money for operations rather than having large debt service later on
- b. Typical structure of affordable assisted living development will start with LIHTC for maximum equity, then "soft seconds" of state and federal funds, then long term financing- as little as possible to free up money for operations

9.2.3 Economies of scale

- a. For the operations to be cost effective an assisted living with senior housing development needs to have a core of residents that rely on services that can support a staff for efficient operations, with some independent living people on site that could potentially take advantage of the services

9.2.4 Profit and return targets

- a. Profit margins for assisted living properties before debt are ~40% for 100% market rate to 15% for 100% affordable, when taking debt out of it- the profit margins range from 1-10%

- b. Investors are looking for 16-22% IRR on new assisted living developments, or acquisition of distressed properties for repositioning. Once stabilized, they are looking at the yield of 7-9%. More expensive money on the development side, more patient money on the long term (Nowokunski Wendy and Ricardi Sharon, 2011)
- c. Realistic development cost per unit of assisted living will vary from \$200-\$400 per unit. (the higher number can occur due to high land and operating costs)
- d. Most profitable and popular are 1 bedroom units, which also allow charging a bigger premium on the real estate

9.3 AFFORDABILITY

9.3.1 Reuse homes

- a. Aging in place in their own residences is by itself a more affordable solution for most elderly residents. As people get older their income drops, moving to new environment is usually more expensive
- b. Using an existing land or building will substantially reduce the development costs
- c. Reusing existing building stock and converting to senior housing with services or assisted living will be welcomed by most municipalities, and will potentially allow use of historic tax credits to make it more affordable

9.3.2 Reuse historic buildings

- a. A combination of low income housing tax credits with historic tax credits have proved to provide a good source for development funding of historic building renovations. This structure can affect decisions on where to develop assisted living

9.3.3 Need for mixed income development

- a. 100% affordable units may be easy to occupy but will result in a model that can only survive a short number of years. There is need for some of the higher paying residents to help share the operation expenses burden of the affordable units with cross subsidy
- b. The affordable market has less risk of incorrect estimation of demand, since the market is larger and largely un-served
- c. It is socially important for the community to create a model in which everyone in the community shares the expenses

9.3.4 Focus on solution for middle income people

- a. Assisted living is for the middle class, poor can only access it through Medicaid, but is limited in supply. A more affordable solution similar in provisions to assisted living is needed for the middle to low class
- b. There is a narrow band of population income level and asset owned that are above the threshold to get any state assistance, but still with not enough money to privately pay for housing and services at market rate. These are blue collar workers who have never owned a home, but worked all their life and get a social security benefit that is above the level to be eligible for GAFC. If these people have no support of their adult children they are even in a worse condition. These people are the ones who will end up in nursing homes which are very expensive

for the state. A rate of \$2500-3000 a month for assisted living will be appropriate for them

9.3.5 Reduce operating costs

- a. Maximize use of external service providers and state funded service providers
- b. For service, programs and activities- keep costs as low as possible by relying on a large pool of volunteers
- c. The greatest challenge of affordable assisted living is to provide the same care as in market rate facilities that is so expensive to lower income people (staff is 2/3 of expenses). Successful case studies manage that by integrating many subsidies and using cross subsidies between the residents.
- d. Management of affordable assisted living is very different from market rate facility, with a more universal approach to staffing (rather than specialized staffing) in order to reduce number of employees
- e. New technologies that can reduce staff ratios should be considered.

9.4 REGULATION

9.4.1 Need more integrated subsidies

- a. The use of multi financing sources with separate requirements for auditing and monitoring adds complexity to managing the facilities (and any affordable housing projects in general). If there was a structure or position that could assemble and coordinate these monitoring efforts it could make operations more efficient

9.4.2 State aid and entitlement will need adjustments

- a. Rental subsidies as well as service subsidies will need to be reformed to fit a new aging in place senior product
- b. Entitlements will have to be reformed. The government and both parties don't want to face this problem at this stage, especially due to the huge deficit
- c. GAFC funds for operations, in their current structure and amounts, pose risks on the operations of assisted living. PACE and models that provide services based on needs rather than on set requirements are better for the residents and more affordable for the operators. GAFC involves hard paperwork, low reimbursements and need to partner people in rooms to afford their stay
- d. The healthcare system has a difficulty to follow the model of paying for prevention. It can't justify a payment for a person before they have a condition that requires a certain treatment. This prevents the system from providing the elderly with the means to age in place and to live independently
- e. State regulations will have to change eventually to reflect the position that assisted living and age in place products are filling- replacing the care families used to give their elderly. Regulations will have to change to allow age in place and reduce burden on nursing homes
- f. Changing attitudes regarding regulation- policy makers are encouraging states and service providers to seek different approaches. The growth in unlicensed facilities also encourages the development of new standards

9.5 SERVICES, ACTIVITIES, AND AMENITIES

9.5.1 Focus on services

- a. Successful assisted living is a combination of development and operation. Separating these and not including an operation system that functions with the development structure will result in project that doesn't function as well
- b. Services are the most important part of assisted living, and the most costly. Finding a way to provide these to the elderly in their homes for low cost will allow the population to age in place

9.5.2 Individualized Services

- a. Providing services based on individual need is more cost effective and better provides individualized care for the residents
- b. Providing too much services may take away some of the independence of the residents. European models try to provide the minimum needed for existence, while encourage even frail elderly to take care of themselves

9.5.3 Maximize use of external providers

- a. Assisted living facilities are regulated based on their service provisions. Housing providers are regulated against providing services, but can engage in coordinating these by external providers
- b. Senior housing/ assisted living in urban setting can take advantage of more resources from the community and will likely be more affordable
- c. ASAP can give some of its services to people who don't qualify through a case manager in a building that has many members, people can also private pay for their services, they are willing to help anyone who has the need
- d. There is an increasing availability of community based care
- e. Volunteers can be used for social services, but not for any personal care. With volunteers there's less reliability on the quality and commitment of these alternative service providers

9.5.4 Adjust service levels to cut expenses

- a. In affordable developments the level of services has to be adjusted to fit the populations. The food provided is different, as well as the type of activities and entertainment from what a market rate assisted living would provide. These adjustments allow some cutting down on expenses making the services more affordable

9.6 LOCATION

9.6.1 Urban products, Infill developments

- a. As population in cities grow, retrofitting the houses of people aging 65-85 is needed to allow them to remain in the houses until they become frailer. When they reach 85+ the home environment is less practical and affordable because of the need to bring all the care to them.
- b. Suburban CCRC's will likely disappear, instead there will be more urban housing and more infill developments

- c. Successful assisted living facilities don't need street visibility, but need to be in proximity to a recognizable place for the population. This can substantially reduce the land costs.
- d. Location of assisted living facility has to satisfy 3 client components: residents- very few drive, families- most drive, but depends on socio economic level, and employees who most likely use public transportation

9.6.2 Mixed income neighborhoods with gentrification potential

- a. The city will support a development that helps retrofit and maintain houses in neighborhoods and keep them in good condition
- b. Affordable aging in place products will be more successful in mixed income neighborhoods
- c. Neighborhoods with large population of 65+ people will provide more economies of scale for the service provisions of an aging in place model

9.7 DESIGN GUIDELINES

9.7.1 Use existing building stock

- a. Adjusting private homes to allow aging in place as well as making use of existing structures for common amenities, service hubs, and senior centers will be a benefit in a city that has little supply of free land.
- b. Some developers believe that retrofitting existing buildings to assisted living has been successful, mostly when the original use of the building allowed design that was less restrictive. Mill building that doesn't have much of existing floor plate and allows integration of many larger common spaces is usually successful, also school buildings, more than hotels or nursing home that had small structural module. Other developers mentioned that they had more success with retrofitting buildings whose original use was somewhat residential, such as nursing homes that were easier to renovate. This suggests that all these building types can be successfully renovated if designed correctly
- c. Neighborhood stabilization will preserve the integrity of aging neighborhoods and extended families

9.7.2 Image

- a. Emphasize the home like feel environment- Make assisted living building softer and more residential feeling. More clustered spaces, less long corridors but more breaks and widening of corridors to allow for social interaction, variety of scales. One size does not fit all
- b. Aging in place adjustments to private homes will have to be minimal for affordability, but enough to allow an elderly to use the physical environment for the long term.
- c. As average stay in assisted living will increase people will look for a more sophisticated design that will satisfy their varying needs, include features such as theater and common spaces on different levels

9.7.3 Assisted living Building efficiencies

- a. Assisted living design is moving toward a more compact model with shorter corridors and slightly bigger buildings- same unit sizes but larger common areas.

While double loaded corridors are less common, they are still the most efficient organization and can be achieved to reflect a residential setting

- b. Assisted living is 800-850 GSF per resident
- c. Traditional assisted living units can be studio, 1BR, or 2BR ranging from 400-700SF, units are becoming more spacious. Alzheimer units are more efficient in size- usually studio rooms with no kitchens
- d. 20-40% common area to gross building. Building typical efficiency is 60%-80%
- e. Developers are mixed about their attitude toward having full kitchens in assisted living residences. Some think this is a hazard, other think this is a measurement of independence. All independent senior apartments need to have full kitchens
- f. Ideal parking for assisted living is 0.75 spaces per unit

9.7.4 New design guidelines and codes

- a. Developers welcome ideas of universal design, but not all universal design recommendations are acceptable by all populations. A development needs to have a balance of some units that will satisfy those who are not in a special need category and expect their design to reflect that
- b. In Massachusetts designers have to respond to many assisted living codes and accessibility codes (ADA, Mass Accessibility 521CMR, city zoning, IBC etc). But the occupancy level is still R (residential) for assisted living, which can result in less institutional environments. There is a building code challenge, which will happen when people age in place, and the current facilities will have to provide more institutional care, but are built to R occupancy level. There will be a challenge to adjust the existing structures to the codes (Waleryszak Mike, 2011)
- c. As energy code becomes stricter, there's a move toward more sustainable developments, and assisted living is regulated under LEED for homes. LEED certification is expected to become the standard- ensure better quality of construction, and more longer term design with systems that will not have to be replaced in the short term

