

## **Abstract**

Title of Document: Architecture, Mind, and Memory: Design for Alzheimer's

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By the year 2029, America's entire baby boomer generation will be 65 years of age or older. An estimated 7.7 million people in the United States will be living with Alzheimer's disease, compared to the 5 million individuals afflicted today. The illness, which often begins with a failure to remember new information, can eventually result in a complete loss of the ability to communicate. Common symptoms of Alzheimer's include disorientation in relation to both space and time and disorganized thinking. Victims of Alzheimer's often require care beyond what some individuals and families can provide, and so many elderly people are relocated from their homes to long-term care facilities. Can these spaces be designed to respond to the cognitive challenges of Alzheimer's patients in a progressive way, providing not just a place of shelter, but a home that is sensitive to the processes of human memory?

Advances in the field of neuroscience provide new insight into the workings of the human mind. Scientists investigate how the brain reacts to sensations of light, visual cues, sounds, smells, and the varying scales of space. Theories about how humans cognitively map their surroundings reveal the importance of the built environment in daily activities and overall mental health. A growing understanding of these issues in relation to Alzheimer's suggests that the built environment, while certainly not a remedy, can be more helpful and attentive to the specific obstacles of dementia.

This thesis will address the issue of Alzheimer's and the built environment through the design of a small-scale residential facility. Given the disease's prevalence and the growing elderly population, senior care centers are needed in all places, and this project will focus on senior care in an urban setting. It is hypothesized that the city will offer services and cultural stimulation that will help preserve each resident's quality of life for as long as possible. The architecture of the space will be centered on ideas and research regarding sensory experience, memory, and the human mind, relating specifically to Alzheimer's. This integrated exploration of the fields of neuroscience and architecture will strive to create a physical environment more attuned to the human experience.

Architecture, Mind, and Memory: Design for Alzheimer's

By

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## **Chapter 1: Introduction**

Science, literature, art, and film have documented the importance of memory for self-identity and well-being. Robbed of all his physical possessions, man is the sole owner of his memories, and they cannot be taken from him. Yet for millions of individuals, there comes a day when this is no longer true. The brain, the body's most vital organ, begins to slowly fail. Coupled with the changes of the aging body, Alzheimer's transforms the way a person experiences the world. This thesis explores the adaptation of the built environment to the failure of the human mind. How can design respond to the changing brain of someone with Alzheimer's? An investigation of how Alzheimer's affects the brain and how aging affects the senses and the body will lead to insights into the design of the physical environment. An understanding of current practices in Alzheimer's care and facility design will provide a foundation for planning an Alzheimer's residence. Background on how care is delivered and how these methods can be complemented in the physical environment will bring focus to the functional aspects of the project. Consideration of the family's role in caregiving will help shape a facility that is sensitive to every facet of Alzheimer's disease.

## Chapter 2: Alzheimer's and the Brain

The disease known as Alzheimer's was discovered by psychiatrist Alois Alzheimer in Germany in 1906. Alzheimer made the revolutionary connection that the memory loss exhibited in one of his female patients was a direct result of physical changes in the brain<sup>1</sup>. In the over one hundred years that have followed this discovery, scientists have struggled to gain an understanding of what exactly these physical changes are. With the help of ever-evolving 21<sup>st</sup> century technology, more has been learned about the brain in the last five years than in all of human history<sup>2</sup>. The goal of recent and ongoing research is to find a cure, but it also offers an opportunity to understand what happens in the brain when a person stops remembering.

The basic component of the brain is the neuron. Each neuron is constantly changing, communicating, and networking with other neurons to enable thoughts and actions. Neurons connect to one another via electrical impulse or chemical release at a synapse. There are billions of neurons in the brain, and a virtually endless number of connections between them<sup>3</sup>. When a person forms a

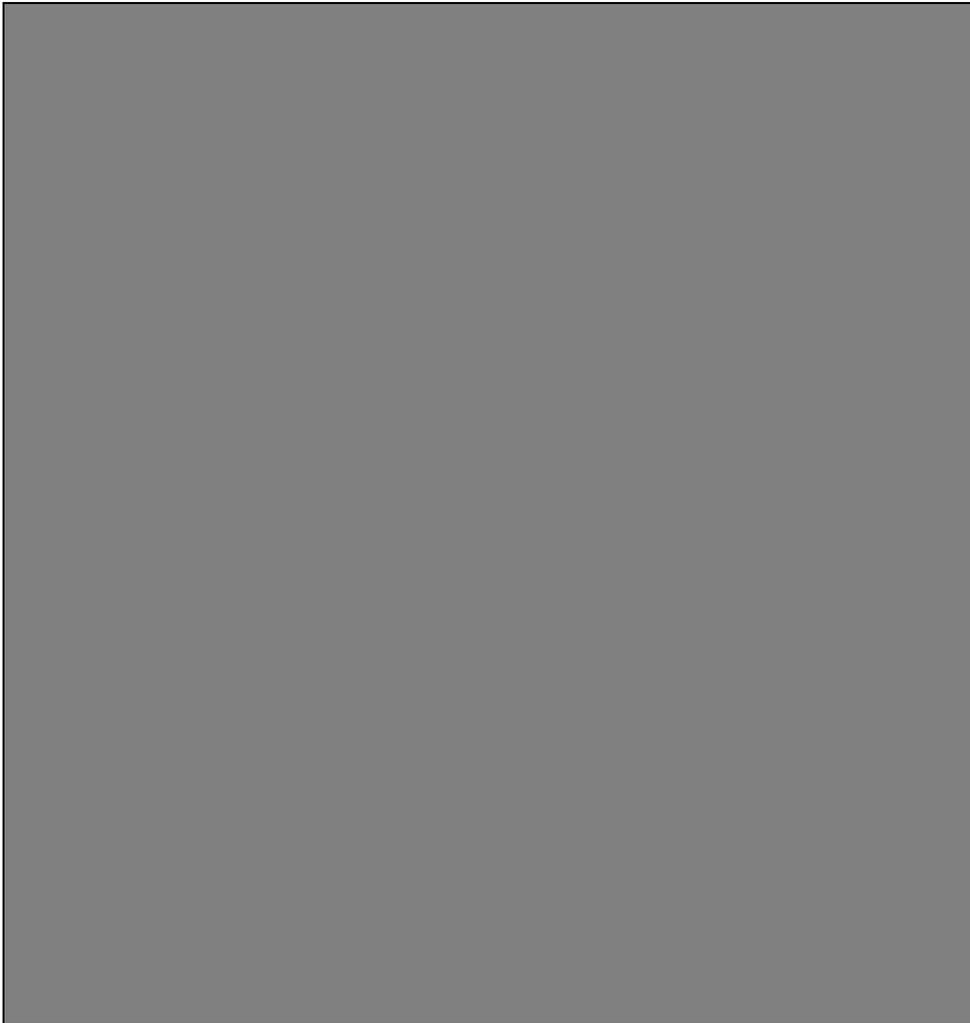
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<sup>1</sup> Arledge, Elizabeth, "The Forgetting: A Portrait of Alzheimer's" PBS website. Windows Media Player 11, 00:10:55 <http://www.pbs.org/theforgetting/> (accessed November 8, 2009).

<sup>2</sup> Rose, Charlie, "Charlie Rose Brain Series Episode One." Charlie Rose website. Windows Media Player 11, 00:02:45, <http://www.charlierose.com/> (accessed November 1, 2009).

<sup>3</sup> Eberhard, John P. *Brain Landscape: The Coexistence of Neuroscience and Architecture* (New York, NY: Oxford University Press, 2009), 183.

memory, it is a result of an experience producing changes in these synapses, a physical alteration in the brain. In this way, the brain makes memory physical<sup>4</sup>.



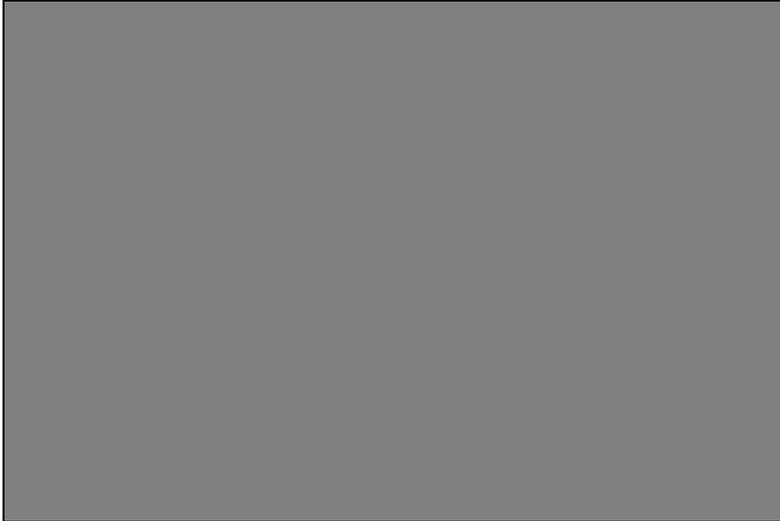
**Figure 1: Diagram of connection between neurons**

Alzheimer's disease disrupts the connections between neurons. A buildup of beta amyloid in the brain causes sticky deposits that effectively "choke" neurons. Because neurons can no longer communicate with one another, new thoughts cannot be formed. As neurons die, the brain shrinks, and connections between

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<sup>4</sup>Rose, 00:37:58.

neurons that once existed are lost. Memories of people and places disappear, and eventually the brain can no longer communicate to the body basic functions like breathing.



**Figure 2: Healthy "neuron forest"**



**Figure 3: Neurons attacked by Alzheimer's disease**

There is a common sequence to Alzheimer's disease. Neurons are grouped in "families" that coordinate to bring about certain functions, like memory, vision, and judgment. The disease begins its attack in the hippocampus, where most

memories are formed and later recalled<sup>5</sup>. This attack then spreads outward, through the four lobes of the cerebral cortex. Deterioration in the temporal lobe affects auditory perception and language comprehension. The disease spreads to the occipital lobes in the back of the brain used for vision, and into the parietal lobe, responsible for spatial perception. Perhaps most devastating is the destruction of the frontal lobe, where the “executive functions” such as abstract thinking, planning, motor control of muscles, and judgment take place<sup>6</sup>.

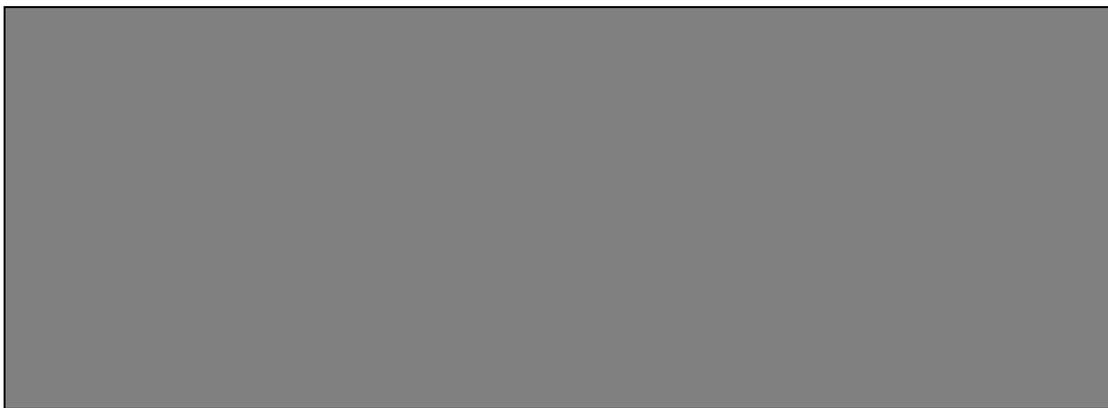


Figure 4: Progression of disease through brain

It is often difficult to identify which particular stage of the disease a victim is experiencing at a given moment. The early stages of Alzheimer’s may be characterized simply by increased forgetfulness. Individuals may have difficulty planning activities, completing tasks, or recalling information about recent events. The middle stages of the disease reveal greater difficulty recalling personal history and the names of friends and family, changes in personality, perceptual-motor problems, and loss of impulse control. In the final stages of Alzheimer’s, the victim requires constant supervision, lacks control of bodily functions, and

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<sup>5</sup>Arledge, 00:22:50.

<sup>6</sup>Eberhard, John P. *Brain Landscape: The Coexistence of Neuroscience and Architecture* (New York, NY: Oxford University Press, 2009), 190-4.

has no self-recognition. There is no prescribed timeline for the progression of Alzheimer's disease. Depending upon the age at which the disease first manifests itself, it may last from five to twenty years<sup>7</sup>.

*The Forgotten Question: What can the brain do?*

Amid the fear and frustration of an Alzheimer's diagnosis, discussion is often focused on what the patient cannot and will not be able to do. In his book, "I'm Still Here", John Zeisel offers a new approach to caring and understanding someone with Alzheimer's. He writes, "The way the world sees Alzheimer's today is that a person is almost totally lost once he or she receives an Alzheimer's diagnosis-lost both to themselves and to those that love them. An Alzheimer's diagnosis is seen as an Alzheimer's 'sentence'. But this just isn't so."<sup>8</sup> An appreciation for the numerous capabilities of an individual with Alzheimer's can contribute to the richness of the built environment.

Zeisel outlines the kinds of memories that persist through even the later stages of the disease. He notes of memories,

"Memories are not like objects we store in a kitchen cabinet. They do not exist fully formed in a part of the brain into which we have placed them for later retrieval. Rather, attributes of experience are placed in different parts

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<sup>7</sup> Brawley, Elizabeth C. *Designing for Alzheimer's Disease: Strategies for Creating Better Care Environments* (New York, NY: Wiley, 1997), 18.

<sup>8</sup> Zeisel, John. *I'm Still Here: A breaththrough approach to understanding someone with Alzheimer's* (New York, NY: Penguin Group, 2009), 7.

of the brain-faces in one part, colors in another, emotions related to an experience in another.”<sup>9</sup>

Sensory memories, those involving music, engaging the body, or drawing the eye, remain reachable throughout the course of the disease. Memories tied to strong emotions, such as a marriage, a birth, or a death, are often more easily recalled. Knitting, dancing, and bowling are skill memories often preserved. Environmental memories of colors and places and the moods or emotions attached to certain kinds of spaces remains strong. Those with Alzheimer’s are often able to recall major historical events, the tunes and lyrics to popular songs, and stories from their own lives.<sup>10</sup>

There are also functions of the brain hardwired before birth. What makes these abilities of the brain significant is that they are never lost, even in the latest stages of Alzheimer’s. The ability to recognize emotions in human facial expressions and body language is hardwired, as is the body’s reaction to human touch. Zeisel suggests that the fireplace, often the heart and gathering space of home, is hardwired in the brain as a protective place. Similarly, the need for contact with the natural environment appears hardwired, perhaps because of its role as a traditional source of food. Interestingly, the human response to music is strong throughout life. Before a baby is born, his or her sense of sound is already being developed, though vision is not cultivated until after birth. Those

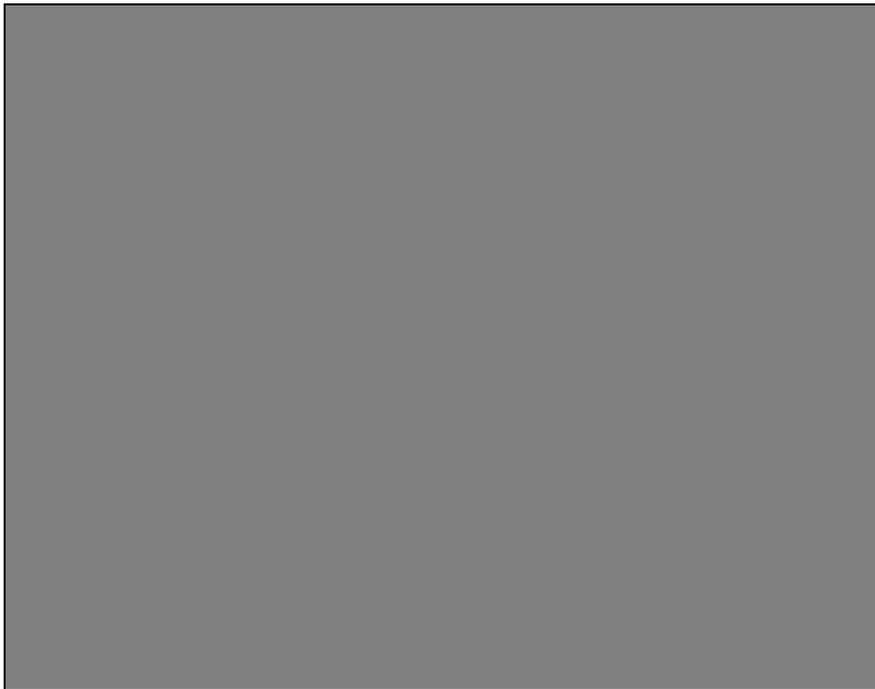
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<sup>9</sup> Zeisel, 144-5.

<sup>10</sup> Zeisel, 13-15.

with Alzheimer's respond strongly to music, and it can be used as a vital method of connection when language or other communication is compromised.<sup>11</sup>

Zeisel writes that memories in Alzheimer's patients do not completely disappear—the usual methods of retrieving them are damaged. Early symptoms of the disease are characterized by a decreased ability to recall new information. However, Zeisel suggests that new memories can be created using repetitive techniques and cues. The sequence of complex tasks can be indicated graphically, memory boxes outside rooms indicate a personal connection, and even the arrangement and type of furniture in a room and communicate to a resident what a particular space is used for.<sup>12</sup>



**Figure 5: Personal photographs or memory boxes outside resident rooms help them to identify their space.**

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<sup>11</sup> Zeisel, 59-63.

<sup>12</sup> Zeisel, 66-72.

Alzheimer's researchers are desperate to find a cure, or a more viable treatment to at least delay the progress of the disease. Though recent successes suggest that a cure may one day be conceivable, it is imperative that those suffering with the disease today be given the greatest opportunity for a comfortable life. An understanding of not only the disabilities, but the capabilities of someone living with Alzheimer's can enable that person to live the remainder of their life as fully as possible.

### **Chapter 3: Aging and the body (senses)**

Alzheimer's is most commonly found in people over age 65. These individuals are not only coping with the cognitive challenges posed by the disease, but also with the normal effects of aging. This process further affects the way the human body interacts with the environment, most evidently through the five senses. A deeper understanding of these sensory changes is essential to creating a functional environment for an aging population.

#### *Sound*

Ears are designed not only for hearing, but to maintain balance. Both of these abilities can be compromised during the aging process. Fluids and small hairs in the ear canal trigger nerves that enable the brain to maintain balance. In old age, the structure of the ear deteriorates, the ear drum thickens, and the ability to maintain balance is altered. Sharpness of hearing can lessen as early as age 50. This may be attributed to the brain's decreased ability to translate sound into meaningful information<sup>13</sup>.

Age-related hearing loss is referred to as presbycusis. It is common among individuals over age 65, especially those who were exposed to high levels of noise earlier in life<sup>14</sup>. While such hearing loss is often compensated for by hearing aids, the design of the physical environment can be responsive to

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<sup>13</sup> University of Maryland Medical Center. "Aging Changes in the Senses."  
Available from <http://www.umm.edu/ency/article/004013.htm>.

<sup>14</sup> University of Maryland Medical Center.

changes in hearing capability. Efforts to lessen or eliminate background noise can make conversation easier. Material choice can also enhance the acoustic quality of the built environment.



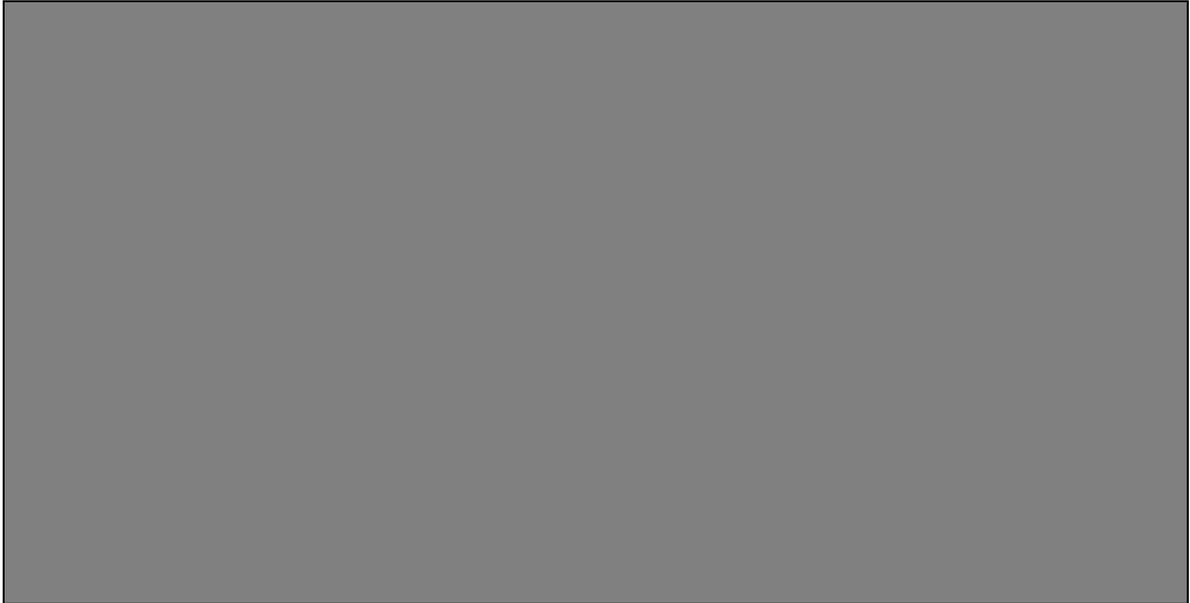
**Figure 6: Parts of the ear affected by aging**

### *Sight*

Changes in the eye can begin as early as age 30. The eye produces fewer tears, leading to uncomfortable dry eye. By age 60, the pupil, which controls the amount of light that enters the eye, shrinks to approximately one third of its size at age 20. The pupil reacts more slowly, especially in relation to darkness or bright light. The lens of the eye, which focuses light on the retina, becomes yellow and cloudy. Muscles around the eye change, restricting the eye's ability to move freely.

These physical changes alter the way a person experiences the world around them. Glare becomes more pronounced and less tolerable than ever before.

This makes driving after dark a challenge. Adjustment to changing light conditions becomes difficult. Because eye movement is restricted, peripheral vision is decreased. Discoloration of the eye's lens makes it hard to distinguish between blues and greens. Visual acuity in general declines<sup>15</sup>.



**Figure 7: Parts of the eye affected by aging**

### *Smell and Taste*

Taste is directly related to the sense of smell. Odors stimulate nerve receptors in the nose, which communicate with the brain a particular smell. The tongue is composed of thousands of taste buds, which recognize sweet, salty, bitter, and sour tastes. Together, smell and taste contribute toward our enjoyment of food<sup>16</sup>.

Smell has also been linked closely to memory. In his book "Eyes of the Skin," Juhani Pallasmaa writes, "A particular smell makes us unknowingly re-enter a space that has been completely erased from the retinal memory; the nostrils

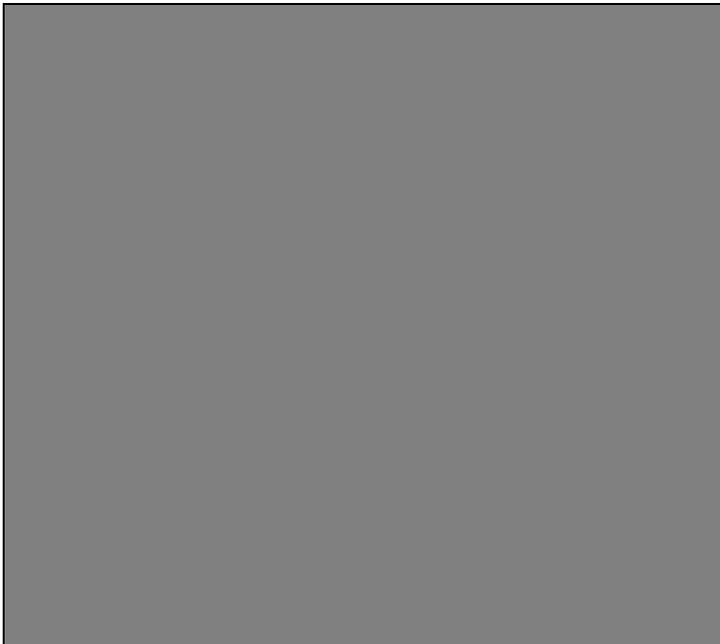
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<sup>15</sup> University of Maryland Medical Center.

<sup>16</sup> University of Maryland Medical Center.

awaken a forgotten image, and we are enticed to enter a vivid daydream. The nose makes the eyes remember.”<sup>17</sup>

At about age 40 to 50 in women, and 50 to 60 in men, the number of taste buds begins to decrease. The sense of taste is not always lost in old age. But if taste sensation is compromised, sour and bitter tastes usually outlast sweet and salty ones. Similarly, the sense of smell can remain intact into the later years of life, and is not often compromised until after age 70. Loss of the senses of taste and smell can prove dangerous, as individuals can no longer recognize hazardous odors. Inability to enjoy food can lead to nutritional decline and depression. The body’s reduced ability to produce saliva makes swallowing and digestion difficult<sup>18</sup>.



**Figure 8: Interrelation of smell and taste senses**

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<sup>17</sup> Pallasmaa, Juhani. *The Eyes of the Skin: Architecture and the Senses* (Hoboken, NJ: John Wiley & Sons, 2005), 38.

<sup>18</sup> University of Maryland Medical Center.

### *The Haptic Sense*

Nerve receptors throughout the body send information to the brain which is then processed as pleasant, unpleasant, or neutral sensations. These nerve receptors help the body to regulate temperature and recognize changes within the body. Older individuals often have difficulty distinguishing between hot and warm or cold and cool temperatures. Sensitivity to pressure or pain in the body is decreased. While it is unclear what the precise reason for these changes is, reduced blood flow to the nerve receptors in the body may be one cause.

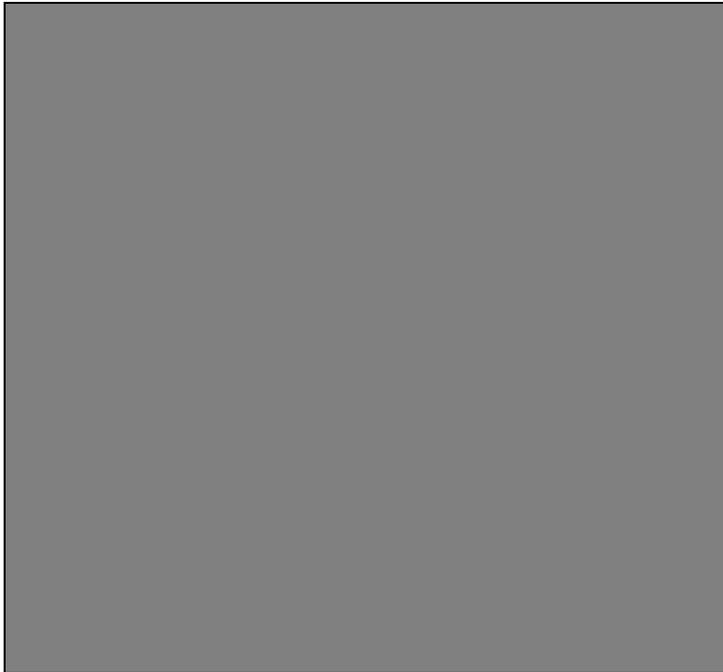
Decreased temperature sensitivity can mean an increased risk for hypothermia or burns. Older people often have difficulty sensing where their body is in relation to other objects, or the ground, and tend to fall more frequently. Because the elderly are less sensitive to pain, their bodies should be more closely monitored for injuries that they may not detect. Sensitivity to pain and slight touch may be reduced, but this is not always the case. Thinning skin after age 70 may increase sensitivity to fine touch<sup>19</sup>.

It is often noted that contemporary society is increasing ocularcentric, or preferential towards vision as the primary sense. Of the five senses, vision and hearing are often the earliest and most dramatically affected by the aging process. A greater appreciation for the senses as a complete system needs to be achieved, in order to provide aging adults with the ability to interact with the

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<sup>19</sup> University of Maryland Medical Center.

environment using the sensory capabilities they still possess. This is especially important when relating to those with Alzheimer's and other forms of dementia. When memory is significantly compromised, normal verbal communication may be impossible. Interaction through smell, taste, sound, and touch can keep individuals leading meaningful lives.



