Healing the Mind, Body, and Soul

A Therapeutic Landscape Design for Crestmark of Roselawn

Crestmark of Roselawn, Roselawn, Indiana

Rachel Christenson  Spring 2006
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Abstract

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Gardens have been used throughout the ages to heal the mind, body, and soul. Due to advances in medical science, the length of age of the average United States citizen is rising, resulting in the elderly population becoming one of the fastest growing age groups in the United States. With the importance of planned housing for the elderly, the integration of outdoor spaces is especially important in regards to quality of life. Offering outdoor spaces can aid in the treatment and preventative care of elderly patients.

This project focused on designing the grounds of Crestmark of Roselawn, a nursing home facility in Roselawn, Indiana. The facility operates on approximately five acres of land, is owned by Crestmark of Roselawn, LLC, and administered by Mr. Michael Blisko. The “H” shaped building consists of two nursing home wings, a rehabilitation wing, and an assisted living wing. The southern courtyard of the building is the only area on the site designed for patient and resident use. This space consists of a patio, swing, and gazebo. In this project, the designer shows how the reconfiguration of the parking lots leads to more outdoor spaces for active patient use, including a walking loop around the building and two courtyard spaces.

Relevant research includes therapeutic gardens, horticultural therapy gardens, and enabling gardens. Leaders in the field, such as Clare Cooper Marcus, Martha M. Tyson, and Nancy Gerlach-Spriggs, guided the research. Theory and design work by Clare Cooper Marcus most closely relates to the design goals developed for Crestmark. Case studies of sites relevant to the design at Crestmark were identified. The first was a therapeutic garden at an assisted living facility for the elderly; the second was an institution for the mentally ill that integrates horticultural therapy into their treatment regimen. The third case study examined the enabling garden at the Chicago Botanic Gardens. These studies featured design elements and concepts that were used in this project.
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Introduction

By the year 2030, roughly 22 percent of the United States population will be older than 65 years, a total of 70 million people (Nied, 2002). With this increase in population, the need for planned housing for the elderly is essential. For these types of facilities, the importance of outdoor spaces at these facilities designed with the elderly person in mind is imperative for both physical and mental health.

These spaces, often called therapeutic gardens, offer a component to health contemporary medicine fails to present. The physiological benefits a person experiences in a garden is unparallel to anything found indoors. Furthermore, therapeutic gardens can establish a renewed sense of independence in an elderly person residing in a facility. Therapeutic gardens are also advantageous from a financial standpoint. Many patients recover faster and require less medication when exposed to nature. An additional benefit is the positive effect on resident behavior.

Because the older adult population has different needs both physically and mentally, design solutions must respond to these needs. By understanding the aging process and physiological needs of elderly users, better spaces can be designed to meet the needs of this unique population group. This project focused on a therapeutic landscape design at Crestmark of Roselawn in Roselawn, Indiana for the use of its elderly residents.

The final product represents a compilation of elements derived from the client, research, and case studies. The client for this project was the staff and administrators of Crestmark of Roselawn and its elderly residents, for whom the gardens and landscape was designed.
In designing a therapeutic landscape design for Crestmark of Roselawn, it was essential to understand the main components of therapeutic gardens and horticultural therapy gardens. Not only should the space address the physical limitations or abilities of a potential user, but also the mental needs of the patients, families of the patients, and staff. With the rising costs of heath care, preventative care is becoming a particularly important element that has potential to be integrated in a therapeutic landscape design through the use of outdoor exercise or horticultural therapy.

**Historical Perspective**

According to Clare Cooper Marcus and Nancy Gerlach-Spriggs, some of the first restorative gardens in Europe appeared during the Middle Ages. Hospitals and monasteries for the sick, insane, and infirm often incorporated an arcaded courtyard. These spaces often served as places for reflection, growing foods, growing herbs for medicinal purposes, or growing flowers for ceremonial use (Tyson, 3). The spaces were traditionally divided into four squares by paths, and at the intersection of these paths stood a well or fountain. The highly ordered space offered selected views of nature, and sought to provide spiritual transformation to the onlooker.

During the fourteenth and fifteenth centuries a decline in monasticism due to periodic plagues, crop failures, and waves of migration into burgeoning cities occurred. Existing facilities were overwhelmed, and therefore the significance of the restorative garden declined. The care of the sick fell on civic and ecclesiastical authorities. Some hospitals continued the courtyard tradition, and by the seventeenth and eighteenth centuries, the emergence of the scientific medicine and Romanticism sparked renewed interest of usable outdoor spaces in hospitals.

Some of the renewed interest was incited by the new theory of infections spreading by "noxious vapors." This theory greatly influenced the design of hospitals. These new designs, called pavilion hospitals, incorporated the outdoor spaces between wards. Nancy Gerlach-Spriggs writes that these new designs offered the possibility of gardens for patients, but did not draw a direct therapeutic link between patient welfare and the use of gardens beyond that sitting and walking in the sun feels good. The connection finally came from the eighteenth century Romantic movement's revival of pastoralism, and gardens began being used for therapeutic purposes (16).

With this movement, mental hospitals began placing greater importance on...
therapeutic gardens, occupational, and horticultural therapy. Dr. Phillipe Pinel and Quaker William Turke, inspired by this movement, established a new therapeutic regimen, known as the Moral Treatment. This regimen was best practiced in small institutions of about 200 patients. A community of well-trained, supervised attendants who lived and worked among the patients created an environment of therapeutic relationships. Careful individual attention and observation were key elements to this successful treatment. One of the best examples of institutions following guidelines of the Moral Treatment was the Friends Hospital in Philadelphia. To help the mental state of their residents, the designers of the buildings and grounds aimed to create a homelike and restful environment. Part of the grounds was used for what we would today consider horticultural therapy. According to Gerlach-Spriggs, this treatment was so successful, the institutions were quickly overwhelmed much like the medieval hospitals and soon became state run asylums. The Moral Treatment was then reduced to custodial care, and the asylums became storage spaces for the hopeless (21).