9.7.5 Systems, functions and New technologies

- a. People are more interested in food and this carries into design and variety of food related spaces that are need to be provided (restaurants, internet café, dinning halls) (Frank Gerard, 2011)
- b. Wireless connection is being provided all throughout the buildings in new developments that are currently planned
- b. Growth of new technologies and care systems make it easier to care for older sicker people in non-institutionalized environments
- c. Use of new technologies can reduce staffing ratio and allow more affordable products

9.7.6 Physical appearance

- a. Increase use of outdoor rooms- enabling environments- front/back porches and courtyards to enrich the environment
- b. Design all units to be adaptable (include blockings in walls for grab bars, etc), 50% of the units to be fully accessible
- c. Fenestration treatments to solve glare problems are critical for aging people

- d. More use of operable windows, window treatment (tints) and floor material to reduce glare (avoid silk vinyl), minimum patterns in dementia section, increased levels of lighting with variety of sources
- e. Use eccentric mix of interiors- not one size fits all
- f. Assisted living facility needs to be renewed with new finishes every decade
- g. With European influence there's a shift of focus from quantity to quality

9.8 COMMUNITY, RESIDENTS AND MARKETING

9.8.1 Encourage community engagement

- a. Staying part of a community is a form of aging in place. Many elderly value the sense of community in which they live and prefer to stay in 5 mile proximity to their original communities, even if need to move to more appropriate housing.
- b. Intergenerational programming is good, up to a certain level. Mostly to allow the generations to watch each other and to interact for short segments of time
- c. Communities welcome assisted living and senior housing products. These don't negatively impact neighborhoods (traffic). But communities don't want to see affordable assisted living turn into rental multi-family low income housing, municipalities need to provide special permit on land for continued use
- d. Assisted living is perceived as gain for the whole town, need to get more flexibility with special permits, comprehensive permit process and rezoning

9.8.2 Marketing based on education

- a. Education for seniors is needed regarding what options for housing are present. Many are not aware what assistant living is and are hesitant to move in. If they knew what it is – for example the fact that they have their own apartments, they would be more positive about it. If they come in to assisted living sooner, when they are still independent, they could age in place as services being added according to their changing needs (McWilliam Jamie, 2011)
- b. Marketing of assisted living facilities is done mostly by referrals (hospitals, discharge planners, geriatric case manager, vising nurses at home) to adult daughters and daughters in law and seniors themselves, and much by word of mouth. Rather than traditional marketing, education of the population is more important to understand the benefits of assisted living

9.9 DEMENTIA

- a. Alzheimer is becoming an epidemic and will have an economic toll on the nation. New facilities for the aging population have to address the need for specific care for dementia and Alzheimer residents
- b. Many senior housing products manage to allow people with dementia to age in place with coordinating and providing enough community based services to keep them safely in their familiar environment.
- c. Adult daycares can be used during daytime to support people with dementia and Alzheimer who live independently in their homes.

- d. Dementia units in assisted living buildings to use visual cues such as differentiation of toilet seat color, circulation that allows safe wandering – less anxiety which can reduce need for medication
- e. Too much technology in the resident environment can overwhelm and scare dementia residents

CHAPTER 10 PROPOSED MODEL: AFFORDABLE ASSISTED AGE-IN-PLACE MODEL (AAAM)

Based on the previous chapter's recommendations, this chapter proposes a new model for conversion of a residential neighborhood into an affordable assisted age-in-place community. This model is then applied for East Cambridge to generate a specific proposal and demonstrate opportunities and issues posed in a real setting. East Cambridge is an example of a typical urban neighborhood in which this model can be structured, but the model has the potential to fit as a generic solution within similar neighborhood environments in other urban areas. In the first part of the chapter we discuss the general concepts of the model. In the second part we go into more detail to explain how this can be done in Cambridge and what specific tools are needed.

10.1 GENERAL MODEL

10.1.1 Development and philosophy

We suggest a new development structure that will allow private developers to overlay assisted living operations structure on a residential neighborhood fabric, to allow elderly residents to age in place, by adjusting the housing and providing supportive service system. The model will provide a continuum of care for the participants from independent living to full assisted living, and will hopefully allow many of them to fully age in place.

It will be based on the natural population that exists in the area, like a NORC, but will be targeted rather than happen by itself as a NORC. By using the existing built environment, the total costs of the model should be lower in the long term than building a whole new project in a suburban location, the model will be more self-sustainable for affordability, and the residents will enjoy the ability to stay in their homes for the remainder of their lives.

Participating homes will be purchased by the developer in a long term structure. They will be renovated by the developer to fit the needs of the original owners, according to renovation packages that will be agreed upon when signing the contract (see Section 10.2.7 -- building design). The renovation level should be such that will allow the participants to age in place. The developer will provide an adjustable service package based on participant's need over time (see services section). The developer provides the resident with the option to remain in their homes for the rest of their lives, with the promise to provide all needed services for the long term, and in return gets the right to own the properties after a number of years that is based on a calculations that accounts for the home value, renovation package reduction, and service provisions over time.

The developer will also build a neighborhood based service house that will accommodate all the common amenities which the participants can use. It will provide the common space at which the residents can socialize and have access to variety of services, while some of the services will also be delivered to their own homes. The services staff will be located in the service house and it will also house a 24 hour staff on call to deal with emergency situations.

While wanting to keep people at their homes, it is clear that an affiliated stand-alone assisted living facility is needed for certain situations when residents will need more supervision. The traditional assisted living portion will be small, and connected directly to the

amenities and services that the service house provides. It will serve as a transient place of stay for elderly during renovations of their homes, and short terms stays after hospitalization periods before returning home. It will have the potential to turn into traditional long stay assisted living unit.

The model will provide several in house services as well as coordinate external services. Each participant will be evaluated for individual service needs and assigned a package of services that corresponds to these needs. As the needs increase, the packages will be updated to include a higher level of provisions.

For the residents this allows the security of knowing they can stay in their homes and afford the needed help over the years as well as get a relief from the maintenance related to their homes. The developer will eventually be able to own these properties and either keep them as elderly housing or rent/sale at market price at that time. The model structure is such that in the aggregate the developer will also be able to make some profit along the years in addition to the properties that will be gained at the end. Some residents will be a source of profit, while others who may need high level of services for a long time may be a source of loss. If actual statistics and probabilities are calculated correctly, the total aggregate outcome should result in a profit for the developer. The model will also make use of state subsidies and funds for residents who spent down their assets to allow them to continue receiving the same level of services that they need.

There will be no limit to number of units that can participate, but a geographic limit to the neighborhood will exist, to allow the service staff to easily access all participants, as well as allow the participants access the service house amenities. Density of population is critical for the success of the service provisions. The model can only work in neighborhoods with large population of 65+ homeowners, after marketing efforts that check the interest of these residents to such a living structure.

The development becomes a virtual scattered assisted living facility, which may be a bit more expensive to operate but allows aging in place, and makes immediate reuse of existing housing stock. The traditional assisted living building is spread out on a neighborhood fabric. The common amenities remain central, but the units become the elderly private properties. (Some transient assisted living units will be provided in proximity to the service and amenities center).



The philosophy behind the proposal

- “Apartment for life” allows the majority of the participants to age in place.
- Assisted living development and operations need to be linked together.
- Care level to fit the resident. One size does not fit all.

- Existing housing stock reuse.
- Middle income seniors' need of a solution for housing.
- Affordability for participants when needed.
- Maximum state aid in serving the population.
- Affordable development needs to provide profit to developer in order to exist.
- Neighborhood preservation.

The goals of the development

- Preserve existing houses and retrofit these existing already built environments to correspond to the abilities, needs and preferences of the elderly.
- Provide personally adjusted services which promote continued health and independence of the residents.
- Encourage resident's independence but provide the needed help, while keeping care costs low and residents motivated to live independent life.
- Provide an alternative to traditional assisted living for the previously underserved middle class income market that can't access subsidies when still have income, but can't afford the high private pay of traditional assisted living.
- Allow residents to age in place in their familiar locations which are in proximity to activities, public transportation, amenities and health care providers.
- Add a service house with assisted living component that will include common amenities to serve older people in the surrounding neighborhood. The building appearance to be residential and fit the neighborhood design
- Take over properties in the neighborhood that will allow higher rent income/ sale proceeds in the future
- Maximize use of volunteer organizations to reduce service costs, as well as maximize use of volunteer groups
- Allow for social setting in service house with pre-formed community
- Provide care for participants with Alzheimer and Dementia
- Maximize use of state funds to allow residents who spent down their properties to remain in the model and enjoy the needed level of services.
- Achieve a positive or zero NPV on the total model, with some participants covering the extra expenses of others, as well as of the service house

10.1.2 The 3 components:

(i) The renovated homes:

This is the major portion of the model. It is made up of private homes, either single family, 2 family or condos, with participants that will be able to join the model. Each house will be evaluated for renovation by the developer to fit the needs of the resident in the years to come. The renovation will happen immediately as the participant joins the model. The property will change hands from owner to developer in small yearly portions that correspond to the amount of service fees (including rent) that the participant is scheduled to pay plus a premium. When the aggregate service package (which includes a rent portion) provided to the participant

reaches the home value, the developer gains full ownership of the property. The deal will allow the participant to remain in the property beyond that time and continue to benefit from the services, when the service fees will likely be covered at this stage by the state subsidies (Medicaid) because the resident does not own assets to spend down anymore.

(ii) The service house:

The model will include a service house which will include common dining room and kitchen facilities, exercise and activity area, convenience store, and library. It will ideally be a renovation of an older structure within the neighborhood, and will take advantage of LIHTC and historic tax credits. It should be located with proximity to majority of the participants who will be using the amenities on a daily basis. Transportation/ escort will be provided for age in place residents who have difficulty in accessing the service house. The main purpose of the service house is to provide a structured social setting, and to locate the offices, staff and base of operation from which service providers will be distributed to the homes.

(iii) The traditional assisted living component:

This component will be a part of the service house, and will contain about 10 traditional assisted living units per every 80 residents living independently in the model throughout the neighborhood. It will mainly serve as transient residence for participants during the renovation of their properties, and as short term recovery when needed. This component will use all the common amenities of the service house as well as the on-site staff.

