Relief for an unquiet mind:
Improving outdoor environments for long-term mental
health facilities using user-centered design

by

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A REPORT

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Abstract

Outdoor environments can greatly contribute to the ways people heal, reduce stress, clear their head, and feel integrated or accepted into the environment in which they live. Despite this scientific evidence, in most cases, not enough outdoor spaces are provided to the patients and staff of mental health facilities. Existing therapeutic landscape design guidelines lack specificity related to severe and persistent mental health (SPMI) conditions and spaces for therapy treatments. This study aims to use two environmental psychology frameworks (therapeutic landscape guidelines and the Reasonable Person Model) to begin to develop a set of informed guidelines that can be used to design more supportive outdoor therapeutic environments for staff in mental health facilities.

To achieve this goal, the study investigated three mental health hospitals in Kansas through two methods: site inventory and analysis and online/ paper photo surveys. The surveys were based on the literature on therapeutic landscapes and restorative environments as well as mental health symptoms to identify which guidelines are specific to mental health and which are generally applicable to all healing spaces. The final objective is to discover the environmental needs and preference of mental healthcare setting users.

Findings from the site analysis and surveys were applied to a projective design at one of the three study sites- Osawatomie State Hospital. 140 responses from staff and 14 responses from patients were collected through the survey. Because there were not enough patient surveys collected to be statistically reliable, only the data collected from the staff was used in the projective design.

Overall, by linking psychology principles and landscape architecture, this study aims to take a step toward developing a set of evidence-based planning and design guidelines to create supportive outdoor spaces that better meet the needs of the patients and staff of mental health hospitals, aiding in the therapeutic process for the staff over time.

Relief for an Unquiet Mind

Improving outdoor environments for long-term mental health facilities using user-centered design.

Madison Quincke
2020

Acknowledgments

Personal Interest

Since my mother has worked in the mental healthcare system all my life, I had an earlier exposure to the stigmas, economic difficulties, and ethical issues that the mental healthcare system faces particularly in Kansas. I had friends who lived near the mental health hospital in my hometown who told me rather crazy stories about the patients escaping, the creepy campus, and the amount of lock down the campus was under. However, my perspective changed when visiting the campus with my mother.

I found the campus to be quiet, calm, park-like, and historically captivating. Patients who were outside were always accompanied, staff were pleasant, and the buildings were safely locked. After visiting the campus a few times, my interest peaked at the idea of how these stigmas and environments could be improved if people could better understand the people who live and work at these hospitals and how their own well-being could be positive impacted through new design. The hospital I have been visiting for years in my hometown is Osawatomie State Hospital. For this project it only seemed right to include it along with other major mental healthcare facilities in Kansas to hopefully create new design ideas that can change the ways in which nature-based therapy and exposure can improve the lives of staff and patients at hospitals like OSH.

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Osawatomie State Hospital Jung building.

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INVESTIGATE

Chapter 2 | INVESTIGATE

This report is connecting a range of topics including landscape architecture, environmental psychology, and therapeutic landscape design guidelines as shown in Figure 2.1. It is important that research begins to transcend the boundaries between these three topics and realize the strength in putting them together because in many ways, the principles inform one another. Using environmental psychology principles, such as how light, color, and site-specific elements affect a person's mood and reaction to a space is very important in healthcare or therapeutic landscapes. Therapeutic landscapes, often used in healthcare settings, are meant to create an environment that is "healing" or restorative for the user. In most healthcare settings, without the use of environmental psychology principles and the expertise of landscape architecture, these environments will not meet the user's needs and preferences in way that can help that user or population. Landscape architects act as the facilitator in healthcare design. They have the ability to connect environmental psychology and their expertise in using plants, site elements, furniture, and micro-climate conditions to help create a design which effectively meets principles of environmental psychology to create a restorative environment.

In order to better understand how we can create better environments about outdoor environments in mental health facilities, first we must know about the population- the mentally ill.

RESTORATIVE ENVIRONMENTS WHICH MEET USER'S NEEDS

CREATES

User Perspective

User-Centered Design

Professional Knowledge

Mental Health Facility Guidelines

Therapeutic Landscape Design Guidelines

Healthcare

Applied to

Landscape Architecture

Applied to

Theories of Environmental Psychology

Treatments of Mental Illnesses

Symptoms of Mental Illnesses

History of Mental Illnesses

Precedent Facilities

Bipolar Disorder
Major Depression
Schizophrenia

Evidence-based research

Stress Reduction Theory

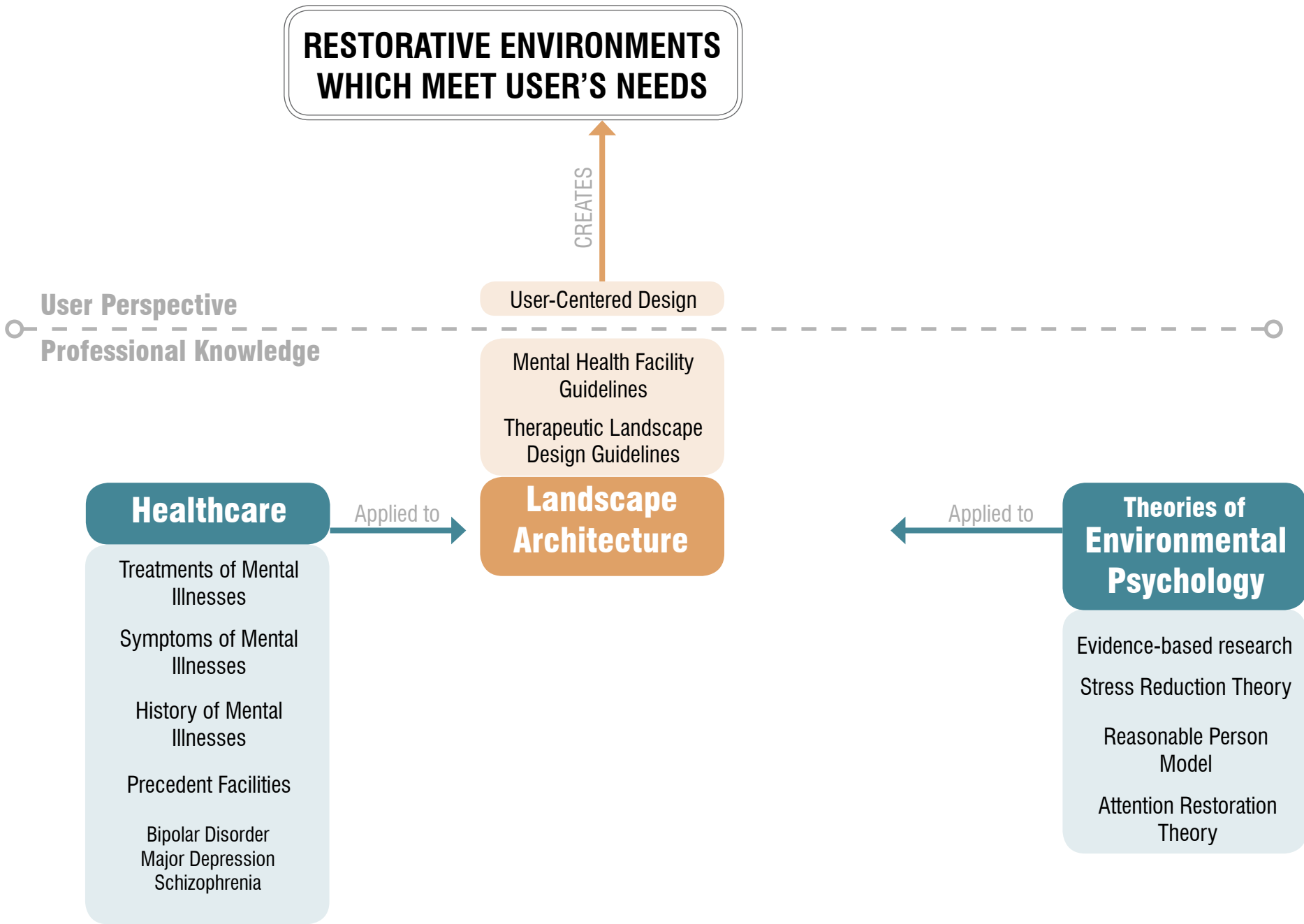Reasonable Person Model

Attention Restoration Theory

Figure 2.1: Concept diagram explaining how the topics of the project connect.

Severe and Persistent Mental Health (SPMI)

What is SPMI?

Serious and persistent mental illness, (SPMI), is a group of severe mental health disorders as defined in the Diagnostic and Statistical Manual used by mental health professionals to diagnose clients. The SPMI category includes Major Depression, Bipolar Disorders, Schizophrenia and Borderline Personality Disorder (KDADS 2019). Because these illnesses are the most severe, they make up most of the population within the mental health facilities this study is look into. Mental illnesses are common in the United States (Figure 2.3, 2.4, and 2.5). Nearly one in five U.S. adults, or 47.6 million people, live with a mental illness (NIMH 2018, Mental Health America 2018). Although mental health has a vast range of meanings and severities an estimated 11.4 million or 4.5% of U.S. adults were diagnosed by a severe mental illness in 2018 (NIMH 2018). Outdoor environments for the mentally ill could be the only place of relief or exposure to the outdoor world. Many of such patients have been living or are predicted to be living within the hospital many years of their life because they are unable to work, have a family, or be in public places alone.

One of the most beneficial ways to create restorative outdoor environments for mental health facilities is by identifying site-specific user preferences. Although user-centered design approaches have been encouraged across multiple sources (Jordan 2015, Marcus and Sachs 2014, Marcus 1999, Winterbottom and Wagenfeld 2015, Goshen 1959, Bailey 2018, Wicks 2018) it is underutilized within therapeutic landscape guidelines (Marcus and Barnes 1999, Marcus and Sachs 2014). The importance of outdoor spaces for psychiatric hospitals has not been emphasized and most commonly, they are only included if there is money allocated for these types of spaces in the budget. Whereas, outdoor environments should be considered as an essential part of the healing process as they support many of our human needs to be our best self (Kaplan and Basu 2015).

18th Century

Mental health issues were primarily taken care of by the families of those affected. The public was not very informed of the illnesses or their risks. There were very select services available to help behavioral mental health.

19th Century

Institutional efforts in healthcare began to take over the responsibilities for those affected by behavioral mental health. At this time, many of the patients were criminals. Professionals thought the illnesses were curable through extreme experimentation that were often unethical. During this time, the stigma of mental health arose.

20th Century

Professional realized that mental illness was implications of the brain functions and sometimes unexplainable. There was not an existing cure. In result, the healthcare system for mental illness was reformed with the "Deinstitutional Movement." During this time, families began community-integrated treatment which proved helpful in some scenarios. Although more aware and acceptable than those in the 19th century, the public still fears and places a stigma on people affected.

21st Century

Today still remains a dispute about the care of mental illness. For some, home-care is best but for those who are a risk to the general public and themselves, they have to be institutionalized. Much research has been tested for the best environments for behavioral mental health but there is still so much to to. Especially regarding outdoor space.

Figure 2.2: Historical timeline of mental health in the United States.

The History of SPMI

In America, the challenges of mental health have been documented since the Colonial period (See Figure 2.2), however during this time, it was the care and support of the patient's families to meet the needs of those affected (Johnson and Rhodes 2007, 220). But in the mid-19th century, this changed completely. Healthcare professionals took on the care of the mentally ill. Sanctuaries or asylums were established on the outskirts of town or within the countryside with the intention to heal or re-socialize these people. "…In the last half of the 19th century, there was a growing perception that it was society, not the institutional residents, that required protection" and thus where the harsh stigmas towards mental illness began (Johnson and Rhodes 2007, 220).

Many patient relatives and the general public were disturbed at what was being published in newspapers and films by authors and producers showing the care and "treatments" of healthcare professionals to patients. As a result, the 'Deinstitutionalization Movement' arose in the late 20th century. The downsizing and closing of many large hospitals began and the establishment of alternative community-based mental health services were created. The psychiatric hospitals that did stay intact, reframed their goals, scheduling, design of wards, and even outdoor activities based on preliminary theories that had been proposed by architects, sociologist, and psychiatrists (Colman 1971). The main goals were to make psychiatric hospitals more responsive to the patients' needs by understanding the restorative 'target environment' and were trying to get the patients back to whatever environment that they came from. Additionally, during this time, it was recognized that if the staff member is happy, well educated, and confident, the overall experience for the patient would be heathier. Overall, by the end of the 20th century, the character, stigma, treatment methods, and conditions were beginning to improve in mental health facilities.

Today in the 21st century, there has been an increased interest in the environmental movement and connection of health and well-being to landscapes. It is true that indoor and outdoor relationships of design have progressed, but this is not necessarily happening in healthcare design (Ogunseitan 2005, Sachs 1999). Most designs are loosely described or have vague attempts at 'connecting a person to nature' while they are in a hospital. In many cases, architects are failing to utilize the outdoor space directly adjacent to the building for therapy or restorative space. This could be stemming from the requirements to maintain a certain level of security and safety within a mental health facility or the fact that designers are translating design principles and techniques from commercial hospitals to psychiatric hospitals (Hunt and Sine 2015). Principles such as providing clear way finding, views to nature, using light and color, motion, climate and materiality are pragmatic elements that should always be implemented but how or in what way changes based on the facility type. How can a designer effectively implement these elements if the staff and patient's input is not being collected? Gaining input from staff and patients of mental health facilities for more site-specific design feedback poses a challenge for designers through the IRB application (Marcus and Sachs 2015, Goshen 1959). The application takes time and perspicacity by both the designer and staff which money may not allow.

Overall, there is still much work and progress to be made in psychiatric institutional design. Research specifically on outdoor environments for mental health facilities is scant (Marcus and Sachs 2014). This is one main reason why this research is imperative. There is not a 'one size fits' all approach to psychiatric facility design and it requires a place-based research. There should be a basic understanding and a set of guidelines that help designers create well-designed spaces for those effected with a mental illness. Designers need to understand that not all risks will be avoided in their design and that it is up to them to communicate with facility staff to determine what level of risk is acceptable for the facility and patient population (Hunt and Sine 2015).

SPMI in the United States

The idea of mental health in the United States has evolved dramatically over the past ten years. The topic of mental illness has jumped from uneducated guesses about diagnoses and something people do not talk about to well-known actors, actresses, politicians, and school children talking about mental health prevention. Unfortunately, this rise of interest has not stemmed from just anything. More people are dying each year from mental illnesses. A report in the JAMA Psychiatry Journal which is supported by the American Medical Association and the NIMH in 2015, said that approximately eight million people die each year around the world from severe and persistent mental illnesses. Of those deaths, 67.3% were of natural causes such as mental illnesses paired with heart disease, 17.5% were "unnatural causes" such as suicide, and the remaining deaths were due to unknown causes (Walker et. al 2015, Insel 2015). Suicide alone is the tenth leading cause of death in the United States and only keeps rising (Winerman 2019, Control for Disease Control & Prevention 2017).

Percentages of People

- 15.83 - 17.40
- 47.41 - 20.12
- 18.43 - 19.31
- 19.32 - 20.12
- 20.13 - 22.72

Figure 2.4. Any mental illness in the U.S. Adapted from Global Burden of Disease 2014.

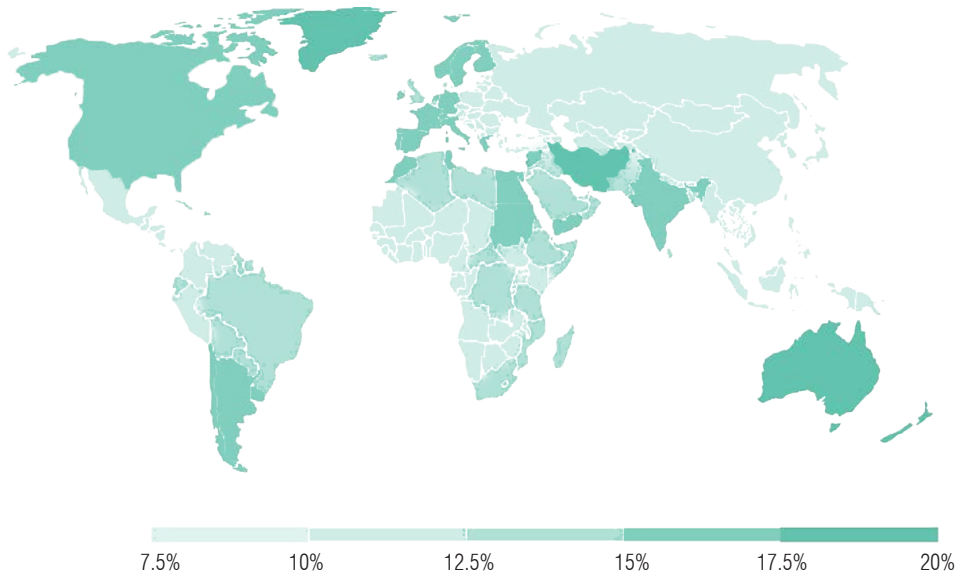**Figure 2.3**: Percentage of population affected by a mental illness nationwide. Adapted from Global Burden of Disease 2017.
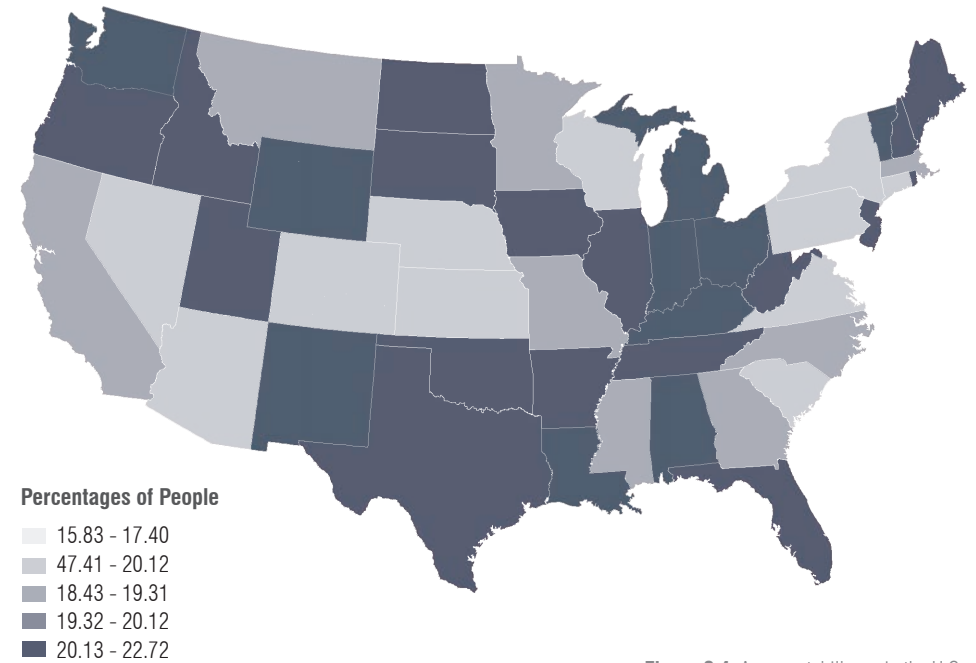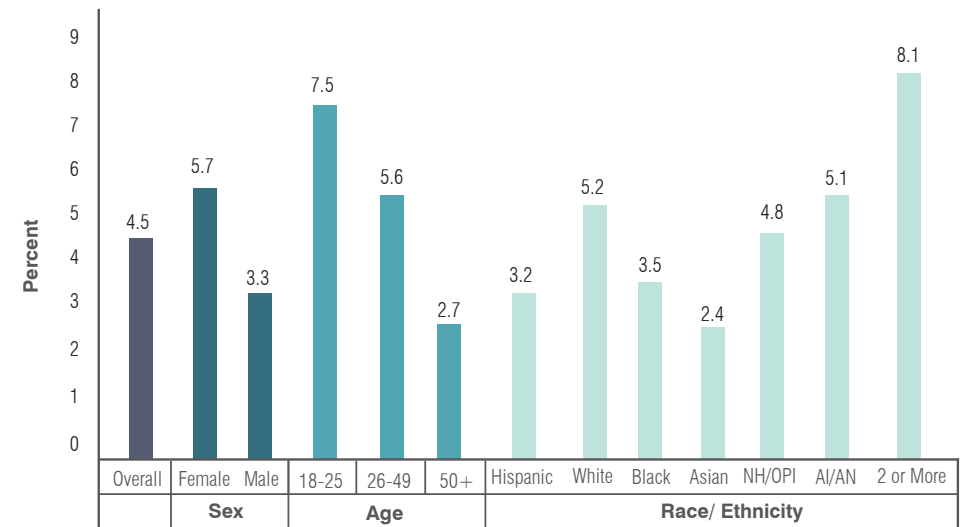

Figure 2.5: Serious mental illness in the U.S. Adapted from Global Burden of Disease 2017.

Focal SPMI

In order to understand how to design for users of mental health facilities, designers must be well-informed about the conditions the hospital is treating. The most severe and persistent mental illnesses found within mental health facilities of this study is major depression, bipolar disorder, and schizophrenia as mentioned before. Each of these illnesses have a range of symptoms, treatments, and risks as shown in Table 1.

Major Depression | Dysthimia

Major depression is the most common mental illnesses in the United States with about 17.7 million (1 in 14) diagnosed adults (NIMH, 2018). The symptoms include irritability, feelings of guilt or worthlessness, persistent sadness, or thoughts of death or suicide for two continuous weeks. Depression can arise from family history, life events that could cause a traumatic reaction or decision, and sometimes other illnesses and their medications. Fortunately, because the illness is common, even the most severe cases can usually be treated with medication and therapy. However, it can take a long period of time to figure out the right 'formula' of medication and therapy since no two people are affected by depression in the same way (NIMH, 2016).

Bipolar Disorder

An estimated 7 million (1 in 35) of U.S. adults were diagnosed with bipolar disorder in 2018 (NIMH 2018). There are four types: Bipolar I, Bipolar II, Cyclothymic Disorder, and Unspecific Bipolar. Depending on the type of bipolar disorder, people experience changes in sleep and activity patterns as well as mood changes. There are two spectrums which a person diagnosed with bipolar disorder can experience: hyperactive/ manic episodes or hypoactive/ depressive episodes. The symptoms of this disorder include racing thoughts, memory loss, being agitated, participating in more risky activities or thinking about death. Although the illness can create serious life changes, treatment is available for people to lead a relatively normal and healthy life (NIMH 2016).

Schizophrenia

In 2018, an estimated 1.5 million or less than 1% of people were affected by schizophrenia (NIMH 2018). Schizophrenia is a severe mental illness that affects how a person thinks, feels, and behaves. People affected by schizophrenia usually start to see symptoms of hallucinations, delusions, agitated movements and voice changing between the ages of 16-30. (NIMH 2016). The biggest debilitating factor of schizophrenic patients is the disorder of perception which affects every aspect of their daily routine and causes symptoms of bipolar or depression (Goshen 1959, Pringle 1970, NIMH 2018).

Staff in Mental Healthcare

Although designers musts be aware of the types, treatment types, and needs of those treatments for patients, the staff user group of the healthcare facilities play a large role in each of those considerations. Staff wellbeing and needs must also be met in order for the facilities to be run positively and smoothly. Many sources have talked about the importance of staff happiness in the workplace, particularly in healthcare settings where there is often a lot of stress, pressure, and long shifts. Staff happiness can lends to improved patient care which contributes to improved patient health outcomes. Additionally, low employment turn-over rates are also important in healthcare settings because this allows the patients daily schedule to be more consistent and stable (Marcus and Sachs 2014, Huntsaker et al. 2015). Taking in these considerations, this study will focus on the staff needs and preferences since more data for the staff was collected during the survey. However, this does not mean collecting survey information from the patients were irrelevant or unimportant. But the low number of participants cannot justify decision made for the projective design.

Mental Illness	Keyword Definition	Risk	Signs & Symptoms	Treatment & Medications
Major Depression/ Dysthymia/ Psychotic Depression	A mood disorder that affects how you feel, think, and handle daily activities such as sleeping, eating, or working.	• Personal or family history of depression • Major life changes, trauma, or stress • Certain physical illnesses and medications	• Irritability • Feelings of guilt or worthlessness • Moving or talking slow • Persistent sad, anxious, or 'empty' mood • Loss of interests • Thoughts of death or suicide	• Psychotherapy • Electroconvulsive therapy • Antidepressants • Some herbal treatments • Be more active • Spend time with people you confide in and trust
Bipolar Disorder	A brain disorder that causes unusual shifts in mood, energy, activity levels, and the ability to carry out day-to-day activities. There are four types ranging from high energy to low energy.	• Brain structure and functioning is affected • Genetics- some people have genes that are more likely to have bipolar • Family history	• Feeling 'high' or down and hopeless • Feeling jumpy or decreased levels of activity • Being agitated or 'touch' as well as forgetting a lot • Feeling like their thoughts are going very fast • Doing a lot of risky things or thinking about death	• Psychotherapy • Mood stabilizers • Antipsychotics • Antidepressants • Interpersonal and social rhythm therapy • Family-focused therapy • Sometimes sleep medications
Schizophrenia or Schizoaffective Disorder	A chronic and severe mental disorder that affects how a person thinks, feels, and behaves. They feel as if they have lost touch with reality.	• Genes and Environments • Brain structure and functioning	• Hallucinations • Delusions • Dysfunctional thinking • Agitated body movements • Change in voice • Problems with memory	• Antipsychotics • Coordinated Specialty Care • Psychosocial therapy

Table 2: Summary of serious mental health conditions.

The Stigma Associated with SPMI

Even today, there is a large amount of stigma surrounding the topic of mental health (Curtis et al. 2007). In the 19th century, is was the goal to purposely place those affected with a mental health illness on the outskirts of town where they would not have to be looked at or socialized with the general public. Then in the 20th century, professionals began to realize the need for improved quality of life for mental health patients. Re-socializing the patients back into the cities through community- based programs, organizations, and reverting to 'home- care' became the common practice, meanwhile mental institution population capacities were still growing. It turns out, integration of the mentally ill back into a community, unfortunately, also spiked controversy. In result, the 19th century high- security, medieval castle- like buildings were used once again for more permanent infrastructure for patients with long-term mental illnesses. The demeanor of these buildings do not help with stigma of mental health, even in the 21st century. If the hospitals looked different, were more approachable, closer to the public, and a bit smaller, perhaps the community's concern would be reduced (Goshen 1959). The aesthetic of a space and the way that it is maintained plays a role in how people perceive place. By creating facilities that people with a mental illness can live, be restored, and create their own sense of self to the general public will help with the overall stigma the world already places on them.

Restorative Environments

A person's daily environment has been proven to impact the way in which that person can feel, think, and even heal (Ulrich 1979, Warner 1994, Kopec 2006, Yi-Fu 1974, Holahan 1979). This concept is highly supported by environmental psychology- the field that focuses on the relationship between individuals and their environment (Kopec 2006). Although there is no 'one size fits all' type of environment that is inclusively aesthetic, therapeutic, calming, or memorable, many theories of environmental psychology evaluating people's interaction with their environment by the Kaplans, Appleton, Kopec, and Ulrich show that as a collective human race, our brains react in similar ways to elements such as color, light, wayfinding, stress, and nature (Kaplan 1989, 1995, 1998, Appleton 1996, Kopec 2006, Ulrich 1979, 1983, 1999). The influence of restorative environments has been extensively explored using these elements in addition to the Stress Reduction Theory (Ulrich 1983) and Attention Restoration Theory (Kaplan 1989, 1995). It has been found that restorative environments can support the human need to connect to nature cognitively, emotionally, spiritually, and with identity to something that is bigger than themselves in their daily lives (Abraham et. al. 2009, Marcus 2010, Ogunseitan 2005, Green 1994, Jordan 2015, Canters 1979).

If we know the benefits and qualities of restorative environments, why aren't these spaces required for places like mental health hospitals? Customarily, states and organizations have been reluctant to spend their limited funds on environmental conditions of mental health hospitals in default to meeting required mandates and safety restrictions. While in its place, the funds are used for medications, "treatment," and safety gadgets, downplaying the role of the environment that could help move the user's of mental health facilities toward wellness. This is an issue that must be changed through policy and dialogue between interdisciplinary work.

Theoretical Understanding: Environmental Psychology

According to the theory of environmental psychology, the environment itself is made up of three components: physical stimuli- the noise, light, and temperature of a place; physical structures- the dimensions, furniture, and hallways of a space; and symbolic artifacts- the meaning or image of a setting (Kopec 2006). These environmental components effect human cognition, our actions, and well-being. Although humans react to these three components of a space in different ways or level of stimulation, such as excitement, anger, sadness, or anxiety. Architects and designers can use these components as tools when designing restorative environments to respond more sensitively to the specific users of spaces such as patients and staff (Kopec 2006, Westphal 2003, Marcus et al. 1998, Abraham et al. 2006, Kaplan 2008).

David Kopec, a professional architect and environmental psychologist, believes that for psychological therapy to take place, an environment must promote health and well-being, create a connection to the environment, have a meaning to form a memory for the user, and be perceived as highly safe (Kopec 2006). In addition, two of the leaders in environmental psychology, Stephan and Rachel Kaplan, say that direct attention leads to mental fatigue but views to nature or soft fascination in nature can help recuperate the mind. These principles are similar to therapeutic landscape guidelines which state that restorative environments should be safe, comfortable, contain a large amount of natural green material, promote autonomy, support social and physical activity, fascinate the mind, and be easily accessible (Marcus 1999, Marcus and Sachs 2014, Abraham et. al 2009, Kaplan et al. 1998, Hunziker et al. 2007, Johnson et al. 2007). While helpful, these principles are applicable for the general public and not specific to psychiatric healthcare facilities (Sachs 1999, Jordan 2015, BHFC 2018).

Artificial and Natural Light

Figure 2.6: Osawatomie State Hospital.

It has been proven that universally people prefer natural light in contrast to fluorescent light (Holzman 2010, Morita and Tokura 1998). Light can help a person determine how safe they feel within a space because it allows people to see faces, distinguish distance, and contrast of objects in both indoor and outdoor settings (See Figure 2.6). In a pragmatic sense, lighting has an influence on the performance of a person especially related to age groups. As individuals age, they need more luminance and contrast to be able to see well. Particularly in healthcare settings, light can affect the comfort, health, and well-being of patients ranging from transient symptoms to more troubling ailments (Wells et. al 2016). Regarding mental health institutions, lighting needs to be bright and effective for safety but also needs to set a calming mood. Both natural and indoor lighting is crucial to improving or providing a calming environment (Kopec 2006).

Color

Figure 2.7: Parsons State Hospital greenhouse.

"Human sensitivity to color is manifested at an early age. Colors, which play an important role in human emotions, may constitute man's earliest symbols" (Tuan 1974, 24). Many studies have been completed to test the affect color has on a person's emotions, activity level, and influence of culture. Warm colors such as red and yellow increase the brain's activity (Wells et. al 2016, 220). They also symbolize, in many cultures, dominance, hunger, and creativity. In contrast, cool colors like blue, green, and purple are calming. They may "evoke motivations of users in a space to connect and socially bond (Wells et. al 2016) or feel a sense of comfort and relaxation. The color green in particular is thought to affect our brains because of the strong biological connection we have with it from our surrounding landscapes. The "Green Mind Theory" supports this along with the idea that immersive experiences, like exercise or long exposure to green spaces, can improve a person's over well-being by decreasing blood pressure, and strengthening the immune system, cardiovascular or endocrine systems (See Figure 2.7). Colors have been proven to change our emotions based on these assumptions. Colors can even "raise blood pressure, cause anxiety, or have a feeling of safety" (Kopec 2006, 81).

Autonomy

Figure 2.8: Osawatomie State Hospital.

There are 3 types of personal control (Kopec 2006, Averill 1973). The first is behavioral control which constitutes changing your environment via behavioral actions, such as modifying the temperature in your home. The second type of personal control is cognitive control, which is how an individual interprets a certain situation, for instance when driving behind a swerving driver, one might assess the situation as dangerous and thus drive more carefully. Lastly there is the type of decisional control, which allows an individual to choose between many types of environments. This could mean an elderly person having the option between nursing homes or a plant community. Having personal control over the environment has been researched to reduce environmental stressors. Researchers say that by having control over changing and or stopping something that may have a negative psychological effect on that individual, they are able to cope with and better overcome obstacles in their daily life. Mental health hospitals often have too much control on the environment for patients and staff as shown in Figure 2.8.

Noise

Figure 2.9: Osawatomie State Hospital.

Noise is one of the most investigated environmental influences on humans. It is defined individually, can be different for everyone, and has a wide range of interpretations. One person may not want to hear someone talking in the next room, while another person may be fine with construction right outside their door. This sensitivity of noise is very much dependent on the individuals' environmental stressors and can also depend on the task at hand, the characteristic of the noise, as well as its longevity. Using walls, fences, vegetation, and surrounding buildings can help control the noise level of outdoor spaces as shown in Figure 2.9.

Temperature

Figure 2.10: Osawatomie State Hospital.

Room temperature can greatly impact an individual's daily activities such as reading, writing, or conversating. Although the temperature range at which people feel comfortable varies, most adapt to the slight variances in their everyday surroundings and therefore only feel uncomfortable with more drastic temperature changes. Over the past 25 years, research has indicated that heat adversely affects the performance of most tasks, whereas cold conditions don't seem to affect one's performance as drastically. In outdoor spaces, overhead structures are the primary source for shade and climate control as shown in Figure 2.10.

Privacy

Figure 2.11. Larned State Hospital.

In today's society it can be challenging to find the right balance between privacy and social spaces. However, privacy can be especially important for an individual experiencing environmental stress. It fosters the ability to create self-identity, a time to self-evaluate, and feel reasonable. Privacy has many different meanings including seclusion, the want to be away from others completely, or intimacy, which involves getting away from other people except from a select few. Erwin Altman defined privacy as having a selective control over access to the self or to one's group. Privacy is closely linked to the sense of control due to the individual's attainable level of privacy greatly varying on their environmental stress (See Figure 2.11).

Social

Figure 2.12: Osawatomie State Hospital.

Having access to social networks is a crucial need. It is very similar to privacy in the fact that it is an environmental factor needing to be balanced. Empirical evidence from a variety of sources has supported the idea that a higher amount of social support within an individual's life correlates with a lower effect of psychological disturbances, for example depression or anxiety. People who experience psychological stress typically first turn to their social networks, including family, friends, and neighbors. These social support frames not only aid in mitigating environmental stress, but also can prevent physiological breakdowns. The strength of the social networks greatly depends on the number of people within that network, quality of social support the beneficiaries are receiving, and the physical proximity within that social network. A community garden is a great example of a positive social network that could be provided in a long-term mental health facility environment as shown in Figure 2.12.

Wayfinding

Figure 2.13: Osawatomie State Hospital.