**Figure 9: Receptors in skin (this image needs editing)**

## **Chapter 4: Care**

Alzheimer's is a slowly destructive disease, and one that cannot be battled alone. For each of the millions of Americans who are currently coping with dementia, there is an individual responsible for their well-being. These caregivers are family, close friends, or trained professionals who often sacrifice their time and energy for the sake of another. So many older Americans desire to stay at home forever, but home care cannot always provide the level of assistance necessary for survival. At some point during the course of Alzheimer's disease, 24-hour supervision is required, and entrance into an adult care facility may be the best option.

### *Home Care*

The Alzheimer's Association 2009 Facts and Figures cites that at any given moment, 70% of all those with dementia-related illnesses are living at home<sup>20</sup>. Each year, millions of Americans contribute billions of hours of unpaid care for those with Alzheimer's. Many of these family members are not medically trained, and the physical and mental toll on the caregiver can be heavy. Among other tasks, caregivers are often responsible for transportation of their loved one, monitoring their medications, managing their finances, and bathing, dressing, and feeding them if necessary. In addition, they are witness to the deterioration of a family member's mind. At some point, their loved one stops recognizing them.

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<sup>20</sup> Alzheimer's Association, "2009 Alzheimer's Disease Facts and Figures." *Alzheimer's & Dementia* 5 no. 2 (2009): 54.

In the PBS documentary “The Forgetting,” the effect of Alzheimer’s on the caregiver is discussed. Many spouses, sons, and daughters find caregiving frustrating; a caregiver can do everything right, and the disease will still progress, and their loved one will continue to forget. An individual with Alzheimer’s loses awareness of the disease as it progresses, and in that way they are spared from witnessing their own deterioration. But friends and family are always cognizant of the person’s failing memory, and it can lead to depression and a higher risk of physical illness for these caregivers<sup>21</sup>.

One of the advantages to home care is the guaranteed personal attention the ailing individual will receive. A family member or friend is able to cater to an Alzheimer’s patient’s established schedule and rituals, in ways a nursing home or assisted living facility may not. The familiarity of home, where so many of a person’s memories are formed, can be comforting. Yet eventually, even these spaces may become unfamiliar, and the built environment must adapt to the changing physical and mental capabilities of the patient. Most homes are simply unequipped for the needs of an aging individual. In his argument against the predisposition for home care, Dr. Paul Willging writes, “Home and community-based services in general have tended to justify their existence not in terms of the positives attendant to their product, but more in terms of the negatives attributed to the nursing home.”<sup>22</sup> This prevailing attitude needs to be met with a greater dedication to design of better-quality senior care homes.

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<sup>21</sup> Arledge, 00:46:05.

<sup>22</sup> Willging, Paul R. ““Aging in Place” Conveys the Wrong Idea.” *Nursing Homes Magazine* Nov. 2005: 14.

### *Assisted Living*

Assisted living facilities are designed to bridge the gap between home and a skilled nursing home. They are supportive environments, where residents still exercise some level of independence, but are able to receive assistance with various tasks. It is estimated that up to 67% of all assisted living residents have some form of dementia. Some facilities, for an increased fee, offer dementia-related care<sup>23</sup>. For a period of time, assisted living offers a degree of freedom for Alzheimer's patients. But the physical effects of the disease often force relocation to a skilled nursing facility.

### *Skilled Nursing*

Unlike assisted living facilities, nursing homes are regulated by the federal government and licensed by the state. They often have required staff to patient ratios. Nearly half of all nursing home patients suffer from some form of dementia. Despite this statistic, only 5% of all nursing home beds are in dedicated Alzheimer's Special Care Units<sup>24</sup>. A large proportion of Alzheimer's patients are seemingly trapped in an environment designed with little attention to their cognitive abilities. It might be argued that even those without dementia-related illnesses could benefit from some of the design strategies used in Alzheimer's Special Care Units.

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<sup>23</sup> Alzheimer's Association, 54.

<sup>24</sup> Alzheimer's Association, 54.

### *Hospice*

Hospice care is for those individuals in the last stages of life. This kind of care can be provided in the home, in an assisted living or nursing facility, or in a dedicated hospice care center. Hospice is dedicated to preserving the dignity of the dying patient, and offering them comfort in their last days or months. It is a method of palliative care that is not meant to prolong life or treat a disease, but to allow an individual a peaceful death.

### *Aging in Place*

As mentioned previously, there is a strong desire among older Americans and their families to live at home until death. Nursing homes are often negatively viewed, and children of aging adults feel guilty placing their parents in nursing facilities. Though it may be impossible for many seniors to age at home, the concept of aging in place may still be viable. So often an individual enters an assisted living facility, only to be transplanted to a nursing home when his or her medical condition worsens. Dr. Willging writes,

“I would contend that the very word “place” is the root cause of many of our problems. By its very nature, it implies one’s house...Aging in place should have nothing to do with physical location. It should have everything to do with self-fulfillment, with personal empowerment. Aging in place reflects an attitude and an environment enhancing the ability of a

senior to maintain personal control over their lives, to the extent practicable but in ways important to them.”<sup>25</sup>

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<sup>25</sup> Willging, 14.

## **Chapter 5: The Economics of Alzheimer's**

Where an Alzheimer's patient lives out his or her life is largely dependent upon economic factors. Home care can be costly, not just for the Alzheimer's patient, but for the family as well. In-home non-medical assistance and adult daycare are options, but can cost over \$100 a day. Even those families that recognize the need to place their loved one in a skilled nursing or assisted living facility may not have the assets to do so.

Assisted living facilities with dementia-care can cost up to \$50,000 a year, and nursing homes cost upwards of \$70,000 a year. These numbers are staggering when compared with the median income for people aged 65 and older: \$17,382 per year. It is not surprising to learn that over half of all senior citizens do not have enough assets to cover even one month in a nursing home<sup>26</sup>.

So how does anyone afford long-term care? Under the current healthcare system in the United States, Medicaid will cover long-term nursing care for those individuals who meet level of care requirements and have a low income. Those who qualify must contribute all their Social Security funds and monthly income minus a small personal allowance, and the remainder is covered by Medicaid<sup>27</sup>. In essence, an individual must be substantially wealthy or poor to afford nursing home care. Private medical insurance covers a small percentage of those

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<sup>26</sup> Alzheimer's Association,57.

<sup>27</sup> Alzheimer's Association,58.

individuals in nursing homes, but coverage must be bought before one falls victim to Alzheimer's or another disease.

The next twenty years will see an unprecedented number of Americans turn 65. The baby boomer generation will not only compose one quarter of the entire population, but medical advances will enable individuals to live longer. With more and more people living to age 85, the incidence of Alzheimer's will increase, and the economic effects will be significant. There will be more elderly Americans with fewer younger people to care for them. The current nurse to patient ratios may not be maintained. The burden on the country's healthcare system will be extreme; in 2005 the estimated direct and indirect costs of dementia-related illness for Medicare and Medicaid was \$148 billion<sup>28</sup>. It is clear that the growth of the senior population in America requires changes in the infrastructure that supports them, from healthcare coverage to the number and location of residential and medical facilities.

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<sup>28</sup> Alzheimer's Association, 48.

## Chapter 6: Design Implications

Designing for Alzheimer's is a challenge that must address needs of the body and mind, as well as economic forces. These have been outlined above. The following are potential design solutions to some of these obstacles.

### *Lighting*

Foremost among lighting priorities should be a connection to natural daylight. Not only is this energy efficient, but it helps to regulate the circadian rhythm of residents in the facility. The basic level of illumination in certain areas should be higher to accommodate for decreased visual acuity. Task lighting is important, as is the attention to finishes, which can help reduce glare<sup>29</sup>.

### *Color*

Color can have strong psychological effects on an individual. Warm colors are full of energy and are generally easier for the aging eyes to distinguish. Cooler colors convey peace and tranquility, and can be more challenging to distinguish from one another with time. Bright colors can be agitating, but use in landmark elements can be beneficial to wayfinding. Because illumination of task is necessary for the elderly, it may be advisable to pick colors that reflect a lot of light<sup>30</sup>.

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<sup>29</sup> Brawley, 85-97.

<sup>30</sup> Brawley, 116-23.



**Figure 10: Color diagram**

### *Wayfinding*

The ability to navigate space effectively is one of the major challenges of Alzheimer’s disease. In many ways, one must design the space like it is being experienced for the first time, all the time. Residents with little or no short-term memory may not be able to recall the exact route to their room, but visual cues can lead them there. Many facilities create “memory boxes” outside of private rooms, with the intent that the resident will recognize personal objects or photographs and infer it is their space. Graphic signage or icons are often more effective than written signage in Alzheimer’s facilities, because residents are able to quickly associate images with ideas.

Dead-end hallways and long sequences of repetitive elements can be disorienting for someone with Alzheimer’s. Spaces should be varied in size and character, and landmarks should be distinct from one another. Locked doors or

restricted spaces should be hidden, so that residents are not confused when they are unable to enter. Visual and acoustic connections between spaces often suggest to residents where to go next, and what a particular space is used for<sup>31</sup>.

### *Outdoor Space*

A successfully designed Alzheimer's facility allows patients to wander independently. Many homes have courtyards or other enclosed outdoor spaces that are freely accessible for residents. Gardens are opportunities for residents to engage in various activities such as gardening, hanging laundry, or picnicking. Interaction with nature also encourages stimulation of the senses. Selection of plants with various aromas can engage the sense of smell, while exposure to the sun and textures of nature incorporate the haptic sense.

Outdoor spaces must be carefully secured, as many Alzheimer's patients can be tempted to wander from facilities into the outside world. Paving materials should accommodate handicapped residents. Shaded resting points should be provided. The qualities of outdoor space can also be incorporated into interior spaces, where plants and flowers can improve indoor air quality and provide sensory stimulation for residents<sup>32</sup>.

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<sup>31</sup> Brawley, 145-52.

<sup>32</sup> Brawley, 205-14.

### *The Haptic Sense*

The sense of touch can be a source of comfort in even the latest stages of Alzheimer's disease. From the upholstery of furniture to window coverings, incorporation of familiar textures can be a source of consolation for an individual with few memories left. Some facilities bring in dogs and cats to interact with residents. The simple act of stroking a dog can be soothing and emotionally uplifting for a resident.



**Figure 11: Resident with a dog, often a source of comfort.**

### *Designing a Home*

Elizabeth Brawley, in her extensive exploration of design criteria for Alzheimer's facilities, discusses the idea of creating a home-like atmosphere for residents. For so many individuals, the idea of memory is intertwined with the idea of home.

Brawley writes, “How can people with Alzheimer’s remember home? Home is in our minds. It’s an emotional memory, and such a comforting idea that it doesn’t require a lot of thinking and reasoning.”<sup>33</sup>

If designers approach the concept of home as a state of mind or as an emotion, it can have great influence on the scale and organization of spaces. For instance, many new facilities are subdivided into “houses”, with 8-10 residents in a household. A common kitchen and living space anchors individual bedrooms. These small groups are manageable for staff, and also provide residents with a family-sized living environment. Dining areas are not far from living spaces, which encourages residents to engage in community meals.

The scale of spaces is essential to conveying the feeling of home. Brawley argues that large multi-purpose dayrooms do little to establish a home-like quality. After all, few homes today have such large un-programmed spaces. Small libraries, a music room, or a TV room are the kinds of activity rooms that begin to resemble spaces one might find in a typical home. Each room has a designated activity, and each space is of a size that encourages small-group interaction<sup>34</sup>.

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<sup>33</sup> Brawley, 131.

<sup>34</sup> Brawley, 158-9.

## Chapter 7: Case Studies

The following case studies examine six senior care facilities in various locations. They represent a range of scales, from 15 to 60 residents, and a range of care options, from assisted living to hospice.

### *California Pacific Medical Center*

Architect: Barker Associates (Palo Alto, CA)

Location: San Francisco, CA

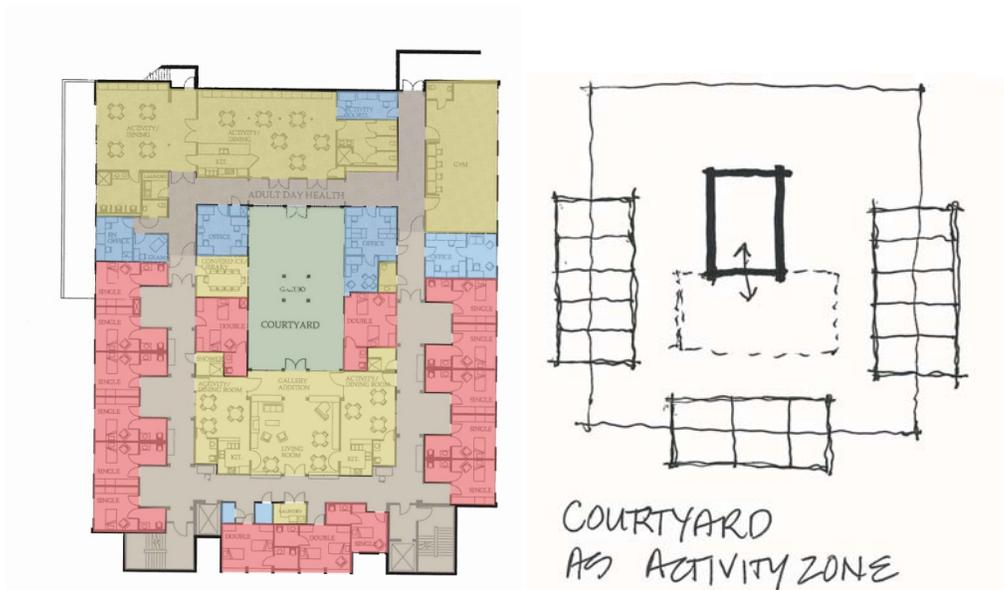
Year: 1994

Care Type: Assisted Living

Size: 20 residents (9,500 SF)

Site/Context: Urban, Medical Campus

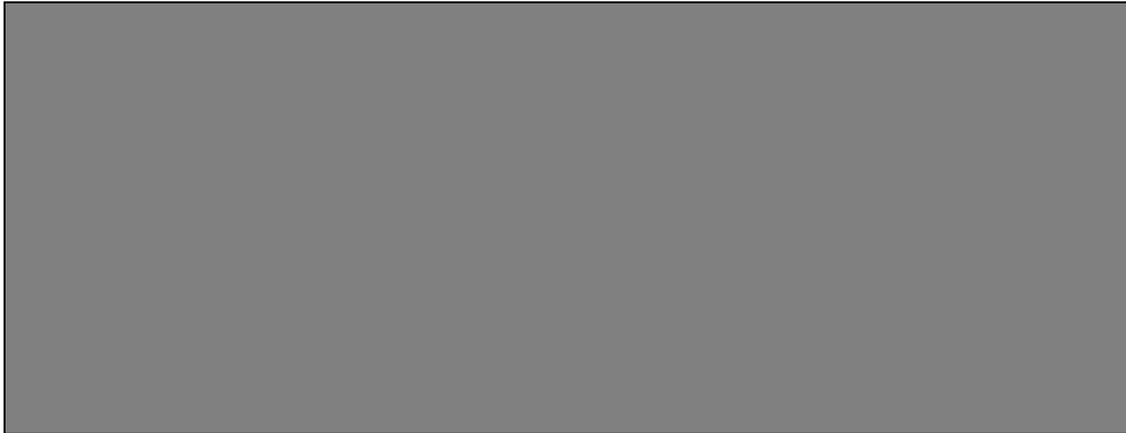
This facility is significant because of its location in an urban setting. Part of a multi-story building in a medical building, the program of this Alzheimer's care facility occupies only one floor. The program includes 24-hour care for up to 20 residents, as well as a day care option.



**Figure 12 & 13: A diagrammatic look at the plan. California Pacific Medical Center organizes its program around a central courtyard. Not only does this provide a green space for residents, but it is one they can enter freely without concern for wandering. In an urban setting, this parti, with courtyard at center helps to maintain the street edge and create a private space.**

Figure 12 breaks down the facility's program into four components: resident spaces (red), common spaces (yellow), administrative spaces (blue), and green

space. Though most of the common space is dedicated to the day care wing on the north side of the courtyard, there are sitting area and kitchens located in the 24-hour care wing. California Pacific features a gym as part of the program, emphasizing physical as well as mental health.



**Figure 14 & 15: California Pacific features both single (private) and double rooms.**

Each private and double room at California Pacific features a bathroom with sink and toilet. The entry into each room is recessed from the main circulation, creating an area for casual conversation, and a buffer from any noise that may be emitted from the hallway. Program elements such as bathrooms, laundry, and storage are pulled from the walls of the building, so as to allow residents full access to daylight. The double rooms shown in Figure 15 have windows facing south. Each room features double windows, however, these windows are pulled back from the edge of the thick outer wall. This allows for daylight to enter the room and residents to see outside, while providing some shelter from hot southern sun.

*Corinne Dolan Alzheimer Center at Heather Hill*

Architect: Taliesin Associated Architects

Location: Chardon, OH

Year: 1989

Care Type: Assisted Living, Nursing Care

Size: 23 residents (14,000 SF)

Site/Context: Rural

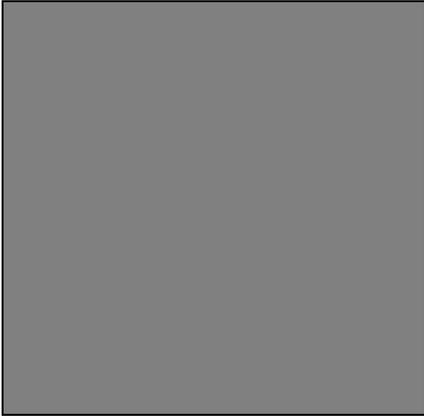
The Corinne Dolan Alzheimer Center is similar in scale to California Pacific Medical Center. Housing 23 residents in rural Ohio, the context is very different. Corinne Dolan offers three kinds of care: assisted living, skilled nursing, and dementia care. The facility is part of a larger 150 acre campus, and is isolated from downtown or a major retail center.



**Figure 16 & 17: Diagrammatic plans of Corinne Dolan.**

Corinne Dolan is a one-level facility, and is organized around a central activity zone or common space. Outdoor space is accessible through a day room, and this space is enclosed to eliminate wandering. Circulation within the facility is designed to allow residents to wander without fear of getting lost. Though the organizational strategy for this facility is clear, one wonders how effectively this building addresses the needs of its Alzheimer's residents. The symmetrical nature of the plan, which only permits residents to walk in a circle, does little to

differentiate the various program elements. All of the residents' rooms face the central common space, where nurses' stations are located. The design of this facility accommodates the need for supervision and controlled wandering, but could have been more inventive with the organization of interior spaces.



**Figure 18: All of the rooms at Corinne Dolan are private. They are generally grouped in pairs, with rooms being mirror images of each other.**

Like California Pacific Medical Center, resident rooms have entry recessed from the main hallway. In this particular case, recessed entry may have been necessary to avoid doors being opened into the circulation path. Note the location of the bathrooms in each room. These bathrooms do not feature a full-height wall, but rather a partition. Visual access upon entering the room reminds patients of the bathroom.



**Figure 19: Corinne Dolan is a one-story facility, and features clerestory windows along portions of the exterior. This design decision allows for natural light to enter the space, while reducing heat gain.**

*Hospice Hawaii*

Architect: R-2ARCH

Location: Maui, HA

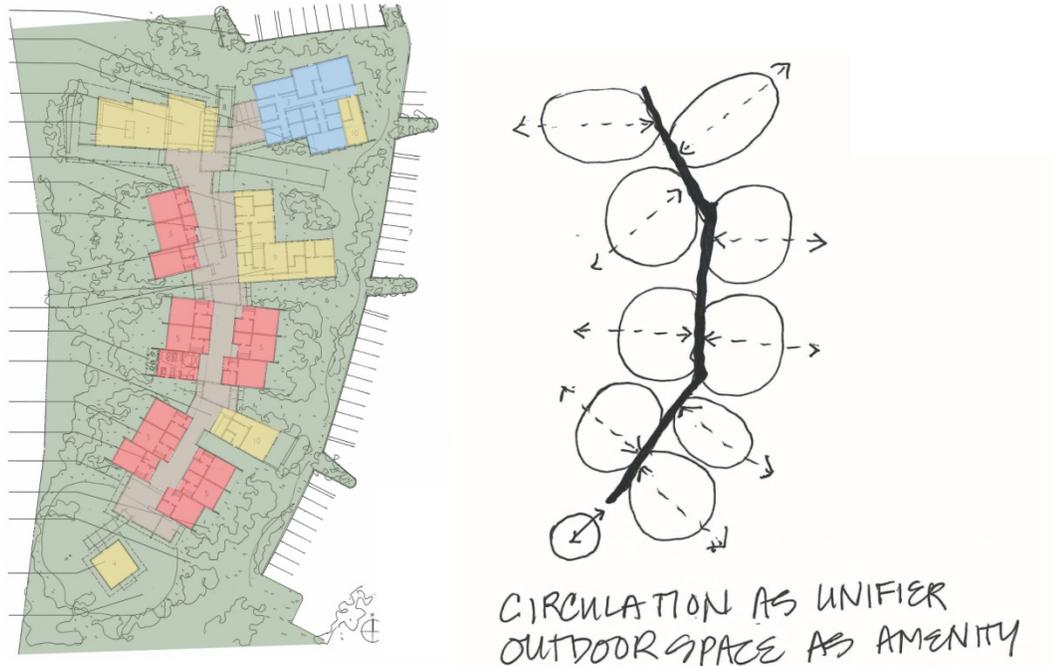
Year: after 2006

Care Type: Hospice

Size: Approx. 30 rooms (5 acre site)

Site/Context: Rural (wooded area, near overlook)

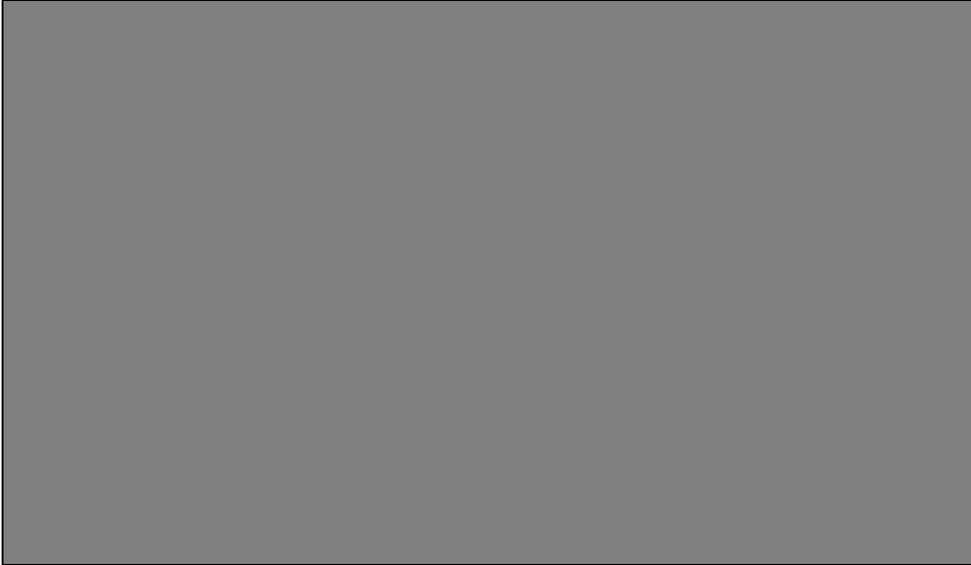
Hospice Hawaii is situated on a 5 acre site in a secluded area of Hawaii. It is a hospice care facility, meaning that it is not organized specifically for those with dementia. However, the program and organizations strategy of the design are of relevant when considering the development of a long-term care facility.



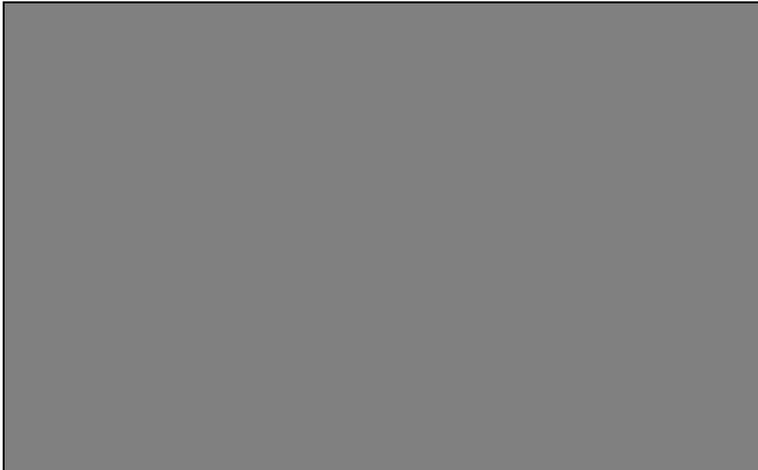
**Figure 20: Diagrammatic plans of Hospice Hawaii.**

The main feature of Hospice Hawaii is its central circulation spine. This corridor features variations in width and has a gentle curve. Each of the program elements placed along the spine meet it at a different angle. There are glimpses to the outdoors along the way. Though this design strategy was not employed

with Alzheimer's in mind, one could imagine the differentiation between spaces to be of benefit to the navigation of a dementia resident.



**Figure 21: Hospice Hawaii incorporates nature throughout its design, shown here through skylights that become sculptural pieces.**



**Figure 22: Plan of a double room at Hospice Hawaii.**

The rooms at Hospice Hawaii each have access to the outdoors. Each room has its own bathroom, complete with shower and houses two residents. Though controlling access to the outdoors for Alzheimer's patients is a challenge, the relationship of Hospice Hawaii to the nature that surrounds it is important. As mentioned in previous chapters, those with dementia benefit from sensory stimulation, and being outdoors certainly helps with this issue.

*Maitri Hospice*

Architect: Kwan/Henmi Architecture/Planning (San Francisco)

Location: San Francisco, CA

Year: 2000

Care Type: Special Care Unit

Size: 15 residents (1.1 acre site)

Site/Context: Urban/Adaptive Reuse

Maitri Hospice offers another example of a residential care facility in an urban setting. In this case, an existing auto repair garage was adaptively reused. Like California Pacific Medical Center, there is a central courtyard space. Residents' rooms are located on this courtyard or along the outer wall.



Figure 23: Diagrammatic plans of the upper floor of Maitri Hospice.

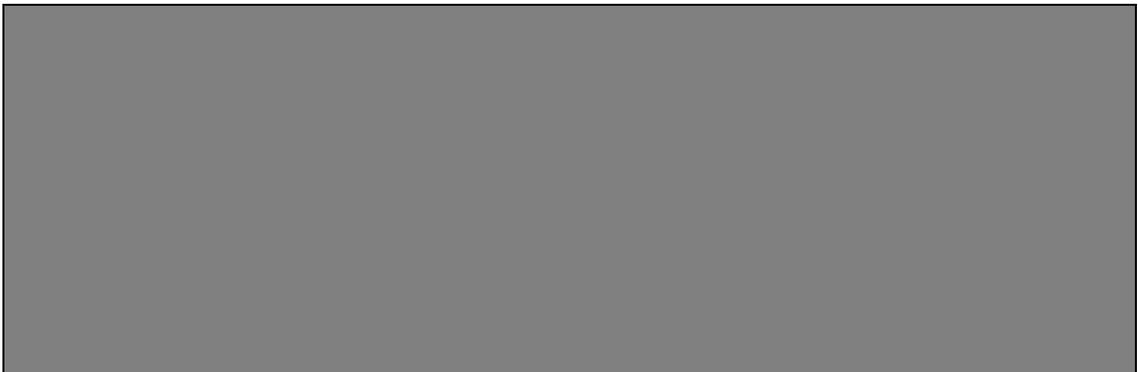
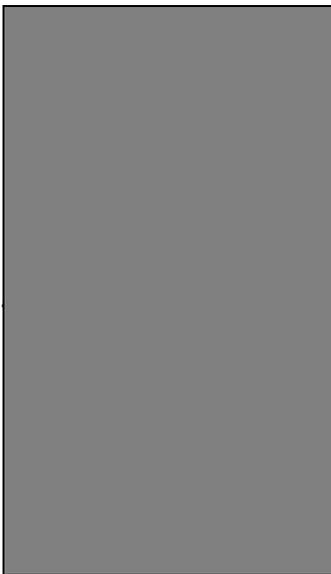


Figure 24: Building section showing tenant space below.