10.1.3 The 4 stake holders:

(i) Participants/ Residents

These will be moderate to low income individuals who are homeowner in the neighborhoods, probably mostly owning properties that are free of mortgage. The ideal pool of participants will be those who will need to spend down their assets and whatever income they have in retirement in order to afford to move to a traditional assisted living, and will thus find the structure of the model beneficial.

(ii) Developer

The developer has to be both an operator and a developer in order to supply quality based services. While this structure could be done by a non-profit, the model thrives to find a possibility that while allowing long term affordability to the participants, there will also be a monetary benefit to the developer in addition to the properties that the developer will eventually own. This will base an incentive for the private market to help the state goal in allowing elderly to age in place.

(iii) The city

The city will benefit from a private developer offering help to the wide elderly community, and allowing them to age in place, lowering the demand pressure on need for new senior housing facilities citywide. Ideally, the city will participate in subsidizing the development of the service house/ assisted living building, (by helping find distressed unused buildings and easing on the zoning/ permitting process of conversion). The city also gains from the private

developers structure which helps to preserve the neighborhoods, upgrade and maintain the neighborhood, raising the value of the properties.

(iv) The state

Since the structure incentivized the developer to keep the participants in their best condition, it is likely that in the long run these participants will not deteriorate to a level of need that will burden the state. On the other hand, the financial structure of the model is built to account for state aid kicking in once the participant's property has fully moved to the developer ownership. Some of this aid may come through existing state programs. But likely there will form a need for creating adjusted state programs that could support this model.

10.1.4 Financials

If a resident chooses to participate in the model, their house will be evaluated for current market price and extent of renovation needed in order to bring it to a functional level that will allow the individual to age in place, according to 3 renovations packages of different levels (see Building design Section). The initial value of the house will be reduced by the amount of the renovation package that the developer has invested in the house. The remainder will be paid over years by ownership portions of the property moving from the participant to the developer, equal in value to the annual amount of service package (including rent) that the developer provides, and a premium set to cover the participants service needs for the years after the whole property value is paid off and the property changes hands.

The developer will commit to adjusting the service package to higher level of provisions, if the individual's condition will worsen and to provide these for unlimited time as long as the participant is alive and part of the model. The developer will provide all maintenance, services and initial renovation package for the right to own the house in full once the value of the house matches the services and housing fees provided up to that point. Services will be provided for the lowest feasible cost. The developer will maximize use of volunteers and care and repair programs that can help adapt the dwelling to fit the elder's needs.

The resident will spend down the house over time with access to the needed services, and the right for unlimited services in the future. The residents will be free of the maintenance issues of the house but will enjoy the benefit of continuing to live there as before. Renovations to the level agreed upon before will be carried on by the developer while the resident lives in the house, or give an option for temporary move to the assisted living/ service house building during that time.

The financial structure eliminated the need for the developer to put in a large down payment upfront for the property. It will shift to be his in the small yearly portions until 100% of the property has been reached. In order for the developer to have actual cash to pay for the services in the initial years, he will need to get bank loans in the form of equity loans, based on the portions he has in the properties. This structure is based on homes that are owned free of mortgage. Those who are still paying mortgage or are renting could gain access to the services, on a rental fee basis. And those who do not wish to sell their property to the developer but wish to keep an equity in their property, will have the option to rent the services, but for a higher fee.

The expenses to the participant will be higher in the initial years with a premium set to cover an average number of years of service beyond the stage when these can be paid for in portions of home value. The resident is likely to agree to pay more upfront, knowing this structure can carry his/her needs for unlimited time and allows him the benefit of staying in his/her own comfortable space. The model makes use of a combination of private pay and state reimbursements.

For the developer to break even or make some profit, the calculations for each property has to be careful to make sure that the model can sustain itself in the future. This model entails a lot of unknown variables, such as the number of years a person will live and the service needs that will change over the years which have to be taken into account in the structure, in a similar way that an insurance company plans for profit in spite of the unknown incidents it will have to cover.

The choice of the neighborhoods that can hold this AAAM structure is very important for the model to succeed and the developer to profit. Neighborhoods that are more likely to gentrify in the future, and where the property values are likely to rise will be better in terms of risk. These will provide a chance to achieve a higher rent income off the properties once their initial resident leaves and the developer can rent for market rate, or achieve higher sale proceeds if chooses to sell.

The model needs to be self-sustainable financially over time. In the beginning much of the expenses will be covered by the participants, as they grow older and most of their house ownership shifts to the developer ownership, they will become eligible for state help that could support the service provisions that they will be given by the AAAM. Some residents will have large home values, little needs for renovations and services, and live short lives. Others will have homes low property value, extensive service needs and live many years beyond the point in which they finish paying in house ownership for their needs. The model will be based on profits made from some participants' situation covering the losses on other participants. This is similar to an insurance scenario but at a smaller scale, hence smaller risks can be taken due to statistical fluctuations.

When the participating residents move out to a nursing home or pass away the developer gains ownership of the property, (if the house value has not been fully paid by the developer over the years of servicing that participant he will have a right to purchase the house for a substantial discount). If the participant will recover and wish to return to the model, he/she will be given a space in the traditional assisted living portion.

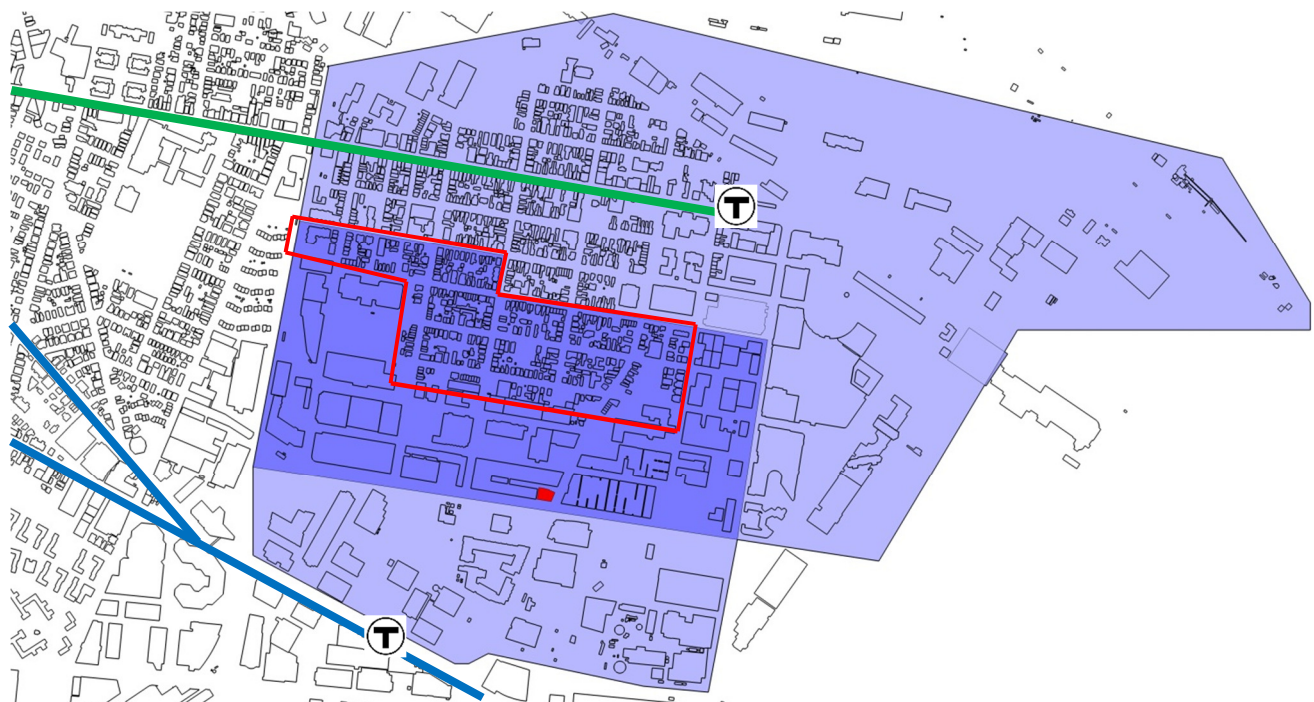
As the participants "lose" their assets over the years of receiving the service, many will likely become eligible for state help such as Section 8, Medicaid programs etc. These will help the developer keep the service packages for the residents at the same level as before, even when they are not being paid for by the property. Initial funds for the new service house/traditional assisted living building should be structures on grants, tax credits, and state funds. Otherwise the model is self-supporting, deriving operating funds from fees charged to the residents.

10.2 EXAMPLE APPLICATION OF THE MODEL IN EAST CAMBRIDGE






In this Section we will examine the applicability of the model to East Cambridge. The AAAM model will best fit the south west corner of East Cambridge, with a median property value of \$233,000. Out of the 779 households within this area, we can expect to have about 10% join the model initially, which will be roughly 80 households. In the long run, when the model will prove to be successful and will gain some exposure within the neighborhood and Cambridge in general, we can expect more households to join the model and the pool of existing 65+ households is wide enough to support this.

The currently for-sale historic landmark building on the intersection of Binney street and Third street could potentially fit the service house/ assisted living building. It was a Kendall boiler and tank company building, and has 14,000SF. It could be renovated with historic tax credits and low income housing tax credits, which seems to have been a good combination for developers trying to achieve affordable assisted living in this area. The building is not in immediate proximity to the area where the majority of the residential homes will be, but is within a walking distance/close car ride. It has good street visibility, and could be easily accessible from the nearby Kendall square T station by the staff who will be commuting daily.

In the figure below, in blue is the selected neighborhood portion, within a red contour is the area of residential houses.



