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# An Exploration of the Potential Benefits of Healing Gardens on Veterans with PTSD

Brock Justin Anderson  
*Utah State University*

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AN EXPLORATION OF THE POTENTIAL BENEFITS OF HEALING GARDENS ON  
VETERANS WITH PTSD

by

Brock J. Anderson

A report submitted in partial fulfillment of the requirements for the degree

of

MASTER OF LANDSCAPE ARCHITECTURE

Approved:

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Michael L. Timmons  
Major Professor

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Keith M Christensen  
Committee Member

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Gayle Morse  
Committee Member

UTAH STATE UNIVERSITY  
Logan, Utah

2011

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## ABSTRACT

An Exploration of the Potential Benefits of Healing Gardens  
on Veterans with PTSD

by

Brock J. Anderson, Master of Landscape Architecture

Utah State University, 2011

Major Professor: Michael L. Timmons

Department: Landscape Architecture and Environmental Planning

Healing gardens are places that facilitate in improving or restoring an individual's mental or physical health. Today, therapeutic landscape design is a growing facet of landscape architecture. This study looks at the potential benefits of using healing gardens in addition to traditional methods of treatment for veterans suffering from posttraumatic stress disorder (PTSD).

A reasonable amount of research has been done into the area of therapeutic landscapes and their influence on certain populations, but the potential positive effects these healing gardens may hold for veterans suffering from PTSD seems to be unidentified. This study examines the history of healing gardens, problems facing veteran populations today, current treatment methods for PTSD, and how healing gardens could be beneficial to veterans with PTSD. A Veterans Affairs (VA) healthcare facility that is in the process of implementing a healing garden was used

to determine how their PTSD patients will potentially use a healing garden space during treatment.

The purpose of this study was to describe some of the potential benefits that healing gardens could have on veterans suffering from PTSD. Other VA facilities can use this information in the future when implementing healing gardens for PTSD patients. This study is intended to increase awareness of the potential benefits healing gardens might hold for veterans suffering from PTSD and encourage further research into the area.

(71 pages)

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Brock J. Anderson

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## CHAPTER I

### INTRODUCTION

#### *Background*

Healing gardens are spaces that aid in improving or restoring an individual's well-being. A successful landscape design has the ability to do much more than to simply create an aesthetically pleasing environment. Landscapes can have a profound impact on physical and mental wellness. Today, therapeutic landscape design is a growing facet of landscape architecture. "A restorative garden is intended by its planners to evoke rhythms that energize the body, inform the spirit, and ultimately enhance the recuperative powers inherent in an infirm body or mind" (Gerlach-Spriggs, Kaufman, and Warner 1998, 2). They are created in order to promote emotional, social, and physiologic health (Flagler and Poincelot 1994, 62).

Although they have recently come to the forefront in terms of publicity and awareness, therapeutic, or restorative landscapes, are not new, and have in fact been implemented for centuries. Persian gardens, dating back to sixth century BC helped connect individuals with Deity, and to a heavenly glory (Rogers 2001, 100). It was a space designed to provide rest and encourage contemplation (Brookes 1987, 23). Japanese gardens were also places for contemplation, healing, and restoration (Goto 2003, 2). Zen gardens were a highly spiritual place reserved for meditation (Schaarschmidt-Richter 1979, 27).

Healing gardens for the sick have been used since medieval times (Gerlach-Spriggs, Kaufman, and Warner 1998, 1). "In the Western world, monastic communities supported infirmaries that were based in the use of herbs and prayer and almost always included a cloistered garden" (Severtsen, 1). These outdoor spaces provided respite for weary travelers and meditative opportunities for monks (Tyson 1998, 3). Later, many of the Renaissance and

Restoration hospitals did not incorporate gardens at their facilities (Gerlach-Spriggs, Kaufman, and Warner 1998, 14). During the 19<sup>th</sup> Century movement of Romanticism, hospitals were again prompted to use nature for physical and spiritual restoration (16).

The importance of nature in restoring health was also evident in the public parks movement during the last half of the nineteenth century. Frederick Law Olmsted led a campaign to provide public parks in urban areas as a means of respite for the poor and working class. The industrial revolution created crowded and unsanitary conditions in urban areas. Olmsted believed these parks would "...alleviate 'vital exhaustion,' 'nervous irritation,' 'constitutional depression,' 'excessive materialism,' 'loss of faith and lowness of spirit'" (Twombly 2010, 284).

As modern medical methods and technology evolved, the importance of nature in the healing process significantly decreased (1). By the latter half of the twentieth century, the function of outdoor hospital areas was mainly to decorate the buildings (Marcus and Barnes 1999, 1-2). Increasingly, less attention was paid to the connection between body and spirit, and specialists began treating different afflictions separately (1). Healing gardens were also susceptible to the medical community's desire to make healthcare scientifically-based. Another reason for the decline of healing gardens' use in medical facilities is the fact that tests, techniques, and medications are more easily defined and budgeted for (Gerlach-Spriggs, Kaufman, and Warner 1998, 1).

Only in the last few years have healing gardens become more mainstream in healthcare practices. This is in part due to the public turning to more alternative medical treatments (1). "Hospital planners have, in fact, begun to address these issues, and as the nature of hospital services shifts so too do the architecture and environs" (2). At places where healing landscapes

are valued, the gardens help humanize the facility as well as provide a setting for more personal care (3-4).

Using nature as an instrument in healing is supported through existing research. Numerous studies have been done that demonstrate the benefits outdoor spaces bring to patients, staff, and visitors (Marcus and Barnes 1999, 2). One hospital patient explained his first experience with a therapeutic garden after spending nearly a month in a hospital room: “Some part of me came alive, when I was taken to the garden, which had been starved, and died, perhaps without my knowing it” (Gerlach-Spriggs, Kaufman, and Warner 1998, 3). Today, healing gardens are becoming more focused on specific user groups. They are being used in rehabilitation programs, cancer and AIDS treatment facilities, nursing homes, mental health hospitals, and hospices (7).

Healing gardens for people living with Alzheimer’s disease is another specialized area, and one that has had a significant amount of research devoted to it (Zeisel 2007, 5). Many facilities for Alzheimer’s patients now see the outdoor garden area as important as maintaining a homelike interior (Marcus and Barnes 1999, 2). One important effect that healing gardens have on Alzheimer’s patients is increased independence. At an Alzheimer’s assisted-living facility healing garden in Marlborough, Massachusetts, 36 percent of the residents went out into the garden on their own and 59 percent returned back inside unassisted (Zeisel 2007, 5). Methods and principles used in these researched areas of healing garden design could potentially be implemented in other healthcare settings to benefit patients of varying demographics.

The importance of using nature as a healing environment is even spreading beyond individual healthcare facilities. “The organization that accredits 85 percent of U.S. acute-care hospitals now requires that for certain patient groups (pediatrics, long-term care) and those

experiencing long stays, the hospital provide ‘access to the outdoors through appropriate use of hospital grounds, nearby parks and playgrounds, and adjacent countryside’ (Marcus and Barnes 1999, 2). It is important that the “reintegration of nature and the healing process” is continued into other areas of healthcare (3).

### *Problem Statement*

While a fair amount of research has been done in the area of therapeutic landscapes and their influence on certain populations, the potential positive effects these healing gardens may hold for veterans suffering from post-traumatic stress disorder (PTSD) appears to be unknown. Recent and ongoing conflicts in Iraq and Afghanistan continue to increase war veteran populations in the United States. Upon returning home, many of these veterans require significant physical and mental health services. One growing area of healthcare service is the treatment of PTSD. The increase in services is putting a toll on the Department of Veterans Affairs (VA) healthcare system. New and alternative treatment methods for PTSD could benefit not only those afflicted veterans, but the VA facilities that are serving them. As the number of veterans living with PTSD continues to grow, exposure to healing gardens could potentially be a supplementary method for treatment.

### *Purpose of Study*

The purpose of this study is to explore the potential benefits that healing gardens could have on veterans suffering with PTSD. Specifically this thesis will describe how VA healthcare facilities could utilize healing gardens as a treatment method for PTSD veterans, and what obstacles might stand in the way of the planning and implementation of such gardens. It is hoped that this study will spark an interest in healthcare professionals and VA facilitators, and provide a substantial argument that using healing gardens in this regard would be beneficial to

veterans with PTSD. This study will hopefully be only the beginning of extensive research and review into this emerging area by others in the future.

### *Methodology*

This thesis explores the possible benefits of healing gardens on veterans suffering from PTSD by looking at the history and principles of healing garden design for various user groups, symptoms and characteristics of veterans suffering with PTSD, interviewing professionals involved with veterans and PTSD, and using the Salem VA Medical Center in Virginia as a case study. The investigation of this topic involved an extensive multidisciplinary literature review. This research included literature from the landscape architecture, medical, and psychological fields. In Chapter 2 the literature was used to examine the history of healing garden design dating from the medieval era. The chapter explores the evolution of healing garden design and use over the centuries. It then goes on to look at some of the modern uses of healing gardens, particularly the principles of healing garden design for various user groups, and how these gardens have been used over the past 15 to 20 years.

The veteran population in the U.S. as a potential user group for healing gardens is described in the beginning of Chapter 3. The section examines current veteran demographics and population, the needs of post-war veterans, and some of the problems they face upon returning home from the battlefield. It also looks at how changes in technology and modern medicine have affected veteran survival rates and needs upon returning home, which includes an increased number of PTSD cases. This leads into the next section of Chapter 3 where the main symptoms and diagnostics of PTSD are identified. This section also looks at how the disorder is affecting the general population and veterans in particular. Common psychosocial and pharmacotherapy treatment methods are also described. Next, Chapter 3 begins to establish the

argument why veterans with PTSD would make a likely choice for a potential user group of healing gardens. A more in-depth look at Alzheimer's healing gardens is taken in an effort to illustrate a link between patient needs in that demographic compared to those of PTSD patients.

Attempts to locate healing gardens designed for PTSD patients are documented in the beginning of Chapter 4. Interviews with experts and professionals involved with veterans and PTSD are also used to obtain their views on possible benefits that healing gardens might have on veterans with the disorder. This is followed by a case study of the Salem VA Medical Center. The Salem VA has finished the design phase and will soon be constructing a healing garden that contains areas to be used by veterans with PTSD. This chapter identifies the process the facility has gone through starting from the initial concept through current construction plans. It also describes the various design principles and elements for the garden, particularly the use of labyrinths as a therapeutic element. The chapter ends with a summary of how facility staff envisions the use of the healing garden by veterans.

The final chapter looks at obstacles for implementing healing gardens at VA facilities and areas for future research. Chapter 5 describes some of the challenges that the Salem VA Medical Center has had to deal with along the way, and also what things professionals in other VA facilities see as potential obstacles in implementing healing gardens. Conclusions about this study are drawn, and recommendations are made for areas of possible further research.

## CHAPTER II

### HEALING GARDENS

#### *Background*

Gardens have been around from the start of civilization. Over time two types of gardens evolved; those used primarily as a food source, and those intended for pleasure and rest (Berrall 1978, 7). “Gardens have a mythology, a poetry, and a history, strongly linked to life cycles and the processes of healing, renewal, and ultimately dying.” (Gerlach-Spriggs, Kaufman, and Warner 1998, 5). For many people, both past and present, gardens have offered respite from the burdens of life (Berrall 1978, 7).

Since agricultural practices were first instituted over ten thousand years ago, a diverse number of other gardens have also emerged. Among these were restorative gardens which were set aside for pleasure or rest and offered a healing quality for the mind or body (Gerlach-Spriggs, Kaufman, and Warner 1998, 7). These restorative or healing places could be found in “a healing spring, a sacred grove, a special rock or cave” (Marcus and Barnes 1999, 1). Restorative gardens originated in Persia, Egypt, and Asia where they were used to reflect individual emotion, cultural training, and social support. (Gerlach-Spriggs, Kaufman, and Warner 1998, 7). Similar gardens were implemented in Europe during the Middle Ages (7).

Healing gardens have been incorporated into hospitals, hospices, and rehabilitation centers (1). Both the healthy and sick can benefit from restorative garden environments. Healing gardens for the healthy encourage contemplation, relaxation, and promote sociability. The sick can utilize the same space as a means to relax and soothe their ailments, which encourages restoration of the body and mind (7). These gardens can provide both soothing and stimulating experiences, but in both instances they should invigorate and engage the user (2).