Maitri Hospice is unique in its location on the upper level of its building. The ground floor space is rented to a retail tenant. While locating the main floor of an Alzheimer's care facility on an upper level may not be practical, most urban buildings have multiple stories. This is an issue that must be addressed in the development of any urban site. The strategy of raising the courtyard to the upper level of the building provides residents with outdoor space despite being above ground. This may be a viable strategy in the development of this thesis project.



**Figure 25: Plan of private rooms at Maitri Hospice.**

Rooms at Maitri Hospice are private, but share a common toilet area. Sinks are provided in each room. Shared bathroom facilities may be a consideration in the development of this project. Having one bathroom for every two residents may prove to be a more sustainable option than designing a private bath from each room.

*Childers Place*

Architect: Perkins Eastman

Location: Amarillo, TX

Year: 2007

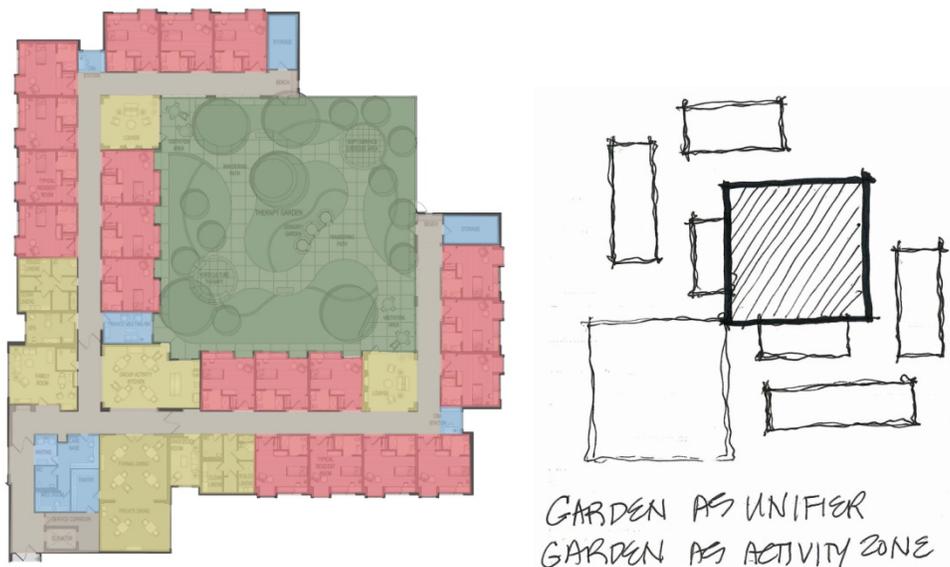
Care Type: Skilled Nursing/Special Care Unit

Size: 60 residents- 10 unit households (105,000 SF)

Site/Context: Suburban

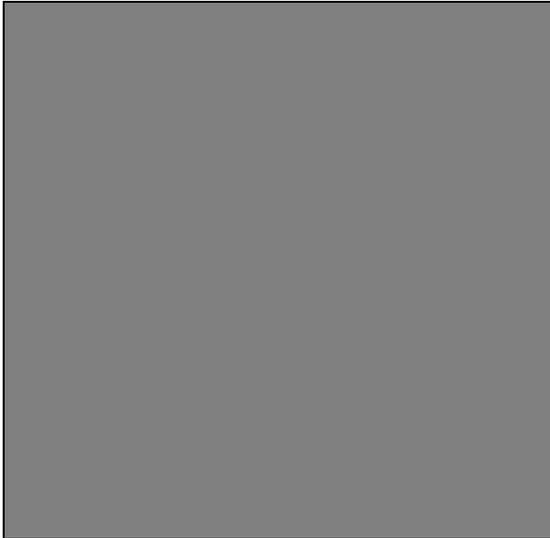
Childers Place is the largest of the six case studies. Housing 60 residents, the building is broken down into three “neighborhoods”, each with 20 residents.

Each neighborhood has its own therapy garden, designed for the needs of Alzheimer’s residents. Each neighborhood also has its own common areas, such as sitting and dining rooms. Each neighborhood is essentially the same exact plan, rotated to accommodate the site.



**Figure 26 & 27: Diagrammatic plans of Childers Place.**

While the breaking down of the program into neighborhoods seems like a viable strategy, the lack of distinction between neighborhoods is problematic. If an Alzheimer’s resident should enter another neighborhood, they would have little way of knowing that it was not their own. An opportunity to establish distinct communities within the larger complex was missed.



**Figure 28: Room plan featuring private sun porch.**

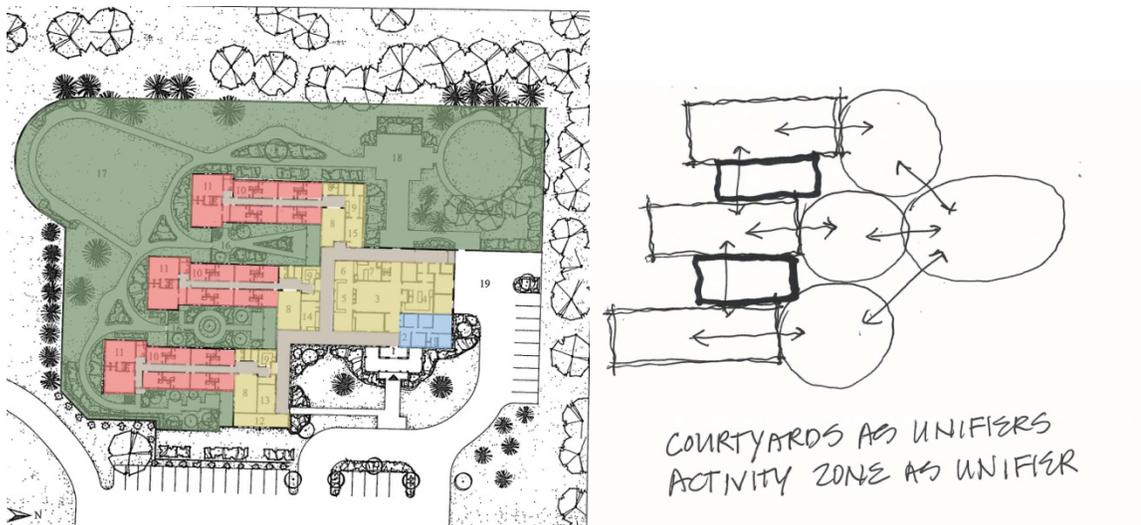
Childers Place's rooms feature access to the enclosed neighborhood garden. Allowing residents access to the outdoors from their private room offers them a level of independence not often found in Alzheimer's care facilities. Because the garden is enclosed, there is little concern for safety. Some rooms feature a bay window in place of the sun porch, which also allows for interaction with the outdoors.



**Figure 29: Photograph of a typical resident room at Childers Place.**

*Woodside Place*  
Architect: Perkins Eastman  
Location: Oakmont, PA  
Year: 1991  
Care Type: Special Care Unit  
Size: 36 residents- 12 units/house  
Site/Context: Rural

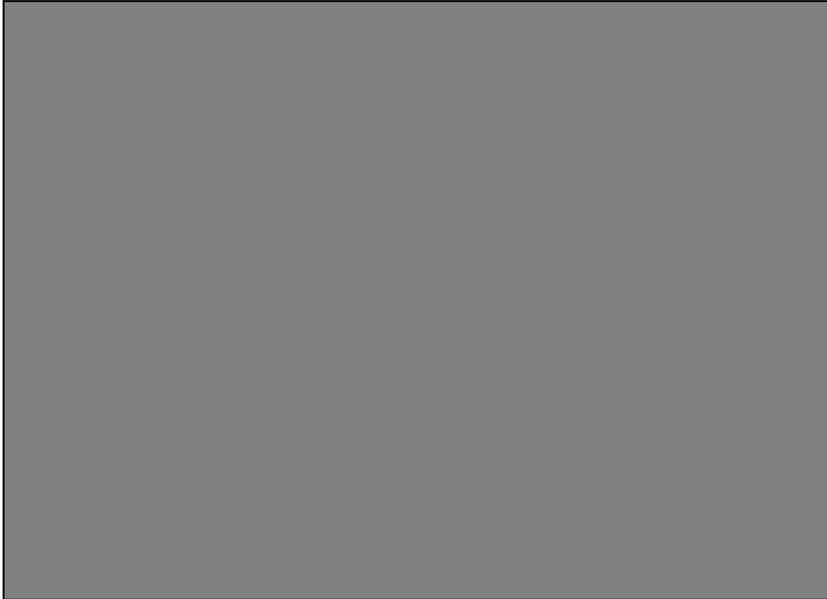
Of the six case studies, Woodside Place is the closest to the scale of the project proposed in this thesis. Designed by the same architect as Childers Place, Woodside Place offers a design sensitive to the needs of Alzheimer's patients. The 36 residents are organized into three houses, each with 12 beds. Single rooms as well as companion suites are provided. Like Childers Place, each house has access to an enclosed garden space. This garden features extensive wandering paths ideal for those with dementia.



**Figure 30 & 31: Diagrammatic plans of Woodside Place.**

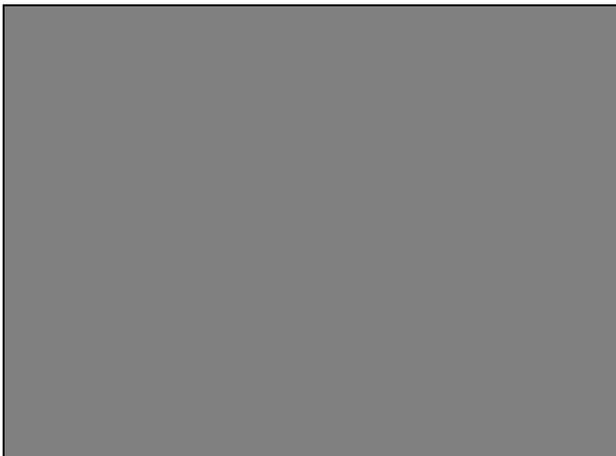
What distinguishes Woodside Place from Childers Place is the way in which the houses relate to one another. Though access to each house is controlled, movement between houses is encouraged. Residents may go to another house

to visit the music room or other activity space unique to that house. There is also a large communal kitchen located closer to the entry.



**Figure 32: An aerial of Woodside Place showing the three houses.**

The major criticism of Woodside Place remains the lack of differentiation between houses. The exteriors of the houses are identical, and their plans are very similar. The grouping of residents into groups of 12 rather than 20, as in Childers Place, seems more manageable and keeps each house at an appropriate scale.



**Figure 33: The facility uses Dutch doors that allow residents to suggest privacy while having visual access to the hall. Visual cues like photographs are used outside residents' rooms, to help them identify their spaces.**

## **Chapter 8: Site**

### *The Urban Condition*

Alzheimer's disease affects individuals indiscriminately across the country, from small rural towns, to modern suburban developments, to historic urban neighborhoods. Analysis of precedents for senior living reveals gravitation towards suburban and rural conditions. Too often assisted living and nursing homes are located in the isolation of open fields, or adjacent to a suburban country club. The idea of providing individuals a place of quiet and comfort in their later years is valid, but it is not the ideal resting place for every senior citizen. What becomes of the urban dweller, who built a life in a bustling city, with no desire of ever leaving? This thesis will explore the design of an Alzheimer's care facility in an urban context, with the hope of providing a viable living option for those individuals who wish to remain close to home.

The city can serve as a valuable amenity in the development of a senior care facility. The best way to combat the progress of Alzheimer's is to maintain an active, healthy lifestyle. While driving may no longer be an option, the ability to walk to a nearby supermarket, post office, or park provides some degree of independence. Zeisel's commentary on the underestimated abilities of those with Alzheimer's further suggests that trips to local theaters, museums, or other civic events can keep individuals engaged with the outside world<sup>35</sup>. The typical urban environment offers these amenities. Development of senior housing

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<sup>35</sup> Zeisel, 144.

options for city residents provides them the opportunity to stay in their community and use these resources.

The concept of urban senior housing reinforces the idea of aging in place, as articulated by Dr. Willging<sup>36</sup>. This is not necessarily the notion that a person should live out their years in one house, but that they should be granted the opportunity to live in a place of their choosing, a place that feels like home because of the comfort and dignity provided. A healthy community is composed of home and school, places for worship, nourishment, activity, and should naturally include a place to live one's last years. Giving seniors the opportunity to remain in their community allows family and friends greater accessibility. As the aging population grows, urban housing options for seniors will become even more valuable.

### *Site Selection*

There are numerous opportunities for urban interventions involving senior housing, in cities across the country. For this thesis, an analysis of six eastern cities was conducted. These cities varied in size and each offered different advantages. Based on analysis of precedents and Alzheimer's research, each city was evaluated based on a list of criteria of varying importance. Accessibility to quality medical care, green space, and retail amenities was given highest importance. Access to these resources is what makes cities ideal locations for senior housing development, and weaknesses in these areas would be a

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<sup>36</sup> Willging, 14.

detriment to the proposed facility. The next consideration was for civic and cultural amenities and the existing senior population. It would seem beneficial for this thesis to be anchored in a community that has an established elderly population and some existing senior services. Lastly, additional points were given for a variety of factors, including accessibility to the city and the influence of crime.

Figure 34 notes the six cities studied and their respective point totals. Based on this analysis, Baltimore revealed itself to be an ideal candidate for the development of this thesis. Aside from an elite medical center in Johns Hopkins, Baltimore also features developed parks, civic amenities, an Alzheimer's research center, and a substantial senior community in the southeastern portion of the city. Southeastern Baltimore is primarily composed of active residential neighborhoods, each with access to retail areas and the centralizing Patterson Park. A site selected in this area of Baltimore would have access to all of the resources that distinguish the city as a viable place for senior living.

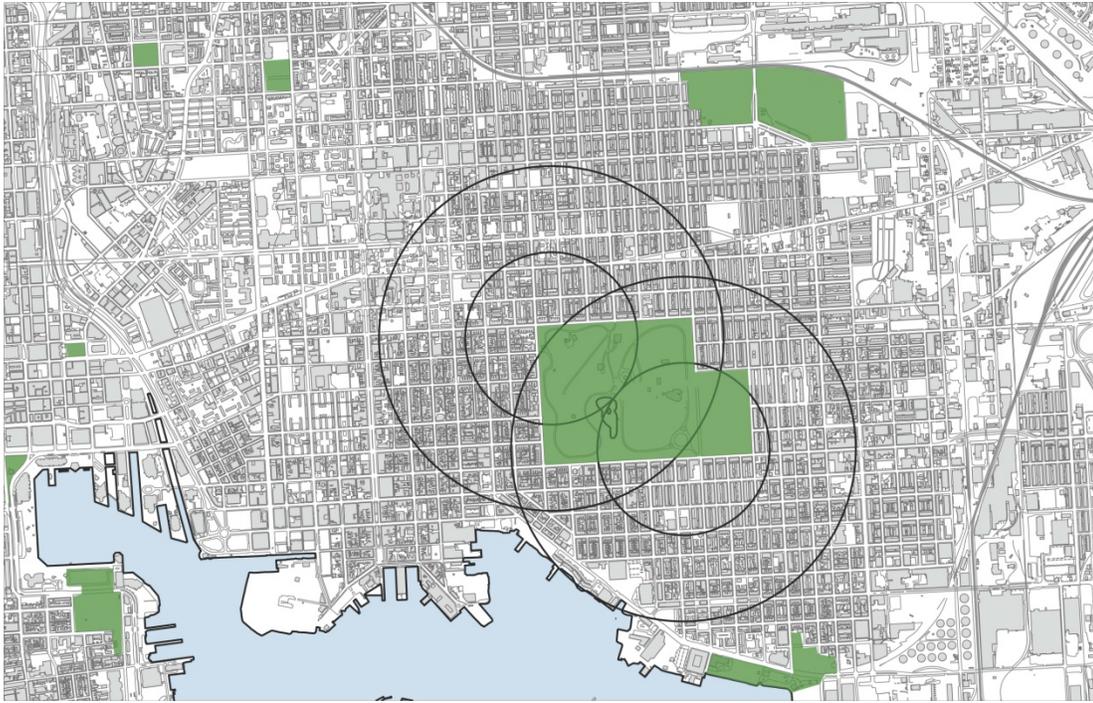
	PHILADELPHIA (Northeast)	BALTIMORE (Patterson Park)	ROANOKE	WILMINGTON	BETHLEHEM	FREDERICK
POPULATION	1.4 million (city)	638,000	93,000	72,500	71,000	59,200
% POPULATION 65+	23%	17%	15%	18%	18%	12%
ESTABLISHED	1829	1866	1852	1638	1741	1745
MEDICAL CENTER	5	10	9	9	9	9
GREEN SPACE	5	10	9	7	6	10
SHOPPING STREET	7	8	7	7	8	9
SUBTOTAL	17	28	25	23	23	28
CIVIC/CULTURAL AMENITIES	1	5	4	4	3	4
NEED	5	3	3	1	4	2
EXISTING SENIOR SERVICES	2	4	3	3	2	2
SUBTOTAL	8	12	10	8	9	8
ALZHEIMER'S RESEARCH CENTER	0	3	0	0	0	0
HISTORY OF PLACE	1	2	1	2	3	3
ACCESSIBILITY	2	3	1	3	2	2
CRIME	2	1	0	1	2	2
RESIDENTIAL CHARACTER	2	3	2	2	3	3
SCHOOLS (INTERGENERATIONAL OPPORTUNITIES)	3	3	2	2	2	3
SUBTOTAL	10	15	6	10	12	13
TOTAL (63 POSSIBLE POINTS)	35	56	41	41	44	49

Figure 34: Site Selection Matrix: Each issue was given a point value for this study. Things of greater importance (medical care, retail center) were assigned values of 10 possible points, while things of less importance (residential character) were given 3 possible points. The total is out of 63 points.

With Southeast Baltimore identified as the place of study, an analysis of various aspects of this area was conducted, in the hope of isolating a specific site for further development. In examining the figure ground of this area, it is clear that Patterson Park operates as a centralizing void in an otherwise consistently dense urban fabric. This park is of considerable size, and residents with dementia may find it overwhelming to navigate on their own. But access to the park for supervised group outings, family visits, or neighborhood events is certainly beneficial. Most of the surrounding residential neighborhoods are within one quarter to a half-mile walking distance to Patterson Park.



**Figure 35: Figure Ground: Southeast Baltimore is organized in a clear grid pattern, which breaks down near the harbor area. The area is also consistently dense, composed mostly of two and three story row homes.**

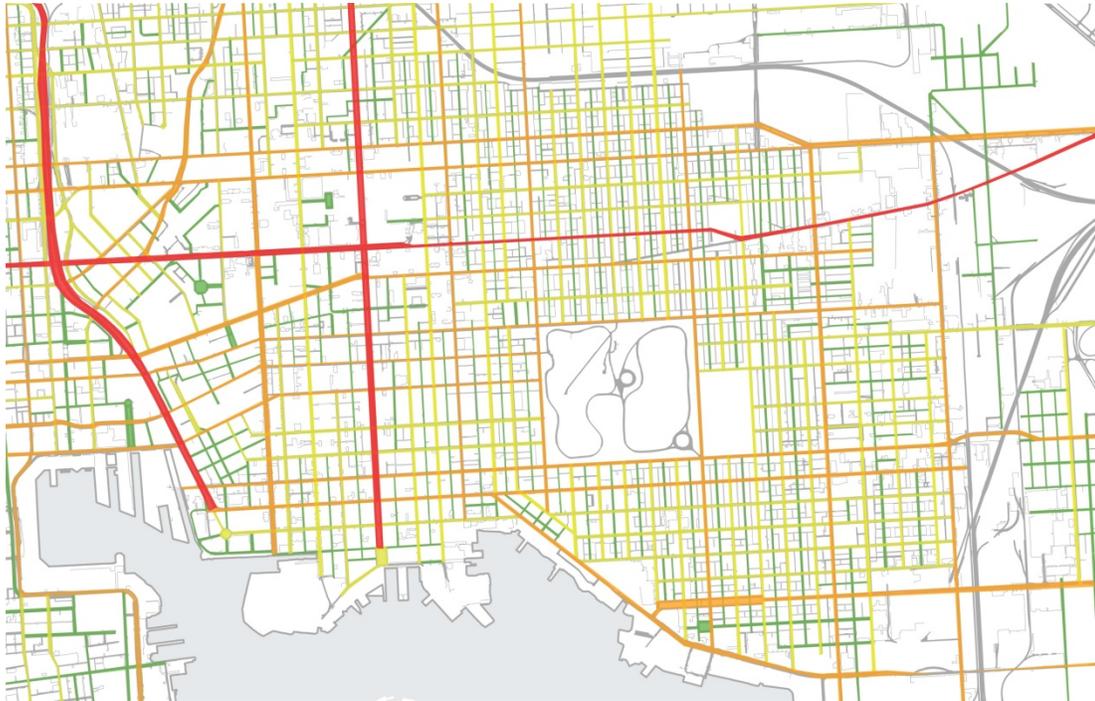


**Figure 36: Public Green Space:** Patterson Park is within one quarter to a half mile of most of the surrounding residential neighborhoods. Additional smaller park spaces can be found to the north, and along the waterfront to the south.

There is a relatively distinct hierarchy to the streets in this area, as shown in Figure 37. The main arteries of access to the downtown area are by Broadway, running north-south, and New Orleans Avenue, running east-west, north of Patterson Park. These two thoroughfares are not only key access routes, but also help to define the edges of Southeast Baltimore. Broadway runs directly through historic Fells Point, which transitions to the Inner Harbor and downtown in the east.

Southeast Baltimore is organized by a regular grid. A few primary roads define the edges of Patterson Park and the waterfront. The remainder is secondary residential streets and smaller one-way streets, often with front-end parking on one side. Streets are less active the farther one moves from Patterson Park,

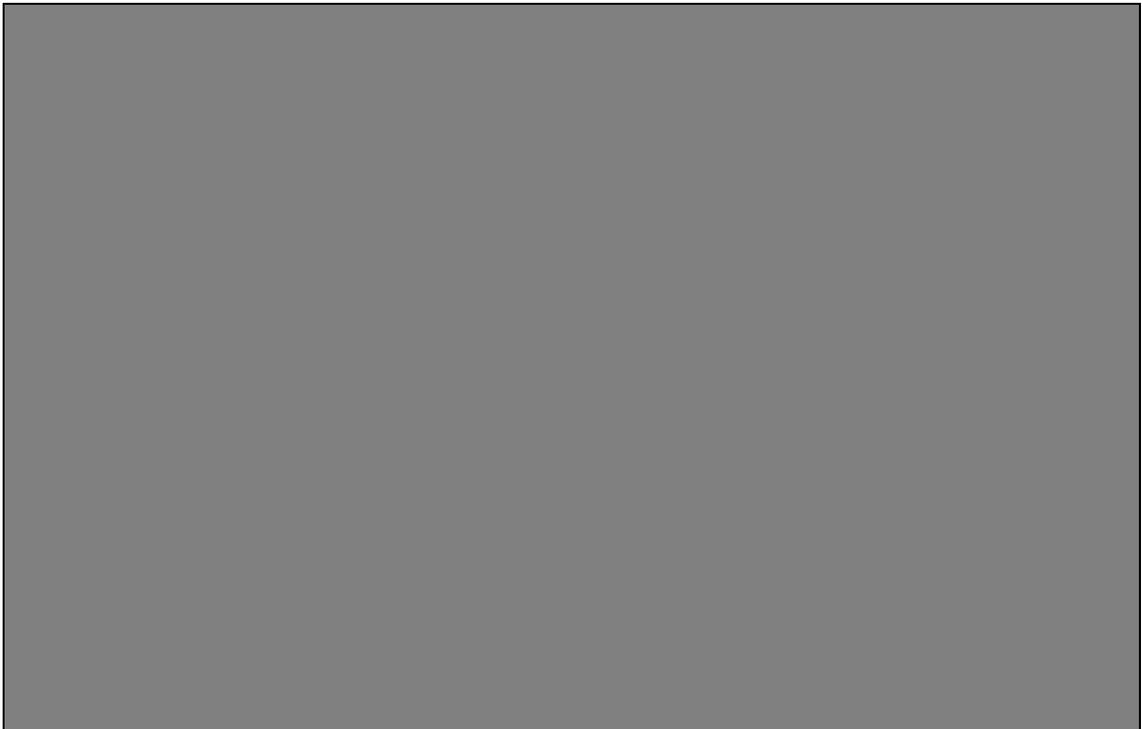
breaking down into relatively quiet residential blocks with slow-moving traffic. For this thesis, a quiet residential block with minimal traffic would be ideal. Such a site would be anchored in a strong residential neighborhood, with relatively close proximity to more active parts of the city.



**Figure 37: Street Hierarchy:** Broadway, running north-south on the western side of Patterson Park, and New Orleans Avenue, running east-west on the northern side of Patterson Park, constitute the major thoroughways of the area. Around the park is an established grid of primary, secondary, and tertiary (often one-way) streets.

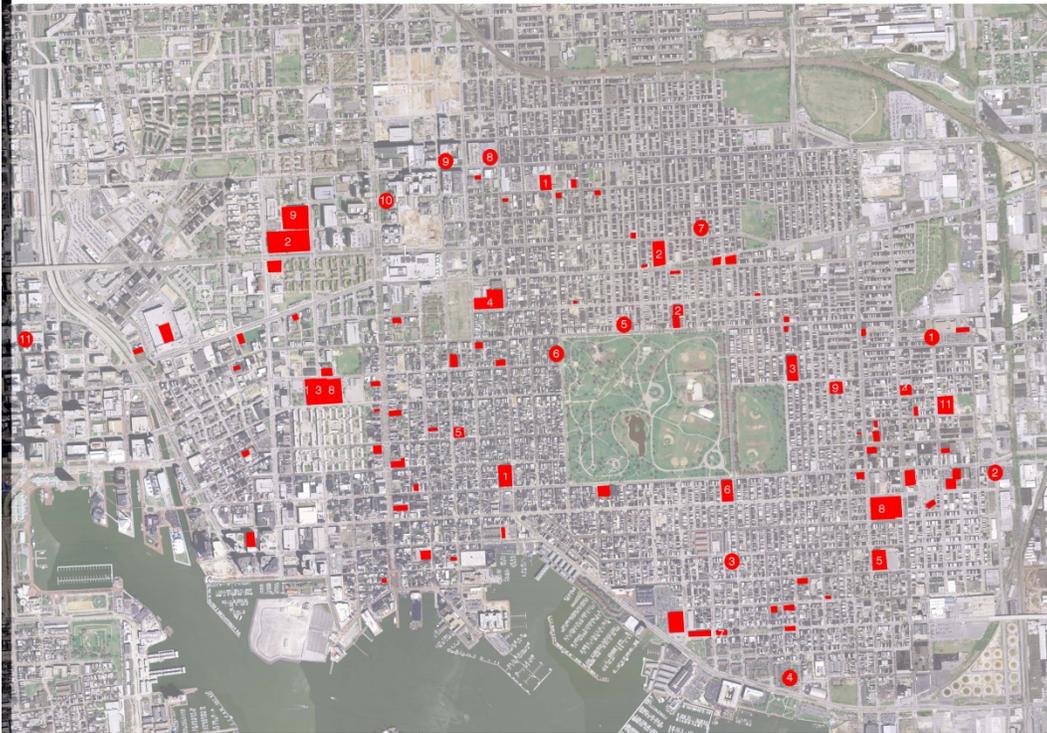
Figure 38 delineates each of the neighborhoods in Southeast Baltimore. While these neighborhoods are not as distinctly identifiable in experience, each possesses distinct character and has its own retail hub. Fells Point and Upper Fells Point include much of the historic fabric, and offer numerous commercial amenities, most notably along Broadway. Butcher's Hill and Patterson Place have a relationship with Patterson Park, as well as the Johns Hopkins medical campus. Baltimore-Linwood and Highlandtown are similar in character.

Highlandtown's eastern edge is loosely defined by industrial warehouses and the railroad. Canton is the largest of the neighborhoods, and its edges are defined by the park and the waterfront. There are numerous retail amenities along the waterfront, but the majority of Canton is composed of residential fabric.