East Cambridge built environment with selected area for AAAM model and service house

-  T stop
-  Cambridge st. with retail and bus transportation
-  Broadway st with bus transportation
-  Service house location
-  Focus area for homeowner participants

10.2.1 Service packages

Annual costs of packages:

Cost	Package A	Cost	Package B	Cost	Package C
\$ 5,000	Administration	\$ 5,000	Administration	\$ 5,000	Administration
\$ 12,000	Rent	\$ 12,000	Rent	\$ 12,000	Rent
\$ 2,000	Maintenance	\$ 2,000	Maintenance	\$ 2,000	Maintenance
\$ 3,000	Taxes and licenses	\$ 3,000	Taxes and licenses	\$ 3,000	Taxes and licenses
\$ 2,000	Insurance	\$ 2,000	Insurance	\$ 2,000	Insurance
\$ 4,800	Food Service (2 Meals)	\$ 6,400	Food Service (3 Meals)	\$ 6,400	Food Service (3 Meals)
\$ 1,400	Social Service	\$ 1,400	Social Service	\$ 1,400	Social Service
\$ 200	Transportation	\$ 200	Transportation	\$ 200	Transportation
\$ 1,300	Weekly housekeeping	\$ 1,300	Weekly housekeeping	\$ 2,000	Daily housekeeping + bed making
\$ 1,000	24 h access to care and emergency calls	\$ 1,000	24 h access to care and emergency calls	\$ 1,000	24 h access to care and emergency calls
\$ 500	Personal Care	\$ 3,500	1 hour Personal care and assistance with ADL	\$ 9,500	3.5 hour Personal care and assistance with ADL
		\$ 200	Laundry	\$ 200	Laundry
		\$ 100	Assistance with medication management	\$ 100	Assistance with medication management
				\$ 8,000	Daily access to adult daycare
\$ 33,200	annual	\$ 38,100	annual	\$ 52,800	annual
\$ 2,767	monthly	\$ 3,175	monthly	\$ 4,400	monthly

These packages reflect the expense the developer will incur in order to service one participant person for a year. They include a rent portion as well as back of house expenses in addition to the direct service provisions. The rent is based on a \$1000 flat rate for simplicity, but with an intention to anchor another affordability measure within the packages. The rates are roughly based on information provided by local developers of assisted living communities, and are realistic for 2011. The rent will be set to the level that the government will approve.

Package A- is intended for those who want to join the model, but are still independent in their lives. It is similar to what they could expect to get in independent living in CCRC.

Package B- is basic assisted living service level. It should allow a person to manage with activities of daily living and help with chores and tasks outside the home.

Package C- is an extended package for those residents who otherwise would not be able to stay in their homes. It should also allow residents with dementia to remain in the model by spending the majority of the daytime in an adult daycare.

A care manager will be assigned to the neighborhood and will be located in the service house, he/she will provide service coordination and referral for all the participants, as well as others in the neighborhood who are not yet part of the development. The AAAM model will provide in addition to the onsite services according to the packages, referrals and coordination of other services which will help the elderly participants.

Compared to the assisted living case studies the monthly fees are affordable. In addition, it is likely the residents will be willing to pay a higher premium for the benefit of aging in place.

Meals will be prepared in the service house by in house staff, and will be home delivered to the residents, or served in the common dining room to the assisted living residents and to AAAM participants on a walk in basis.

The developer will maximize use of volunteers for cleaning, maintenance, and other non-personal care services such as companionship programs, money management aid, medical appointment escorts, and pet help programs, in order to minimize the service costs. Volunteers will be recruited among the participants, the neighborhood residents, and the wide Cambridge community. The service staff will be centrally located at the service house, but will be rotating among the participants' houses during the day according to the needs.

Transportation will be provided by the developer in collaboration with the T (which offers free transport to disabled). This will include help in getting from homes to the service house, as well as other transportation across town to medical appointments. A visiting doctor will be available in the service house on a weekly basis, which may save some of the transportation expenses.

The developer will work in collaboration with the local ASAP provider, which, in this case, is Somerville and Cambridge Elder Care Organization. They can support many of the residents whose needs require aid with ADLs and some skilled needs. Those participants whose level of income and asset will reach a point that is low enough could be eligible for Mass Health and then get unlimited support from the ASAP, reducing the costs the developer has to incur in order to service them. But the developer will remain the main coordinator of the services. The developer has to be careful not to charge the participants for services that ASAP provides free of charge, but rather manage these and coordinate into his offered service package. In a discussion with the President of the Somerville Cambridge Elder Care Organization, he said that they will be willing to work with a developer, or via a third party in order to serve the relevant population.

Since the developer is committed to providing level of service based on needs, without additional payment from the participant, they have an incentive to try to help the residents stay in good health and condition, and thus require less help. This structure will ensure the resident will get the best quality of care according to their level of needs at all times.

Possible current organizations that could help are ASAP and SCO. The state will need to create matching types of subsidies that could support the middle income people who need service help.

	service house	private homes	private home per unit annual	service house per unit annual	
EXPENSES:					
ADMINISTRATION					
Administrator-Salaries	\$ 280,000	\$ -	\$ -		
Office expenses	\$ 330,000	\$ -	\$ -		
TOTAL ADMINISTRATION	\$ 610,000	\$ -	\$ -		\$ 7,625
MAINTENANCE					
Utilities	\$ 40,000	\$ 144,000	\$ 1,800		
Salaries - Maintenance/Housekeeping	\$ 20,000	\$ 96,000	\$ 1,200		
Maintenance	\$ 11,000	\$ 40,000	\$ 500		
TOTAL PLANT & MAINTENANCE	\$ 71,000	\$ 280,000	\$ 3,500	\$ 888	\$ 4,388
TAXES AND LICENSES					
Taxes - Real Estate	\$ 25,000	\$ 80,000	\$ 1,000		
TOTAL Taxes and licenses	\$ 25,000	\$ 80,000	\$ 1,000	\$ 313	\$ 1,313
INSURANCE					
Insurance - Property	\$ 23,000	\$ 64,000	\$ 800		
Workers Compensation	\$ 15,000	\$ 32,000	\$ 400		
Employee Health Insurance	\$ 66,000	\$ 136,000	\$ 1,700		
TOTAL INSURANCE	\$ 104,000	\$ 232,000	\$ 2,900	\$ 1,300	\$ 4,200
PERSONAL CARE					
Nurse-Salaries	\$ 100,000	\$ -	\$ -		
Personal Caregivers-Salaries	\$ 490,000	\$ -	\$ -		
Supplies	\$ 10,000	\$ -	\$ -		
Adult day care	\$ 150,000	\$ -	\$ -		
TOTAL PERSONAL CARE	\$ 600,000	\$ -	\$ -	\$ 7,500	\$ 7,500
FOOD SERVICE					
Salaries	\$ 270,000	\$ -	\$ -		
Food and supplies	\$ 180,000	\$ -	\$ -		
TOTAL FOOD SERVICE	\$ 450,000	\$ -	\$ -	\$ 5,625	\$ 5,625
SOCIAL SERVICE					
Salaries	\$ 95,000	\$ -	\$ -		
Supplies and Events	\$ 15,000	\$ -	\$ -		
TOTAL SOCIAL SERVICES EXP.	\$ 110,000	\$ -	\$ -	\$ 1,375	\$ 1,375
TRANSPORTATION					
Van expenses	\$ 8,000	\$ 8,000	\$ 100		
TOTAL TRANSPORTATION	\$ 8,000	\$ 8,000	\$ 100	\$ 100	\$ 200
DEBT SERVICE					
Debt service	\$76,419				
TOTAL DEBT SERVICE	\$ 76,419	\$ -	\$ -	\$ 955	
TOTAL OPERATING EXPENSES	\$ 2,054,419	\$ 600,000	\$ 7,500	\$ 25,680	\$ 33,180
TOTAL OPERATING EXPENSES	\$ 2,654,419				\$ 33,180

The expense model is based on 80 participants, and separates the expenses that will cover the service house operations and those that will cover the private homes. The total expense (equivalent to Package B, which is similar to traditional assisted living) is \$33,180 per year per participant (in Package B). The expenses assumptions are based on information provided by local developers and are adjusted to fit the structure of this model. According to the model, the minimum number of units that will be able to support each other and the common service house is about 60 units.

10.2.2 Three participant scenarios

In this Section, we study 3 typical participant cases to show possible outcomes for the developer and the participant. Inflation rate (2%), equity loan interest (3%), loan to value ratio (80%), and cap rate (6%) have been kept similar for all cases. Also the SS income for the resident has been set for all types of participants at an annual rate of \$30,000 (in the initial year and grows with inflation). We assume \$10,000 out of this income is the possible payment the house owner can assign for rent, and 90% of the remainder which is \$18,000 is possible payment for services. These of course do not cover all the needed payments. The house owner pays with “home equity” and a premium of \$5000 raising this equity for the rest of the fees. Once the developer assumes full equity of the house, and the participant can’t use equity to cover some of his expenses, the state aid commences.