A restorative or healing garden can take on many definitions, but for the purpose of this study it is a natural, outdoor, passive environment that is designed as a place for activities like “observing, listening, strolling, sitting, exploring, and so on”. (Marcus and Barnes 1999, 4). It is a highly vegetated and beautiful space that entices individuals from inside out into the garden. Basic design elements in a healing garden will support the users to both spend time alone or to socialize, to leisurely or more vigorously walk, and to enjoy the warmth of the sun or the shelter of the shade (4). A restorative garden should be a place of order that alters moods and improves the visitors’ sense of well-being (7). In these settings, the patients’ direct connection with the physical and natural environment provides healing (Marcus and Barnes 1999, 4). These gardens should not be an alternative method of therapy, but a supplementary one. They do not provide cures, but are environments that contribute to a better sense of well-being and improved body function (Gerlach-Spriggs, Kaufman, and Warner 1998, 35).

### *History*

Some of the earliest gardens that are noted for their restorative qualities can be traced back to Persian gardens. One of the first known Persian gardens was from the sixth century BC (Brookes 1987, 31). Persian gardens incorporated lush green vegetation into a geometrically designed and ordered space. They offered “the outward and visible sign of an inward, invisible grace: the promise of divine order and meaning amid chaos, of ever-renewing life in the face of mortality, and of ease after travail” (Khansari, Moghtader, and Yavari 1998, 12). The garden elements combined to create a restful place where tensions were relieved and contemplation was encouraged (Brookes 1987, 23).

The contemplative gardens of the Far East, such as the Japanese Zen Garden, are another early example of restorative gardens. Gardens and religion are inseparable in Japan. The

Japanese believe that natural elements in the garden are a manifestation of gods, and many were placed in religious institutions. These gardens are meant to provide guidance and consolation for the user (Goto 2003, 3). Becoming prominent in the twelfth century, Zen gardens in particular provided restorative qualities. Zen is about meditation and connecting oneself as part of the universe (99). This practice added an additional dimension to Japan's gardens for meditation (Schaarschmidt-Richter 1979, 27). The Zen garden provided an opportunity for an individual to escape worldly afflictions and increase spirituality (180).

Some of the first restorative gardens in the western world date back to the Middle Ages in Europe (Marcus and Barnes 1999, 10). Hospitals that served orphans, the disabled, the insane, and other impoverished people began appearing near monasteries and churches within towns (Gerlach-Spriggs, Kaufman, and Warner 1998, 8). Anytime wealth was obtained inside the city, walls were built as a means of security. All of these walls throughout the town provided hospitals with screening that created enclosed gardens and yards. These enclosed spaces offered residents shelter, sun, and shade (9). Saint Bernard (1090 – 1153) gave a description of the restorative qualities of such gardens.

Within this enclosure many and various trees...make a vertical grove....The sick man sits upon the green lawn...he is secure, hidden, shaded from the heat of the day...; for the comfort of his pain, all kinds of grass are fragrant in his nostrils. The lovely green of herb and tree nourishes his eyes...The choir of painted birds caresses his ears...the earth breathes with fruitfulness, and the invalid himself with the eyes, ears, and nostrils, drinks in the delights of colors, songs, and perfumes (Marcus and Barnes 1999, 10).

Herbs and prayer were the central part of healing at the earliest hospitals in monastic communities (1). These monastic hospices served three groups of people: travelling pilgrims, the poor and helpless, and visitors who came for worship (Gerlach-Spriggs, Kaufman, and Warner 1998, 10). The cloistered garden was an essential element for visitors to this

environment (Marcus and Barnes 1999, 1). Cloister refers to an enclosed courtyard within the walls of the monastery. A covered walkway surrounded the central courtyard (Mouilleron 2001, 8). This garden space provided reprieve for ailing monks and weary travelers, while also providing meditative and agrarian opportunities (Tyson 1998, 3). The monastery's most important and symbolic open space was the central cloister.

The garden itself was divided into four squares, as in the Persian tradition and also according to the Garden of Eden legend. At the intersection of the four paths that divided the garden plots stood a well or fountain. Often the monks planted a juniper or other evergreen to symbolize the Tree of Life of Genesis. Sometimes, too, they placed statues of the saints or the Holy Family in the enclosure. The plantings consisted of grass and flowers (Gerlach-Spriggs, Kaufman, and Warner 1998, 10).

The cloistered garden provided residents and visitors with some of the first indications of seasonal changes (Mouilleron 2001, 18). Vegetation in the courtyard space and views of the sky alerted garden users to the transforming seasons. The restricted view that the cloister garden offered was meant to promote a reflective mood for those using the space (Gerlach-Spriggs, Kaufman, and Warner 1998, 10). Medieval Latin referred to the area as the *hortus conclusus*, or enclosed garden. It offered a metaphor for souls consecrated to God (Mouilleron 2001, 8).

Toward the end of the Middle Ages, the religious symbols of the central cloister garden were replaced with secular symbols. As individuals began to shift away from monastic lives, the courtyard meditative space also declined (Gerlach-Spriggs, Kaufman, and Warner 1998, 11). Spiritual connections between the garden and healing turned to "a more humanistic view of medicine" (Tyson 1998, 6). In hospitals, the cloistered garden became more of an open area for walking and enjoying fresh air (6).

A number of factors such as plagues, crop failures, and population migration to cities in the fourteenth and fifteenth centuries led to a decline in medical care being offered at

monasteries. "...open spaces attached to hospitals became accidents of local architectural tradition, if they existed at all" (Marcus and Barnes 1999, 10-11). Governments were not able to administer national welfare and health programs due to the influx in immigrants. Care for the sick then fell to Catholic and Protestant groups (Gerlach-Spriggs, Kaufman, and Warner 1998, 12).

Not all restorative experiences at hospitals during this time were lost. Some Catholic facilities continued to integrate covered walkways and interior courtyards into the architecture (13). Louis XIV built a hospital in Paris for veterans that included numerous courtyards planted with rows of trees (13-14). The majority of the Renaissance and Reformation hospitals, however, did not incorporate gardens into their facilities (14). Many of these Protestant and Catholic hospitals took on cathedral-like designs that included windows placed so high on the walls that no one could see the grounds outside (Marcus and Barnes 1999, 11). Patients at most Protestant hospitals had no access to gardens at all (Gerlach-Spriggs, Kaufman, and Warner 1998, 14).

The seventeenth and eighteenth centuries brought about a return to incorporating outdoor spaces in hospital design. New discoveries and research into infections prompted hospital designs that focused on promoting access to fresh air, cross-ventilation, and hygiene (Marcus and Barnes 1999, 12-13). Hospital sites during this time included ample grounds, had well-drained soils, and utilized the sun's direction and wind flows for climate control (Gerlach-Spriggs, Kaufman, and Warner 1998, 15). The hospital architecture incorporated a series of wards connected by a service corridor, like the teeth of a comb. Known as pavilion hospitals, the spaces between the wards formed small, garden areas (Marcus and Barnes 1999, 13).

In 1729, as physicians established a hospital in Edinburgh, a two-acre site was selected on a hill. The hospital was designed in a U shape in order to catch the sun and air (Gerlach-Spriggs, Kaufman, and Warner 1998, 15). A 1770 book outlined appropriate hospital siting and garden design principles.

A hospital should lie open, not encased by high walls, not fenced in by looming trees. The garden should be directly connected to the hospital, or even better, surround it. Because a view from a window onto blooming and happy scenes will invigorate the patient, a nearby garden also invites patients to take a walk (18).

The Royal Naval Hospital at Stonehouse in England incorporated gardens and sunlight into its design. Patient rooms had one wall lined with a row of windows that allowed for light and ventilation (15). English hospital and prison reformer John Howard (1726-1790) toured European facilities at the end of the eighteenth century. He was impressed with the fresh air that flowed through the patients' quarters. The garden views from hospital windows and doorways, as well as the opportunity patients had to walk through the gardens, were also remarkable features that Howard observed (14).

Military incidents like the Battle of Waterloo and the Crimean War increased the connection between nature and healing in the medical world. Physicians and nurses who observed soldiers that were treated following these conflicts noted that those who were put up in barns and tents had higher mortality rates than those confined to conventional hospitals (22). Florence Nightengale identified the relationship between nature and healing.

Second only to fresh air...I should be inclined to rank light in importance for the sick. Direct sunlight, not only daylight, is necessary for speedy recovery....I mention from experience, as quite perceptible in promoting recovery, the being able to see out of a window, instead of looking against a dead wall; the bright colors of flowers; the being able to read in bed by the light of the window close to the bed-head. It is generally said

the effect is upon the mind. Perhaps so, but it is not less so upon the body on that account....While we can generate warmth, we cannot generate daylight (16).

The pavilion hospital, with its emphasis on hygiene, and integration of gardens into the design was based more on the notion that sitting in the sun feels good, rather than drawing on a direct therapeutic link. This therapeutic connection came as Romanticism spread and “nature and gardens came to be thought of once more as places of bodily and spiritual restoration” (Gerlach-Spriggs, Kaufman, and Warner 1998, 16). Romanticism prompted a return to the role that nature plays in physical and spiritual restoration. Outdoor garden areas were once again considered to be vital for a hospital healing environment (Marcus and Barnes 1999, 13). People regarded these gardens as a place to rest and escape from the cares of life (Gerlach-Spriggs, Kaufman, and Warner 1998, 14). Gardens became as emotionally significant as they were in the Middle Ages (17).

Utilization of natural, restorative environments spread into treatment of the mentally ill as well. Philippe Pinel, a French physician, was one who pioneered more humane treatment of the mentally ill. Pinel devised the *traitement moral*, or moral treatment. The *traitement morale* aimed to socialize patients by creating resources for them reassert themselves (Gerlach-Spriggs, Kaufman, and Warner 1998, 19). This method focused on making the facility and treatment for patients resemble more real-life situations. As such, there was a great focus on spending time and working in the outdoors (19). These ideas spread elsewhere, including the United States. In the late eighteenth and early nineteenth centuries, mental health facilities incorporated large outdoor grounds and plantings. Vistas in the landscape provided therapeutic opportunities. Gardening and caring for parts of the garden were important aspects of the therapeutic regime (Marcus and Barnes 1999, 13).

At one mental hospital in Philadelphia, designers for the facility created a homelike, restful environment, which could also be easily supervised. The grounds were patterned after eighteenth-century English aristocratic estates. The well-manicured lawns were clustered with bright-foliaged trees in order to direct attention towards the distant views (20). The Worcester State Hospital in Massachusetts incorporated this more humane and therapeutic form of treatment. A follow-up study of patients who were treated at this hospital from 1833 – 1835 showed a great success rate. “Of those discharged, 45 percent went on to live successfully in their cities and towns: they did not commit suicide; they did not become welfare cases; they did not require further hospitalization” (21).

Various legislation and healthcare reform acts would eventually lead to the demise of these mental healthcare practices in the United States. Individual states began covering the costs to treat the mentally ill, so local agencies began emptying their jails and sending these people to newly built asylums as a way to cut costs. These mental hospitals soon became overcrowded. Access to the outdoors became more and more restricted as the large patient populations made it difficult to keep track of everyone. Practitioners went back to using physical restraints to control patients. Pharmaceuticals were also used more in patient care as a result (Marcus and Barnes 1999, 243-244).

During the last half of the nineteenth century, the value of nature as a method of healing was also apparent in the public parks movement. During this time the great industrial revolution blossomed, and as a result cities were flooded with new residents. Immigrants from Europe and other poor and impoverished people moved into crowded, dirty housing accommodations. Governmental agencies failed to provide adequate services and accommodations for the growing

population. As a result, harmful and often deadly conditions abounded. (Fisher 1986, 93).

Sanitation provisions in the cities were haphazard at best.

The overcrowding and terrible conditions led many out onto the streets looking for relief. Unfortunately, most of the streets were in a similar state (95). Frederick Law Olmsted, a pioneer of landscape architecture in the United States, was concerned about the sad state of affairs in urban environments. Olmsted noted that the urban-dweller was often “overcome by physical exhaustion and psychological disorganization” due to the terrible conditions (102).

Olmsted championed the public parks movement which would provide urban residents an opportunity to rejuvenate themselves in a natural environment. He saw parks as an antidote to the problems that arose from city life, noting that a park

...acts in a more directly remedial way to enable men to better resist the harmful influences of ordinary town life, and recover what they lose from them. It is thus, in medical phrase, a prophylactic and therapeutic agent of vital value; there is not one in the apothecaries' shops as important to the health and strength or to the earning and tax-paying capacities of a large city. And to the mass of the people it is practically available only through such means as are provided through parks (103).

Olmsted went on to rally for and design parks and open spaces in a number of cities, including New York City's Central Park.

The latter part of the nineteenth century continued to see nature and healthcare coexist. Continuing on early into the twentieth century, common nursing practice involved wheeling patient beds onto hospital balconies and roofs. Fresh air and sunlight was an integral part of treatment for tuberculosis at the time. In a photo taken at a San Francisco hospital, rows of patient beds are shown arranged on trellised roof gardens (Marcus and Barnes 1999, 13).