Users of the hospital are often under physical and emotional stress making it difficult to navigate the healthcare environment. Despite this common knowledge, designers, planners, and signage experts often think about the wayfinding component of a space last (Sloan 2014). Implementing more effective wayfinding in a healthcare environment could reduce stress of the patient and/or visitors in addition to costs of healthcare professionals. Those professionals could spend more time doing their job then escorting patient or visitors to and from parts of the hospital. When determining the right kind of wayfinding for a facility or space keep in mind the names of places, how large or high the signage is, the color, the distance, and the consistency in appearance as shown in Figure 2.13 (Sloan 2014).

PRECEDENTS

A View Through a Window | Roger Ulrich

Roger Ulrich was one of the first architects to relate principles environmental psychology theories to architecture. In an experiment in 1984, he began to draw conclusions between the effects of visual perception of nature and anxiety and how this information could be used within hospital environments. In the experiment, he tested twenty-three surgical patients assigned to rooms with windows that overlooked trees and tested another twenty-three patients who received the same surgery with windows facing a brick building. Overall, in comparison with the wall-view group, the patients with the tree view had shorter postoperative hospital stays, had fewer negative evaluative comments from nurses, took fewer moderate and strong analgesic doses, and had slightly lower scores for minor postsurgical complications (Ulrich 1984). Although this study was one of the first of its kind, it proved that the environment humans are in during stressful times can be influenced in a way to help people feel less anxiety or increase the speed of recovery. In result of this study, many researchers and designers are building upon this theory of "views" as increasing the effect of a restorative environment.

The Role of Color in Healthcare Environments | Hessam Ghamari and Cherif Amor

Although color is a fundamental factor in environmental design, there is more complexity to how our eyes, brain, and body react to color and light. This precedent reviewed multiple studies on the subject which revealed the common theme that color in healthcare environments can improve the social support, sleep, and satisfaction of patients while it can also reduce anxiety, medical errors, and depression of patients, staff, and visitors of the hospital. The conclusion of the study was that color remains a fragmented and inconsistent topic. Although designers should be educated about color theory, one must consider the external stimuli that a patient, visitor, or staff member could be experiencing specifically in a healthcare environment. However, the study goes on to explain that color therapy in healthcare should be explored because 1) The healthcare industry is currently experiencing a boom of renovations and research, 2) there is a shift in hospital population as the "baby boomers" are entering healthcare facilities who will require a different set of needs than the past population, and 3) professionals are realizing the need and importance of patient-oriented environments.

Therapeutic Landscapes

Therapeutic site design is only about 40 years old. The concept of healing environments is in its infancy and there are no set recipes for success (Greene 1994, Westphal 2013, Bailey 2018). In response to environmental psychology or many other psychology theories, healing landscapes or therapeutic landscapes have become a specific "type" of design within landscape architecture. In the last decade of the 20th century, a spatial turn happened as landscapes came to be considered a cultural product such as "a suburban or urban landscape". This is important because healthcare or healing landscapes have also become a product of this categorization.

Within recent years and the Environmental Movement, people have become more aware of the environment and the impacts it has on people especially within cities. Many studies have shown that factors such as clean air, access to green space, stress, and safety are important characteristics in healthy therapeutic spaces. As stated in the previous section, according to the theory of environment psychology, our environment shapes our health and well-being through the different elements combined with our reactions. With knowledge of environmental psychology, site specific phenomena and the individual patient experience, landscape architects have taken on the role of being advocates for bonding nature and health which, overtime, formed therapeutic or healing design. "Together I think we can be a great force of change; designers, medical professionals, and mother nature…by working together and producing landscapes that really do deliver therapy to our patient groups" (Westphal 2013, 9:30min).

As evidence-based research about restorative environments have increased, landscape architects like Clare Cooper Marcus, Naomi Sachs, Marni Barnes, Joanne Westphal, and many more have begun creating guidelines for landscape architects and other designers to follow as a guide for therapeutic landscapes. In addition to the previous elements discussed related to environmental psychology, the following elements have also been highly recommended to incorporate in therapeutic landscapes:
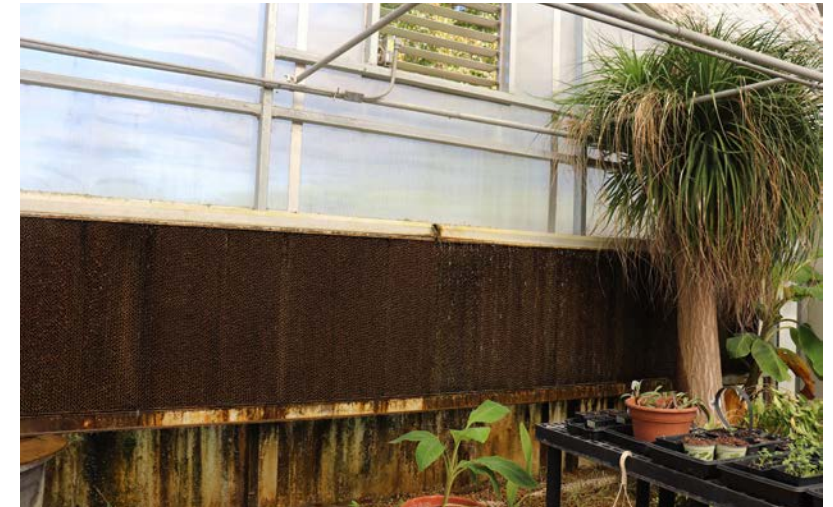
Water Features

Figure 2.14: Osawatomie State Hospital.

Incorporating water features into a space not only provide a visual amenity but more importantly, a sound amenity (See Figure 2.14). Water fountains, streams, or small ponds can mask unpleasant noises such as vehicular movement or others talking nearby. In addition, it is believed based on the Prospect-Refugee Theory which proposes that people's aesthetic preferences in the landscape are derived from what we need/needed for survival including food, water, safety, shelter, light, etc), that including water elements in a space is highly preferred due to natural instincts.

Views to Nature or Borrowed Landscapes

Figure 2.15: Osawatomie State Hospital.

Using surrounding landscapes or creating views out a window of a hospitals can provide positive stimulation or fascination for a hospital resident, visitor, and staff member (See Figure 2.15). For this reason, it is important that spaces of the hospital where a person may be sedentary or within for a longer period, has an appealing view to an outdoor landscape. In result, this means spaces should have larger windows allowing more light to flow indoors in addition to allowing someone to "experience" the outdoors during various weather conditions.

Courtyard

Figure 2.16: Osawatomie State Hospital.

Courtyards can provide semi-private spaces for patients, staff, and visitors of the hospital to use that are safe. Specifically, for mental health hospitals, courtyards can allow patients to go outside autonomously and if covered or between building walls, during various weather conditions such as this courtyard at OSH in Figure 2.16.

Plantings

Figure 2.17: Osawatomie State Hospital.

Plant material could arguably be one of the most important aspects of a therapeutic landscapes. Plantings should provide a multisensory experience within a landscape design (See Figure 2.17). This means the plants chosen for a design should appeal visually in all seasons, change in height, change in color, and have different visual and physical textures. However, the choice of plant material should be low maintenance and native to the region since more often than not, there is small resources available to replace dying plants or have an employee upkeep them. Lastly, plants could be used for more than visual, sensory, or sound devices of the landscapes. Plants could be used to provide a food resource for a hospital by planting herb or vegetable gardens. This use of plant material could even provide an activity for patients and staff to create a stronger bond between people and nature.

PRECEDENTS

New Psychiatry Hospital in East London | East London

A post-occupancy evaluation of a new mental health hospital in East London took place to assess how former patients and staff through the hospital's environment were beneficial or detrimental to their well-being while staying at the hospital. The study found four major concerns that needed to be addressed in future designs of mental health hospitals. The first was the participants concern with the limited extent which the design of a space is influenced by the users. In doing so, this is a sign of respect to the community which the space is being designed for or in other words relating to the symbolic realm of therapeutic landscape principles. Secondly, also relating to the symbolic realm, the user's needs need to be considered informally as well as formally. This means thinking about how the public views the hospital from the outside looking in as well as what types of activities user's need in their everyday life aside from therapy spaces. Lastly, there is a potential to redirect revenue resources which influence staffing levels. Many participants expressed concerns in even being able to use outdoor spaces because there is a lack of staff to support those types of activities.

Topophilia and the Quality of Life | Odadele Ogunseitan

A quantitative questionnaire study was produced to assess the values associated with the financial investment in naturalist environmental design, landscape architecture, and ecosystem conservation in areas around the University of California. After interviewing 379 participants, the study showed that people did feel their mental stress or anxiety would improve if there were more "eco-diversity themes- particularly the presence of flowers, lakes, or oceans- which are generally perceived as providing restorative environments" throughout their neighborhoods (Ogunseitan 2005, 147). Despite the limited view of the study, since it was completed in a prevalent 'college district neighborhood' it brought many good arguments necessary to argue the need for more funding to increase the landscaping quality of an environment because people do value it.

Overall, these studies have helped to prove that we are impacted by our environments physically and mentally. If designers were more cognitive about the study of environmental psychology as well as common therapeutic landscape design guidelines, they will have an increased ability to predict many emotional and physical reactions to an environment and its attributes. Psychiatric hospital environments are extremely sensitive and shouldn't be designed the same as commercial hospitals. For someone who lives within a long-term in-patient facility, it is crucial that their environment is contributing to their health and well-being which meets the needs of their physical and emotional capabilities.

Kaiser Medical Center | Walnut Creek, California

Designed around two heritage valley oaks, Kaiser Medical Center provides spacious green space for the approximately 500 employees that work and 362 patients served daily. This case study gathered information on the site through behavior analysis, interviews, and site inventory and analysis. During behavior analysis, it was found that there was constant movement on the campus. So much that it became a limitation of the project as the number of passersby were underrepresented by approximately fifteen percent. However, there were 1,251 people observed over a series of two days, only of which 745 of them stopped or paused outside. Overall, it was found that 29 percent of the users were medical staff, uniformed employees, or construction workers; less than 2 percent were inpatients; and the remaining 69 percent were visitors, outpatients, or nonmedical employees.

After interviews with 50 site users, it was found that of those interviewed, 27 were staff, 11 were visitors, 8 were outpatients, and 4 were inpatients. Almost half of the participants reported that they used the interior garden space every day. Most importantly, more than 85% reported that the garden was relaxing, almost 50% reported that they use the garden as outdoor therapy, and almost 50% or more reported using the space for exercising including walking or strolling. Lastly, about 46% of the respondents said they wouldn't want anything about the garden changed. Overall, the results revealed that the user's of the Kaiser Medical Center thought and use hospital garden for therapeutic reasons.

The Role of a Landscape Architect in Restorative Environments

Landscape architects have the ability to design evidence-based spaces which accommodate not only the patient but also the visitors and staff. One of the first challenges designers will encounter when designing for healthcare facilities is how to master the large amount of medical information and terms that will be needed to create well-informed mental healthcare design (Westphal 2003). Having knowledge about patient's medications, the hospital routine, when staff members get breaks, and what type of stress patients and staff are exposed to are all going to give insight into how healthy the environment is for patients and staff. Because typically in treatment, the patient's or staff member's health determines their ability to go outside.

In addition to the patient's experience and sensitivity in design, the visitors need supportive and private spaces as well. In many cases hospital rooms, hallways and waiting rooms are not created for visitors and are rather small. Designing appropriate outdoor space for the visitor is important and must be flexible to accommodate varying sizes of groups and activity. Lastly, the staff members of the hospital will use the outdoor space most often. For this reason, it is critical that the spaces are always accessible and have opportunities of privacy for breaks and meetings specifically meeting their needs.

Overall, by being considerate of each user type in mental healthcare facilities, landscape architects can better design outdoor and outdoor to indoor relationships that are intentional and can be used seasonally. Outdoor therapeutic spaces should not 'leftover areas' around the hospital. To successfully meet the needs and preference of these user types, it is incumbent upon the profession of landscape architecture to find ways to break down communication barriers between healthcare personnel in the delivery of treatment protocols so that restorative design can become an integral part of the mental health-care system.

Meeting the Needs of People

When creating restorative environments, the number one focus should be to meet the needs of the users for that environment (Marcus and Sachs 2014, Marcus and Barnes 1995, Curtis et al. 2007, Johnson and Rhodes 2007). Using principles of environmental psychology to understand the basic reactions that all humans have to an environment combined with the knowledge we know about the population of an environment; designers can create spaces tailored to the users. But there is still something missing. To go a step further in creating designs that meet the needs of people, designers must use the user-centered approach. This approach allows the users of a proposed design to be involved in the making process, requiring designers, funders, and administration, to listen to the needs and preferences of the users the space is actually being designed for. For this project, that means, involving administration, staff, and patients in the surveying process.

The importance of a user-centered design approach cannot be stressed enough. Designers should make it a priority to include as many people as possible in the design process, beginning, middle, and end, despite the difficulties that may come along with interacting with others. Involving stakeholders in a project will not only help to validate your passion or purpose behind your design intentions, but gives people a voice who would not otherwise be heard, draws attention to the project in different ways, and strengthens the trust between the design and the stakeholders which will ultimately result in a more successful project. However, designers should recognize that not every stakeholder's needs or preferences can be met in all aspects of the project and always be transparent through effective communication (Canter 1979, Marcus and Barnes 1995, Sachs 1999, Kaplans 1998, Westphal 2003, Shepley et al. 2017).
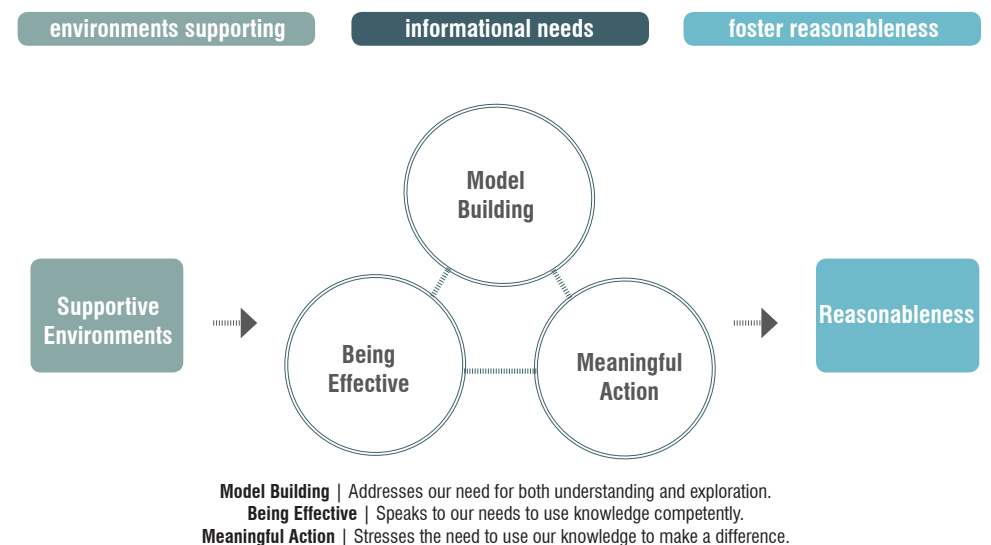
The User-Centered Design Approach

The best practice in design projects is to promote a user-centered approach for the population the design could be affecting (Marcus and Barnes 1995, Sachs 1999, Kaplans 1998). In healthcare designs, involving different types of staff such as pharmacists, therapists, psychologists, administration, etc. in addition to the patients is necessary. Particularly in healthcare settings and especially mental health facilities, the challenge in following through with a user-centered design approach is gaining permission to interact with the stakeholders because of gaining consent or the risks of identity exposure. In leu of this, designers need to start the participatory process early and expect delays in responses or schedule changes. Additionally, designers should program multiple meeting dates and veins of which information flows through such as emails, posters, phone calls, etc.

environments supporting | informational needs | foster reasonableness

Supportive Environments → Model Building / Being Effective / Meaningful Action → Reasonableness

Model Building | Addresses our need for both understanding and exploration.
Being Effective | Speaks to our needs to use knowledge competently.
Meaningful Action | Stresses the need to use our knowledge to make a difference.

Figure 2.18. The Reasonable Person Model. Kaplan, Rachel and Avik Basu. 2015. *Fostering Reasonableness: Supportive Environments for Bringing Out Our Best.* Michigan: Michigan Publishing, University of Michigan Library.

The Reasonable Person Model

Created by Stephan Kaplan and further explored by Rachel Kaplan and Avik Basu (2015), the Reasonable Person Model (RPM) is a framework used to bring the best out in people (See Figure 2.18). The model provides guidelines that foster the state of "reasonableness." Being reasonable refers to "the ways in which people, at their best, deal with one another and the resources on which we all rely" (Kaplan and Basu 2015, 1). According to the framework of reasonableness it takes supportive environments in addition to informational needs, which include a person's capacity to build models in the mind, be effective, and participate in meaningful action, to foster reasonableness (see Figure 4) to achieve being reasonable. A person may not feel reasonable when they misunderstand their world, or are frustrated at a lack of opportunity, an obstructed path, or the presence of others in constrained situations.

In order to fully understand the model of reasonableness we need to be aware that, as exploratory humans, model building from the information we learn makes up a crucial part of our perception of the environment. Model building allows us to make connections of space, plan futures, and make decisions. The ability to effectively translate that knowledge into action is often satisfying as it allows us to share information in a more empathetic and efficient way (Kaplan and Basu 2015).

Thus, we often feel effective when we are achieving goals or learning new information. However, learning new knowledge can come with the cost of stress or mental fatigue which may result in low competency. Being effective draws from the Attention Restoration Theory which states that to restore our minds we should experience soft fascination or involuntary attention (e.g. watching leaves on a tree blow in the wind) (Kaplan 2004). Other methods of gaining the mental clarity and efficiency desired include decreasing stress by reducing participation in stressful activities, encouraging and enforcing a time-out, and spending time in environments that replenish directed attention fatigue for example going for a walk through the forest.

According to the RPM, once a person can properly build an informational model while being/feeling effective, then that person can readily apply that knowledge to a meaningful action that is beyond one's personal benefits. Meaningful actions can be both small and big endeavors such as participating in a community garden or campaigning for social change.

It is important to understand that the RPM will not have the same definition for every person and has not yet been applied to a SPMI population. However, what the model does argue is a humanistic approach to environments like mental health facilities. Although a SPMI individual may not fully reach the same "level" of reasonableness as an individual without SPMI, the environments to which both populations are exposed to should be the same, moving them toward a sense of well-being and calmness. For the staff of the hospitals, who are actually involved in an important meaningful action within the RPM model, must have a clear head, feel competent, and respected through having their needs and preferences met in their own workplace to keep pursing meaningful actions.

By using therapeutic landscape design guidelines overlaid with environmental psychology principles like the Reasonable Person Model (RPM), landscape architects can better design evidence-based spaces which support the restorative needs of mental health facility users, using site-specific environmental affordances. In doing so, landscape architects can strengthen their ability to advocate for bonding an individual to their outdoor environments in effective and restorative ways.

Osawatomie State Hospital entry view.

3

DISCOVER

Chapter 3 | DISCOVER

After completing background research about mental health facilities, diagnoses, environmental psychology, and therapeutic landscape design guidelines I selected my study site for the project along with the method I used to gather data for the project. Osawatomie State Hospital, Larned State Hospital, and Parsons State Hospital were chosen as the study sites. Although these were not the only three hospitals which met the criteria, they represent the most dominant and regionally providing hospitals in Kansas. In order to be selected the sites had to treat the three focus mental illnesses, be located in Kansas for ease of access, and must treat long-term patients that are 18 years or older. Next, I decided the methods for collecting data would be site investigation, surveying each hospital and then creating a projective design for the primary hospital which will be explained further in the chapters to follow.

Site Investigation

The site selections aim at a purposive sample that increases the reliability of the research findings. In addition, I visited each site at least twice enabling me to better collect site-specific data which is needed for the study.

Through site observations, inventory, and analysis of the three mental health facilities, I have learned about each site's specific requirements, consistencies, inconsistencies, therapy methods, the existing condition of the site, and the patients and staff users. Knowledge gathered from the site investigation have provided a strong foundation to generate accurate survey images and questions.

The site visits have been transcribed through handwritten notes, drawn maps, and photography (See appendix E). While visiting, information about the following were noted:

- Micro-climate
    - Air temperature
    - Wind
    - Air humidity
    - Shade/light
- Topography
- Condition of Space
    - Quality of Space
    - Materiality
    - Noise
    - Odors
    - Perception of Safety
- Vegetation
    - Diversity
    - Height
    - Color
    - Species
    - Density

- Views
    - From Buildings
    - From Landscape
    - From windows
- Comfort
    - Site Furnishings
    - Accessibility
    - Temperature
- Circulation
    - Wayfinding
    - Legibility
    - Clarity
    - Sight Lines
    - Density
    - Context
    - Ground Materials
- Typical building-landscape relationship

Site Investigation

Larned State Hospital

Built upon 250 acres of land, Larned State Hospital (LSH) and Correctional Facility serves nearly 90 mentally ill patients and provides nearly 125 jobs (See Figure 3.1). Because the campus is composed of a correctional facility and a psychiatric hospital the outdoor spaces are more constricted than the other study sites. LSH works closely with OSH regarding patient transfers and staff training programs. The hospital divides behavioral mentally ill from the criminally mentally ill. For this research I worked with the behavioral mentally ill unit to keep population type and variables similar to the other study sites.

90
PATIENTS

125
STAFF

78
ACRES
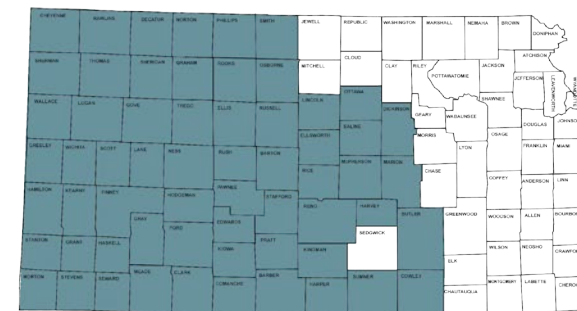
SERVING

61
COUNTIES

Figure 3.1. Counties in which Larned State Hospital's patients are pulled.

Figure 3.2. Larned State Hospital adapted from Google Earth .

Context

4 miles
8 minute drive to central Larned
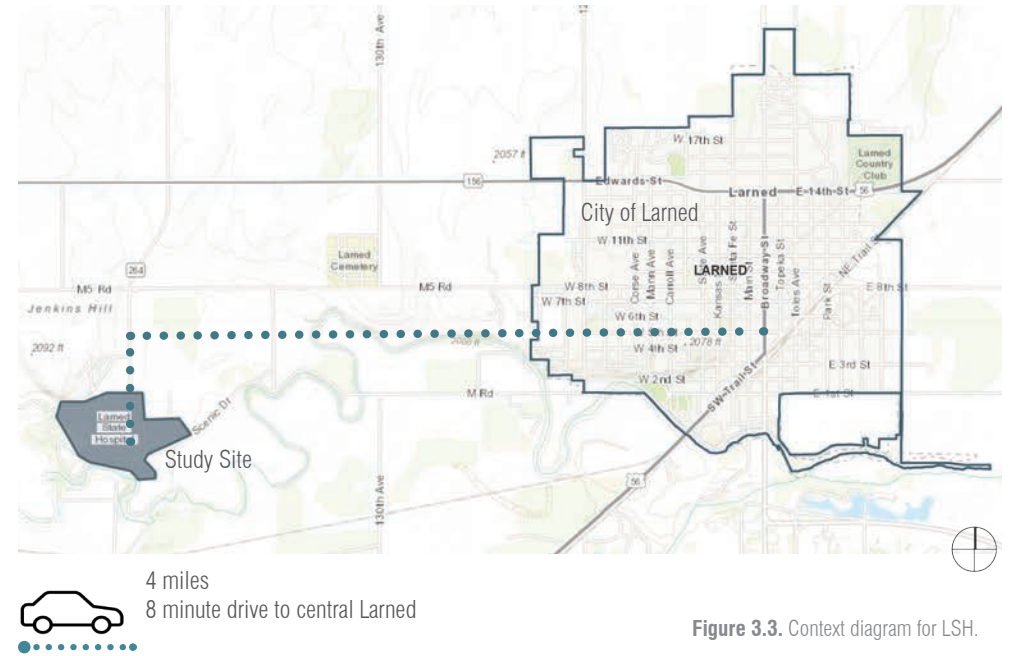
Figure 3.3. Context diagram for LSH.

Accessibility

0.3 mile walk around interior loop

0.8 mile walk around longest loop

○ Main Entrance
—— Pedestrian Circulation
- - - Vehicular Circulation
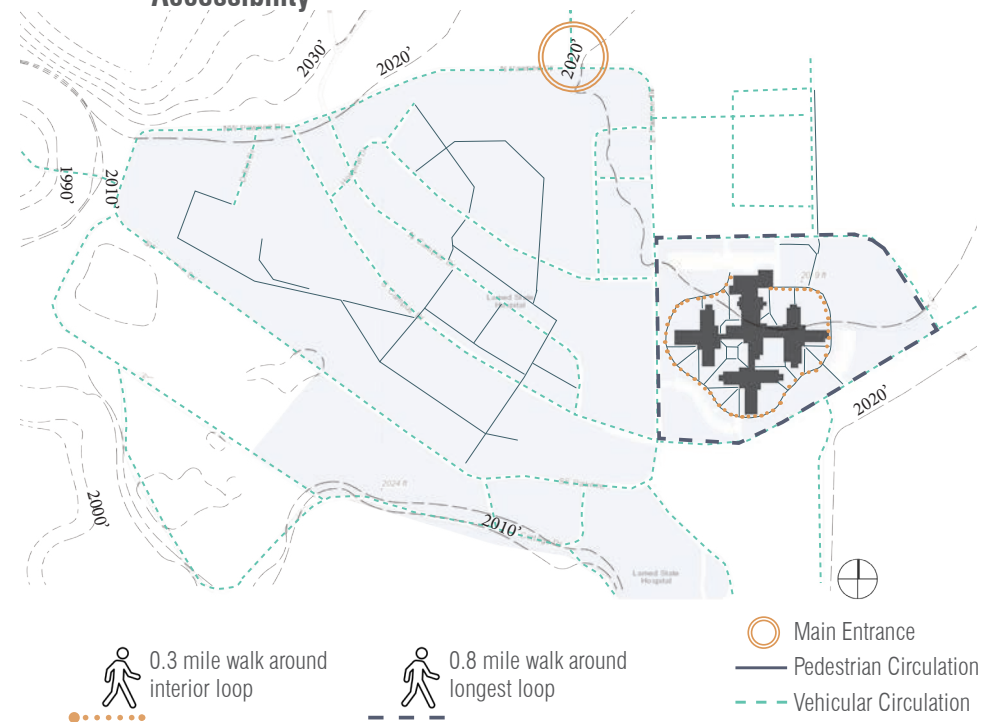
Figure 3.4. Accessibility diagram for LSH.

Vegetation

Lawn

Large Trees

Ornamental

Small Trees
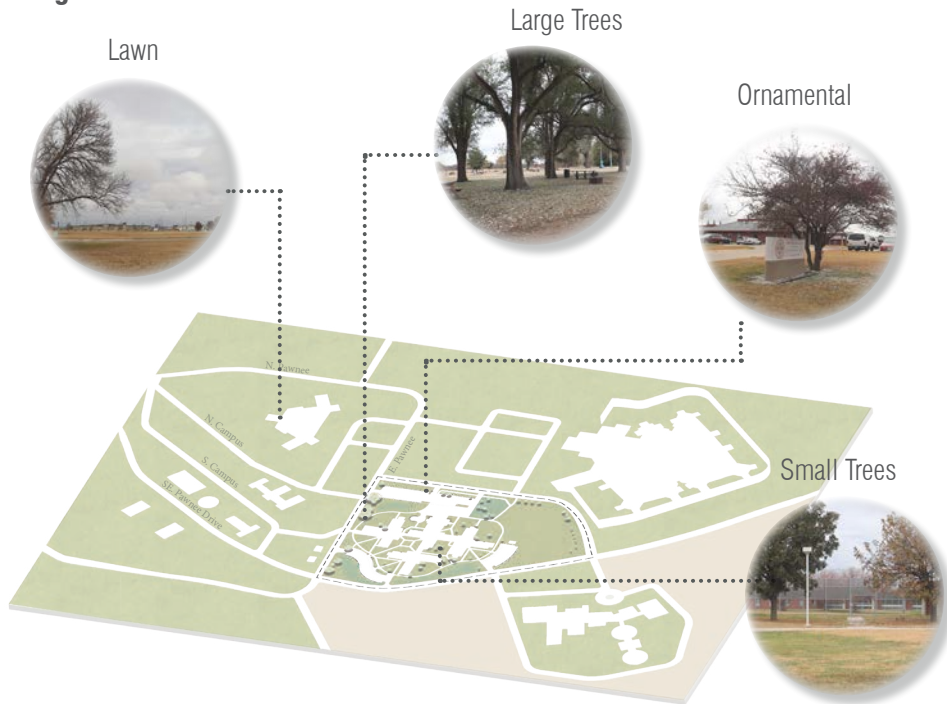
The vegetation on site is lacking in diversity. Although the sight lines remain in tact, this makes the site feel desolate. In addition, the user is not invited to stay outdoors, especially on hot, sunny afternoons. Ornamental plantings could enhance the appearance of the facility, creating a more inviting place to stay.

Figure 3.5. Vegetation diagram for LSH.

Site Zoning

The mental and behavioral health facility acts as a connection point between all three zones of the campus.

All correctional facilities have large 20' barbed wire fences wrapped around each site. This disconnects the other zones on the site.

The administration zone feels residential as all the buildings are aligned on each street in rows. This zone is in good proximity to the adjacent zones.

Administration Zone
Correctional Facility Zone
Mental Health Zone

Figure 3.6. Site zoning diagram for LSH.

View Sheds

Views to the correctional facility are underwhelming and intimidating. These facilities are surrounded by tall fences which implies there could be danger.

Chain link fences block the users view from the courtyard spaces for patients and staff.

The views to landscapes include large open green spaces or large open agricultural fields. There are wooded areas in the far distance providing a backdrop to the site.

Views to Structures
Views to landscape
Fences
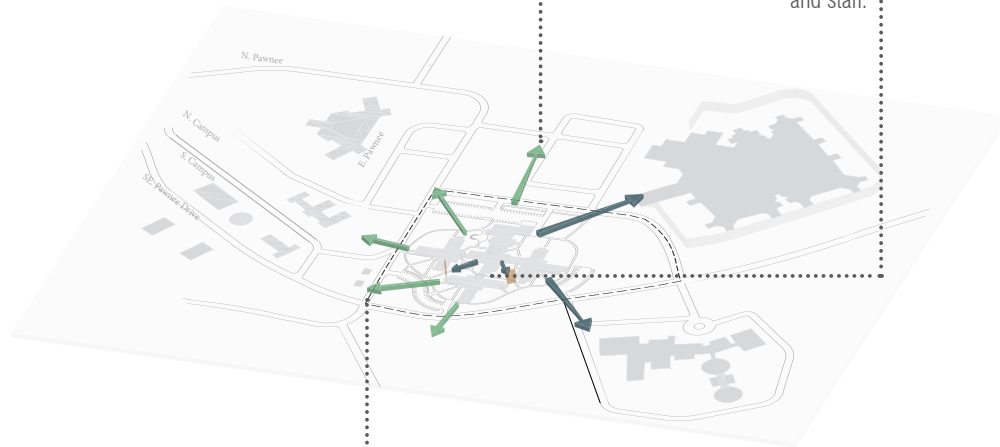
Figure 3.7.View Sheds diagram for LSH.

Built Conditions

Typical
The typical areas of the site are made of brick, concrete, and rectangular shapes.

Newly Built
The mental health facility appeared to be in newest condition on the campus. These spaces are made with lighter red brick, concrete, and many windows.

Older
The older areas of the site are made of yellow brick and concrete. A few of these spaces are vacant today.
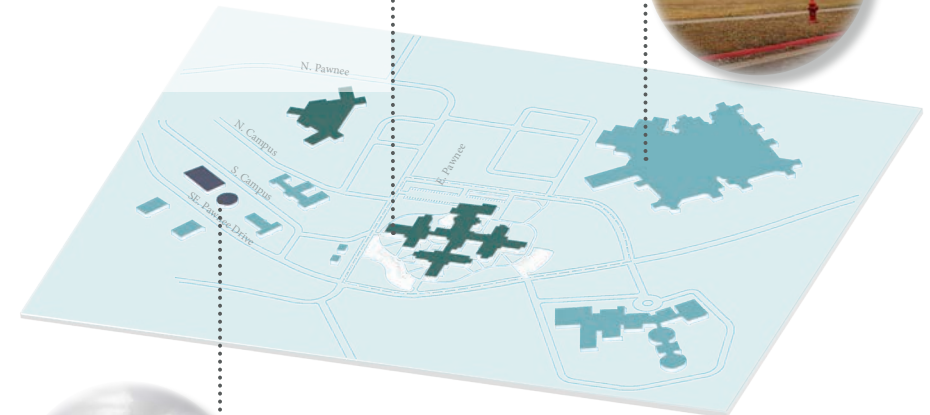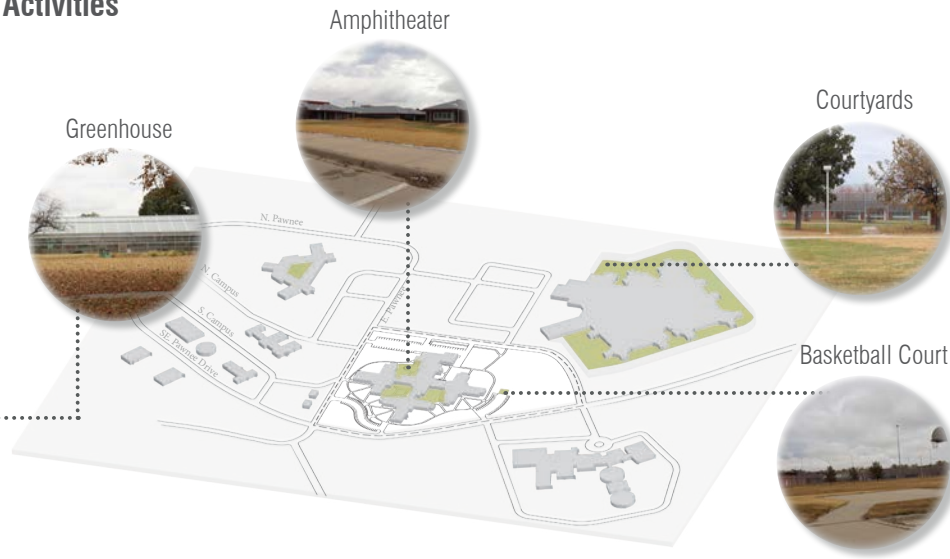
Older quality
Typical quality
Newer quality

Figure 3.8. Built conditions diagram for LSH.

