REUSE AND REDESIGN OF SUBURBAN OFFICE BUILDINGS INTO ASSISTED ELDERLY HOUSING: CAN IT BE DONE?

by

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Juris Doctor
Suffolk University Law School
1984

Bachelor of Arts
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REUSE AND REDESIGN OF SUBURBAN OFFICE BUILDINGS INTO ASSISTED ELDERLY HOUSING: CAN IT BE DONE?

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James L. Roberti

Submitted to the Department of Urban Studies and Planning on August 14, 1992 in partial fulfillment of the requirements for the degree of Master of Science in Real Estate Development

ABSTRACT

This thesis investigates the practicality and the financial viability of converting (small) approximately thirty to forty thousand square foot suburban office buildings into assisted living facilities for the growing elderly population.

This thesis examines two case study sites, both located in the same town and neighborhood. These sites were chosen from the OREO portfolio of the Federal Deposit Insurance Corporation. These case study buildings were chosen to help examine siting issues, develop renovation criteria and develop cost information relating the conversion of suburban office space to assisted living facilities for the elderly.

The thesis concludes that it is difficult from a practical and economic point of view to convert such buildings into assisted housing for the elderly because of their deep bays, their small size, and the nature of their vertical elements such as elevators, stairways, HVAC systems, and plumbing. This thesis suggests an alternative scenario wherein two of these smaller 30 to 40 thousand square foot buildings could be purchased together and operated as one unit in order to achieve an efficient operation for the facility.

Thesis Supervisor: Henry Irwig

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1. INTRODUCTION

1.1 THE LOCAL MARKET

Commercial real estate in the metro-west market of Boston Massachusetts is purportedly coming back from the depths of a deep trough where bottom may have been reached for this market in 1990.

The office vacancy rate for the Milford-Franklin, Massachusetts submarket was as high as 28% in 1990-91. There was a total of 292,785 +/- square feet of new office space on the market at that time. Leasing activity was stagnant and many tenants were renegotiating their leases.

At present, the market appears to be rebalancing but there are still big buildings on the market which keep the vacancy rate in the metro-west market as a whole, including R & D space, at 20-25%.

Real estate brokers in the market agree that although the vacancy numbers are down the forecast is not upbeat. The Massachusetts market is suffering due to the problems of the two key industries that drove the market that built the now empty buildings: computers and defense. The three largest computer makers in the area: Prime Computer, Data General, and Digital Equipment Corp. have all had large layoffs and the
community as a whole has been affected economically by their poor performance. Since the collapse of Communism in Eastern Europe in 1989, the need for defense spending has dropped and the Massachusetts economy has also been harmed by the lessened need for defense spending.

If one examines the suburban markets where the office prototypes were built, one will discover two important facts about the communities and the buildings themselves. The communities are now depressed, the banks that funded their explosive development have failed, most likely never to be replaced. The office buildings were built for a boom time and are overly expensive to run and are difficult to lease in a time period when vacancy rates are as high as 20-25%. The credit crunch is still a large factor in the development of any building for office space in this market. The larger urban banks are wary of the unstable market and the local banks that fueled the boom have been seized by the FDIC and no new banks have filled the void.

The final factor that one must consider in attempting to determine whether empty, suburban office space should be redeveloped into new uses is the role of the FDIC in the process. The FDIC as the receiver of a failed bank is mandated to liquidate the banks assets as quickly as possible and to obtain from any willing purchaser the maximum net present value for the asset. The FDIC OREO liquidators desire to liquidate the properties within 90 to 120 days and are
willing to entertain any offer so long as they receive at least 70% of the current appraised value for the asset. Accordingly, one can estimate the cost of a building as it is currently appraised based on an income approach and not be concerned that the replacement cost for a building of that size would be triple its current income value. The FDIC is concerned with maximizing its net present value and is willing to sell buildings for as little as 10% of their original development cost.

At present, the FDIC has an oversupply of first class suburban office buildings in the thirty to forty thousand square foot category. Many of these buildings were built by or for former failed banks and are either overdesigned or too expensive to operate in a weak market.

1.2 THE NEED FOR ELDERLY HOUSING

It is a fact that each day more than 5000 people in the United States turn 65 (Farnsworth, p.104). The over 75 segment of the elderly population is the fastest growing segment of the aged. It is also estimated that 76 million people from the baby boom generation will turn 60 by the year 2006 (Farnsworth, p.104). One commentator has noted that "the nation’s elderly will account for about 18 percent of the total population in 30 years" as compared with 12 percent in 1989 (Sraeeel, p.32). Purportedly, by the year 2010, the amount of people over sixty-five years old will geometrically increase to 39 million. Those elders over 85 will double to
over six million (Sraeel, p.32).

At this point in the early 1990's, a majority of the elderly are living independently. However, these people will require semi-independent living arrangements as the years progress (Sraeel, p. 32). Housing for the elderly, especially in the assisted living segment, has not kept pace with the demographics. As a result there is a shortage of product, in both housing and services, for the elderly (Sraeel, p. 32).

It is clear that there is a demand and that there is an undersupply of housing for the elderly. Assisted living facilities for the elderly are an important prototype that will fill this gap in the coming decades. There is an oversupply of independent living facilities for the elderly and it is unclear if they are still an attractive alternative for the elderly. Independent elderly tend to want to age in place and settle in areas that they select rather than communities planned for them. Nursing homes are an alternative available to elders that are ill or recuperating from a hospital stay. However, this option is an option of need and will be chosen only if there is no other alternative for the elderly person. Assisted living fills the void between independent living and nursing homes. Development of assisted living facilities in the next decade is an opportunity for real estate development in a market where housing and service supply are short and demand is dramatically increasing.
1.3 RESEARCH METHOD

The methodology that was utilized to determine if the redevelopment of suburban office buildings into assisted living communities for the elderly was feasible will be outlined in this section of the thesis. The first task that has to be accomplished is to outline or describe what the assisted living prototype was in and of itself. The existing literature concerning the prototype was examined and interviews with developers, architects, and financial advisors involved in the elderly housing area were conducted. The outcome was a description of what made up the assisted living prototype. Geoffrey Smyth, the developer of Fox Hill Village in Westwood Massachusetts, provided the needed cost information to determine the direct cost of rehabilitation of existing office buildings as well.

Once the prototype was defined and it was determined that there was an oversupply of suburban office buildings held in the OREO portfolio of the FDIC and RECOLL in the metrowest Boston market, two prototypical buildings were chosen for study. One building was rectangular in shape while the other was square in size. These two buildings were first analyzed as to the suitability for redesign and redevelopment. Unit configuration, location of the project, and financeability were examined. It is noted that both buildings were chosen to be located in the same neighborhood so that the location, zoning, and market analysis would be identical for the two
properties. A cost analysis was completed to determine if the reuse projects were comparable to a more conventional newly constructed wooden frame building.

Finally, the two buildings were compared to each other in terms of ease of reconfiguration and amount of total square footage. In the final section of this paper a comparison is made between the two different buildings in order to determine which building type might be more suitable for reuse when one takes into consideration all the above stated factors.
2. ASSISTED LIVING

2.1 INTRODUCTION

This chapter will first catalogue the existing options for the elderly available in today’s marketplace. Next, a description of assisted living facilities is presented including typical unit configurations and essential services. A prototypical unit and facility program are introduced. Finally, costs of new construction and the cost to purchase empty office buildings are then estimated and financing alternatives are discussed.

2.2 EXISTING OPTIONS FOR THE ELDERLY

There are a variety of options for the elderly and some definitions tend to blur the distinction between product types. The following is a list and description of the most commonly used housing options for elders (Farnsworth, p.105).

1) GRANNY FLATS: Accessory apartments added to senior’s existing homes. A good remodeling opportunity although zoning is a problem.

2) GUEST HOUSES: Additions or separate structures that add a small house on the same lot as existing homes. Zoning can restrict this option.
3) CONGREGATE APARTMENTS: Multi unit housing with shared dining and a variety of support services. An opportunity for builders who properly target the market.

4) RETIREMENT COMMUNITIES: For-sale, age restricted housing targeted to the active senior lifestyle. Amenities vary with the size of the community.

5) LIFE CARE: Seniors pay a one-time fee plus a monthly charge to live in the community for life. Housing varies from detached units to nursing homes. A high-risk venture that requires accurate actuarial data and a major investment in support services.

6) NURSING HOMES: Service intensive and heavily regulated facilities. If congregate housing becomes universally available, only the sickest seniors will live in nursing homes, and they may come to be viewed as hospices.

One industry commentator has noted that the senior housing industry is serial. It is comprised of three housing segments: independent living, assisted living, and nursing homes (Eramian, p.20). The initial progression in the industry follows a stage of life theory. The sequence begins with the development of an: an independent living facilities for active elders; an assisted living facilities designed for retirees who need nonmedical assistance in daily living; and a long-term nursing facility consisting of intermediate, skilled and sub-acute segments (Eramian p.20).
The prevailing wisdom had been to develop the components in the above described order to create a continuous level of occupancy for each segment. However, the independent segment of the market appears be reaching saturation and many elders have decided to age in place rather than opt for independent living type communities. In fact, an AARP study has documented the fact that a new prototype, the NORC (Naturally Occurring Retirement Community) is developing (Farnsworth, p.104). This prototype is defined as any area where "at least half of the residents are 60 or older." (Farnsworth, p.104). Housing developed for emptynesters and pre-retirees may evolve into NORCs.