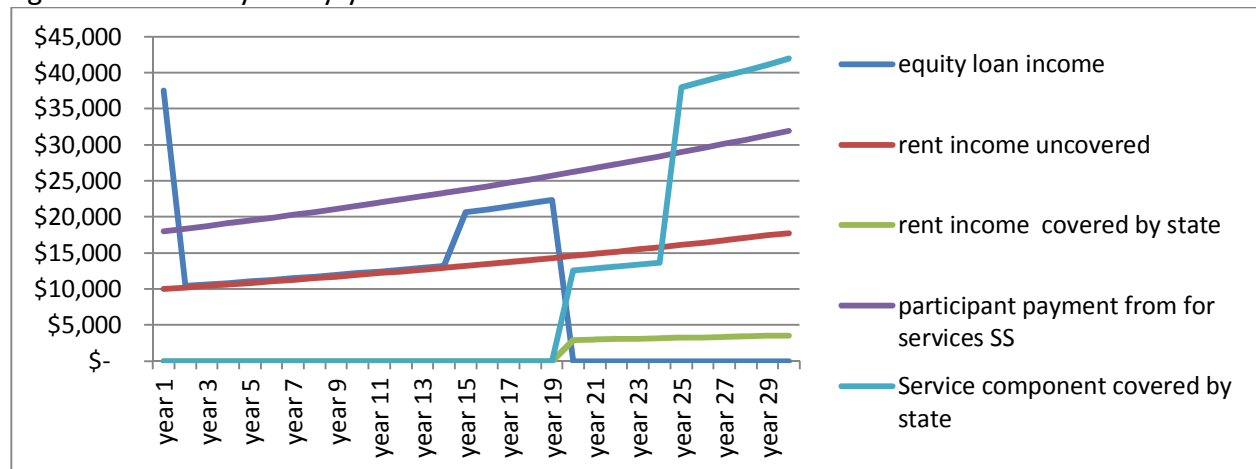
Participant 1- average scenario

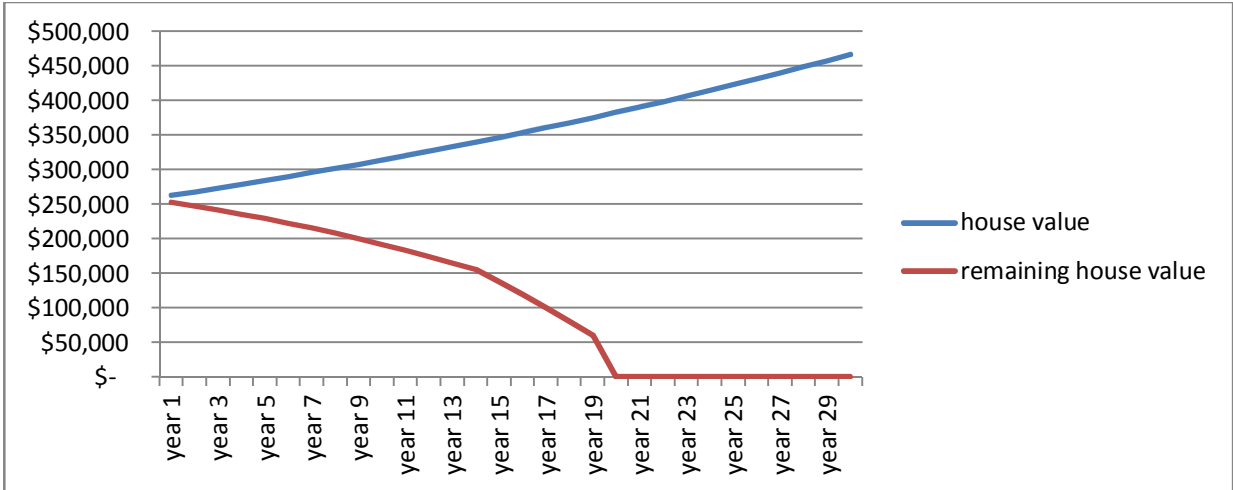


- Home value is estimated at the neighborhood median -- \$233,000.
- Renovation package needed -- \$30,000
- Service provisions needed: Package A from age 65-80, adjustment to Package B from age 80-90 and final adjustment to package C from 90-95.

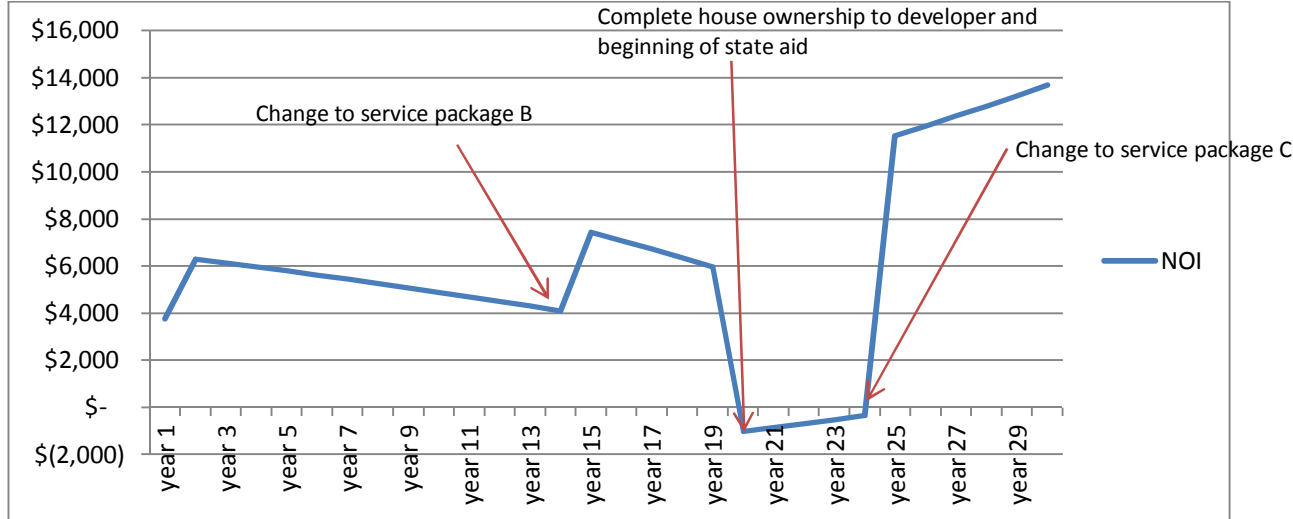
The developer can take loan based on the portion of the property that moved to his/her hands in to the first 19 year until all the property is owned by the developer. At this point he/she has taken full equity loan on the property (at 80% LTV). The total house value rises constantly with inflation over the years. Participant’s SS and pension income also rises with inflation. The state aid in service and rent package starts at the end of year 19, when the participant has spent down all his/her property to the developer. Since the payment the

participant can afford out of the SS and pension for the service package is constant (up to inflation), when the service package needs to expand, the state covers the difference. See figures below for year-by-year values.





While the total house value (blue line) continues to rise over the years the portion that the original home owner holds (red line) gets smaller and smaller, as every year a portion of the house value which is equivalent to the service package including rent component and premium of \$5000 turns to the developer ownership.



The developer’s NOI for this participant changes over time. In year 15 as the service needs of the participant rise, the developer gets more income showing a small rise in the NOI. It drops substantially when the house moved to his/her hands, when the developer can no longer get a loan on the remaining value, but then picks up as state aid starts to flow in to support the participant who no longer can pay for the rent and services with home value.

Profit margins calculated over the years based on income and expenses of this participant average at 10% and range from -1% to 20%. 20% is the profit in year 31, assuming the participant has left the AAAM model, and the developer can realize the resale value of the house and return the full equity loan (for which the developer paid only the interest over the years) that was on 80% of the house value, and keep the remaining 20% of the profit, based on the house value that rose over the 30 year period. There are a few years of loss for the developer (from year 20 till 24) and the assumption is that other profitable participants will cover these losses during these years.

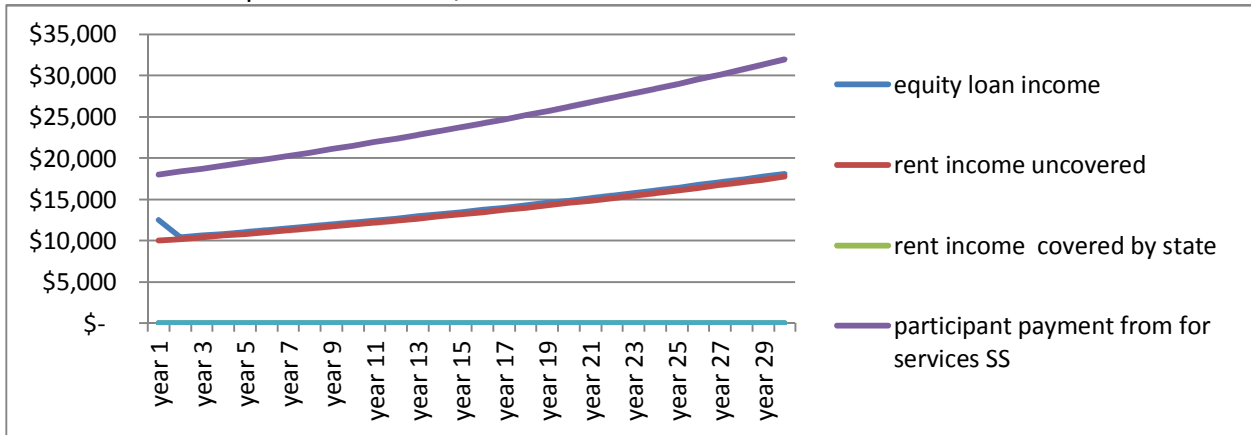
Participant 2- high property value, little renovation, little service need



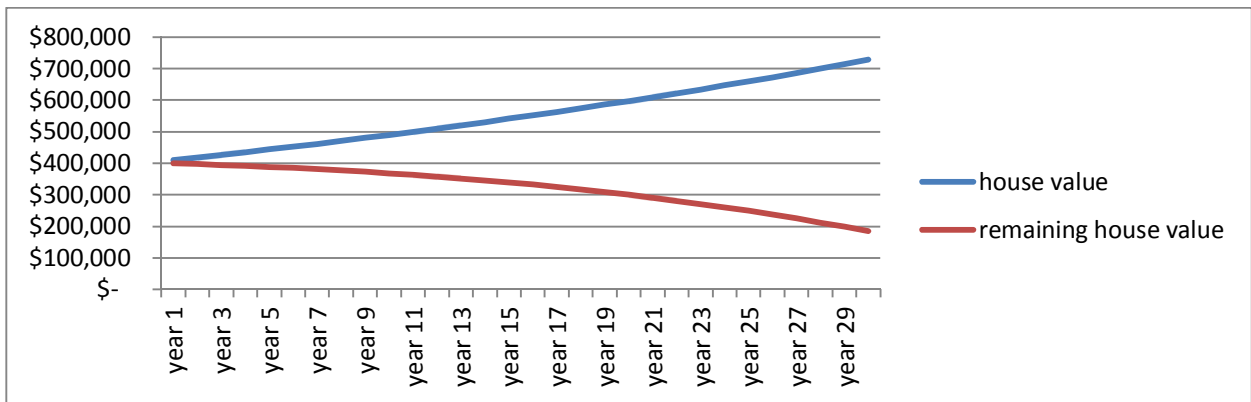
- Home value -- \$400,000
- Renovation package needed -- \$10,000
- Service provisions needed package A from ages 65-95