Activities

Greenhouse

Amphitheater

Courtyards

Basketball Court

There are only two spaces available to patients and staff to spend time outdoors adjacent to the facility which are very uncomfortable to be in. The spaces are too small for the amount of enclosure being provided. In addition, these spaces do not provide seating or activities. They simply function as a square shaped area with a few paths, a small lawn, and maybe one tree. With that being said, there is a small basketball court next to the parking lot and a greenhouse located across the campus.

Figure 3.9. Activites currently available at LSH.

Typical Section

0   200   400
Feet

E. Pawnee Drive   Patient Courtyard   Patient Courtyard   Parking   S. Campus Drive
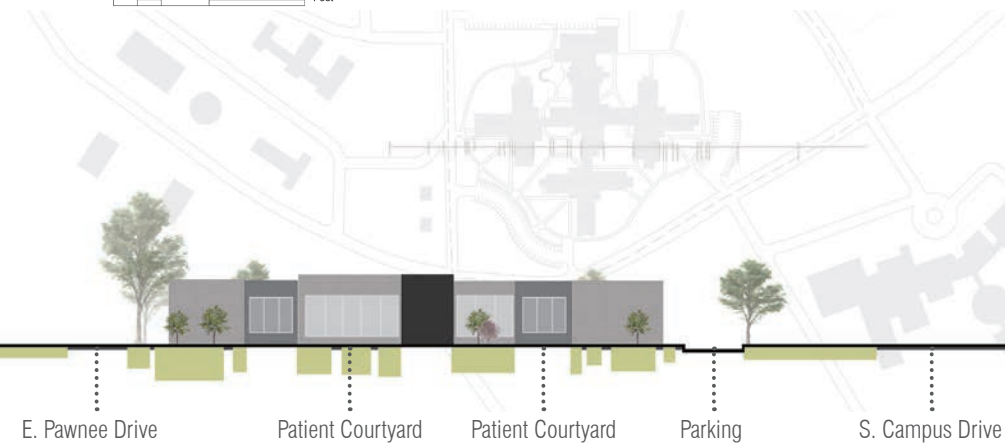
Figure 3.10.Typical building to exterior space section at LSH.

Site Investigation

Parsons State Hospital

Parsons State Hospital (PSH) is located in the lower southeast part of Kansas. The site consists of a total of approximately 180 acres and treats almost 160 individuals (See Figure 3.11). Parsons is different from the other sites, as it is a "behavioral model" of psychiatric care. This means that patient treatment consists of many types of therapy, the buildings are not as compact or strict as individuals live in "cottages" which are home-like, and the biggest difference compared to a "medical model" is that the individual's caretakers are not nurses. There is an acute care hospital on campus, but the staff and patients do not work or live in a hospital-like environment. In addition to mental illnesses, Parsons treats intellectually impaired individuals such as those affected by autism.

160
PATIENTS

400
STAFF

180
ACRES
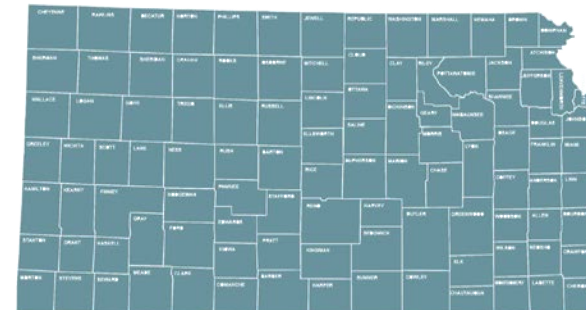
SERVING
ALL
COUNTIES

Figure 3.11. Counties in which Parsons State Hospital's patients are pulled.
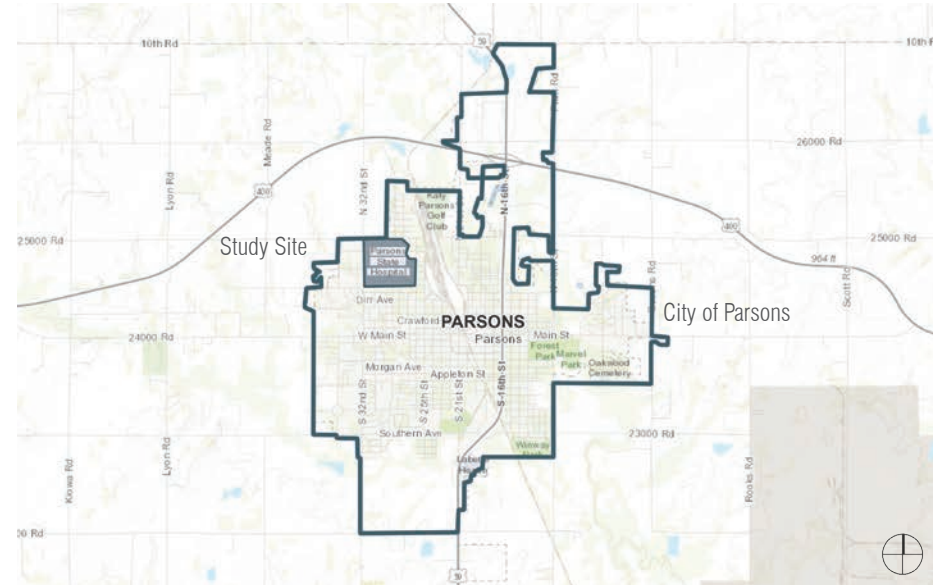
Context

Figure 3.13. Context diagram for PSH.

Accessibility

5 min
Administration to
Cottages

30 min
Loop around
campus

5 min
Loop around
campus

15 min
Loop around
Cottages

◎ Main Entrance ——— Pedestrian Circulation – – – Vehicular Circulation
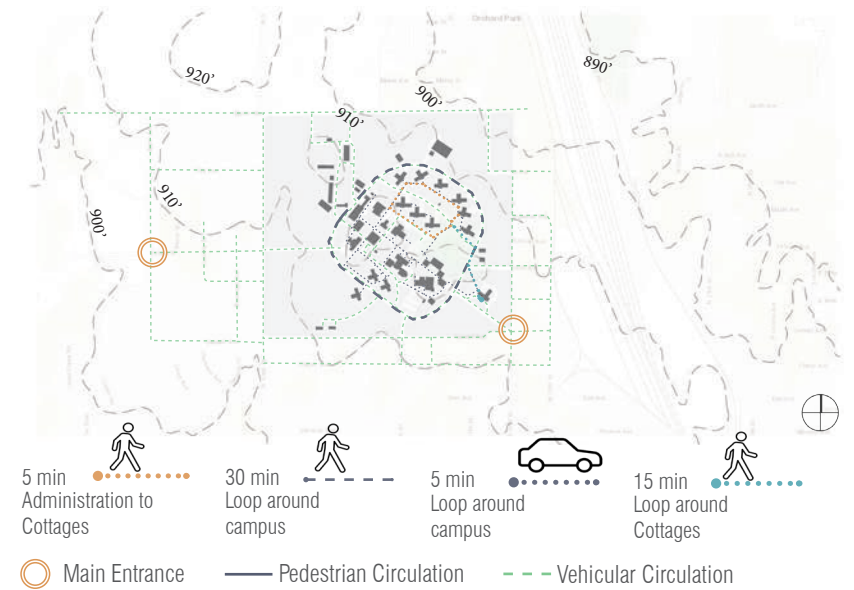
Figure 3.14. Accessibility diagram for PSH.

Vegetation

Lawn + Trees

Wooded Backdrop

Residential

Ornamental
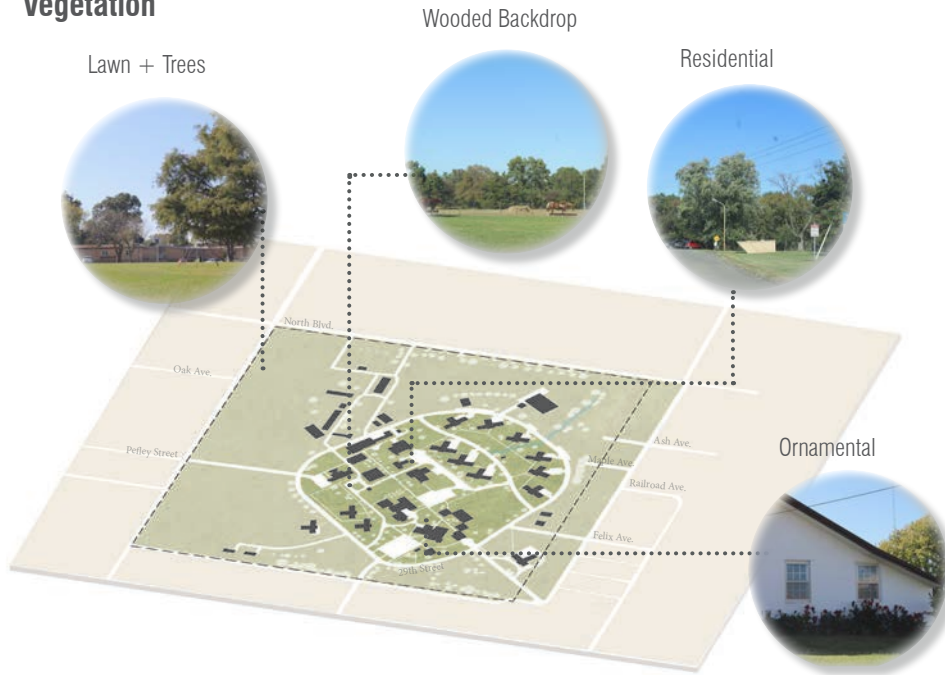
Although the site is park-like since there are many trees, including a wooded "backdrop" on the north side, the trees are not clustered near pathways or outdoor spaces. Each cottage is in charge of the plants directly adjacent to the facility which may be a factor in the lack of plantings.

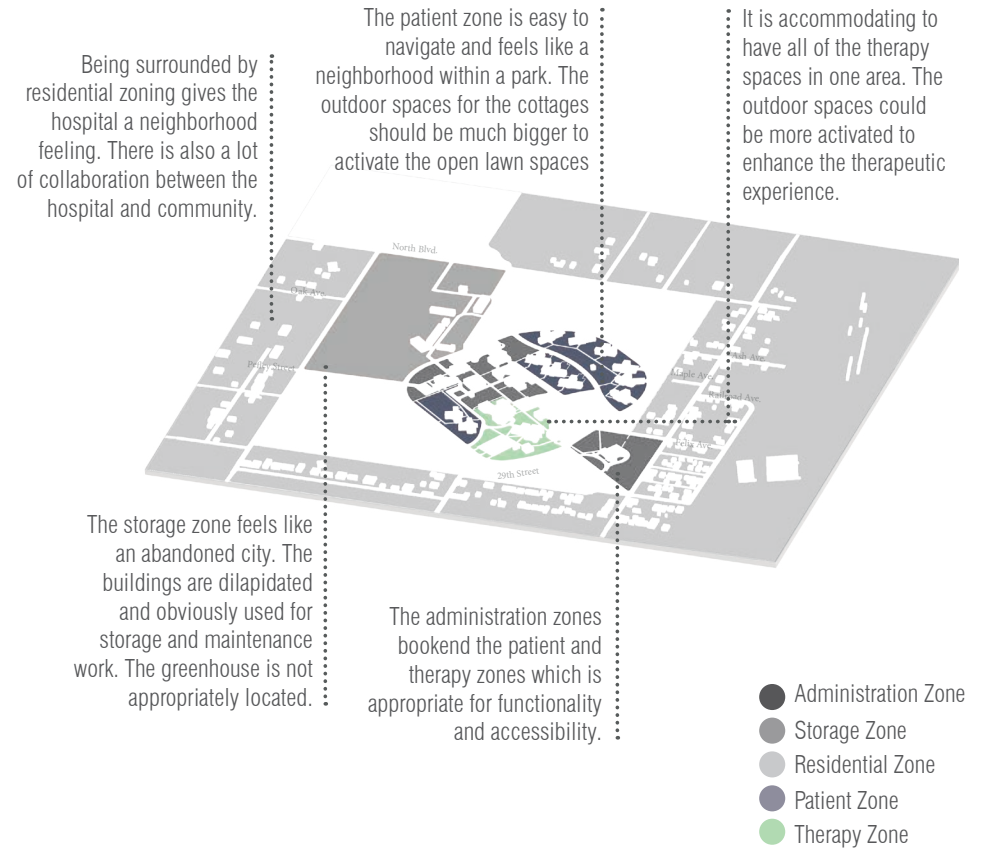**Figure 3.15** Vegetation diagram for PSH.

Site Zoning

Being surrounded by residential zoning gives the hospital a neighborhood feeling. There is also a lot of collaboration between the hospital and community.

The patient zone is easy to navigate and feels like a neighborhood within a park. The outdoor spaces for the cottages should be much bigger to activate the open lawn spaces

It is accommodating to have all of the therapy spaces in one area. The outdoor spaces could be more activated to enhance the therapeutic experience.

The storage zone feels like an abandoned city. The buildings are dilapidated and obviously used for storage and maintenance work. The greenhouse is not appropriately located.

The administration zones bookend the patient and therapy zones which is appropriate for functionality and accessibility.

- ● Administration Zone
- ● Storage Zone
- ● Residential Zone
- ● Patient Zone
- ● Therapy Zone

Figure 3.16. Site zoning diagram for PSH.

View Sheds

The wooded backdrop makes the site feel like it is near a natural grown environment even though residents live on the other side.

The views to landscapes include large open green spaces or large open agricultural fields. The views are often layered, for example, the user can see residential development and a wooden backdrop.

Views to the residential area gives the user the feeling of being in a neighborhood.

→ Views to Structures
→ Views to landscape

Figure 3.17. View Sheds diagram for PSH.

Built Conditions

Newly Built
The newest spaces on site blend in well with the "typical" materiality, height, size, and roof types. However, instead of light red brick, most of these facilities are orange brick.

Typical
These areas are light red brick, with small windows, and pillar-like elements.

Older quality
The older areas of the site are the only dark red brick buildings on campus. Today these buildings are used for storage or are vacant.

● Newer quality
● Typical quality
● Older quality

Figure 3.18. Built conditions diagram for PSH.

Activities

Greenhouse

Patient Patio

Horse Stable

Petting Zoo

Figure 3.19 Activities currently available at PSH.

Typical Section

```
0      240      480
|__|__|__|__|      Feet
```


Horse Stable   Parking   Patient Cottage   Athletic Field   Therapy Core   Residential Area

Figure 3.20.Typical building to outdoor space relationship at PSH.

Site Investigation

Osawatomie State Hospital

Osawatomie State Hospital (OSH) is the oldest and largest mental institution located within Kansas on 900 acres of land (See Figure 3.21). At one time, the campus was completely self-sufficient including facilities such as its own dairy barn, greenhouses, sewage disposal plant, power plant, laundry unit, bakery, rail station and fire station (Gish 1966). Today, the hospital remains outside city limits of Osawatomie. Many of the buildings have been condemned due to contamination of mold and asbestos or timely neglect. The hospital has been in political turmoil since about 2010 due to having lost its federal Medicare certification in 2017 (Lowry 2017), getting re-certified, many budget cuts, patient number cuts, and a low retention rate of staff members. However, the campus remains beautiful and park-like serving 150 patients today and providing over 400 jobs.

150
PATIENTS

400
STAFF

800
ACRES
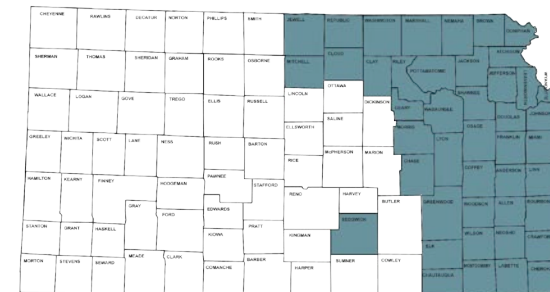
SERVING

44

COUNTIES

Figure 3.21.Counties in which Parsons State Hospital's patients are pulled.

Figure 3.22. Osawatomie State Hospital adapted from Google Earth .

Context

Study Site

City of Osawatomie
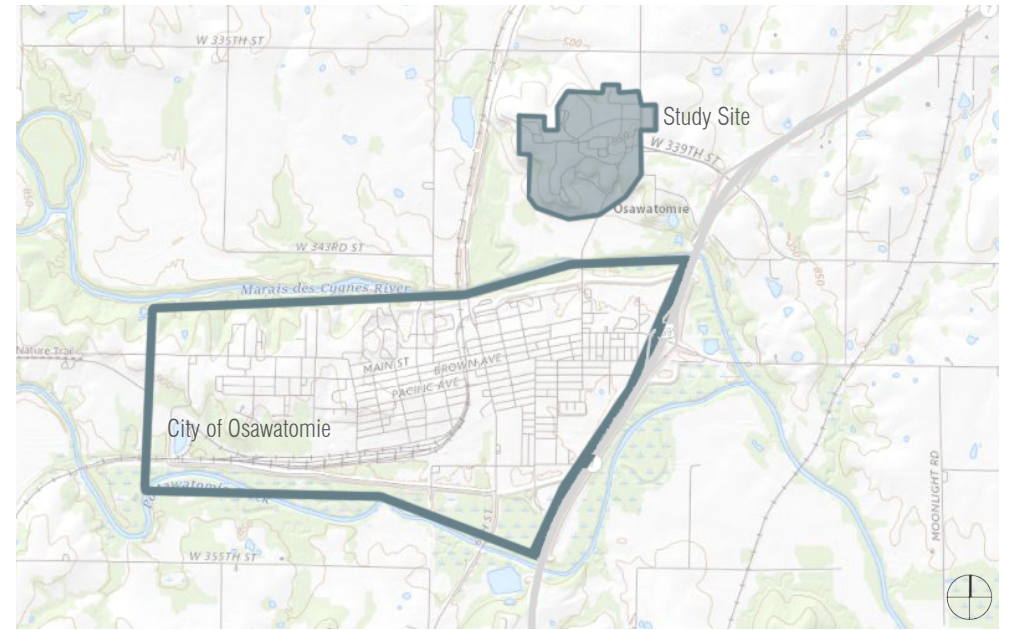
Figure 3.23. Context diagram for PSH.

Accessibility

30 min | 1.2 mile
Existing patient
walk boundary

8 min | 1.2 mile
Existing boundary drive

◯ Main Entrance
—— Pedestrian Circulation
– – – Vehicular Circulation
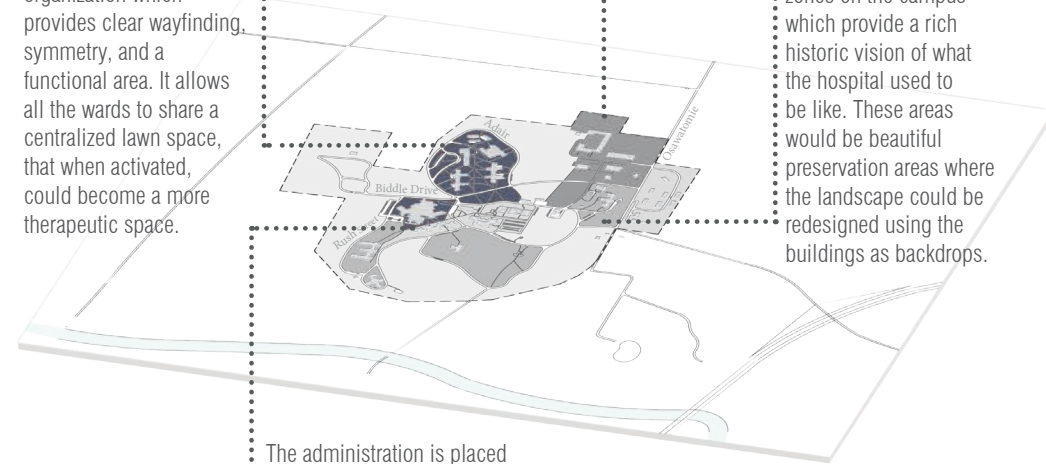
Figure 3.24. Accessibility diagram for PSH.

79

Vegetation

Gardens

Lawn + Trees

Wooded Area

Potted Plants

Viney Plants

The site is surrounded by thick wooded areas and agricultural lands separating the site from the city of Osawatomie. There is little programmed outdoor space as most areas are open lawn spaces. The campus could be enhanced with ornamental plantings to better shape space, utilizing the mature trees on site.

Figure 3.25: Vegetation diagram for PSH.

Site Zoning

The campus use to sustain itself completely. In result, there is a fire station, EMT, security station, and storage facilities on the campus. Most of the buildings are still functioning today.

The patient zone has been designed in a centralized organization which provides clear wayfinding, symmetry, and a functional area. It allows all the wards to share a centralized lawn space, that when activated, could become a more therapeutic space.

There are two vacant zones on the campus which provide a rich historic vision of what the hospital used to be like. These areas would be beautiful preservation areas where the landscape could be redesigned using the buildings as backdrops.

The administration is placed appropriately between all the zones on the site. This allows staff to get to and from buildings in a timely manner.

Storage Zone
Vacant Zone
Administration Zone
Patient Zone
Unused Land

Figure 3.26. Site zoning diagram for PSH.

View Sheds

OSH offers large open lawns giving the experience of a park. Additionally, if better programmed, these spaces could be activated for therapy spaces.

The agriculture backdrop makes the site feel like a natural environment. This is a great opportunity for a restorative environment.

Views to surrounding infrastructure is not obtrusive because there is a good ratio of lawn between each building. Plus, the buildings have a historic quality that are beautiful to look at.

➡ Views to Structures

➡ Views to landscape

Figure 3.27. View Sheds diagram for PSH.

Built Conditions

Newer+ Vacant
These buildings have been shut down to a lack of funding and staff. But could easily be reopened.

Old + Used
Although the interior may need some work, the exteriors of dark red brick are in prime condition. These buildings are or could act as landmarks on the site.

Vacant
These areas have been shut down functionally, but could become places of activation.

Newer Condition
The typical areas of the site are made of brick, concrete, and rectangular shapes.

⬤ Newer quality

⬤ Typical quality

⬤ Newer and vacant

⬤ Vacant

Figure 3.28. Built conditions diagram for PSH.
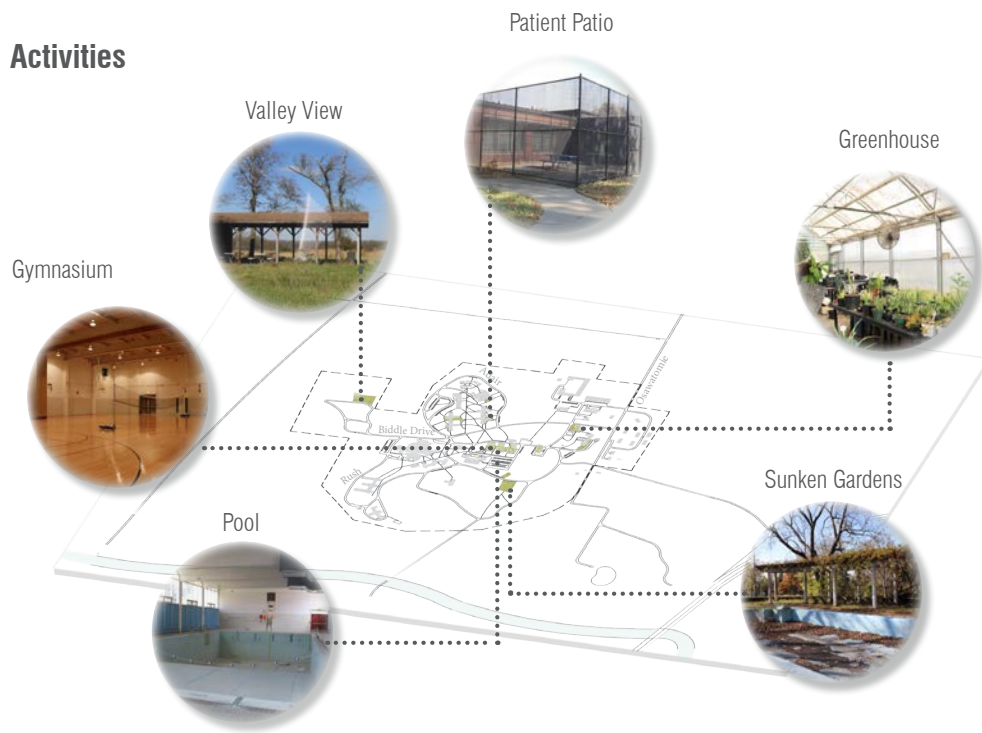
Activities

Figure 3.29 Activities currenlty available at OSH.

Typical Section

Rush Building (Vacant)

Biddle Building

Enclosed Courtyard

Adair A Building
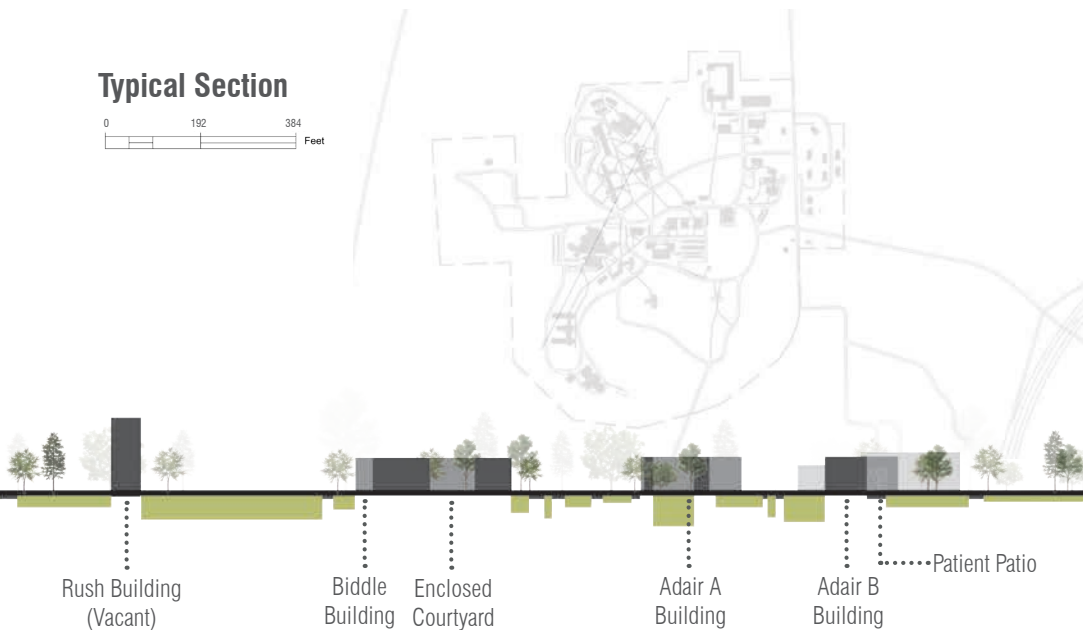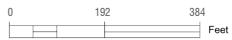
Adair B Building

Patient Patio

Figure 3.30.Typical building to outdoor space relationship at OSH.

Surveys

Although difficult to secure the initial contact with each hospital and gain permission to conduct surveys, the three hospitals realized the research could impact the way in which people view mental health in the community and help create a new vision for their therapy sessions. Applying for the IRB application is mandatory for this research study. I have taken the required IRB training sessions in addition to the "vulnerable populations training" (See Appendix C).

Sample Population

The sample population for the study included specific staff members from a master list created by the director of each hospital based on the selection criteria as follows: the participating patients must be affected by major depression, bipolar disorder, or schizophrenia, be able to properly read and write English, and must have been living within one of the three study hospitals for at least 14 days. In addition to creating a master list of eligible patients, the director of the hospital assigned each patient an ID number which was used to tell the researcher which patients are affected by what type of diagnosis (e.g. major depression, bipolar disorder, and schizophrenia). This step was important to the data analysis phase of the project to compare each diagnosis type. The eligible staff participants must directly work with patients affected by the mental illnesses of focus. This could include psychiatrists, psychologists, counselors, social workers, activity specialists, direct caretakers, nurses, and medical physicians. Between the three hospitals surveyed for this report, 140 staff and 14 patient surveys were collected. Of the staff surveys there were 60 collected from OSH, 26 from LSH, and 23 from PSH. Although the number of staff results were high and considered reliable for data analysis, there were not enough patient results collected to be reliable and therefore could not be translated into the projective design.

Survey Design

In order to create the survey questions and images, existing therapeutic landscape design guidelines (Winterbottom 2015, Marcus and Barnes 1995, Sachs 1999) were reviewed and compared to the symptoms and treatments (NIMH 2018, Goshen 1959) of individuals diagnosed with a mental illness (See Table 2 and 3). This process identified which guidelines were specific to mental health illnesses and which were applicable to general healthcare restorative settings. Then, to fill the missing gaps specific to treating mental illnesses, six objectives were drawn from therapeutic landscape guidelines and the RPM, which are fascination, wayfinding, privacy, social, exercise, and meaningful action (See Figure 4.32). The objectives are for the researcher only and were unknown to the survey participants.

A group of three images were developed using certain color palettes, planting characteristics, levels of enclosure, shade, sunlight, and activities which collectively corresponded to a selected objective (See Appendix D). The survey questions measured current access to outdoor space, frequency of use in outdoor space, level of motivation, and the feelings evoked by looking at the images. In addition, the top three favorite elements of each photo will be selected by the participants to understand any specific elements that should be included in a future design. Lastly, the final page of the survey asked the participants to report demographic information such as their sex, age, length of time worked at the hospital, and about their current role at the hospital. It also asked the staff to self-report their own sense of well-being, how often they interact with patients, do they like to be outdoors, and what do they currently do when outdoors at the hospital. All of these questions help to gain more background information on the participation population and made it possible to compare data by groups of information during the survey analysis phase of the project.

The survey was created with Kansas State University's Qualtrics program in a closed question format with a five-point rating scale. After being pilot-tested, the patients and staff took the survey on a computer or paper format, printed by the researcher to insure consistency in color and size, depending on the technology available to the individual.

Each survey question asked the staff participant to give their response to an image using a Likert-scale (See appendix D). The survey took approximately 10-15 minutes to complete. Some questions for staff and individuals were specific to each population, otherwise the questions were similar between
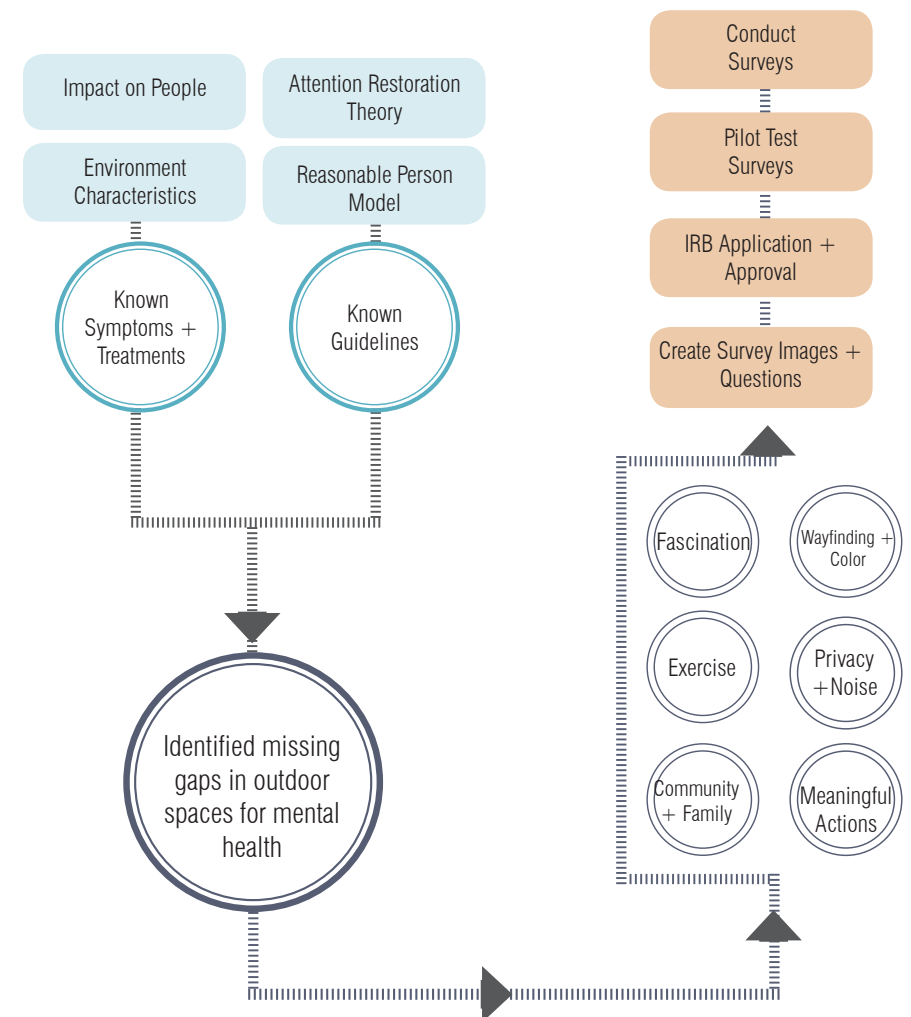

Figure 3.31. The survey design process

DIAGNOSES

	Symptoms			
MENTAL ILLNESSES **Major Depression**	Irritability	Loss of Interest	Sleep Issues	Moving/ talking slow
	Persistent Anxiety	Suicidal Thoughts	Little Energy	
Bipolar Disorder	Irritability	Racing Thoughts	Range of Moods	Memory Loss
	Decreased Need for Sleep	Jumpy or Slow	Easily Distracted	Suicidal Thoughts
Schizophrenia	Hallucinations/ Delusions	Voice Changes	Hearing Voices	Dysfunctional Thinking
	Body Ticks	Memory Loss	Trouble Speaking	
Treatments	Consistent Schedule	Herbal Treatments	CBT Cognitive Therapy	Being in Nature
	Exercise	Social Skills Training	Family Therapy	Taking Responsibility

Figure 3.32. Summary of the known treatments and symptoms of each mental illness

By analyzing the similarities between the symptoms and treatments for each of the diagnoses (see figures 3.32 and 3.33), I could better understand the limitations or challenges of how working with these illnesses could affect a staff member. Gaining insight about the "medical" information behind the healthcare work although, time consuming and difficult, is a critical part in understanding the needs and preferences of this particular population. It also begins to create dialogue between the designer and healthcare professionals developing new and creative ideas. When overlaying the treatments and symptoms of the diagnoses with known therapeutic landscape design guidelines there were six themes that were most frequently correlating with one another. For example, privacy could mitigate irritability, sleep issues, getting distracted, and delusions. Overall, the six themes selected to influence the image sets for the surveys were exercise, social space, private space, spaces for meaningful action, fascination, and wayfinding.