**Figure 38: Neighborhoods: Several neighborhoods border Patterson Park. Largest among them is Canton, to the south. Fells Point, Butcher's Hill, Patterson Place, Linwood, and Highlandtown are the other major neighborhoods with a direct relationship to the park**

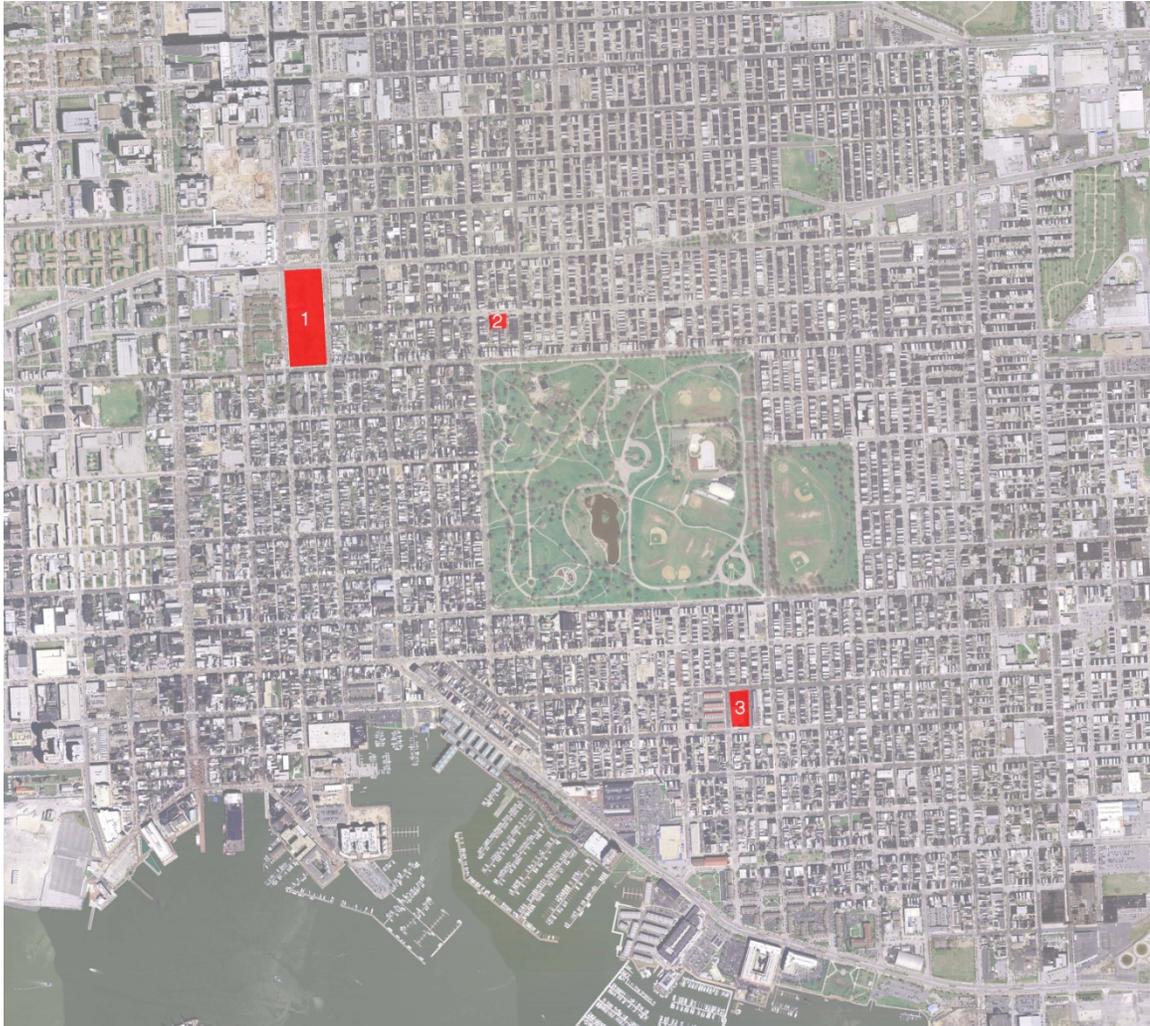
In keeping with the initial criteria identifying Southeast Baltimore as an ideal site, Figure 39 highlights the various existing civic and cultural resources. These include places of worship, museums, theaters, libraries, schools, post offices, and senior centers. There is an even disbursement of these resources throughout the area, and most places are within walking distance of a church, school, or park.



**Figure 39: Existing Amenities: Senior services, theaters, post offices, churches, and schools are all marked on this aerial. No matter one's location in the Southeast, cultural institutions are within walking distance.**

In order to select a specific site, this analysis was then compared with a diagram identifying open land and development opportunities in the area. Three distinct sites were isolated as having development potential. The first was part of a large piece of land just south of the Johns Hopkins campus. This site occupies two city blocks, and is adjacent to the Brewer's Hill and Patterson Place neighborhoods. It features generous views toward downtown and ample room for development. The second site is located just a few blocks east of the first, along Fairmont Avenue. This site is considerably smaller, occupying just a quarter of its block. Redevelopment of the existing homes on the block might have to be considered in the selection of this site. The third site is towards the south, in the center of the Canton neighborhood. This site is an entire block,

currently occupied by a Rite Aid and an accompanying parking lot. It is two blocks from Patterson Park.



**Figure 40: Aerial showing the three sites isolated as potential development opportunities.**

The matrix in Figure 41 shows the criteria used to evaluate each site. Though the size and nature of the program will be developed in conjunction with the selected site, this thesis does not seek to redevelop an entire neighborhood. A site with strong existing character and resources would be ideal for this intervention.

	Baltimore & Washington	Fairmont & Patterson Park	Foster and Kenwood	
<b>CRITERIA</b>	<b>SITE 1</b>	<b>SITE 2</b>	<b>SITE 3</b>	
access to hospital	2	2	1	
access to park	2	3	3	
access to retail hub	2	2	2	
access to library	1	1	2	
access to worship	3	3	3	
access to senior services	1	2	3	
current conditions	2	1	3	These criteria were evaluated on a scale of 1-3, 1 being poor, 2 satisfactory, 3 excellent.
size in relation to proposed program	2	1	3	
anchored in neighborhood	1	2	3	
total	<b>16</b>	<b>17</b>	<b>23</b>	

**Figure 41: Nine criteria were identified as important to evaluating the three potential sites. Though all three sites were in relatively close proximity to the resources identified, Site 3 had better overall conditions and size for this thesis proposition.**

The third site, at the intersection of Kenwood and Foster Avenues in Canton, met each of the criteria outlined in Figure 41. Though it is located farther from the medical center, it is still within a few minute’s drive. Patterson Park and numerous churches are located within a few blocks. Historic Canton, where restaurants, a library, and other retail amenities are located, is south of the site about three blocks. While the first two sites were in developing neighborhoods, this third site is characterized by mostly well-kept homes. The site is anchored in the Canton neighborhood, while the other two sites were on the periphery of their respective neighborhoods. Another important advantage of the third site is its

relationship to the existing Baltimore Hatton Senior Center, directly across the southwest corner.

### *History*

The selected site is located in a residential neighborhood that dates back to 1786. In that year, Captain John O'Donnell purchased eleven acres of land and named it Canton. O'Donnell built a home on the land, which at that time was not part of Baltimore City. In 1828, Columbus O'Donnell, John's eldest son, collaborated with a group of men to establish the Canton Company. This began the area's industrial development. Iron works, rolling mills, and kilns were constructed. By 1836, most of the streets in Canton had been laid out, but little was constructed along them. The area's rapid industrialization would prove valuable during the Civil War years, manufacturing supplies for troops.

By the 1870s, the construction of row homes began, to house an influx of industrial workers. A contingent of Irish and Polish skilled laborers immigrated to the area. With the growing population came the construction of various churches, schools, and a firehouse. Canton railroad was constructed to connect businesses to the existing railroad network. With time, the Canton Company was sold, and existing industrial buildings were abandoned or sold to new companies. In the 1960s, Baltimore City demolished over 200 dilapidated row homes.

The 1980s saw some renewed development in Canton. In January of 1980, the Canton Historic District was added to the National Register of Historic Places. Apartments and townhouses were constructed along the waterfront. In 1985, the Baltimore Hatton Senior Center opened. During this time of redevelopment, citizens of the Canton area argued for preservation and adaptive reuse of the district's existing industrial buildings, specifically the American Can Company, a once-vibrant industrial landmark. The Waterfront Coalition pushed for an effective master plan for Canton's waterfront development<sup>37</sup>.

Today, Canton is characterized by its two and three-story residential row homes and industrial buildings. The waterfront has seen the construction of high-end condominiums, while the area north of O'Donnell Street has remained mostly single-family residential. Renovation of these existing row homes has been a part of the gentrification process over the last decade. Figure 42 highlights some of the significant historic buildings in the area, which serve as landmarks to those navigating the streets of Canton.

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<sup>37</sup>Cain, John, "Canton Timeline," Canton Community Association, [http://www.cantoncommunity.org/go/canton\\_timeline.php](http://www.cantoncommunity.org/go/canton_timeline.php) (accessed January 10, 2010).

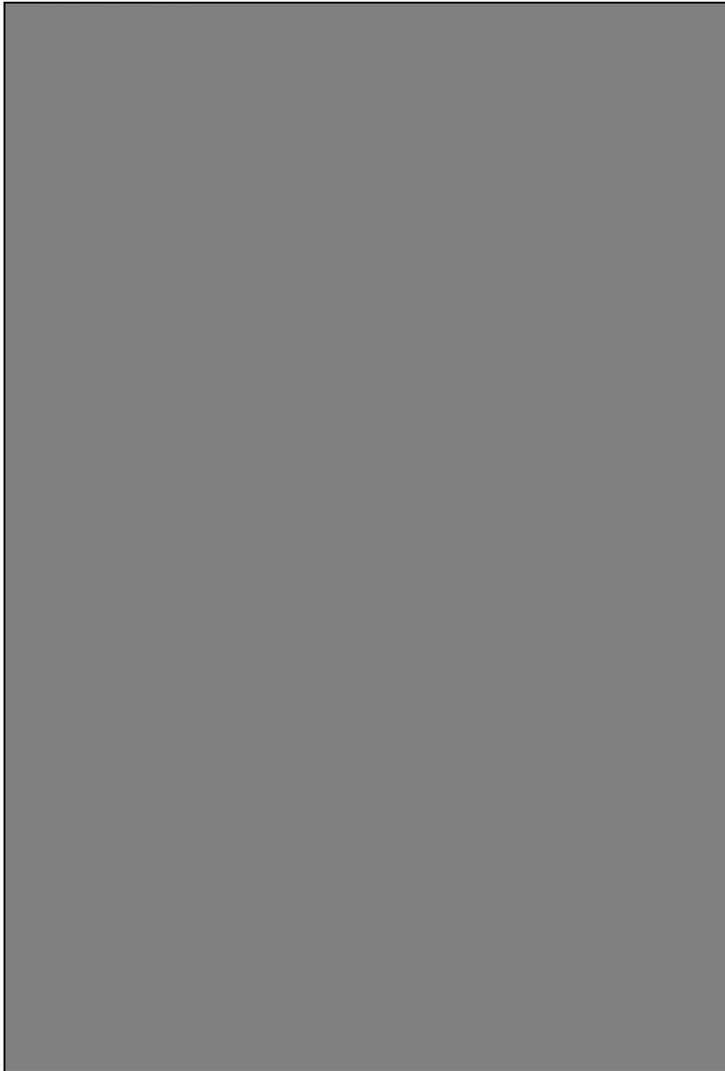


**Figure 42: Historic Buildings: 1. Canton Methodist Church, 1847 2. Canton Public Library, 1886 3. Nordin Tin Can Company Building, 1895 4. Fire Engine Company No. 2, 1902 5. St. Casimir's Catholic Church, 1902 6. American Can Company Building Flat Iron Building, 1923 7. United Evangelical Church (Civil War remnants found here), 1957**

### *The Baltimore Row House*

This thesis seeks to provide shelter and care for an aging population that wishes to remain close to home. The Baltimore row house may represent the physical idea of home for potential residents. Canton and the neighborhoods that surround Patterson Park are composed of two and three story row houses. Some of these homes were constructed as early as the 1840s. While there are a few different styles of Baltimore row houses, and the following image illustrates the general plan and section of the homes typical of this area<sup>38</sup>.

<sup>38</sup> Hayward, Mary Ellen, "Urban Vernacular Architecture in Nineteenth-Century Baltimore," *Winterthur Portfolio* Vol. 16, no. 1 (1981), <http://www.jstor.org/stable/1180817> (accessed January 10, 2010).

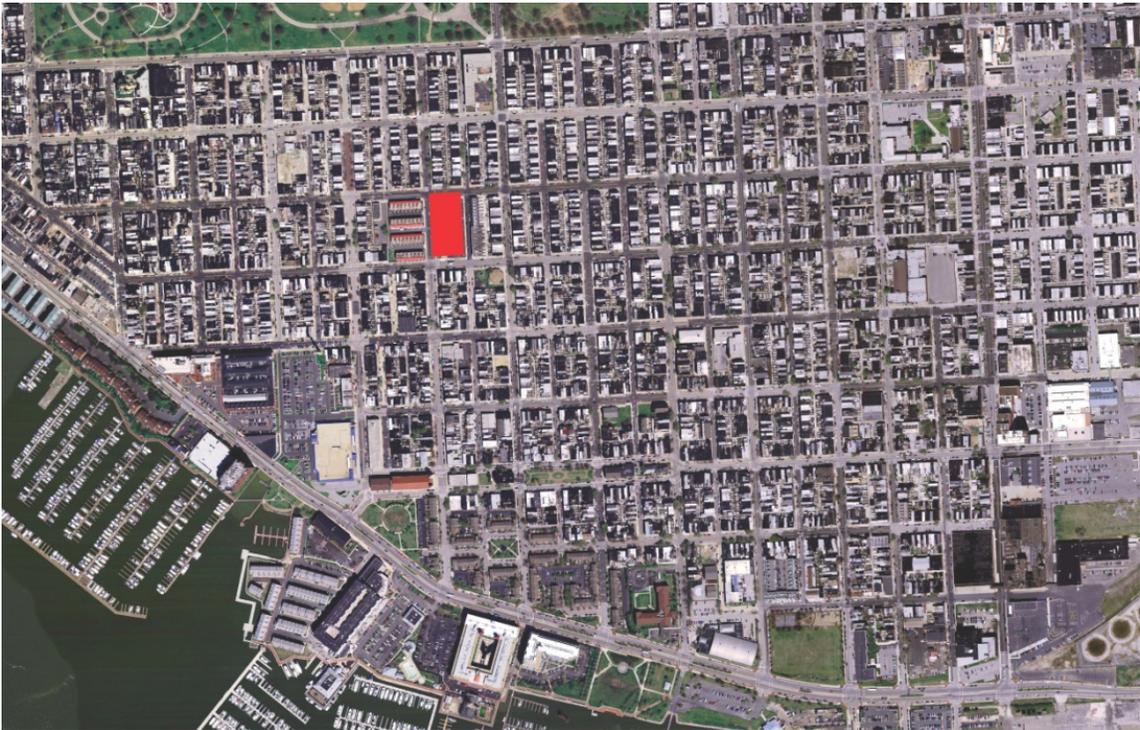


**Figure 43: These two ground floor plans represent typical configurations of two-story Italianate row houses built in Baltimore in the 19<sup>th</sup> century. The organization of spaces is typical of most row houses in the Canton neighborhood. The size and character of the Baltimore row house may serve as a reference point for the development of this senior living facility.**

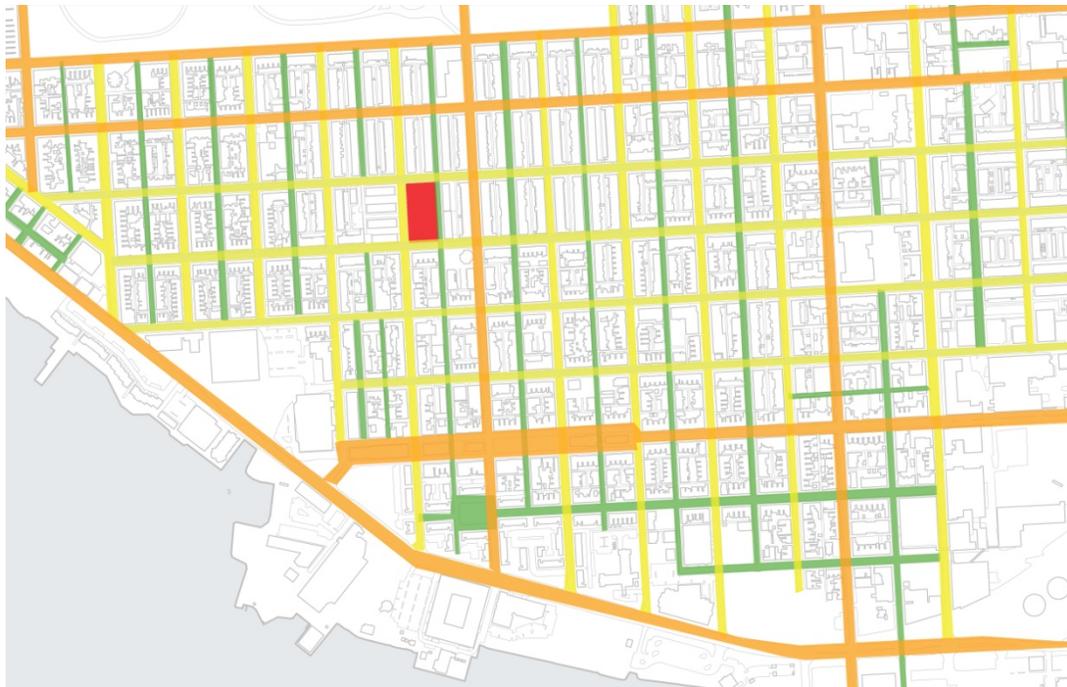
### *Site Analysis/Drawings*

With a central block in historic Canton identified as the site, further analysis of this area is provided in the next series of diagrams. Figure 44 highlights the site at Kenwood and Foster Avenues. The selected site is within two blocks of Patterson Park, and within four to five blocks of the waterfront. This block is

embedded within Canton's residential core. The surrounding blocks maintain a consistent size, with row house fronts along the north-south streets. Most blocks have an alley running north-south behind the houses, for service and limited parking access. Figure 45, showing street hierarchy, further reveals the pattern of primary, secondary, and tertiary streets bounding the site.

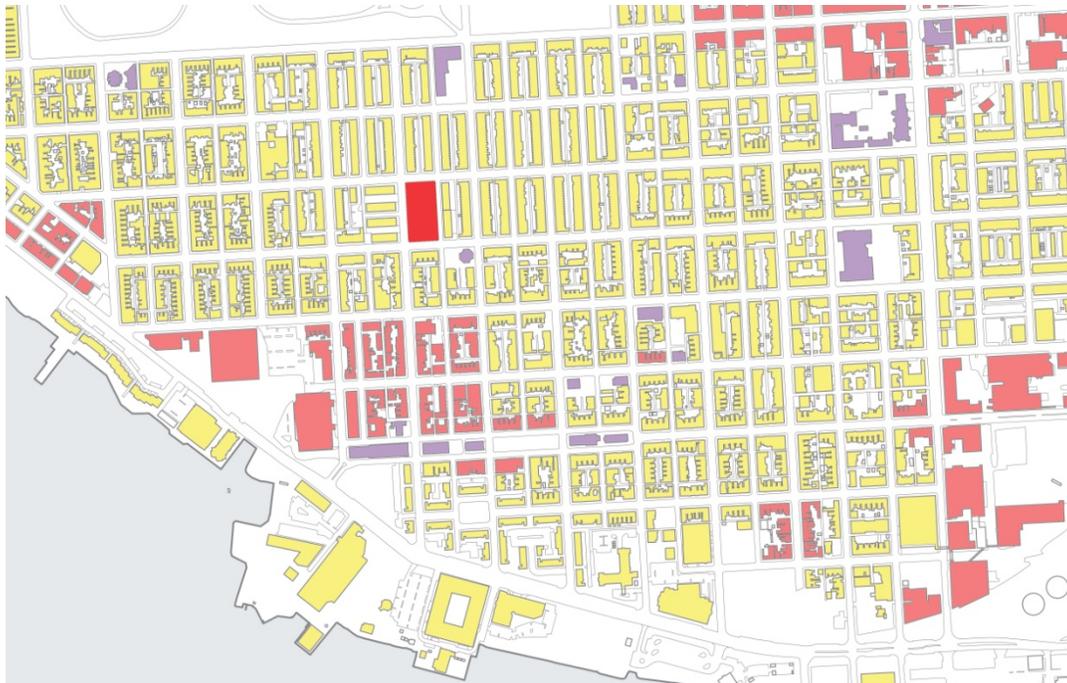


**Figure 44: An aerial view highlights in red the selected site.**



**Figure 45: Street hierarchy:** The site is bounded by secondary and tertiary streets. The nearest main thoroughfares are the north, bordering Patterson Park, and to the south, along the waterfront.

As previously mentioned, this site is anchored amidst residential fabric. Figure 46 documents this residential area in yellow. While the site is part of this residential neighborhood, it is just a few blocks north of commercial development. Institutional uses, mostly schools and churches, are found throughout the Canton neighborhood. Figure 47 notes the public open spaces in the Canton area. While Patterson Park provides ample access to natural elements, open land along the waterfront is used for recreation and other public events.

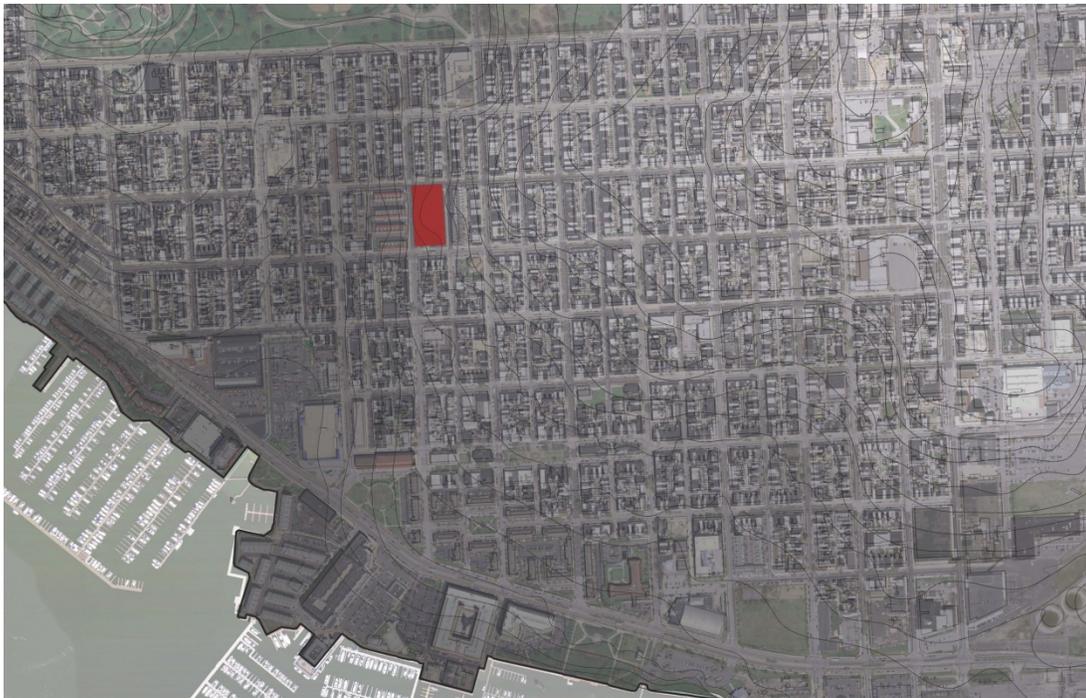


**Figure 46: Land Use:** The surrounding land use is mostly residential. To the south, historic Canton offers some commercial uses, including restaurants and small shops. Highlandtown, to the northeast, features a library, post office, and other commercial uses. Places of worship can be found throughout the area, often occupying the corners and ends of blocks. Elementary, middle, and high schools are also found in the area.

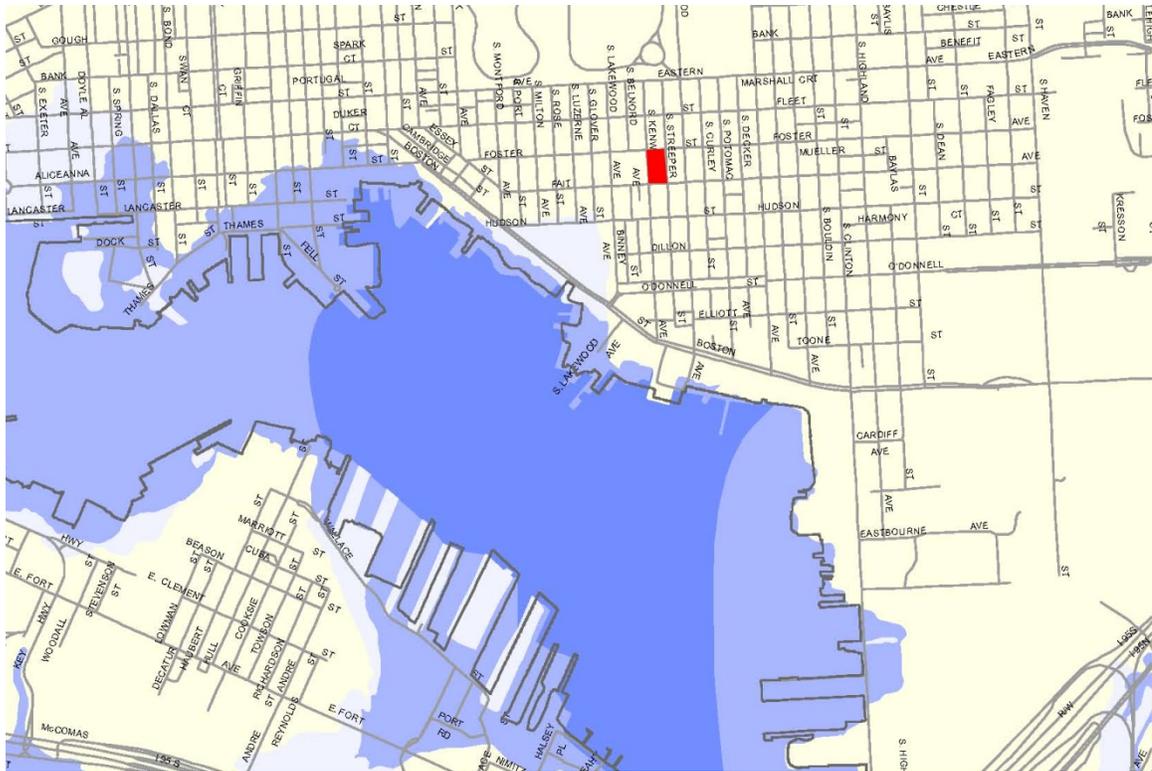


**Figure 47: Public Open Space:** Aside from its location just two blocks from Patterson Park, the site is also located within three blocks of historic Canton, which features a central public plaza. To the south are smaller residential green spaces, as well as space for outdoor recreation.

The site's location within walking distance to the waterfront results in significant topographical variation. The land slopes from the water's edge toward Patterson Park. The change in elevation over that distance is more than fifty feet. The topography of the area will pose a challenge in the development of the site, but also acts as a point of interest in the area. Views toward the water and the downtown area are often emphasized by the gradual slope of the streets. While the topographical changes are significant, they do not impede one's ability to easily walk the streets of Canton. It should also be noted that the site's proximity to the water does not put it at risk for flooding, as documented in Figure 49. This may be attributed to the site's elevation significantly above the water.



**Figure 48: Topography:** Land slopes upward from the waterfront towards Patterson Park. The site is located along this upward slope. Each contour represents a five-foot elevation change, and so the rise from the waterfront to the site is significant, approximately 40 feet.



**Figure 49: Though located within walking distance of Baltimore’s Harbor, the site at Foster and Kenwood Avenues is not considered in danger of flooding.**

Key to this thesis is the proposition that the city has much to offer in terms of infrastructure and resources for seniors. Figure 50 describes some of the amenities available in Canton and the immediately surrounding area. Downtown Baltimore and the Inner Harbor are located just west of Fell’s Point, highlighted in purple. Museums, theaters, and arenas offer the opportunity for off-site trips with groups or family members. There is also an active transportation system in Baltimore of buses and light rail. Figure 51 notes each of the bus stops located near the site. Johns Hopkins medical campus also has a metro stop, offering access to the farther reaches of Baltimore. This transportation system allows for easy access to the site by relatives and friends in the city.