A 1918 book about hospital design referred at length to incorporating expansive grounds, courtyards, and park-like settings into facilities. One chapter was even titled “Landscape



Architecture as Applied to Hospitals”. The book explained the patients’ needs were to be considered over anything else: “It is true in landscape planning as in building planning that the patient must be considered, and the therapeutic and healing benefits of the sun’s direct rays must outweigh the architecture...” (Marcus and Barnes 1999, 16). Unfortunately, such practices did not last.

The twentieth century brought great advancements to many fields and disciplines. Transportation, communication, and information dissemination advancements led to a fast-moving environment. Progress became centered around profit and efficiency (13). Medical innovations led to cures for previously lethal diseases (Gerlach-Spriggs, Kaufman, and Warner 1998, 25). Advances in high-rise construction and elevators replaced the pavilion hospitals with multistory complexes (Marcus and Barnes 1999, 13-14). Medical advancements in areas like pharmaceuticals, x-rays, and complex surgical procedures created demands for more specialized hospital spaces. This altered the internal and external environmental relationships that once were (Gerlach-Spriggs, Kaufman, and Warner 1998, 24).

The hospital garden during much of the twentieth century was either mostly removed or forgotten. Beginning in the 1950s, hospitals began to look more like corporate office buildings and natural ventilation was replaced by air conditioning. “...outdoor terraces and balconies disappeared; nature succumbed to cars and parking lots; and indoor settings designed for efficiency were often institutional and stressful for patients, visitors, and staff” (Marcus 2005, 1). The healing garden’s restorative benefits that were so highly recognized and valued in years past were replaced by high-tech machines, increased specialization, and new pharmaceuticals (Marcus and Barnes 1999, 14-15). In the 1981 book *Design for Health Care*, virtually no

mention was made beyond the building walls. Peripheral landscaping around the hospital was about the extent of any reference to the natural environment (16).

By the waning years of the century, economic demands, proficient home healthcare services, and medical technology had changed hospital practices, to the extent that they were no longer places to treat moderate illnesses and provide leisurely recovery. Those requiring acute care along with the extremely ill now comprised most of the patient population (Gerlach-Spriggs, Kaufman, and Warner 1998, 2). A combination of factors had contributed to the healing garden's demise in healthcare settings. As observed by Gerlach-Spriggs et al,

...health professionals, for very practical reasons, have tended to avoid the mystery associated with healing. Foremost is the fact that the battle to make medical care scientifically based has been hard won, and still just barely so; it is a battle that continues. Second, the tests, techniques, and medications of contemporary medicine are more easily defined and, quite simply, the quantifiable is easier to budget for (Gerlach-Spriggs, Kaufman, and Warner 1998, 1).

Therapeutic or restorative gardens in healthcare, which evolved over centuries, quickly became virtually obsolete in a few short decades.

### *Today*

A return to nature in medical settings began to occur again in the 1990s. During the 1980s and 1990s, a considerable amount of research supported the position that views of, or access to, nature had positive effects on health outcomes. A couple of studies showed that the majority of respondents chose to go to natural settings when feeling upset or stressed. In one study, surveys were distributed to former hospital patients who had wide-ranging medical problems, were treated in different locations, and were of varied ages. Regarding the physical environment in the healthcare setting, the most commonly shared preference among these former patients was access to nature. This included gardens, views of nature, pictures of nature, and

balconies (Marcus 2005, 2). Another major study surveyed focus groups of patients and their families. The survey asked respondents to identify what they most desired from a healthcare environment. Researchers found that “closeness to nature” in the built environment was one of seven consistent desired elements in healthcare settings (Marcus and Barnes 1999, 21-22).

The Patient Centered Care movement of the 1990s helped to promote this trend. Patients’ dissatisfaction with prevailing hospital environments was of great concern to hospital administrators. In order to stay profitable, competition to improve these environments emerged between hospitals. Building styles and interiors started to become more welcoming and comfortable (Marcus 2005, 1).

A number of post occupancy evaluation (POE) studies were also conducted in the 1990s. Visual analysis, behavior mapping, and user-interviews were methods utilized to evaluate hospital environments. One study done in the San Francisco area found that 90 percent of garden users had a positive mood change following time spent outdoors. Lawns, trees, flowers, and water features were the most appreciated elements in the garden. Study participants also liked how the gardens offered privacy, fresh air, and a rich sensory experience when compared with the indoor hospital environment (2).

Three other POE studies conducted around the same time at a variety of medical facilities had similar results. While these studies could not prove that time spent in the garden facilitated healing, 95 percent of those surveyed in the four studies combined indicated that they had a positive change in mood following exposure to the gardens (3). “One can reasonably assume that change to a more relaxed and calmer frame of mind is likely to enhance the immune system and thus the body has a better chance of healing itself” (Marcus 2005, 4).

By the end of the 1990s, outdoor garden areas in hospitals and nursing homes had become a hot-button topic among landscape architects. The American Society of Landscape Architects (ASLA) started holding sessions on healing gardens at its annual conference, and three new books were published in English on the subject. The first postgraduate course in the United States on designing healthcare gardens was offered by the Chicago Botanic Garden in 2003 (4).

In addition to new awareness in the medical and design professions, the American public's mindset was also shifting in the 1990s. Individuals began taking greater interest in personal health. Many began turning to alternative medicines and practices during this time (Marcus and Barnes 1999, 21). These new interests helped focus attention on the idea of using nature in the healing process. Many of today's healing gardens are integrated into rehabilitation programs, nursing homes, hospices, and cancer and Aids treatment facilities (Gerlach-Spriggs, Kaufman, and Warner 1998, 7).

Outdoor spaces for various elderly populations constitute a large percentage of healing gardens in this country. Nursing homes and assisted living centers are incorporating outdoor spaces at their facilities. In the mid 1990s, nursing homes started to become more home-like in design and appearance. "Large porches, steep roofs, and compact massing that began to appear in this period gave a residential quality to many nursing homes" (Marcus and Barnes 1999, 390). This more residential structure allowed for outdoor gardens to be incorporated more easily into the facilities.

Research into nursing home design indicates nine important considerations: homelike environment, privacy, sensory stimulation, socialization, family visits, outdoor activities, comfort, security, and accessibility. Providing a homelike atmosphere can help residents identify

and connect with their living space. In a garden setting, this can be accomplished by utilizing a small-scale design and incorporating mature vegetation to suggest the “ideal cozy home garden” (Marcus and Barnes 1999, 392).

Making use of seasonal changes in vegetation and providing ways to manipulate natural objects can provide sensory stimulation for nursing home residents. Using plant material in the garden that also offers visual, tactile, and olfactory experiences are important (393). One study found “...that using aids that evoked a variety of sensory modes (seeing, hearing, touching, tasting, feeling, and remembering) helped depressed, withdrawn, unsociable, or isolated individuals process and develop resolution” (Marcus and Barnes 1999, 394).

A positive social environment has also been found to be an important aspect in the health and well-being of nursing home residents. Designs should enable residents to create friendships (394). Socialization has been shown to increase when sheltered, comfortable seating that promoted eye contact was provided for residents (395). Healing gardens that also incorporate adaptable seating can help encourage socializing (395).

Related to nursing home gardens, dementia gardens are also one of the more common applications of healing gardens today. Alzheimer’s healing gardens have been increasingly incorporated into elderly care facilities. This area of healing garden design has also had a considerable amount of research done. Alzheimer’s is the most common form of dementia and a growing concern in this country. The Alzheimer’s Association estimates that if a cure or other significant preventative means is not discovered soon, 12 to 14 million Americans will have the disease by 2040 (438). Since there is currently no cure for the disease, methods to mitigate symptoms such as including gardens have justifiably received increased attention (438).

Amelioration of the environment can ease symptoms in people living with Alzheimer's disease (PLWA). Older people are more sensitive to the physical environment due to decreased visual and hearing ability. Considering these losses, the elderly need more sensory input than younger people to process information. While there is a need for a higher level and intensity of light as people age, there is also a greater negative reaction to glare and reflection (439). Healing gardens can incorporate designs that facilitate a positive environment for PLWA.

During the past two decades, the hospice movement has expanded dramatically (506). As medical care improved during the twentieth century, mortality rates decreased as a result, and death began to occur more frequently in medical settings than at home (505). Again, one of the main design guidelines for hospice facilities is to provide a homelike atmosphere. The outdoor environment is generally a critical element in the overall design (508). The garden serves as a place to help reduce extreme stress that can accompany death and dying.

Hospice healing gardens are supposed to facilitate a number of different activities and functions. The garden serves as a buffer for visitors from the hospice buildings and the outlying distractions. Garden visitors can sit and use the space as a means of stress reduction. Staff and family members can also take refuge in the healing garden during the bereavement process. It is also used as a backdrop for memorial gatherings (509). Most importantly, the hospice healing garden enhances the homelike environment for patients (510).

Healing gardens are also starting to be discussed and implemented in other less-traditional arenas. Facilities for troubled youth, correctional institutions, and private residences are all being explored for healing garden use. Healing gardens for burn victims is also a relatively new idea. The first therapeutic garden designed exclusively for burn victims opened in

2004 (Marcus 2008, 4). The 9,000-square-foot garden is located at The Oregon Burn Center (OBC) at Legacy Emanuel Hospital in Portland, Oregon (1).

The OBC healing garden is a place of respite for patients, visiting family members, and staff (5). When patients are stable enough to go outside, the garden is the first place for them to experience nature and fresh air again (2). A variety of shade structures throughout the site protect patients' fragile skin from too much sun exposure, and offer places for social gatherings and physical therapy (2). A variety of walking paths surfaced with different materials help patients recovering from burns and skin grafts learn to walk again (3). Large selections of plants provide sensory experiences throughout the garden (5). The OBC healing garden is truly a patient-centered space due to a collaborative design process involving clinical staff and patients (8).

Healing gardens for other potential user groups should continue to be explored. There is great potential to serve and accommodate a vast array of people and conditions using therapeutic natural environments. Various societal changes in the past twenty years have also helped to create a climate where new ideas are more likely to be accepted.

This is a time of great flux in society as a whole, and in the institutions of medicine within it. Boundaries are blurring; the adherence to traditional approaches is being questioned; the embracing of complementary practices by the general public is raising difficult questions for the medical, health insurance, and scientific research communities. It seems a particularly appropriate time to reconsider the therapeutic value of nature and gardens in medical facilities. (Marcus and Barnes 1999, 22).

There are great possibilities for the future of healing gardens in various healthcare settings. Efforts should continue in search of new potential user groups for these restorative spaces.

## CHAPTER III

### VETERANS – A POTENTIAL USER GROUP

As our understanding of the value and benefits of healing gardens continues to evolve, research into potential user groups for these gardens must be a priority as well. Military veterans are a growing population in the United States that could potentially benefit from the therapeutic environment and qualities that healing gardens have been shown to offer. Ongoing military conflicts overseas continue to increase the number of veterans who will need treatment for various injuries and conditions on a daily basis upon returning home.

Wars in Iraq and Afghanistan have increased the number of veterans in the U.S. dramatically. These conflicts have amplified the need to care for military veterans in the Veterans Affairs (VA) healthcare system. There are currently around 8 million veterans enrolled in the VA system. The number of active-duty and reserve-duty personnel eligible for VA healthcare coverage has increased by 700,000 since 2002. In 1995 about 3 million veterans were receiving VA healthcare services, and this number grew to 5 million in 2006 (Glendinning 2007). As the U.S continues to be involved in conflicts overseas, these numbers have the potential to grow exponentially.

The VA has had to evolve over the years to meet these growing demands. The system serves about one quarter of the nation's population, which includes veterans, spouses, and other eligible family members. Due to changing healthcare trends, the VA has evolved over the past few years from a system that was primarily hospital-based to an outpatient-focused system. "VA facilities are being modernized and expanded, treating more veterans in more places than ever before" (Kirk, Karpf, and Carman 2010, 67). The VA has more than 1,300 sites in the U.S. and



Puerto Rico that include medical centers, ambulatory care, outpatient clinics, nursing homes, and home-care programs (67).

Not only is the number of veterans requiring care rising, but the types of injuries and long-term needs of veterans are changing too. Many veterans are facing situations that soldiers in previous conflicts did not have to face (Mitrione 2010). Advances in field medicine and modern body armor have had a great impact on U.S. military personnel serving in Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF). Today's soldiers are surviving traumatic injuries that might have been deadly in previous conflicts (Detweiler et al. 2010, 26).

Soldiers returning home face a number of problems. Most physical ailments have to do with problems in the musculoskeletal and digestive systems (Kang and Hyams 2005, 1289). For those soldiers who have suffered traumatic injuries, amputations are quite prevalent (Detweiler et al. 2010, 26). Many of these men and women will require extended healthcare services.