CATEGORIES OF GUIDELINES

		Spatial	Social	Visual	Sensory
KNOWN THERAPEUTIC GUIDELINES	**Physical characteristics of space**	Fascination	Wayfinding	Communal Space	Reduce Stress
		Noise reduction	Views to green	Family Space	Year-round-use
		Safety	Fences	Risk Levels	Safety
		Plant Species	Temporal Cues	Reduce Crowding	
		Water			
	Spatial characteristics that impact site users	Sunlight	Landmark	Staff needs own space	Exercise
		Shade	Fascination	Privacy	Autonomy
		Comfortable Seating	Light/Shade		Time in Nature
			No abstract art		Single Entry
			Color		

Figure 3.33. The known therapeutic landscape guidelines

Theme:

MEANINGFUL ACTIONS

Survey Image Design

The concept of meaningful action is derived from the Kaplan's Reasonable Person Model. It concerns the need to participate and to be an active part of the world around us. In order for someone to be able to successfully participate in meaningful actions, a person must be clear-headed and be able to respond to the world around them while having a sense of competence that comes from knowing how to be an active part of the world.

Meaningful actions usually exercise one's effectiveness to serve others. This may include both small and big actions including participating in a community garden or campaigning for social change respectively. To conduct a meaningful action, one must: be respectful, listen, start early and involve many, get feedback, help others, and foster unique individual talent. The Kaplans believe that more meaningful actions can help to bring out the best in people. The following are actions found through research that mental health hospital users may be involved with:

- Moveable seating
- Group arranged space
- Interaction with the community
- Teaching spaces such as a classroom
- Learning spaces such as a classroom or greenhouse
- Helping spaces such as a farmers market or community garden

Meaningful Actions | Image Design

- Tree-lined lawn
- Birds and open sky
- Buildings nearby
- Open lawn
- Seating
- Signage

Figure 3.34. The community park survey image diagram

- Chalkboard wall for interaction
- Nearby building
- Water feature
- Picnic seating
- Dense planting

Figure 3.35. The outdoor learning environment image diagram

- Structure that opens during Farmer's market season
- Potted plants
- Water feature
- Majority hardscaping

Figure 3.36. The farmers market survey image diagram

Theme:

SOCIAL
Survey Image Design

Social spaces have the potential to increase the social skills and restore mental fatigue for the users of mental health facilities. There are many types of social spaces that can range in size and social intensity. Specifically, for mental health users, social spaces could include spaces for patient to patient, patient to staff, staff to staff, or staff to visitor interaction. Each of these types of interactions require different spaces that accommodate different activities. Social areas may include flat lawn or patio areas large enough to be used for informal gatherings, group activities, or programmed events (Marcus and Sachs 2014). Typically, these areas include many areas of sun and shade in additions to interconnected communal spaces with family areas. The type of seating in a space can also dictate the level of social interaction of the users as well as the activities. There can be a variety in the intensity of social interaction such as eating, doing crafts, talking, playing games, or participating in therapy. The following elements are to be considered for social spaces:

- Outdoor movies
- Moveable seating
- Group arranged space
- Community based programs or shared outdoor space
- Outdoor chalkboard
- Arts
- Lounge
- Lawn games
- Seating types

Social | Image Design

Figure 3.37. The outdoor lounge survey image diagram

Shade structure

Fence with rose bush

Water feature

Games/ encouraging social interaction

Lounge seating

Lawn space

Figure 3.38. The art space image diagram

Dense tree canopy

Nearby building

Landmark structure

Art creation space

Dense planting

Figure 3.39. The outdoor movie survey image diagram

Night time activity

Projector screen that can also be used as learning board during day

Buildings nearby

Amphitheater seating

Popcorn machine

Theme:

EXERCISE
Survey Image Design

One of the main symptoms of severe mental health patients can be unpredictable mood swings. Although typically treated with therapy or medications, stabilized mood can be an outcome of increased exercise. When you exercise, your body releases endorphins making you feel happier. This is why exercise can also mitigate depression symptoms and combat stress in both patients and staff. In addition, a severe mental health condition and long working shifts often increases sleeplessness. The right kind of exercise such as yoga, running, and walking as well as exercising for the right amount of length, place, and time of day can create better sleeping conditions for the body (Sifferlin 2013, Wells and Cherney 2018). However, finding the right exercise plan for each patient can take time, patience, and motivation by both the patient and caretaker. While medications shouldn't be completely replaced with exercising, it does provide promise a potential for lowering medication doses and improving a patient's feeling of reasonableness.

Exercise is something that psychologists and other healthcare professionals have been very slow to attend to even though research has shown that patients should participate in 45-60 minutes of exercise three to five times a week in an outdoor environment (Weirs 2011, University of Vermont 2019, Tomasi et al. 2019). Green or outdoor exercise activities have shown to be more stimulating, motivating, and positive for mental health illnesses (Barton and Pretty 2010, Coon et al. 2011). In practice, we hope that every psychiatric facility will include integrative therapies -- in our case, exercise in particular -- as the primary resource for their patients' psycho-physical wellbeing (University of Vermont 2019).

Exercise | Image Design

Close proximity to building

Shade and sun opportunity

Open lawn for activity or fascination

ADA surface

Outdoor gym equipment

Figure 3.40. The outdoor exercise room survey image diagram

Tree canopy

Buildings surrounding inner lawn

Tai Chi or Yoga activity

Figure 3.41. The interior activity courtyard image diagram

Heavy tree canopy

Seating

Curvy ADA walking trail

Figure 3.42. The walking trail survey image diagram

Theme:

FASCINATION

Survey Image Design

Like many studies have proven (Ulrich 1998, Franklin 2012), three to five minutes spent looking at views dominated by trees, flowers or water can begin to reduce anger, anxiety and pain and to induce relaxation, according to various studies of healthy people that measured physiological changes in blood pressure, muscle tension, or heart and brain electrical activity. In addition, what a patient could see from a window is important in how integrated they feel in their environment. It is also a way of "bringing nature in" which could be fascinating for users to explore. Features like birdfeeders, other people, special activities, color, nature, and it can also provide a sense of safety (Marcus and Barnes 1999). Fascination can also take place when sitting, listening, or meditating in an outdoor environment as well. These types of activities contribute to therapeutic nature exposure. It is recommended that there is a ratio of at least 7:3 of green space to hardscape in private spaces or for views to the landscape (Marcus and Barnes 1995). The ability to explore increases the user's sense of autonomy within a space. Regardless of the size, an outdoor environment should include a variety of space types that can be experienced. The following elements are current strategies to fascinate users of a space:

- Planting types
- Framing views from a window to see animals, nature, people, special activities. It helps direct attention to soft fascination. Framing views to the main entry or space could enhance legibility, intrigue the user, and improve recognition.
- Wandering spaces
- Variety and contrast of space
- Water features
- Observing

Fascination | Image Design

- Bird
- Trees
- Gazebo with seating
- Dense colorful planting
- Animals/ pollinators

Figure 3.43. The garden gazebo survey image diagram

- Tree canopy
- Buildings
- Fire pit
- Social seating area

Figure 3.44. The fire pit image diagram

- View out window to green
- Interior view
- Light calming colors

Figure 3.45. The window seat survey image diagram

PRIVACY + NOISE REDUCTION

Survey Image Design

Private spaces are very important to consider for mental health facility users. Mental fatigue, stress, lack of sleep, and overworked staff need a break from daily distractions in a comfortable space where they can be alone. In most cases, well-designed private spaces have calming elements such as a water feature or elements of fascination. Enclosure is important to consider in private spaces as very open spaces can contribute or increase the paranoia or stress of the users. However, spaces which are enclosed or small should not be smaller than 30' across and if there are buildings around it is better to have a 1:2 or 2:3 ratio to make the space feel human-scaled (Marcus and Sachs 2014).

In private settings, seating and fascination characteristics are the most prominent elements a designer should think about. Seating is more comfortable surrounded by nature, with back and arms, made of materials that do not retain heat or cold such as steel, stone, plastic, or concrete. There should be areas of seating for groups but most seating should be for one to two people at a time. The individual seating nodes should be no larger than 25' wide but no smaller than 12' wide.

- Space orientation to mitigate the climate
- 4' earth berms
- 20' evergreen trees
- 40' deciduous trees
- 4-6' planting buffers
- Buffer strips 10'wide by
- 12' high broad leafs
- Brick and brushwood
- Soundscapes
- Enclosed space no smaller than 30' across
- Individual seating
- Light vs shade
- Planting types

Privacy + Noise Reduction | Image Design

Open sky

Inner courtyard

Potted plants

Water feature

Seating

Figure 3.46. The interior courtyard survey image diagram

View from window

Overhead structure for shade in seating area

Swing

Rooftop location

Figure 3.47. The rooftop garden image diagram

Trees framing view

Berm for enclosure and reduce noise

Eating/ reading area

Buildings nearby

Figure 3.48. The outdoor cafe survey image diagram

Theme:

WAYFINDING

Survey Image Design

Wayfinding can be a large contributor to environmental stress when a user is new to a place or trying to direct others around a space. Like airports or large stores, a healthcare environment is a place where wayfinding should be an intuitive element that is integrated into a space. The following should all be carefully considered when implementing wayfinding into both indoor and outdoor spaces in the landscape:

- Color use consistent colors for wayfinding throughout the site.
- Materiality
- Landmarks
- Sight lines
- Signage at eye level for users to easily read. The signs should be at least 8x10 inches in size.
- Open feeling

Wayfinding | Image Design

Open sky

Tree canopy

Buildings nearby

Centralized park

Paver painting as wayfinding technique

Figure 3.49. The small park survey image diagram

Tree canopy

Giant painted letters for wayfinding technique

Activity lawn

Walking trail

Figure 3.50. The large park image diagram

Centralized hardscape space

Seating

6' mall-like signage technique made from natural materials

Lawn

Fencing

Figure 3.51. The central gazebo survey image diagram

Survey Implementation

Between the three hospitals surveyed for this report, 140 staff and 14 patient surveys were collected. Of the staff surveys there were 60 collected from OSH, 26 from LSH, and 23 from PSH. Although the number of staff results were high and considered reliable for data analysis, there were not enough patient results collected to be reliable.

After inputting all the paper survey data in Qualtrics, it was put into the SPSS software to complete statistical analysis. First the data was cleaned so that the results, such as names and labels, would be clearer for the results. Then using descriptive analysis, the frequency of which answers were chosen was analyzed for the last question on each image. This question asked, "Please choose three of your favorite elements about this space." By analyzing how often each element was chosen, I was able to see which elements or qualities about the images were the most preferred by the staff. These results have influenced the projective design phase of the report.

Next, I completed frequency analysis on the demographic portion of the survey. This helped me to better understand the population which participated in the survey. Questions such as "How long have you been working at the hospital?" "What is your age?" "What is your role at the hospital" and "How often do you go outside during work hours?" was asked. Understanding this information informs the results as to why certain preferences could have been chosen between the image surveys as well as the needs within the greenspaces from the self-reported data gathered about their perception of outdoor space and their perception of their own health.

Then, in order to understand how the data clustered together within each set of images (ie. Exercise, Action, Privacy, Social, etc) I analyzed the data using factor analysis and t-tests followed by a reliability test. In doing so, I could better understand how the first four questions asked, which were the most consistently answered and correlated with one another out of the data set. To test if the factor analysis results were reliable, I then, in SPSS, tested each component set for reliability. In order for the data to be considered reliable, the reliability test had to come back higher than 0.7. Fortunately, all of the data for this study was proven to be reliable.

Following factor analysis, Levene's Test for Equality of Varriance and T-Test for Equality of Means were ran to understand how closely each of the hospital's results were similar or dissimilar to one another. This is important because, as mentioned before, to find data that is generalizable to all mental health facilities and not specific to one the results from each hospital should be corresponding. However, when comparing t-test results, it was found that OSH and LSH results were very similar but PSH results were slightly different. In order to prevent errors or the data being thrown off and ungeneralizable OSH and LSH were put into one pool while PSH's data will be compared.

Lastly, each image was "scored" to better understand which image within each theme was the most preferred between the staff. The images could potentially score a 20 as each question could score a five and there were four questions. Overall, the purpose of the survey analysis phase is to understand the chosen needs and preferences of the staff members of each hospital. The data did show that the results could be generalized to other mental health hospitals and therefore, this study could be repeated to help improve outdoor spaces in mental health hospitals.

Larned State Hospital off-ground park

4

SYNTHESIZE

Chapter 4 | SYNTHESIZE

As shown in the previous chapter, each site offers an array of strengths weaknesses, opportunities, and threats. The purpose of this chapter is to summarize all of the site inventory and analysis data in addition to the survey data.

First, site analysis revealed that there are a few common themes present across all of hospital sites which are generalizable:

- Outdoor areas are restricted due to safety precautions

- A generous amount of lawn is under utilized at each site

- Better circulation patters would increase the use of outdoor space

- More strategically placed plant material could encourage more frequent use of outdoor space, combat the stigma of each hospital aesthetically, and increase all users connection with nature from indoor or outdoor time

- The use of outdoor space should be more encouraged in the users daily schedule

But each site was analyzed more closely to better understand their differences in design, organization, plant material, use, activity types, and accessibility. The following sections further explain those findings.

Site Investigation Synthesis

Larned State Hospital

LSH has many site restrictions since the facility on the campus is very small and between correctional facilities. The site meets ADA requirements since majority of the site, with exception to drainage areas, are completely flat. The campus is very large and takes about 40 minutes to walk. There are well-conditioned, smooth, and clear sidewalk pathways on the majority of the site. Directly surrounding the behavioral and mental health unit, the sidewalks are in great condition and lead the user around the site in a clear way as the site is organized in a radial pattern. However, navigating the site was challenging at times because of the lack of and inconsistent signage.

The vegetation on site is lacking in diversity. The entire site is comprised of lawn and a few trees. It is assumed that the reasoning behind this is to keep the sight lines between each building clear. Because there is limited use of vegetation for enclosure, views, or macro-climate comfort, the site appears desolate. In addition, the limited use of vegetation does not invite the user to stay outdoors for long, especially on hot, sunny afternoons or windy days. By incorporating more ornamental vegetation around the infrastructure, it can enhance the appearance of the facility, not only creating a more inviting place to see and visit but bringing many environmental opportunities such as pollination areas for insects, shade for the users, or seasonal interest.

Although the facility does provide a lot of windows to look out from while in the hospital, it is unlikely the staff or patients are receiving a good view. Views from within the building to the East are looking toward the power plant and correctional facility on site. There are little trees or grass between the programmed buildings. In contrary, views to the West from within give patients and staff large lawns and mature trees to with red brick buildings in the distance. The views from without look directly into the only two programmed spaces for patients and staff but are blocked by 12-foot chain-link fences.

In correlation to the site's views, is the site's perception of comfort and safety. The north and northeast side of the facility is only 400 feet away from the correctional facility. From a designer's point of view, it appears that the campus was designed with a focus on the north and northeast sides, since it is closest to the correctional facility and functions as the maintenance area which does not give the view from inside or outside a good view shed. When outside in this space, it feels like one could easily be trapped or that you're being watched.

This facility is relatively new compared to the other two study sites. There is a good sense of pedestrian walkability and accessibility in addition to convenience for staff getting in and out of the buildings of the campus. However, there are inconsistencies in materiality, signage, and site design depending on the built time which is confusing for the site user.

During the site visit, it appeared that the two back parking lots directly surrounding the behavioral and mental health facility were in the newest condition of the entire campus. There are only two spaces available to patients and staff to spend time outdoors adjacent to the facility which are very uncomfortable to be in. The spaces are too small for the amount of enclosure being provided. In addition, these spaces do not provide seating or activities. They simply function as a square shaped area with a few paths, a small lawn, and maybe one tree. With that being said, there is a small basketball court next to the parking lot and a greenhouse located across the campus, however, these spaces are rarely used. When speaking with the program director who ensured the patients get outside, it seemed that the patients, when eligible, were being taken to off-site activities such as fishing, camping, to local restaurants, and stores more than using the facility grounds.

Site Access

N. Pawnee Drive

Radial organization provides safe enclosure for outdoor spaces

Although the site is flat, more sidewalks should be added along roads

N. Campus Drive

E. Pawnee Drive

Issac Ray Building

S. Campus Drive

Cafeteria

Chapel

SE. Pawnee Drive

Administration

Hospital

Inner courtyards do not provide amenities

Adult Mental Health Treatment Building

Juvenile Correctional Facility

Becasue the facility is surrounded by correctional facililties, there is a higher need and perception of unsafety on site.

0   200   400
Feet

Extend outdoor space outward

Access to site

Improvement Areas

Radial Organization

Accessible Paths

Strengths
- Flat, well-conditioned pathways
- Radial organization of site
- Relatively new facility
- Site is walkable and accessible

Weaknesses
- Lack of diversity in plantings
- No outdoor amenities
- Micro-climate conditions need improvement
- Inconsistent signage and materiality
- Lack of outdoor spaces are available

Opportunities
- Increase plant diversity
- Add amenities
- Utilize other outdoor spaces on the campus
- Increase walkability on campus

Threats
- Lack of funding
- High security risks
- Lack of staff
- Lack of educated professionals

Figure 4.1. Site analysis conclusions for LSH

Site Investigation Synthesis

Parsons State Hospital

The campus is overall, very accessible. All staff and patients get around the site by walking and was the most active site from a visitor's perspective compared to LSH and OSH. The site is almost completely flat with direct pathways going to each building. However, the sidewalks are very small, about 3 feet wide, making it difficult to walk aside someone. In addition, although direct, the paths are straight and not curved without any tree canopy. Unfortunately, this makes walking unpleasant during the summer, windy, and winter months.

The plant life at Parsons is very limited. Although the site is attractive to view since there are many trees, including a wooded "backdrop" on the north side, the trees are not clustered near pathways or outdoor spaces. The maintenance team on site, takes very good care of the trees. There were multiple places during the site visit, of newly planted tree areas. But there were very few ornamental plantings were on site which could enhance the visual quality of space. The lack of plantings may be caused by the limited number of staff available to take care of the plants. Each cottage is responsible for taking care of their own plants. Although this is perceivably a good idea, there are not enough cottage directors or other staff willing to take the time to follow through with this activity.

Although the site is overall very comfortable to be in, there is too much open space that can make the user feel like they are being watched or it is a no-mans land. In addition, because there is little seating or tree canopy coverage on the site, the outdoor space has not been designed to stay outside. The entire campus has been designed for walking or passing the outdoor space to go from building to building. Despite the "vacant" feeling of the west side of the site, the east side feels residential-like and safe. The pathways lead the users directly to the buildings, lighting is located along most pathways, and the distances between buildings are not too far.

This facility is a mix of new and old conditioned infrastructure. The oldest parts of the campus are on the east side of campus. These are primarily used for storage facilities and archives today. The newest building is the hospital. Because the majority of the site is maintained and in moderate condition, the site feels safe when walking through it. It feels as if you're walking through a college campus. Quite a few staff are outside walking to and from buildings which give the space life.

Although there appears to be a lot of activity spaces on site, these spaces are dilapidated, uncovered by tree canopy, for seasonal use or are not age appropriate for the adults living here. In addition, there is an abundance of large open lawn spaces that are unprogrammed. This could be utilized as an amenity, especially between the cottages for the patients or the therapy center where many staff offices are located. Currently, the patients are restricted to a small 160 square foot L-shaped outdoor space that wraps around each cottage. This is not encouraging social interaction between patients or staff.

Greenhouse should be better connected to other greenspaces

Site Access
Needs better gateway into site

Storage
Facilities

Greenhouse

Horse Stable

Patient
Core

Hospital

Therapy
Buildings

Athletic
Field

Patient
Core

Admissions
Building

Site Access
Make this the only main entrance?

0   300   600
Feet

Better connect greenspace

Access to site

Improvement Areas

Accessible Paths

Strengths

- Flat, well-conditioned pathways
- Site is divided into clear zones
- Site is walkable and accessible

Weaknesses

- Pathways are very small
- No outdoor amenities
- Micro-climate conditions need improvement
- Inconsistent signage and materiality
- Too much open space

Opportunities

- Increase plant diversity
- Add amenities
- Utilize the connected lawn spaces
- Increase walkability on campus by making micro-climate more comfortable

Threats

- Lack of funding
- High security risks
- Lack of staff
- Lack of educated professionals

Figure 4.2. Site analysis conclusions for PSH

Site Investigation Synthesis

Osawatomie State Hospital

OSH has many weaknesses but a lot of opportunities. Because the site is very large, many staff and patients do not walk around daily. Most staff park in the plentiful parking lots, are in their office, and then leave for work again. If patients do go outside for a walk, which must be escorted and is restricted, they can walk up to a mile within a set boundary as shown in the accessibility diagram. This walking trail doesn't even have sidewalks. Users must walk on the streets, causing a conflict of use between pedestrians and cars/buses/trucks. However, in some cases sidewalks are available, and the walk is pleasant and park-like. There is plenty of tree canopy that makes the walk shaded and comfortable. But, there is a lack of seating amenities. This makes the campus a passable space, not inviting the users to sit or spend time in the outdoors longer than the walk lasts. Navigating the site is relatively easy. The site's signage is minimal but cohesive making it relatively easy to move around the site, even for a first-time visitor.

The site is surrounded by thick wooded areas and agricultural lands separating the site from the city of Osawatomie. Meanwhile, the center of the site is only lawn space. Although this gives the campus a park-like feeling, there is very little programmed space. The open lawns are useless and non-functional for a patients or staff. The opportunity with this type of environment is the ease of sight lines provided to the user. There could be a better way to program these spaces, add ornamental plantings, and create a suitable environment for patients and staff to be outdoors within. Large mature trees should be preserved as they appear to be in good condition and give the site good seasonal interest.

Views from outdoor spaces provide good sight lines, a park-like atmosphere, and relative feeling of safety. There is a lack of outdoor lighting though which prevents use of outdoor spaces in the evenings. Views from within the buildings are limited. Each building is made of brick therefore, there are only windows in the patient rooms as seen in the photo to the right. Because of the lack of windows, there is not much natural light in the facilities.

Overall, the site feels very safe. Not many people are outdoors so the environment is very quiet and park-like. The campus is very large with a historic presence. By looking at the quality of space diagram one can see majority of the campus is old but used. The newest addition was add near the center. This provides an opportunity for preserving the historic qualities while integrating newer, more functional spaces to the site. Although the site offers many outdoor activity spaces, they are underutilized. Because the campus is open with little restriction, the spaces are unsafe for patient use alone. In addition, the large mature trees, although an amenity, has encouraged some plant overgrowth which is blocking the site lights of some of the spaces. Another factor contributing to the underutilized spaces is the lack of maintenance. Because this hospital is the oldest in Kansas, the spaces were built many years ago. A few of the spaces, and even buildings, are unsafe to use due to deterioration. There are limited funds available to provide a proper maintenance crew or money to rebuild dilapidated areas.

Valley View may not be suitable for patient use but would be a good staff space if improved

Adair Lodges

Adair Buildings

Might be a nice place for trails

Storage Facilities

This area of the site does not feel cohesive with the rest. How could the maintenance and security workers have improved space?

Fire & Security Station

Staff Cottages

Greenhouses

De Jong Building

Auditorium, Pool and Gym

Library

Biddle Building

Admissions Building

Site Access
Has a good gateway leading user into site

Special Services

West Pavillion

How can this side of campus be cohesive with the rest? Right now it feels like the "left-overs"

The Sunken Garden would be one of the best renovation spots on site because it holds historical value and modern elements

Rush Building

Carmichael Building

0   500   1000
Feet

→ Better connect greenspace

→ Access to site

✳ Improvement Areas

▭ Pathways need connection
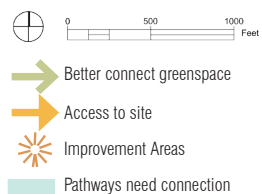
Strengths
- Strong historical value
- Site is divided into clear zones
- Variety of planting types
- Site has clear, flat pathways and feels safe.
- Micro-climate conditions

Weaknesses
- Pathways do not connect
- Minimum outdoor amenities
- Lack of outdoor lighting
- Too much open space
- Lack of natural light inside the facilities

Opportunities
- Increase plant diversity
- Add amenities
- Utilize the connected lawn spaces
- Increase walkability on campus by connecting pathways
- Use the historic attributes

Threats
- Lack of funding
- High security risks
- Lack of staff
- Lack of educated professionals

Figure 4.3. Site analysis conclusions for OSH

Survey Data Analysis

After inputting all the paper survey data in Qualtrics, it was exported to the SPSS version 25 software to complete statistical analysis. Then, the data was cleaned so that the results, such as names and labels, would be clearer. Next using descriptive analysis, the number of times in which answers were chosen was analyzed for the last question on each image. This question asked, "Please choose three of your favorite elements about this space." By analyzing how often each element was chosen, I was able to see which elements or qualities about the images were the most preferred by the staff. These results have influenced the projective design phase of the report.

Next, I completed frequency analysis on the demographic portion of the survey. This helped me to better understand the population which participated in the survey. Questions such as "How long have you been working at the hospital?" "What is your age?" "What is your role at the hospital" and "How often do you go outside during work hours?" was asked. Understanding this information informs the results as to why certain preferences could have been chosen between the image surveys as well as the needs within the greenspaces from the self-reported data gathered about their perception of outdoor space and their perception of their own health.

Following frequency analysis, Levene's Test for Equality of Variance and T-Tests for Equality of Means were conducted to understand how closely each of the hospital's results were similar or unsimilar to one another. This is important because, as mentioned before, to find data that is generalizable to all mental health facilities and not specific to one the results from each hospital should be corresponding. However, when comparing t-test results, it was found that OSH and LSH results were very similar but PSH results were slightly different. In order to prevent errors or the data being thrown off and ungeneralizable OSH and LSH were put into one pool while PSH's data will be compared.

Then, in order to understand how the data clustered together within each set of images (ie. Exercise, Action, Privacy, Social, etc) I ran factor analysis followed by reliability tests. In doing so, I could better understand how the first four questions asked, which were the most consistently answered and correlated with one another out of the data set. Cronbach's Alpha for all components found to be above 0.7 meaning that they were all reliable as distinct factors.

Lastly, each image was "scored" to better understand which image within each theme was the most preferred between the staff. The images could potentially score a 20 as each question could score a five and there were four questions. Overall, the purpose of the survey analysis phase is to understand the chosen needs and preferences of the staff members of each hospital.

Results:

PATIENT SURVEYS

Limited Findings

Limited Patient Survey Results

Although only fourteen patient surveys were collected from Osawatomie State Hospital and Parsons State Hospital, here is a small conclusion of the results to compare what was found in the staff surveys.

Majority of the patients were male as only three were female of which majority were between the ages of 26-65 years old. Only two of the patients indicated that they were between the ages of 18-25 years old. Most patients indicated that they had been at the hospital between one and five years or five years or longer meaning they were very familiar with the hospitals and were likely more stabilize in their daily routine. It makes sense that the staff had patients who are more stable and familiar with the hospital take the survey but would be interesting in the future to see the difference between new and adjusted patients.

When looking at the overall preference of outdoors, 50% reported that they do like to be in outdoor environments. It means if there were adequate outdoor spaces with the preferred activities, half of the patients would participate in outdoor activities. 70% of the participants reported that they go outside 2-4 times per week for about 30 minutes per day. When they are outside, they mostly sit, talk to others, or are walking from building to building. However, 70% of the patients indicated they almost never work in the greenhouse.

For the self-reported wellbeing questions, overall the patients appear to be somewhat tired, motivated and relaxed and most often lonely and irritable but positive and calm. Although there was a low number of participants in this study, it could be predicted that the results would show a similar state of wellbeing across the entire hospital.

Meaningful Action

Lastly, I looked at the results about the image sets of each theme. Within the meaningful action themed images, the highest preferred image was the farmer's market followed closely by the community park. The favorite images within these images were the trees (71%) and the farmer's market idea (51%). These results are similar to the staff preferences who also preferred the number of people shown in the farmer's market and the idea of a farmer's market.

Exercise

Next, the exercise themed images showed that the patients preferred the outdoor exercise image the most especially preferring elements like shade and the plantings of the image. About 35% of the participants indicated that they do not have a space similar to the outdoor exercise room but that they would use it frequently (58%) and that it would help to clear their head. This result was contrary to the staff preferences who indicated no outstanding qualities about the image.

Social

The most preferred social image to the patient population was the outdoor movie space. Although the staff preferred the art social space the most, both the patients and staff picked the "outdoor movie idea" as their most preferred element, 71% and 74%, respectively.

Privacy

In contrast to the staff who preferred the rooftop space the most, the patients preferred the outdoor café considerably more than the interior courtyard and rooftop space. The most favorable elements include the size of space (50%) and the plants (43%) among all of the privacy themed images.

Fascination

The patients found the fire pit image to be the most fascinating whereas the staff preferred the garden gazebo. Among the favorite elements of the fire pit image was the fire pit itself (35%), plants (35%), sunset (42%), and the seating (35%). It was interesting to find considering the lack of time and likeliness a patient would interact with fire. However, the gravity towards fire and warmth could have to do with the survey taking place during the winter months.

Wayfinding

Finally, like the staff results, the wayfinding theme is inconclusive based on the results that were gained from the patients as there was not full participation toward the end of the survey. It is hypothesized that the patients got mental fatigue as the survey did require a lot of attention and time.

Although much more analysis could go into the patient data, the number of participants make the data statistically unreliable. Therefore, the survey from the patients were not carried forward into design decisions.

Survey Analysis Synthesis

Collective Results for Sfaff

The following are results and conclusions drawn from the survey data. As a reminder, OSH and LSH were put into one pool together as the data was more similar and therefore reliable but the data from PSH will be compared at the end.

Staff Demographics Results

The survey was successfully taken by 140 staff participants across the three hospitals. Of the 140 participants, 28 were male, 101 were female, and the remaining 11 chose not to report their gender (See Figure 5.4). Majority of the staff participants were in the age range of 41-65 years old, although, a high number did not report their age (See Figure 5.4). I also gathered information about their role as a staff member at the hospital as well as how long they worked at the hospital. The results showed that majority of the participants were nurses or direct of care staff members (See Figure 5.5) and worked within the facility for 1-5 or 5 years or longer (See Figure 5.6). This pool of participants was exactly what the study needed to gain meaningful and reliable results as these most of the participants work with patients daily (See Figure 5.7) and are very familiar with the hospitals I gathered data from.