**Figure 50: Amenities:** Represented in red, the site is located within close proximity to many of the area's services and cultural offerings. The Baltimore Hatton Senior Center is located on an adjacent block to the south. This relationship, along with the site's central location between the large public park and waterfront retail services, make it ideal for this thesis exploration.



**Figure 51: Transportation Diagram showing all bus stops located near selected site.**

Figure 52 is a plan of the site, with the existing Rite Aid removed. As previously noted, most of the surrounding blocks are oriented north-south, with the exception of the block to the immediate west of the site. This block has been more recently developed with three-story townhomes. The fronts of these homes face the north and south, making the block an anomaly in the area. Half of the block immediately to the east of the site has been developed in a similar fashion with three-story townhomes.

Of the four streets that bound the site, Foster Avenue and Fait Avenue act as the primary thoroughfares, connecting back to the main arteries of the city. They are both wider than Streeper Street, which is one-way heading north. There is on-

street parking on one side, though it appears to be primarily used by the residents of the housing along that street. Kenwood Avenue is also a one-way thoroughfare, with diagonal front-end parking on the east side of the street. Thus, traffic around the site is mostly along Foster and Fait Avenues, and north-bound on Kenwood Avenue and Streeper Street.

Figure 52 also notes the existing vegetation near the site. Though trees are found along the neighborhood's sidewalks, there is not a consistent planting pattern. This is generously compensated for by the nearby Patterson Park. It may be beneficial to the development of this project to introduce more green space at a smaller scale to the Canton neighborhood. To the southwest of the site is the Baltimore Hatton Senior Center. This facility, constructed in 1985, stands at one story, and has accompanying green space. Because this project seeks to address the needs of seniors in this community, it will be beneficial to explore the proposed facility's relationship with the senior center.

Sections through the site show the significant slope from the west, upward toward the east. There is a gentler slope from the south upward to the north. The section looking west shows the side elevations of the nearby townhomes, as does the section looking north. Conversely, sections looking south and east show the fronts of townhomes. This could be influential in identifying the front and entry of the proposed facility. It should also be noted that though many of the townhomes surrounding the site are of recent construction, their facades

emulate the older row homes in the area. The proposed facility should be sensitive to these existing conditions.

It is clear the topography of the site will pose challenges throughout the design process. The easternmost side of the site is a full fifteen feet higher than the westernmost side. This issue will need to be addressed with effective planning of mechanical and other lower-level spaces. This issue could also affect the accessibility of the proposed building, which is a key concern when designing for the elderly. Ramps, elevators, and stairs will need to be thoughtfully planned to successfully deal with the site's elevation challenges.



Figure 52: Existing Conditions Site Plan

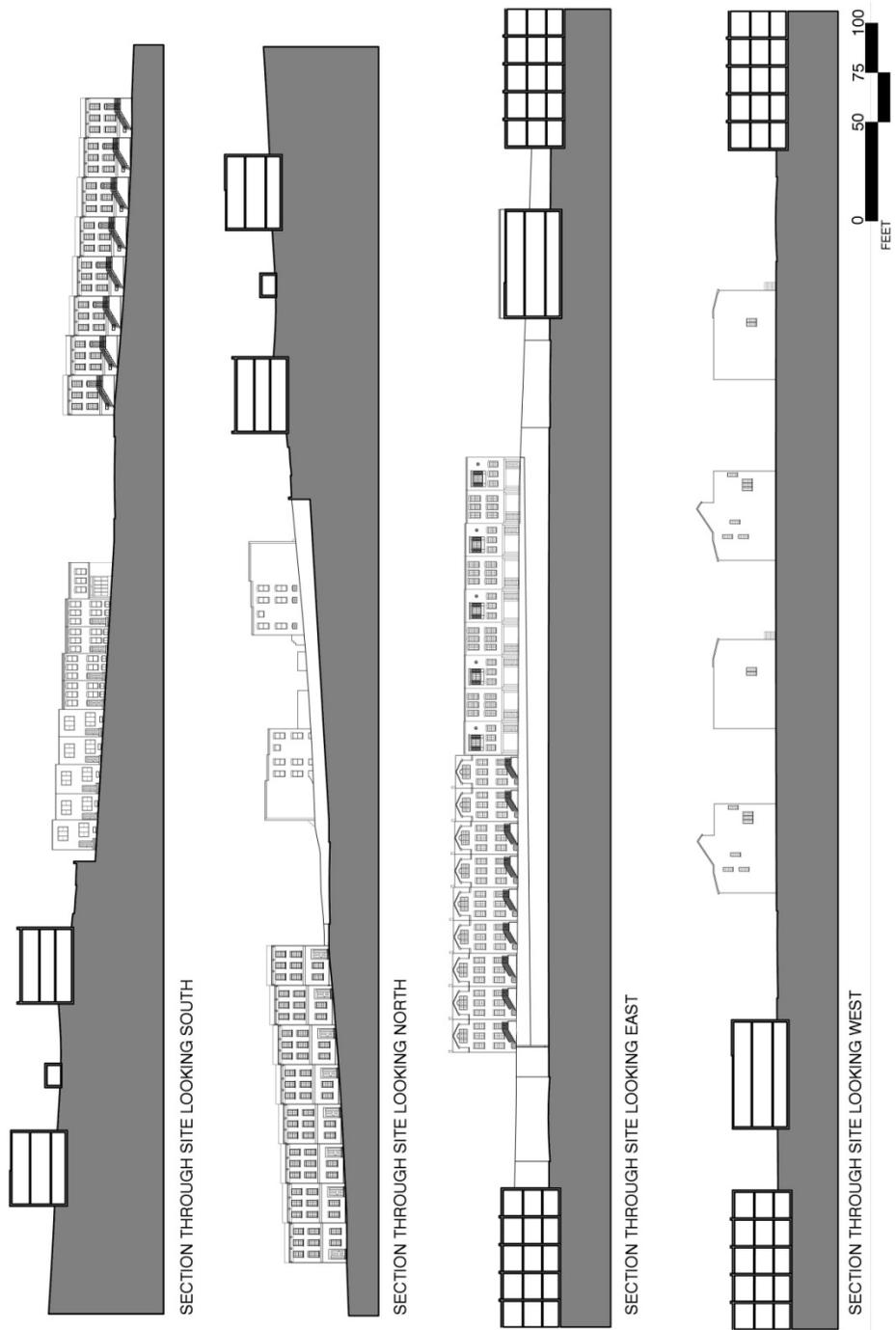
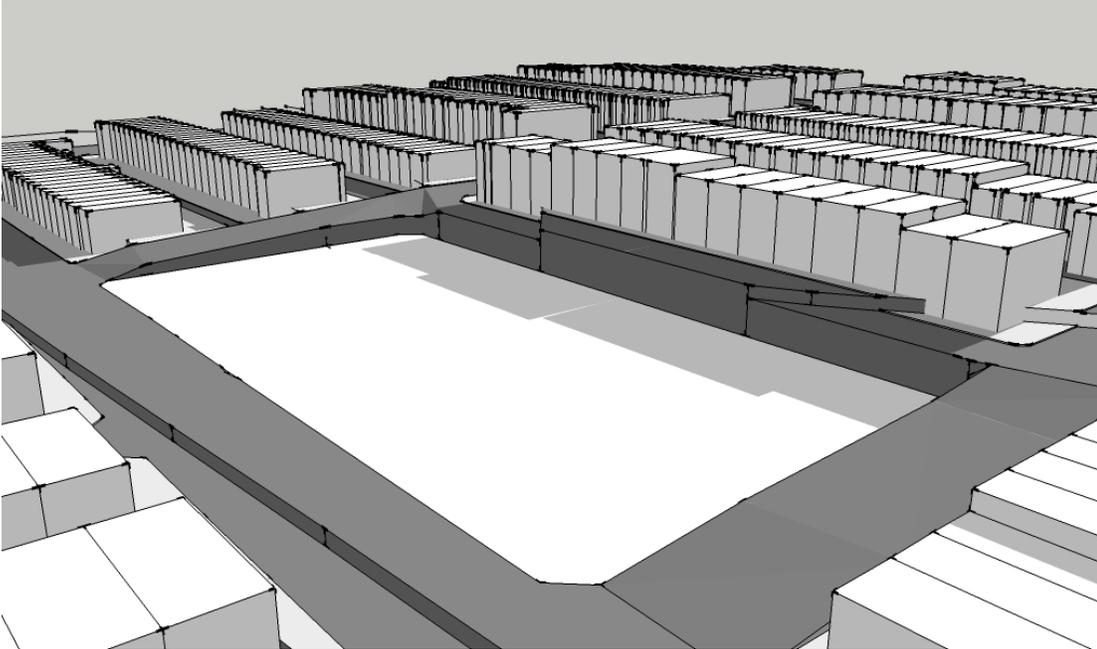
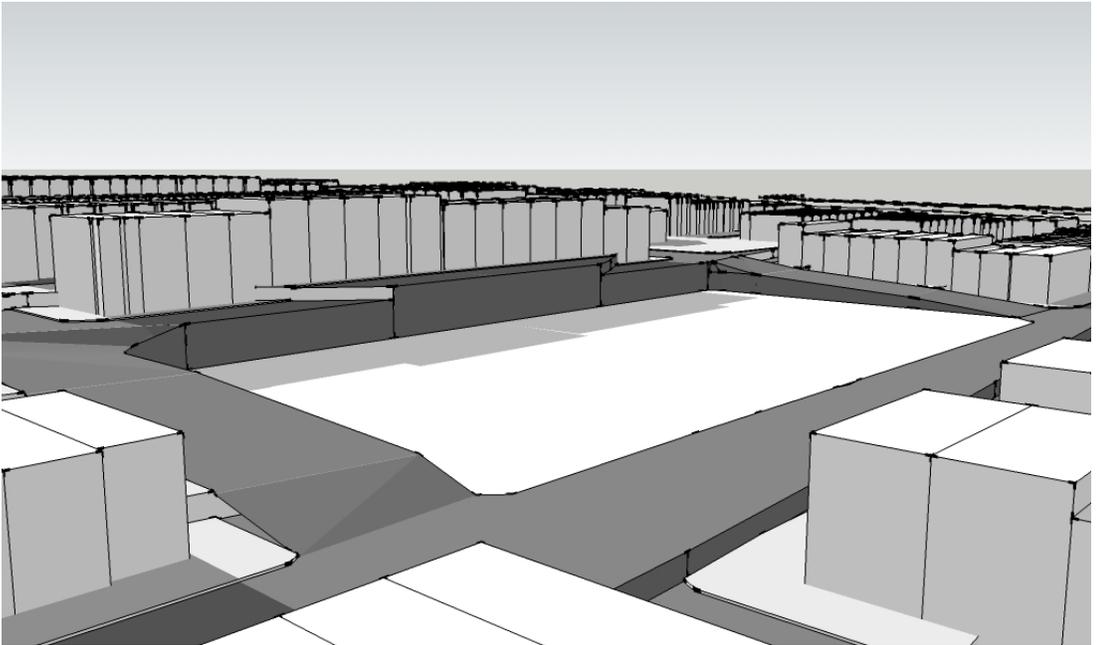


Figure 53: Four sections cut through site, showing existing elevations and topography.



**Figure 54:** A 3-dimensional view of the site from the southwest corner. The slope from west to east is evident.



**Figure 55:** An aerial view from the northwest corner of the site.



**Figure 56: Newer row homes on the western side of the site have garage access along a shared back alley. They front along Foster Avenue.**



**Figure 57: These three-story townhomes along the eastern side of the site have garage entries at the ground level along Streeper Street. Circulation along this street is one-way northbound.**



**Figure 58:** This image looks south along Streeper Street, which is characterized by brick row homes.



**Figure 59:** Baltimore Hatton Senior Center is located southeast of the site. This building occupies one story, with some enclosed outdoor space next to it.



**Figure 60: The existing site is currently occupied by a Rite Aid, as seen in this photo taken from the northeast corner. Elevation changes result in the east side of the site at a higher level than the western side.**



**Figure 61: The Rite Aid does not respond to the existing character of the residential area, turning its back to Kenwood, Fait, and Streeper.**



**Figure 62:** The site slopes from both the east to the west, and from the northeast corner to the southwest corner. The existing site mitigates this elevation change by depressing the parking lot, creating a wall along the eastern side.



**Figure 63:** The western side of the site rests at 25' at its lowest point, while the eastern side of the site rests as high as 45'. This twenty foot elevation change over the width of the block will require creative sectional solutions.

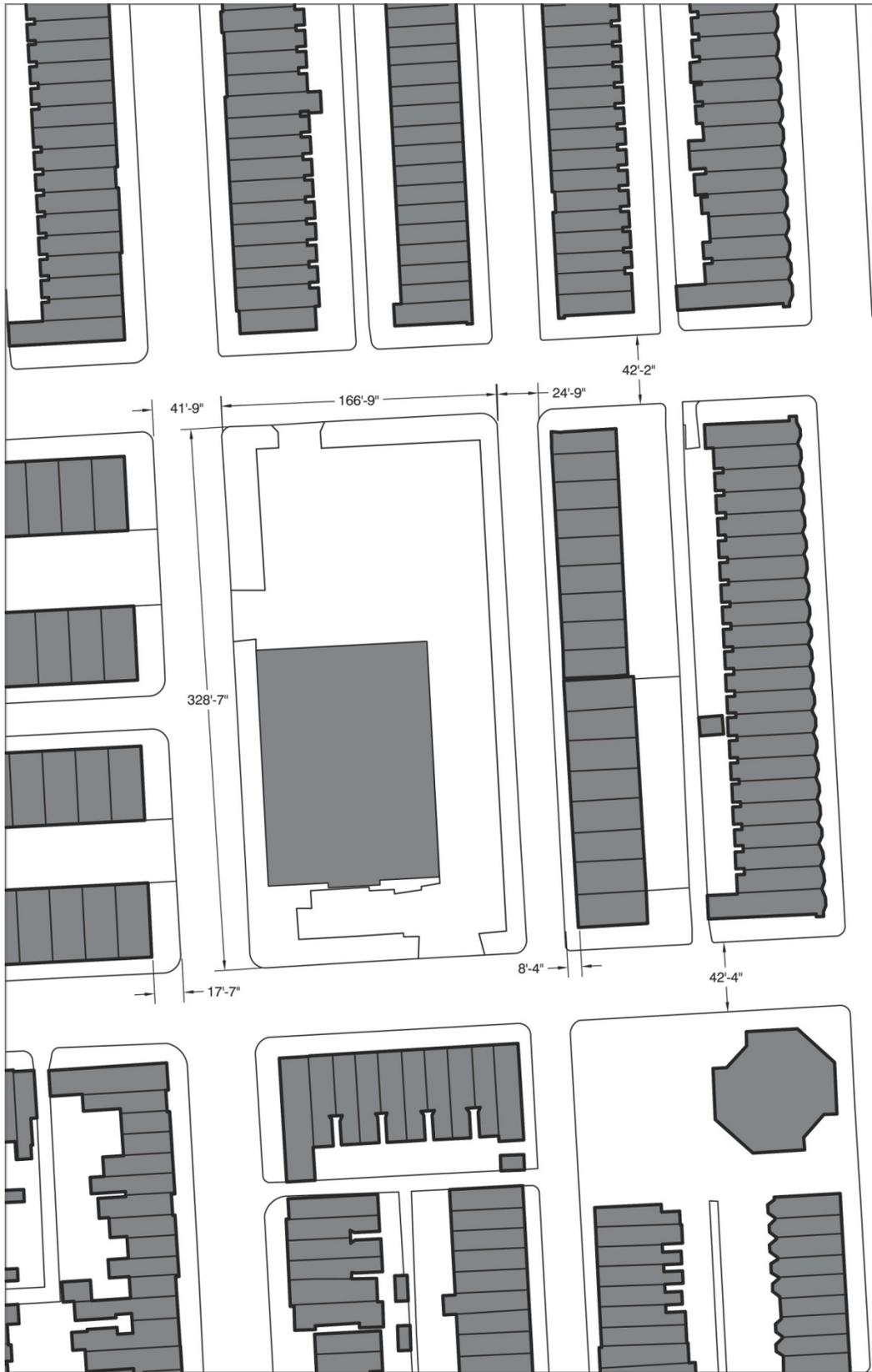
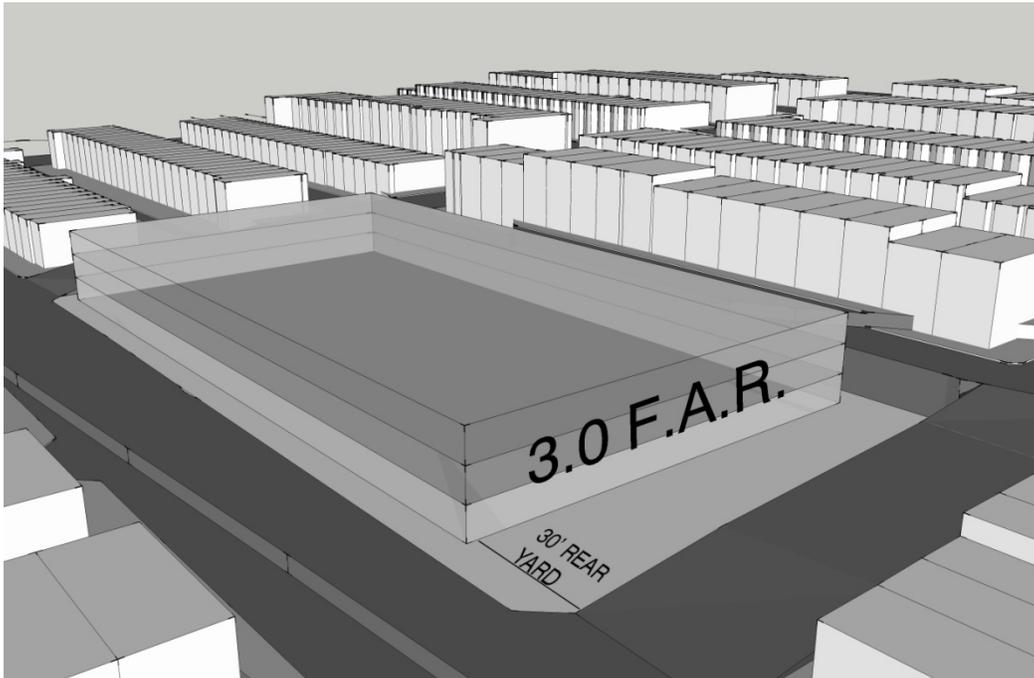


Figure 64: Basic street and lot dimensions, as well as the existing building.

## Zoning

The site is currently zoned as a B-2-2 Community Business District. According to Baltimore City Zoning Code, a conditional use in this district is “convalescent, nursing, and rest homes.” The site exceeds the minimum lot area required for housing for the elderly in a B-2-2 district (245 SF per efficiency unit, 370 SF per other dwelling unit). No yards are required in the front, interior side, or street corner side of a B-2-2 district. A rear yard at a minimum of 30 feet is required. Floor area ratio for housing for the elderly in a B-2-2 district may not exceed 3.0. According to Baltimore City code, no more than 1 off-street parking space is required for every 4 units in an elderly housing facility. For example, in a 28-unit facility, only 7 off-street parking spaces are required<sup>39</sup>.

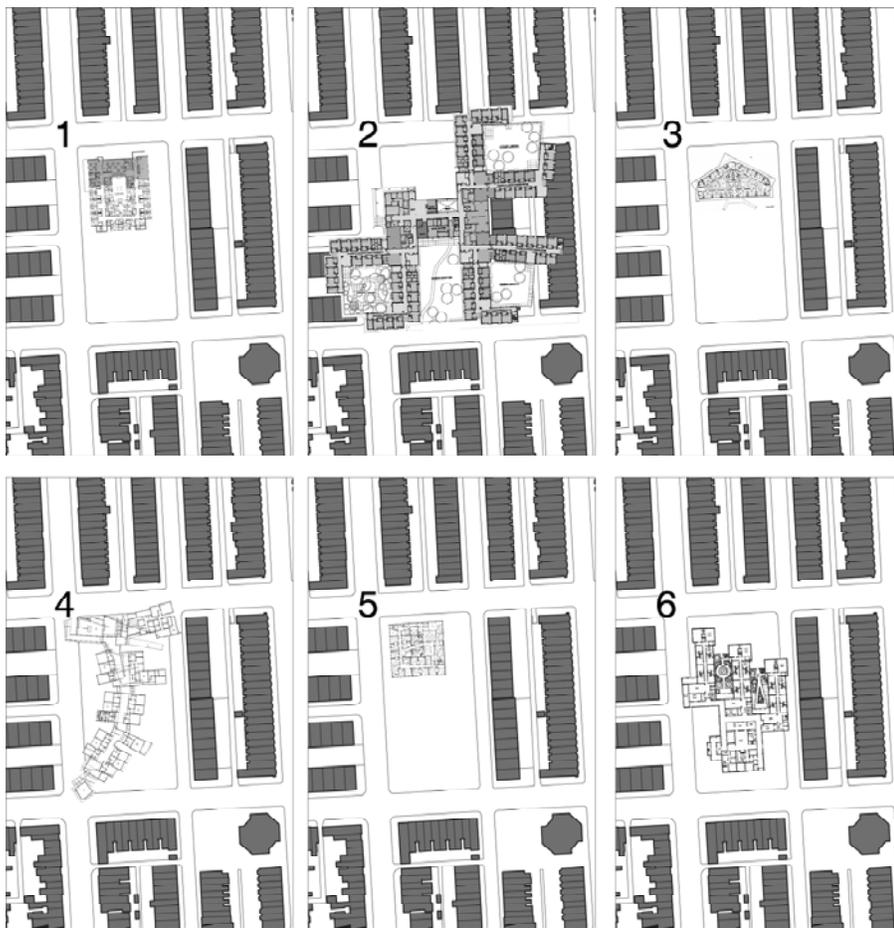


**Figure 65: Diagram showing the maximum building envelope for the site, if the rear yard is located along Fait Avenue.**

<sup>39</sup> Baltimore City, “Subtitle 3 B-2 Community Business District,” Baltimore City Revised Code, <http://www.baltimorecity.gov/Government/CityCharterCodes.aspx>, (accessed December 7, 2009).

### Site Precedents

The following images place precedent senior care facilities in the context of the selected site. It is clear in juxtaposing these facilities on the proposed site that a thirty to forty bed Alzheimer's care facility will not occupy the entire site. With the exception of Woodside Place, Figure XX, each of the documented precedents houses fewer than 40 residents. Each facility occupies one story. As stated in the zoning analysis above, the allowed F.A.R. for this site is 3.0. The surrounding buildings are two to three stories. To avoid under-utilization of the site, other programming elements should be considered.



**Figure 66: 1. California Pacific Medical Center 2. Childers Place 3. Corinne Dolan Alzheimer's Center 4. Hospice Hawaii 5. Maitri Hospice 6. Woodside Place**

Though the focus of this thesis is design for Alzheimer's, assisted living and independent living options should be considered. Development of part of the site as an assisted living facility would provide options for seniors in the community without pronounced dementia. Introducing independent living options would further tie into the concept of aging in place. Though residents of assisted living or independent living homes may not stay there for the duration of their lives, transition to an Alzheimer's facility in the same complex would maintain the sense of home and community. This issue will be addressed further in the following chapter on program.

## **Chapter 9: Program**

The beginning chapters of this document outline some of the physical, economic, and emotional challenges posed in caring for those with Alzheimer's. This design project will respond to the need for easily memorable spaces and navigable paths. Design decisions should be sensitive to sensory changes that are experienced by the aging. This project will strive to create an environment that is comfortable for someone with Alzheimer's during each stage of the disease. This concept of aging in place should be central to the program and development of the site. The role of the caregiver, either family or nurse, should be influential in the design of spaces and program. The project should also respond to the surrounding community both in the design aesthetic and program.

The program of this facility should address three key groups: the resident, the caregiver, and the community. The physical needs of a resident with Alzheimer's are numerous and have been mentioned in previous chapters, but foremost among them is the creation of a home-like setting. Brawley cites this as an important aspect of designing for dementia, and the program of Woodside Place responds to this need. As such, the residential program of the facility will be broken down into "houses"- units of 8-10 individuals with private rooms and shared common areas. Each house should function and be organized as a traditional home. Kitchen, dining, and living rooms will be shared by all residents of the house, and be scaled appropriately. Prior analysis of the traditional

Baltimore row house should provide insight into the scale of a house in this urban environment.

Caring for Alzheimer's requires patience and diligence. A common area shared by all houses will accommodate much of the program integral to maintaining a healthy lifestyle for those with dementia. A quiet room, music room, library, exercise, and wellness facilities will address the physical, spiritual, and intellectual needs of residents. This part of the facility could develop as a new, updated senior center for the community. The Hatton Senior Center is twenty-five years old and small in size. Incorporating the program of this senior center into the proposed facility would encourage more interaction between the neighborhood and residents.

The final portion of the program is dedicated to staff and service spaces. Sufficient space for offices and a staff break room will be provided. Storage, janitorial space, and a mechanical room will also be accounted for. This portion of the program should be clearly separated from the rest of the resident-centered program. If this facility is to function as a true home for residents, the presence of staff and service equipment should be minimally felt. All of the program elements are described in greater detail in the following program summary.

Condition	Mount Hope		Hawaii		California Pacific Medical Center		Cortina Dolan Alzheimer Center		Woodside Place		Childrens Place		Average	Typical Home
	Urban	Hopscotch	Urban	Hopscotch	Urban	Assisted Living	Rural	Assisted Living	Suburban	Special Care Unit	Suburban	Special Care Unit/ skilled Nursing		
Care Level														
Gross Square Footage	8,929	24,537	24,537	14,540	6,806	24,700	62,660	23,662						
# of Residents	15	30	30	20	60	31	60	31						
Private Room	200	255	255	185	400	225	400	225						
Total SF	3,320	2,725	2,725	2,130	2,130	2,130	2,130	2,130						
% of total GSF	37	19	19	15	31	31	31	31						
Double Room	500	290	290	290	290	290	290	290						
Total SF	7,500	2,240	2,240	2,240	2,240	2,240	2,240	2,240						
% of total GSF	31	15	15	15	15	15	15	15						
Dining Room	618													
Total SF	417													
Kitchen														
Total SF														
Pantry														
Total SF														
Living Room	348													
Total SF	348													
Laundry	90													
Total SF	90													
Family Overnight/ Guest Spaces														
Total SF														
Shared Shower/Bath Areas	300													
Total SF	300													
Nurses Station	80													
Total SF	80													
Library	200													
Music Room	215													
Gallery Space														
Theater/Stage Space														
Classroom/ Learning Space														
Quiet Room/ Chapel														
Exercise Room	566													
Wellness Center (Nurse's Office)	150													
Lobby	150													
Nurse Office	800													
Small Break Room	180, 353													
Outdoor Space	812													
Trash Room														
RV/AC														
Storage														
Recreational Space														
Circulation	2500	6,134	6,134	2,244	2,015	7,410	17,659	6,962						
% of total GSF	28	25	25	15.5	30.5	30.5	28.5	29.25						

Figure 67: An analysis of existing senior care programs produced average square footage numbers. This information was taken as a starting point for determining the square footage of program elements in the proposed facility. The desire to make the scale of this facility in keeping with that of the traditional home often led to a reduction in square footage from those of the precedents.

**100 “The House”**

**SUBTOTAL: 14, 320 SF**

**A. General Description**

This part of the facility will be accessible only to residents and support staff. Each house will be designed at the same scale as a typical home, and will house 8-10 individuals sharing some common spaces. These common spaces are to be designed to meet the needs of this small group; they are not meant to serve the entire residential community. The character and function of these spaces should be in keeping with the traditional idea of home.

**B. General Relationships**

Private and double rooms should have some kind of acoustical separation from common spaces, to allow for varying sleep schedules. Circulation between spaces should provide clear visual connections that remind a resident of his or her destination. The nurses' station should be integrated into the common area in an unobtrusive manner.

**101 Private Rooms**

**200 SF**

These rooms will house one resident. Each room should have access to a private bathroom with a toilet, sink, and possibly shower. Entry to this room should be clearly visible. Access to natural daylight should be provided, but should be controllable. There should be sufficient space for a bed, desk, and storage. The entry into each room should provide space for personal mementos or other graphic means of making each room distinct from another.