Besides physical wounds, the number of veterans requiring mental health services due to psychological trauma is rising (Mitrione 2010). Many of these veterans suffer from mood disorders, posttraumatic stress disorder (PTSD), or traumatic brain injury (TBI). One study estimated that about 18.5% of U.S. troops, or 300,000 soldiers, who participated in OEF and OIF can be diagnosed with depression or PTSD. For those who have undergone amputations, depression rates have ranged from 21% to 45%. (Detweiler et al. 2010, 26).

Another study estimated that 20.3% of active-duty soldiers, and 42.4% of reserve-duty soldiers require mental health services. They have also found that soldiers are likely to show signs of mental health distress several months after returning home (Milliken, Auchterlonie, and Hoge 2007, 2141). Thus, there will be long-term needs for treatment from the VA.

PTSD is a growing concern for war veterans. If veterans from all past conflicts are taken into account, the potential number living with PTSD is close to half a million (Magruder et al. 2004, 294). One study that looked at the demographics of PTSD veterans receiving treatment from a VA facility showed that the proportions did not vary much with regards to sex, race, or age. The real differences stemmed from the type of military service. As noted by Kang and Hyams in *The New England Journal of Medicine*, "...the proportion of patients reported to have PTSD was 3.7 times as high among those who served in ground units of the Army or Marines as among members of the Navy or Air Force (11 percent vs. 3 percent), and rates were twice as high among members of the enlisted ranks as among officers (10 percent vs. 5 percent)." Proportions were similar among Reserve and National Guard veterans. These numbers indicate that the level of combat exposure is highly correlated with the risk of obtaining a mental disorder (Kang and Hyams 2005, 1289).

#### *Posttraumatic Stress Disorder*

Posttraumatic stress disorder (PTSD) is quite complex, and has a long list of indicators for diagnosis. According to the Diagnostic and Statistical Manual of Mental Disorders produced by the American Psychiatric Association, the diagnostic criteria for PTSD are characterized by the experience of a traumatic event followed by three symptom areas: re-experiencing, avoidance, and hyperarousal. Further, these symptoms must persist for more than one month subsequent to the traumatic event (American Psychiatric Association 2000, 463).

A person with PTSD must have been exposed to a traumatic event that involved actual death, threatened death, or serious injury to himself or others around him. This traumatic event then causes a response in the person that involves intense fear, helplessness, or horror.

Afterwards, the event is then persistently re-experienced through things like dreams, recollections, and hallucinations (467).

Those affected with PTSD also persistently try to avoid anything associated with the trauma. They often take great effort to avoid any thoughts, activities, places, and people associated with the traumatic event. There may also be a numbing of general responsiveness, and detachment or estrangement towards others.

Lastly, the person may have symptoms of increased arousal. This increased arousal can be indicated by difficulty in sleeping, irritability, difficulty concentrating, hypervigilance, and an exaggerated startle response. All three symptoms may lead to considerable distress or impairment in social, occupational, or other areas of daily life (468).

Many studies indicate that PTSD has turned into a serious issue in Western cultures. (Kolk, McFarlane, and Weisaeth 2006, 491). Compared with other psychiatric disorders in the general population, PTSD is associated with higher rates of service use and higher medical and social costs (Magruder et al. 2004, 294). It's estimated that PTSD affects 9% of the U.S. population, (Kolk, McFarlane, and Weisaeth 2006, 491) while among veteran populations of the Vietnam and Gulf Wars, about 15% have been diagnosed with the disorder. Mental health experts expect this number to potentially increase in veterans who have served in Iraq or Afghanistan due to prolonged deployments and hazardous combat environments. A survey of 3,671 Army soldiers and Marines involved in combat in these two countries found that 17% reported symptoms consistent with PTSD (Kang and Hyams 2005, 1289).

PTSD is traditionally treated through both psychosocial and pharmacotherapy methods. "Psychotherapy must address two fundamental aspects of PTSD: (1) deconditioning of anxiety, and (2) altering the way victims views themselves and their world by reestablishing a feeling of

personal integrity and control.” (Kolk, McFarlane, and Weisaeth 2006, 420) While investigation into effective treatment is ongoing, most published studies utilized cognitive-behavioral therapy, which is an area within psychosocial treatment. (417).

Cognitive-behavioral therapy can be divided into two categories: exposure therapy and anxiety management training (AMT). Exposure therapy uses a set of techniques to help patients confront their fears. These techniques aim to trigger traumatic memories which may have pathological associations and generate new, nonpathological associations. AMT helps the patient learn how to control intense anxiety through the use of specific skills. These skills help the patient manage their fears (494).

Other cognitive-behavioral therapies that integrate acceptance and mindfulness aspects continue to emerge. One of these new approaches is Acceptance and Commitment Therapy (ACT). ACT uses acceptance, mindfulness, and values clarification exercises along with traditional behavioral approaches. “...ACT encourages individuals to accept and experience internal events non-judgmentally (i.e., mindfully), while simultaneously working toward the pursuit of personally defined behavioral goals” (Gaudiano and Herbert 2006, 417). Mindfulness is about focusing in a particular way and being in the present moment. Meditation plays a big role in fostering the kind of environment necessary for this approach (417).

Pharmacotherapy can also be used to treat PTSD. There are a number of medications used to reduce symptoms like depression, aggression, and hyperarousal in PTSD patients. These medications, in combination with psychotherapy, are used to more effectively relieve symptoms (510). It is apparent with the ever-expanding population of PTSD patients, and the ever-increasing costs and limited effectiveness of traditional treatment, that there is a need to explore

new treatment techniques. One new area that appears to hold promise looks at the use of healing landscapes to compliment traditional treatment methods.

### *Healing Gardens for Veterans with PTSD*

As healing gardens and other restorative natural environments are being used to compliment traditional treatments for a myriad of illnesses and conditions, it is time that more research and focus be placed on the possibility of integrating this alternative therapy for the treatment of veterans suffering from PTSD. Professionals and experts who work with this group believe that the complexity of the condition may require treatment that involves a more interdisciplinary approach. “Restorative natural environments, including outdoor gardens and rehabilitation greenhouses, may be effective components of interdisciplinary treatment plans for veterans with multiple medical and psychiatric problems” (Detweiler et al. 2010, 26).

The majority of studies looking at the impacts of restorative natural settings have primarily examined the effects of viewing nature or indoor plants, rather than experiencing therapeutic natural environments firsthand (26). One landmark study examined the effect that views of nature from hospital windows have on patients. The study found that patients in a hospital who had views of gardens and nature, rather than the brick walls of an adjacent building, had less frequent requests for pain medications, shorter post-operative stays, and there were even fewer negative comments noted from healthcare staff (Kirk, Karpf, and Carman 2010, 68). Another study had some participants view pleasant rural scenes and others unpleasant rural scenes. Those who viewed the pleasant rural scenes had decreases in blood pressure of about 8 mm Hg, as compared to blood pressure increases of 3 mm Hg for those who viewed the unpleasant rural scenes (Detweiler et al. 2010, 27). In another study that had participants physically experience restorative environments, similar results were shown. The study looked at

participants who walked in natural versus urban settings after participating in activities intended to increase psycho-physiologic stress. Blood pressure, emotion, and attention in those individuals that walked in the natural environments showed a greater restoration to normal levels than those who were in the urban environments (Detweiler et al. 2010, 27).

Conditions such as PTSD have been associated with attention deficits, which may hamper cognitive and functional improvement. Attention restoration theory suggests that time spent in natural settings can reduce voluntary attention fatigue, which then accommodates higher attention levels. “In cases of attention deficit, conserving voluntary attention in a restorative natural setting during rehabilitation sessions may be advantageous to a patient’s overall outcome and may contribute to shortened outcome times compared with traditional, nongreen, inpatient rehabilitation settings” (Detweiler et al. 2010, 27). One study that supports this hypothesis examined participants who walked in a park 40 minutes after finishing an attention-focused task. Compared with individuals who walked in a city environment or read and listened to music in a room with no windows, the participants who walked in the park had improved moods and fewer errors in a proofreading exercise (Detwiler et al. 2010, 27)

A few studies also support the idea of the natural environment being used as a means to reduce pain. In one study, patients who were exposed to high levels of sunlight in their hospital rooms while recovering from cervical and lumbar surgery had lower pain costs, used fewer pain medications, and had less perceived stress than control patients (27-28). In another study that observed patients following a cholecystectomy, patients with hospital rooms that viewed natural settings needed less high-potency painkillers and had shorter stays than patients who viewed brick walls through their windows (27). An additional study showed that patients who had

flowers in their hospital rooms required shorter postoperative hospitalization and reduced pain, anxiety, and fatigue (28).

Nature is slowly making a comeback in a variety of healthcare settings. Healing gardens for people living with Alzheimer's disease (PLWA) are quite prevalent today. These gardens have been shown to alleviate symptoms and have a positive impact on residents and visitors of these facilities. Some of the diagnostic criteria of Alzheimer's disease seem to parallel PTSD symptoms and characteristics. Depression is often one outcome of Alzheimer's disease (American Psychiatric Association 2000, 287). People with PTSD often have increased rates of Major Depressive Disorder (465). "Anxiety and psychosis, particularly paranoid delusions, are common in AD [Alzheimer's disease]" (288). Individuals with PTSD generally have persistent symptoms of anxiety (464). They also experience illusions, hallucinations, and dissociative flashbacks (468). Avoidance is also a similar in both instances. PLWA try to avoid unfamiliar activities (284), while people suffering with PTSD avoid thoughts, feelings, conversations, activities, places, and people associated with the trauma (468).

Jack Carman, a landscape architect involved in therapeutic garden design, believes that a lot of design elements and considerations for Alzheimer's healing gardens could carry over into gardens for people with PTSD. In both instances, he suggests it is important to put familiar elements into the garden. There shouldn't be anything disconcerting or alarming in the garden, which could in turn increase stress for the patient. Carman also notes it would be important that the architecture of the building and garden reflect the surrounding landscape. There should not be any elements in the garden that are un-relatable to the garden visitors (Carman October 8, 2009).

The VA could potentially benefit veterans with PTSD by incorporating restorative environments at their facilities. Horticultural therapy, a specialized form of garden therapy, has already been incorporated in many of their programs. Many U.S. soldiers returning from the two world wars required long-term care, which led to the use of horticultural therapy as a means of occupational and recreational therapy in the VA (Detweiler et al. 2010, 28). Horticultural therapy focuses on patients caring for and cultivating plants, and can be used to address things like physical, emotional, social, or intellectual needs of patients (Relf 2005, 236). Many VA facilities incorporate horticultural therapy into patient programs today, and it has been shown to decrease the duration of inpatient stays (Detweiler et al. 2010, 28). If horticultural therapy programs are a part of the VA system and making positive impacts on patients, then the use of restorative healing gardens should also be considered as a supplementary treatment method.



## CHAPTER IV

### CASE STUDY

#### *Background*

Following an extensive literature review into the history of healing gardens, the issues facing veterans today, the diagnostics of PTSD, the effects of nature on health outcomes, and areas where exposure to nature and healing gardens positively affected users with some similar conditions to PTSD patients, this study attempted to locate healing gardens that were utilized by persons suffering from PTSD. It was hoped that such a garden could provide evidence into the validity of using healing gardens, in addition to traditional therapy methods, for veterans with PTSD in VA facilities. If such a garden could be located, garden design elements would be outlined, and the ways that patients and practitioners utilize the space would be noted. Any studies done into how patients responded to the healing garden as an additional method of treatment would also be included. There was a great desire to find such a garden and discover if and how it was benefiting patients.

#### *Case Study Search*

An exhaustive effort was made to determine if any such healing gardens specifically designed for and used by PTSD patients exist, in and out of the VA system. Several top designers working in therapeutic garden design in the landscape architecture and horticultural therapy professions were contacted to see if they were aware of or had ever designed any such garden. These designers spread this request to their colleagues and acquaintances. The American Society of Landscape Architect's (ASLA) Healthcare and Therapeutic Design Professional Practice Network chair was contacted about the topic. She forwarded the request on to all members of the professional practice network via email. Word of this request was also

spread by these professionals at the annual ASLA meeting in Washington D.C. in the fall of 2010. None of these initial people contacted were aware of any healing gardens designed specifically for individuals with PTSD.

A few responses came back as a result of the other requests that were forwarded on by others, but again no one was aware of any healing gardens constructed specifically for, nor utilized in the treatment of, people suffering from PTSD. Many expressed the opinion that healing gardens for PTSD patients is a fascinating topic and one that would be interesting and important to do more research into. Through these contacts it was discovered that the awareness of the need for alternative therapeutic methods for war veterans is growing, and something that will receive increasing attention in the years to come. All of this interest seems to still be in its infancy, and it appears that research into the potential benefits of healing gardens on veterans with PTSD is an underdeveloped area.