Figure 4.5. Survey participant's role at the hospital,

- 2.9% Psychologist
- 30.0% Nurse/ Direct Care
- 2.9% Therapist
- 7.1% Activity Specialist
- 5.7% ª Administration
- 12.9% Administration
- 19.2% Other
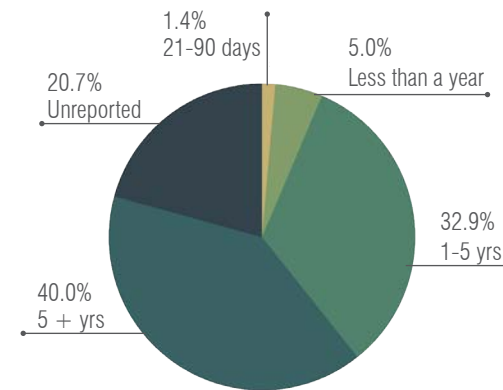
Figure 4.6. The length of time survey participants have worked in a mental health hospital

- 1.4% 21-90 days
- 5.0% Less than a year
- 32.9% 1-5 yrs
- 40.0% 5 + yrs
- 20.7% Unreported

Figure 4.4. Survey participant demographics

- 72.1% Unreported
- 20.2% Male
- 7.7% Female
- 21.5% Unreported
- 7.7% 18-25 yrs
- 27.2% 26-40 yrs
- 40.7% 41-65 yrs
- 2.9% 65+ yrs
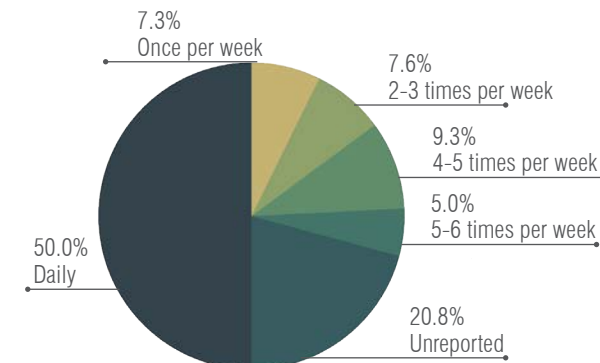
Figure 4.7. Time participants spend with patients per week

- 7.3% Once per week
- 7.6% 2-3 times per week
- 9.3% 4-5 times per week
- 5.0% 5-6 times per week
- 20.8% Unreported
- 50.0% Daily

Value of Outdoor Space

To assess the general value staff have for outdoor space and the activities they currently participate in, the survey asked three questions as seen in Figures 4.10- 4.15. As shown in Figure 4.8 the results showed that staff do have a preference to spend time in outdoor spaces. However, they do not have to opportunity to go outdoors due to a lack of breaks and outdoor spaces (see Figure 4.9). The majority (43%) of the participants said that they spend one day or less outside per week while working at the hospital. Lastly, the results confirmed the lack of outdoor activities available as a majority of the responses indicated that walking from building to building and talking to others were the most frequent types of activities (see Figures 4.13 and 4.15).
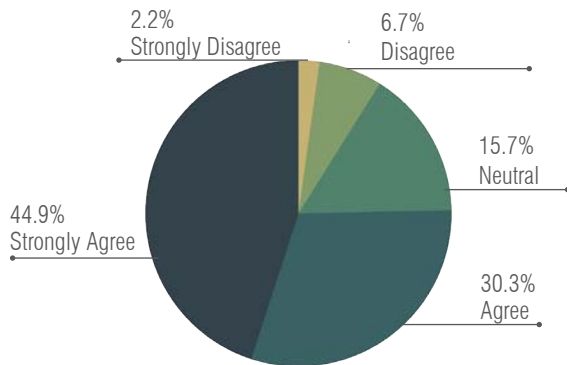
Figure 4.8. The percentage of participants that prefer to be outdoors
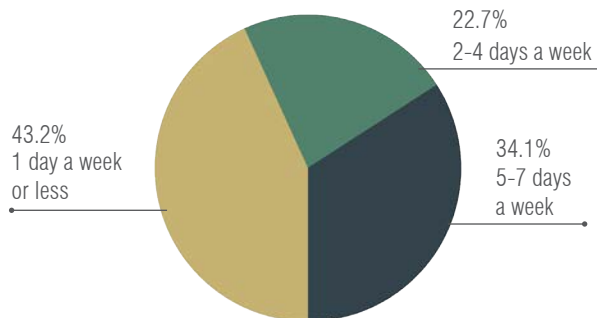
Figure 4.9. The amount of time participants spend outdoors per week while at the hospital
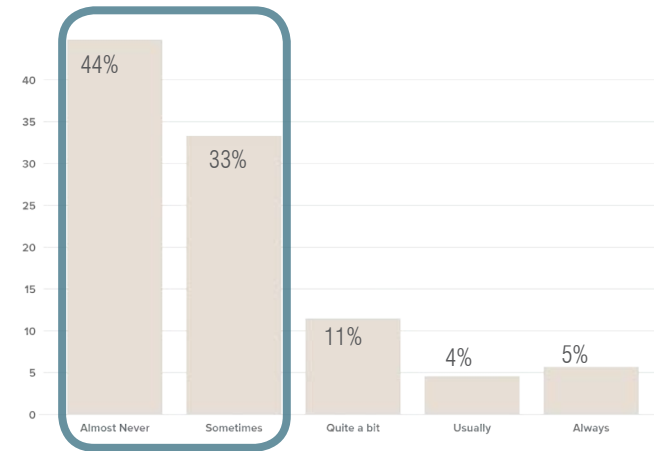
Figure 4.10- 4.15.
The most common activities staff do outdoors daily during work shifts- sitting
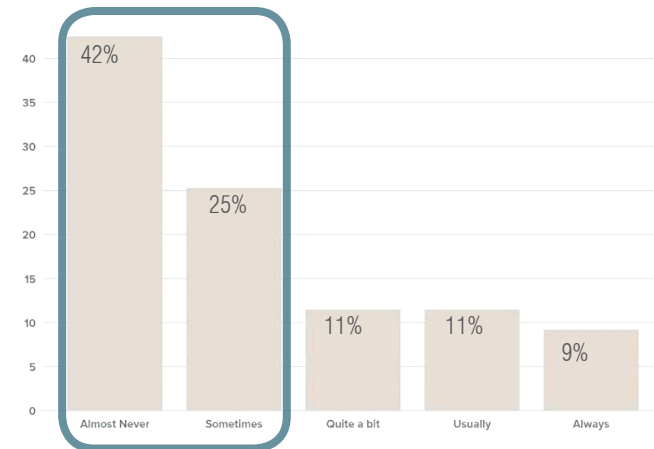
Figure 4.11.
Watching nature.
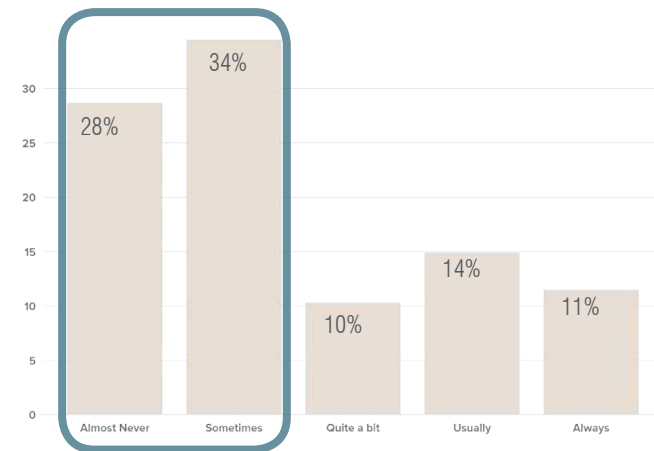
Figure 4.12.
Exercising.
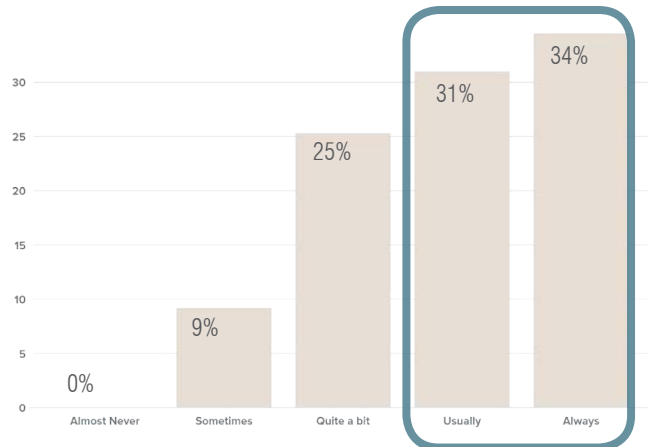
Figure 4.13.
Talking with others.
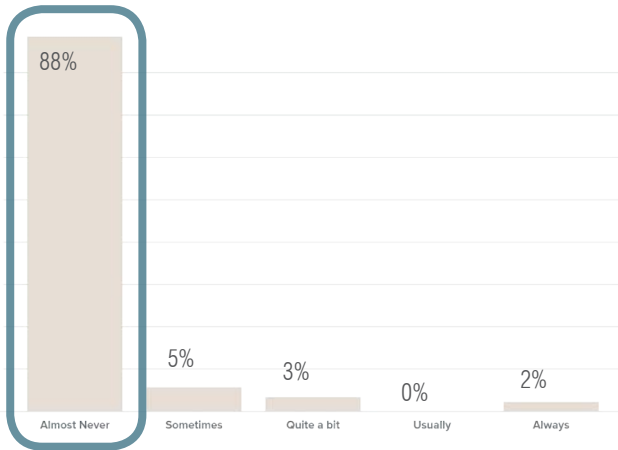
Figure 4.14.
Working in the greenhouse.
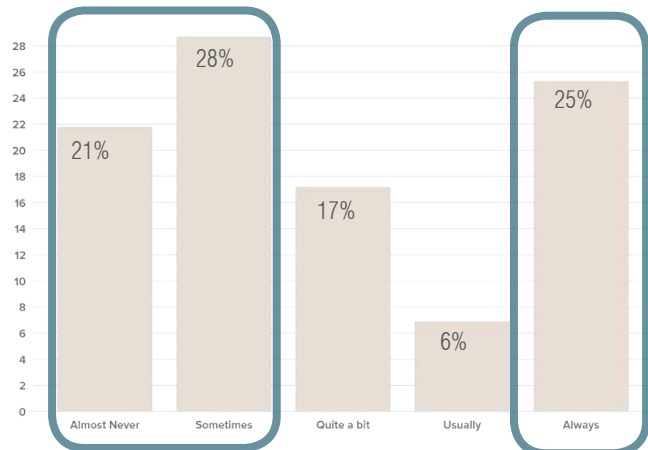
Figure 4.15.
Walking from building to building

Participant State of Well-Being

To better understand the participants' self-reported well-being, questions from a basic well-being and depression questionnaire was added. This allowed the participants to give insight, anonymously, about their currently state of stress, mental fatigue, social connectedness and moods (See Figures 4.16 and 4.17). It was critical to gain a perspective on how the participants are feeling because it may contribute to the way in which they answer the questions. For those feeling very positive and calm will likely respond to the survey images with a different perspective than those who feel stressed, irritable, and lonely.

The results revealed that in the past two weeks of when the survey was taken by the participants, the staff occasionally feels lonely and effective yet are still relatively focused, calm, and positive within their work environment as shown in Figure 4.16 through the peak points of the graph. Comparatively, both OSH and LSH responded very similarly to the questions except about motivation, feeling relaxed, being connected to others, and loneliness.

Lastly, to understand how the participant's preference for each theme related to their self-reported sense of wellbeing, the Pearson Correlation test linear regression test were used. Running this regression test showed that in general, the way in which people feel their current state of well-being does not have statistically significant correlation with how they answered the survey questions regarding the image themes. There was one exception, the community park, that was associated with sense of wellbeing.

In the past two weeks I have felt:

| Effective | Calm | Lonely | Focus | Positive | Irritable |
| 48% | 41% | 35% | 56% | 48% | 47% |
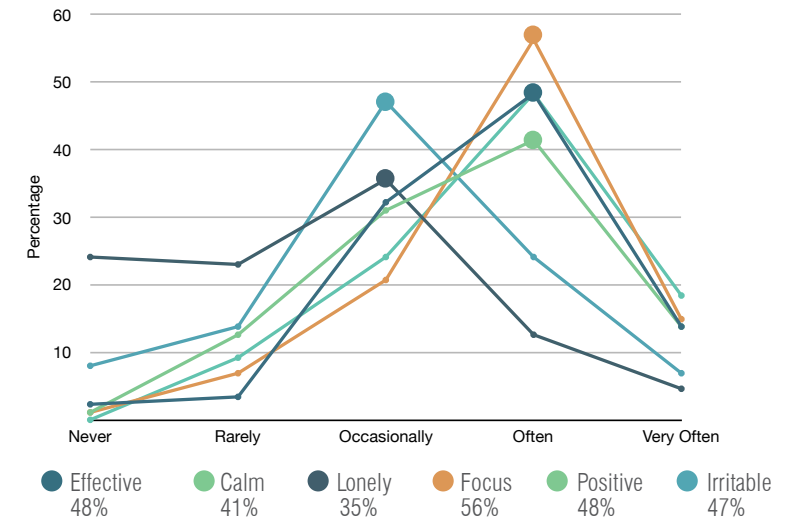
Figure 4.16.
Self-reported well-being pertaining to mood

In the past two weeks I have felt:

| Connected to Others | Motivated | Patient | Concentrated | Relaxed |
| 36% | 36% | 48% | 41% | 26% |
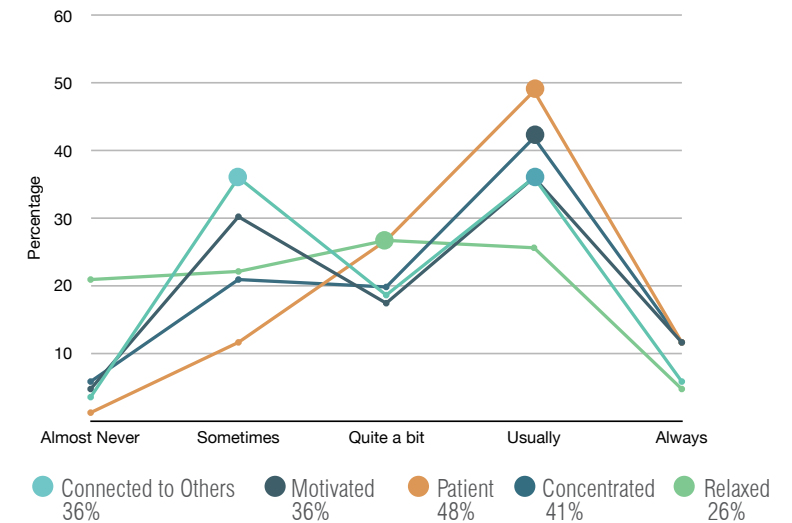
Figure 4.17.
Self-reported well-being pertaining to mood

Results:

MEANINGFUL ACTIONS

Survey Images

It is important for a person to feel reasonable and capable of accomplishing tasks that have a meaning to themselves and others around them. Although there are a range of activities that relate to a meaningful action, the three themes chosen for the survey images are described below:

Community Park
Because the stigma of a mental health facility is still prominent in communities today, creating a public space on the large grounds of a mental health hospital could be a great way for the community to be exposed to those affected by or working with mental health. This park could be open for local events such as parades or festivals or function as a place of community recreation. If needed, there could even be a curfew for the park since it is on the hospital grounds.

Farmers Market
Incorporating a farmer's market type of activity would not only help to better connect the hospital to the surrounding community but could give both patients and staff a way to create something that is meaningful to others. Although a farmer's market would be a seasonal or periodical event that could happen at the hospital, the preparation for it would involve staff and patients gardening in the spring or working in the greenhouse year-round. Crafts could also be sold which the mental health facility users could make during therapy. Lastly, in addition to improving the stigma and relationship the hospital has to the community, the money raised at the farmer's market could help to improve the conditions of the hospital spaces or fund more materials for yearly farmer's markets.

Outdoor Learning Environment
It would be beneficial to incorporate outdoor spaces that can be used as outdoor learning or therapy spaces. This could mean an outdoor classroom that includes a chalkboard wall or moveable writing partitions, or it could be an amphitheater-style space for small classes. These spaces could be used for staff to patient, patient to patient, and even staff to staff teaching/ learning scenarios. It not only gives the patient an alternative and restorative space to go while supervised during nice weather but also give the staff a break from being indoors for meetings or breaks.

The Community Park

Some research has mentioned that large opens spaces are seen negatively by those affected by a mental illness as it can increase paranoia symptoms. In addition, often times staff working at mental health facilities see open space as a safety risk that is uncontrolled and therefore can increase their stress when taking a patient outdoors. However contrary to belief, the study showed that it was the highest scoring image out of all the images in the entire survey as well as within the group of "Meaningful Actions".

Average Score

A1 Community Park	15.46 / 20	Highest Score
A2 Farmer's Market	15.21 / 20	
A3 Outdoor Classroom	14.05 / 20	

To further understand the preferences the participants had for the image, certain elements were strategically chosen which relate back to the theme of meaningful action and landscape guidelines for the participants to choose in part two of the survey. For the community park, the results showed that the trees were the most favorable element in the image. Close behind were the sun and lawn elements. The least favorable element was the colors of the image. The large amount of green and warm colors did not seem to be significant preference factors, which is contrary to what color theory in environmental psychology suggests.

Figure 4.18. Community park survey questions

Most favorable elements:

Lawn	52.1%
Size of Space	39.3%
Sky	24.8%
Colors	18.8%
Birds	21.4%
Park idea	26.5%
Sunlight	52.1%
Trees	65.0%

0   25   50   75   100
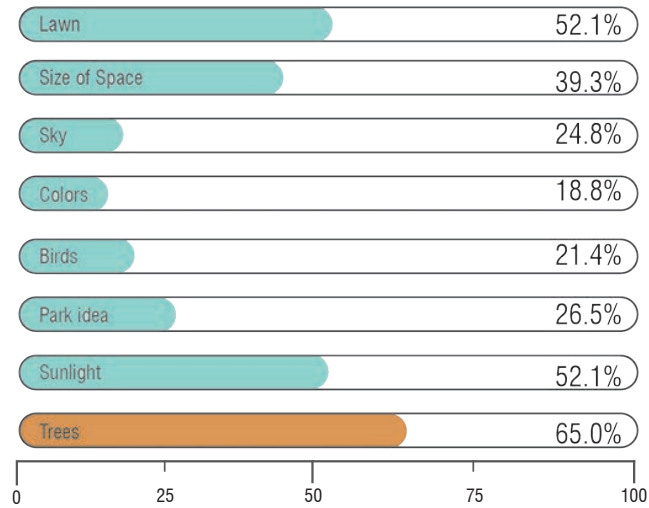
Figure 4.19. Favorable elements results

Factor analysis showed that the items related to this theme all clustered together with a high reliability test result (Cronbach's Alpha= 0.83). In particular, this image seemed to have a highly positive response to clearing people's heads and that this space would help connect the hospital to the community. Results like these are a good sign that a community park on the grounds of the hospital could be a widely accepted idea for mental health facilities. Additionally, the results showed that almost equal percentage of the participants (27%) believed that they have or don't have access to a space like this.

I have access to a space similar to the community park:

10.0% Strongly Agree

12.9% Strongly Disagree

27.1% Agree

Community Park

27.9% Disagree

22.1% Neutral
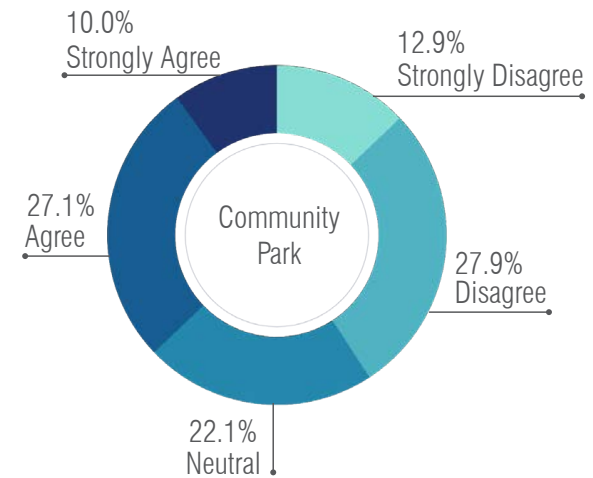
Figure 4.20. Access to a similar space results

The Farmer's Market

In contrast to the community park image, the farmers market image is 95% hardscaping and much more enclosed. Although there is a stark contrast in the characteristics of the space, the results proved that this theme was highly preferred scoring at 15.21/ 20 points. Elements of this space such as the water feature, the warm colors, the plants, and the number of people could have contributed to the high preference. The respondents confirmed this prediction as the idea of a farmer's market, water feature, and the plants were frequently selected as the respondents' favorite element of the space with the plants being the most frequent choice.

Factor analysis showed that the survey items for this image clustered together with high reliability (Cronbach's Alpha= 0.85). Particularly , the participants considered the depicted farmers market as stress reducing, motivating to go outside, and a place that they would use frequently. Lastly, unlike the community park, the participants clearly indicated they do not currently have access to a space similar to the farmer's market.

Most favorable elements:

Element	Percentage
Water Feature	65.0%
Plants	77.8%
Size of Space	12.8%
Colors	29.1%
Number of People	6.8%
Farmers market	45.3%
Shade	50.4%

Figure 4.21. Farmer's market survey questions
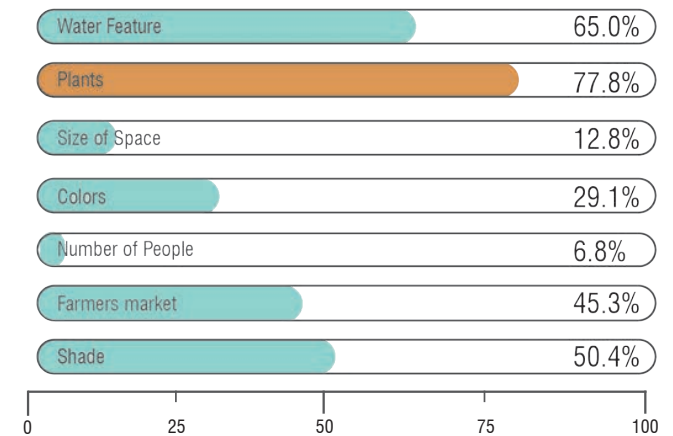
Figure 4.22. Favorable elements results

The Outdoor Learning Environment

Figure 4.23. Outdoor learning space survey questions

Within the Meaningful Action themed images, the outdoor learning environment appeared to be the least preferred space with the lowest image score. However, it is important to note that the most preferred characteristic of this image were the plantings similar to the farmers market image. It is surprising that this characteristic is greatly different between the two images yet receive almost the same percentage of votes (see Figure 4.24).

Most favorable elements:

Element	Percentage
Water Feature	44.3%
Plants	65.0%
Size of Space	17.9%
Colors	16.2%
Sunlight	41.9%
Seating	57.3%
Chalkboard Wall	39.3%
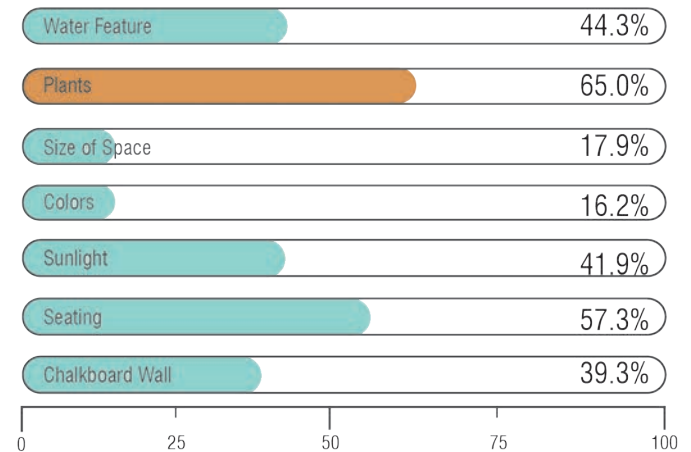
Figure 4.24. Favorable elements results

Another interesting finding was that seating was a highly preferred characteristic of space. This image has picnic table seating which is different than any other seating type in the survey. While highly favorable, it is not the highest scoring seating type. The results showed that seating was a favorable characteristic in social or group images such as the amphitheater space and art space that will be discussed later. Another characteristic that was favored was the water feature and chalkboard wall. Understanding that this user group enjoys or wants these types of elements in spaces will help improve the projective design accordingly.

Lastly, similar to the farmers market, the participants indicated they do not have access to a space similar to this one. Having a space available at this size, with a similar amount of plants, and seating types seems to be a reasonable expectation for an renovated area at a hospital. Implementing simple elements, such as planting and seating, can improve a space on a budget while greatly improving the overall atmosphere and use of outdoor areas.

I have access to a space similar to the outdoor learning space:
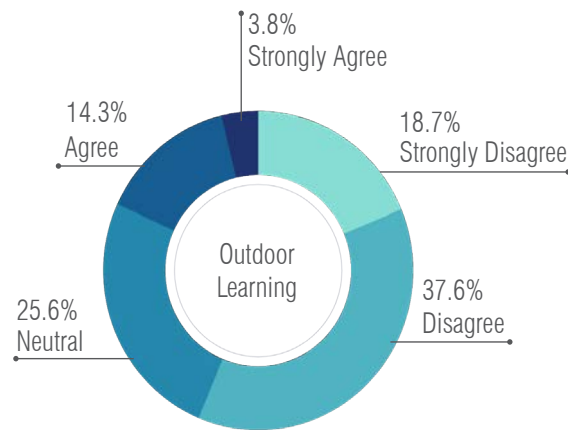
Figure 4.25. Access to a similar space results

Overall, spaces of meaningful action can improve the community both within and outside of the hospital environment. The participants of the survey appeared to like the idea of creating spaces that impactful actions can take place. It is also pushing healthcare design forward in a more community-based type of system, while still allowing patients who need full-time care, to live within these facilities. Although many meaningful action spaces are seasonal, such as gardening, hosting a fundraiser, or a farmers market, it will encourage periodical contact to the outer community that can make staff and patients feel appreciated for the work they put into the hospital. This is especially important for patients who are unable to work. Meaningful action activities can in a way, act as a job for them, through which they can make a difference.

Results:

SOCIAL
Survey Images

Although social spaces can be overwhelming and stressful to some of those with mental fatigue or mental health issues, these types of spaces can do a lot for someone's mood. Social spaces are also great places for group therapy to take place or staff meetings. Being social doesn't have to mean physically speaking or interacting with others either. Sometimes it can just mean immersing yourself in an environment around others.

Art Space
Many research sources have encouraged creative spaces for hospital settings. Creative spaces could especially help release emotions and stress as it requires mindless focus compared to generic therapeutic sessions for users in a mental health hospital setting. In the survey image, plush greenery, individual seating, and art boards emphasize the idea of creating in a restorative environment.

The Outdoor Lounge
An outdoor lounge is a small space that is enclosed but affords multiple social activities for the users. This particular space could accommodate versatile seating opportunities for individuals and groups. The seating should be comfortable and different from seating around the remainder of the hospital. In addition, a lounge space should accommodate both sun and shade, plants, and activities which are sedentary and do not require mental strain.

Outdoor Movie Space
This space encourages group activities for evening. This is important because majority hospitals have a very early curfew, usually 8pm, requiring all users to be indoors and in restricted areas. By having an outdoor amphitheater that is nestled into the building infrastructure and emphasizes a planting wall, users can inhabit the space during the day or outdoor classroom-type activities, or night-time activities since it is enclosed, have ample lighting, isn't too big, and has appropriate sight lines.

Art Space

Figure 4.26. Art space survey questions

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This image was the most favorable out of the Social themed images. This could be because of the lush greenery which makes up two-thirds of the image and this quality is known to have a positive and restorative effect on the brain visually. This idea was also confirmed by the survey participants as the element was the favorite element selected (see Figure 4.27). Also, in contrary to most images on the survey, shade was a highly preferred characteristic about the image instead of sunlight. The seating type was also highly preferred while there was minimal seating shown in the image.

Most favorable elements:

Seating	45.0%
Size of Space	28.6%
Plants	71.4%
Colors	41.4%
Shade	50.7%
Creating Art	35.0%
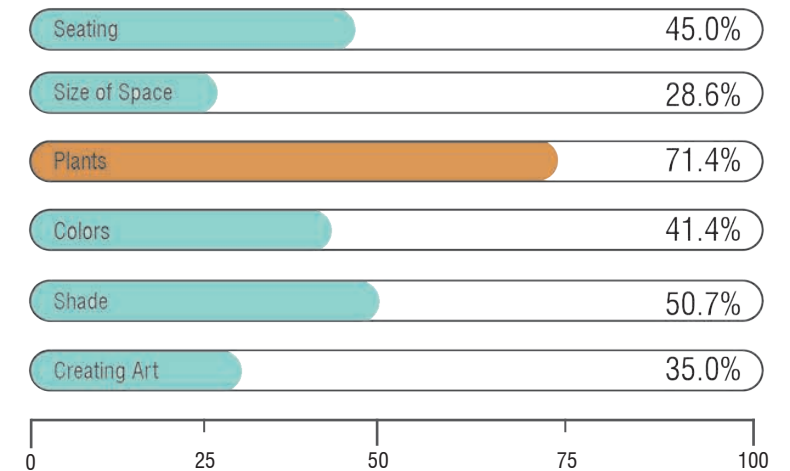
Figure 4.27. Favorable elements results

Factor analysis showed that all of the survey items clustered together with high reliability (Cronbach's Alpha= 0.92). Compared to the other themed set of images, all three of these images had a high percentage of participants indicating that the spaces would help clear headedness, they would use these spaces on breaks, and such spaces would motivate them to go outside. These results indicate important spatial characteristics and themes that should be considered in the projective design decisions.

Lastly, almost half of the participants (48%) indicated that they did not have access to a space similar to the presented art space. This is also another important point to consider in the projective design decisions.

I have access to a space similar to the art making space:

3.8%
Strongly Agree

10.8%
Agree

15.4%
Strongly Disagree

Art Making
Space

22.3%
Neutral

47.7%
Disagree
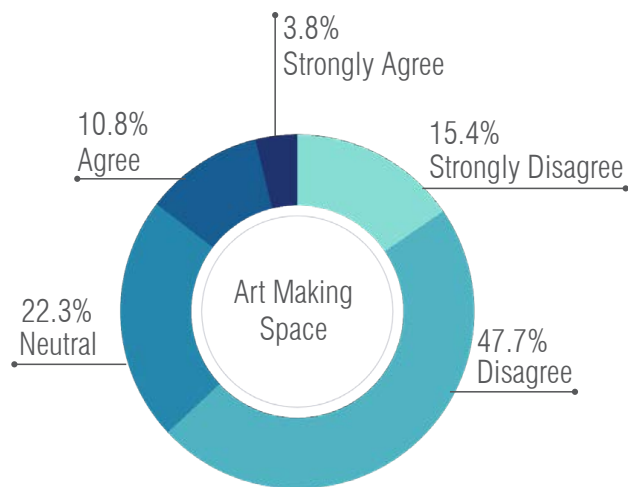
Figure 4.28. Access to a similar space results

The Outdoor Lounge

Figure 4.29. The Lounge survey questions

The outdoor lounge space was a favorable space to the participants of the survey. About 50% of the participants agreed that a space like the outdoor lounge would be used often for breaks and that it would motivate them to go outdoors. About 50% of the participants said they do not currently have access to a space like the outdoor lounge. This was the most agreed upon statement among all of the respondents in the entire survey (Figure 4.30).

I have access to a space similar to the lounge:
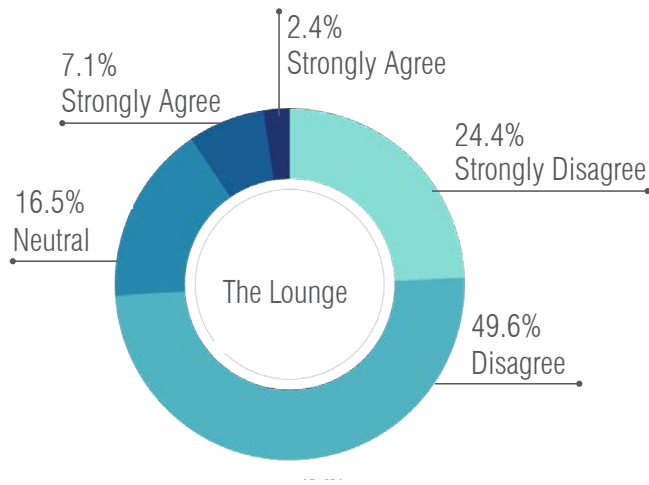
Figure 4.30. Access to a similar space results

Out of the many components of the outdoor lounge, 63% of participants chose seating as their favorite element of the space. This might be because the seating type and outdoor couches shown in the image was completely different than all other survey images. An interesting result about the outdoor lounge is that the colors of the image was not favorable compared to the other images in the Social theme even though the color palette is almost identical to the art space image before it. In addition, plantings were highly favorable like the art space even though there are very little plants compared to the art space. These results show that the configuration of elements in a space matters and also preference for the characteristics of a space needs to be tested with a large participant number to gain more reliable insights about meeting users' needs through design.

Most favorable elements:
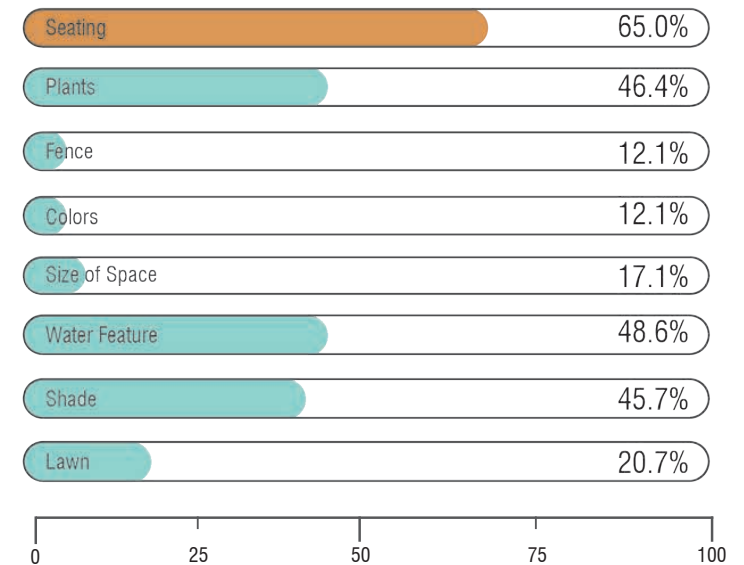
Figure 4.31. Favorable elements results

Outdoor Movie Space

In many cases of the survey, when asked what a participant's favorite characteristic about the image was, most did not select the chosen theme for the image (e.g., creating art, exercise equipment, rooftop, etc) but for this particular image, the option "outdoor movie" was the most favorable element of the image. Although more images of night-time spaces would need to be in the survey to show true results, it was interesting to see the positive response of the staff members about a night-time activity as 64% of the respondents favored the idea of a night-time activity.

Most favorable elements:

Seating	65.0%
Night time activity	66.4%
Outdoor Movie	76.4%
Size of Space	37.9%
Fence	17.9%
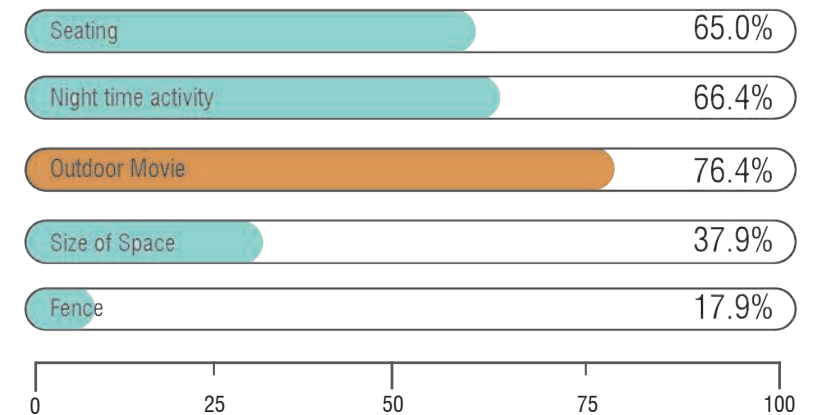
Figure 4.33. Favorable elements results

Figure 4.32. Outdoor movie survey questions

About 43% of the participants indicated they do not currently have a space like this, while LSH does have an amphitheater space with a different composition. This shows that the participants do not use their outdoor space regularly enough to be well-informed about the available activities

Factor analyses for the Social themed images showed that the survey items clustered separately for each photo with high reliability test results (Cronbach's Alpha = 0.86) acknowledging the distinct characteristics of each social space. Also, to examine the potential association between the participant's sense of wellbeing and their preferences for these spaces, linear regression analysis was conducted. The results showed no statistically significant influence of the level of self-reported wellbeing on the participants' choices.

I have access to a space similar to the amphitheater space:

0.8%
Strongly Agree

3.8%
Agree

12.8%
Neutral

40%
Disagree

Amphitheater
Space

43.2%
Strongly Disagree
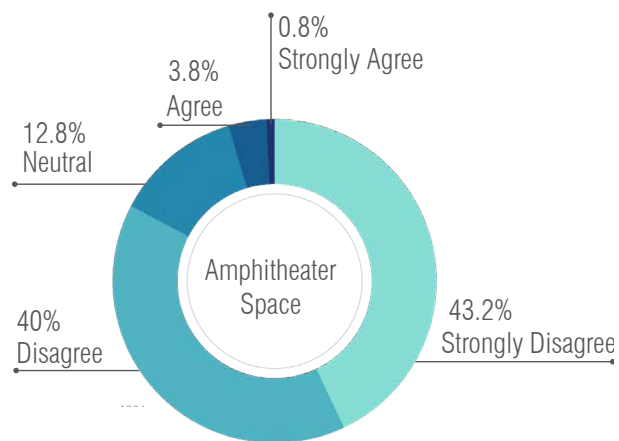
Figure 4.34. Access to a similar space results

Results:

EXERCISE
Survey Images

Exercise and other forms of physical activity have been proven to improve physical and emotional health even in mental healthcare settings. Below are the three themes chosen to represent the category of exercise in the survey:

Walking Trail
Walking is an activity that majority staff and most mental health patients can partake in physically, and there are many psychological benefits to walking through nature daily or weekly as well. A large majority of older mental health facilities have large open grounds with underutilized space. Incorporating a trail throughout this space could improve the safety of staff and patients taking walks, utilize space on grounds, encouraging more walking, and ultimately, improve the quality of life at the hospital daily.

Outdoor Exercise Room
Although patients have to work their way toward gaining access to exercise rooms, staff in particular could benefit from an on site gym. PSH and OSH currently have a version of a workout room, but the equipment is damaged and old. In addition, it takes time to workout so there needs to be an adequate amount of time during breaks and flexible after hours.

Interior Activity Courtyard
An interior courtyard can offer multiple amenities to the users of a mental health facility. It offers an space in close proximity to surrounding buildings and needed resources, an enclosed space that promotes minimal risks to patients, a controlled environment that allows users to be autonomous, and an ideal amount of space to host both group and individual activities. For exercise, this is a perfect type of environment for therapeutic physical activities like tai chi or yoga.