As a result, it has been suggested that the "pull theory" may be a better scheme under which one can develop elderly real estate. One should focus on the medical needs of the elderly population and realize that decisions to enter a nursing home or assisted living may be forced on an elder within a very short time framed due to frail health. A developer could therefore develop nursing homes and assisted facilities first and then later look at independent living prototypes. Nursing homes, however, are difficult to develop. Most states restrict the number of new beds by certificate of need which are mandated by legislative and regulatory agencies (Eramian, p.22).
The elderly are also becoming less sick as they grow old. It is postulated that a large portion of the elderly may never need skilled nursing home care. However, elders may need some assistance or nursing care that prevents them from living independently. Currently a gap exists and elders in this category are forced into nursing homes by necessity. The gap is beginning to be addressed by the development of assisted living facilities (Eramian, p.22).

2.3 ASSISTED LIVING FACILITIES

Active elders can become frail as they age, and they necessarily may not need skilled medical attention. This segment of the elderly population is the target group for the assisted living facilities. "These facilities are for seniors who simply need assistance in bathing, dressing, meal preparation, transportation, etc." (Eramian, p.22). Accordingly, assisted living is described as being need driven rather than market driven (Kalymun, p.98).

The concept of assisted living units begins with the goal of establishing an environment for living that resembles ones home rather than an institutional or medical setting. As a result, these projects, unlike the larger life-care facilities, have a limited number of units, usually in the 25 to 80 unit range (Kalymun, p.104). Assisted living developers provide housing with services to achieve activities of everyday life to semi-independent elderly (Kalymun, p. 98).
The typical resident of these facilities is over 75 years of age; female and either single or widowed (Kalymun, p.101). The mean age of residents in these facilities is estimated to be 86 (Kalymun, p.107). Females represent roughly 75% of the population with the balance being single males or married couples.

The most important element in the design of assisted living facilities is the nature of the services to be provided. Most or all facilities should provide meal preparation, personal care, medical assistance, housekeeping, utilities, social activities, scheduled transportation, and security. An assisted living facility is usually self-contained, with its own staff, services, and amenities (Kalymun, p.105). It is quite important that these facilities be located near a hospital. It is less important that they be situated near shopping or banking (Kalymun, p.105).

Marketing strategies are directed at the middle aged children of the elderly rather than the elderly themselves. It is important to establish a residential milieu rather than a medical or institutional prototype. The motivation to build fewer units is meant to reinforce the residential character of these facilities (Kalymun, p.105).

The most important feature to the payment structure for assisted living complexes is that the fees are structured on a month-to-month rental fee instead of a long term lease or a paid endowment. There are no endowment fees, entrance fees,
or lifetime commitments (Kalymun, p.106). Rental units range from $750 to $2900 per month.

Residents place emphasis on geographic location, cost and available services when choosing the assisted care option (Kalymun, p.108). It is important also that the elderly person remain in close proximity to other family members and roughly 85% of residents will have formerly resided within a fifteen mile radius of the facility. Residents average length of stay in the facility averages 2 to 14 months (Kalymun, p.108). Most residents are from the middle class or upper middle class and have incomes in the 20 to 50 thousand dollar range. Finally most residents have a prior home to sell before entering the facility and usually have total assets in the $30,000 to $1,000,000 range.

2.3.1 UNIT CONFIGURATION

The floor plans of the units range from a single room with single or double occupancy to buildings with studio apartments, and one and two bedroom apartments. The units should have individually controlled heating and air conditioning, sprinklers and smoke detectors, emergency call systems, wall to wall carpeting, and combinations of furnished, partially furnished, and unfurnished units. The units should have kitchen facilitates that can range from a small refrigerator only, to countertop with a sink, refrigerator and electrical outlets, to a kitchenette, or a
full kitchen. Each unit should have its own toilet and bathing facilities, and barrier free showers are a essential.

Initial prototypes were institutional in character, containing long hallways, double loaded corridors, public announcement systems, painted walls, large shared spaces, and identical floorplans. Later prototypes became more residential or "motel-like" in character. Developers introduced studio apartments, for single or double occupancy, with semi private balconies or patios. All units still had the same floor plan. Developers added kitchen areas that were small including a refrigerator and limited countertop areas.

The next prototype that was widely constructed in the market is the unit apartment complex model. This approach involved consolidating the assisted living units on one floor within a larger apartment complex. In this model elders could choose between two floorplans, either studio or one bedroom apartments. In this building the interior areas of the shared spaces took on a homelike appearance including possessions like tables or chairs that were brought from the elders last private home. Some of the units had walk-in closets and the units contained microwave ovens and expanded kitchen facilities.

The state of the art units being built today will include floral wallpaper, chair railing, balloon draperies, plush carpeting, and curio closets which are some of the major interior design elements of the elderly persons upper-middle
class life style. This prototype is more along the line of a hotel model. More than one floor plan is offered including, studio apartments, different versions of one-bedroom units, and sometimes even two-bedroom units. The public spaces are not institutional in character and are designed to be extensions of the homey feel of the units themselves. These buildings often contain libraries, chapels, ice cream shops, game rooms, community dining rooms, exercise rooms, barber shops, banks and drug stores.

2.3.2 ESSENTIAL SERVICES

As outlined by Mary Kalymun in her model for assisted living the following services should be provided in assisted living facilities (Kalymun, p.123):

MEALS

All facilities should serve three meals a day. They can be served family style, by waitress, or cafeteria style, however, emphasis on eating in the main dining room is stressed. Eating alone in one’s room is discouraged.

PERSONAL CARE

Assistance with bathing, dressing, grooming, personal hygiene, skin care, and ambulation is the minimum for personal care. Personal laundry service may be provided at extra cost.
MEDICAL ASSISTANCE

Twenty-four hour medical staff is a constant in all facilities. Some facilities employ nurses aides, licensed practical nurses, registered nurses, and others even have a doctor on call.

HOUSEKEEPING

The assisted living residents unit will be cleaned and personal linen service will be provided. The frequency of the maid service varies between daily to five times per week, three times per week, and weekly.

UTILITIES

Electric service, water and gas are included in the rent, while cable television and personal calls are not.

SOCIAL ACTIVITIES

The facility always has a full-time activities director who plans, schedules and supervises all social events.

SCHEDULED TRANSPORTATION

Local transportation is provided either by van or chauffeur and should be available on a scheduled basis for shopping, attending medical appointments and travel to public transportation. Personal travel at unscheduled times will represent an extra cost.

SECURITY

Each facility should have a 24-hour emergency call system coupled with a medical alert system. Additionally, a security guard should be on the premises 24 hours per day.
2.3.3 PROTOTYPE

A prototypical unit that one can use as a model for assisted living is shown on the plan shown as Figure 1. below and has the characteristics listed in Table 1.
Prototypical Assisted Living Unit

Living Room 12'7" x 20'5"

Bedroom 11'7" x 15'6"

Dining Area

Kitchen

Entrance

Bath

Figure 1
TABLE 1.  PROTOTYPICAL UNIT DIMENSIONS

<table>
<thead>
<tr>
<th>Room Designation</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Living Room*</td>
<td>12'7&quot; X 20'5&quot;</td>
</tr>
<tr>
<td>2. Bedroom</td>
<td>11'7&quot; X 15'6&quot;</td>
</tr>
<tr>
<td>3. Kitchen -- Wheel chair accessible</td>
<td></td>
</tr>
<tr>
<td>4. Bath -- Wheel chair accessible</td>
<td></td>
</tr>
</tbody>
</table>