After failing to learn of any healing gardens designed specifically for people with PTSD among design professionals, attention was turned to care providers. Attempts were made to contact the VA to determine if any of their facilities utilize healing gardens for veterans with PTSD. First, the VA's National Center for PTSD was contacted via email to determine if there was any research being done in the area, or knowledge of existing gardens. This inquiry did not yield any answers. Next, other possible sources to contact were determined by exploring the VA website, <http://va.gov>. This website contained a PTSD program locator for the entire VA system identifying healthcare facilities that have specialized PTSD programs for both inpatients and outpatients. According to the website there are 133 of these units in the entire VA system. An email was sent to each of these units' directors or practitioners explaining the proposed thesis

research and desire to locate any VA facilities using healing gardens as a method for PTSD treatment.

Out of all the emails sent out, 24 responses from various VA facilities throughout the country came back. Sixteen of the people that responded indicated they could not comment on the matter because they were either not familiar with the use of healing gardens, or they had not heard of healing gardens being used particularly for PTSD. Eight healthcare professionals in the VA replied that though they weren't aware of any healing gardens for PTSD patients they would be interested in learning more and encouraged contact by phone.

Phone conversations took place with the eight respondents. The following questions were posed: *Could you see a benefit in having a healing garden at your facility? What purpose would the healing garden serve? What things would you include in a healing garden for PTSD patients?* One of the eight respondents is an admissions coordinator for a stress disorder treatment program. He indicated that he had rallied for a healing garden to be put in at his facility years ago. As part of the process he even drew up a diagram for the potential garden that included meditative spots and walkways. Unfortunately, budget problems and changes in management prevented the garden from ever coming to fruition. This individual still believes healing gardens for veterans with PTSD would be beneficial.

Others expressed interest in the idea, and shared a common belief that the treatment of veterans with PTSD would be improved by the availability of healing gardens. A PTSD social worker said that anytime her patients can spend time outdoors she believes it to be valuable time. A VA psychologist at a different facility said that a healing garden would be a good place for his patients to go outside and apply some of the thinking skills they have been practicing. A social worker at the same facility could see something meditative like a healing garden as very useful

tool. Still, another psychologist working in a psycho-social rehabilitation program said that a healing garden “definitely has a place in mental health rehabilitation.”

None of the respondents had enough knowledge or background in healing gardens that they felt they could speculate on the kind of elements that should be included in healing gardens for veterans with PTSD. In subsequent phone calls, however, information regarding potential obstacles in implementing healing gardens at VA facilities was discussed and is documented in the following chapter. Although no healing gardens for veterans with PTSD were located through these calls, the interest and excitement expressed by VA professionals regarding the idea of such gardens was promising.

One email response did yield some fruitful information. The respondent indicated that there was a facility in Virginia that was building a healing garden for veterans with PTSD. Some calls were made and it was discovered that the facility is in the process of creating a healing garden that will include use-areas for PTSD patients. The Salem Veterans Affairs Medical Center located in Salem, Virginia will soon begin construction on a 1.75 acre healing garden at their facility.

#### *Salem VA Medical Center*

In 1934 President Franklin D. Roosevelt dedicated a 445-acre veteran’s hospital complex in Salem, Virginia. The facility was built as part of a country-wide focus on horticultural and occupational therapy for returning war veterans. This veteran’s hospital complex began as a 472-bed psychiatric hospital and was later named the Salem VA Medical Center (SVAMC). The grounds of the facility included a farm where crops, cattle, and hogs were cared for and raised. Patients managed the farm as part of their psychiatric rehabilitation. SVAMC patient treatment does not involve farm labor anymore, but patients continue to have opportunities to work with

plants in natural settings. The Compensated Work Therapy program (CWT) provides an opportunity for many veterans to work with a variety of plants in greenhouses and gardens (Detweiler et al. 2010, 28).

The SVAMC intends to take the patients' interactions with nature even further through implementation of a large healing garden on their campus. The healing garden will encompass about 1  $\frac{3}{4}$  acres, and will contain areas for a variety of activities. A number of treatment programs will use the garden for their patients. This project has been a long time in the making.

#### *SVAMC Healing Garden Concept*

A staff psychiatrist at the SVAMC has been doing research into dementia wander gardens for a number of years. Originally, the SVAMC was planning to implement a wander garden at the facility, but the idea evolved into something bigger. Attention turned towards creating a large-scale healing garden that more patients at the facility could benefit from, while still including a dementia garden area in the design. For five years the SVAMC attempted to work with a university on developing plans for the garden, but nothing ever materialized. Practitioners at the facility who were invested in the healing-garden concept decided that it would be necessary to hire a landscape architect to bring the idea to fruition. There were no funds set aside in the facility's budget for the healing garden, so fundraising efforts were undertaken to raise the necessary money.

Through various fundraising activities, enough money was raised to hire a landscape architect to do the planning and design work for the healing garden. Landscape architect Jack Carman, owner, founder, and president of Design for Generations, a firm focused on the design of therapeutic gardens, was contracted by the SVAMC to undertake the design. Carman worked collaboratively with the facility staff, including clinicians, to determine what outcomes they were

seeking with their patients, and how the garden design could help meet those outcomes. He then developed conceptual ideas for the garden and visited a number of times to review and revise these plans based on staff input (Carman October 8, 2009).

As of this writing, proponents of the healing garden at the SVAMC are still holding fundraising efforts and investigating grants to raise money for the actual construction of the garden. Since all of the money is not yet raised, it is difficult to finalize all plans and details for the healing garden, although conceptual plans depicting desired elements are shown below. It is hoped that the final design plans will be completed sometime this spring (2011), and that initial work on the garden could commence during the summer. Veterans and volunteers will be the ones performing most of the work on the garden construction. Once the garden is completed it will be used as a research tool.

#### *Healing Garden Areas and Uses*

One of the predominant goals for the SVAMC healing garden is to keep things as natural as possible. Through the early design process it was determined that the garden should incorporate both passive and active areas. The passive areas will be conducive to meditating, and will include more tranquil, therapeutic gardens. The active spaces will require a higher degree of programming and incorporate areas for more traditional horticultural therapy activities. The programs that will be using the garden are: Dementia and Alzheimer's, Vocational Rehabilitation, Physical Therapy, Music Therapy, Neurocognitive Rehabilitation, and PTSD.

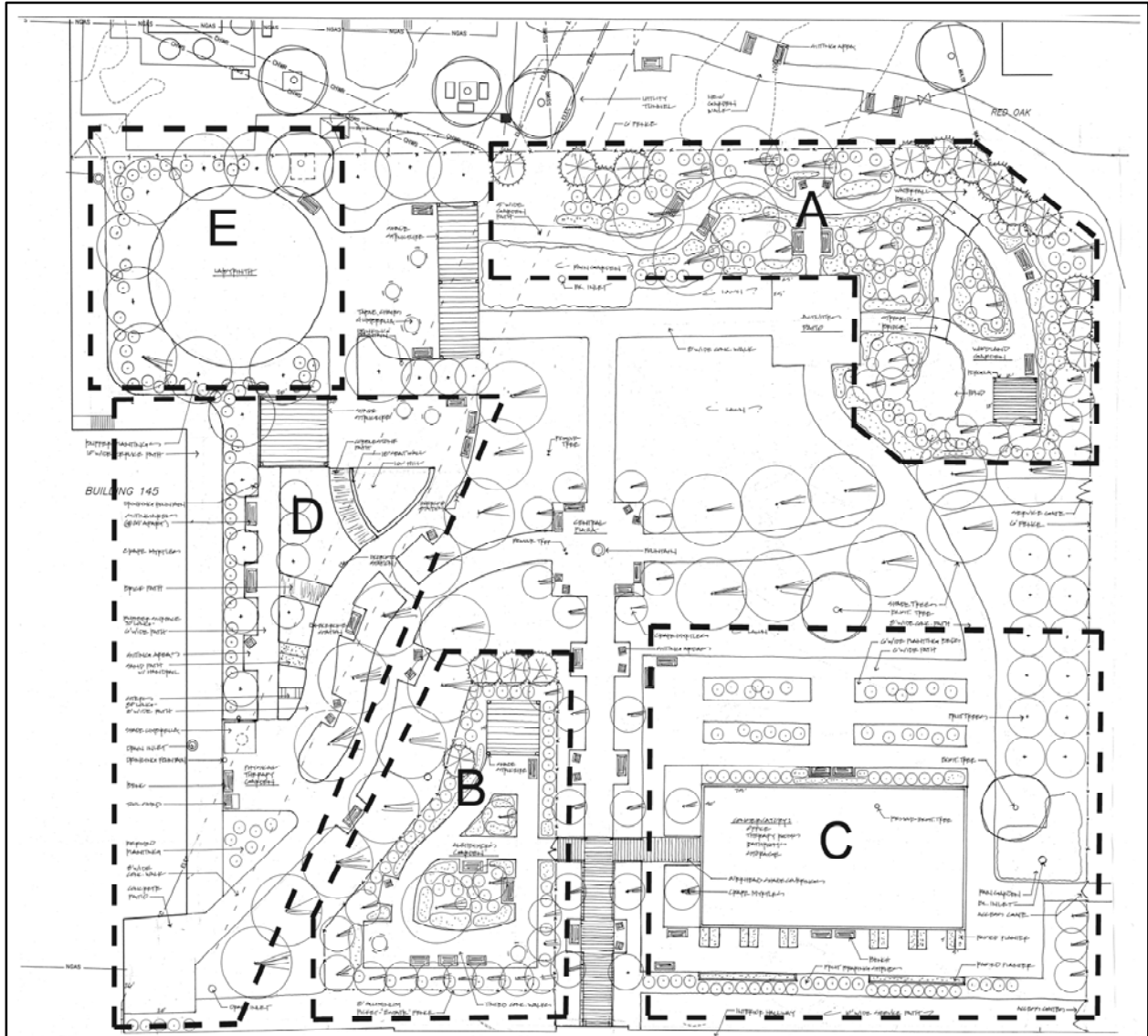


Figure 4.1. SVAMC Healing Garden concept plan. For the purpose of this report the garden is divided into separate sections as a reference to specific areas that will be discussed further. (Plan courtesy of the Salem VA Medical Center)

- Key:
- A – Passive Garden Areas
  - B – Alzheimer's Garden
  - C – Horticultural Therapy Areas and Conservatory
  - D – Physical Therapy Garden
  - E - Labyrinth

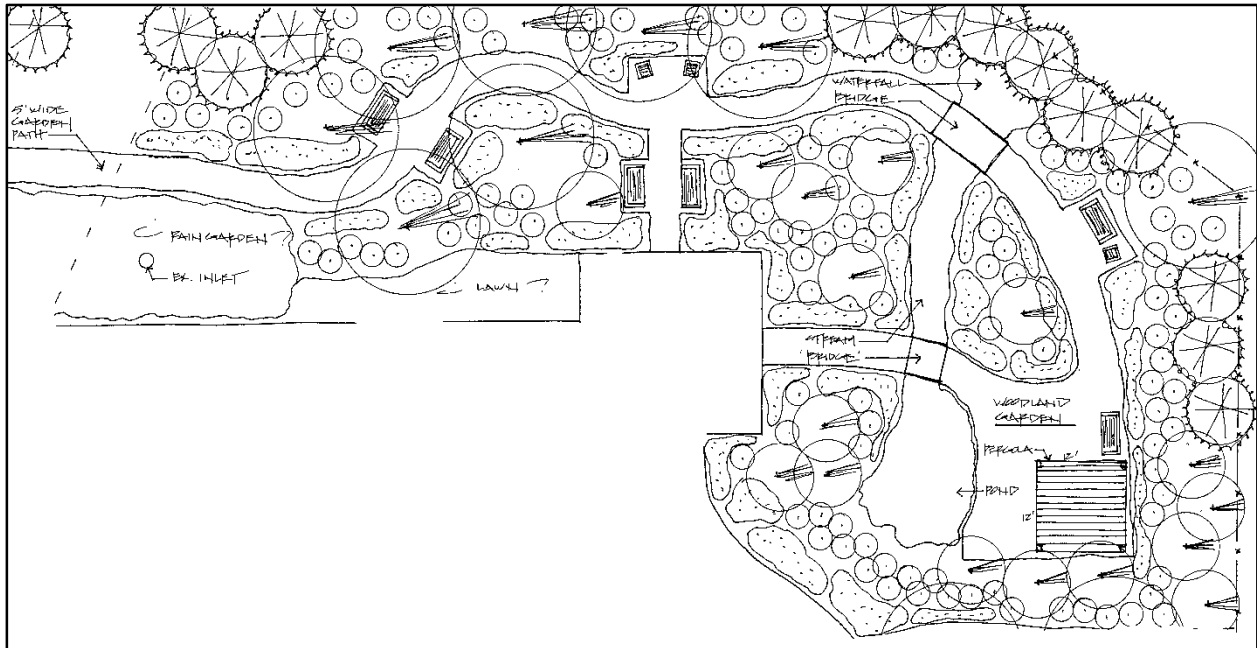


Figure 4.2. Passive garden areas. Section A.