**102 Double Rooms**

**425 SF**

These rooms can be occupied by either two individuals or a married couple. All the provisions of a private room are applicable to this double room, though more space is required for possibly two beds and storage for two people.

**103 Dining Room**

**400 SF**

The dining area should hold 8-10 individuals around a common table. Connection to the kitchen is desirable. Integration of the kitchen and dining spaces is an option, but eating space and cooking space should remain clearly identifiable.

**104 Kitchen**

**350 SF**

The kitchen should be connected with the dining area and provide sufficient space for more than one individual to cook. Storage should be within easy access of a standing individual.

**105 Pantry**

**100 SF**

This space can be a part of the kitchen and dining areas. This area will provide storage for each resident's own particular foods. A separate locker should be provided for each resident.

**106 Living Room**

**350 SF**

This room should comfortable house such activities as watching television, listening to music, knitting, playing games, or reading. This space should have a connection to the dining and kitchen areas. A hearth (fireplace) would be desirable in this space, as a gathering device and landmark. Furniture should be comparable to furniture in traditional home, and be arranged for handicapped access. This would be an ideal location for controlled access to garden space.

**107 Laundry**

**90 SF**

This space should be removed from private rooms for acoustic reasons. Adjacency to kitchen could be desirable. This space will be used primarily by able-bodied residents and staff.

**108 Family Overnight/Guest Spaces**

**200 SF**

These spaces should provide room for a bed and perhaps a bathroom. They can be grouped with the private rooms.

**109 Shared Shower/Bath areas**

**265 SF**

This shower room could be incorporated into a shared restroom, which should be clearly visible from the living, dining, and kitchen areas. It should be of sufficient size for a handicapped shower, where nurses can aid in bathing.

**110 Nurses' Station**

**200 SF**

This "station" should blend into the other functional spaces of the house. It should provide space for medical storage. Proximity to common spaces and resident rooms is desirable.

**200 “The Neighborhood”**

**SUBTOTAL: 4,050 SF**

**A. General Description**

The neighborhood is meant to provide activity spaces and amenities for all members of each house. There is also opportunity for interaction with the surrounding community in these spaces, whether through senior citizen programs, intergenerational programs, or volunteer initiatives. While these spaces are meant to be shared by all members of the community, they do not necessarily have to hold all residents at once.

**B. General Relationships**

Each of these program elements houses varying levels of activity. Quiet, inactive zones should be separated from louder, active areas. Access to outdoor areas should be at a few strategic locations, and highly visible to staff to ensure resident safety. Circulation should provide clear visual connection from one space to another. Access to natural light should be provided in each space, except where noted.

**201 Library 400 SF**

Library should provide space for small book collection and computer resource center. Proximity to the classroom and access to daylight are desirable. Tables and chairs for reading should be provided.

**202 Music Room 350 SF**

This space will house music and other related activities. This space can be combined with the theater/stage space and/or gallery space. Sufficient space for seating and a piano should be provided.

**203 Gallery Space**

Gallery spaces will exhibit resident work, and can be incorporated through neighborhood and house spaces. Gallery space can simply be dedicated wall space in circulation or activity areas.

**204 Theater/Stage Space 100 SF**

Stage space should be allotted in the music area, to allow for performance by volunteers or residents.

**205 Classroom/Life Learning Space 400 SF**

This space should be designed for skills instruction and other educational programs. Interaction with nearby schools through intergenerational programs would occur in this space. It should be of sufficient size to hold 20-30 people.

**206 Quiet Room/Chapel 500 SF**

This space can be used for scheduled religious services or contemplation/meditation by residents. It should be separated from louder spaces such as music and exercise rooms.

**207 Exercise Room 900 SF**  
Exercise facilities should be provided in connection with the wellness center. Access to outdoor areas is desirable, as classes could use the outdoor space.

**208 Wellness Center 1000 SF**  
This is where all major medical facilities will be housed. Examination rooms and a nurse's office should be included.

**209 Storage 250 SF**  
Sufficient storage should be provided for activity and medical supplies.

**210 Public Rest Room 150 SF**  
A handicapped accessible rest room should be provided in close proximity to activity spaces. Entry and accompanying signage should be clearly visible.

**300 Administration**

**SUBTOTAL: 2,050 SF**

**A. General Description**

Administrative offices will house directors of programs and other staff. This area should include the main public entry to the facility. It is also the area where prospective residents and their families will be introduced to the facility.

**B. General Relationships**

This area should have a stronger relationship to the “neighborhood” spaces, as opposed to “house” spaces. With the exception of the lobby, the administrative spaces can all be isolated in their own group. Access to this area should be at one or two locations and inconspicuous to residents. Access to natural light in the offices, break room, and lobby is desirable.

**301 Main Offices**

**1,400 SF**

This area should include one main office for a director and possibly subspaces for other employees. A meeting area where prospective residents can interact with staff should be provided.

**302 Staff Break Room**

**150 SF**

An area for administrative and support staff should be provided. This area should have storage lockers, seating, tables, and a kitchenette.

**303 Lobby**

**150 SF**

The lobby should be located off a main road and have proximity to common spaces (music room, classroom) as well as administrative functions. Seating should be provided for prospective residents and their families. The lobby should be a contained area; it should not be visible from the “house,” as this can confuse and tempt residents to venture outside.

**304 Public Rest Room**

**150 SF**

This restroom will be used by staff and visitors, and can be located near administrative spaces, without connection to neighborhood spaces.

**305 Storage**

**250 SF**

Storage for resident files and office supplies should be provided.

**400 Service**

**SUBTOTAL: 3,250 SF**

**A. General Description**

These spaces provide the necessary support for the entire building and all its functions.

**B. General Relationships**

These spaces do not require adjacency to any other program elements, and can be grouped in one area. They should be removed from resident rooms if possible. Natural daylight is not required in these spaces, and so they can be located below grade if necessary. Access to this area should be disguised from residents.

**401 Trash Room**

**100 SF**

This room should be access to outside, and be located near the janitorial space. Adjacency to alley or road is desirable.

**402 Janitorial Space**

**150 SF**

This space should provide storage for cleaning equipment and be located near the trash room.

**403 HVAC**

**3,000 SF**

This space should be of a sufficient size to house all mechanical and electrical equipment. It should have access to outside.

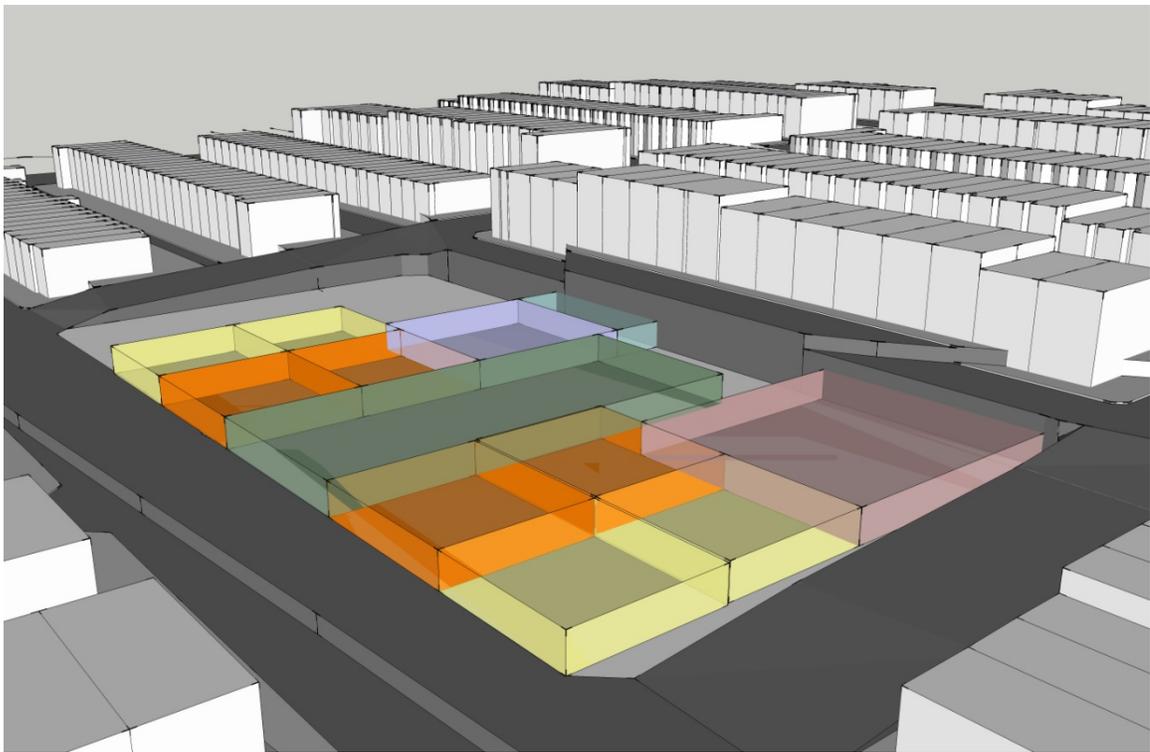
## Program Summary

<b>100</b>	<b>“The House”</b>	<b>SUBTOTAL: 14,320 SF</b>
101	Private Rooms	4,800 SF
102	Double Rooms	1,700 SF
103	Dining Room	1,600 SF
104	Kitchen	1,400 SF
105	Pantry	400 SF
106	Living Room	1,400 SF
107	Laundry	360 SF
108	Family Overnight/Guest Spaces	800 SF
109	Shared Shower/Bath areas	1,060 SF
110	Nurses’ Station	800 SF
<b>200</b>	<b>“The Neighborhood”</b>	<b>SUBTOTAL: 4,050 SF</b>
201	Library	400 SF
202	Music Room	350 SF
203	Gallery Space	
204	Theater/Stage Space	100 SF
205	Classroom/Life Learning Space	400 SF
206	Quiet Room/Chapel	500 SF
207	Exercise Room	900 SF
208	Wellness Center	1,000 SF
209	Storage	250 SF
210	Public Rest Room	150 SF
<b>300</b>	<b>Administration</b>	<b>SUBTOTAL: 2,000 SF</b>
301	Main Offices	1,400 SF
302	Staff Break Room	150 SF
303	Lobby	150 SF
304	Public Rest Room	150 SF
305	Storage	150 SF
<b>400</b>	<b>Service</b>	<b>SUBTOTAL: 3,250 SF</b>
401	Trash Room	100 SF
402	Janitorial Space	150 SF
403	HVAC	3,000 SF
	<b>Circulation (at 30%)</b>	<b>SUBTOTAL: 11, 750 SF</b>
	<b>TOTAL</b>	<b>35, 370 SF</b>

The proposed program totals over 35,000 square feet. As mentioned in precedent analysis related to the site, the size of this program will not encompass the entire site. Under-building the site would be a detriment to the neighborhood, and would not be a realistic or marketable option. The following diagrams illustrate possible strategies for introducing a combination of assisted living and independent living program on the site. These diagrams demonstrate the scale of the program to the site, but not necessarily the ideal configuration of those program elements on the site. This will be further developed during the design process.



**Figure 68:** This plan diagram illustrates the various program elements in relation to the existing site. It is clear that the program does not fill the entire site. Moreover, it only occupies one level, which is much lower than the surrounding buildings.



**Figure 69:** Axon view of the previous plan, showing the program elements on the site.



Figure 70: Plan diagram proposing development of assisted living facilities on one half of the site.

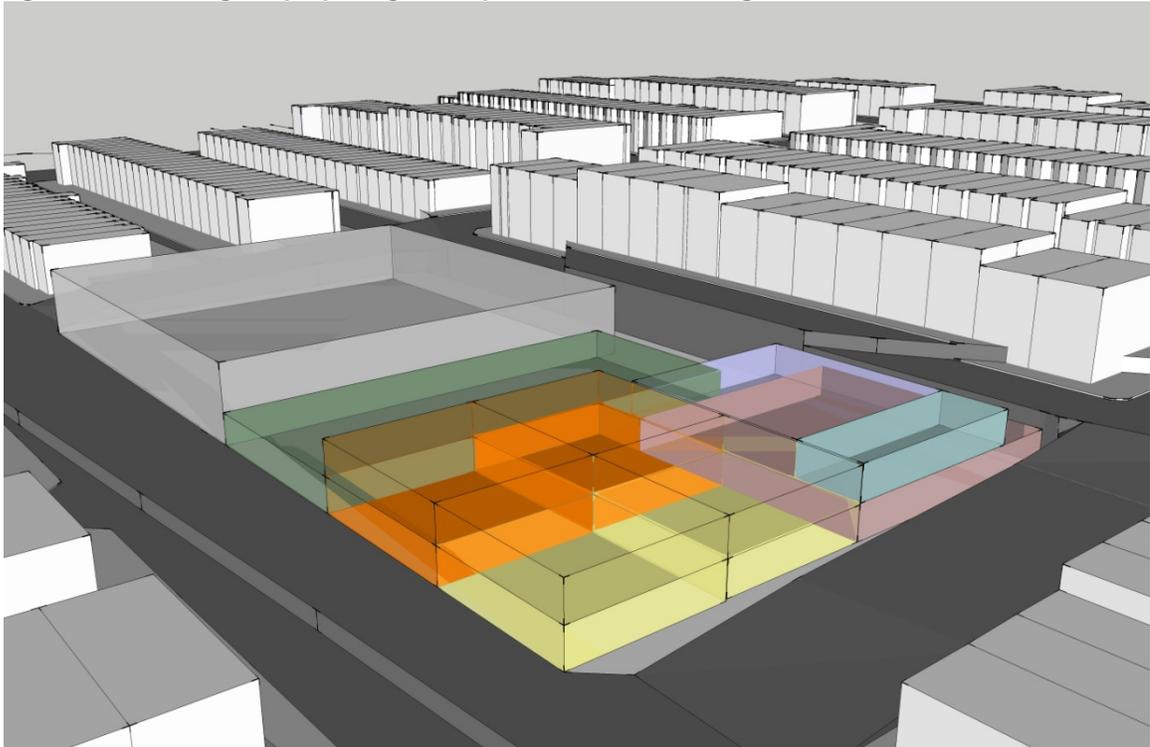
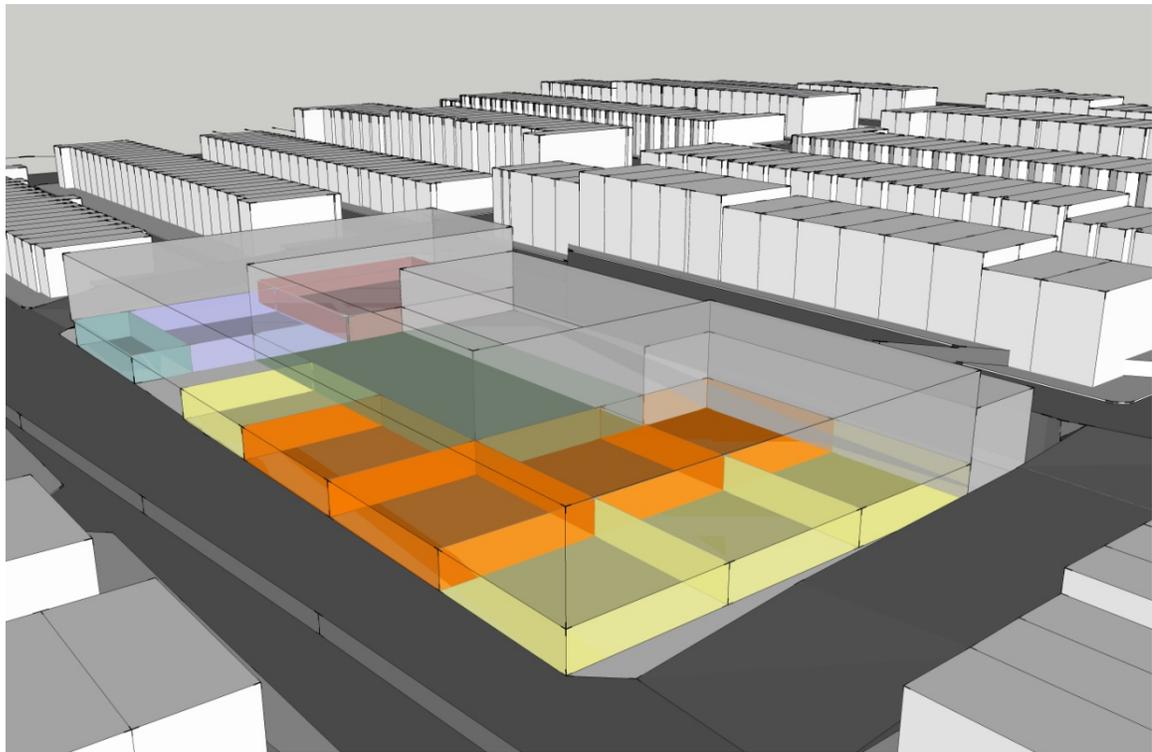


Figure 71: Axon view of site developed with assisted living.



**Figure 72: Plan diagram showing portions of the site developed for independent or assisted living.**



**Figure 73: Axon view showing lower level occupied by proposed program, and upper levels occupied by assisted living and independent living facilities.**

Having considered the program elements as they relate to the goals of this thesis and the selected site, a more specific analysis of how these elements relate to one another is needed. Figure 74 begins to suggest some of the adjacencies between program elements. "House" program elements are grouped together and have a relationship to outdoor space through the living area. Activity spaces also have a relationship with outdoor space. Staff and service spaces are grouped together, with mechanical spaces isolated from much of the program. The lobby serves as a central link between houses, outdoor space, activity space, and the staff. This element of the program, though small, is significant. It will be the main point of entry for all users of the facility. It must be closely monitored to protect disoriented residents. The location of this program element will require careful consideration.

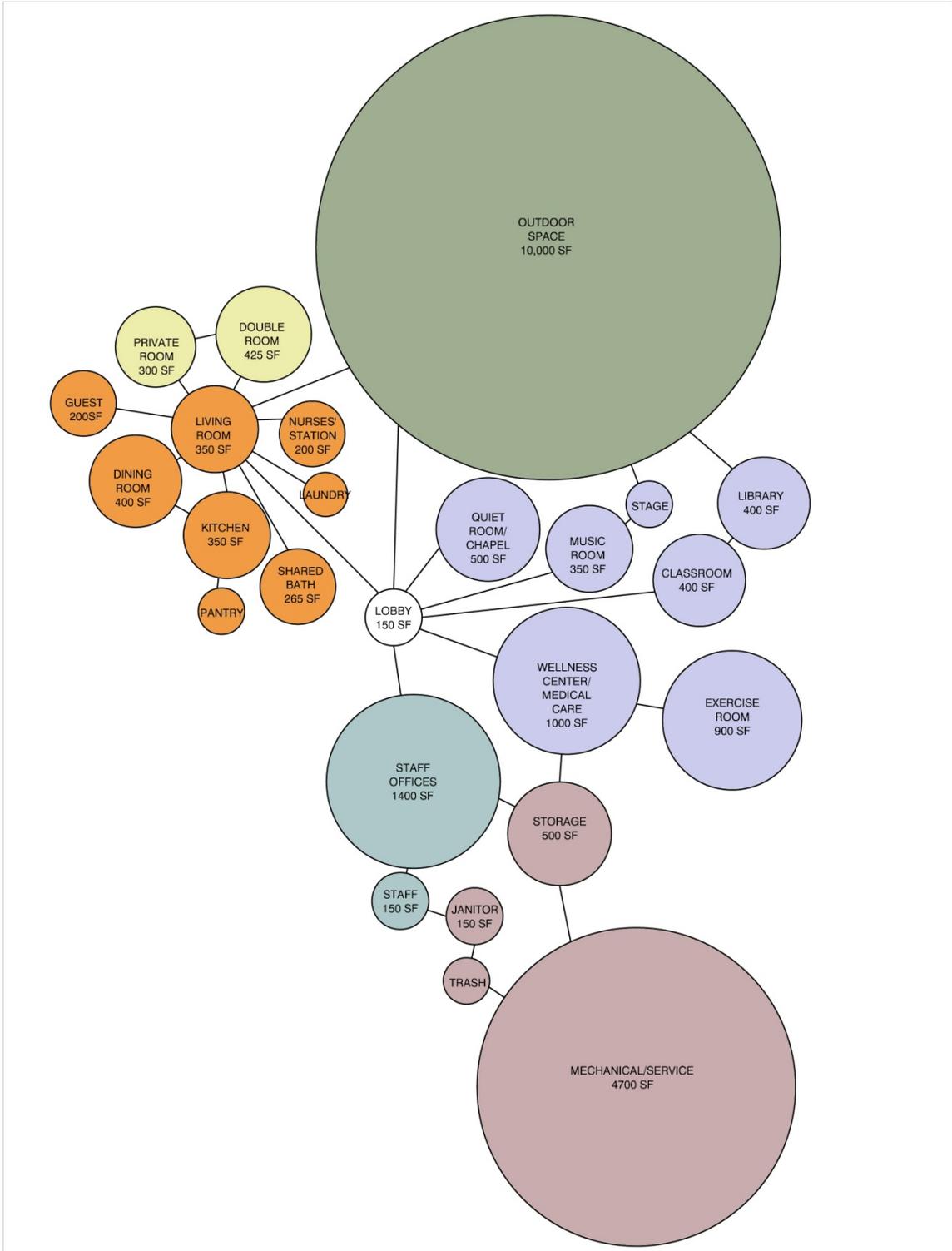


Figure 74: Bubble diagram illustrating the various connections and proposed adjacencies between program elements. Like colors indicate program groupings.

### *Functional Considerations*

The nature and approximate size of the program have been determined, and other functional considerations must be addressed. First among these are the structural implications of this kind of facility. As a 24-hour care facility with more than 6 occupants, the proposed building is classified as an I-2 Institutional occupancy group<sup>40</sup>. There are numerous structural systems typical to I-2 building types, however the surrounding context should be considered when choosing a system. These row houses are constructed of brick or wood frame. Given the building will not exceed three stories, the selected system does not have to support excessive height. With these considerations in mind, a wood frame, brick masonry, or concrete masonry structural system would be satisfactory.

Another key issue is the heating and cooling of the building. As outlined in previous chapters, aging individuals often lose the ability to regulate body temperature effectively. They become sensitive to slight changes in temperature. This must be accounted for in the selection of a mechanical system. Noise may also be an issue. A system commonly used in nursing homes that meets both of these needs is a Variable Air Volume (VAV) central air system. This system will require a boiler and chimney, chiller, cooling tower, fan room, and vertical and horizontal supply and return ducts. Supply diffusers and return grilles will be

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<sup>40</sup> Edward Allen and Joseph Iano, *The Architect's Studio Companion* (Hoboken: John Wiley & Sons, Inc., 2007) 8.

included in each space, along with a VAV control box for adjusting the temperature<sup>41</sup>.

Another consideration is the necessary water services for the building. I-2 occupancy group requires 1 water closet per unit. One drinking fountain is required for every 100 people. A bathroom with shower is required for every 15 people<sup>42</sup>. These are base guidelines. Given the nature of the proposed facility, immediately accessible bathrooms is a key issue. Every space that could be occupied by a resident should be in close proximity to a bathroom. It is also important that these bathrooms be wheelchair accessible.

This building must be completely wheelchair accessible. ADA guidelines specify the requirements for guardrails, signage, widths of hallways and elevators, and other key issues<sup>43</sup>. Like International Building Code, ADA guidelines provide the minimums required for a building to be certified accessible. Because this facility will be designed exclusively for the elderly, there should be special attention to the experience of the wheelchair bound and those who need assistance moving. Elevator access and the sizing of elevators are important, as is the size of bathrooms and the positioning of furniture throughout the building. Access to the building must be carefully considered, as ambulances, vans, and other

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<sup>41</sup> Allen, 174-5

<sup>42</sup> Allen, 203.

<sup>43</sup> Department of Justice, "ADA Standards for Accessible Design," Code of Federal Regulations, <http://www.ada.gov/adastd94.pdf> (accessed December 12, 2009).

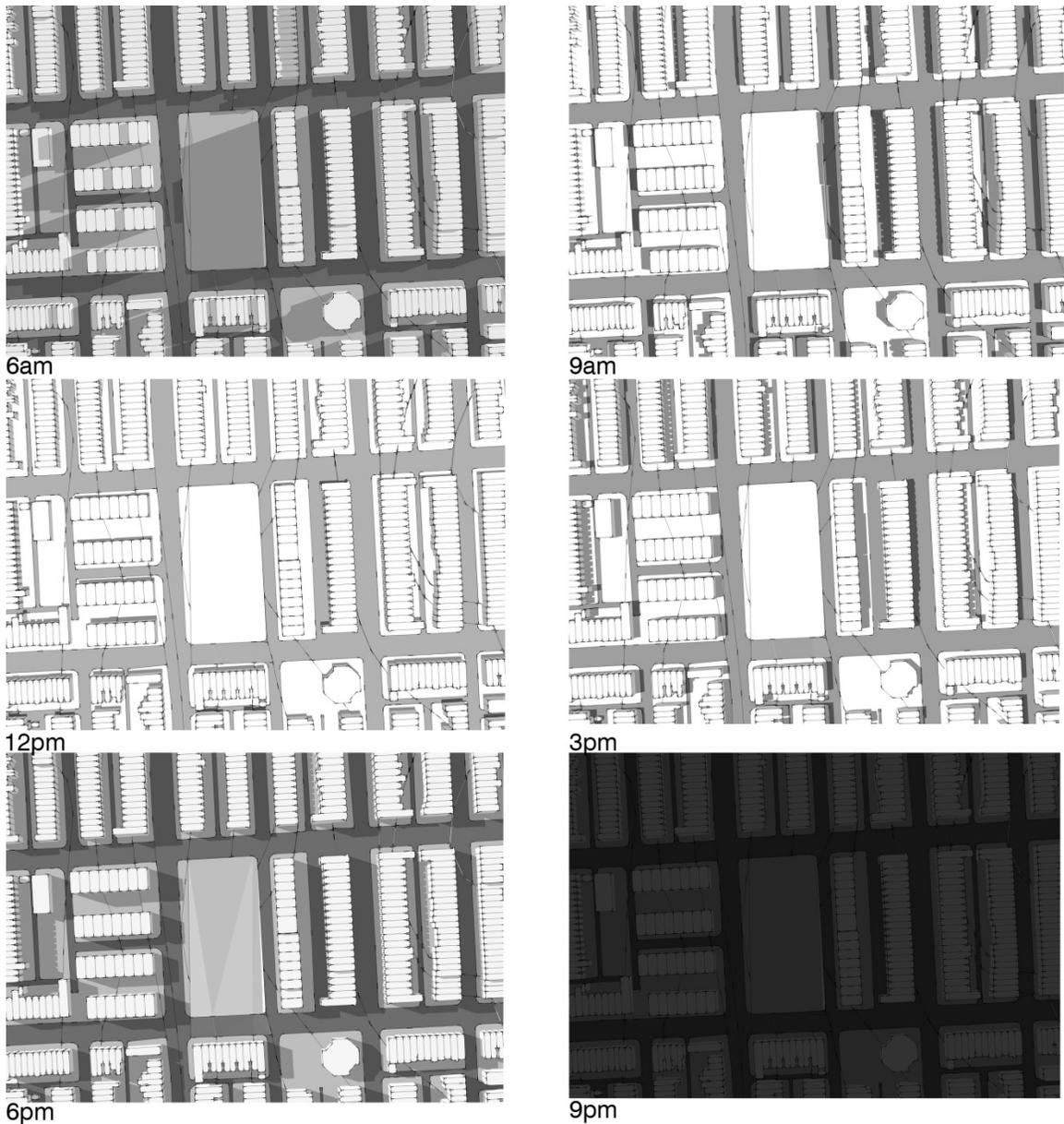
handicapped vehicles will frequent the site. Ample space should be provided for these activities.

IBC requires that all I-2 occupancy group buildings have a sprinkler system<sup>44</sup>. Two means of egress must be provided, a sufficient distance away from one another according to the code specified. Again, the special needs of the elderly must be considered when design egress. An area of refuge at the top of the stairwell should be provided in the event that a wheelchair bound resident is trapped on an upper floor.

A twenty-first century senior living center should be built with sustainability in mind. Given the openness of the site in relation to the proposed program, situating the structure in a way that makes use of daylight should be an achievable goal. As articulated previously, seniors are sensitive to changes in temperature and light. The ability to control light into rooms through shading devices could be beneficial. The careful selection of a heating and cooling system that can efficiently meet the needs of each resident will also contribute to the sustainability of the structure.