*includes a breakfast nook and dining area

2.3.4 ASSISTED LIVING PROGRAM

A prototypical program for an assisted living facility is outlined below in Table 2.
<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>A. APARTMENTS</th>
<th>B. COMMONS</th>
<th>C. CIRCULATION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1. One Bedroom</td>
<td>1. Food Services</td>
<td>(16% of Gross Area)</td>
</tr>
<tr>
<td></td>
<td>52 700 sf=</td>
<td>1300 sf</td>
<td>5470 sf</td>
</tr>
<tr>
<td></td>
<td>36400 sf</td>
<td></td>
<td>Total Area 49490 sf</td>
</tr>
<tr>
<td></td>
<td>36400 sf</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>200 sf</td>
<td>200 sf</td>
<td>1000 sf</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>2. COMMON SOCIAL AREAS</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>a. Lounges</td>
<td>500 sf</td>
<td></td>
</tr>
<tr>
<td></td>
<td>b. Hobby Rm/ Storage</td>
<td>500 sf</td>
<td></td>
</tr>
<tr>
<td></td>
<td>c. Residential Laundry</td>
<td>120 sf</td>
<td></td>
</tr>
<tr>
<td></td>
<td>d. Hair Salon</td>
<td>120 sf</td>
<td></td>
</tr>
<tr>
<td></td>
<td>e. Health &amp; Wellness</td>
<td>120 sf</td>
<td></td>
</tr>
<tr>
<td></td>
<td>f. Residential Kitchen</td>
<td>180 sf</td>
<td></td>
</tr>
<tr>
<td></td>
<td>g. Solarium/Smoker's Lounge</td>
<td>300 sf</td>
<td></td>
</tr>
<tr>
<td></td>
<td>h. Spa (Bathing)</td>
<td>200 sf</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>3. Staff Administration</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>a. Reception/Wait Room</td>
<td>250 sf</td>
<td></td>
</tr>
<tr>
<td></td>
<td>b. Office</td>
<td>150 sf</td>
<td></td>
</tr>
<tr>
<td></td>
<td>c. Mail</td>
<td>50 sf</td>
<td></td>
</tr>
<tr>
<td></td>
<td>d. Lobby</td>
<td>200 sf</td>
<td></td>
</tr>
<tr>
<td></td>
<td>e. Storage/Medical</td>
<td>300 sf</td>
<td></td>
</tr>
<tr>
<td></td>
<td>f. Restrooms</td>
<td>300 sf</td>
<td></td>
</tr>
<tr>
<td></td>
<td>g. Clean Linen</td>
<td>160 sf</td>
<td></td>
</tr>
<tr>
<td></td>
<td>h. Soiled Linen</td>
<td>160 sf</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>4. Service &amp; Support</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>a. Resident storage</td>
<td>0 sf</td>
<td></td>
</tr>
<tr>
<td></td>
<td>b. Hskp, Storage, Closets</td>
<td>150 sf</td>
<td></td>
</tr>
<tr>
<td></td>
<td>c. Trash</td>
<td>260 sf</td>
<td></td>
</tr>
<tr>
<td></td>
<td>d. Employee Restrm &amp; Lockers</td>
<td>300 sf</td>
<td></td>
</tr>
<tr>
<td></td>
<td>e. Receiving</td>
<td>200 sf</td>
<td></td>
</tr>
<tr>
<td></td>
<td>f. General Storage</td>
<td>200 sf</td>
<td></td>
</tr>
<tr>
<td></td>
<td>g. Mech/Elec/Tel/Elev.</td>
<td>400 sf</td>
<td></td>
</tr>
</tbody>
</table>

|          | 5. Total Commons       | 7620 sf       |               |

|          | 6. Total Apartments & Commons | 44020 sf    |               |

<table>
<thead>
<tr>
<th></th>
<th>C. Circulation</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(16% of Gross Area)</td>
<td>5470 sf</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total Area</td>
<td>49490 sf</td>
<td></td>
</tr>
</tbody>
</table>
2.4 COSTS

2.4.1 COST OF NEW CONSTRUCTION

The cost to construct a forty to fifty thousand square foot wooden frame building specially designed for assisted living is estimated to be 55 to 56 dollars a square foot in the Boston market. The advantage to designing and building a new building is that one can design the amenities as desired and one can make sure that the building is optimally designed so that the market will accept the building readily.

The cost to construct a new woodframe structure can be broken down as shown in Table 3.
### TABLE 3. NEW CONSTRUCTION COST

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>COST PER SQUARE FOOT</th>
</tr>
</thead>
<tbody>
<tr>
<td>FOUNDATION &amp; FOOTINGS</td>
<td>$1.38</td>
</tr>
<tr>
<td>SITE PREP FOR SLAB</td>
<td>$.43</td>
</tr>
<tr>
<td>SLAB ON GRADE</td>
<td>$1.38</td>
</tr>
<tr>
<td>ELEVATED FLOORS</td>
<td>$1.30</td>
</tr>
<tr>
<td>ROOF</td>
<td>$1.02</td>
</tr>
<tr>
<td>STAIRS</td>
<td>$.25</td>
</tr>
<tr>
<td>WALLS</td>
<td>$1.66</td>
</tr>
<tr>
<td>DOORS</td>
<td>$.24</td>
</tr>
<tr>
<td>WINDOWS &amp; GLAZED WALLS</td>
<td>$.93</td>
</tr>
<tr>
<td>ROOF COVERINGS</td>
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<td>FLOOR FINISHES</td>
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<td>CEILING FINISHES</td>
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<td>GENERAL CONDITIONS</td>
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</tbody>
</table>

TOTAL BUILDING COST $55.80  

==================================================================
2.4.2 COST TO PURCHASE BUILDING

The FDIC is interested in liquidating their properties for the maximum net present value that can be obtained in the market. The FDIC has their own marketing department within their OREO division that actively works in conjunction with independent real estate brokers to market their assets. It is the FDIC’s practice to have their properties appraised by at least two independent appraisers to determine a marketing value. The FDIC is interested in the comparable approach and the income approach to appraisal and will generally take the higher value of the two and list the property with a broker at 125% of the highest appraised value.

The FDIC will generate its own property list and will also make sure that the brokers are actively advertising the property for a fast sale. The FDIC’s list will be distributed to all prospective buyers that call or write the FDIC to voice an interest in OREO commercial property.

The FDIC will generally sell the property to any willing buyer and will usually not sell the property to a low bidder even if a high social good or purpose is involved. They are in the business of liquidating property and returning the highest value to the taxpayers of the United States. Bank ORE departments operate on the same level of intensity and desire to maximize the return on the sale of assets for the stockholders of the bank.
Accordingly, the FDIC will look at suburban office buildings and examine comparable sales in the market to determine if any office buildings in the area have been recently sold. If any buildings have been sold in an arms length transaction in the past year those comparable prices will set the value. If no comparable buildings have been sold the FDIC will rely on an estimated approach to value derived from the expected income value of the building in the future. The FDIC will most likely estimate the income for the building based on a prototypical proforma for a suburban office building.

2.5 FINANCING ASSISTED LIVING

Financing assisted living renovation projects is quite difficult given the current economic climate. These assisted living projects are considered too small for large pension funds and insurance companies, too risky for large city banks, and too costly for small local banks. Large lifecare communities were once readily financeable but are now also unfinanceable due to the credit crunch in the United States. Large lifecare projects are financed in a conventional manner. These projects are usually financed with an interim construction loan and a final "takeout" or endloan. The construction loans are written by big city banks on a floating rate basis at one to two percentage points above the prime lending rate of the bank. The construction lender will
require the developer to obtain a commitment for end financing prior to funding the construction loan. Permanent loans are obtainable from large insurance companies and pension funds on a fixed rate basis, based on the cash flows from the project, and are written for the longer term.

Smaller, thirty to fifty thousand square foot assisted living projects are too small in scope for the large insurance companies to invest in for the long term. The large city banks could finance the construction and the permanent financing for these developments but will not fund these projects because they view them as high risk ventures. The small local banks cannot finance these developments because they have regulated lending limits that prevent them from lending more than a small percentage of their total assets to one borrower. These projects will need five to seven million dollars of funding which is not feasible by banks that have total assets of under 100 million dollars.

During the mid-eighties some developers were financing the development of assisted living projects through equity financing mechanisms. The investors who buy shares in a limited partnership which owns the facility are promised a combination of cash flows and low-income tax credits. In the case of historic structures the investors receive historic tax credits as well. To qualify for low-income tax credits the property must be maintained as low-income housing for a minimum of fifteen years.
The low income credit is a tax credit that is claimed over a ten-year period. A credit is taken by the developer each year based on a prescribed credit percentage multiplied by the original equity investment. The housing credit results in a dollar-for-dollar reduction in taxes much like the broader based investment tax credit which was repealed by the 1986 Tax Reform Act (Brewer, p.234). In sum, the program gives developers tax credits worth 90 percent of renovation costs for the development of low income units. To qualify for the credit, the endusers must be earning 50 to 60 percent of the U.S. median income level, and 40 percent of the units must be tenanted by people earning 60 percent of the median income level, or 20 percent of the units must be affordable to people earning 50 percent of the median income. The credits can only be used for the units occupied by low income tenants.

Many of the investors in the equity financing deals were major corporations which were willing to buy into the investments and receive below market returns in return for the use of the low-income tax credits. Many of the general partners of these syndicated limited partnerships were non profit corporations interested in promoting the construction of low-income elderly housing.(Sraeel, p.56).

During the late 1980’s these syndication projects began to fall apart when investment money dried up in the U.S. Many of the assisted living projects which had excellent development proformas did not live up to expectations. The
elderly people who were targeted to live in the complexes did not move in as quickly as expected. There has been much market resistance to the concept and some of the projects have not reached break even occupancy. Another stumbling block to the development of this type of elderly housing is the lack of federal assistance for the elderly to allow them to afford the services they desperately need. Many elders are caught in the position of requiring much assistance but being able to afford little of the cost of this assistance. Without subsidy, the developer of these assisted living facilities are caught in a difficult position of not being able to recoup the costs of the services they must provide to sickly elders. For the above reasons the banks feel that the risks are too high to finance these developments and equity investors (if they have any money left anyway) are frightened at the prospect of negative cash flows and cash calls from developments that are not yielding the required dollars in tight economic times.

2.6 CONCLUSION

In this chapter, options that exist for the elderly in the market today were outlined and it was concluded that there is a gap in the market. There is a need for assisted living facilities that is currently not being met by the real estate industry. Next, typical assisted living facilities were described and unit configurations and essential services were outlined. At the end of this chapter a protoypical unit and
facility program were introduced. These prototypes were introduced at this point in the thesis to give the reader an understanding of the basic components of assisted living so that the reader could apply the prototype to the different building sites presented in Chapters 3 and 4. The next section of this chapter outlined financing alternatives and concluded that debt and equity financing for assisted living projects is in short supply. Finally, cost figures for new construction and costs to purchase empty suburban office buildings are set out. These costs are presented at this juncture so that the reader can understand the cost parameters for new construction and can be aware of the hard costs for existing sites when rehabilitation costs and renovation decisions are presented in Chapter 4.
3. DESCRIPTION OF CASE STUDY SITES

3.1 INTRODUCTION

This chapter of the thesis presents the case study buildings which were examined. The local community were the buildings are both located is described and the site location is analyzed in terms of its suitability for assisted elderly housing. Finally, the building attributes of both buildings are outlined and presented in tabular form. This section of the thesis presents a detailed description of the buildings so that the reader can have a working knowledge of the building attributes when reading Chapters 4 and 5.