The passive garden areas (see Figure 4.2) will feature meandering paths lined with planted spaces. Benches and seating areas will be spread throughout to provide areas for meditation, contemplation, and group sessions. Shade structures will also be located at various points in the garden which will give relief from the sun to veterans and visitors to the garden. Water features like meandering streams and fountains will provide tranquil sounds in the garden, and strengthen the connection to nature.



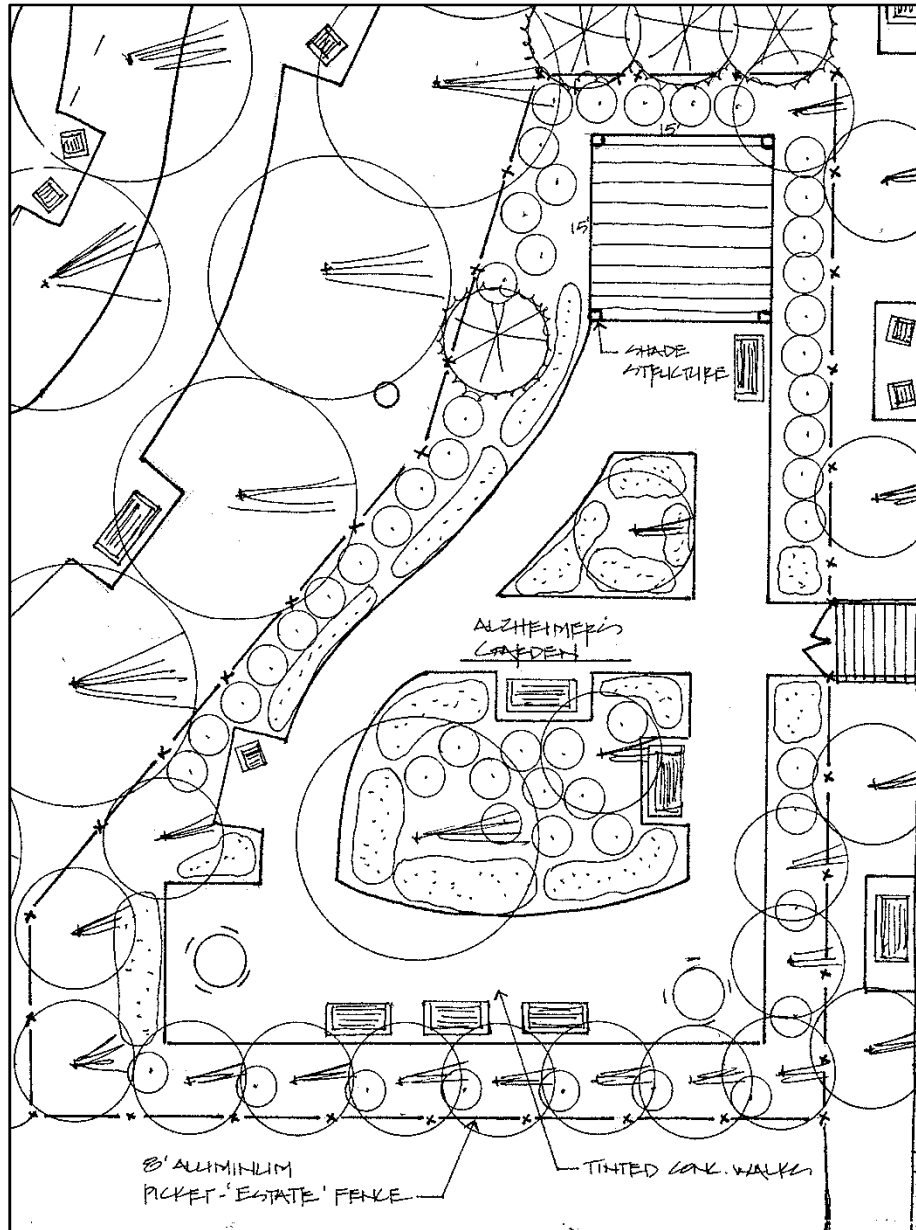


Figure 4.3. Alzheimer's Garden. Section B.

The Alzheimer's Garden (see Figure 4.3) is another passive area. Veterans with dementia and Alzheimer's can sit and safely enjoy the outdoors in this space. The Woodland Garden, described later, will also provide a tranquil, meditative space. Plantings in this area will mimic more of a rural, natural landscape. It will be planted heavily with evergreens, shrubs, and

perennials that can figuratively take veterans out of the facility into “the great outdoors”. A waterfall and stream enhance the space and provide soothing sounds.

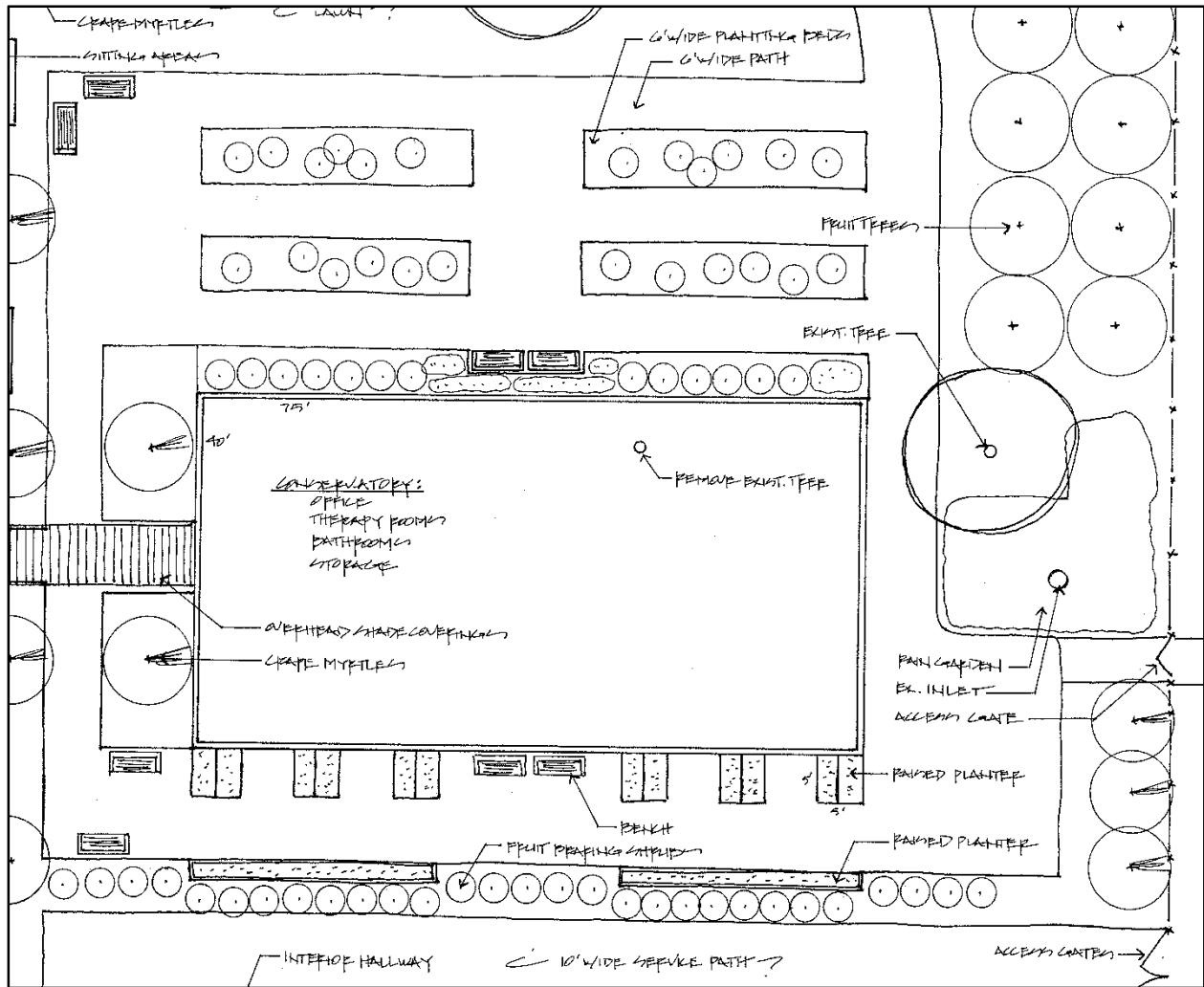


Figure 4.4. Horticultural Therapy Area and Conservatory. Section C.

There are also many active areas in the healing garden. A large section of the garden will be dedicated to spaces for gardening (see Figure 4.4). Raised planters and planting beds will accommodate vegetable and herb gardening. Fruit trees and fruit-bearing shrubs will also be incorporated into the gardening areas. These spaces will allow for horticultural therapy and

other dynamic activities. In the center of this area will be a large conservatory that will allow for research and therapy sessions to be held year-round.

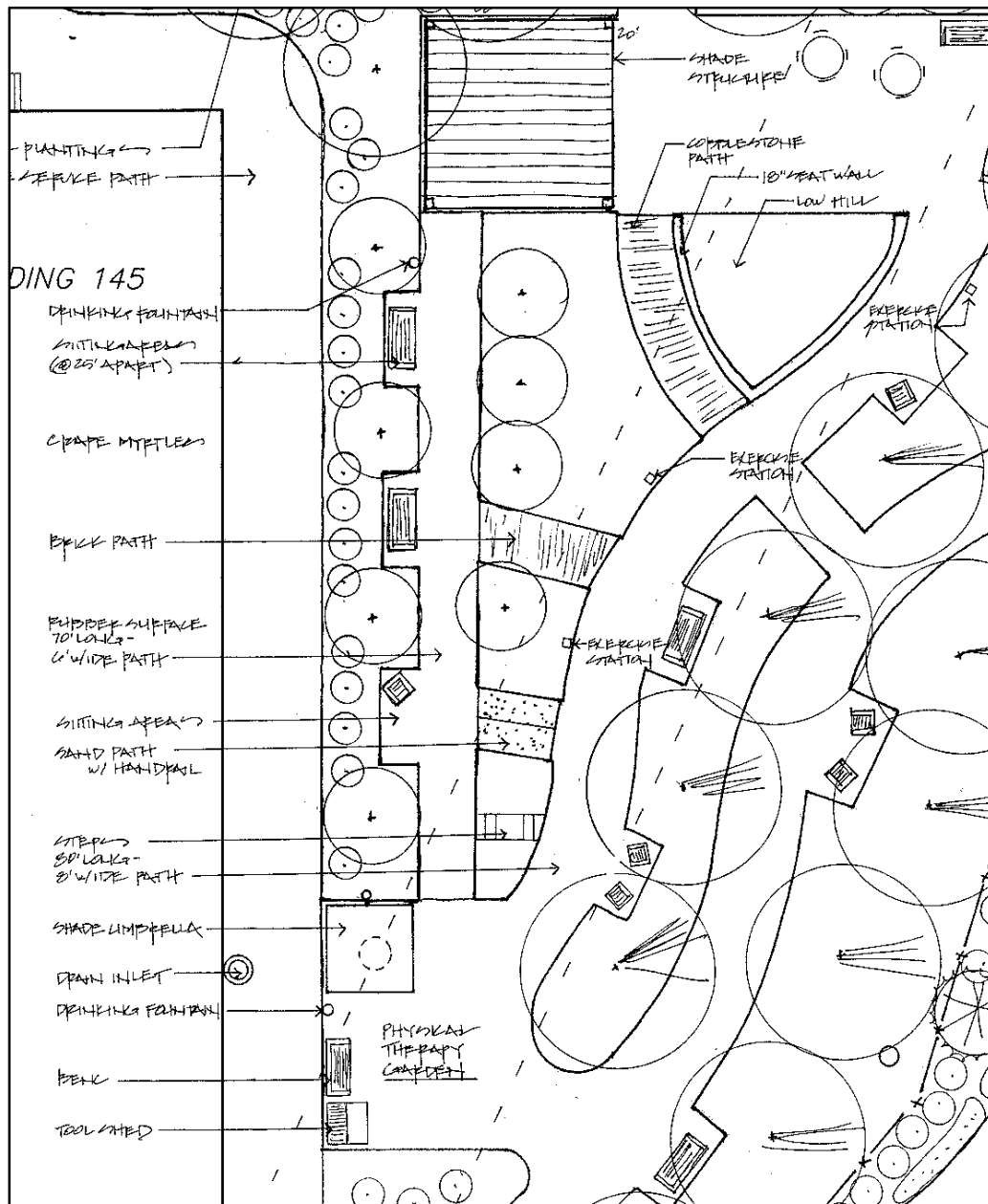


Figure 4.5. Physical Therapy Garden. Section D.