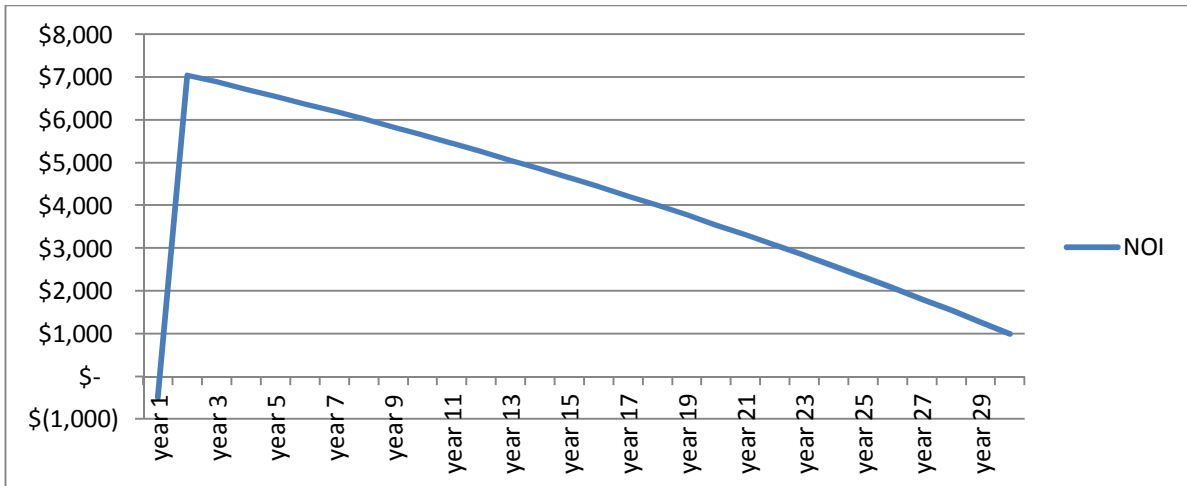
In this scenario, the house value is higher than average, and the service required by the owner are low. Therefore, the portions of the house that move to the developer every year are small, and even after 30 years the developer does not own the whole property. We assume that in year 31 the developer could buy the remainder of the property or return the equity loans principal and still realize 20% of the portions that he/she owned.

developer could buy the remainder of the property or return the equity loans principal and still realize 20% of the portions that he/she owned.



The participant's rent and service payments are constant, rising only with inflation. There is no state aid for this participant, since the house value was not exhausted in paying for the service packages. In this scenario, the house doesn't fully change hands from the participant to the developer. Clearly, in other scenarios in which the service needs will increase and hence the also the service package payments, this could change.





Although this scenario begins with the most valuable property out of the 3 scenarios, the NOI that the developer makes is diminishing over the years. Profit margins calculated over the years based on income and expenses of this participant average at 9% and are never negative over the 30 years. While the initial characteristics of this participant seemed to imply it will achieve the highest profit, because there is no state participation in carrying the expenses, there profits are lower.

Participant 3- low property value, big renovation, major service need

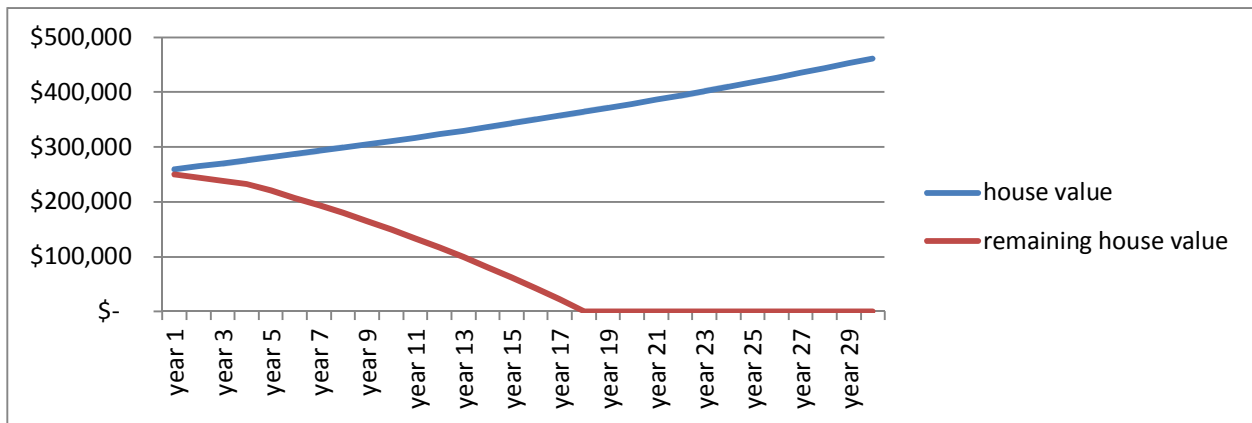
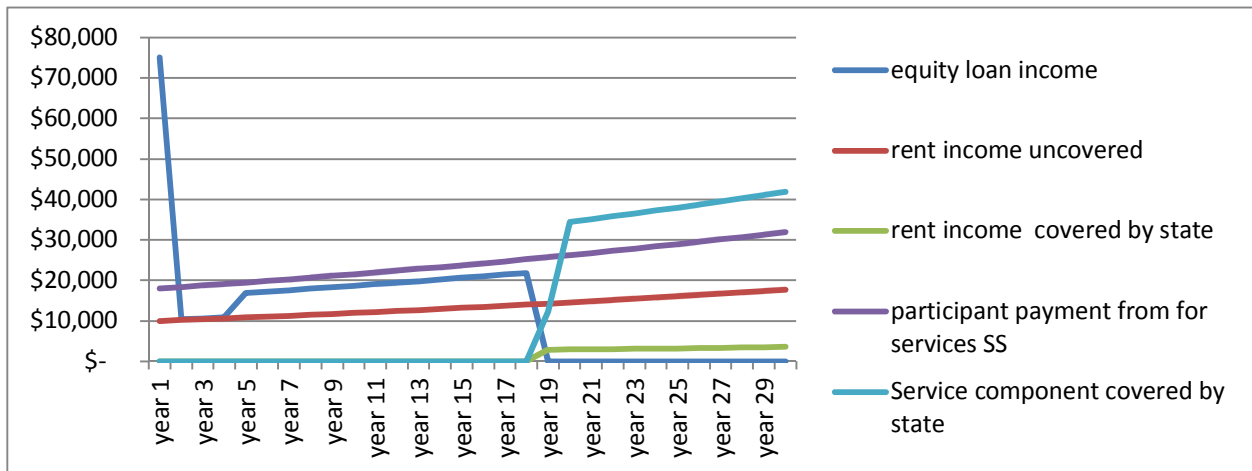


- Home value -- \$200,000
- Renovation package needed -- \$60,000
- Service provisions needed package A from age 65-70, adjustment to package B from 70-85 and final adjustment to package C from 85-95.

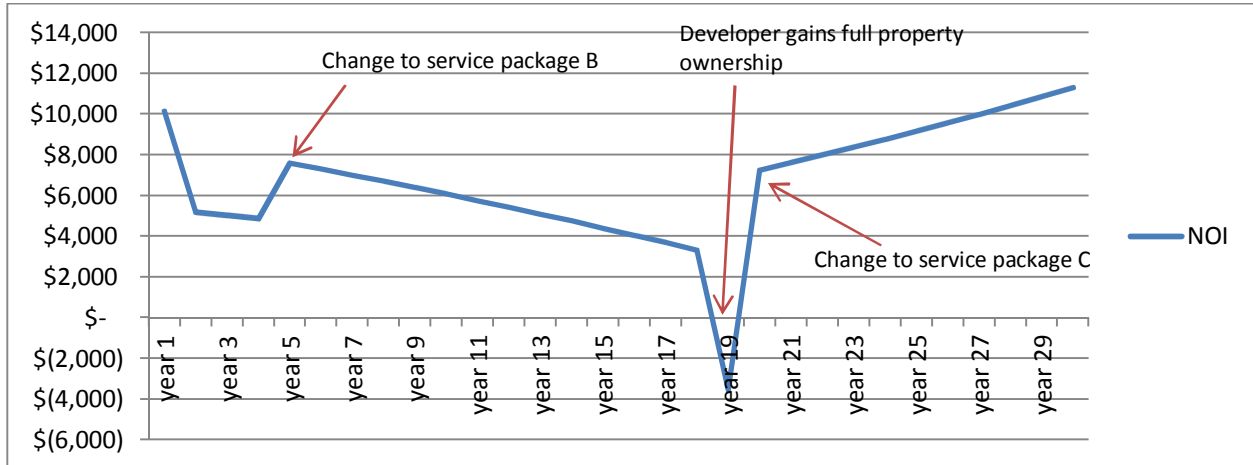
While this scenario starts with low house value and large investment in renovating it to fit the elderly, and also assumes the participants will have great service needs, it can still prove to be profitable for the developer over the years. The property shifts to full developer ownership in the end of year 18, state aid starts to cover portions of the rent and the service packages in the beginning of year 19.

The rent and service payments that the participant covers remain constant with 2% inflation increase. The state aid

begins in year 19, with an adjustment in year 20 when the participant moves to Service Package C.



As in the first scenario, while the total house value (blue line) continues to rise over the years the portion that the original home owner holds (red line) gets smaller and smaller, as every year a portion of the house value which is equivalent to the service package including rent component and premium of \$5000 (inflation corrected) turns to the developer ownership.



The developer's NOI for this participant changes over time. In year 5 as the service needs of the participant rise to package B, the expenses for the developer rise however the portion of house that exchanges hands and corresponding equity loan for that portion in fact increases the NOI. In year 19, The NOI drops substantially when the house moves to the developer's hands and an equity load can no longer be taken, but then it picks up as state aid starts to flow in to support the participant who no longer can pay for the rent and services with his/her home value. In year 20 when the needs of the participant grow even more, the state covers the difference in the fees and the total income for the developer rises.

Profit margins calculated over the years based on income and expenses of this participant average at 10% and range from -6% to 16% over the 30 years. In year 31 there is 20% potential profit, assuming the participant is no longer part of the model, and the developer can realize the resale value of the house and return the full equity loan (for which he paid only the interest over the years) that was on 80% of the house value, and keep the remaining 20% of the profit, based on the house value that rose over the 30 year period. There is only 1 year of loss for the developer (year 19) and the assumption is that other profitable participants will cover these losses during these years.