3.2 TOWN OF MILFORD

LOCATION: Milford is located in Southeastern Massachusetts approximately ten miles north of the Rhode Island border and 36 miles southwest of Boston approximately at the center point of the cities of Worcester, Providence, and Boston. Milford is bordered by Hopkinton on the north; Holliston and Medway on the east; Bellingham and Hopedale on the south; and Upton on the west. (See location map -- Figure 2).

ACCESS: Milford is serviced by an extensive interstate and state highway network. Interstate 495 (I-495) traverses the town from north to south. This interstate intersects with the Massachusetts
Turnpike (I-90) in the town of Hopkinton, approximately 5 miles north of the Milford-Hopkinton town line. Routes 140, 16, 85 and 109 provide access to the town from surrounding communities. Public transportation availability includes bus service to Framingham. The MBTA commuter rail service is located in nearby Franklin (See neighborhood map Figure 3.).

AMENITIES: The town is serviced by town water, sewer, and gas. Electric and telephone service are provided by local utilities. The Milford-Whitinsville Regional Hospital is a modern facility. Three shopping centers outside of town provide ample shopping for area residents.

POPULATION: Milford had a 1980 population of 23,390 according to the 1980 census. The estimated 1984 population was 24,058 and the projected 1990 population was 24,230.
3.3 ANALYSIS OF SITE LOCATION

Each of the buildings is located within the same neighborhood. The building at 100 Medway Road is situated at the junction of Route 495 and route 109, while the building at 300 East Main Street is situated on Route 16 near the Route 495-Route 109 interchange. The 300 East Main street site is located directly opposite the Granite Industrial Park and is located in a commercial strip that fronts on Route 16. This strip, other than the portion that is located within the industrial park, is located on either side of Route 16. The 100 Medway Road building is situated in a smaller commercial strip and is bordered on two sides by a cemetery. The cemetery is bordered by an established residential community. An older strip mall is situated across the street from the 100 Medway Road site and a 1970’s vintage K-Mart center is located directly behind and to the right of the premises.

At first blush one would think that a location of a complex for the elderly would be optimal if activity and shopping, and highway access were close by and accessible for the elderly residents. As described above, both sites are located near a major interstate route, Route 495, and are located directly on secondary feeder roads. One then must remember that the average age of a tenant in an assisted living project is 82. Most tenants by definition are infirm and need assistance to get by on a daily basis. Accordingly, most do not have cars and cannot get out to use the roads.
surrounding the sites. The excellent road access may be a
hindrance rather than an attribute for the site as the road
noise and congestion may be a factor in deterring an elderly
tenant in deciding to enter one of these facilities.

One might also think that the location near the strip
centers and the proximate location to the hotels might be a
plus for attracting an elderly population. However, the
average assisted living tenant may not be physically able to
utilize the services and shopping provided by the shopping and
hotel areas. A question that has to be raised is whether the
children of the elderly person may find the assisted living
complexes conveniently located near the shopping areas and
enjoy the excellent highway access. It may be argued that the
elderly person may indeed be two frail to endeavor beyond the
grounds of the complex and thus the assisted living complex
could be located anywhere. One might argue that the children
of the elderly person will have substantial input into the
situation and thus might drive the decision to locate in the
complexes near shopping and major routes.

The location of the 100 Medway Road building near the
McDonalds restaurant and the Burger-King restaurant might add
to the poor health of the elderly people and the Chinese
restaurant located across the street from the 300 East Main
Street site will also not add too the health concerns of the
elders. This location might prove convenient to the elders for
a short trip for lunch or dinner and would also prove to be
convenient to the children and grandchildren who may wish to visit the elders on a frequent basis.

Current thinking in the field of assisted elderly housing is different than the view of elderly housing for the more active elder. The more active elder may wish to have privacy and manicured grounds for walking or recreation. The more active elderly would wish to be outside more and would most likely wish to have a large buffer from the activities that surround this site. The more active elder would wish to have a car and would not wish to eat at the fast food restaurants and would not need the proximity to the strip centers for shopping. The reality for the elder who needs assisted care is that the elder will not see the outside much or at all. The elder will have trouble walking and will not use the outside for recreation. The elder in assisted living will not have a car and will not travel to the outlying areas via bus. However, the convenience of the location may appeal to friends and relatives who wish to visit on a frequent basis.

It is sad to say that the elder who is need of assisted living care may often be unable to enjoy the positive attributes of the location but, at the same time, may not be bothered or affected by the commercial flavor of the area which might adversely affect a more personally mobile group. The developers and architects in the assisted living area suggest that the most important locational factor may be the proximity to medical care. Milford has an excellent hospital

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that is five minutes from either site. Further, the highway access to Route 495 makes a trip to Boston’s medical centers an hours ride. This location near excellent access to the medical personnel in the locale and in Boston may be the most important factor for locating assisted living facilities in these vacant buildings near the interstate highway.
3.4 300 EAST MAIN STREET
SITE: 300 East Main Street is located at the intersection of Route 16 and Beaver Street in Milford. The site is located directly across from the Granite Industrial Park, a light industrial park developed by the Fafard Companies. Quarry Square shopping center, a strip center containing a Super Stop-and-Shop, a Chinese restaurant, a Home Goods store, a bank branch, and a TJ Max, are within a quarter mile. Two car dealerships, an office building, a lumber yard, a Chinese restaurant, and a three store strip center are also located on Route 16 adjacent to this site. Approximately, one quarter mile south of this subject is the intersection of Beaver Street and Route 109. The development along Beaver Street includes: a Sheraton Hotel, a Tage Motor Lodge, a Burger King Restaurant, and an older K-Mart based neighborhood shopping center.

SITE ACCESS: East Main Street and Medway Road are major east/west thoroughfares while route 85 is a major north/south thoroughfare. All of the roads extend from interstate 495 through the town center. One entrance ramp is located at Medway Road and another is located at Route 85. Fortune Boulevard is a major north/south thoroughfare through Granite Park linking Rt. 16 and Rt. 85.
ZONING: This site is situated within the Highway and Neighborhood Industrial (IC) zone. The current building meets the dimensional requirements for this zone. Site plan review must be obtained from the Planning Board and a Zoning Map Amendment or an Amendment to the Bylaw allowing congregate care facilities to be built in Industrial Zones would have to be obtained from the Town of Milford. This zone change should be relatively easy to obtain as the town recently allowed congregate housing to be an allowed use in residential zones. Town meeting overwhelmingly approved this prior zone change stating that congregate housing is a social good to be endorsed by the town. Also, congregate care is a less intrusive use than most others in the zone and the town will want the buildings filled rather than empty and should rapidly approve the change.

SITE IMPROVEMENTS: Site improvements include entrance sign; 75,000 asphalt concrete parking lot with 133 spaces and landscaping (including grass, shrubbery, concrete walkways).

BUILDING IMPROVEMENTS

The building at 300 East Main Street is a steel framed rectangular, two storied building with a marble and cement stucco facade. It has two floors above ground and a fully
finished basement floor. The building contains 36,139 gross square feet. It has thermopane insulated strip windows, a flat roof design, and has a variable air cooling system fired by gas. The building is serviced by one elevator and is fully sprinklered. The building features are outlined in Table 4. Existing floor plans are shown in Figure 4.
Figures 4

Baseline Plan

Front Elevation
TABLE 4. 300 EAST MAIN STREET -- BUILDING FEATURES

**EXTERIOR CONSTRUCTION**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Framing</td>
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<td>Doors</td>
<td>Metal with glass</td>
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<tr>
<td>Siding</td>
<td>Marble, cement stucco</td>
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<td>Roof Design</td>
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**Basement**

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**Mechanical**

<table>
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<td>Plumbing</td>
<td>Toilets: 11, Sinks: 14, Urinals: 3, Janitors Sinks:</td>
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<tr>
<td>Air Conditioning</td>
<td>Five Carrier roof units</td>
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<tr>
<td>Elevators</td>
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**Interior Construction**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Details</th>
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</thead>
<tbody>
<tr>
<td>Floors</td>
<td>Marble, tile, carpet</td>
</tr>
<tr>
<td>Walls</td>
<td>Drywall, wallpapered</td>
</tr>
<tr>
<td>Ceilings</td>
<td>Acoustical</td>
</tr>
<tr>
<td>Overall Condition</td>
<td>Very good</td>
</tr>
</tbody>
</table>

**Extra Features**

Sprinkler system; central vac; skylight over atrium; security system; dumb waiter; intercom system; 2 toro
3.5 100 MEDWAY ROAD
SITE: 100 Medway Road is located in the east/central portion of Milford. The neighborhood boundaries for this site are considered to be Interstate 495 along the north and east, Medway Road (Route 109) on the south, and Cedar Street (Route 85) to the west. The extreme southeast area of the neighborhood takes advantage of the proximity to Route 495 and has been developed with several motels, fast food restaurants, and service stations. Several older neighborhood shopping centers are located along Medway Road and a new retail development is located on Medway Road at the intersection of Route 16. The Northern portion of the neighborhood has been developed by Granite Industrial Park, 350 acre master planned, mixed use development by the Fafard Companies. The Quarry Square shopping center is located in the west section of the neighborhood. This center contains 206,000 square feet of retail and is 100% leased. Anchor tenants include Stop and Shop and TJ Max.