The Physical Therapy garden (see Figure 4.5) will be largely utilized by physical therapy patients. Exercise stations and rehabilitation elements such as handrails and a variety of walking

surfaces will be incorporated there. The large labyrinth (see Figure 4.8) is another active area of the garden. The labyrinth's meaning and uses will be explained later in this chapter.

The SVAMC staff believes that the healing garden will be a dynamic space. As patients spend time in the garden and research is performed, the effectiveness of certain areas will be assessed and changes will be made where needed. If some spaces or elements do not function as intended those areas will be adapted and changed. The healing garden will be used to conduct research and studies that will further inform facility professionals on how to make the garden the most effective and efficient space possible for the rehabilitation and treatment of veterans.

#### *The Healing Garden for Veterans with PTSD*

Veterans with PTSD at the SVAMC will be one of the many groups at the facility who will take advantage of the healing garden when it is completed. There are many ways that PTSD facilitators envision their patients will use the healing garden to assist in treatment. The entire garden area will provide a setting for PTSD veterans to be in touch with nature, and will offer a place for them to seek clarity and calmness. Acceptance and Commitment Therapy (ACT) is one of the main methods used by practitioners to treat veterans at the SVAMC. These practitioners foresee that the garden will facilitate things like meditation and mindfulness that are a part of ACT.

“Sun and moonlight and the plants and water of gardens have always afforded human beings psychological orientation and sensations important to maintaining the sense of self” (Gerlach-Spriggs, Kaufman, and Warner 1998, 7). ACT is all about individuals focusing on one's self through mindfulness and meditation. Elements throughout the SVAMC healing garden will be instrumental in carrying out this method of therapy. The sounds of a trickling fountain or a gurgling stream are usually associated with creating a serene, tranquil environment.

The stream and fountain in the Woodland Garden area (see figure 4.2) will facilitate a soothing environment for patients to prepare for meditation and mindfulness exercises. The foliage on trees and shrubs in this area of the garden will also allow for a gentle breeze to create a rustling sound that will also add to the serene environment. Meandering paths and benches incorporated within the garden will provide both sitting and walking options for veterans to carry out their therapy. Individuals with PTSD often have difficulty concentrating, so a serene garden setting that facilitates meditation could help veterans focus on treatment tasks. The atmosphere that will be generated in the healing garden is something that could not be easily created in indoor therapy sessions.

The SVAMC PTSD program has always encouraged their veterans to walk and be active, so the healing garden will serve as an additional place to accomplish this goal. Veterans will be able to walk through the garden individually, as well as in small groups. They will also be able to use the garden for individual meditative experiences, as well as for group mindfulness times. Group mindfulness time is when veterans are asked to pay attention to their feelings, notice anything that surfaces, but not holding on to any one thought, feeling, or sensation.

PTSD professionals at SVAMC foresee veterans using areas of the garden that are conducive to privacy and confidentiality. Seating areas and covered pavilions throughout the garden would be ideal for this. The healing garden will serve as an outdoor space that veterans can become familiar with and feel safe in. Once the garden is completed, the ways in which clinicians use it for their PTSD patients will continue to evolve.

### *Labyrinth History*

The healing garden's labyrinth (see Figure 4.8) will be an integral part of the facility's PTSD treatment. Labyrinths can be traced back over four thousand years, and are a part of

almost every religious tradition in the world (Artress 2006, 46). Though often confused with a maze, a labyrinth is quite different. (51). “This ancient and powerful tool is unicursal, offering only one route to the center and back out again: no blind alleys, dead ends, or tricks, as in a maze. No matter where you are in the labyrinth’s coherent circuits you can always see the center” (West 2000, 5). The unicursal path of the labyrinth allows the user to find the center regardless of the number of twists and turns to get there (5).

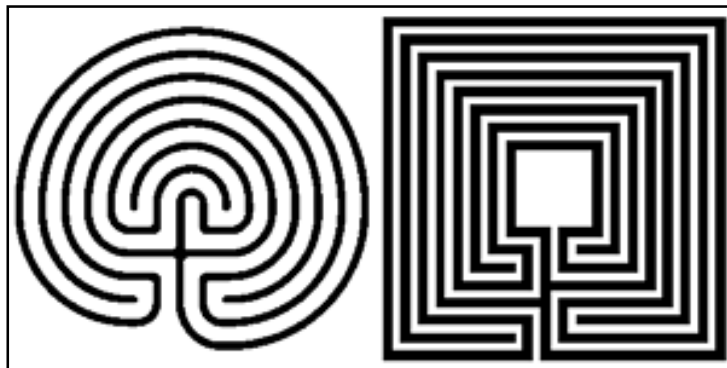


Figure 4.6. Typical labyrinth patterns. (Courtesy of The Labyrinth Society)

Many consider labyrinths to be a healing and spiritual tool (Artress 2006, 4). “Since the destination is assured, there are no obstacles to overcome, no muddles to figure out, no dead ends to retrace. What remains for the labyrinth walker is simply the deeply meditative and symbolic discipline of setting one foot in front of the other, of honoring the journey itself and what it has to teach” (West 2000, 4-5). This meditative process helps to promote solitude and provide revelation to the individual walking the labyrinth (Artress 2006, 77).

Labyrinths are also representative of a journey. “The labyrinth has always represented journey: the journey through life, death and rebirth, the spiritual journey, the initiatory journey” (West 2000, 23). This journey can represent an entire lifetime, a journey of the past, or a journey exploring the present (32).

There are many uses for labyrinths. One of the basic reasons for walking a labyrinth is to restore a connection with the body as a means of eliminating tension and stress (13). Labyrinths could potentially serve as a productive method to eliminate stress and anxiety occurring in veterans with PTSD. One psychotherapist has her clients walk a labyrinth before therapy sessions as a way to encourage them to turn inward. The clients then walk the labyrinth again after the session to help settle any issues that were raised (10).

Labyrinths are gaining more popularity and being used more frequently as a healing mechanism in hospitals, treatment centers, and private gardens (see Figure 4.7). This healing can occur at a physical, emotional, mental, or spiritual level (168). The California Pacific Medical Center in San Francisco incorporated a labyrinth in a courtyard that serves patients, family members, and staff. “Staff and patients who have used the labyrinth for stress reduction and contemplation have been so enthusiastic about their experiences that other hospitals around the country are building similar labyrinths” (West 2000, 4).



Mercy Health Oklahoma Center  
Oklahoma City, Oklahoma, USA



Crossroads Hospice  
Port Moody, British Columbia, Canada



Sharp Coronado Hospital  
Coronado, California, USA

Figure 4.7. Labyrinths in healthcare facilities. (Photos courtesy of The Labyrinth Society)

Labyrinths can be constructed using any number of materials. Some simply outline the path with stones, while others are carved directly into the ground. Mosaic tiles were used to create early Roman-style labyrinths (Artress 2006, 9). Church labyrinths, or pavement labyrinths, are laid on or into the floor of worship buildings (52). It is still undetermined what material the SVAMC labyrinth will be constructed of. Cost is always a consideration when building a labyrinth, so the materials used in construction will be dependent upon fundraising efforts.

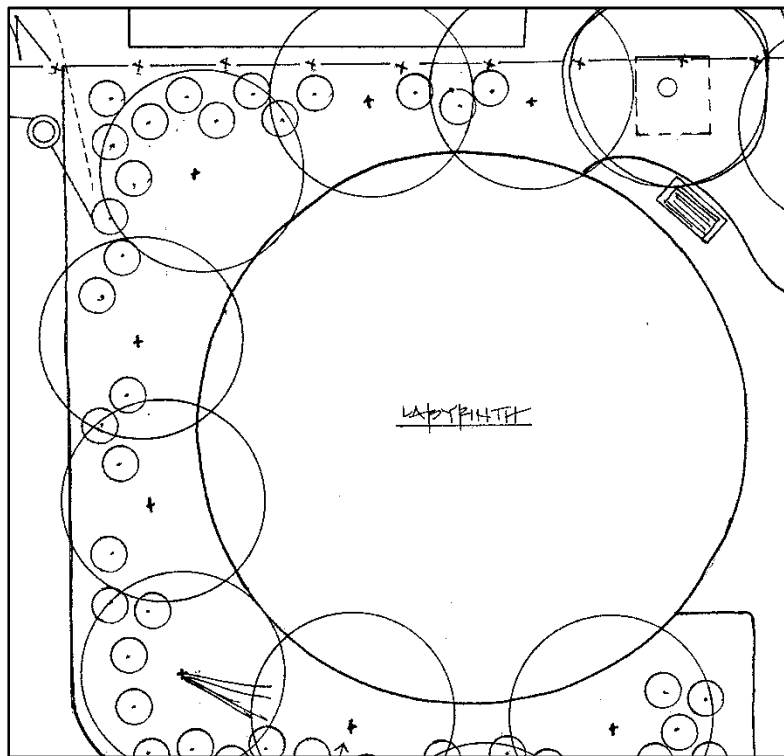


Figure 4.8. Labyrinth. Section E.

### *The SVAMC Labyrinth*

A PTSD Social Worker at the SVAMC has been involved in the building and facilitating of labyrinths for many years, and has even trained with one of the leading labyrinth professionals in the country. She sees the labyrinth as an integral part of therapy for her PTSD patients once the healing garden is completed. The labyrinth (see Figure 4.8) will be a place where PTSD staff



can take 10 to 13 veterans at a time to go out and explore. One activity for the labyrinth would have the veterans choose a word to describe themselves or their current situation, and then choose another word that describes a place they would like to get to in the future. Walking the labyrinth would facilitate them going from their present state to that future state once they reach the center.

The labyrinth could also be used as a meditative tool to teach the veterans about mindfulness and awareness. The SVAMC social worker said that many people associate meditation and mindfulness with sitting still. The labyrinth will provide a walking meditative experience. This social worker points out that it is difficult for many people to sit still, so the labyrinth is a good alternative.

When these veterans feel they are struggling or stuck in a bad place they will also have the opportunity to go out and walk the labyrinth on their own. The SVAMC social worker says that PTSD symptoms often include isolation. She says that walking a labyrinth is about solitude, not isolation. The outdoor labyrinth can invite veterans to find solitude in nature.

The SVAMC social worker has worked with a number of private clients, including some with PTSD, who have used labyrinths. Some issues that were worked on successfully are trust, surrender, grief and loss, communication, values, and commitment. Once the labyrinth is constructed, the methods and therapies used there will be an evolving process.

Overall, PTSD practitioners at the SVAMC anticipate that the healing garden will provide many positive experiences for their veterans and facilitate in their treatment. They hope the healing garden will support ACT therapy, provide opportunities for personal reflection and insight, and help veterans process their issues and experiences. Specifically through walking the

labyrinth, practitioners would like to see the veterans find solutions to any issues or insight that might surface during the process.

## CHAPTER 5

### CONCLUSIONS

#### *Obstacles to Implementation*

Despite the strong case for the creation of healing gardens for veterans uncovered by this research, a number of challenges stand in the way of their implementation at VA facilities. While personnel at the Salem VA Medical Center were able to collaborate together and are in the process of implementing a healing garden at their facility, there were still many obstacles that had to be overcome to get to this point. It's likely that more challenges will arise before the garden is finished. This section will first discuss challenges the SVAMC has faced, and then outline some of the concerns voiced by VA professionals at other facilities. It is hoped that by outlining these obstacles and challenges, practitioners and administrators at VA facilities in the future will be able to work together and plan for ways to overcome them.

It has been a long journey for the SVAMC from the initial idea for the healing garden to today when construction will soon begin. One of the first obstacles dealt with overcoming skepticism and creating awareness about the benefits of healing gardens. It took a lot of effort to get people to buy into the idea for a healing garden at the facility. Once there was a consensus and desire to implement the healing garden, it was a challenge to work together to come up with a plan. Each program tended to have its own interests, and it took effort to collaborate together while planning for the garden design. Those orchestrating the planning for the garden also had to make a conscious effort to include everyone in the process that might have interest and input.

One of the biggest obstacles the SVAMC had to overcome was a lack of funding for the project. Personnel at the SVAMC have worked tirelessly to raise enough money for just the

design of the garden, and they will continue to hold fundraisers to earn additional money for the construction. A lot of time and energy has gone into coordinating these fundraising efforts.