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<sup>44</sup> Allen, 402-3.



**Figure 75: Sun studies of the site reveal no significant shadows cast by nearby two and three story row houses.**

In many ways, the selection of an urban site is a strong step towards promoting sustainability in the community. This project makes use of an otherwise under-built site in the middle of an active and growing neighborhood. Developing the site as housing for seniors helps to keep these individuals living in their chosen community. A program designed to encourage interaction with the community

promotes a healthy society, and can only positively contribute to the existing neighborhood.

## Chapter 10: Design Process

### *Building Form*

With a site selected and preliminary program established, speculation about the proposed building's form can begin. Taking into consideration the traffic patterns, street frontages and density of the adjacent blocks, a series of organizational strategies are proposed.

#### Strategy 1:



Figure 76: Strategy 1 shown in aerial context.

This first approach suggests one continuous bar along Streeper Street, and three wings oriented east-west. Situated between these wings are two courtyards of relatively equal size. These courtyards would be closed on three sides by the building; on the fourth side along Kenwood Avenue, a low wall would keep the courtyard secure and maintain the street wall. This scheme successfully introduces light and air to all parts of the building, creating two generous

courtyard spaces. Its completely symmetrical nature may not be beneficial to the imageability of the building.

#### Strategy 2:

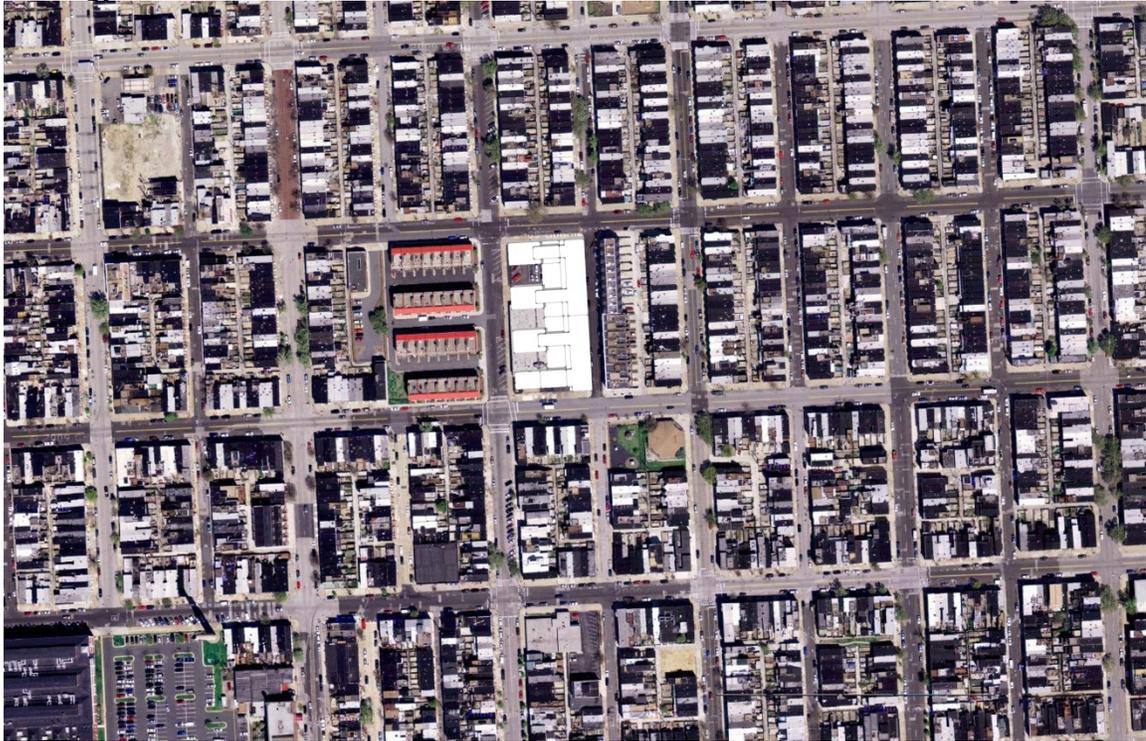


Figure 77: Strategy 2 in aerial context.

A second strategy uses the same long bar along Streeper Street, this time proposing four wings instead of the three in Strategy 1. Three of these wings are of the same size and massing. The fourth, facing Fait Avenue, is to be different, reinforcing the street edge and providing street frontage. The four wings align with the four rows of existing townhomes in the adjacent block. This scheme, though mostly symmetrical, offers one unique wing, where public functions could potentially be introduced. The three other wings may be more residential in nature.

### Strategy 3:

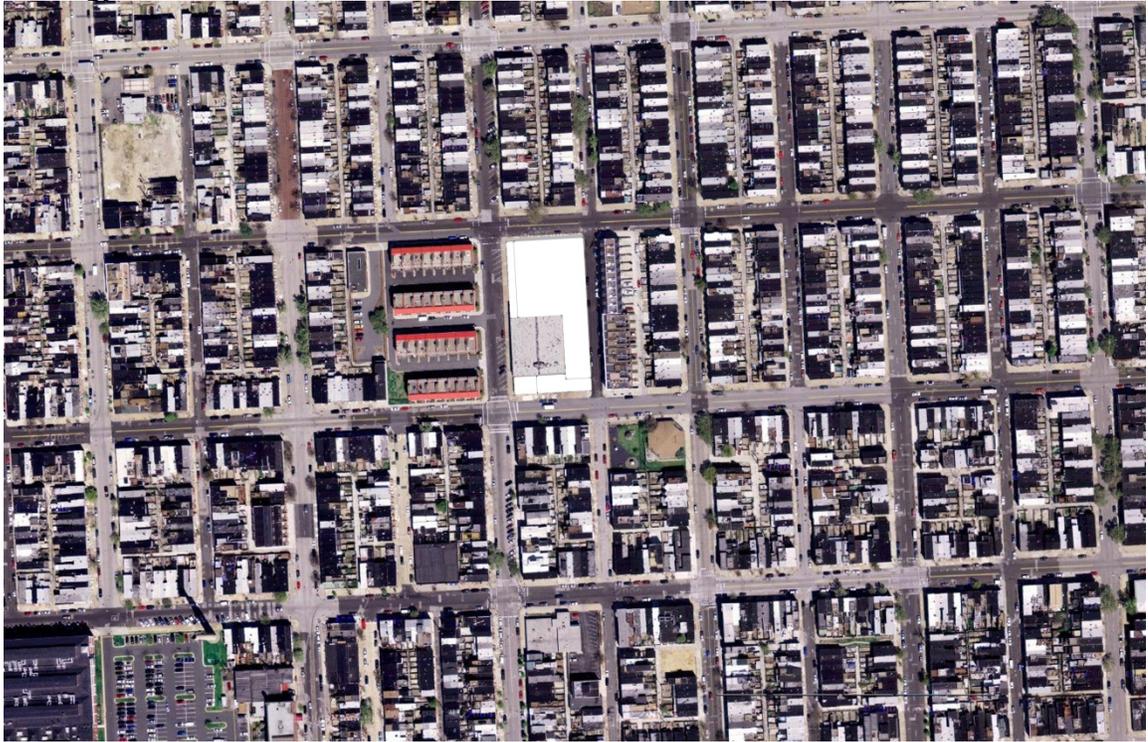


Figure 78: Strategy 3 in aerial context.

A third scheme creates one main courtyard, with one small wing fronting Fait Avenue. This proposition concentrates all open space in the block in one area, thus creating one large block of building on the northern side of the site. This scheme poses problems and challenges for introducing light and air to the northern portion of the building. While there is a generous courtyard space, having only one garden in the building may not be ideal.

#### Strategy 4:



Figure 79: Strategy 4 in aerial context.

This fourth strategy concentrates most of the building mass on the north and south ends of the site. In the middle, on axis with a small east-west side street is the main courtyard. The main organizing bar along Streeper Street remains intact. This scheme offer similar challenges to those in Strategy 3. Creating two large building block with only one main courtyard does not allow for light and air to be introduced through most of the building. Again, the symmetrical nature of the building form may prove difficult to develop successfully in plan.

### Strategy 5:



Figure 80: Strategy 5 in aerial context.

This final scheme preserves the long bar along Streeper Street, while proposing three wings. These wings are situated in a manner that creates two courtyards, one significantly larger than the other. The two northernmost wings align with the existing town homes to the west. This scheme could be successful in its asymmetry, and its creation of two distinct courtyard spaces. It might be best if there were a bit more building mass proposed on the site.

After analyzing these five strategies in terms of plan, program compatibility, and massing, Strategy 2 was chosen. This scheme offered the most opportunity for introducing light and air. It provided three possible courtyard spaces shaped by the four wings of the building. The wing along Fait Avenue could be developed as a public entry point. This scheme also breaks the building mass down into

smaller-scale units, that could be beneficial in the development of this residential scheme.

Accompanied by these ideas of massing and general organization are strategies for the development of the individual clusters of rooms or the “home” as outlined in the program. Figure 81 documents 4 of the iterations explored in the development of the house. Each iteration was composed of the same essential elements: private rooms (orange), service spaces such as bathroom, laundry, and kitchen (green), porch (open white space), and a common area with hearth (transparent piece). The entry point is indicated with an arrow. These explorations were done independent of the massing and plan development, as a means of establishing the ideal dimensions for a typical room and also the ideal arrangement of elements. These ideas were then applied to the realities of the selected site and parti.

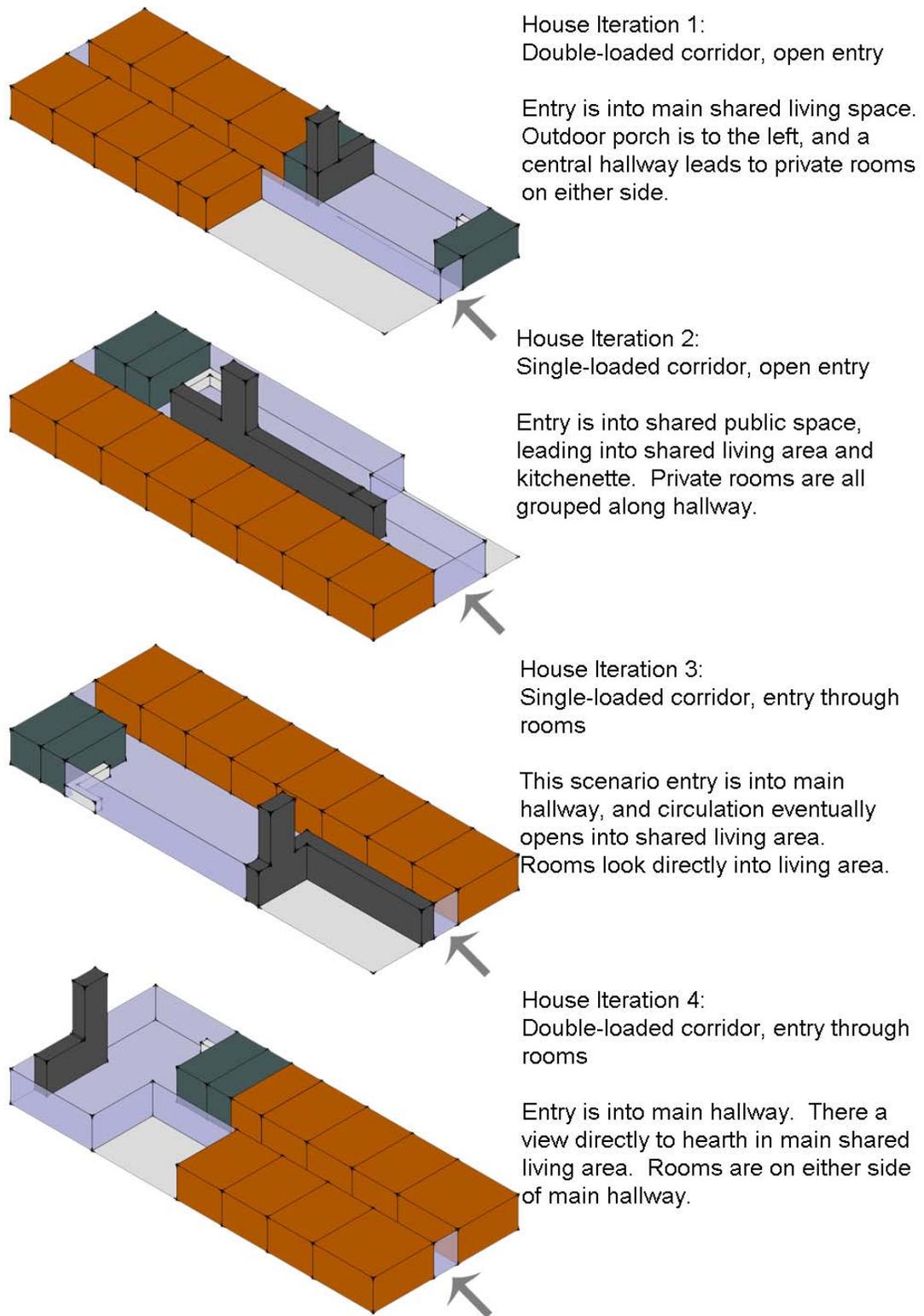
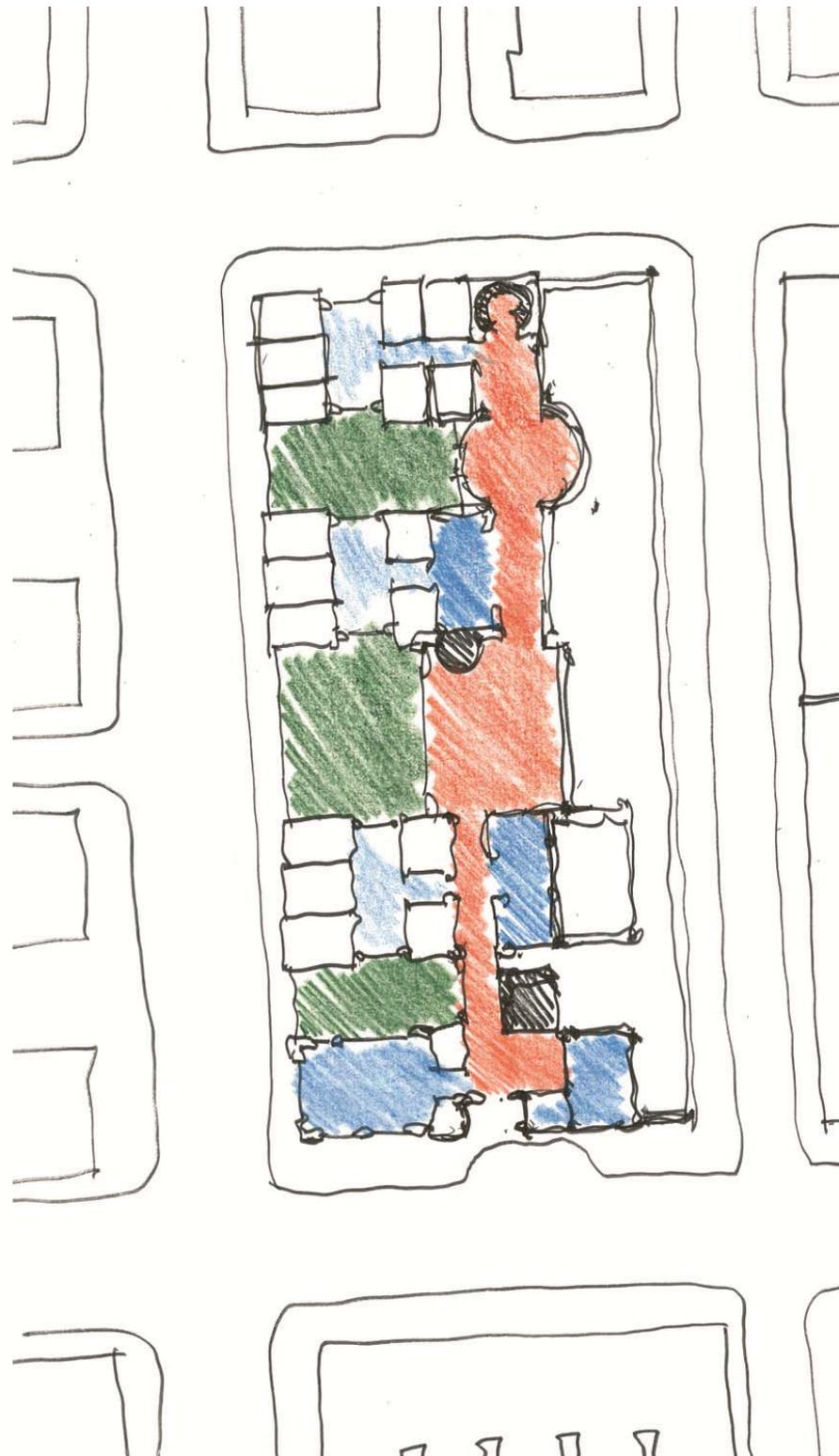
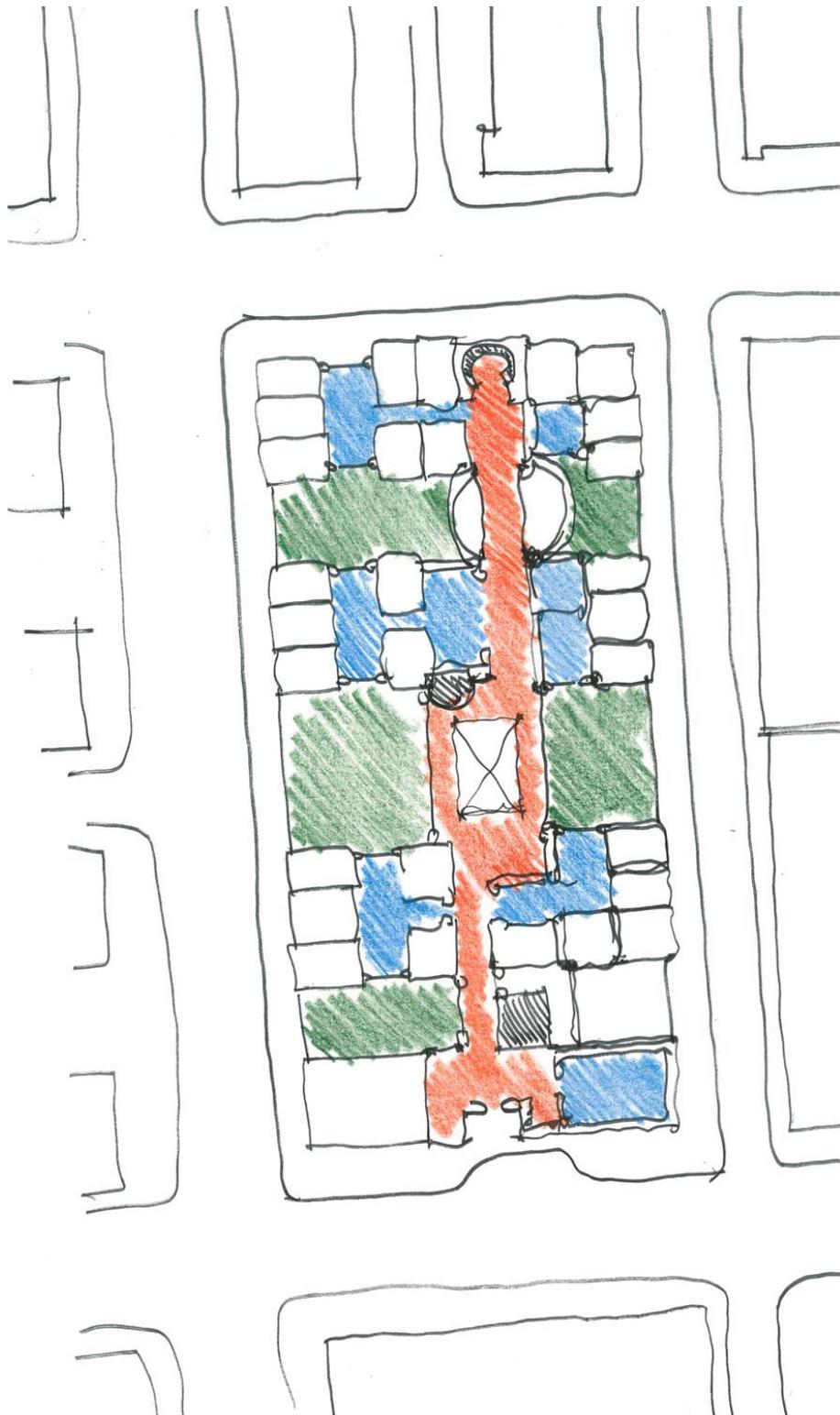


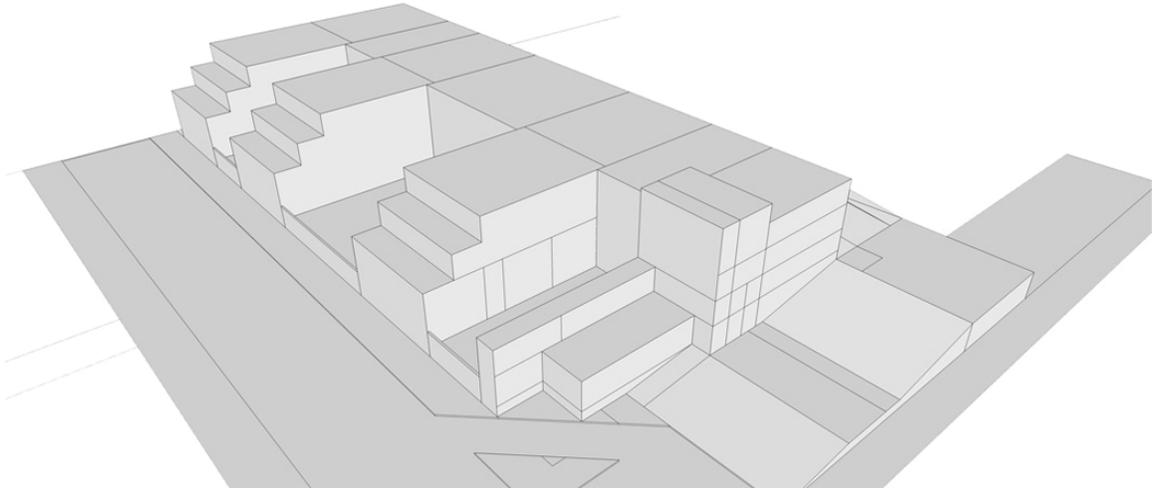
Figure 81: Diagrammatic views of possible cluster organization.



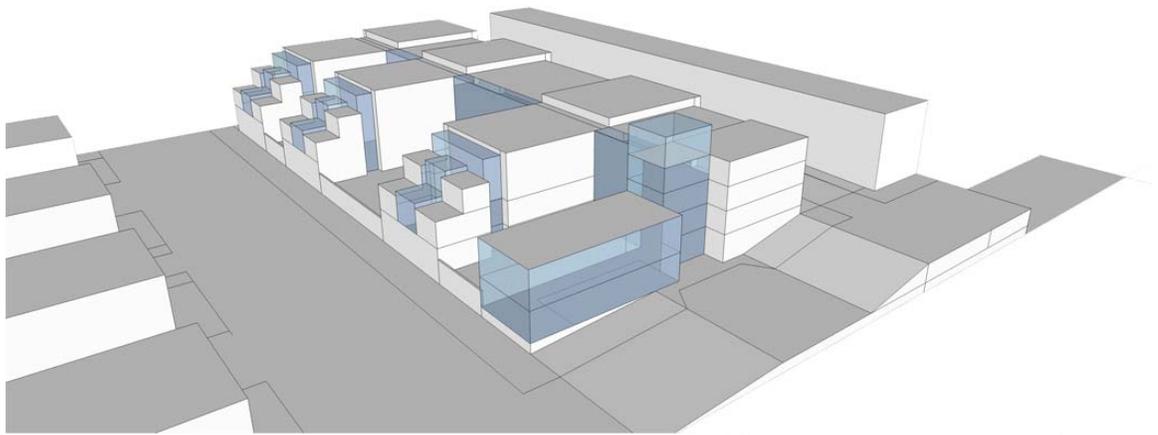
**Figure 82:** This ground floor parti sketch shows the main circulation route in red. Blue shows the public and common spaces. Green represents the courtyard spaces. Mechanical spaces, shown in white, are buried on the eastern side of the site.



**Figure 83:** This sketch shows how the proposed parti would be organized on the upper level. Courtyard spaces are introduced on the eastern side of the site.



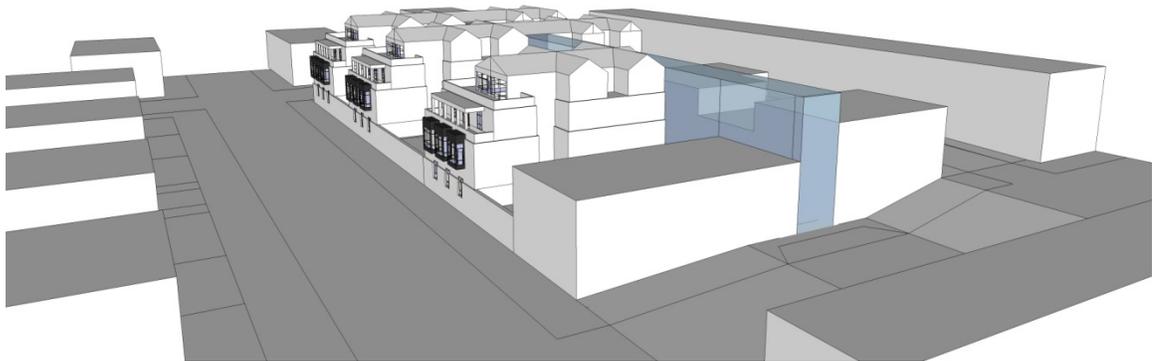
**Figure 84: Initial massing model of proposed scheme.**



**Figure 85: Development of initial massing, showing areas of public space as transparent surface.**



**Figure 86: Further development of scheme, showing early ideas about the elevation.**



**Figure 87: A later version of the massing, introducing pitched roofs to the residential areas, and showing further development of the residential facades.**

Figures 84 through 87 document the various phases of design development explored in digital modeling. While the parti, shown in Figures 82 and 83, remained intact for much of the design process, the elevations and massing changed with time. Initially, area of solid and void were established. Later iterations established more clearly where windows were located and the forms of various roofs. In the latest version, shown in Figure 87, pitched roofs are introduced in an effort to convey a more residential setting.



**Figure 88: Model of elevation of residential façade.** This image shows ideas of materiality as well: limestone on ground level, contextual brick above, and metal cladding around windows and on the upper level.

Once the massing was established, investigations into the character and materiality of the elevations were conducted. Figure 88 shows one such model, of a residential cluster. Variation in the size proportion of the windows is meant to create interest along this street-facing façade. This model also shows the idea of using three materials: light-colored stone, brick, and metal. The light stone would be for the ground level, where people walk along the building. Brick would make up the middle body of the building, in keeping with the character of the surrounding townhomes. Finally, metal cladding would help to articulate the uppermost level, where the roof is pitched. This material is carried through to the windows, some of which extend over the main street wall, acting as attached elements to the main structure.