SITE ACCESS: East Main Street and Medway Road are major east/west thoroughfares while route 85 is a major north/south thoroughfare. All of the roads extend from interstate 495 through the town center. An entrance ramp to route 495 is located at Medway Road. Fortune Boulevard is a north/south thoroughfare through Granite Park linking Rt.16 and Rt.85.
ZONING: The site is zoned Highway Industrial B (IB). The current building meets the dimensional requirements for this zone. Site plan review must be obtained from the Planning Board and a Zoning Map Amendment or an Amendment to the Bylaw allowing congregate care facilities to be built in Industrial Zones would have to be obtained from the Town of Milford. As noted above in the zoning section for the 300 East Main Street Building the zoning change should not be difficult to obtain in this zone as well.

SITE IMPROVEMENTS: Site improvements include a four story, office building which contains 44,172 square feet of gross building area. All public utilities are present including water, sewer, electricity, gas and telephone. Other site features include, bituminous concrete drive and parking, parking spaces for 131 cars, professional landscaping, covered concrete entrances and security lighting.

BUILDING IMPROVEMENTS: include, brick veneer exterior walls with one-inch reflecting glass, steel frame, poured concrete slab foundation, and a single-ply rubber membrane roof. Interior features include eight-foot ceilings with suspended acoustical tile and recessed fluorescent lighting, floors are separated by concrete slab on a metal deck and covered with carpet and vinyl. Mechanical features include a gas fired hot water unit, wet sprinkler system, eight-unit roof mounted HVAC.
heat pump system, 3 phase 2,000 amp and 750 KVA transformer, one-Dover 3,500 pound elevator, fire alarm system and stairwells. Each floor contains at least two restrooms. The building features are outlined in Table 5. Existing floor plans are shown as Figure 5.

Table 5. 100 MEDWAY ROAD -- Building Features

Exterior Construction

<table>
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<th>Exterior Construction</th>
<th>Details</th>
</tr>
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<tr>
<td>Doors</td>
<td>Metal with glass</td>
</tr>
<tr>
<td>Siding</td>
<td>Brick Veneer</td>
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<tr>
<td>Roof Design</td>
<td>Flat</td>
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<tr>
<td>Roof cover</td>
<td>Built-up</td>
</tr>
<tr>
<td>Insulation</td>
<td>Fiberglass</td>
</tr>
<tr>
<td>Gutters &amp; Downspouts</td>
<td>None</td>
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<tr>
<td>Windows</td>
<td>Glass strip</td>
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<tr>
<td>Stories</td>
<td>Four</td>
</tr>
<tr>
<td>Condition</td>
<td>Very good</td>
</tr>
</tbody>
</table>

Basement

<table>
<thead>
<tr>
<th>Basement</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td></td>
</tr>
</tbody>
</table>

Mechanical

<table>
<thead>
<tr>
<th>Mechanical</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heating</td>
<td>FHW by gas</td>
</tr>
<tr>
<td>Wiring</td>
<td>2000 AMP service</td>
</tr>
<tr>
<td>Plumbing</td>
<td>Two restrooms per floor</td>
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<tr>
<td>Air Conditioning</td>
<td>Eight heat pump roof units</td>
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<tr>
<td>Elevators</td>
<td>One 3500 lb. capacity</td>
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Interior Construction

<table>
<thead>
<tr>
<th>Interior Construction</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Floors</td>
<td>Carpet and vinyl</td>
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<td>Walls</td>
<td>Drywall, wallpapered</td>
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<td>Ceilings</td>
<td>Acoustical</td>
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<td>Overall Condition</td>
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Extra Features

<table>
<thead>
<tr>
<th>Extra Features</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sprinkler system; security system</td>
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</tr>
</tbody>
</table>
FOURTH FLOOR PLAN
3.6 CONCLUSION

This chapter presented a description of the local community and the neighborhood where the two case study buildings are located. Next, the site location was analyzed. It is concluded that location near highways and commercial areas is a positive attribute as far as the relatives and visitors of the elderly are concerned. Location near a hospital is most important to the elders themselves. Since the elders will tend not to leave the premises the lack of green space and recreation area may not be a negative. The final two sections of this chapter examined the attributes of the buildings at 300 East Main Street and 100 Medway Road in detail and set out their main features in tabular form.
4. RENOVATION AND COST ANALYSIS

4.1 INTRODUCTION

The following chapter will first explore issues that one should examine before one undertakes the renovation of a suburban office building into an assisted living facility for the elderly. The issues to be explored include exterior image, use of existing structure, total useable space, vertical common elements, and final unit count. The next section of this chapter will first analyze the two case study buildings utilizing the criteria outlined in the first section of this chapter. Finally, the last section of the chapter will outline the cost to rehabilitate a suburban office building into an assisted living facility and compare costs to a newly constructed wood frame building.

4.2 CRITERIA

4.2.1 TOTAL USEABLE SPACE

A rule of thumb that developers of renovated assisted living facilities go by is one must be able to develop 70 to 80 units per building in a stand alone facility in order for the food service and dining room function of the operation to be profitable. In order to reach this end developers feel that the building on first cut must contain at least 50 to 60 thousand square feet of gross square feet of space.

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4.2.2 EXTERIOR IMAGE

In developing and marketing assisted elderly housing it is important to attract elders to a building that they feel some connection with. Historic rehabilitation of old hotels, apartment buildings and department stores has been successful in terms of attracting the elderly to buildings that are former landmarks in a community. The historic nature of the buildings themselves, coupled with the memories they evoke, make them excellent candidates for rehabilitation and renovation into assisted living facilities.

The issue that must be examined when analyzing suburban office buildings is whether one should reclad the buildings to give them a less anonymous, impersonal feel. They cannot be totally turned into historic buildings with colonial facades. Some experts in the healthcare industry say that recladding these buildings is a must. Ralph Mastroianni, an architect that is skilled in rehabilitation feels that only the windows should be replaced to block type windows. It is his belief that to reclad the entire building would add prohibitive cost to the project and make it unfeasible. If one did not reclad the building one would save approximately $4.00 per square foot of floor area in renovation costs.

4.2.3 EXISTING STRUCTURE

The key to cost effective rehabilitation is to use as much of the existing structure as possible. Old hotels or
apartment buildings were designed and built for a prior residential use. Thus the rooms are already laid out for residential use and the plumbing, electrical systems, air conditioning, and mechanical systems are already in place and need not be altered dramatically. Further, old hotels have established restaurants and dining rooms and the structures do not need extensive alteration to include these essential attributes.

4.2.4 COMMON VERTICAL ELEMENTS

As far as the air conditioning and heating systems are concerned it is important in renovating a building to determine if the existing systems can be saved. In the case of office buildings it is important to note that the high plenum areas can be used to hide any duct work that is needed to reconfigure the systems. Further, variable air systems are more difficult to convert to residential use than are hydronic heat pump systems because the hydronic systems make it easier to control the temperature at the unit level. Variable air systems also have to modified for fire protection and the modification to the duct systems causes problems in sound protection between the units.

At this point in the analysis, one must look at the plumbing, elevator and emergency stair access as a unit on one floor to determine how one should reconfigure the units for residential use.
One of the key issues that must be examined is whether the elevator should be moved or remain in the same spot. The second issue to be examined is whether a second elevator is needed. Thirdly, one must determine where the emergency stairs are located and then align the hallways so that they meet the exit stairs on either side. Fourth, one must determine if the emergency stairs should be moved to give the units adequate window space.

The final issue that must be discussed is the placement of the plumbing and waste stacks in the residential units. In each building there will be a need to install a kitchen and a bathroom in each unit. Accordingly, one will be able to group the plumbing stack in the kitchen of one unit with the bathroom in the adjoining unit so that one set of plumbing stacks per unit will be required if one builds the prototypical assisted living unit as shown as Figure 1.

4.2.5 FINAL UNIT COUNT

The heart of the concept of assisted living is the need for common space like libraries, exercise rooms, card rooms, and retail space for barber shops, banks and card stores and convenience shops. If you take away these uses the building will become a building designed more like the traditional independent rental buildings for the elderly. Accordingly, one must yield enough units to make the food service profitable but one must be careful not to crowd out or omit the common areas for social and retail activity. As noted
above a building should yield at least 70 to 80 units.

4.3 COMPARISON AGAINST CRITERIA

4.3.1 TOTAL USEABLE SPACE

The building at 100 Medway Road is designed as a square four story building and contains 44,172 gross square feet. Each floor contains 11,043 gross square feet. The prototypical unit for assisted living that is proposed for the conversion to assisted living is 25 X 28 or 700 square feet. On a first pass at determining total unit yield one can calculate that, exclusive of the first floor that will be reserved for retail and community space, one can yield roughly 40 units by renovating this structure.