10.2.3 The service house



In this example, the service house will be based in a renovated historic landmark building on 275 Third Street in Cambridge. Its assessed value is \$2.829 M. The developer could make use of low income housing tax credits, new markets tax credits and historic tax credits for equity in the building. The building is 14,622SF which could fit the amenities and 10 studio assisted living units. Development of the building is estimated at:

Sources	
LIHTC	\$ 180,000
NMTC	\$ 940,840
Historic tax credits	\$ 940,840
ALCP	\$ 750,000
MHFA tax exempt bonds	\$ 892,520
state loans	\$ 500,000
city loan	\$ 250,000
federal (job creation) grant	\$ 250,000
total	\$ 4,704,200

Uses	
renovation cost	\$ 1,250,000
land and building purchase	\$ 2,829,200
soft costs	\$ 625,000
total	\$ 4,704,200

Total development cost per unit in the model is \$58,803

Total development cost per SF is \$321

10.2.4 Affordability

The model is aimed at an aging population that owns moderate value properties and has modest means, which leads to search for affordable solutions for housing and care. Many of the East Cambridge home owners have bought the properties many years ago, when their prices were substantially lower, and can now enjoy the benefit of living on their market added value property. For some residents the affordability will be achieved by the fact that the house value that they own doesn't by itself sustain the service packages that they will receive over time, which is supported by the model.

Upon entering the model, the service packages the participant will pay may seem similar to traditional assisted living. This will include a premium that will support their services in the future once their house value has been exhausted. In the first years the model will not seem affordable but as the service needs rise, the participant will end up paying less than he/she would in comparable assisted living communities.

Also, since they will benefit from staying at home, they should expect to pay a higher price for that benefit. Their units are more spacious in SF than a typical assisted living unit, and per SF their costs will not seem high. While many of the participants will enter the model when they are of moderate means, and mostly ineligible for any state aid, by the time a decade passes and the majority of their house value has been traded for service packages, they will likely to become eligible for various state aids. Some participants will be eligible for the Mass-Health SCO program and will receive medical help from their providers, but the developer could gain some financial help for the services that are continued to be provided by the model..

Since to qualify for many state subsidies, a person needs to wait 5 years after they give away/lose their assets in order to be eligible for help, this model can help carry the services needed during this time, until the state funds start coming in.

The rent portion of the service package will be based not on actual market rate of the renovated homes, but on a flat affordable rent rate, that already builds in some affordability for the participant into the service package payment.

The development cannot be 100% affordable because will limit the ability of some of the people to use it, but will address the long term affordability of the moderate income levels of society. The model will best work in neighborhoods with mixed property value. If a person of a higher value property leaves the model before the house value is exhausted, the developer will be able to buy the remaining portion for a discount.

Affordable housing funds such as LIHTC historic tax credits could be considered for the service house and assisted living building renovations. There is even a possibility to use the ALCP funds for repositioning an existing property to assisted living. The AAAM model has a benefit that is created many jobs (care-givers, cooks, drivers, etc.) while reuses most of the existing built environment. Other state and federal funds that target job creation rather than physical construction should be considered. The state will need to create a subsidy similar to Section 8 but targeted at seniors who will age in place, as well as subsidy similar to SCO that will allow for many of the services to those who remain at their homes, but get these services through the developer. The developer could qualify to be an SCO equivalent provider. None of the subsidies as they are currently available for affordable assisted living facilities, could be used directly by the model. The state will need to adjust these to allow the aging in place model.

10.2.5 Activities

All activities will happen in the service house, and will be open to the model participants, as well as to other elderly residents in the neighborhood (for a small fee). At least one activity will be provided each day. Activities will include social, educational and cultural programs such as (but not limited to):

- Painting, cooking & computer classes
- Cinema feature, bridge, bingo, poker, games & trivia
- Social gatherings, parties & seasonal events
- Educational programs & current event group discussions
- Musical entertainment
- Daily exercise classes (including Yoga).
- Shopping, dining & sightseeing excursions
- Intergenerational programs with local schools
- Visiting doctor hours

10.2.6 Amenities

Common amenities will be provided at the service house, and will service all the residents that participate in the program with some access to other neighborhood residents 55+. Based on the case studies it is clear that all senior housing products include a certain number of amenities that are essential for operations of all types of housing products. These will include:

- Dining room with central kitchen (which also provides the home delivered meals)
- Fitness center with classes and personal trainer
- Library
- Adult daycare for dementia and Alzheimer participants
- Multi-purpose room (that can also be rented for participant needs, e.g. family parties)
- Computer room

10.2.7 Building Design/ units

Each existing home will be evaluated for design upgrade before the resident joins the model. There will be 3 levels of upgrades available from very basic to full renovation depending on the home provisions and existing design. Existing houses will need to be measured, for detailed as built condition. The design changes will be based on universal design guidelines. The focus is on entrances, stairs, bathroom, kitchen and first floor bedroom. Retrofitted houses will be able to accommodate those who can no longer climb stairs, turn door handles or use their bathrooms. Houses will be fit to code (especially wheel-chair needs). These packages will include, but are not limited to:

Cost \$	Basic	Cost \$	Medium	Cost \$	Full
1000	All doors to be 36" front door with removable panel beside	1000	All doors to be 36" front door with removable panel beside	1000	All doors to be 36" front door with removable panel beside
300	emergency call system	300	emergency call system	300	emergency call system
5000	Entrance ramp/ No step entryways	6000	Entrance ramp/ No step entryways with attractive railings and nonslip flooring	6000	Entrance ramp/ No step entryways with attractive railings and nonslip flooring
200	Bathroom grab bars	6000	Bathroom renovation to ADA standards	12000	Addition of first floor bathroom or bathroom renovation to ADA standards
800	Removal of thresholds	800	Removal of thresholds	800	Removal of thresholds
200	Lever style door handles	200	Lever style door handles	200	Lever style door handles
800	Kitchen basic adjustments – faucet, handles, removal of under counter cabinets	2000	Kitchen adjustments – faucet, handles, removal of under counter cabinets, adjustment of counter height	8000	Kitchen renovation as required
		12000	Chair lift on stair	20000	Elevator
		500	home entertainment center tied to security system relate to outdoor lighting, tie to police and fire departments	500	home entertainment center tied to security system relate to outdoor lighting, tie to police and fire departments
				2000	ground floor bedroom
				1000	Adjust upper floor, if exists for live-in-care giver or boomerang child unit
TotalCost	Up to \$10,000		Up to \$30,000		Up to \$60,000

The basic package will likely be the most common based on the East Cambridge current home condition. The East Cambridge neighborhood is made up of mostly single family, 2 family houses and condos in a 3 decker building. Some homes will need the medium level. While the full level is offered, it is less likely to occur since it involves installing an elevator for a whole building. There are currently organizations in Cambridge that help and fund home renovations for elderly. The developer will create the renovations coordinated with these organizations in order to minimize costs. In addition, in some situations, some minor renovations may be covered by Medicare.

General design guidelines:

- Adaptability- be able to change according to the needs of the residents
- Open floor plans- less tight corridors and small rooms- easier circulation
- Green features- in retrofitting buildings and in service house in order to lower energy consumption (including insulation).
- Fire resistant materials
- Most attention to entrances, stairs, bathroom, kitchen and first floor

Bathrooms

- Roll in shower
- Sliding doors or door swing out
- Grab bars
- Drop down shower seat
- Raised toilets
- Grip mats and non-slip floor tiles
- Bath benches
- Handheld showerheads
- 5' between fixtures, 30"*48" space in front of fixtures
- Separate showers and tubs
- Single level faucets

Kitchen

- Adaptable cabinets-removable base cabinet for wheelchair access
- Roll out shelves
- Higher countertops
- Storage at waist level and rollout shelves
- Shallow shelves rather than deep
- Large dials on stove
- Pullout racks in ovens
- Kitchen and laundry appliances at convenient heights
- 30"*48" space in front of fixtures
- Square shaped kitchens (rather than linear)

Others home areas

- Doors- 36" minimum with 18" latch side clearance. Sliding doors are preferred inside the unit
- Lever style door handles
- Emergency call system
- No step entry way/ ramp with non-slip floor
- Removal of thresholds
- Chair lift if needed on internal stair (Better to use chair lifts than elevators- can be removed easily)
- Accessible storage areas
- Floors that are not highly shined
- Buzzers instead of doorbells (lower frequency)
- Master bedroom on main level
- Senior friendly bed heights
- Thermostats installed lower on the wall and rocker light switches
- Easily open able windows
- Wider hallways

- Residential elevators if can't be avoided
- Home entertainment center tied to security system and to outdoor lighting

Other innovative features for adjusting the homes:

- Digital home – proactive computer applications that monitor health and safety and send alerts to health care providers and family members when problems are detected. If used correctly, a computerized system could help lower staff ratios and operating costs
- Therapeutic lighting systems that adjust to inhabitants moods
- Sensors to detect progress of physical therapy, biosensors, activity sensors, and bodily diagnostics capabilities, motion detectors in the rooms (in the traditional AL) that will alarm if a few hours passed with no movement
- Automatic medicine taking reminders, pantries, medicine cabinets, and mailboxes
- Video conferencing abilities with the staff, that allows getting announcements from the service house, menu for meals.
- Social networks for socialization and virtual retirement community- network of friends who agree to look out for one another by staying connected. A social contract of people who want to age in place in their homes but want the peace of mind of having help when needed. This can take advantage of the social networks and connect people, even in a visual sense, without the need to move from their homes

These ideas may be able to be incorporated in renovations or new construction and can result in less need for expensive staff and a more secure feeling for the participant within the community. However, in general, the idea is not to replace the human touch that is so important in these communities with technology – just use technology to provide the participants with additional communication and safety measures.

The service house and traditional assisted living building will be designed with a residential appearance. The building should promote privacy, dignity, choice of independence and individuality.