After World War I, pavilion hospitals began to be replaced by specialized units, and turned into multistory, more efficient buildings. The design emphasis shifted from the patient's environment to making spaces more efficient for doctors and nurses; again, balconies, roofs and gardens disappeared from the medical landscape.

Although there was a decline in the use of outdoor spaces after World War I, the use of gardening in occupational therapy became more popular. Gerlach-Spriggs notes that many occupational therapists added garden work to their regimens to help wounded soldiers return their thoughts from the experience of destruction towards acts of creation (29). With this came the rise of horticultural therapy as we now know it. Although horticultural therapy had been used at mental hospitals for years, the transition from “old farming therapy” to horticultural therapy were not recorded (Gerlach-Spriggs, 30). The popularity of horticultural therapy in chronic care hospitals led to the establishment of undergraduate programs in horticultural therapy throughout the United States.

Gerlach-Spriggs suggests that the designs of today's health care facilities are environmental failures (31). Whereas the art and science of medicine has flourished, the environments have not. Hospital administrators, insurance executives and physicians have failed to take into account the restorative possibilities of their institutions, which presently are just imitations of hotels and retail malls. Clare Cooper Marcus states that the garden has been lost to high tech machines, drugs, and medical specialization (15). These institutions ignore the special emotional needs of patients,
families, and staff, as well as the restorative nature of outdoor spaces.

**Relevant Theory, Methods, and Approaches**

There are several theories as to why the natural environment is restorative. Rodger Ulrich has broken these theories down into categories in an article entitled “Effects of Gardens on Health Outcome: Theory and Research” found in the book *Healing Gardens* by Clare Cooper Marcus and Marni Barnes. The first category of theories focuses on learning as a means by which people attain restorative responses to nature. This theory speculates that people learn to associate restoration with nature settings, and associate stress with more urban settings. For example, many view vacations and rural areas as calming and relaxing, possibly because as a society, we were “taught” that these landscapes were restorative. The second category includes arousal and overload theories, which theorize that the built environment is overly stimulating, leading the body to have higher levels of stress. Nature has lower levels of complexity and stimulation, therefore making it more restorative. The third category, which includes evolutionary theories, points out that many cultures have the same positive responses to nature. This may be because humans are genetically inclined to respond to certain landscapes more positively because these environments were favorable for survival (Cooper-Marcus, 50-51).

Nancy Gerlach-Spriggs seems to side with evolutionary theories, stating that our “response to nature is not purely cultural or learned, but arises from our collective psyche” (36). In the book *Restorative Gardens*, Gerlach-Spriggs also looks at what happens to the body when a patient sees a garden to aid in faster recovery. She points out that one can measure recovery though heart rate, muscle tension, skin conductance, and pulse transit time. In a study by Roger Ulrich, patients who observed video of natural scenes experienced more positive reactions of these symptoms than those who viewed tape of urban settings (Gerlach-Spriggs, 37).

Clare Cooper Marcus and Marni Barnes, editors of *Healing Gardens* and leaders in the theory and design of healing gardens, suggest a stress-centered theory. This theory is based off their interviews of persons in health care gardens, who reported that restoration of stress was the most important benefit of restorative gardens. They report this may be because gardens in health care situations foster a sense of control and access to privacy, social support, physical movement and exercise, and access to nature and other positive distractions (36). Furthermore, the theory suggests that a garden must feel secure, or else the garden will not relieve stress, but create it, and potential users will avoid the space.
To create garden spaces that feel secure, Diane Y. Carstens, author of *Site Planning and Design for the Elderly*, offers information and design recommendations for creating safe and secure spaces. She writes that designing for outdoor spaces for an elderly population should take into consideration the comfort, ease of access, environmental negotiability, and ease of use of the space (23). Once a designer takes into consideration physical and mental limitations, designers can better design spaces that are responsive to an elderly person’s needs.

Furthermore, enabling gardens, which are gardens for those with mobility impairments who want to continue gardening, present design recommendations that can be easily adapted to therapeutic gardens to make them more accessible for the elderly. Gene Rothert, author of *The Enabling Garden* and confined to a wheelchair, offers an unparalleled perspective on garden design. Standards for the garden can be determined by the user’s limits and abilities. By making gardens easily accessible, the user will experience less stress, and the garden’s primary objective of being restorative will remain the main focus.

As a counterpart to enabling gardens, horticultural therapy is an important element to elderly social, physical, and mental well-being. The book *The Healing Landscape* by Martha M. Tyson explains that if a garden is to be used for horticultural therapy, the space should look and function as a “working garden” (183). Programming that uses the garden as a place to grow plants for personal use helps restore health through the moderate exercise it takes to garden, as well as the therapeutic benefits of nature. Tyson suggests that people with sensory or cognitive impairments like the elderly, benefit greatly from high sensory interaction with plants (184). This suggests that the environment affects recovery and healing.

Additionally, a study by Roger Ulrich concludes that the environment does affect recovery and healing. In an article entitled “View through a Window May Influence Recovery from Surgery,” Ulrich writes that patients with a view of nature had shorter hospital stays, lower analgesic use, and fewer complaints during recovery (Gerlach-Spriggs, 35). Furthermore, interviews conducted by Steven Verderber of hospitalized patients suggested that windows connected patients with the outside world, therefore easing their hospital stay (Gerlach-Spriggs, 35).