The building at 300 East Main Street is designed as a rectangular two story office building with a full basement floor dedicated to office use on all three floors. The gross area of the building is 36,139 square feet. As noted above the prototypical assisted living unit is 25 X 28 or 700 square feet. If one calculated that one could only utilize the first two floors for residences (because the basement is unusable for habitation), one could obtain roughly 35 units in the 25,000 square foot of space on the first and second floors. The building at 300 East Main Street and the building at 100 Medway Road are undersized for assisted living facilities as they do not yield more than 35-40 units and contain less than 50,000 square feet. The building at 300 East Main Street is also violative of another rule of thumb in that one third of
its overall space is basement space and cannot be used for assisted living residences.

4.3.2 CONTRAST OF EXTERIOR IMAGES

The building at 100 Medway Road has a brick facade with one inch reflecting glass strip windows. The building at 300 East Main Street is a modern building with a marble and cement stucco facade with glass strip windows. Both buildings were built in the late 1980’s. Both buildings have a modern high technology feel to their appearance. It is evident that neither building has any historic charm that can be exploited for marketing purposes.

4.3.3 EXAMINATION OF EXISTING STRUCTURES

The two buildings that are the subject of this case study were not constructed for a prior residential use. They were built as modern suburban office buildings. Accordingly, existing room configurations cannot be used. One must come up with a plan to analyze these buildings in order to determine if their configuration and their square footage make them candidates for renovation into assisted living facilities.

4.3.4 COMPARISON OF VERTICAL COMMON ELEMENTS

The building at 300 East Main Street has a major problem in renovating the air conditioning system to residential use. The system in that building is a variable air system that is well suited for office use but not for residential use. One would have a difficult time of regulating the system for
individual unit control. At present there is one main control for the entire building and it is difficult if not impossible to give each unit its own control with this system. Further, one would have to install fire protection in the duct work which would be costly and would also destroy any noise protection between units because the duct work would be a good conduit for noise.

The building at 100 Medway Road would be a better candidate for renovation as it has an existing water to air heat pump system. This system has an existing system of water heated to 80 degrees that travels around the building in thin piping. In order to convert this building to residential use one would only have to install individual fan coil units to regulate the system from unit to unit. Also, one may even be able to build two zones into the system in order to insure maximum efficiency and comfort for the residents. Finally, the introduction of fresh air into the system will not be a problem as it may be possible that new windows will be installed with an operable sash that will allow fresh air to enter the unit.

4.3.5 COMPARISON OF UNIT CONFIGURATION

Each of the buildings has one elevator. The elevator in the building at 100 Medway Road is located in the center core of the building. The elevator in the building at 300 East Main Street is located off the center atrium in the center of the building as well. It appears from an examination of
rehabilitation costs and discussions with architects skilled in the rehabilitation field that it would be better for the overall layout of the building to move the elevator but it may not be cost effective. It is better to work around the elevators to configure the units. By moving the elevator no new units would be yielded and only a slightly better traffic flow would result. It is certainly more cost effective to not add another elevator so that two elevators would be in operation. If one did not add the second elevator one would save $2.25 per square foot in renovation costs. It is clear that only one elevator is needed and that elevator should not be relocated as the building economies will be negatively effected.

The building at 300 East Main Street has existing stairs that are located at each side of the building. Since the building is rectangular in shape and the bay sizes are optimal for a double loaded corridor it is not necessary to move the exit stairways or to align the corridors in a different fashion. The exit stairways as presently located do not block any effective space that could be used for windows in the units. Accordingly, one can layout a double loaded corridor along each side of the atrium on both floors as shown on Figure 6. The building is optimally set up for renovation as far as the building type is concerned. Rectangular, narrower buildings tend to be set up in such a fashion as to allow for renovation into residential use. The bays of the building
tend to be narrower and there is no wasted interior space. Also, the exit stairs do not block the window space as the exits are located on the narrow sides were no units can be laid out for any use.
Typical Floor Plan
300 East Main Street
Milford, MA

Figure 6
The building at 100 Medway Road is a more difficult building to work with because it is square in design and has exit stairs that are located at the sides of the building. The stairs block the addition of new window space on each of the sides. It must be decided if one should move the stairs or work around them. It is more cost effective to leave the stairs in place and align the hallways with the stairwells at each end of the hallway. One can demolish the stairs as they are presently constructed and realign the units in a U shaped hallway as shown on Figure 7. One can leave the stairs in place and layout a double loaded corridor that ends at the stairs on each end. It may be more cost effective to leave the stairs in place and design the double loaded corridor as shown on Figure 8.
Typical Floor Plan
100 Medway Road
Milford, MA

Figure 7
Figure 8

Typical Floor Plan
100 Medway Road
Milford, MA
4.3.6 PLUMBING AND WASTE STACKS

The configuration of plumbing stacks will effect the common spaces that will be located on the first floor of the building at 100 Medway Road. All the common areas, dining areas and retail space will have to be located at the perimeter of the units as the stacks will descend toward the center of the building. There will be a center square of the bottom floor that will contain the stacks and this core area will begin 30 feet from the outside wall at the front and the rear sides of the building. Therefore, it will be necessary to align all the common and retail space around the perimeter of the building.

The building at 300 East Main Street will have the same configuration problem as the plumbing stacks will descend into the basement space roughly 28 feet from the outside wall leaving a center area of stacks on the basement floor to be planned around when laying out the common social areas.

4.3.7 FINAL UNIT COUNT

The building at 100 Medway Road will yield 10 to 12 units per floor depending on which configuration one adopts. If one accepts the minimum number of 10 units per floor, the building will yield 30 units for floors two through four. This leaves only floor one for all the common space including the dining area and retail space.
The building at 300 East main Street will yield twelve units per floor based on the attach sketch shown as Figure 2. The total units for the two floors above ground would then total twenty four units. It is apparent that the basement must be used for the common space requirements of the prototype. Accordingly the dining facilities and the common meeting areas would necessarily be located in the basement. It is unlikely that the retail uses would want to be located in the basement and may opt not to locate in a building containing only 24 total units.

4.4 COST OF REHABILITATION

The elderly are careful buyers and are wary of poor designs and uninviting facades. As a result many developers in this segment of the market believe that there is more risk to rehabilitation and renovation in elderly housing than there is if one builds a new wood frame structure from the ground up.

One can then compare the costs of rehabilitating either building from a commercial office use into an assisted living project. One will find that the development cost without including the cost to purchase the shell from the FDIC will be 40 dollars per square feet if you replace the cladding and need to add new a new HVAC system. The cost breakdown is shown in Table 6. In table 7 a cost comparison is made between a newly constructed building, a building with new
cladding and HVAC, a building with new cladding and no new HVAC, and a building with no new cladding or HVAC.

TABLE 6. REHABILITATION COST

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>COST PER SQUARE FOOT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Landscaping</td>
<td>$2.00</td>
</tr>
<tr>
<td>Replace Cladding</td>
<td>$4.00</td>
</tr>
<tr>
<td>Mechanical, HVAC</td>
<td>$7.00</td>
</tr>
<tr>
<td>Sheet Rock</td>
<td>$5.00</td>
</tr>
<tr>
<td>Ceilings</td>
<td>$3.00</td>
</tr>
<tr>
<td>Electric</td>
<td>$5.00</td>
</tr>
<tr>
<td>Floor Finish</td>
<td>$1.50</td>
</tr>
<tr>
<td>Doors</td>
<td>$2.50</td>
</tr>
<tr>
<td>Kitchen/Bath</td>
<td>$4.50</td>
</tr>
<tr>
<td>Total</td>
<td>$34.50</td>
</tr>
<tr>
<td>General Conditions</td>
<td>$5.00</td>
</tr>
</tbody>
</table>

This cost estimate does not include F F & E.

TABLE 7. COST COMPARISON

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost per Square Foot</th>
</tr>
</thead>
<tbody>
<tr>
<td>New construction cost</td>
<td>$55.80 per square foot</td>
</tr>
<tr>
<td>Rehab with new cladding &amp; HVAC</td>
<td>$39.40 per square foot</td>
</tr>
<tr>
<td>Rehab with new HVAC</td>
<td>$32.50 per square foot</td>
</tr>
<tr>
<td>Rehab with no new cladding or HVAC</td>
<td>$28.50 per square foot</td>
</tr>
</tbody>
</table>

The total rehabilitation cost is in the range therefore of thirty to forty dollars per square foot. This cost is too high at 40 dollars per square foot to justify the risk involved in this venture, however costs at 30 dollars per square foot are on the borderline. The shell cost must also be factored into the overall development cost. If one were to attempt to keep the overall cost in the 55 dollar range, the shell residual cost would amount to 15 to 25 dollars per
square foot. Again 15 dollars per square foot is not a reasonable number but 25 dollars per square foot is almost reasonable. One may be able to offer the FDIC a million dollars for one of the case study sites and at least be in competition.

The appraised value of the 300 East Main Street would fall in the 1.5 million dollar range. The FDIC recently sold the building to a bank for bank and commercial office space for 1.2 million dollars. The same could be said for the building at 100 Medway Road. The value of the building is at least $500,000 as a commercial rental and the land lease value is worth at least another $500,000 to $700,000 in value to a prospective purchaser. The FDIC or RECOLL would most likely sell this building for 1.2 million to 1.4 million so that an offer in the 1 million dollar range would have to be considered.