Walking Trail

With ample amount of space on each of the three study hospital sites, encouraging 30-60 minutes of walking time each week should be relatively feasible for the users to do if the right kind of infrastructure supports it. Creating a trail around the site, whether half a mile or a mile long could increase the physical and emotional well-being of the users if they are not currently participating in walking weekly. Walking in green outdoor space gives time for the brain to be involuntarily occupied through soft fascination resulting in attention restoration in the long run (Kaplan 1989). It can reduce mental fatigue and reconnect the user to nature while taking a short work break. When the weather allows, a walking trail can provide a useable activity space for both groups and individuals.

Each of the three study sites do have enough space to implement a version of a walking trail. However, 37% of survey participants indicated that they do not have a walking trail to use during their time at the hospital (see Figure 5.36). A minimal intervention, just giving the users a path to walk on could encourage them to go outside multiple times a week.

I have access to a space similar to the walking trail:

Figure 4.35. Walking trail survey questions
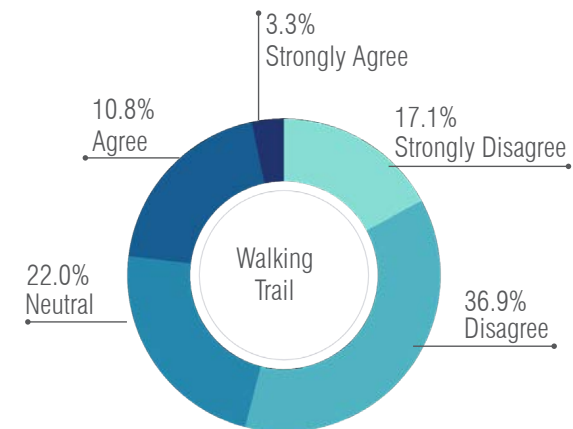
Figure 4.36. Access to a similar space results

In fact, for this image, the path was chosen as the most favorable characteristic by the survey participants (see Figure 4.37). This infers that the staff would like to have a trail in which they could walk or jog on regularly (see Figure 5.38). It should be considered that the context surrounding the trail could alter responses. In the walking trail image, a forest like area was shown adjacent to the trail giving it an exploratory feel. Perhaps being under the trees in combination with the path is the best option. This factor along with a more detailed materiality search would need to be conducted to explore this.

Most favorable elements:
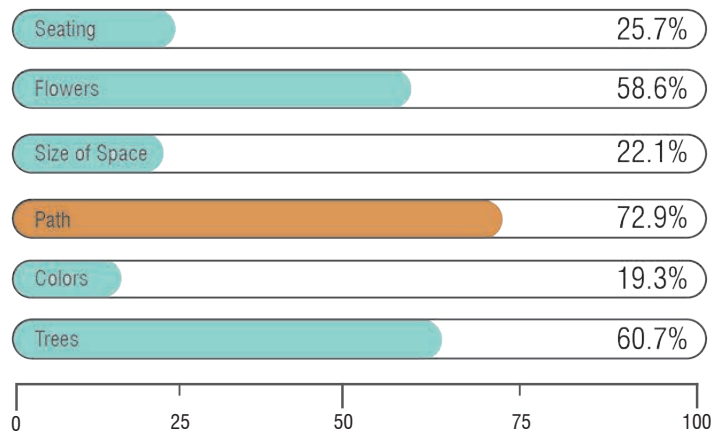
Element	Value
Seating	25.7%
Flowers	58.6%
Size of Space	22.1%
Path	72.9%
Colors	19.3%
Trees	60.7%

0   25   50   75   100

I would use this space for walks or jogging...

1% Strongly Disagree
7% Disagree
18% Neutral
38% Agree
36% Strongly Agree
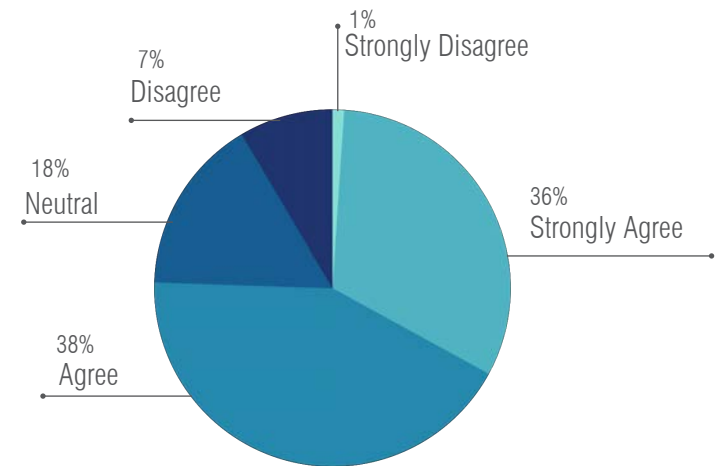
Figure 4.38. Frequent use of space results

Outdoor Exercise Room

The survey participant's responses about this space were overall positive but not exasperating. The data showed that the majority of the participants would not use this kind of space frequently, while indicating that they would use this space during breaks or after their shift at the hospital (Figure 4.40 and Figure 4.41).

Although the scene was dominated by hardscape and built elements, plants and shade were the two more favorable characteristics (see Figure 4.42) of the outdoor exercise space which is comparable to the farmers market results. This result confirms previous findings that people gravitate toward having a preference to look at natural materials. When asking the participants about their favorite components of the space, although plants and shade had the highest votes, all of the other elements had similar number of votes. In conclusion, this image seemed not to have any outstanding qualities that were extremely attractive to the mental health facility users despite the fact they feel they do not have access to a space like this one.

I would use this space during breaks or after my shift:

Figure 4.39. Outdoor exercise room survey questions

178
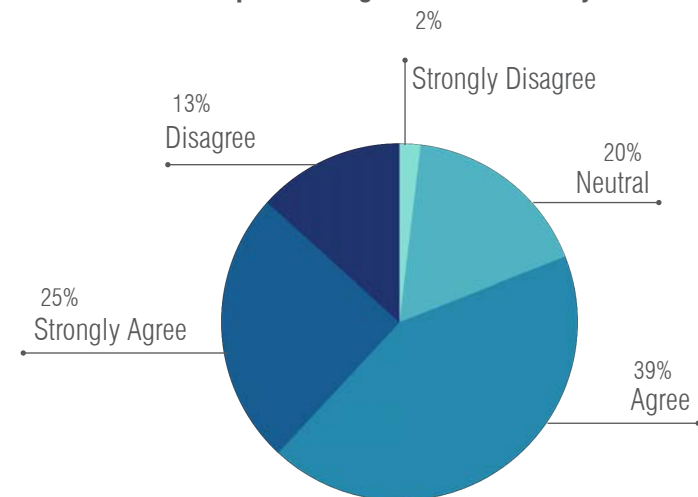
Figure 4.40. Use of space results

179

I would use this space three or more times per week:

- 2% Strongly Disagree
- 18% Disagree
- 27% Neutral
- 30% Agree
- 22% Strongly Agree
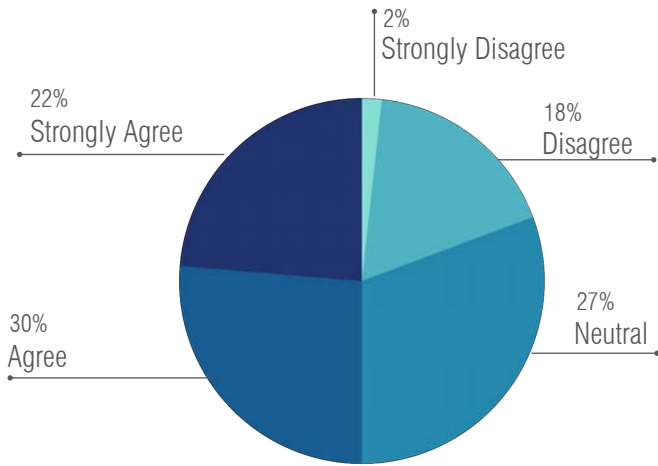
Figure 4.41. Use of space results

Most favorable elements:

Seating	24.3%
Plants	48.6%
Size of Space	35.7%
Exercise Equipment	53.6%
Sunlight	38.6%
Shade	54.3%

0   25   50   75   100
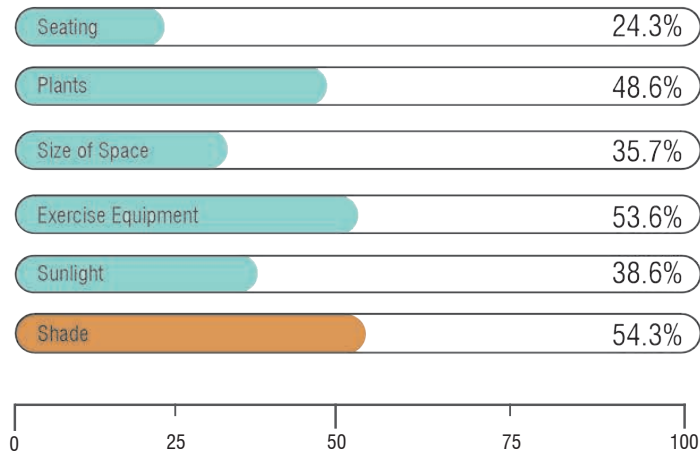
Figure 4.42. Favorable elements results

I have access to a space similar to the outdoor gym:

Outdoor Gym

- 3.3% Strongly Agree
- 5.0% Agree
- 18.2% Neutral
- 38.8% Disagree
- 34.7% Strongly Disagree

Figure 4.43. Access to a similar space results

Interior Activity Courtyard

Figure 4.44. Interior courtyard survey questions

The interior activity courtyard image was purposely made to visually look similar to the walking trail image. There is a lot of greenery, little people, and a less expansive space to give the feeling of a connection to nature, control, and restorativeness. The survey results of the walking trail and the interior courtyard were quite different despite the similarities. For starters, the trail image scored almost two points higher than the courtyard image.

E1 Walking Trails	14.34 / 20
E2 Outdoor Gym	13.11 / 20
E3 Activity Courtyard	12.06 / 20

Factor analyses showed that survey items related to Tai Chi activities and a relaxing space clustered together well with high reliability (Cronbach's Alpha=0.95) whereas in the trail image, using the space for walks and motivation to go outside were highly clustered (Cronbach's Alpha=0.93). This could mean that the participants view the trail as a more appropriate and motivational space for exercising activities in contrary to the interior courtyard.

I would use this space for Tai Chi or other group activities:
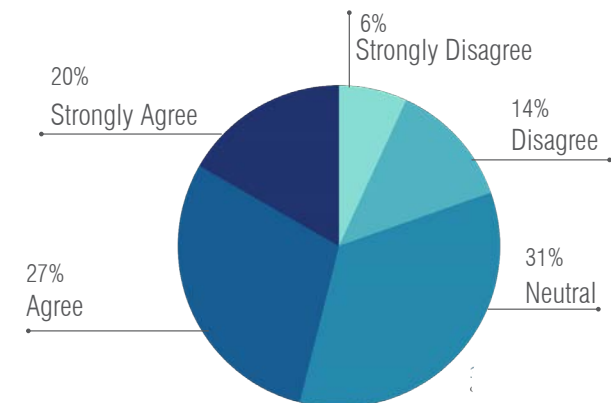
Figure 4.45. Use of space results

Lastly, the most favorable elements about each of the images were different. The results showed that trees were the most favorable components of the space, even though in both the trail and courtyard image, the trees are visually the same size, colors, and types. However, the results for sunlight, colors, and flowers/lawn had almost an identical response type and percentage (see Figure 4.46.).

When running linear regression models to test the association between the participants self-reported wellbeing and the way they responded to image preferences, the results showed no statistically significant relationship (See Appendix F).

Most favorable elements (Interior Courtyard):

Element	Percentage
Lawn	55.7%
Trees	60.0%
Size of Space	32.1%
Tai Chi Activity	30.0%
Colors	17.9%
Sunlight	41.4%
Buildings Nearby	9.3%
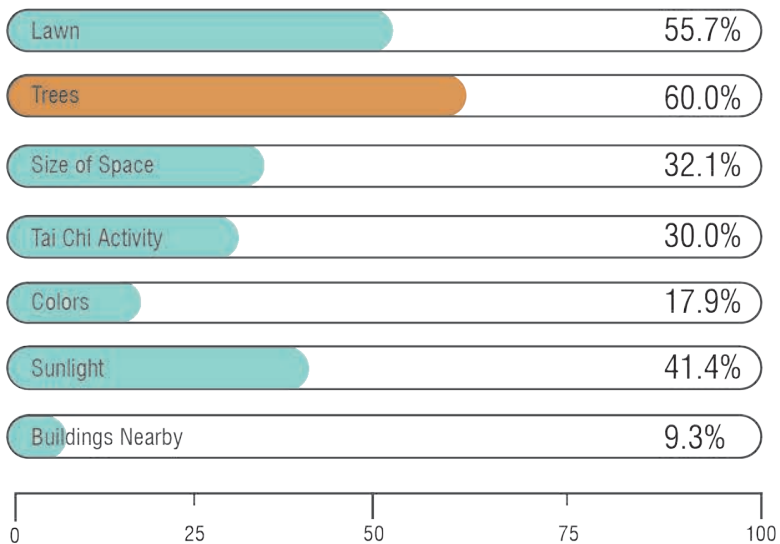
Figure 4.46. Favorable elements results

Most favorable elements (Trail):

Element	Percentage
Seating	25.7%
Flowers	58.6%
Size of Space	22.1%
Path	72.9%
Colors	19.3%
Trees	60.7%
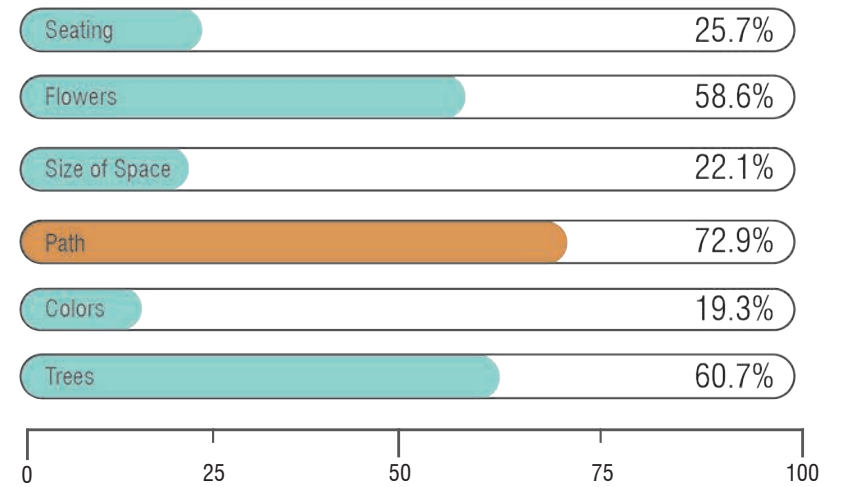
Figure 4.47. Favorable elements results

Results:

FASCINATION
Survey Images

As demonstrated in the literature, there are two types of fascination. Hard fascination is when it takes a lot of directed attention and focus to watch or think about something. By contrast, soft fascination does not require directed attention, like watching a sunset, the ocean, or gazing at mountains. This common experience demonstrates how nature can be a restorative experience in our lives contributing to overcoming mental fatigue and improving our ability to focus and direct our attention effectively when needed.

Window Seat
Watching nature from indoors is a common practice in homes, hospitals, and work. Windows are also beneficial because they allow natural light into a space. For users in a hospital who are unable to go outdoors due to safety risks or not enough time, a window seat or sun-room could be the only way in which a person connects to nature.

Garden Gazebo
Overly plush in plantings and animals like butterflies in birds, this image was meant to promote soft fascination. A gazebo structure is placed along a curving path encourages the users to take a seat and pause in the landscape. Many of the study sites only provide passable outdoor spaces to move from building to building. Small gardens with a strong planting concept can be one of the simplest ways to provide fascination in the landscape. In addition, this type of environment provides an ecologically rich space for pollinators, insects, and small mammals to live, which will strengthen the positive impact of nature views.

The Fire Place
One of the study sites (Parsons State Hospital) allowed users to gather around a campfire occasionally during the summer months. Like water, fire can be a fascinating element in the landscape. Although it does present some higher safety risks than water, if place in the right type of setting and with enough supervision, user of a mental health facility could incorporate this into their outdoor space.

Window Seat

Like the rooftop image in the previous set of images, view from window is an important feature to have within a hospital setting. Perhaps the results were not as they would be if patients would respond, because staff do not typically have spaces that encourage them to sit by a window. In fact, in mental health facilities, staff aside from administration, are on their feet most of their day. This could contribute to why only 20% of participants said they would use this space frequently.

Frequencies indicated that all of the rating questions were answered similarly by the participants of the survey. The Pearson Correlation analysis of answers to rating questions about this particular image showed high correlation between the perceived potential for this space to connect the users to nature and their willingness to use this space more than three times per week. This could relate to the fact that the majority of participant's most favorable characteristics about the space was the view out the window, closely followed by the seating by the window, and plants (see Figure 5.49). This connection can be made because typically, when one is sitting indoors by a window, a person is unable to go outside due to physical, emotional, or weather restrictions. Further, it was interesting to see that images with similar color palettes like the outdoor café, the outdoor learning environment, and the lounge had a very low percentage of respondents choose "color" as their favorite characteristic.

Most favorable elements:

Figure 4.48. Window seat survey questions

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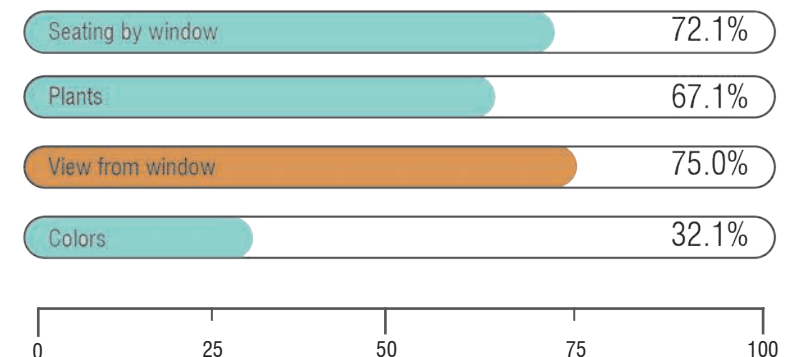
Figure 4.49. Favorable elements results

Garden Gazebo

Figure 4.50. Garden gazebo survey questions

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Out of all the images in the Fascination themed images, this image had the highest score of 13.75/20. When running factor analysis, the responses were highly clustered revealing the distinct characteristics of this spaces as perceived by the participants. The highest correlated results as shown in the Pearson Correlation analysis, were motivation to go outside and clearheadedness.

F1 Window Seat	13.17 / 20
F2 Gazebo Garden	13.75 / 20
F3 Fire Space	12.26 / 20

The most preferred characteristics of the image were the gazebo, plants, and butterflies. Like the gazebo in the wayfinding image, it can act as a shelter as well as a landmark on campus. This type of structure allows the user to pause and or gather in the landscape to watch, listen, feel, and interact with nature. Humans are inherently drawn to places of shelter; this relates to the prospect-refuge theory which seeks to explain why certain environments feel safe and secure meeting human psychological needs (Dosen and Otswald 2013). In addition, I can infer that the gazebo and plants were highly favorable because the currently study sites do have spaces similar to these as indicated in Figure 5.51.

Most favorable elements:
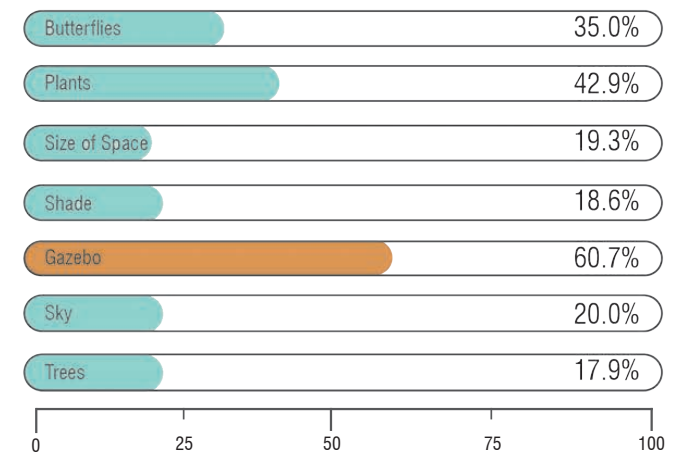
Figure 4.51. Favorable elements results

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The Fire Place

Figure 4.52. Fire pit survey questions

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The fire gathering image is quite different than all the others in the survey. Not only is it pushing a "risky" activity of using a fire pit, but the setting of the image is portrayed during the sunset. However, the findings show that the sunset or fire pit were not the most favored element in the image. The most favorable element in the image was the proposed seating which is quite different than all other seating types throughout the survey (see Figure 4.53). Like outdoor learning environment and the outdoor lounge, in which the seating was also highly favorable, the seats in this space have social arrangements which contradicts the typical seating types in hospitals. This finding will help to inform the projective design in the coming chapter.

Most favorable elements:

Seating	58.6%
Sunset	45.0%
Plants	26.4%
Size of Space	30.7%
Colors	7.9%
Fire pit	56.4%
Shade	15.0%
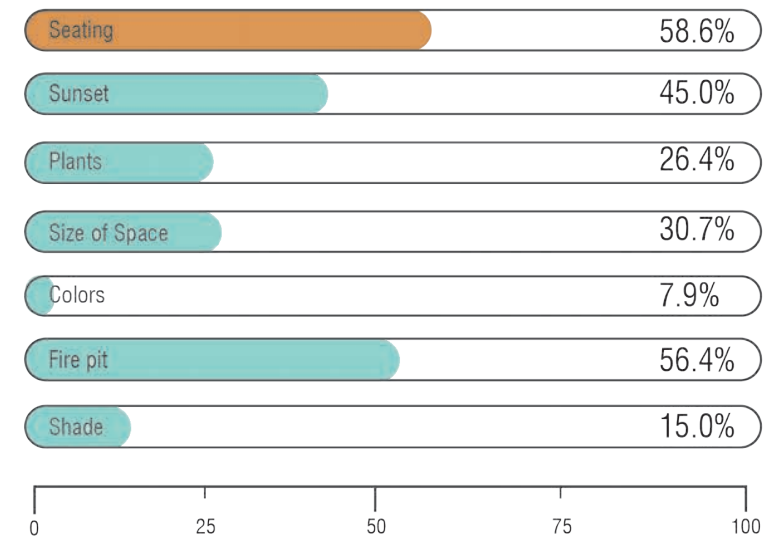
Figure 4.53. Favorable elements results.

Additionally, when running the factor analysis test, the the survey items related to this image were separately clustered indicating the perceived distinction between this scene and the other two images (Cronbach's Alpha = 0.89). The highest agreed upon answer was that the space could reduce the stress and motivate the users to go outside. This was one of the only images that was highly agreed upon by participants that this space could reduce stress out of the entire survey.

Further, the participants agreed on the fact that they do not have access to a space similar to the fire pit image (see Figure 4.54).

I have access to a space similar to the fire pit space:

3.4%
Strongly Agree

9.5%
Agree

34.6%
Strongly Disagree

17.2%
Neutral

Fire Pit
Space

35.3%
Disagree
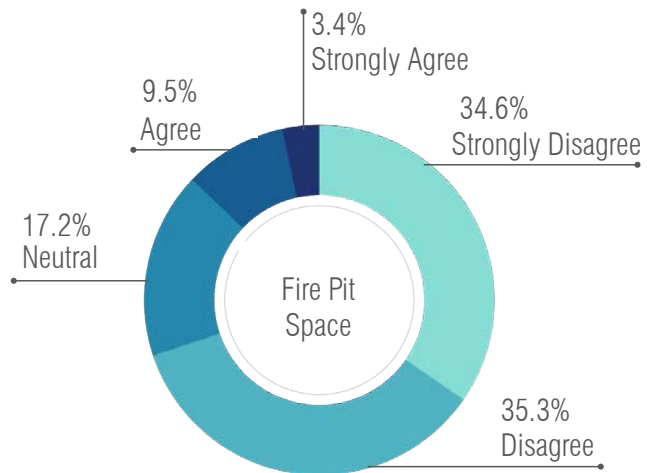
Figure 4.54. Access to a similar space results.

PRIVACY +
NOISE REDUCTION

Survey Images

Private space allows those who have extreme mental fatigue, stress, or patients experiencing an episode to be alone. This type of environment is crucial for those who experience a lot of social stress or need breaks during the day.

The Rooftop Space
In cases where there may not be enough resources to make an outdoor space safe, using the rooftops of buildings is a good alternative. In most cases of mental health facilities, newer buildings have been built in radial organization at only one or two stories high. This increases the safety and possibility to build upon the rooftop as long as there is a way to get people to the roof.

Interior Courtyard
As mentioned before, it is common that newly built structures on hospitals are built in radial patterns which create naturally enclosed outdoor spaces between two sides of a building. Larned State Hospital is a good example. Interior courtyards provide great sightlines for staff to oversee the activities of patients, and increases the opportunities for patients to spend time alone in outdoor space. In addition, a courtyard formed between building walls reduces the need for fences which, in result, not only provides an ideal amount of space for activities to take place (not too big or too small) and is more aesthetically pleasing for the community looking in on the hospital.

Outdoor Cafe
Many of the mental health hospitals have cafeteria buildings for the patients that are allowed and the staff who work their daily. Extending the cafeteria into outdoor spaces gives options to be outdoors during natural break times. Users could get 30-60 minutes of outdoor time, in the sun or shade, and interact with nature without programming extra time into their daily schedule.

The Rooftop Space

Figure 4.55. Rooftop survey questions

The rooftop was the most favorable space out of the Privacy theme images in the survey as it scored 12.31/20. However, the outdoor café followed close behind with a 12.18/20. As a space that was the only one of its kind in the entire survey, the results showed that survey participants had an interest in this type of space.

P1 Rooftop	12.31 / 20
P2 Interior Courtyard	11.69 / 20
P3 Outdoor Cafe	12.18 / 20

Factor analysis of the responses to these three images showed that the survey items clustered together under each image, indicating distinct characteristics of these spaces in the participants' perception (Cronbach's Alpha =0.95).The results showed that all three privacy-related images, highly motivated the participants to go out. None of the study sites have a rooftop, and the results showed that only 40% of the participants acknowledged that they do not have access to such space. Further, the most favorable element about this space was the view from window followed closely behind with plantings. These results indicate the need for creating similar "view from a window" opportunities in the projective design proposal.

Rooftop Space		Interior Courtyard		Outdoor Cafe	
P1.2goout	.916	P2.2goout	.929	P3.2goout	.907
P1.1stres	.892	P2.5usebrk	.919	P3.5usebrk	.862
P1.5usebrk	.846	P2.4usefrq	.905	P3.1stres	.852
P1.4usefrq	.844	P2.1relx	.897	P3.4usefrq	.767

Interior Courtyard

Results from this image showed that is was one of the least preferred photos of the entire survey. Since among the three study sites, only LSH has interior courtyards, data for OSH and LSH were examined separately to understand users' perception of access to a space similar to this one. The results showed that despite LSH only having courtyard spaces as outdoor space, 61.2% of OSH respondents and 70.2% of LSH respondents indicted that they do not feel like they have access to a courtyard space. The participants indicated that this type of space would motivate them to go outside and that such spaces would help reduce stress. This could be associated with the water feature (favored by 71% of the participants) and the only two seats (65%) shown in the image as the results showed.

Favorite elements in the interior courtyard:

Figure 4.57. Favorable elements results

Figure 4.56. Interior courtyard survey questions

Outdoor Cafe

Figure 4.58. Outdoor cafe survey questions

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Upon first glance, it seemed like the participants did not prefer this space, but it actually scored higher than the interior courtyard space. None of the study hospitals have a space like this one so it was expected for responses to confirm that there are not spaces similar to this one at the hospitals.

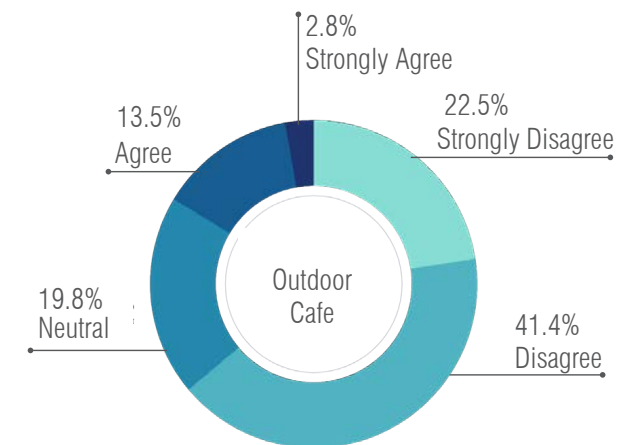**I have access to a space similar to the outdoor cafe:**

Figure 4.59. Access to a similar space results

The favorite components of this space were also the seating and the plantings. This was one of the only images with round tables which may indicate the participants liking for this seating type. Additionally, contrary to most of other survey images, the time setting of this image was around sunset (similar to Fascination-related images). The purpose of this was to gain insight if this is a time of day someone would want to be outdoors compared to a day-time setting. Like the fire-pit image in the following set of images, almost 50% of participants indicated that the sunset was a favorable quality about the scene.

Factor analysis results confirmed the distinctions between the three types of privacy-themed images with a high reliability (all Cronbach's Alphas were above 0.9). The linear regression analysis results showed no statistically significant association between people's sense of well-being and how they answered the survey questions on privacy.
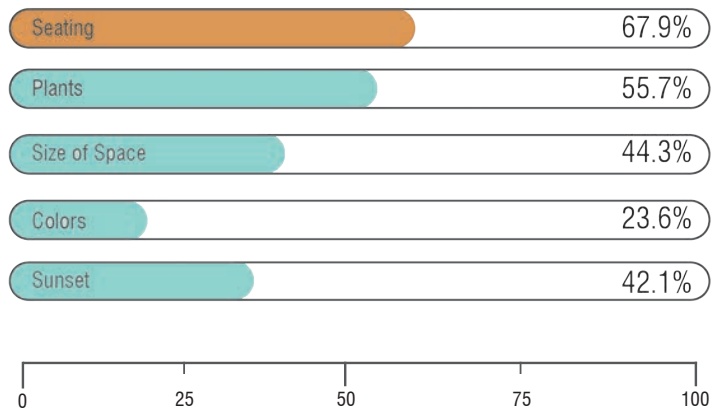
Most favorable elements:

Element	Value
Seating	67.9%
Plants	55.7%
Size of Space	44.3%
Colors	23.6%
Sunset	42.1%

0   25   50   75   100

Figure 4.60 Favorable elements results

Results:

WAYFINDING
Survey Images

Wayfinding is one of the most understated yet important parts of navigating space. There are many creative ways in which wayfinding techniques can be implemented into the landscape. Below are the three themes chosen to represent the category of exercise in the survey:

Central Park
Having a centralized space in the landscape is a common way in which wayfinding is created through a landmark. A landmark is an element that is different from all other elements around it making it recognizable for the brain to recall a certain space. In this image a large gazebo is used to mark the landscape of a small park-like space in a hospital setting. In addition, the wayfinding signage, is large, made of natural materials, had a simple rectangular shape to display directions in the landscape. This version of wayfinding is the most typical in hospital settings.

Large Park
This image was presented to create little landmarks throughout the landscape through larger-than-life-letters. These letters are colorful, bright, and most have a function (ex. Arch, seat, recreation goal, etc). They are placed along an exploratory park path which has a mid-height small wayfinding sign explaining what each letter represents.

Small Park
In many cases, people look past sign, signage is too small, there are too many words that causes mental stress. Therefore, for this rendition of wayfinding, the ground plane is used as the wayfinding tool. Although this may not be the best solution for a mental health hospital, it was put to test in the survey because users have never been asked about this kind of creative wayfinding before. In fact, majority of users are not asked about the best wayfinding techniques to be used in a space because it can be an afterthought even for designers.

Central Gazebo

Figure 4.61. Central gazebo survey questions

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The results for the Wayfinding themed images were so similar, as proved when running factor analysis, that the data will be written together. Factor analysis clustered responses from each of the images together which didn't happen for any of the other set of images. All of the wayfinding images are set within a park-like space. This is because with ample amount of space on each of the three study hospital sites, encouraging 30-60 minutes of walking time each week should be relatively easy for the users to do if the right kind of infrastructure supports it and a park-like space is so versatile.

W2.4usefrq	.841
W2.2goout	.831
W3.4usefrq	.828
W3.1relx	.823
W1.4usefrq	.798
W1.2goout	.788
W3.2goout	.787
W2.1stres	.783
W1.1relx	.692
W2.5sign	.904
W1.5navspc	.874
W3.5navspc	.613

Image one shows a central gazebo space that acts as a landmark for the user and is further supported by a large signage board. In using a landmark, such as a large gazebo, it can help in wayfinding as it is a recognizable structure that can help orient people within the space as well a space to create memories which also aids in the wayfinding process.