A study by Dr. Joanne Wesphal, a practicing landscape architect and physician, further confirms the therapeutic benefits of nature. In a two year study conducted at the Martin Luther Holt Home in Holt, Michigan, Westphal assessed how access to green spaces affected the home’s late-stage Alzheimer’s patients (Spiers,
Variables studied included behavior, medications, pulse rate, blood pressure and weight change. She found that patients who spent an average of zero to five minutes in a garden per visit showed diminished functioning in the five categories. However, she found that patients who spent more than 10 minutes in the garden per visit showed great improvements in all categories but the medication category, which stayed the same throughout the study ( Spiers, 2005).

Case Studies

The Queen of Peace Residence located in Queens Village, New York, is an example of a community designed for the aging with outdoor gardens. As a historically charitable foundation for the aged, the Queen of Peace Residence houses the elderly poor. Some are in good health, some need full-time nursing care, and some are near the end of their lives. The grounds here were designed for one purpose: to link its residents to God. This space is important to look at since it is a therapeutic garden specifically for the elderly. Its design uses elements that are specific to that age group.

The grounds design at the Queen of Peace Residence is also interesting because it has several elements similar to a medieval monastery. Surrounded by walls, the institution is home to the religious and general public, who live, work, visit, study, and pray here. Although the gardens are not squares created by paths, they encircle the buildings and are important to the resident’s religious life. Residents use the gardens for strolling, contemplation, and prayer.

Nancy Gerlach-Spriggs critiques this space noting that overall, the design defines zones of greater and lesser privacy, which is important for religious designs, but the grounds cannot be used most of the year. Several residents are too apprehensive to use the gardens but would benefit from an outdoor room with protection from the elements. The gardens could also be richer and have a more meaningful experience for the residents through the use of plants and wildlife (Gerlach-Spriggs, 80-81). It is important to note these downfalls in the design to adapt them for a more successful space.

Although the Friends Hospital in Philadelphia is an institution for the mentally ill, it is a successful example of an institution that has integrated horticultural therapy into its treatment regimens. Founded by Quakers, the Hospital was built on the belief that humans are not separate from nature, but part of it. The land around the Hospital has been continuously interpreted, worked and modified to support the mentally
ill. In addition to its horticultural therapy program, the Friends Hospital also features enabling gardens, Alzheimer’s gardens, and gardens for the elderly.

Gardens at the Friends Hospital are important for several reasons. First of all, the garden are incredibly flexible; they are able to meet today’s rapidly changing health care system. Experimentation is important to the gardens, and Hospital features gardens that provide a variety of experiences, instead of one single experience. Another interesting idea is the fact that the hospital staff members often think of and execute the design and installation of new gardens.

The installation is done with the help of corporate, business and organizational sponsors. Because the staff knows exactly what they want and how to create it may be why this program is so successful. Patients actually request to participate in the horticultural therapy program, sometimes in addition to their prescribed treatment. Since the therapy program focuses on group work, few individual sessions are held. Projects are tailored to meet the needs of the group, for example, the difficulty level of a session may be increased or decreased, depending on the patients. Further study on the programming of the horticultural therapy program at the Friends Hospital will be valuable for implementing a program at Crestmark of Roselawn.

The Buehler Enabling Garden at the Chicago Botanic Gardens was designed for people of all abilities and opened in 1999. The garden is made of three outdoor rooms: a container court, a gallery garden, and an overlook garden. Elements included into the design are innovative and creative. Raised beds bring plants to a level where there is little bending, stooping, or reaching. Hanging baskets can be lowered to a working height, and vertical wall gardens are provided that can be filled with annuals or vegetables. For those who garden by touch, a tactile bed is provided with a metal grid running across it. Plants that appeal to the senses are heavily utilized in this garden. In addition to being a garden, the space is also utilized as a learning and interpretive center where visitors can learn about accessible gardening, universal design, and horticultural therapy.

Conclusion

There are several new trends that are generating opportunities to establish garden in health care facilities, especially in facilities for the elderly. Some of these trends that relate to therapeutic gardens for the elderly include changes in the American health care system and competition among health care providers, interest in utilizing all aspects of health care facilities to aid in the healing process, and a demand for
long-term care facilities designed for the elderly (Cooper-Marcus, 571-572).

To help in the process of defining guidelines for therapeutic gardens for the elderly, an article by Jean Marie Cackowski entitled “Gardens for Dementia Care: What Works? What Doesn’t?” points out the newfound value of post-occupancy evaluations, or POEs. Assessing POEs for gardens at nursing homes and other long-term care facilities could prove helpful. These evaluations assess how well project goals were met in the garden design, and they also look at the impact of changes that were made after the design was completed. Post-occupancy evaluations show that spaces are an essential part of the therapeutic environment. Looking at lessons learned from these POEs can apply to all gardens designed for health care facilities. Specific examples are given on what to think about when designing a garden and user feedback is given on what elements are most enjoyed and those they would like to see removed.

This review of related literature provided a foundation for the design of a therapeutic garden at Crestmark of Roselawn. By looking at main components of therapeutic gardens, enabling gardens and horticultural therapy gardens, design guidelines from all three can be utilized for a more dynamic and successful design. Further research on the case studies and post occupancy evaluations can offer additional insight on designing outdoor spaces for the elderly.
Problem Statement

This project aimed to determine the physical characteristics of therapeutic gardens and horticultural therapy gardens, as well as the physical and mental needs of elderly patients, family, friends, and the staff. The role outdoor facilities play in preventative care and treatment was identified and assessed for a grounds design for the elderly at Crestmark of Roselawn, a nursing home facility.