- Features that enhance the residential feeling as carpeting, private bathrooms, access to cooking facilities.
- Corridors should be designed as rooms, destinations, rather than passages. Rest benches every ~40'. Corridors should not be longer than 40' without an offset. Use of natural lighting, greenhouse like enclosures, skylights can help make the corridors more appealing. Corridors can open to social spaces to reduce the feeling of enclosure
- Personalization at the unit edge. Artwork, glass cabinets with personal items to help the resident identify his room, and present to the community their life and background
- Sociopetal space and sociopetal furniture that enhance interaction between residents. As well as unit clusters that encourage social exchange
- Glass screens for previewing into common spaces before entering to allow residents more control over social interactions with others
- Staff offices to be inviting for interaction with residents and families
- Parking lot to serve the service house, with ratio of 0.75 spots per unit

Unit design

- Private sleeping space
- At least 2 windows, with low window sills 12-18" above floors
- Sliding doors and pocket doors between bathroom and bedroom
- Full bathroom with flush shower floors , drop down seat
- Rare use of carpets, mostly wood parquet and vinyl floors
- Tea kitchen in every unit with refrigerator and microwave oven
- One space for living and another for sleeping to make the room more private
- Individual air temperature controls
- Adequate storage throughout the unit
- Balcony for outdoor experience from the units
- Lockable doors
- Reduced glare by indirect lighting and clerestory windows

Kitchen

The kitchen is an important symbol of identity, competence, and home. The kitchens, although many times are not used for cooking, provide the freedom of choice. Several assisted living scholars believe that kitchens are a necessity in these environments, rather than being a luxury. Assisted living apartment needs to have at least a kitchenette for food storage and preparation, with stove top and microwave, to complete the unit as a housing unit.

Personal belongings and furnishings

The physical space and interior decoration of different assisted living sites create social impressions for visitors and potential residents- the lighting, décor, colors, type of furniture, all contribute to the perception of the environment and should be carefully selected. Settings where people can bring their own furniture have less institutional feel. Residents can express individuality and autonomy in their decorating choices, and achieve a sense of home photographs are the item that gives the strongest sense of home.

Neighborhood updates

Some neighborhood updates may be needed to ensure safety and better accommodate the seniors in place. These will have to be negotiated among the city of Cambridge and the developer.

- Safer streets and sidewalks
- Better signage, lighting and crosswalks
- Bus shelters
- Active ground floors
- Well defined entries
- Screened parking
- Seating areas with views of more active areas to foster healthy interaction



Typical East Cambridge neighborhood view

- Comfortable benches with backs
- Trees placed to create areas sheltered from sun
- Enforce ADA requirement for accessibility
- Shopping areas close to elderly residential locations with food, drugs, clothing
- Snow removal
- MBTA stops with benches

Universal design concepts should be followed in the design of the service house/ traditional assisted living building:

- Flexibility in use
- Simple and intuitive
- Perceivable information
- Tolerance for error
- Low physical effort
- Size and space for approach and use
- Visit-able house- at least 1 flat entry, minimum 32" clear passage space at door, 1 main floor accessible bathroom

10.2.8 Residents

The model will target middle income population who own houses free of mortgage. These residents, would have had to spend down their assets to allow themselves to enter an assisted living facility if don't join the AAAM model. Participants will be allowed to join the model from 65+. Younger residents who wish to take advantage of the service provisions that the service house can offer, could join on a rental base, but this will not be discussed here. There will be no impact on non-participating residents, besides a possible raise in value to the neighboring renovated homes, which in the long run may increase the value of their properties as well.

As life expectancy is on a rising trend, people 65+ will mostly live an independent life for the next 15-20 years, and more services are expected to be needed as they turn 85+. The assisted living component in the neighborhood will be able to assist those turning 85+ to 100 who will need such supervision that living in their homes will be hard, or those whose families push for more concentrated supervision on them.

The state has an interest in moving people who have recovered in nursing homes to a level they can live independently, to live back within their communities. While this is intended to ease the burden on nursing homes, many times there is no place to accommodate these people back in the communities. Their homes have many times been sold/ taken over as the family/ community didn't expect their return. The AAAM model could offer a solution for some of these people by housing them in units that have been adjusted for elderly previously, and whose original residents have passed away/ moved out. They could join the model and age in place in a supporting environment.

Since the residents will be homeowners who age in place the expected turnover rate will likely be lower than traditional assisted living, from which many residents move out to nursing homes and who many enter too late in relation to their service needs. People will still

have medical issues and be hospitalized and possibly admitted to nursing homes, but the model will likely reduce the chances for this to happen.

10.2.9 Community, marketing and municipality

Many of the community activities will happen in the service house which will assemble all the service staff and the public amenities. Many of these residents have been living in the area for many years and already developed a sense of community, companionship and good neighboring relations with others around them. The best communities are those that attract volunteer help from the surrounding community, and family participation.

The local municipality will inevitably benefit from this development as well. It will help keep tax revenues from the real estate, (paid by the developer) and will reduce the burden of growing demand on the existing senior housing in the area. There should be a way for the municipality to contribute to this effort, either by subsidizing land/ building purchase for service house, or by adjusting zoning requirements for the properties that the developer purchased, to allow future higher occupancy levels, or denser new construction. It is the community/ city obligation to help their residents who lived there for so long as a moral issue.

When such a model enters a neighborhood, it will mean that the housing stock will get renovated and renewed. It will inevitably attract more young people and families. This will be an interest for the town to help the process of rejuvenating aging towns.

Since the AAAM model is based on a geographic region, all marketing efforts will be focused on the targeted neighborhood, as well as on a radius of 1-2 miles around that area for potential expansion to the model. The Cambridge council on aging should be involved in referring elderly residents to the model. Expansion of the model with participants living at home can easily be achieved, but at a certain point, the service house provisions and the traditional assisted living units within it will need to be replicated for the bigger geographic area.

10.2.10 Dementia

Since this model is an assisted age in place model, it thrives to keep all residents at home, unless they are a danger to themselves or others. Many residents with varying levels of memory impairment can still lead a relatively independent life if assisted with certain tasks. All the case studies in chapter 6 have some measure of accommodating people with dementia and Alzheimer disease, and industry experts have stressed the importance of addressing the needs of these residents in any senior product that will be developed. Allowing residents with dementia to stay in their familiar environment will help them feel less confused and avoid losing their way.

Dementia care within assisted living needs a different set of design characteristics to fit the needs to its residents. People with mild cognitive impairment and need of assistance with ADLs could remain at their homes and use the package of care that provides an adult daycare for day time. Residents with high level of dementia or Alzheimer could move from their units into the assisted living/service house structure for more supervised care, while still remain largely in the same community and neighborhood that they are familiar with.

10.2.11 Problems with the model

- Ideally the model will be the last home for most residents. Will provide enough care to support them all throughout life, eliminating the need to move out of their community even to a nursing home. But in Massachusetts regulations do not allow the medical level of care that may be needed for assisted living facilities.
- The success of the model depends on the ability to get cooperation from the local elderly resident population.
- This model could potentially work better in suburban neighborhoods where the majority of the houses are single family houses, which will be easier to retrofit to universal standards, although in suburban maintenance costs may cause an unsustainable financial burden.
- This is a long term financial model, based on assumptions for years of operation (based on the life expectancy of 65+ people), service needs etc. This may not fit all developers who are looking to realize rights to properties and returns faster, but may be a good model for the city to consider as a developer, with long term perspective
- To succeed, the financial model has to be based on many probability calculations for many uncertain conditions, a bit like the financial model a life insurance company deals with.
- The success of the model relies on the state participation in funding elderly who spent down their real estate assets. Current state programs as they are today, such as Section 8 and SCO do not directly fit the model and will need to be adjusted for aging in place population
- The model doesn't account for property depreciation.
- There is a constant need to recruit more participants as some pass away or move to nursing homes, since the model is based on the average of losses and profits between all the participants
- This model has to be studied specifically for every new development location to be evaluated for profitability. It is generic, but has to be adjusted to specific situations

10.2.12 The AAAM in relation to the case studies

	AAAM	JCHE	JFK	NP	EP	BHV
Use of subsidies						
Extent use of operating subsidies						
Extent use of care subsidies						
Extent use of service subsidies						
User Affordability						
Resident's fees						
Population average income level						
Services						
Level of services						
Reliance on external providers						
Provision of on-site amenities						
Design						
Unit mix diversity						
Unit spaciousness						
Building efficiency						
Kitchen provisions						
Availability of on-site store						
Proximity to T and bus						
Appropriate parking ratio						
Dementia						
Extent of dementia service						

The AAAM model has the potential to provide preferable living environments for the elderly, while remain affordable for the long term and also profitable for the developer/operator, by relying and coordinating a wide variety of city organizations and service providers, as well as making maximum use of state money that can support the elderly participants in their homes. If planned correctly, it could be a better option for the elderly and the developers relative to the current market senior housing, assisted living and village products.

CONCLUSION

The senior housing industry has many shapes and forms, and from analyzing the case studies it is clear that there's no one solution that fits all. The current industry offers a wide variety of real estate products for the elderly, none of which fully address the desire to age in place.

The thesis tried to look conceptually at an opportunity to create a structure that will incentivize developers to search for ways to invest in existing real estate while allow elderly to remain in their homes. It is clear that this solution is only one of many, and will not fit some of the elderly, some of the industry developers nor many of the locations that need senior housing, but it provides a different perspective that may create an alternative to traditional assisted living, independent senior housing, and even nursing homes.

The suggested structure can benefit the participants (who value staying in their familiar environment) the developer (who in the long run will own the properties and make a market rate return) the city (who will not be pressured to create new assisted living developments when there are no available land parcels/ buildings) and the state (who will save money by keeping the elderly living good quality of life, outside of state funded nursing homes).

Part of the current problem is the lack of coordination between all the funding sources and entitlement programs. For this structure to work, the developer will become an integrator of state and local programs for development, operations and services into a structure that minimizes his/her expenses and maximizes the benefits for the elderly participants.

Clearly the next decade will create innovative housing and service solutions for the growing senior population. Many developers are now looking for ideas that will change and improve their current real estate products and adjust them to the baby boomer generation. The proposed Affordable Assisted Age-in-place Model could highlight some ideas that may serve as tools to meet the demand of the aging population in the next decade.

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