Another challenge the SVAMC faced was coming up with a way to deal with maintenance of the healing garden once it is completed. There were a number of individuals at the facility who were concerned the garden would become a weedy mess once it was put in. Proponents of the garden had to determine a solution. Eventually it was decided that those veterans participating in a work therapy program at the facility would maintain the space.

Security in and around the garden was another obstacle for the SVAMC healing garden proposal. Facility police are worried that everything will need to be cut back and pruned in the garden to allow for them to see into the space. They also think tall trees will have to be kept out of the garden so as to not block views for security cameras. This will continue to be something to be dealt with as the garden is constructed and the vegetation matures.

Other obstacles and concerns at the SVAMC dealt with locating the garden near the facility. The building was constructed right after WWI, so there is constantly construction and maintenance work going on. There were concerns that this ongoing work could interfere with the garden. It was also important to locate the garden in a space that would not need to be torn up in the future.

Now that the design plans for the garden are nearly complete, the main challenges are logistical. The courtyard area where the garden will be placed is currently a staging area for construction and will have to be cleared out. There are also some tennis courts in the area that need to be relocated. Efforts also had to be made to work around utilities. Designer Jack Carman says that all of the obstacles are workable; it just takes time (Carman October, 27 2009).

Professionals at other VA hospitals also see potential obstacles for healing garden implementation. After initial conversations with PTSD personnel about their thoughts on potential uses of healing gardens during treatment, a follow-up conversation was conducted to discuss foreseen obstacles for implementing healing gardens at their facilities. These professionals were first asked to provide any obstacles they could think of offhand, and were then told of obstacles that the SVAMC had experienced to see if these issues would be probable challenges at their own locations.

The obstacle for implementing a healing garden that was most common among all respondents was funding. It is definitely viewed as one of the most significant barriers, if not the most significant barrier, to implementing a project like a healing garden. One professional had worked previously in a private hospital where administrators put a high premium on the attractiveness of the grounds. The VA is such a large institution that money is often hard to come by. Another respondent indicated that the VA has their “pet projects”, and that is where most of the funding goes. Facilities wanting to implement healing gardens might have to hold fundraising efforts as the SVAMC did.

Also in line with the SVAMC, another large obstacle that would have to be overcome in order for a healing garden to be built at these facilities has to do with maintenance. Many respondents were concerned that while the idea for a healing garden might be well received, the implementation probably would not happen because there would be no one to maintain the gardens once they were installed. The maintenance most likely would have to be done by volunteers seeing that funding is so tight at the VA. A solution to this problem would probably have to be addressed before any progress was made on planning for the garden.

The greater part of respondents also saw the entire VA system as a major obstacle. Getting things through the VA can be a slow process, so the implementation process for a healing garden could take years. Many noted that the VA is a large bureaucratic institution that can be hard to work with. There can be a lot of “red tape” for making things happen. Unless the organization of the VA was to change it might be impossible to overcome an obstacle like this. For now, it just might require a lot of patience and determination.

Individual facility directors and administrators themselves pose another challenge for many of the respondents. It was indicated by several PTSD clinicians that the VA system is a very top-down organization. If facility administrators have a strong passion for healing gardens, then it will probably not be too hard to sell them on the idea. On the other hand, if alternative treatments such as healing gardens are not a priority for a facility director, then it is unlikely that clinicians will receive the needed support. One respondent explained how he was working to implement an outdoor space for his patients to use a number of years ago, but when the facility director left, the proposal for the garden went too. Many professionals indicated that there can be a high turnover in hospital administrators, so it is hard to keep the vision for things like healing gardens alive through these changes and transitions.

If a healing garden was to be constructed at a facility it would most likely be a shared space for the various programs and departments at that particular VA hospital. This relates to another major obstacle that most respondents foresaw. They indicated that it might be difficult to get all of the different departments to collaborate together because programs usually have their own unique agendas. Coordinating such an effort amongst all departments could potentially be a major issue. It would take a lot of facilitating to determine what each program’s needs are for a healing garden, and figuring out how to accomplish these goals. One respondent said that at his

facility everyone is worried about their own needs, and “people don’t play well together.” It would be important in situations like this for each department to be committed to the common welfare of the veterans when planning for a healing garden.

Surprisingly, only a couple of respondents listed awareness of healing gardens as an obstacle to implementation. They indicated that it would be good to educate and inform individuals in their facilities about the benefits and uses of healing gardens in order to facilitate eventual implementation. The majority of respondents however did not feel that education or awareness was needed at their facilities. They said that this would not be a major obstacle for getting healing gardens implemented.

Concern about security in and around a potential healing garden was also not of great concern to respondents. One noted that it would probably be a problem for police because they could not see into the garden. Most others said that they could not foresee their police having trouble patrolling an additional area, such as a healing garden.

While there appears to be a number of obstacles that will need to be addressed and overcome, there’s proof that with enough determination and effort a vision can become a reality. The SVAMC is a great example of this. Proponents for the garden at their facility have had the vision for a healing garden for over eight years. They easily could have given up a long time ago due to all the obstacles and setbacks, but they chose to keep going. Other facilities have the potential to see the same success as the SVAMC if they are patient in the process, and put enough effort into the cause.

### *Summary of Research and Results*

There is a long history of healing gardens that have served as restorative and therapeutic environments for a wide variety of user groups. These gardens provide evidence of the healing

influence that nature can have on individuals' physical and mental well-being. A healing garden is "...employed as a means of therapy: as places for the relief of pain, places to assist the patient's struggle for orientation and equilibrium." It is a place that "...relaxes and soothes and thereby encourages the body and the mind to restore themselves" (Gerlach-Spriggs, Kaufman, and Warner 1998, 7). These gardens provide restful environments that promote tension relief, meditation, and physical and spiritual restoration. The therapeutic and restorative qualities that healing spaces have evidenced through the ages can still be applicable in today's healing gardens.

During the early part of the twentieth century, modern medicine and technology had a negative impact on the use of healing gardens. The practice of incorporating healing gardens into healthcare environments virtually stopped for many years. Fortunately, the last couple of decades have seen a shift back towards taking advantage of nature's healing qualities in healing and recovery. Important research into nature's positive influence on health outcomes by Roger Ulrich and others has been critical in turning the pendulum back towards the use of healing gardens in healthcare settings. Numerous studies have shown that merely the exposure to natural environments can have profound impacts. Some of the outcomes revealed decreased blood pressure and attention fatigue, improved moods and focus, and shorter hospital stays in the individuals involved.

Today there is an ongoing interest by the public and many practitioners into alternative medical treatments and therapies. The timing is ideal to look for new ways that various healthcare services can be incorporated into natural settings. During the nineties, healing gardens increasingly were used for the elderly in nursing home gardens, Alzheimer's treatment gardens, and hospice gardens. Many design professionals and healthcare practitioners are



continuing to search for new user groups. These explorations should be ongoing in order for healing gardens to benefit as many people as possible.

War veterans in the United States are potential candidates for healing garden use. Their numbers are rapidly growing due to continued overseas conflicts. Many younger veterans are suffering from severe physical and mental health issues upon returning home that were not common a few years ago. PTSD among returning veterans is of particular concern. Some of today's healing gardens have been shown to lessen symptoms of depression, alleviate stress, and reduce anxiety in those who spent time there. Depression, stress, and anxiety are all symptoms associated with PTSD, and therefore healing gardens could have potential benefits for veterans suffering with the disorder. Many VA facilities are already using nature-based therapies, such as horticultural therapy, in the treatment of many illnesses, including PTSD. The use of healing gardens for therapy and treatment would not be an extreme addition.

New and alternative treatment methods for PTSD could benefit not only the afflicted veterans, but the VA facilities that are serving them. Many facilities are starting to get overrun due to high patient volumes. As the number of veterans living with PTSD continues to grow, exposure to healing gardens could possibly be a supplementary method for treatment, and potentially reduce patient volumes in the future.

It is exciting that many PTSD practitioners at VA facilities across the country show interest in the use of healing gardens. They believe that utilizing natural environments during the treatment of veterans with PTSD would be beneficial. Although there appears to be a relatively high level of interest, there also seems to be quite a bit of hesitation. These professionals expressed concerns regarding a number of perceived obstacles for healing garden implementation. They are valid concerns that will likely need to be addressed across the VA

system. For now, professionals hoping to implement healing gardens into their facilities will likely need a lot of persistence to address these challenges.

The SVAMC is a great example of a facility where proponents of healing gardens had the resolve to get things done. The SVAMC is in the process of turning a roughly eight-year vision for a healing garden into reality. When completed, this healing garden will feature areas for a variety of treatment programs, including PTSD. Although the healing garden is not built yet, the SVAMC practitioners' collaborative design approach is a good example for other facilities to follow in the future. Clinicians with vested interest in the healing garden project have been resilient in the face of obstacles. Most importantly, they have always kept the veterans' interests in the forefront. Their efforts should be applauded and other facilities can model their approach after the SVAMC.

SVAMC PTSD practitioners have indicated how they hope to see the healing garden benefit their veterans. They believe the natural environment will support meditation and mindfulness, which are important aspects of the ACT therapy these veterans participate in. As the healing garden supports treatment objectives and therapy sessions, it should become an invaluable resource.

Practitioners at the SVAMC intend for the healing gardens to be a center for study and research once completed. This is essential to the success of this garden and other future gardens for PTSD patients. The garden will be unique to VA facilities and PTSD programs. It has great potential to serve as an educational tool not only for the SVAMC, but for other facilities in the VA system. The PTSD areas need to be evaluated and studied after completion. Veterans with PTSD using the labyrinths and other spaces in the healing garden for therapy sessions and meditation need to be monitored and evaluated. This research will help designers and

practitioners better understand if the garden is functioning as intended, and what outcomes are being reached.

The two biggest challenges for implementing healing gardens at other facilities, the VA system itself and lack of funding, go hand-in-hand. The VA is a large bureaucratic organization that has many layers, which means it takes a lot of time to get things through. This organization determines how funds are allocated across the system. If healing gardens are not on the forefront of VA administrators' minds, if they are even acknowledged at all, then it will continue to be an uphill battle to get them implemented at VA facilities. Somehow education and awareness of the benefits that healing gardens offer need to be brought to administrators' attention. Once there is greater awareness about the benefits of healing gardens, the funding will likely follow. How this education can be accomplished is a difficult question, but one that needs to be addressed in the future.

#### *Future Opportunities*

It is hoped that this study will spark an interest in healthcare professionals, landscape architects, and VA facilitators, providing a substantial argument that utilizing healing gardens during treatment would be beneficial to veterans with PTSD. The findings contained in this paper can be a catalyst for future research. There are a number of different areas involving PTSD and healing gardens that have the potential to be explored further.

A post occupancy evaluation (POE) follow-up on the SVAMC healing gardens could verify whether intended outcomes for the garden were met, and how it is affecting veterans using the space for PTSD treatment. Since there are no other known healing gardens for veterans with PTSD it will be critical to perform a POE at the SVAMC to determine first if they really are beneficial for veterans with PTSD, and then how they could be utilized more effectively. If

outcomes are good, the SVAMC healing garden could become a model for other PTSD facilities in the VA system.

Comparative analyses of the effectiveness of conducting traditional therapy indoors versus outdoors to determine if there are increased benefits for holding sessions in outdoor environments would help strengthen the movement to utilize healing gardens in treatment for veterans with PTSD. More VA facilities might be prone to implement healing gardens into their treatment programs if there was evidence that their therapy sessions would improve in the outdoors.

Increased exposure to the topic will be critical for creating awareness of this emerging area. Perhaps the most important audiences that need this education are the social workers and psychologists treating veterans with PTSD. If the practitioners who work with these patients every day buy into the idea of healing gardens, it is more likely they will be accepted and implemented. Efforts to increase awareness for these individuals could be made by submitting articles on the topic in professional journals that these individuals read, making presentations at the conferences they attend, and in continuing education arenas.

It is also important to increase opportunities for landscape architects to learn more about the topic and get them involved in advocacy. ASLA's Healthcare and Therapeutic Design Professional Practice Network (PPN) could play a vital role in this area. PPN newsletters and emails to members could provide exposure and education on the topic. Sessions focusing on this area at the annual ASLA meeting would also be a good avenue for getting the word out to more people.

As interest grows in the topic, landscape architects and interested VA practitioners should identify opportunities for additional studies. Efforts should be made to look for any applicable

grants, or other funds that can provide additional exploration into this area. These funds could also help interested VA facilitators implement healing gardens in their own programs.

The positive response that was received during the research and writing of this report indicates that this is a relevant topic, and one that needs continued attention. Healing gardens have great potential to benefit the veterans of this country, especially those suffering from PTSD. This study will hopefully contribute to future research and review by others into this emerging, but important area.

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