Research Questions

The problem statement was defined by the following research questions:

• What are the physical characteristics of therapeutic gardens and horticultural therapy gardens?
• What are the physical and mental needs of the elderly patients, family, friends, and staff?
  - What is a day like for a resident? What is a day like for a staff member?
  - How is a space designed to feel safe?
  - What types of staff members will use the space, and how do their needs differ?
• What is the role of outdoor facilities in preventative care and treatment?
  - How does outdoor exercise affect the body compared to indoor exercise?
• How can this information be used in determining the grounds design of Crestmark of Roselawn?

The Delimitations

• This study did not address issues associated with terminally ill adults residing in the same facility.
• This study focused on the needs of the general elderly population; it will not take into consideration design requirements for the later stages of Alzheimer’s disease and advanced cancer.
• This study will not identify funding sources.

The Assumptions

• There is an interest in providing outdoor preventative care and treatment for the elderly.
• Elderly residents in assisted living facilities would benefit from a grounds design unique to their age group and special needs.
Site Description

Location and Client

Crestmark of Roselawn is located in Northwest Indiana in Newton County. See figure 1. The site is just west of the intersection of State Road 10 and Interstate 65 in the Town of Roselawn. See figure 2. The site is approximately 67 miles southeast of Chicago, Illinois, and 62 miles northwest of Lafayette, Indiana. The Town of Roselawn is an unincorporated town established in 1882. Although the population is about 4,000 people, the town has grown substantially in the last ten years and acts as a bedroom community to cities to the north such as Chicago, Gary, and Whiting.

The facility itself is located on a five acre parcel. The original building was constructed in 1977, with two major additions occurring in later years. The site is immediately surrounded by residential homes. Agricultural fields are located to the north of the site. The Lake Holiday Campground is located to the east of the site, and the Lake Holiday Shopping Plaza and other commercial business are located directly south of the site. See figure 3, page 14.

The mission of Crestmark is to respect and preserve the dignity of their residents while providing the highest quality health care and rehabilitation possible in a friendly, clean, caring and up to date environment. The facility offers three levels of care: certified Medicare services, skilled nursing care services, and intermediate nursing care services. In regards to therapy services, Crestmark offers physical therapy, respiratory therapy, speech therapy, and IV therapy. Psychosocial care is available through an on staff social worker, a complete activity schedule, and volunteer and community programs. The for-profit corporation is owned by Crestmark of Roselawn, LLC, and is administered by Mr. Michael Blisko.

User Description

There are three main user groups at Crestmark, which include the staff, patients, and visitors of Crestmark. It is essential to understand these user groups and their individual needs to develop therapeutic goals and to meet their needs in the design of the site.

The staff at Crestmark consists of many different areas of personnel, including occupational and physical therapists, nurses, certified nursing assistants, activity coordinators, maintenance staff, kitchen staff, housekeeping, and administration. The staff have their own parking lot, which is located on the north side of the building, and a staff entrance. Near this entrance is also an outdoor break area that consists of a picnic table in the shade. Typical employee shifts are 7:00 a.m. to 3:00 p.m., 3:00
p.m. to 10:00 p.m., and 10:00 p.m. to 7:00 a.m. The therapeutic goal identified for this user group is to create a more conducive work atmosphere by including areas for rest and respite, providing visual access to outdoor areas, and by providing enough space for patient centered activities.

The patients of Crestmark can be broken down into three subgroups. They include assisted living residents, rehabilitation patients, and nursing home patients. It is important to understand the physical and mental conditions of each of these subgroups to effectively design a space that will meet their therapeutic goals.

The first subgroup, the assisted living residents, are the most independent of the three patient subgroups. The residents have their own wing in the building
with individual apartments complete with a bedroom, living area, kitchenette, and bathroom. See figure 4. These residents may need help with one or more activities of daily living, which include dressing themselves, using the restroom, bathing, or eating. Assisted living residents may have their own vehicles, and may come and go from the facility as they please. Although all residents have a kitchenette, they currently use the building’s group dining facility for their meals. Therapeutic goals identified for this subgroup include supporting physical health by providing an outdoor walking path for exercise, supporting emotional and mental health by including a garden area, providing spaces for socialization, and creating a homelike environment.

Rehabilitation patients comprise the second subgroup. These patients are well enough to leave the hospital after a surgery or other medical condition, but not well enough to return home. The typical stay for a rehabilitation patient is three months, then around 70 percent of the patients return home and 30 percent stay for additional rehabilitation. Their treatment can involve both physical and occupational therapy. Therapeutic goals identified for this user group include supporting physical rehabilitation activities by including an interactive activity space for fine motor skill rehabilitation and by including a walking path for increasing stamina and mobility. Mental and physical health should be supported by providing quiet areas for reflection, rest, and relaxation.

The third subgroup consists of the nursing home patients. This user group has a general decline in mobility and functioning due to an illness. These patients need help with four or more activities of daily living, such as bathing, dressing, or using the restroom. It is important to note that very few of these patients are in the early stages of dementia or Alzheimer’s disease. Crestmark does not focus on providing care to patients with these illnesses. Therapeutic goals for this user group includes supporting physical rehabilitation activities by including an interactive activity space for fine motor rehabilitation and by including a walking path for increasing stamina and mobility. Emotional and mental health will be supported by including a garden area and providing areas for socialization and passive recreation. The last therapeutic goal for this user group is to raise awareness of seasons and time by providing year round interest plantings and including plants that appeal to the senses.