4.5 CONCLUSION

This chapter of the thesis sets forth the criteria one can utilize in analyzing whether one should renovate a suburban office building into an assisted living facility. Criteria for examining total useable space, exterior image, the existing structures and common vertical elements were set forth. An estimate of an acceptable range for a final unit count was given.
In the next section of the thesis a comparison was made between the criteria for renovation outlined in the beginning of the chapter and the attributes of the two case study buildings. The following observations were made. A building should have at least 50 thousand square feet of gross floor area to make renovation feasible. The existing facades on suburban office buildings are sterile and tend not to be appeal to elders. Common vertical elements such as elevators, existing stairways, plumbing stacks and air conditioning systems have to be planned around and it is more cost effective if one does not move or alter these elements substantially.
5. CRITIQUE AND ALTERNATIVE SCENARIOS

5.1 INTRODUCTION

This chapter of the thesis looks at the advantages and disadvantages of the two building case studies. Both positive and negative design issues are examined. Finally, alternative scenarios are presented. The most feasible alternative presented is a plan to purchase two smaller 30 to 40 thousand square foot buildings and operate them as one facility. This alternative is suggested because one building cannot operate profitably, however two buildings operating as one unit, will yield enough units to make the operation economically feasible. A conclusion is made as to the practical viability of converting suburban offices into assisted living facilities. Finally, alternative scenarios for development are advanced.

5.2 ADVANTAGES AND DISADVANTAGES OF EACH BUILDING

5.2.1 100 Medway Road -- Advantages

MORE UNITS-- The building at 100 Medway Road is the larger of the two buildings that were analyzed in this thesis. Accordingly, it had the largest number of units yielded at 30 to 36 depending on which configuration was chosen. Also, this factor allowed for the design of common open space and retail space. However, the unit count was low with only 30 to 36 units.
THREE FLOORS-- This building also had three full floors of usable space to divide into residential units. The other building at 300 East Main street had only two above ground floors. Having four floors and 44,000 square feet in total allowed the building to include common and retail space.

SUPERIOR HVAC-- This building had an excellent air conditioning system and was readily adaptable to residential use. The hydronic system required the addition of chillers for each building and even allowed the units to have two independent zones.

ELECTRIC AND SPRINKLER SYSTEMS -- The building had more than adequate electrical systems and sprinkler system located in the ceilings in the case of fire.

ONE ELEVATOR -- The building had one elevator that can be considered adequate but not optimal. Two elevators would have been safer because if the one elevator broke down in the case of an emergency elderly lives could be in danger.

MORE USEABLE SPACE -- This building had less wasted common hallways and atrium space so that the space that was available was more readily divisible and useable.
LARGER BAY SIZE -- The larger bay size in this building allowed for bigger and deeper units that had plenty of space for a handicap kitchen and bathroom. The elders could also have plenty of closet space for storage in the walk-in closet.

5.2.2 100 Medway Road -- Disadvantages

GROSS SQUARE FOOTAGE -- The building’s gross square footage does not meet the initial rule of thumb of 50,000 square feet or more of gross square feet which will determine if the building is a candidate for renovation.

STERILE FACADE -- The building has a very sterile looking 1980’s brick and glass facade. The building does not have any historic charm or allure that will attract the elderly to the building. The building is not historic and cannot be renovated into a colonial facade. One suggestion was to reclad the entire building; a better suggestion might be to remove the strip windows and install block windows with operable sashes.

PRIOR USE -- The building was not designed for residential use. Therefore, the existing room configurations including plumbing, heating and cooling elements are not present. The building also does not have existing dining room facilities or existing common spaces for socializing and shopping.
LOW UNIT COUNT -- The building can only yield 30 to 36 units. This unit count is not large enough to meet the required operating expenses to support a full kitchen and dining room in a stand alone facility.

SQUARE DESIGN -- The building has a square and wide design, with deep bays. This configuration makes it difficult to design units that have the required window space and at the same time have the required square footage. This deep bay design makes for oversized units and wasted space in the interior of the building. Unfortunately, the building’s perimeter is quite large and may be too costly for the number of units that can be yielded.

EXISTING STAIRS -- The building’s existing stairs are located on the sides of the building and block the use of a portion of the sides of the building due to the need for window space for each residential unit. The economics of the rehabilitation are too costly and therefore it is not cost effective to move the exit stairways to a different location.

DOUBLE LOADED CORRIDOR -- Because of the way that the exit stairs are laid out in the building at present, one cannot afford to relocate them to a different location. As a result, one can see that the double loaded corridor is the design alternative that yields the most units in the building at the
least cost. One must note that double loaded corridors are not the most aesthetically pleasing design for the elderly. This layout has a clinical feel that should be avoided and has been avoided in areas where assisted living facilities have been newly constructed.

NEW PLUMBING -- The units require new plumbing and waste stacks for each unit. Accordingly, the stacks must be located at two points in each unit and run from the fourth floor right to the first floor. As a result the stacks run 30 feet in from the outside wall and create a dead space in the interior of the building forcing the common areas and the retail space on the first floor to be situated around the perimeter of the building.

PREP KITCHEN -- The key decision that must be made in deciding whether to renovate this building is whether to squeeze in 3 or 4 units in the back of this building and either have a prep kitchen where prepared food is heated and brought in from the outside or eliminate the kitchen all together. Either decision is not desirable. The building is lacking in units but it cannot succeed as an assisted living facility without a kitchen that serves at least one meal per day.
5.2.3 300 East Main Street -- Advantages

RECTANGULAR SHAPE -- This building is rectangular or long and narrow in design. This building was easier to configure into residential units. The building lent itself to double loaded corridors as designed. There was no concern about the exit stairs as they were located on the sides of the building where no units could be located due to the narrow design of the building.

ELECTRICAL AND SPRINKLER SYSTEMS -- The building had adequate electrical systems and sprinkler systems for fire protection. ELEVATOR -- The building had one elevator that can be considered adequate but not optimal.

5.2.4 300 East Main Street

STERILE IMAGE -- This building also has a sterile, clinical image. It is more opulently designed than the 100 Medway Road building but it is still designed in the Reagan era mode. The building has a concrete stucco facade with glass strip windows. It is also too costly to reclad this building. Block windows have to be installed to add window area for the residential units to make it workable.

PRIOR USE -- This building was not designed for residential use and does not have existing room configurations that make
it readily convertible to residential use. The plumbing, mechanical and air and heating systems must all be converted for this use. The building also does not have existing common areas for relaxation and shopping, nor does it have an existing kitchen or dining room as do some historic hotels.

LOW UNIT COUNT -- The building can only yield 24 units and is far too small to support a full kitchen and dining room.

GROSS SQUARE FOOTAGE -- The building's gross square footage is almost half the required square footage that would make an assisted living rehab feasible.

WASTED SPACE -- Much of the building's common space is taken up in the atrium and the open foyer which are totally wasted spaces. The original architect did not even use the atrium space to its greater advantage by opening up the atrium to the basement floor. The lack of natural light in the basement area creates a sense of isolation.

CLINICAL IMAGE -- The building is designed as a rectangular building, long and narrow. This design lends itself to a double loaded corridor design for the residential units which does not lend itself to assisted living facilities.
BASEMENT FLOOR -- One third of the building’s total square footage is located underground on the basement floor. This space is unusable for residential use and explains why the building can only yield 24 units in total.

AIR CONDITIONING SYSTEM -- The air conditioning system is a variable air system and is not in any way easily converted to residential use. This system as designed and installed has no fire protection between units. Therefore, the ducts must be cut and dampers must be installed. As a result the systems have no noise protection and noise will travel from unit to unit through the ducts. Further, the system is centrally controlled and it will be almost impossible to convert the system so that there are control mechanisms in each unit.

SOCIAL SPACE -- The unit count is so small that the common spaces will have to be located in the basement. It is probable that no retail use will want to locate in this building as the only retail space will be in the basement as well. Accordingly, it is suggested that possibly this building may have to be converted to an independent living facility rather than an assisted living facility because the building is not large enough to support the common space and the dining facility that is essential to its success.
5.3 ALTERNATIVE SCENARIOS

PURCHASE BOTH BUILDINGS -- One alternative scenario would be to purchase both buildings. If you purchased both buildings you would be able to add twelve more units on the first floor of the building at 100 Medway Road by not including any common space in that building. All the common space would then be located in the 300 East Main Street building. This configuration would give you seventy-two units overall and would allow you to operate one dining room from the building at 300 East Main Street. One logistical issue that would have to be overcome is the transportation of residents from the building at 100 Medway Road to the other building. This would be a negative to the marketing of the units at the Medway road site because frail, infirm people will not want to move by van a half mile to eat dinner and play cards.

OUTSIDE FOOD SERVICE -- Under a second scenario one could contract out the food service function to a third party. Then a small prep kitchen could be set up in both buildings if one bought or decided to develop either building. The costs could be kept down and the needed food service could still be provided.

SMALLER UNITS -- A third alternative could be to build smaller units in each building. Instead of building 700 square foot units it might be better to build smaller units with an
overall square footage of 300 square feet. The problem with this scenario would be that you would still be dealing with the same overall perimeter square footage with either building you were renovating. Accordingly, you would probably yield the same number of units and would have open space in the interior of the buildings that could be considered dead space because of its inaccessibility to natural light. Further, the building at 100 Medway Road would be tougher to develop with small sized units because of the large bay sizes that are inherent in that building type.