Large Park

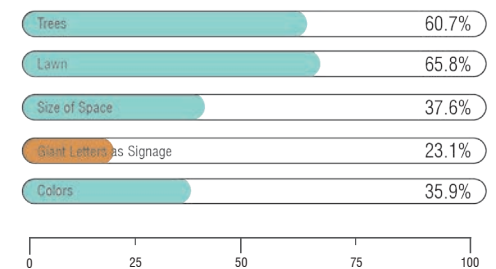**Figure 4.62.** Large park survey questions

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The second and third images are set in a large and small park respectively. The large park features larger-than-life sized letters which correspond to an entry sign. Based on the results, the letters were the most favorable type of wayfinding tool (see Figure 4.63) used among the three images getting 23% of the participant's votes vs 12% and 18%.
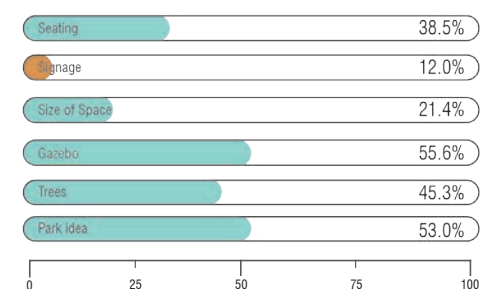
Most favorable elements:

Central Gazebo

Element	%
Trees	47.0%
Path	54.7%
Size of Space	25.6%
Colors	24.8%
Signage	17.9%
Lawn	47.9%

Large Park

Element	%
Trees	60.7%
Lawn	65.8%
Size of Space	37.6%
Giant Letters as Signage	23.1%
Colors	35.9%

Small Park

Element	%
Seating	38.5%
Signage	12.0%
Size of Space	21.4%
Gazebo	55.6%
Trees	45.3%
Park idea	53.0%
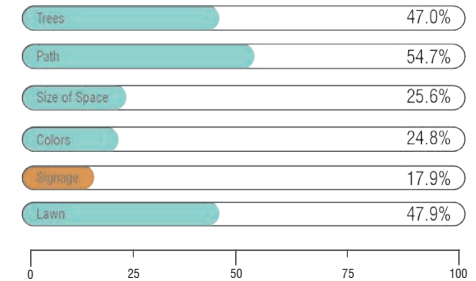
Figure 4.63. Favorable elements results

211

Small Park

Figure 4.64. Small park survey questions

Further, the third image features a wayfinding technique using colorful ground plane changes. This was the most favorable characteristic of the image (see Figure 4.65). Over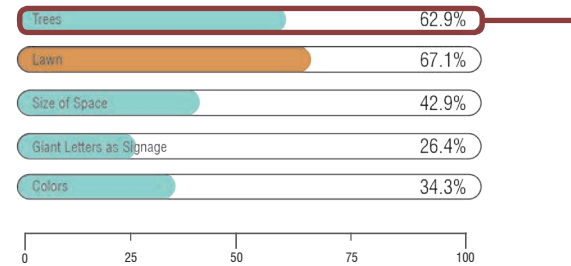all, for each of the three images there were similar results in the participant's preferred characteristics including their preferences for trees and lawn.
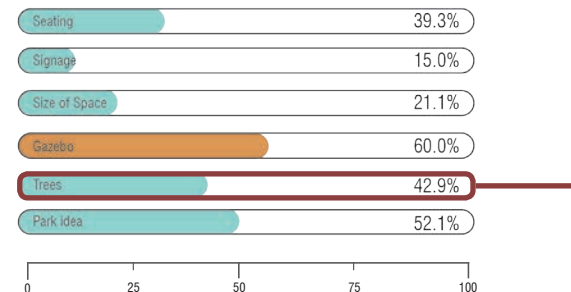
Most favorable elements (Small Park):

Element	%
Trees	45.0%
Path	59.3%
Size of Space	29.3%
Colors	22.1%
Signage	22.9%
Lawn	50.7%
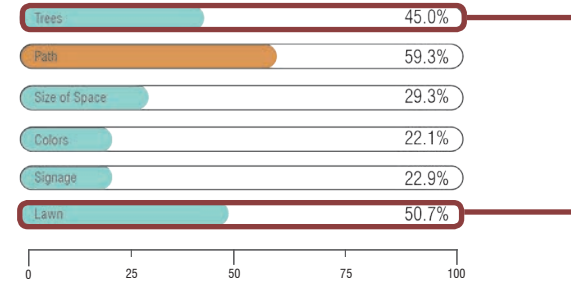
Most favorable elements (Large Park):

Element	%
Trees	62.9%
Lawn	67.1%
Size of Space	42.9%
Giant Letters as Signage	26.4%
Colors	34.3%

Most favorable elements (Central Gazebo):

Element	%
Seating	39.3%
Signage	15.0%
Size of Space	21.1%
Gazebo	60.0%
Trees	42.9%
Park idea	52.1%

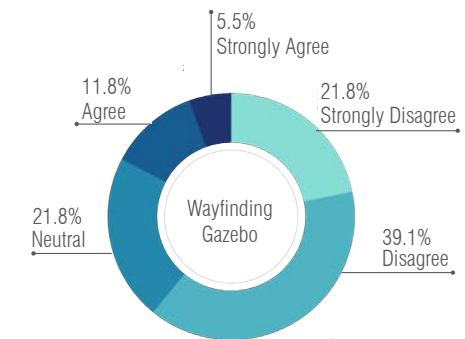Similar Results betwee images

Figure 4.65
Favorable
elements results

Also, the first image scored the highest (11.87/20) out of the Wayfinding themed images. This was an interesting finding because the majority of the image is hardscape and infrastructure compared to the second and third wayfinding images. Despite the low amount of green in the image, it didn't appear to have a negative effect on the image, and the gazebo was chosen as the most preferred characteristic of the space. This finding relates to Fascination image "garden gazebo" where the participants also picked the gazebo as their most favorable element of the image. Moving forward to the projective design in the coming chapter, this information will be highly used. In addition, implementing a park idea was chosen as highly favorable after the gazebo. These results (62%) were much higher than the "community park" image at the beginning of the survey where only 26% of the participants favored the park idea.
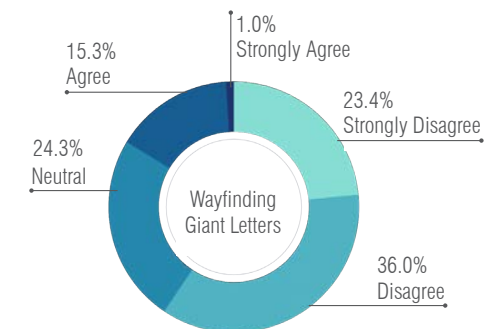
W1 Cental Gazebo	11.87 / 20	
W2 Larger Park	11.36 / 20	Lowest Score
W3 Small Park	11.47 / 20	

While none of the study site have a park space, about 60% of survey participants indicated that they do not have a space like this to use during their time at the hospital (see Figure 5.56). However, it is unclear whether the participants would prefer to have a park space. Between the three image and the community park image from the Meaningful Action theme, there was not enough data collected specifically about a park space to be able to push this idea to the projective design phase.

Central Gazebo

5.5% Strongly Agree
11.8% Agree
21.8% Strongly Disagree
21.8% Neutral
Wayfinding Gazebo
39.1% Disagree

Large Park

1.0% Strongly Agree
15.3% Agree
23.4% Strongly Disagree
24.3% Neutral
Wayfinding Giant Letters
36.0% Disagree

Small Park

8.3% Agree
32.1% Strongly Disagree
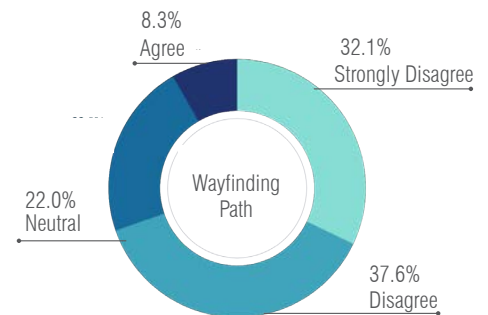22.0% Neutral
Wayfinding Path
37.6% Disagree

Figure 4.66. Access to a similar space results

CONCLUSION
Survey Images

Prominent Findings

After data analysis, there were a couple themes that stood out from the results. The first finding was that the participants of the survey, seemed to like the idea of implementing more integrated activities and spaces on campus between the hospital and the community. Considering the stigmas associated with mental health, this finding was interesting to discover. However, in order to figure out if this is a generalizable theme to other hospitals and have a holistic perspective of the community, further surveys will need to be conducted with more mental health hospitals and their surrounding communities. Although the survey portrayed many park themes which could be community integrated, it was not clear if the participants wanted to connect to the community through a physical setting, like a park, or reoccurring events like a farmers market. It should be reminded that the survey did not directly ask the participants about this as an option.

Another consistency in the results was the preference of social spaces. Typically, in healthcare settings, there is a focal point on creating private space for users. This guideline is more suitable for clinical or general hospitals because there are surgeries, traumas, and grieving taking place. But in long-term mental health facilities, patients are not dealing with a physical ailment or sickness and the staff are not in long surgeries. Long-term facilities allow the daily schedule to be more home-like and slow, and therefore, social spaces are important because they help to build character, increase communication strategies, and create a social network within the facility community, resulting in more sense of community and belonging.

Much like therapeutic landscape design guidelines which recommend comfortable seating as a requirement for outdoor restorative spaces, the survey confirmed how much the participants like and need a variety of seating types. In each of the survey images, different seating types were emphasized. It was found that more social-oriented type seating, like the couch seating in the outdoor lounge or the circular seating in the fire pit image, received more votes from the participants over private seating. There should always be options for both private and social, but the results have indicated that the staff may like a space more with social seating. The findings showed that the seating type within a space will dictate the frequency of use and how comfortable a user feels within a space.

Further, findings about wayfinding images were not clear. The images were so similar and not only focused on the wayfinding elements that there cannot be direct correlation between the survey results and the projective design. However, preferences chosen by the participants can help to inform spatial characteristics that were favored and be combined with the other images to create supportive spaces that meet uses' needs. In addition, in hopes to gain more insight about the participant's sense of well-being, the survey asked a series of questions in which they could self-report how they felt within the last few weeks. This was very important information to get a better sense about the participants' happiness, stress, motivation, and mental fatigue. To translate this information to design guidelines is difficult. There would need to be a larger participant pool to make generalized claims. However, it can be hypothesized that there is a difference in response type of a user who is very stressed vs calm.

Related Findings to Therapeutic Landscape Guidelines

Comfortable Seating

The results of the survey confirmed many of the existing therapeutic landscape guidelines. For example, like listed in the dominant findings, creating spaces with comfortable seating is a requirement. The findings indicated that the seating type actually dictates many use factors of a space.

Sunlight vs Shaded Spaces

Data about the preference of sunlight vs shade was collected. Although shade is important and makes for a more comfortable micro-climate like the therapeutic landscape guidelines suggest, sunlight was more attractive to the users in the images. The results showed that 42.5% of the participants preferred sunlight whereas only 34.5% of participants preferred the shady images. It should be acknowledged that the time of surveying may have an impact on such preferences. Given that the questions were asked in winter, it is plausible to expect more craving for sunlight rather than shade.

Safety

Similarly, to current therapeutic landscape design guidelines, safety was a highly needed characteristic of within all the spaces. I recognized that this this was a priority to some of the participants as, surprisingly, the element fence was being chosen in multiple occasions. Particularly, the outdoor movie space had the highest percentage of preference gaining almost 18% of the participants votes.

Plants

Therapeutic landscape guidelines have always stressed the importance of plants within a restorative space. When looking at the guidelines, it is undetermined how dense the plantings should be, the height of plantings, or the colors of plantings. The survey tested out many different planting styles to test the difference in preference of the participants. 73.5% of the participants chose the planting style in the art space which was the most preferred out of the entire survey. In contrast, the Fire Pit image plants were only preferred by about 30% of the participants.

Views to green

Environmental psychologists in addition to therapeutic landscape guidelines have proven in evidence-based design projects that views to nature from indoor spaces, especially in healthcare settings, is an important aspect to healing and feeling less stressed. Two of the images in the survey portrayed a view to green spaces. Of the two the Window Seat image was more preferred. This image was more green and warmer than the Rooftop Space. Additionally, many of the images included trees and lawn space, giving the participant a "view to green." The most preferred image of 65% of the participants to a view to green was the Large Park.

Water Features were highly favorable

Lastly, in the therapeutic landscape guidelines, incorporating water features to increase the restorativeness of a space is highly recommended. The inherent liking to water was further confirmed through the results of the survey. Five images in the survey contained a water element. Between each of the images, 45% or more of the participants preferred the water element which is a relatively high portion.

Findings Not Related to Therapeutic Landscape Guidelines

Color

Based on principles of environmental psychology, color theory is often applied to restorative spaces. Based on the survey results of this study, color did not seem to have a dramatic influence on the staff participant's choice or preference of the image. Other qualities of space were almost always preferred over the color. However these were the results of this particular study, color does still play an important role in how people experience or feel within spaces.

Year-Round Use vs All-day Use

Therapeutic landscape design guidelines always emphasize the need for year-round outdoor space. Although this is a critical design consideration, the results of the survey brought up another idea. What about all-day use of the outdoor space? Multiple images in the survey portrayed use of the spaces during non-traditional times, like sunrise, sunset, and night-time. This is a concept which is not typically mentioned in guidelines because majority of hospitals have curfews or quiet hours, however, in long-term facilities, it is reasonable that in home-like environment, you would use the outdoor space other than 8-5pm every day. Additionally, some staff may work during the morning shift or night shift further encouraging the need for more opportunity to experience outdoor spaces during different times of day.

Implementing a Gazebo

Although mentioned in some therapeutic landscape guidelines, the gazebo structure was found to be highly favorable in multiple images within the survey. This result gives insight as to what type of outdoor structures they participants want and need in outdoor spaces, especially as a shade structure since many of the participants preferred sunny spaces.

View from Window

In many cases, therapeutic landscape guidelines and environmental psychology studies have only considered the benefit of a view from a window for patients in a healthcare setting. The results revealed that the staff of the hospitals would also like to have access to a space like this. This may be because of the natural light they let into the hospital and the views to green since many of the workers are unable to go outdoors on their shift.

Private Spaces vs Social Spaces

Lastly, a new finding of the survey was the idea of more social spaces than private- at least for the staff. It appeared that more participants were open to the idea of the more social and activity focused spaces over the individual and sedentary spaces. This finding will highly influence the projective design as it will help to determine the size of spaces, where the spaces are, and the types of activities or seating that need to be implemented.

Inconclusive Findings

Although information about noise reduction, wayfinding techniques and whether staff members need their own space is important, unfortunately in this study, it was undetermined. To gain meaningful results on these therapeutic landscape guidelines, there needs to be a larger participant pool, a higher number of hospitals involved, and the questions of the survey would need to be altered or asked in a different way as it may be difficult for a participant to really understand the difference in environments based on a short exposure to a two-dimensional image. For this project though, the projective design characteristics cannot directly be influenced by these specific characteristics.

Overall, the therapeutic landscape guidelines are a good foundational base for mental health hospitals in addition to a typical hospital. However, safety and design considerations have to be considered as one working component for mental health design rather than separate. That is because for a typical hospital, design considerations are important for materiality, sight lines, or clean air to prevent for falling risks or germs increasing symptoms of sickness. In addition, these hospitals are typically in more urban environments, have a lot less green space to be in or look at from a window, are noisier, and have a faster pace in their daily schedules compared to a long-term facility.

Moving Forward

Taking the findings conclusions in combination with the findings from the site analysis, a set of goals strategies and outcomes were created to follow for the projective design (see Table 3). These are overall goals I want the designs to meet to fullfill the preferences and needs of the users.

Goals

Introduce the needs and preference of the staff of mental health hospitals

Promote year-round access

Create experiences which appeal to users from interior and exterior spaces

Open a dialogue between landscape architects and healthcare professionals

Create therapy schedule or program of use recommendations for OSH

Strategies

Use data gathered during the survey to make conclusions about the staff's needs and preferences

Design projective spaces that can be used year-round at OSH

Utilize the landscape of OSH to create views from interior spaces to well-designed exterior spaces

Replicate this study to promote the interaction between landscape and healthcare professionals

Outcomes

Produce an evidence-based projective design that meets the needs and preferences of the OSH staff and users

Develop a replicable study that can be applied to other mental health hospitals around the world

Begin the process of talking with healthcare professionals about the importance of restorative spaces for mental well-being

Table 4. Goals, strategies, and outcomes for project.

Parsons State Hospital greenhouse

5

ENVISION

Chapter 5 | ENVISION

As an applicable example, Osawatomie State Hospital has been chosen out of the three sites to apply a projective design using the data analysis results. This site has been chosen because it is the most typical type of mental health facilities nationally. Parsons State hospital and Larned State hospital are treating multiple users' conditions, like intellectual disabilities and those who have committed a serious crime, which adds another layer to the design needs and preferences of those users.

The purpose of creating a projective design at Osawatomie State Hospital is so it can act as a precedent study for future researchers looking to push healthcare design for mental health users forward. Like this study, it is important for future researchers to take the extra step and receive IRB approval to have the opportunity to gain more insight on the site-specific preferences and environmental needs directly from the site's users. This will help professionals recognize the intrinsic worth of patients and staff working in mental healthcare settings by showing them how these spaces could impact individual's quality of life.

To apply the findings from data analysis, a concise set of goals and strategies were created to directly apply to the projective design. There was a goal and corresponding strategies created for each of the six image themes as shown in Table 5.1. These goals and objectives were used to help answer the research question. Next, each of the six themes were "applied" to all the possible areas on the site based on the goal and strategy of each theme as show in Figure 5.1.

Goals and Strategies

Meaningful Action

Goal:
Introduce spaces that allow learning, teaching, helping, and giving.

▶ Seating

▶ Social space

▶ Structure for landmark

▶ Community Garden Day

▶ Park-like / large area

▶ Sell plants

Exercise

Goal:
Create opportunities to walk, exercise, or be involved in group exercise activities

▶ Trails

▶ Exploratory garden

▶ Small park

▶ Outdoor exercise room

▶ Nature play

▶ Yoga or tai chi

Social

Goal:
A space that is somewhat large in area, allows multiple groups to socialize without disturbing one another, and promotes an activity or seating space

▶ Staff only break space

▶ Community Garden Day

▶ Outdoor cafe

▶ Botanical garden

▶ Greenhouse activities

▶ Group seating

Fascination

Goal:
Spaces that provide a view to nature from interior and exterior spaces, provide something to watch, and is quiet during all times of day

▶ Small gardens

▶ Place to watch

▶ Shade structures

▶ View from window

▶ Individual seating niches

▶ Quiet space

Privacy

Goal:
These spaces should provide protection from natural elements and comfortable seating, enhance the feeling of safety, and create a place to watch.

▶ All- day use spaces

▶ Plantings that attract nature

▶ Water features

▶ Framed views

▶ Bird feeders

▶ Place to watch

Wayfinding

Goal:
Develop a set of wayfinding cues to decrease the amount of direct attention needed to move around a space.

▶ Structure for landmark

▶ Cohesive signage

▶ Large/ readable

▶ Creative signage

Table 5.1. Goals and strategies for projective design

Theme Application to Site

Figure 5.1.
Application of themes to the stie plan

0   500   1000
Feet

Theme Application

Ⓐ Meaningful Action

Ⓑ Exercise

Ⓒ Social

Ⓓ Fascination

Ⓔ Privacy
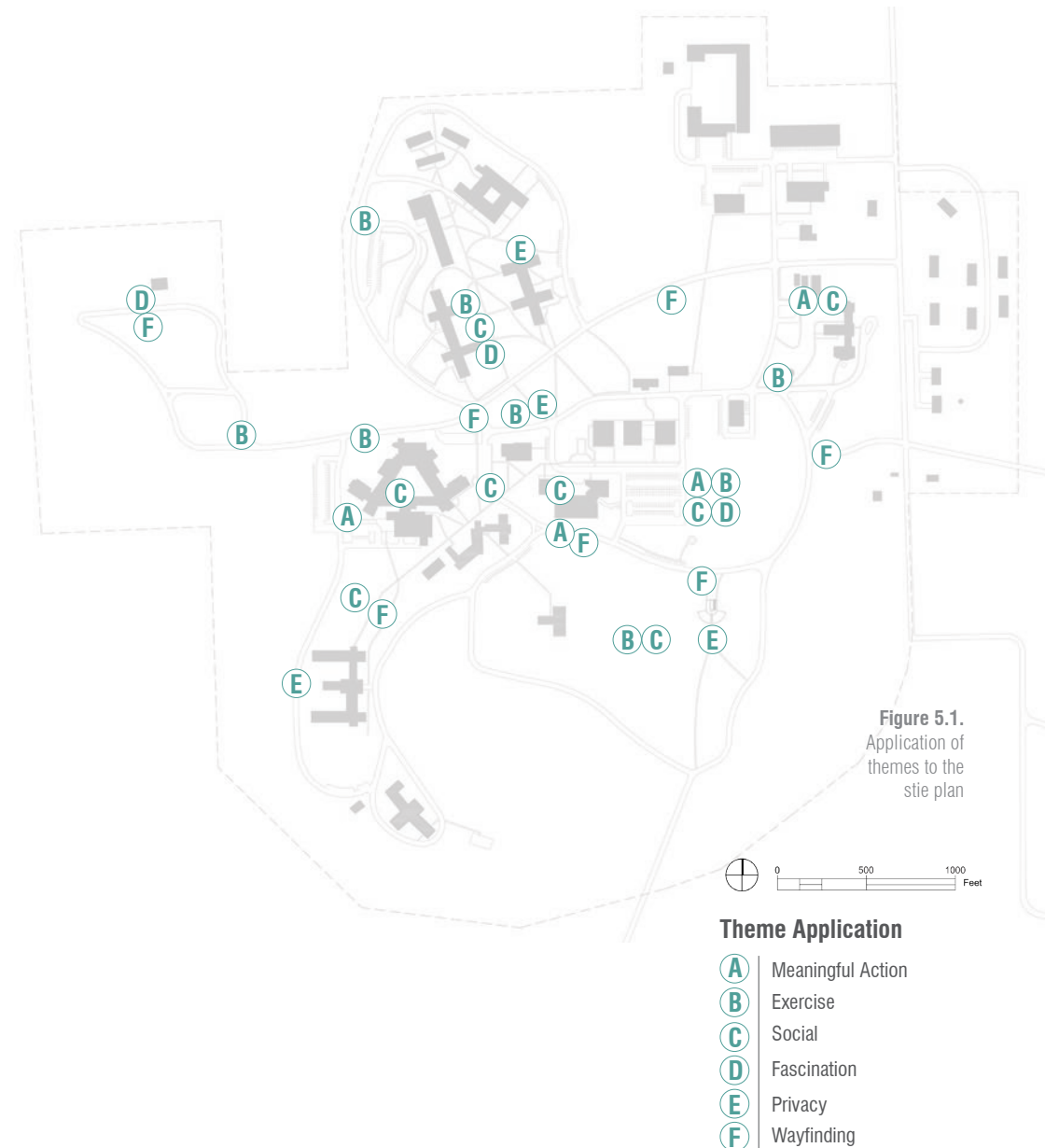
Ⓕ Wayfinding

Master Plan Concept

After many iterations and considerations of the themes, site analysis conclusions, and survey findings, Figure 5.3 is the recommended master plan for Osawatomie State Hospital. While principles of this design could be generalizable to other mental health facilities, this site still holds a few unique attributes that were taken into consideration such as the historical value of spaces on site and thinking about preservation. The overall concept of the design was to bring together three main elements: the community, the users, and nature. As the literature demonstrates and the findings of the survey confirmed, these three components can strengthen the outdoor environments socially, economically, and environmentally. Providing adequate and well-designed outdoor environments will first bring the users outside, then connect the users to nature, and lastly, begin to break down social barriers of mental health facilities and the local community because of the additional safe space to hold community events or interactions with the hospital and aesthetically improve the look of the hospital.
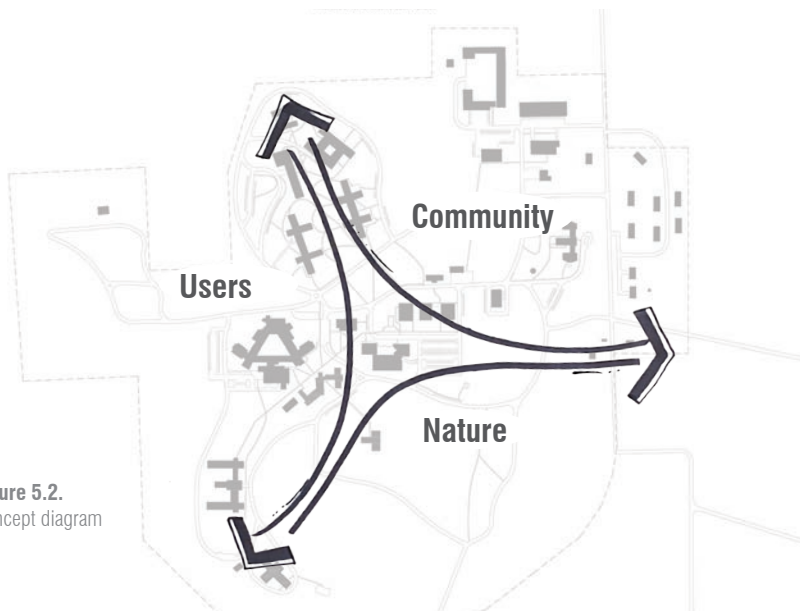
Figure 5.2.
Concept diagram

Figure 5.3.
Master plan.

Legend

A | Adair Courtyard
B | Maintenance Area
C | Community Park
D | Administration Building
E | Sunken Gardens
F | Valley View
G | Rush Building

Circulation

In order to properly connect the community, the users, and nature together, the circulation pattern of the existing site needed to be rethought. Figure 5.4a shows the existing circulation. Currently broken and inconsistent across the entire site, the circulation was primarily serving the multiple parking lots on site and directing users to the main entrances of the buildings. The connective paths, such as sidewalks along roads and more indirect paths were missing. Figure 5.4b shows the proposed circulation pattern for the site. Improved circulation helps to meet two primary goals for the site-wayfinding and exercise. Additionally, because this site is so large, there are

Figure 5.4a.
Existing circulation plan

Figure 5.4b.
Proposed circulation plan

Figure 5.5a & b.
Soil maps

Soil

many areas where crosswalks needed to be added to keep the pedestrian movement smooth and out of conflict with the vehicular circulation on site. Another dominant factor in the way in which a site can be programmed relies on the soil types on site. OSH is a very large site that is well-known for its past for agricultural value. Additionally, the topography on site changes dramatically on the edges of the site indicating multiple soil type changes throughout the site. Research showed that there are eleven different soil types on site which were primarily suitable for agriculture production, moderately well-drained, and could hold multiple types of vegetation. However, based on the proposed master plan programming and the three locations chosen for more detailed design application, three main soil types were important to look into as shown in Figure 5.5a and b. Brief descriptions of these soil types are below:

Wagstaff silty loam clay
*   Typically 1-3% slopes
*   Prime farmland soil
*   Moderately well-drained

Clareson-Rock outcrop complex
*   Typically 3-15% slopes
*   Rarely floods
*   Well-drained soil
*   Not particularly great for dense vegetation plantings

Kenoma silt loam
*   Typically 1-3% slopes
*   Prime farmland soil
*   Moderately well-drained
*   Not particularly great for building

All Soil Types

Adair Courtyard

Staff Plaza

Sunken Gardens

Major Soil Types
Wagstaff silty loam clay
Clareson-Rock outcrop
Kenoma silt loam
Areas of Focus
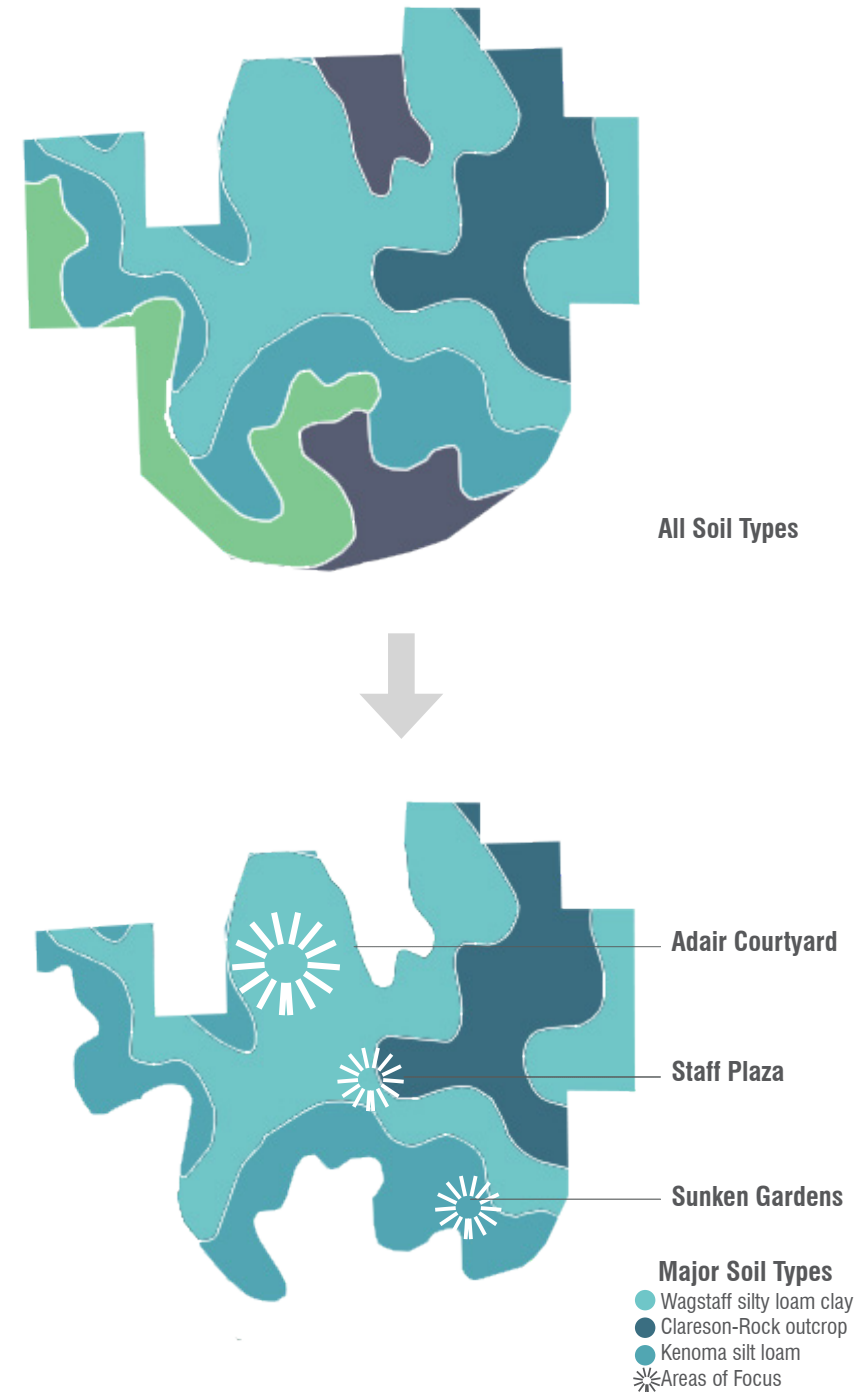
Areas of Focus

Three main areas which represented the most generalizable spaces on site were chosen for a more detailed design application to take place. The purpose of these focus areas are to give an example of the simplicity yet thoughtful ideas that could be applied to an outdoor space in mental health facilities. The three focus areas are a staff-only plaza space, a central courtyard between the main patient buildings, and a historic landmark on the site.

Figure 5.6a. Focal project locations

Figure 5.6b. OSH existing interior courtyard

Adair Courtyard

This interior courtyard connects the majority of the patient wards where most staff work. Currently, it is pathways and lawn but needs to be activated through programming, seating, and more shade.

Figure5.6c. OSH Sunken Gardens

Sunken Gardens

A well-known historical landmark on site that use to be beautiful became dilapidated and unused. The old water feature demands too much maintenance and the space needed seating and programming elements.

Figure 5.6d. OSH staff break space adjacent to administration building

Staff Plaza

Upon request of the administration, this small plaza needed to be rethought and activated for staff-only. Located conveniently outside the administration building, this space has the potential to be the primary staff break hub.

Adair Courtyard

The concept of the Adair courtyard is to provide a central space for all of the surrounding wards to have a diverse range of outdoor space types and sizes. A mix of walk through gardens, small and large plazas, lawn, a wooded area, and a produce garden are programmed spaces chosen for this courtyard (see Figure 5.8). The programmed areas have been chosen based on the most suitable themes that fit to an area. The proposed design better connects each building with more than just sidewalk and trees for overhead shade. Now, the courtyard functions as a place to visit alone, with others, and to exercise as there are proper seating opportunities along the connected pathways. Plants kept low to keep the great sight lines of the site intact. If the hospital desired, there could even be small fences or large planting borders along the edges of the programmed area to keep the courtyard primarily enclosed for safety precautions. Large overhead wooden structure not only provide but can help to orientate the users to the proposed space. The proposed programming can be seen looking from the produce garden in Figure 5.11b.

Concept Diagram and Theme Application
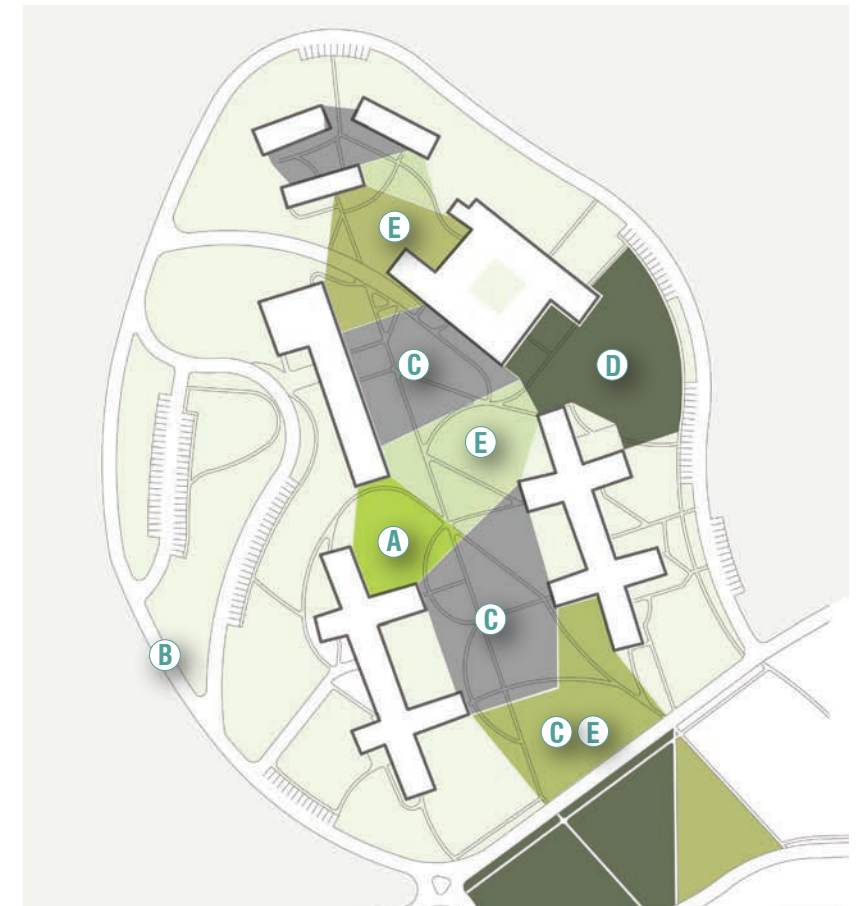
Theme Application

(A) Meaningful Action
(B) Exercise
(C) Social
(D) Fascination
(E) Privacy
(F) Wayfinding

Legend

● Plaza
● Lawn
● Garden
● Woods
● Productive Garden

Figure 5.7.
Concept diagram

Site Plan

Legend

- ▉ Wood
- ▢ Streets
- ▉ Existing Lawn
- ▉ Activity Lawn
- ▉ Gardens
- ▢ Plaza
- ▲ Entrances
- ⬭ Existing Trees
- ⬭ Proposed Trees

- (A) A Building
- (B) B Building
- (C) C Building
- (D) Sedriks Building
- (E) Adair E Lodge
- (F) Adair F Lodge
- (G) Adair G Lodge
- (H) Produce Garden
- (I) Floral Garden
- (J) Adair Plaza

0   120   240
Feet

Figure 5.8. Adair Courtyard site plan

Section AA

B Building

C Building

Lawn

Garden

Shade Structure and Entry Marker

Water Feature
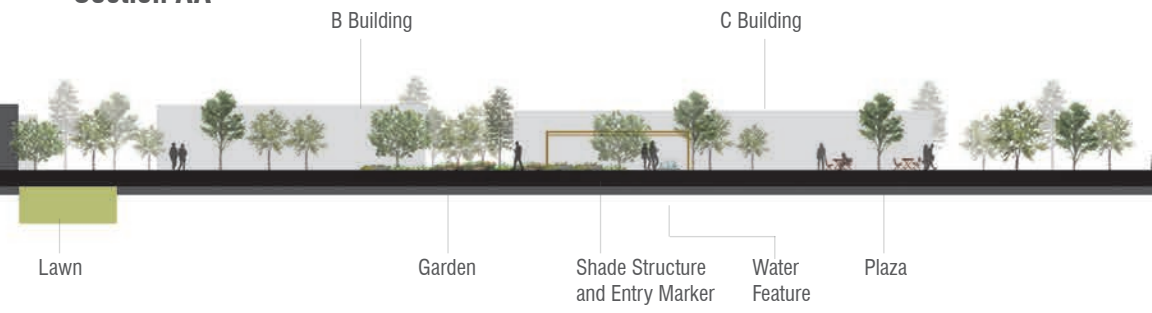
Plaza

Figure 5.9. North-south section looking east

240

Perspective

Before

Figure 5.10a. OSH interior courtyard image.