The last main user group at Crestmark are the visitors and guests. This user group includes family, friends, local youth groups, elementary and high school children. Visits may vary from daily visits to holiday or yearly visits. If patients are in shared rooms, visitors often look for a more private area to visit. Therapeutic goals
for this user group include supporting emotional and mental health by providing quiet conversation areas and creating spaces that appeal to a variety of users by providing spaces for both passive and active recreation.

**Inventory**

To gain a better understanding of how the site was currently being used, the site was visited on several occasions and an inventory taken. See figure 5, page 17. The staff, residents, and visitors enter the site at the entrance drive located near the center of the parcel off of County Line Road. Vehicles enter the main parking lot which is adjacent to the main entrance of the building. See photo 1. The drive continues around the “H” shaped building to the staff parking lots and entrance. At the terminus of the drive is an additional visitor parking lot, which mainly serves those in the Rehabilitation and Assisted Living Wings. In the southern courtyard of the building, there is an outdoor area for patient use, which has a porch area, swing, gazebo, and lawn area. See photos 2 and 3, page 17. The dining room and some resident rooms have views into this space. It is contained by a chain link fence. A natural area can be found on the east side of the building, directly south of the main visitor parking lot. See photo 4, page 17. There are several old growth trees in this area, and there are resident rooms that have views into this area.
Figure 5, Right: Site Inventory

- **Entrances**
- **Parking**
- **Lawn**

Photo 2: Existing Porch area in Southern Courtyard

Photo 3: Existing Gazebo in Southern Courtyard

Photo 4: Existing Natural Area South of Main Visitor Parking Lot
**Goals and Objectives**

**Clients Needs**

In speaking with the staff and residents at Crestmark, many felt that an outdoor space with more elements to use would be beneficial to the overall atmosphere of the facility. Some staff noted they would like to have more planned activities outdoors, areas for birthday celebrations or just a place to drink coffee. The staff also noted that it would be very important to have pathways and walkways that are wide enough for two wheelchairs, sturdy chairs with arms, and several resting points along paths. The residents and patients at Crestmark noted that being able to watch the birds and view colorful plantings were important. The following goals and objectives were developed by integrating the designers ideas as well as the clients needs.

**Goals and Objectives**

1. Design a therapeutic environment to aid in the treatment and preventative care of elderly patients.
   - Create spaces that facilitate physical exercise and rehabilitation
   - Incorporate garden area

2. Provide an atmosphere that supports the mental needs of staff, residents, and visitors.
   - Incorporate spaces that create social opportunities
   - Include spaces that allow for privacy
   - Provide visual access from resident rooms to natural areas
   - Minimize views into rooms from the outside

3. Provide spaces that create a sense of independence to the user while safe and workable for the staff.
   - Establish a well defined circulation pattern
   - Include landmarks along paths for orientation
   - Maintain open views from staff areas

4. Provide spaces that can be utilized by staff for both work and breaks.
   - Provide adequate space for group activities
   - Designate areas for staff breaks
Although the main focus of the project is to create a therapeutic landscape, it was important to first look at the circulation on the site to develop a circulation and parking plan that supports the goals and objectives previously stated.

Analysis: Land Use

An analysis of the land use on the site revealed there is currently more square footage in parking lot and drive that there is of building. See chart 1. Of the natural area on the site, only 12 percent supported active patient use. See chart 2.
Analysis: Views from Windows

Because some patients are not mobile or healthy enough to access an outdoor space, the views from each patient room was taken into consideration. Nearly half of the patients and residents had views into parking lots or driveway areas. See chart 3. Additionally, the therapy room and several hallways overlooked parking lots.

On a positive note, half of the patient rooms did overlook natural areas. Patient rooms surrounding the southern courtyard had excellent views to areas with a lot of bird and wildlife activity. There is an opportunity to create this same effect in the northern courtyard by the removal of the staff parking lot.
Analysis: Parking and Circulation

To see if the removal of the staff parking lot was feasible, a parking study was completed to assess how much parking was available and how much was actually used by staff, patients, and visitors. The study revealed that on an average day, 35 spaces of the 84 available were used, meaning more than half the parking was not being used. See chart 4. Since the staff parking lot only provides 16 spaces, this parking lot could be removed and parking diverted into the main parking lot or rear parking lot.
**Concepts and Site Plan**

Three concepts were developed to determine the best circulation for the site with the removal of the staff parking lot. The first concept focused on having a single entrance drive with a looping drive around the building. See figure 9. This concept solved the problem of having a dead end parking lot, but resulted in having a driveway cut through the natural wooded area on the southeast corner of the site. The second concept focused on having two separate entrance drives with turnarounds in the parking lots. See figure 10. This concept provided no emergency vehicle access on the west side of the building. The third concept focused on having two separate entry drives, a looping drive around the building, and a drop-off area in the east parking lot. See figure 11. This concept had minimal impact on the natural wooded area and provided access on the west side of the building. It failed, however, to minimize views into driveway areas.

Concept 2 was chosen for further development because it best met Goal 2 by decreasing views into parking lots and drives. See figure 12, page 25. The north entry serves as the main entry to the facility, while the south entrance serves those using the Assisted Living Wing or the Rehabilitation Wing. With the use of grass paving, access for emergency vehicles is maintained on the west side of the building. The northeast parking lot features a drop-off area, and the southwest parking lot provides a turn around space to back out if the lot is full.