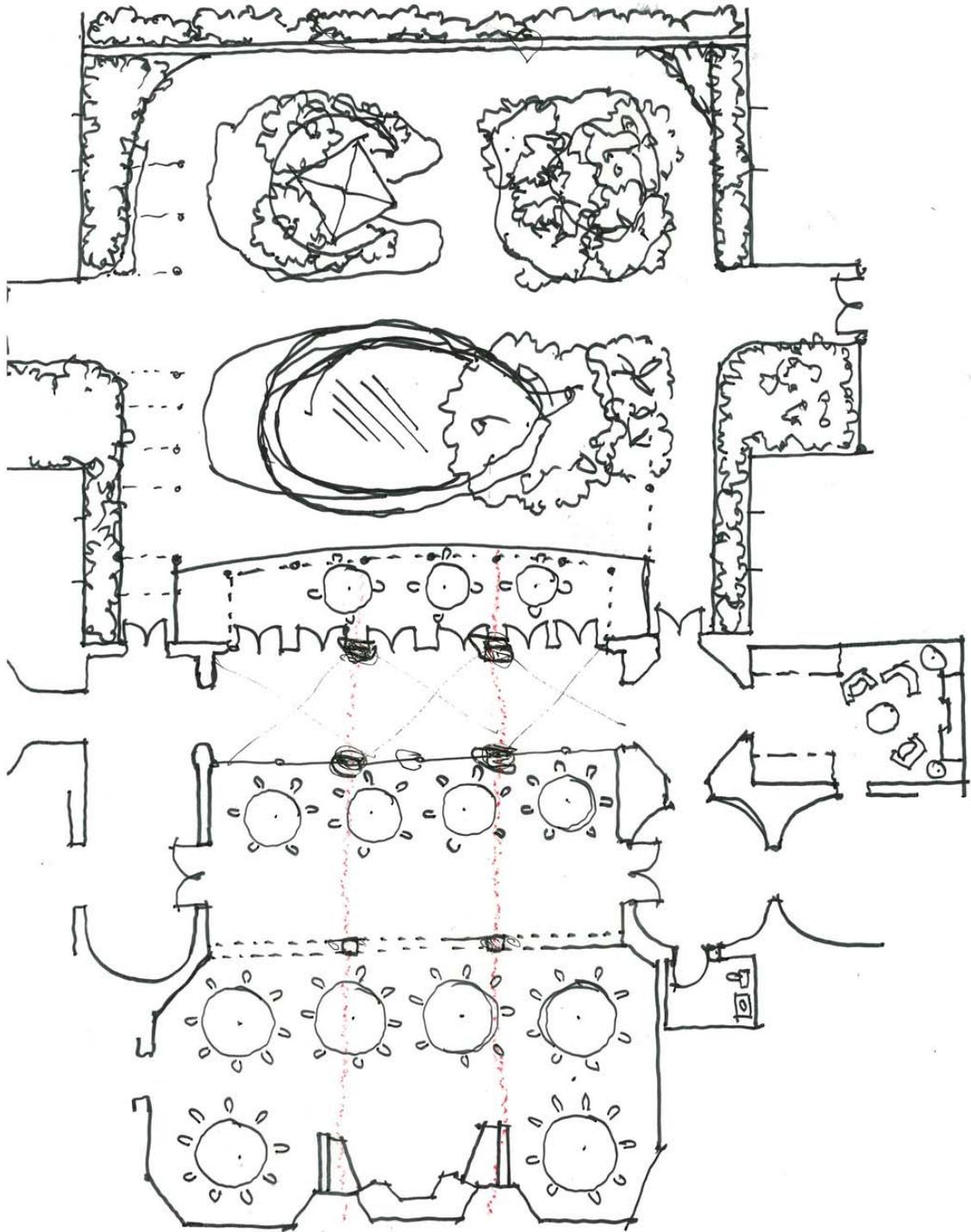
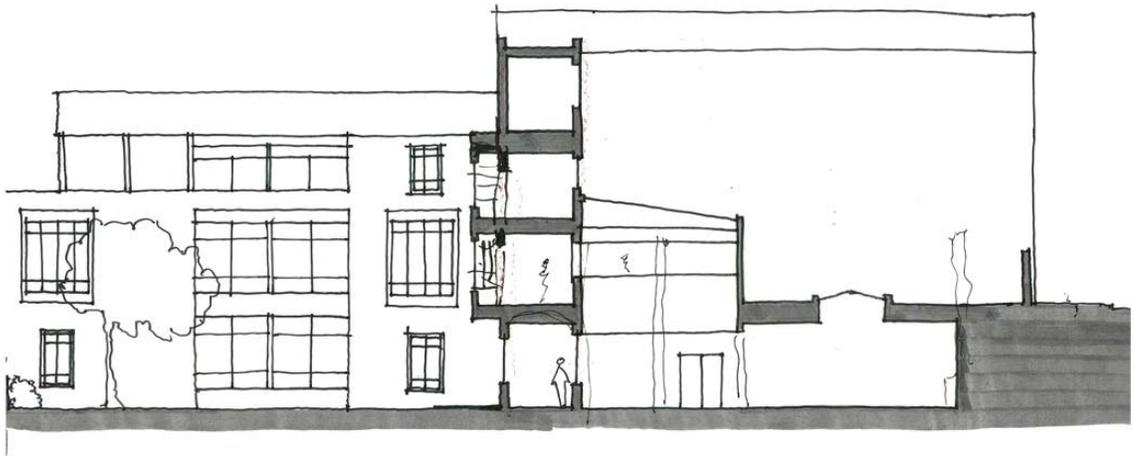


Figure 89: Detail sketch of dining room.



**Figure 90: Detail sketch of section through dining room.**

Once the main parti of the building was established, the plan was developed through repetitive drawings of areas such as the dining room, library, and residential clusters. Figures 89 and 90 show two such drawings, a plan and section of the dining room and main courtyard. The task of hand-drawing these plans and sections helped to quickly conceive of the character and scale of many of the spaces. This chapter is meant to document the different media used in the development of the project, from diagram, to digital model, and freehand sketch.

## **Chapter 11: Design Proposal**

The concept for the final design proposal is shown in Figures 82 and 83. Entry is from Fait Avenue on the southern end of the block. From here the main circulation path stretches to the other end of the block. The first of the four wings, or pavilions, where entry occurs, is for public activities and administrative space. The other three wings are for residential clusters or “homes”. These clusters are accessed from the main circulation route. Also situated along this path are shared activity spaces. The goal is to create a straightforward circulation path that connects all parts of the building.

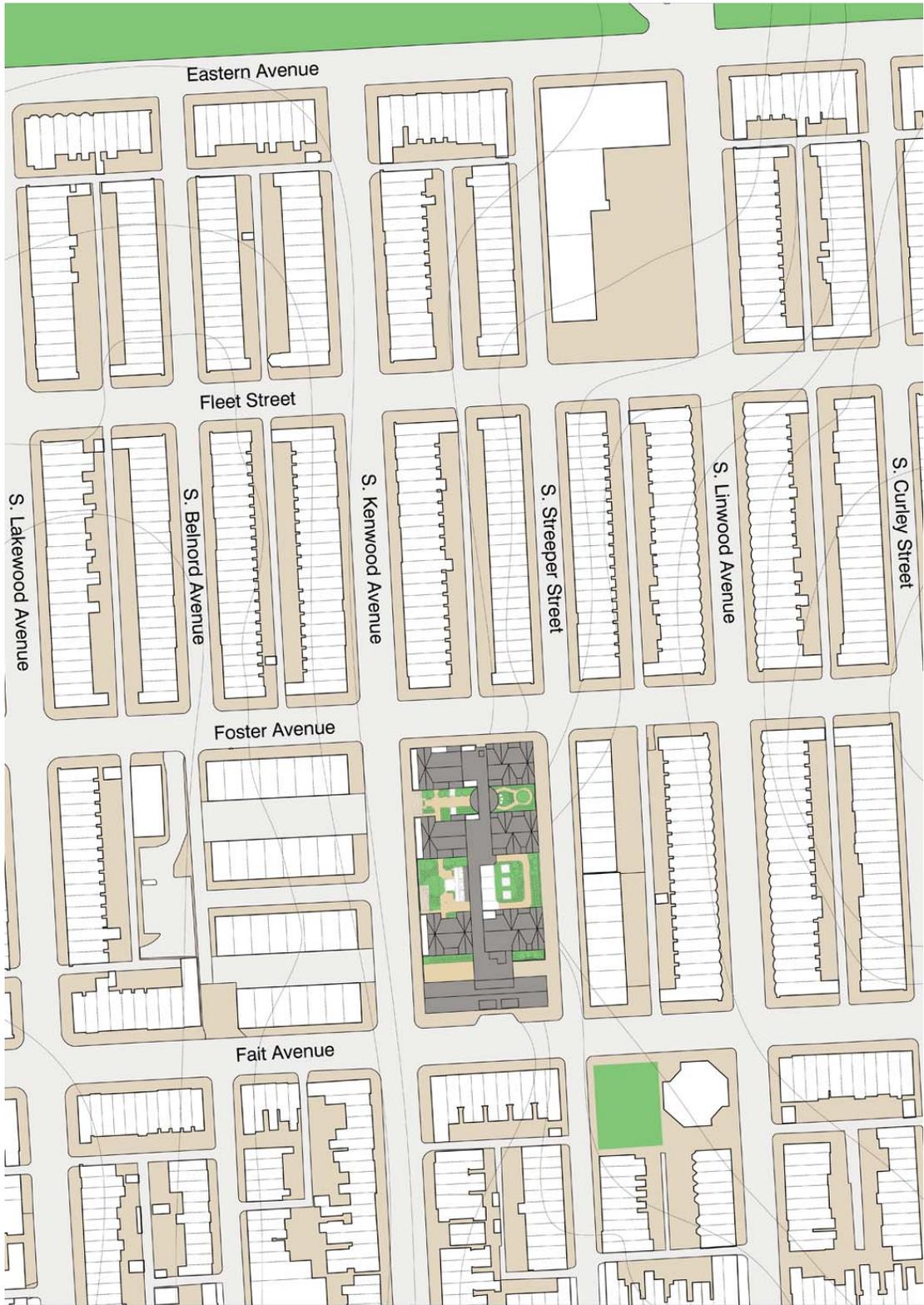


Figure 91: Site plan showing roof information and courtyard location.



Figure 92: Ground floor plan showing courtyards and ground floor materiality.

The final ground floor plan is featured in Figure 92. Here, the four wings organized off the main circulation path are clearly articulated. In this overall plan the changes in material from one space to the next is clear. The public circulation areas are rendered in a light gray (stone), the common activity spaces in hardwood, and the private rooms in a warm yellow.

This ground floor plan also shows the location of functional support spaces on the eastern, buried side of the site. A large area of the ground floor is reserved for mechanical equipment. Space is also provided for general storage and laundry. Off of the main dining room is a large kitchen.

On the ground floor is also access to three of the five main courtyards. The introduction of these courtyard spaces is meant to provide maximum light and air access to the residential units. As articulated in the initial program, use of secure outdoor space is beneficial to the elderly. This plan suggests how these spaces, varying in size, might be organized to encourage walking and lingering outdoors.



**Figure 93: Detail plan of entry/public wing.**

Figure 93 shows the entry portion of the plan in detail. A pull-off zone on Fait Avenue allows residents to arrive safely near the entry doors. One enters into a small vestibule, which provides a buffer between the outdoor changing temperatures and the indoor controlled climate. Upon entering, visitors and residents are greeted by a receptionist, who is seated at a small desk. The receptionist monitors those individuals entering and exiting the facility, and controls access from the public portion of the building into the support areas and residential areas.

To the right of the reception desk is entry into the support areas. A generously sized laundry room is where most resident laundry will be done. There is also access to the main kitchen, where meals can be prepared and taken to the upper

levels in the service elevator. These meals are for those individuals who do not wish to come to the dining room for physical or personal reasons.

There are also two small meeting rooms located to the right of the reception desk. These rooms would be used for meetings with staff and prospective residents and families. They could also be used for more public information sessions about Alzheimer's disease, aging, and senior housing opportunities.

The main reception area opens into a larger lobby space, with seating along the south-facing windows. Residents waiting for loved ones to visit may linger here, watching activity along the street. This is also a place for people to wait for meetings or more public activities. Public restrooms service the lobby area.

The main feature of the public wing of the building is the large multi-story space in the southwest corner of the site. This space is the "public living room," and is meant to be adaptable to an array of activities, both public and private. Holiday festivals, intergenerational events, cultural celebrations, and other public events may be held here. In addition, a family wishing to hold a birthday or anniversary celebration may use the space. This large room opens up to the first of three courtyards on this ground level. This courtyard is mostly hardscape. A landscape bed of trees and shrubs creates a buffer between the resident rooms and the courtyard.

Aligned with this courtyard is the main vertical circulation core: stairway, resident elevator, and service elevator. At this point, residents and visitors may move upstairs to more public activities, or through double doors into the residential portion of the facility. These doors represent a controlled access point; entry through this point will require a code or special card access.



**Figure 94: View of entry building from the corner of Fait Avenue and Kenwood Avenue.**



**Figure 95: View of entry, showing simple reception desk.**



**Figure 96: View of “public living room”, where community activities can take place.**



**Figure 97: Section of public wing, showing the multistory space of the public living room and exercise pool. Entry occurs on the ground level, gym on the second level, and staff spaces on the third level.**



Figure 98: Detail plan of dining room area.

The focus of this thesis is the creation of a home for seniors, and so the development of the residential portion of the facility is of foremost importance. Figure 98 shows the heart of the residence, the dining room and main courtyard. Along the first stretch of corridor is an entry to a cluster of rooms on the left. On the right is one of several activity spaces found throughout the building, this one a billiards room. After moving along this first stretch of corridor, the space opens up and one can see the main courtyard space on the left, and dining room on the right.

There is a small vestibule space on the right that leads to the dining room. Here, residents can gather before meals for conversation. A series of doors on the left side of the hall open out into the courtyard, where outdoor eating space is provided. There is visual access into the dining room from this hall. Thus, residents can clearly see into this main space and understand their location in

relation to the rest of the building. This dining room space is design to be the central room of the building. It is given hierarchy in terms of both location and scale. Arrangement of tables and a central hearth indicate to residents that this is a comfortable place for eating and talking.

The main courtyard aligns with the dining room, and is the largest of the five courtyards. It is meant to be experienced as an outdoor room, with several entries, both from the main circulation path and two of the residential clusters. Residents can move freely from indoors to outdoors because of the courtyard's secure nature. Landscape elements provide a buffer between the street edge and the main courtyard space. A gate is placed discreetly at the southwest corner of the courtyard, providing access to a ramp that leads to the street. This ramp would only be used in emergency situation as an additional means of egress.

At the center of the main courtyard is a large tree, providing shade. A path connects the entries to the residential clusters on either side. This path is shaded overhead by a trellis. Along the path are two small places to sit. These would be shaded or open to the sun, depending on the time of day. Though the specific kinds of shrubs and plants are not articulated in this plan, it is imagined that this outdoor space would feature a variety of plants and flowers of different scents, color, and sizes.



Figure 99: View of hallway between courtyard and dining room.



Figure 100: View of the main courtyard space.



Figure 101: View of dining room, showing overlook on second level.



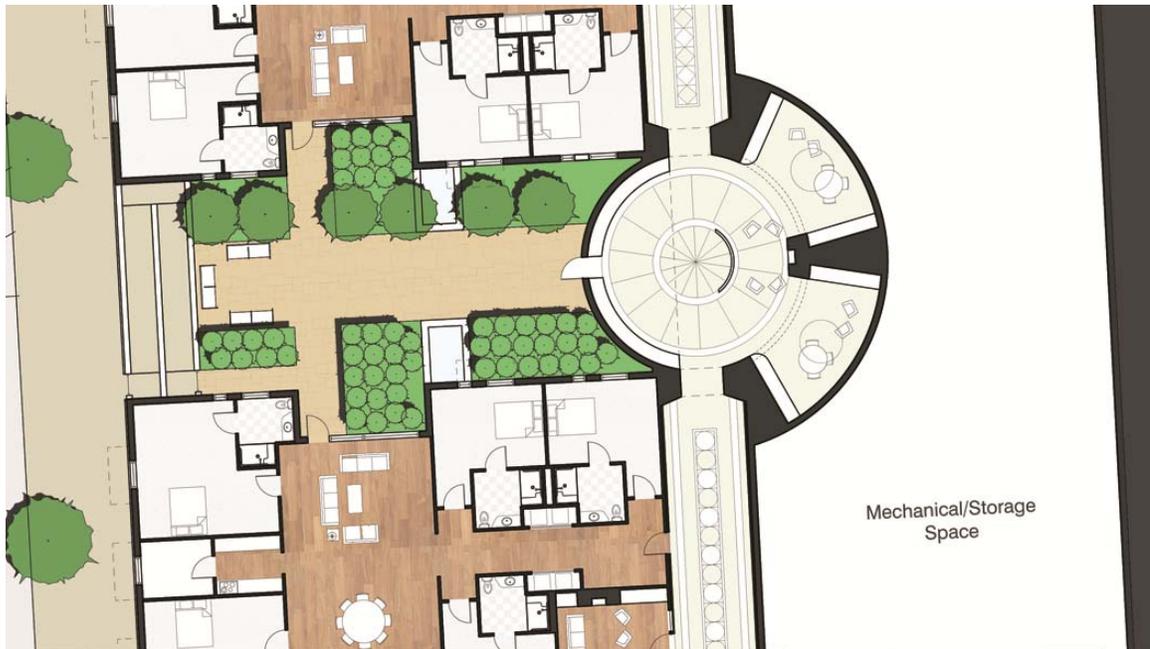
**Figure 102: Section through main courtyard and dining room.**



**Figure 103: Detail of section above**



**Figure 104: View from third floor window overlooking main courtyard.**



**Figure 105: Detail plan of library and second courtyard.**

North of the main courtyard and dining room is the final significant common space in the building, the library. Figure 105 shows this space and its alignment with the smaller northern court. This garden has a single path with a smaller path connecting the entry to the residential clusters. This courtyard is imagined to be for more active gardening than the larger, main one to the south. Residents would be welcome to tend to their own fruits, vegetables, and flowers in plots in this garden.

The courtyard provides a nice backdrop for the quiet nature of the library. The library is essentially one main circular space with smaller nooks on the eastern side. There is small hearth that encourages residents to sit and read, and reinforces the residential nature of the library. The smaller private reading nooks

have skylights, connecting them to the courtyard above. A singular door provides access to the garden outside.



Figure 106: View of library.



Figure 107: Section through second courtyard and library.



Figure 108: Detail of section above.



Figure 109: Detail plan of residential cluster.

A central component of this thesis proposition is the clustering of residents in small groups. By organizing residents into family-sized groups, the scale of communal spaces remains familiar and home-like in character. Figure 109 shows the plan of one cluster on the northern end of the building. The cluster is

composed of private resident rooms, each with a private bath, including shower. It is assumed that when the resident is no longer able to bathe him or herself independently, the shower would be made inaccessible without the aid of a nurse. Having a private bath affords most residents to maintain a level of independence for as long as reasonably possible.

The cluster also provides a common living room and dining area. A small kitchenette allows residents to cook small meals on their own, under the supervision of a nearby nurse or aid. A nurse's station is integrated discreetly into the plan of the cluster. In the case of Figure 109, this station is behind the kitchenette. The nurse has a securable space within the residential unit where medical supplies and other administrative things can be housed, but this space is inconspicuous to residents. There are also two laundry closets that can be secured. This allows capable residents to do their own laundry. The clusters on the ground floor have direct access to one two courtyards, allowing them to wander indoors and outdoors without fear for their safety.

As mentioned above, the primary component of each residential cluster is the private room. These rooms are designed to be adaptable to each resident's needs and preferences. Furniture could certainly be provided if necessary, but it is imagined that most residents would use their own furniture. In this way, each individual is able to personalize their room with not just images or selection of the

wall color, but with their own precious objects. Seeing one's own objects on a daily basis can be helpful in maintaining memories.

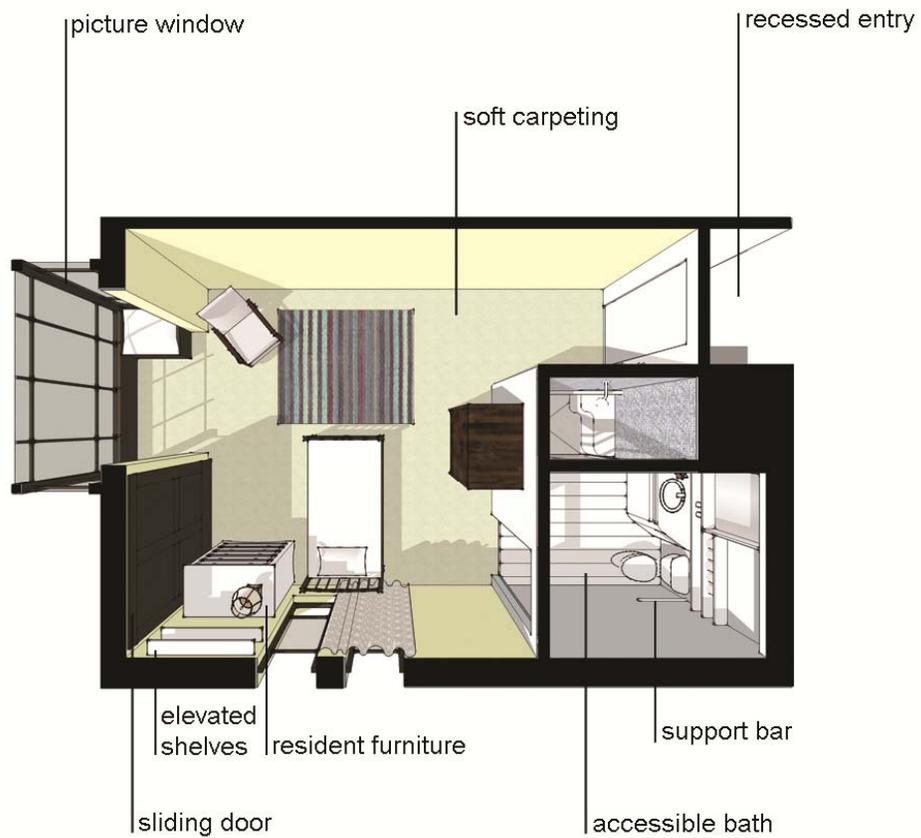


Figure 110: Diagrammatic view of typical private room.

Figure 110 provides a diagrammatic look at a typical room. Entry is recessed off of the main hallway or common space. This provides space for a memory box or other identifying image personal to the resident. In most rooms, the resident has a glimpse of the outdoors right upon entering. This helps to reinforce the resident's connection to nature and the cycle of the day.

Each room would be carpeted, both to reinforce the character of home and to provide a soft cushion in the event of a fall. There is space in each room for a single bed, and in some cases a larger one. Clothing would be kept in an armoire and dresser. The furniture in each room would be specific to that resident. Shelves for keeping photographs and other mementos would be provided, at a height level that would discourage others from attempting to reach these objects. Confused residents who may wander into another person's room should not be tempted to mistakenly take an object that is not theirs.

Many of the rooms on the upper level feature a picture window with a small window seat. These windows are designed to allow the resident to sit and look below to the active street or courtyard. They provide generous light into the room, which helps to create a bright, welcoming place. Many residents have a personal sleep schedule and may nap during the day. A sliding door is provided to block light from this window if the resident should engage in an afternoon nap.

The last component of the room is the bath, which must be design to be accessible to all residents, including those in wheelchairs. The bathroom provides generous space for a wheelchair to make a complete turn, and for a resident to navigate into the bathroom and directly to the shower or toilet. The shower has a seat, permitting the user to rest intermittently. Sufficient support bars are provided to aid the resident in standing and sitting.



**Figure 111: View of typical private room.**



**Figure 112: View of handicapped bathroom available in each resident room.**



Figure 113: Plan of second level.



Figure 114: Plan of third level.



Figure 115: Plan of fourth level.

The final elevations of the building are meant to react to the context of the established Baltimore neighborhood of Canton. The material palette of stone, brick, and metal is designed to be simple, and respectful of the surrounding townhomes, most of which are brick. The building is a balance between the private and public, and the elevations had to react to the spaces within as well as the desire to blend into the residential neighborhood.



**Figure 116: South Elevation**

Figure 116 shows the south elevation, the entry façade. This wing is designed to be distinct from the other three residential wings, and so the light stone material was used here. The roof of this wing is pitched, in keeping with the other residential wings. A larger percentage of glazing on this façade is meant to convey the more public, or transparent, nature of this wing of the building.

Figures 117 through 119 show the final iterations of the more residential facades. All three elevations feature picture windows that extend over the sidewalk, adding interest and another layer to the façade. On the west elevation, the area closest to the street is of light stone, in contrast with the public area, beyond the courtyard, which is of brick. Metal cladding is found on the third level and the roof.



**Figure 117: West Elevation**



**Figure 118: North Elevation**



**Figure 119: East Elevation**

Each elevation is a composition of repeating elements: picture window, small, medium, and larger windows, and more public windows. The elevations seek to strike a balance between the rhythm of the more residential areas, with their organized groupings of windows, and the more transparent expanses of glass that characterize the dining and library areas facing the courtyards.

## **Chapter 12: Conclusions**

### *Building Entry*

During the final public review of this thesis project, the issue of the entry location was a topic for discussion. As shown in the previous drawings, the entry is situated on Fait Avenue, on the southern end of the site. This location is along an active street, but one that has a significant slope upward from west to east. This condition may make the creation of an entry pull-off zone unfeasible. There were additional questions as to whether a more quiet entry off of Kenwood Avenue would be more successful and help to establish more of an entry court.

These suggestions are certainly valuable, and could help to refine the plan of the public wing of the building. Certainly a pull-off area would be more realistic on the relatively flat Kenwood Avenue. The idea of an entry court, rather than a simple vestibule, is certainly a rich concept that could help establish a better arrival experience for both visitors and residents.

Jury members also commented on an earlier design strategy that placed the entry at the middle of the block, off of Kenwood Avenue. It was noted that this approach allowed the lengthy corridor to be divided into two segments. Residents would not have to walk nearly as far to their private rooms in this scheme. While decreasing the corridor length is certainly an issue worth further exploration, placing the entry at the middle of the block may not be the best solution. Having explored this idea in plan and section, it posed challenges to

the development of the more public areas of the building, and separated some residential units from others. It did not allow for continuous flow in and out of the building through courtyards. Having a public wing of the building along Fait Avenue works nicely and it only makes sense that the main entry to the building would be found here.

### *The Courtyards*

The final design proposal for this thesis suggests five courtyards, three on the ground floor, and two on the second level. In plan, these outdoor rooms were shown with trees, shrubs and winding paths that integrated with the interior circulation. This thesis would be enriched by a deeper exploration of these courtyards, or outdoor rooms. It was suggested that though each should have the same elements-trees, shrubs, flowers, water, areas of shade, etc.- they should also be different. This would residents to mark their way through the building.

Another comment was that they could relate more directly to the senses. For instance, one courtyard could focus on the sense of sound, and use water and other devices to stimulate this sense. Another may focus on a specific color, while a third could be designed with scents of various flowers as the main component. By developing these spaces further, it would help make clear the concept that these outdoor rooms are distinct from one another not only in size and location, but in character as well.

### *Elevation Character*

Another point of discussion was the building's façade and its integration with the surrounding neighborhood. It was suggested that the north elevation is the most successful of the four main elevations, and that its qualities should be transferred to the other three. This comment is valid, and further exploration of the other elevations, specifically the east and west facades could be done. It should be noted that the north elevation is composed almost entirely of residential units, thus creating a more natural rhythm. The areas of weakness in the other elevations fall in the more public portions of the façade, along the main circulation path. These parts of the elevation could use refinement and begin to have some of the character of the residential areas.

### *The Emotional Response*

The proposed building has been developed to a level of functional clarity. Yet this project would be greatly enhanced with another level of detail information, focused on evoking the senses and eliciting emotional memories from residents. This can be done in several ways, many of which have been articulated in the early chapters of this thesis document. The goal of this thesis project was to create a home for those with Alzheimer's disease, and what would make this residential facility distinct from others is its focus on the sensory and emotional needs of these individuals.

This next layer of detail could start with the development of more distinct entries to each residential cluster. These entries should be recessed, and feature

different colors and shapes. The residential clusters themselves could be articulated differently as well. As rendered in the current plans, they appear to be identical in terms of material, size, and shape. Renderings showing color and organization of space in these common areas would help make each “home” distinct, and aid residents in recognizing where they belong.

This idea of marking spaces differently extends to the entry to each resident’s room. Early chapters mentioned the common practice of placing memory boxes outside of residential rooms. These boxes feature photos of the resident, family, like and interests, and other mementos. Introducing these by the door to each room makes it easier for residents to find their space. There are additional ways of personalizing the entry to these rooms, such as painting or decorating doors in different ways.

The task of eliciting emotional memories from residents could extend to the programmatic activities as well. One juror suggested that residents could be involved in cooking or serving meals in the kitchen, something they may have done in previously in life. Others could deliver mail, or run other group activities. While these concepts may not have direct architectural implications, they made be made clear in renderings or other drawings.

Perhaps the best approach for drawing an emotional response from residents would be in the design of details. Entries, “portals”, thresholds- these places can

be carefully articulated to recall other places and memories. Crafting more places for residents to share with other residents or visiting family member is another idea. These places could be simple moments in the experience: a window seat, a small room for conversation, a shaded spot outdoors. Making spaces more distinct in section may also develop more memorable places.

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