LESS COMMON SPACE -- A fifth scenario would be to develop the building at 100 Medway Road with six more units on the first floor to bring up the overall unit count for the building. The concern would be that you would be damaging the marketability of the building by removing the common space and yielding more units. One risks adding a small number of additional units at a high risk to the project's success.

ADD TWO MORE FLOORS -- The fifth scenario falls into the category of "what if" rather than a true alternative scenario. A question that can be asked is what if the building at 100 Medway Road had more floors? If you added two more floors to the building one would add roughly 22,000 more square feet to the building and one would then be able to yield 24 more units. The building would then yield 60 units. This scenario
would be highly unlikely due to the cost of constructing the two additional floors.

5.4 CONCLUSION

In this chapter of the thesis, the design advantages and disadvantages of the two case study sites were outlined. In the final section of the chapter alternative scenarios for development were presented. It was concluded that buildings in the 30 to 40 thousand square foot range are not excellent candidates for renovation into assisted living facilities. The buildings have sterile facades and are not large enough to support the required services essential to assisted living. The buildings were also found to be difficult to renovate due to deep bay sizes and problems with vertical elements such as elevators, existing stairs, HVAC, and plumbing. A viable alternative scenario might be to buy two smaller buildings in the same general area and combine them into one overall planned facility to take advantage of the economies of a scale that are present in larger facilities.
6. SUMMARY AND RECOMMENDATIONS

6.1 INTRODUCTION

After analyzing the feasibility of renovating suburban office buildings into elderly assisted living facilities one can come to a number of conclusions concerning the viability of such an endeavor. There are two important factors at work in the real estate market today. There is an oversupply of office space in the suburban markets of the Northeast area of the United States and the area will not grow to fill the space in the near term. Secondly, there is a void in the elderly housing market for elders who are too frail to remain independent but are not sick enough to be institutionalized in a nursing home.

Developers in the elderly real estate market have not taken full advantage of the assisted living market niche. Emphasis has been placed on total lifecare communities and development of retirement communities in the south and southwest. Assisted living is an excellent market niche because it is need driven rather than decision driven. People are forced due to frail health to either move to a nursing home or to move to an assisted living facility. The assisted living facilities are more appealing and are increasingly becoming the more popular choice for the elderly community.

Once one decides to go forward and develop an assisted living facility one must decide if renovation of suburban
office buildings into assisted living facilities is feasible from a locational, financial, design and construction perspective. The following outline of conclusions takes into consideration the above referenced four factors and attempts to develop some practical issues for consideration when undertaking a development of this type.

6.2 Location

1. The location of an assisted living facility is more important to the children of the elder than to the elderly person himself. The elderly person in all likelihood will be unable to walk or drive around the environs. Accordingly, a location near a major route is important to the children for ease of access to the facility.

2. It is important that the facility be located near a hospital or medical center.

3. Suburban office building do not have a negative locational effect. However, some green space surrounding the former office location would be preferred as the elderly want to enjoy the outside views and do not want to be disturbed by overbearing traffic noise from a heavy commercial area.

6.3 PROJECT FINANCING

1. Smaller assisted living projects are difficult to finance due to their intermediate size. Large city banks shy away from these developments as they perceive them to be too
risky. Small local banks cannot lend to develop these deals because loans over $1,000,000 are over the banks legal lending limit.

2. Due to the credit crunch and poorer than expected returns there is very limited amounts of equity financing available to fund these developments. Large insurance companies and pension funds have dropped out of the real estate investment arena thus leaving a void that has yet to be filled.

3. Equity financing is viable if low income tax credits are available and the project can be syndicated through a limited partnership vehicle. The credits allow for a deduction of up to 90% of the renovation costs provided that the project remains affordable for 15 years and a major portion of its residents meet strict income guidelines.

4. Federal subsidies are lacking in this area and the tenants in the projects are often ill equipped to pay for the extra services that they require. Consequently, during the late eighties proformas were generated that are not currently being achieved.

6.4 DESIGN CRITERIA

1. Elders tend to respond in a positive fashion to historic rehabilitation and elegant reminders of the past. Buildings designed for suburban office use during the last decade are impersonal and sometimes ultra modern in design and feel. It is believed that the elderly will be resistant to
respond to such a facility especially if more inviting facilities exist in the area.

2. The recladding process is quite costly and one wonders what the net effect of the process would be in any event. It makes better sense to replace the windows in a building of this type. One can install block windows with operable sashes in place of the glass strip windows.

3. Suburban office buildings were not designed for residential use. Accordingly, time should be spent on an initial analysis of the configuration and the total square footage to make sure that renovation of a building of this type is warranted. Bigger buildings, over 50 thousand square feet in size, are better candidates for renovation to assisted living facilities. One should hope to obtain at least 70 to 80 units as a minimum.

4. One needs to look at the vertical systems in the building to examine their effect on the renovation of the building as a whole. It is important to look at the air conditioning system. It is much better to work with a water to air heat pump system than to retrofit a variable air system. The heat pump system allows for easy conversion to unit control while the variable air system makes it difficult to control the air at the unit level. One cannot zone the units properly with a variable air system and noise protection is diminished between the units due to the need for additional fire protection in the duct system.
5. Square buildings are much more difficult to reconfigure than rectangular buildings are to renovate. Square buildings have deep bays and tend to have exit stairs located at either side of the building. The existing stairs tend to block natural light and take up space where windows could be relocated. It is expensive to move these stairs and it is not recommended that they be demolished. Accordingly, one must work around the stairs in designing the new unit configuration. The deep bays make it difficult to design small units because much wasted interior space results from the deep bay size. As a result, one would tend to design oversized units to take advantage of the extra space by giving the tenant a larger storage area than would normally be allotted.

6. Rectangular buildings tend to be easier to renovate as they do not have deep bay widths and tend to have their existing stairs located at the narrow side of the building. This location does not impair the ability to obtain residential units as one cannot locate units on the narrow sides of the building. The narrow, long, thin layout usually lends itself towards double loaded corridors which tend to be institutional in character.

7. Suburban office buildings designed during the mid 1980’s tend to have only one elevator. Do not add a second elevator or decide to move the existing elevator. Work around the elevator as one does not want to drastically increase
rehabilitation costs in an already costly project.

8. Each unit will need plumbing for the new bathroom and new kitchen. Accordingly, the stacks will be grouped vertically, and will have to be planned around on the first floor of the facility where the retail and common space uses tend to be grouped.

9. The heart of the concept of assisted living is the common space which will be utilized for social space by the elderly tenants. It is important to have libraries, exercise rooms, card rooms and health service areas. Retail uses are also important features. Barber shops, banks, card stores and convenience shops are essential. If these uses are not included, the building will begin to look more like a traditional independent rental building for the elderly.

10. Atriums and basement space in overdesigned vacant suburban office buildings are negatives. No residential units can be located in the basement. Atrium space in rectangular buildings is not required for residential uses and takes away from useable space.

6.5 RENOVATION VS. CONSTRUCTION COST

1. The cost to construct a new two story, rectangular wood frame assisted living facility averages 55 to 56 dollars per square foot in the Boston market. In contrast, one can renovate a suburban office building shell into a facility for assisted living for 30-40 dollars per square foot. It is more
desirable and less risky to design and build a facility from the ground up. Since the cost to build the new structure roughly equals the cost to purchase the shell and renovate the existing office building, one would choose to build new rather than to renovate, unless one decided to renovate for the 30 dollar figure. In that case it would be worth making an offer to the FDIC in the 25 dollar per square foot range for the shell as the offer would be in the range of possible offers.

2. The FDIC is looking to maximize the value they receive for the buildings and land they liquidate in this market. Accordingly, they will not sell buildings for a fraction of their value even if a good social purpose is sacrificed. Based on the cost to renovate an office building into an assisted living facility of $40 dollars a square foot, one could only spend fifteen dollars per square foot to purchase the building shell from the FDIC. The FDIC has been receiving 1 to 1.2 million for buildings in the 40,000 square foot range and would be unwilling to sell the shells for $500,000 to $600,000.

6.6 CONCLUSION

In conclusion, one can develop assisted living facilities in a former suburban office location as the elderly will tend not utilize the outside grounds for recreation and will tend to not be bothered by the commercial location. A location near a hospital or medical center is optimal and highway
access for visitors is important. It is difficult to finance assisted living facilities due to their intermediate size. Equity financing coupled with low income tax credits may be a successful method to obtain financing during the credit crunch we are now experiencing in the United States.

One should not attempt to reclad the buildings, add additional elevators or move existing stairs because the costs will outweigh the benefits. When one chooses a building for renovation to assisted living one should pick buildings that contain at least 50,000 gross square feet. Rectangular buildings are easier to renovate than square buildings due to bay widths and existing stairs. One should be careful to deal with the existing HVAC systems and remember to plan for extensive new plumbing before one undertakes this type of renovation. Finally, it probably does not make sense to risk developing smaller 35 to 40 thousand square foot facilities because the unit totals are not high enough to cover the cost of the food service which is a essential. It is suggested that if one could find two smaller sized buildings in the 35 thousand square foot range and develop the buildings together significant economies of scale could be effected and the development may become feasible.
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