**Comparison Studies**

The new circulation plan decreases parking from 84 spaces to 61 spaces, still providing close to twice the number of spaces used on a daily basis. See chart 5, page 25. When comparing the land use of the site, the amount of land dedicated to parking has decreased to 17 percent, which means there is less square feet of paving than building. See chart 6, page 25. The natural landscape has increased to 62 percent, and of that 62 percent, 22 percent will be designed for active patient use, which nearly doubles. See chart 7, page 25.
Chart 5: Parking Comparison

Chart 6: Proposed Land Use

Chart 7: Proposed Use of Natural Landscape

Figure 12, Right: Proposed Land Use

Grass Pave Drive for Emergency Vehicle Access

Primary Entrance

Visitor Parking

Visitor and Staff Parking

Secondary Entrance

Drop-off Area
There were several elements in the northern and southern courtyards that had to be taken into consideration. See figure 13. In the northern courtyard, there are two main entrances into the space. The main entrance is along the south wall, near the staff break area. The secondary entrance is at the terminus of the Assisted Living Wing. Along the perimeter of the Assisted Living Wing, each apartment has a sliding glass door and patio. This means there is direct access from resident rooms into the courtyard space. The therapy room also has windows that look into this courtyard space.

The southern courtyard has one main entrance which is along the north wall through the dining room doors. There is currently a patio where patients and residents are able to sit under a shaded structure. This type of area is important to maintain since it provides an outdoor seating area that is very close to the main entrance. The main focus of this courtyard is the gazebo that was constructed in the center of the space. This gazebo is not used very often. Furthermore, it is somewhat inaccessible for patients in wheelchairs. The doors of the gazebo are difficult for someone in a chair to open, and electrical tubing that runs across the sidewalk to the gazebo may pose a tripping hazard to patients with walkers or canes. There are important visual connections into this space. Along the north wall, patients and residents in the dining facilities and activity room have views into this area. This courtyard is also contained by a chain link fence on the south side, which is important for security, but may seem inappropriate for the space.

The most successful areas in each of these courtyards seems to be the spaces that have bird feeders and bird houses. Many of the resident rooms have views to these areas, and in conversations with staff and residents, this activity should be maintained.

After analyzing the site, three concepts were developed to determine the best design for the courtyards. Each concept aimed to meet all project goals and objectives while taking the courtyard analysis into consideration. Each concept was reviewed for its strengths and weaknesses, and one was chosen for further development. See pages 28, 29, and 30.
Concept 1: *Wildlife*

**Features**
- Focus on nature
- Somewhat meandering paths

**Strengths**
- Wildflower garden somewhat hides fencing in Southern Courtyard

**Weaknesses**
- Southern Courtyard lacks organization
- Child play area focuses too much on one age group
- Staff break area is in completely shaded area and next to several windows, providing no privacy
Concept 2: Familiar Spaces

Features
- Central water feature
- Similar circulation paths in Northern and Southern Courtyards

Strengths
- A more structured circulation path may be more beneficial to patients in Southern Courtyard

Weaknesses
- Butterfly garden and wildlife area in Northern Courtyard are in full shade, whereas full sun is needed
- Staff break area is small
- Sunny patio in Southern Courtyard may be underutilized due to its location
Concept 3: Integration

Features
- Naturalistic Northern Courtyard
- Structured Southern Courtyard

Strengths
- Circulation patterns fit each courtyard well
- Southern Courtyard has planted buffer between central activity area and resident rooms

Weaknesses
- Child play area in Northern Courtyard focuses too much on one age group
- Location of raised lawn in Southern Courtyard blocks views out of courtyard
- Bird and butterfly areas visible by few patient rooms in Northern Courtyard
**Master Plan**

The third concept, Integration, was chosen for further development for the site master plan. This concept was chosen because the Northern Courtyard had a more naturalistic, “back yard” feel, and the Southern Courtyard had a more structured and geometric layout. Since the Northern Courtyard would primarily be used by assisted living residents, a less formal, “back yard” atmosphere is more fitting, whereas the more structured, activity focused Southern Courtyard is more fitting for rehabilitation patients and nursing home patients. Pictured below is the final design of the courtyards as well as the revised circulation plan for the site.

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**Figure 14, Right, Master Plan**
A. Primary Entrance Drive
B. Drop-Off Area
C. Visitor Parking
D. Secondary Entrance
E. Visitor and Staff Parking
F. Grass Paver Drive
G. Walking Loop
H. Rest Areas Along Path
I. Contemplation Garden
J. Northern Courtyard
K. Southern Courtyard
Site Features: Looping Trail

A looping trail, approximately a quarter of a mile long, surrounds the building. The trail passes by main entrances of the building, and has stopping points along the trail for a patient or resident to stop and rest. Some resting points, as pointed out in image 1, are gazebo structures, which provide shade. Benches with arms and backs are also located near building entrances. The trail has several beginning and ending points so that patients and residents of varying abilities have the opportunity to pick a distance to walk that is comfortable for their individual ability level.
To maintain access for emergency vehicles, a grass pave drive is located along the north and west sides of the building. See figure 17. Grass pavers are interlocking cells that are laid on a subbase, then filled with soil and a seed mix. The interlocking pieces are strong enough to support emergency vehicles, yet give the appearance of grass. See image 2. Furthermore, part of the walking path around the building is integrated into this grass pave drive. See image 3. The five foot walking path is located in the center of the grass pave drive.

The last feature along the walking trail is the Contemplation Garden. The Contemplation Garden is a very private space where family, friends, and patients can go to have private discussions or moments together. The walking loop splits at the garden to allow a walker to pass by without disturbing those using the Contemplation Garden. The center of the garden will feature annuals and perennials.
**Northern Courtyard Design**

The Northern Courtyard has a centralized focus on a bird and butterfly garden. The atmosphere of this courtyard is passive and contemplative. Because residents have direct access to this space from their rooms, it is meant to be seen a comfortable, back yard space.
The Bird and Butterfly Garden is located in the center of the courtyard to maximize views from resident rooms on the wildlife that will enter the garden and provide year round interest. In the spring and summer, birds and butterflies would be attracted to the color and fruits of the plants. In the winter, bird feeders would be the primary attraction to birds. On the west side of the bird and butterfly gardens, the planting bed slopes up toward the fountains. This creates a raised bed so that those in wheelchairs can have direct views into the bird and butterfly area. See image 5.

The Northern Courtyard also features a smaller walking loop that may seem less intimidating than the larger walking loop around the building for those with mobility issues. This loop is approximately 270 feet long, or about five tenths of a mile and connects to the outer looping trail. Since this pathway will have more use, the width of the pathway is seven feet wide, which accommodates two wheelchairs. See image 5.

Furthermore, the Northern Courtyard has quiet conversation areas for visitors and residents to visit with one another or for a patient to sit quietly and view nature. The residents in the Assisted Living Wing have the opportunity to sit on their patios in the shade provided by pergolas. Because this courtyard is the more passive of the two courtyards, the staff break area is located in the original site, but has been expanded. Staff have the opportunity to sit in a more public setting, or they can choose a more private area under the portion of the patio that turns around the building.
Southern Courtyard Design

The Southern Courtyard also has a centralized focus like the Northern Courtyard. Since this courtyard primarily serves patients in the Rehabilitation Wing and Nursing Home Wings, the courtyard provides activities that deal with refining fine motor skills and improving stamina and mobility.
The main entrance of the courtyard is located in the northwest corner, through the dining room doors. The garden has a central water feature, where patients can obtain water to water flowers and other plants. Surrounding the water feature are four raised beds. Two of the beds provide a ledge for a patient to sit and reach into the planter to garden, whereas the other two beds are designed like a table so patients in wheelchairs can reach into the planting bed. See images 6 and 7. The beds that provide a ledge will be 18 inches high. The wheelchair accessible beds will have a knee space of 27 inches high and 19 inches deep.

Therapists can utilize these beds to incorporate horticultural therapy into their rehabilitation programs. Because patients will be working with their hands, fine motor skills can be improved. Working in the garden can also be viewed as a social opportunity which can improve patient morale.

Like the Northern Courtyard, the Southern Courtyard also features a smaller walking loop. This loop is approximately 180 feet long, or about three tenths of a mile and connects to the outer looping trail. Since this pathway will have a lot of wheelchair use, the pathways are seven feet wide. Three quiet conversation areas are provided around the walking loop, which also act as resting points along the trail. These areas feature benches with backs and arms that are secured to the ground. Because these destination points are less than 40 feet apart from one another, therapists can have patients use the walking loop to build up stamina and increase mobility.
In the southwest corner of the Southern Courtyard, a raised lawn is incorporated into the design. A raised lawn simply brings the lawn up to a sitting height so that patients in wheelchairs or those who have difficulties sitting on the ground can sit and enjoy the grass. The retaining wall edge is designed to be 18 inches off the ground, a comfortable sitting height. See images 8 and 9.

To make the fence along the southern edge of the courtyard more inconspicuous, small, medium, and tall wildflowers and grasses have been utilized. Small wildflowers and grasses are placed closest to the pathways whereas the tallest wildflowers and grasses are placed nearest to the fence. See image 10, page 39.

Since the Southern Courtyard has several spaces where patients and staff will be working, it is important to provide privacy for the patients whose rooms view into this space. To attain this goal, the spaces closest to the patient windows have been planted heavily, blocking views into rooms. See image 11, page 39.
Image 10: Section of Wildflower Garden

Figure 11: Section Cut of Southern Courtyard

Small Plantings

Medium to Tall Plantings

Small Plantings

Planted Buffer

Active Area

Planted Buffer
Conclusions and Significance

Therapeutic gardens have been used throughout time and can be integrated into health care settings today. Whereas medicinal advances in health care have been made, the use of nature in healing is not commonplace. However, the restorative qualities of nature are very much existent, as shown by studies. Additionally, design elements derived from successful therapeutic gardens, horticultural therapy gardens, enabling gardens have shown how nature can become an integral part of any health care setting.

Since most outdoor landscapes at health care facilities are nonexistent or fail to meet the user needs, it is imperative to design a therapeutic garden that really takes into consideration the mental and physical needs of the users. An emphasis needs to be made that although the clients of most projects are the administrators of a facility, the design needs to focus on the users, which are the patients and residents.

The design of the grounds of Crestmark not only takes into consideration the needs of the clients, resident, and patients, to offer a component of healing medicine cannot offer, but it offers Crestmark an economic benefit. Access to a therapeutic gardens and nature can increase patient and family satisfaction with the facility. Therapeutic gardens can also increase staff satisfaction with the workplace, leading to lower staff turnover rates. Since administrators are faced with the pressure to control costs, be more patient oriented and to increase quality, a therapeutic garden is a way to market themselves differently.
References


Appendicies
Appendix A

Project Schedule

January 9 – January 13: Review Proposal; Organize information gathered over Winter Break
January 16 – January 20: Create base maps; Develop site inventory and description; Refine goals and objectives
January 23 – January 27: Develop site analysis and program
January 30 – February 3: Develop concepts
February 6 – February 10: Develop schematic design
February 13 – February 17: Finish developing schematic design; Prepare PowerPoint presentation
February 20 – February 24: Midterm presentations
February 27 – March 3: Refine Master Plan
March 6 – March 10: Spring Break
March 13 – March 17: Develop small site plan
March 20 – March 24: Finish small site plan
March 27 – March 31: Prepare small site plan details
April 3 – April 6: Complete details; Prepare PowerPoint presentation
April 10 – April 14: Final Presentation
April 17 – April 21: Prepare final booklet
April 24 – April 28: Prepare CAP thesis board; Finish final booklet
Appendix B

Interview with Anick Laferriere from Crestmark

1. What is your background?
She earned her bachelors in Occupational Therapy from McGill University in Canada. She has worked as an occupational therapist for 8 years, in a nursing home for 4 years, worked for 4 years in outpatient facilities in a hospital and home health setting, and worked 2 years in pediatrics.

2. Do you have any experience working with therapeutic gardens or horticultural therapy gardens?
No.

3. What problems do you most often see in your elderly patients?
She most often sees arthritis, which impairs movement, memory loss, ambulatory loss, and just a general decline in function.

4. Do you think an outdoor space at Crestmark would be beneficial to patients and residents?
Yes, if more elements were in this space, more people would use it.

5. What types of activities go on in the current outdoor space?
Residents and patients smoke in this area. They also grill out during the summer.

6. Are there activities you would like to see happen in this space?
Generally, just more activities planned outside, such as areas to drink coffee or have birthday celebration. As a side note, they have a harder time planning activities for the male population.

7. What do you consider to be the most important design features for an outdoor space?
Pathways and walkways that are wide enough for two wheelchairs. Benches that are not too far apart are important. Color and birds are important to the residents as well.
Appendix C

Interview with Mrs. Dori Weinberger

Mrs. Dori Weinberger earned a Bachelor's Degree in Physical Therapy from the University of Chicago in 1987. She has practiced Physical Therapy for 18 years in a variety of settings and positions, ranging from management to a staff Physical Therapist. She is currently working at Exempla Good Samaritan Medical Center in Lafayette, Colorado and is the Lead Therapist. She is also a certified Wound Specialist, which required sitting for a certification exam after completing specified continuing education classes and self study.

1. What are some major diseases in the older adults that you work with?
I work in a hospital setting, so I see patients when they are very ill. I treat geriatric patients who have elected to have total joint replacements; total hips & total knees. They usually have severe degenerative joint disease or osteoarthritis & are limited by pain. I also see patients with metabolic or organ dysfunction: diabetes mellitus (DM), acute & chronic renal failure (ARF & CRF), cardiac disease (CAD) & chronic obstructive pulmonary disease (COPD).

2. How would regular exercise affect the onset of these diseases?
Regular exercise would increase muscle strength, but mostly activity tolerance. For the patients having elective total joint replacements, the exercise would be focused on range of motion of the affected new joint.

3. How does regular exercise affect someone who already had acquired these diseases?
For the patients with osteoarthritis, it may prevent the need for joint replacements sooner. If it didn’t prevent the need for surgery, it would allow the patient to be in better health before they had surgery. Their recovery would go much smoother. For patients with Diabetes, it allows them to metabolize insulin better, so they don’t need as much. In some patients, diet and exercise can deter the need for insulin replacements. For patients with cardiac & pulmonary disease, it exercises their heart & lungs so their quality of life can improve. It won’t eliminate the disease, but it will slow its progression down & improve their activity tolerance.
4. **What types of exercises would you recommend to an older adult of average health?**

BEFORE the beginning of any exercise program, the older adult should get clearance from their primary care physician. They may even need to see a Physical Therapist or Exercise Physiologist to develop a program suitable for them. A low impact aerobic or chair aerobics would be a good form of exercise. Swimming and biking are considered low impact aerobics. A chair exercise class would also protect their joints. Light resistive exercise is also very important to prevent osteoporosis. If someone has never exercised before, starting a walking program is a great benefit.

5. **Have you noticed a difference, mentally or physically, between people who exercise indoors verses those who exercise outdoors?**

It is said that sunshine and fresh air definitely improve the spirits of individuals. For the patients that I have worked with in a Skilled Nursing Facility (Nursing Home), they had a patio and garden, which was frequented by the residents. When the weather was gloomy and they couldn’t go outside for a while, their moods did change. They were less cooperative with the staff. I do have to state that extreme heat, cold and ozone/smog does have to be considered when exercising outside.
Dr. Mary Ann Bielenberg earned her Doctorate in Optometry from the Illinois College of Optometry in 1982. She completed undergraduate work in Medical Technology at Northern Illinois University. She currently practices optometry at Pearle Vision in Homewood, Illinois.

1. *What diseases of the eye can change the way an elderly person views their environment?*

   There are five types of diseases [optometrists] often look for. They are cataracts, glaucoma, macular degeneration, and diabetic and hypertensive retinopathy.

2. *What do people see when they have these diseases?*

   When a person has cataracts, they see changes in colors, and it creates a glare and reflection in their sight. Many describe it as looking through a steamy shower door. When a person had glaucoma, they loose their peripheral vision, and only have their central vision. It is like looking through a straw. Macular degeneration patients have a black area in the center of their vision, but they have peripheral vision. Diabetic and hypertensive retinopathy patients have distorted vision due to hemorrhages and swelling. Letters often seem distorted. They would need high contrast, large letters.

3. *What recommendations can you offer for the design of trails and accompanying signage in regards to the elderly and their vision?*

   I would recommend high contrast letters, like black letters on a white surface or white letters on a black surface. Also, having legible fonts is very important. Paths should be even with ground surface since those with distorted vision could fall off the edge.