After

Figure 5.10b. Perspective view looking into the produce garden

241

Staff Plaza

Although the plaza is small, this space could become a well-used outdoor space for staff-only during breaks or small meetings during the day or night. It is located adjacent to the administration building where almost all staff attend meetings weekly. The space is shaped by the building too which enhances the safety, enclosure, privacy, and mitigates most negative micro-climate affects such excessive sun, shade, wind, rain, or snow. The space has been proposed as a dual-type space including room for both alone, private breaks and small group meetings as shown in the concept diagram Figure 5.11. The two sides of the space are divided by a water feature which not only provides a restorative element in the space but also provides a noise barrier between the two contrasting spaces. In-place wooden benches and an overhead structure help to enclose and provide extra shade on the private side of the space while the lounge side is composed of a lounge couch, moveable chairs and tables, and moveable partitions for staff to post news about events going on at the hospital or use during meetings. A view looking from the lounge space into the private space is shown in Figure 5.14b.

Concept Diagram and Theme Application
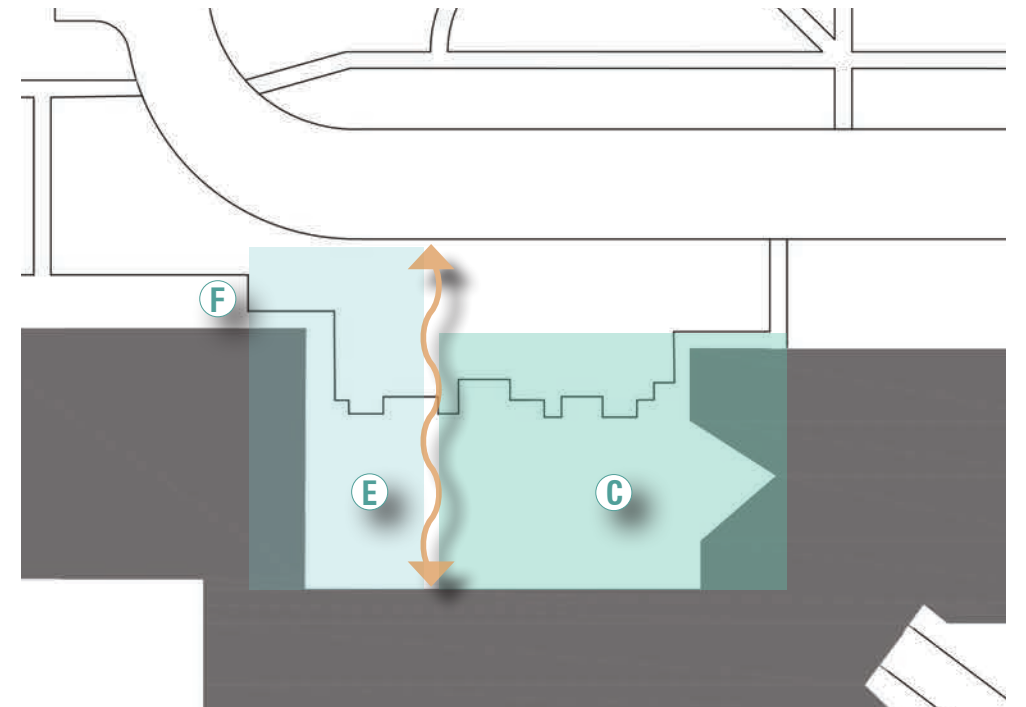
0   10   20
Feet

Theme Application

Ⓐ | Meaningful Action
Ⓑ | Exercise
Ⓒ | Social
Ⓓ | Fascination
Ⓔ | Privacy
Ⓕ | Wayfinding

Legend

◯ Private
◯ Public
↔ Water feature

Figure 5.11.
Concept diagram

Site Plan
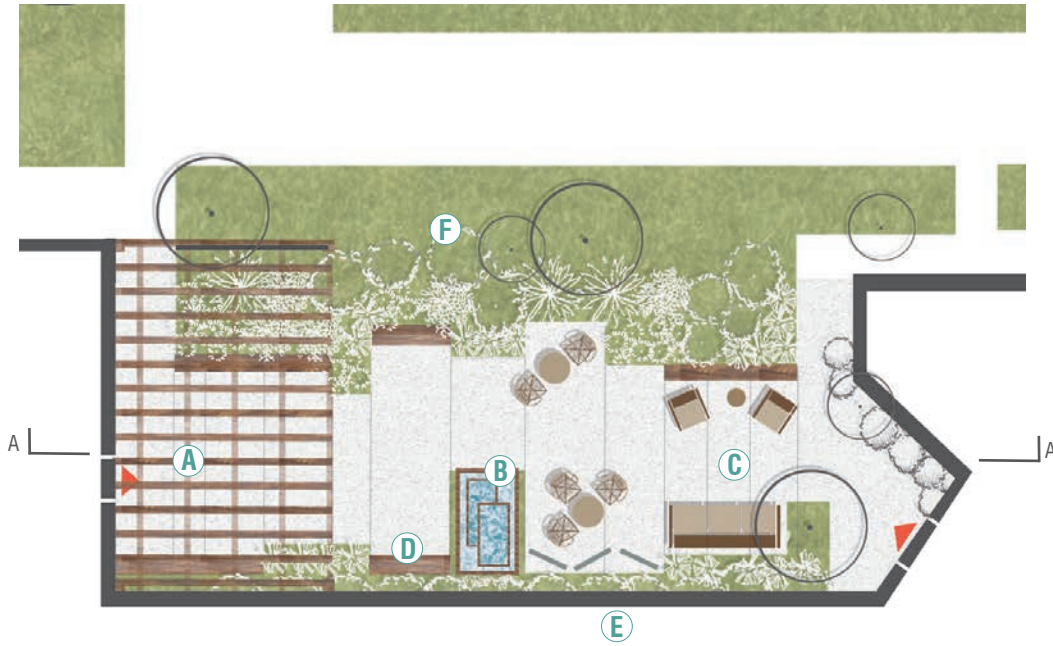
Figure 5.12. Staff courtyard site plan

Legend

■ Wood	▲ Entrances	Ⓒ Lounge Seating
■ Textured Concrete	◯ Existing Trees	Ⓓ Private Seating
■ Plantings	◌ Proposed Trees	Ⓔ Moveable partition for writing
■ Sidewalk	Ⓐ Shade Structure	Ⓕ Berm for noise control
■ Existing Lawn	Ⓑ Water Feature	

Section AA

Administration Building

Administration Building

Shade Structure   Water feature   Lounge

Figure 5.13. Section looking north

Perspective

Before

Figure 5.14a. OSH staff courtyard image

After

Figure 5.14b. Perspective of the Staff Courtyard

The Sunken Gardens

The sunken gardens is a well-known historical landmark on the campus. It was designed and built by patients of the hospital many years ago. This site is also very important because it used to be located directly in front of the Main Building of the hospital and therefore was used often. Today, the administration building has been moved completely out of site from the sunken gardens so overtime, it has become unused, dilapidated, and the large water feature was too much to maintain.

The proposed design hopes to reactivate this site by placing it along a main circulation path which connects to the administration building and the large open lawn of which it is adjacent. The sunken gardens is in fact, sunken approximately 3-5 feet below the street level. As the site is entered, new cross paths have been implemented to add an exploratory or fascination element until approaching the main space. Although the old water feature is filled in with soil for lush garden plantings, a smaller and more manageable water feature is proposed for the center of the space. The pergolas which edge the space remain with new vines planting on top and benches place underneath. Lastly, the final two spaces of the sunken gardens are seating areas which promote both individual and group type interactions. This space could even be used for a nighttime activity such as an outdoor movie. A view looking from the south end of the main space to the street is shown in Figure 6.25.

Concept Diagram and Theme Application

Theme Application

A | Meaningful Action
B | Exercise
C | Social
D | Fascination
E | Privacy
F | Wayfinding

Legend

Exploratory Garden
Water feature
Sitting area
Tiered seating
Extended Path
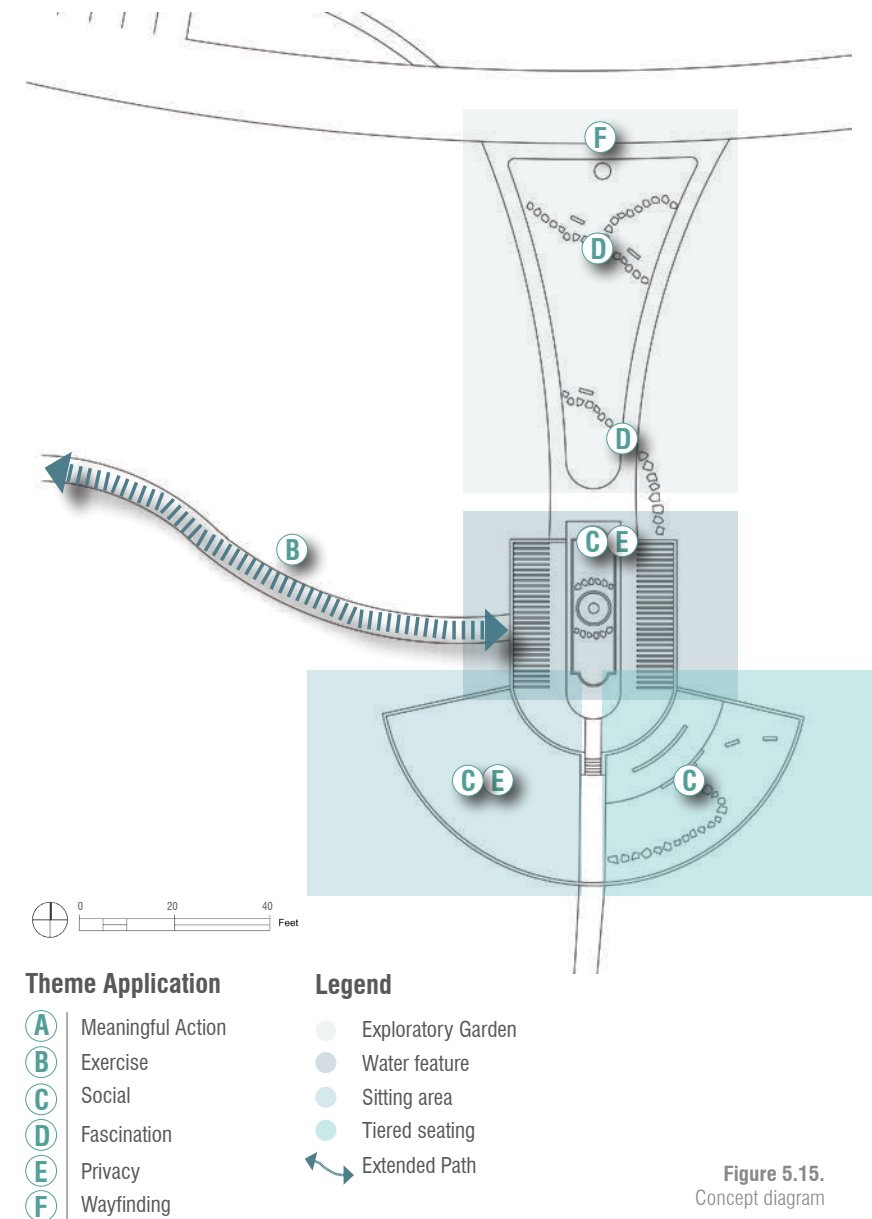
Figure 5.15.
Concept diagram

Site Plan

Legend

- Wood
- Streets
- Existing Lawn
- Activity Lawn
- Gardens
- Plaza
- Entrances
- Existing Trees
- Proposed Trees

- A Existing memorial
- B Exploratory path
- C Exploratory path
- D Small garden
- E Pergola
- F Proposed path
- G Stairs
- H Group sitting area
- I Terraced seating

0   20   40
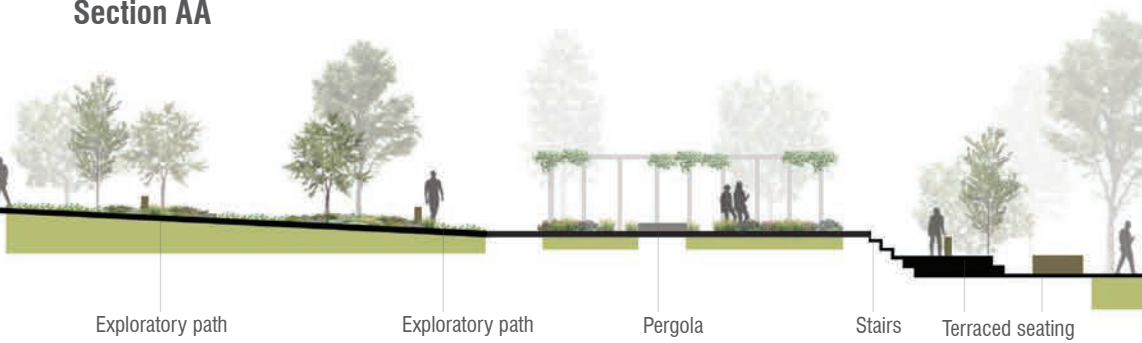Feet
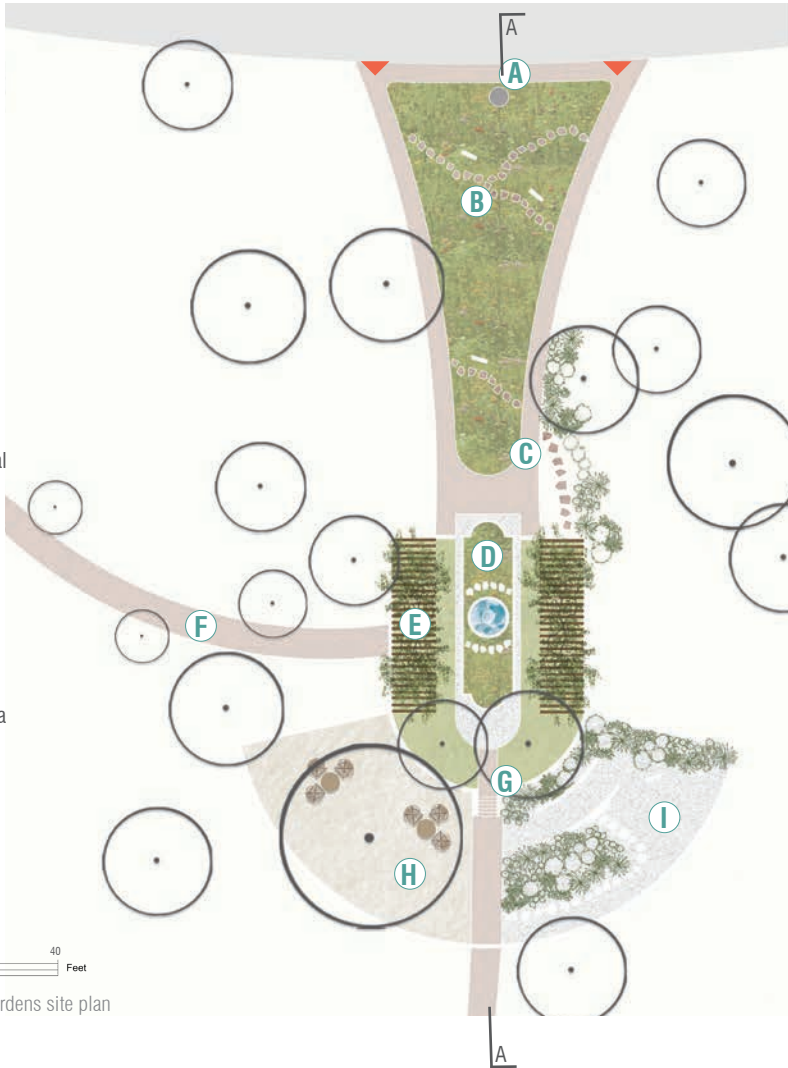
Figure 5.16. Sunken Gardens site plan

Section AA

Exploratory path   Exploratory path   Pergola   Stairs   Terraced seating

Figure 5.17. Section looking east

Perspective

Before

Figure 5.18a. OSH staff courtyard image.

After

Figure 5.18b. Perspective of the Staff Courtyard

Phasing

Many parts of OSH could be updated but the changes should come in a strategic manner. Figure 6.26 shows the phasing strategy recommendations.

Phase 1
- Connect all pedestrian pathways
- Create diverse routes for walking
- Add seating along all pedestrian paths

Phase 2
- Staff plaza
- Plaza spaces of the interior courtyard
- Greenhouse extension

Phase 3
- Planting gardens in the interior courtyard
- Begin produce garden
- The Sunken Gardens plantings

Phase 4
- The Sunken Gardens water feature
- Community park
- Finalize produce garden

Phase 5
- Biddle Building and C Building Courtyards
- Valley View Overlook renovation
- De Jong Gazebo renovation

Phase 6
- Implement community events

Phase 1

Phase 2

Phase 3

Phase 4

Phase 5
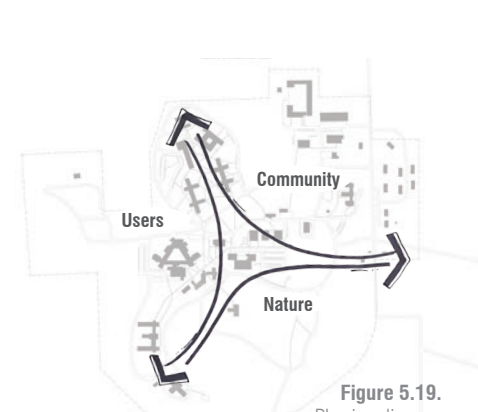
Phase 6

Figure 5.19.
Phasing diagram

Table 5.2.
Budget plan for
Staff Plaza

Budgeting

In hopes that much needed renovations and updates to spaces around the site take place, a brief budget plan was created. OSH indicated that they do not typically buy from a contracted business but by from local stores. In hopes to find the most affordable, safe, and aesthetically pleasing options, the following price quotes are based on regional manufactures and stores. The quotes are only estimated and not the exact amount. The intention in providing a rough budge for each project is so that elements can be phased in as the hospital's budge allows.

This chapter was meant to provide OSH with selected project sites on the campus and provide a rough phasing plan in addition to cost estimates. Although these designs are not extensive and mainly schematic designs, they were thought out and evidence-based according to the site analysis and survey data conclusions.

These designs and their elements should be considered for future implementation once the hospital is able to gain more feedback from both patients and staff at OSH. It is important to gain feedback from the patients in addition to the staff in future studies since all users on the site should be considered when designing the outdoor spaces for the hospital.

The most important elements that should get updated on the site first is pouring more concrete for better connected sidewalks and seats along the path or seating areas in all spaces. Seating needs to be a priority of outdoor spaces since this type of element encourages users to stay within a space rather than passing by.

Staff Plaza

Material	Place	Quantity Needed	Cost	Approx. Total Cost
Pavers	Home Depot/ Semco	4100sqft	$5-12 sq/ft	$750-$1800
Water feature	Campania	1	$1200	$1200
Lounge Seating	Lowes	1 set	$1200-$1800	$1200-$1800
Moveable Seating	Lowes	3 sets	$300	$900
Bench	Lowes	5	$140	$700
Overhead Structure	Home Depot/ Other	1-25'x40'	$1400-1800	$1400-$1800
Plantings	-	1000sqft	$15-20sqft	$15000
Mulch	-	69yd	$100/yd	$6900
Top soil	-	69yd	$100/yd	$6900
Partitions	-	-	-	-
Maintenance on water feature, plants, and others	-	-	$500-1000/yr	$500-1000/yr

Approx. $40,000

*Labor on all items are included in the cost estimate
*Highlighted materials should be prioritized
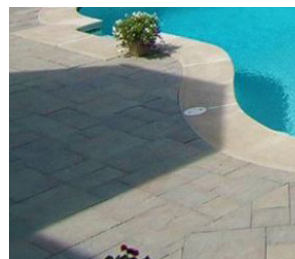
(Home Depot 2019)

(Campania 2019)

(Lowes 2019)

(Lowes 2019)

(Lowes 2019)

(Home Depot 2019)

Figures 5.20a-f.
Material images for staff plaza,.

Adair Courtyard

Material	Place	Quantity Needed	Cost	Approx. Total Cost
Concrete	Semco	27,800sqft	$8sq/ft	$222,400
Water feature	Campania	1	$1200	$1200
Iron Bench	Lowes	12	$160	$1,920
Basic Bench	Lowes	10	$139	$1,390
Moveable Seating	Lowes	8 sets	$300	$2,400
Overhead Structure	-	2	$8,500/20x20'	$170,000
Plantings	Home Depot/ Other	30,000sqft	$15-20sqft	$600,000
Mulch	-	250yd	$100/yd	$25000
Top soil	-	250yd	$100/yd	$2500
Turf Seed	Home Depot	50,600sqft	$53/4,000sqft	$742
Maintenance on water feature, plants, and others	-	-	$500-1000/yr	$500-1000/yr
				Approx. $1,000,000

*Labor on all items are included in the cost estimate
*Highlighted materials should be prioritized

Sunken Gardens

Material	Place	Quantity Needed	Cost	Approx. Total Cost
Flagstone	Lowes/ Home Depot	150sqft	$5-12 sqft	$750-$1800
Plantings	-	6300sqft	$15-20sqft	$128,000
Mulch	-	200yd	$100/yd	$20,000
Top soil	-	200yd	$100/yd	$20,000
Water fountain	Campania	1	$8,900	$8,900
Seating	Lowes	10	$139	$1390
Outdoor Projector	Best Buy	1	$1800	$1800
Pea Gravel	Home Depot	100yd	$86/yd	$8600
Maintenance on water feature, plants, and others	-	-	$500-1000/yr	$500-1000/yr
				Approx. $192,000

*Labor on all items are included in the cost estimate
*Highlighted materials should be prioritized

(Campania 2019)

(Campania 2019)

(Lowes 2019)

(Lowes 2019)

(Home Depot 2019)

Figures 5.21a-e.
Material images for
Adair courtyard.

(Semco 2019)

(Campania 2019)

(Lowes 2019)

(Lowes 2019)

(Best Buy 2019)

(Home Depot 2019)

**Figures 5.22a-
f.** Material
images for
Sunken Gardens.

Design Maintenance + Sustainability

All of the items chosen for the design proposals were chosen based off of low-maintenance recommendations and with sustainability in mind. The seating that was selected was hard metals and wood to fit in with the aesthetic of the hospital but also durable overtime. The plantings budget estimate was based on a low-maintenance native plant selection with the idea that most planting areas would be more natural than manicured. Lastly, I recommended using mulch for the plantings that could be made out of recycled materials in additon to the flagstone steppers and crushed gravel materials. With more research and finite attention to detail in the budget, it could be that existing materials on site that would be taken out for renovation could be recycled for these kinds of purposes.

The existing maintenance crew would be encouraged to oversee and maintain the proposed designs. Maintaining the plantings and cleanliness of the site could also be handled by staff and patients on a volunteer bases or outdoor therapy activity.

Overall Conclusions

This chapter was meant to provide OSH with selected project sites on the campus and provide a rough phasing plan in addition to cost estimates. Although these designs are not extensive and mainly design developments, they were though out and evidence-based according to the site analysis and survey data conclusions.

These designs and their elements should be considered for future implementation once the hospital is able to gain more feedback from both patients and staff at OSH. It is important to gain feedback from the patients in addition to the staff in future studies since all users on the site should be considered when designing the outdoor spaces for the hospital.

Osawatomie State Hospital Jung Building gazebo

6

REFLECT

Chapter 6 | REFLECT

Although the types of treatment and conditions of mental health facilities have improved overtime, the overall quality of life offered to individuals living in long-term psychiatric hospitals could still be improved for SPMI (Bailey 2018, Marcus and Barnes 1999). Making linkages between findings in environmental psychology and landscape architecture, this study aims to take a step toward developing a set of evidence-based planning and design guidelines to create supportive outdoor spaces that better meet the needs of the users of mental health hospitals, helping the therapeutic process over time.

Limitations

It is important to note that this study is only adding another dimension to design guidelines of outdoor spaces in healthcare facilities today and is not comprehensive. The physical conditions and location of the three study sites are not directly comparable to other mental health institutions around the world. The recommendations created for this case should be adapted to fit the site-specific dilemmas of prospective sites. In addition, a user-oriented approach is necessary for similar studies which is quite scant in healthcare research sources today. It will take time and much more research to build up a reliable set of specific planning and design characteristics.

In regard to staff surveys, the survey will need to be designed in a more concise way as this was the biggest drawback in gaining participation. The survey took fifteen to twenty-five minutes on average which highly discouraged staff from participating. Secondly, the questions need to be improved to ask more specific questions. Additionally, the length of exposure to each image needs to be more controlled for the participants to fully comprehend the differences between the images shown to them in the survey. This could mean only allowing the participants a set amount of time (i.e. 60 seconds) to look at each image before moving onto the next question or showing multiple versions of the same image to compare the participant's

responses. Lastly, I think there would have been an increase in participation if the surveys would not have been distributed during the Christmas break as this was the only time per my project schedule and if I would have advertised the need for help much earlier. I did try to offer incentives for participating in the survey but the State Hospitals do not allow their staff to accept any kind of gift for participating voluntarily in a study.

Further, to increase the user-oriented approach to the survey process, follow up interviews or design charrettes should be conducted with the staff participants to confirm the survey results or gain additional feedback.

In regard to future patient participation in the survey, this study discovered many limitations. First of all, the length of the survey period needs to be extended much longer than the three weeks that were given in this study. It will take at least six months to be able to gain a high number of patient participation. In addition, there will be a limited level of interaction between the patient and researcher in future studies which could astray the results. Future studies should argue the need to direct contact with the patients while conducting the surveys. Lastly, severity of the SPMI condition could alter the eligibility and ability to answer the survey questions. The more stable or longer an individual has resided in the hospital could change their perception of quality of life, mental health diagnosis, and outdoor environments in general. In further studies, close attention should be given to the division of participants and the design of the survey to gain the best results.

Lessons Learned

The most important lesson I learned out of the project is that working with hospitals, especially State and mental health hospitals, there are a lot of hoops to jump through just to get to talk to one person. That being said, a project like this needs at least a year to two years to complete. Because of the limited amount of time I had for the project, I was unable to gather a sufficient amount of patient surveys mainly because I did not have enough time to go through training to work with the patients one-on-one. Although the hospitals were willing to do that, there are many legal things such as insurance and paperwork that have to be completed in the case an accident would happen while conducting the survey. I hope that continued studies of this project will make it a priority to not only take the time to get direct contact with patients and staff.

Another lesson that I learned was that the survey questions and images need to be pilot-tested many times with many different group types to have the most specific collectible data possible which answer or measure specific variables (ex. frequency, motivation, sense of well-being, ect.) like this study attempted but could be improved upon.

Despite the challenges and limitations of the project, what this study showed was that mental health facilities are in need of improved outdoor spaces, the users of the facilities want more outdoor time and spaces, and that it is possible to conduct research with these facilities despite the perceived restrictions and Institutional Review Board requirements that have to be met. A project like this is not too difficult to take on, and the people working in the facilities are not too difficult to work with as long as there is passion, persistence, care, and time put into the study.

Future Research

The advance in this research can offer opportunities for a better quality of life for those unable to be heard and/or affected by a mental illness living in mental health facilities. It will also contribute to the professional fields of environmental psychology, landscape architecture, and healthcare by expanding the knowledge about the needs and preferences of patients and staff which can improve outdoor therapeutic spaces.

To push this research further, evidence-based user-oriented design projects will need to be continued in order to have a viable sense of user's needs and preferences regarding mental health facilities. This study could be replicated using enhanced surveys at the same hospitals in the years to explore the reliability of this work, or it could be replicated at a larger scale, surveying patients and staff around the United States to increase the external validity of the research.

A component of research that was not utilized in this study but, could go further than survey results is involving patients and staff in design charettes for the projective design. In doing so, each individual could openly communicate their ideas for outdoor spaces and therapy guidelines in a more relaxed environment meanwhile making them feel that their voice is being directly heard. Additionally, other techniques apart from surveys could be utilized such as interviews with the psychologists, psychiatrists, and activity specialists to better understand specific space needs that would benefit therapy techniques, or nature exposure techniques through virtual reality which might allow they study of acute physiological or psychological changes in participants such as blood pressure, improvement in mood, etc. to better connect the design elements in the projective design to health outcomes.

Lastly, this research could help influence the link between the environmental factors or attributes in relation to the improved health outcomes of both patients and staff. This could mean measuring factors like heart rate, the severity of symptoms, overall feeling of stress, and even the reduced amount of medication after exposure to different types of outdoor environments and the length of exposure to those environments.

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Chapter 7 | APPENDICES

Appendix A: Image References

Figure 1.0. 2019. Methodology diagram explaining the goals and outcomes of the project. Photo.

Figure 1.2. 2019. Phasing diagram of the project. Adobe Indesign.

Figure 2.1. Quincke, Madison. 2019. Concept diagram explaining how the topics of the project connect. Adobe Indesign.

Figure 2.2. Quincke, Madison. 2019. Percentage of population affected by a mental illness nationwide.

Figure 2.3. Quincke, Madison. 2019. Adapted from Ritchie, Hannah and Max Roser. 2020. Any mental illness in the U.S. Accessed November 15, 2019. https://ourworldindata.org/mental-health.

Figure 2.4. Quincke, Madison. 2019. Serious mental illness in the U.S adapted from National Institute of Mental Health. 2016. Accessed November 4, 2018. https://www.nimh.nih.gov/health/statistics/mental-illness.shtml.

Figure 2.5. Quincke, Madison. 2019. Summary of serious mental health conditions adapted from National Institute of Mental Health. 2016. Accessed November 4, 2018. https://www.nimh.nih.gov/health/statistics/mental-illness.shtml.

Figure 2.6. Quincke, Madison. 2019. Osawatomie State Hospital walk. Photo.

Figure 2.7. Quincke, Madison. 2019. Parsons State Hospital greenhouse. Photo.

Figure 2.8. Quincke, Madison. 2019. Osawatomie State Hospital patient space. Photo.

Figure 2.9. Quincke, Madison. 2019. Osawatomie State Hospital patient space walls. Photo.

Figure 2.10. Quincke, Madison. 2019. Osawatomie State Hospital Sunken Gardens. Photo.

Figure 2.11. Quincke, Madison. 2019. Larned State Hospital courtyards. Photo.

Figure 2.12. Quincke, Madison. 2019. Osawatomie State Hospital produce gardens. Photo.

Figure 2.13. Quincke, Madison. 2019. Osawatomie State Hospital recreation building. Photo.

Figure 2.14. Quincke, Madison. 2019. Osawatomie State Hospital greenhouse. Photo.

Figure 2.15. Quincke, Madison. 2019. Osawatomie State Hospital view out a window. Photo.

Figure 2.16. Quincke, Madison. 2019. Osawatomie State Hospital Old Main Building memorial. Photo.

Figure 2.17. Quincke, Madison. 2019. Osawatomie State Hospital Sunken Gardens Photo.

Figure 2.18. Quincke, Madison. 2019. The Reasonable Person Model adapted from Kaplan, Stephen, Rachel Kaplan, and Robert Ryan. 1998. With People in Mind: Design and Management Of Everyday Nature. Chicago: University of Chicago Press.

Figure 3.1. Quincke, Madison. 2019. Regional counties that Larned State Hospital gains patients. Adobe Photoshop and Indesign.

Figure 3.2. Google Earth. 2019. Larned State Hospital. Accessed on September 10, 2019 from: https://earth.google.com/web/.

Figures 3.4 - 4.11. Quincke, Madison. 2019. Site analysis diagrams for Larned State Hospital. Adobe Photoshop and Indesign.

Figures 3.12 - 3.21. Quincke, Madison. 2019. Site analysis diagrams for Parsons State Hospital. Adobe Photoshop and Indesign.

Figures 3.22 - 3.31. Quincke, Madison. Site analysis diagrams for Osawatomie State Hospital. Adobe Photoshop and Indesign.

Figure 3.32. Quincke, Madison. 2019. The survey design process. Adobe Indesign.

Figure 3.33. Quincke, Madison. 2019. Summary of the known treatments and symptoms of each mental illness. Adobe Indesign.

Figure 5.10a. Quincke, Madison. 2019. Adair courtyard. Photo.

Figure 5.10b. Quincke, Madison. 2019. Adair Courtyard envisioned. Photograph and
 Adobe Photoshop.

Figure 5.11. Quincke, Madison. 2019. Concept diagram and theme application. Auto
 CAD and Adobe Photoshop.

Figure 5.12. Quincke, Madison. 2019. Staff Plaza site plan. Auto CAD and Adobe
 Photoshop.

Figure 5.13. Quincke, Madison. 2019. Staff Plaza section looking north. Adobe
 Photoshop.

Figure 5.14a. Quincke, Madison. 2019. Staff plaza. Photo.

Figure 5.14b. Quincke, Madison. 2019. Staff plaza envisioned. Photograph and Adobe
 Photoshop.

Figure 5.15. Quincke, Madison. 2019. Concept diagram and theme application. Auto
 CAD and Adobe Photoshop.

Figure 5.16. Quincke, Madison. 2019. Sunken Gardens site plan. Auto CAD and Adobe
 Photoshop.

Figure 5.17. Quincke, Madison. 2019. Sunken Gardens section looking east. Adobe
 Photoshop.

Figure 5.18a. Quincke, Madison. 2019. Sunken Gardens. Photo.

Figure 5.18b. Quincke, Madison. 2019. Sunken Gardens envisioned. Photograph and
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Figure 5.19. Quincke, Madison. 2019. Phasing diagram. Auto CAD and Adobe
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Figure 5.20d. Lowes. 2020. Outdoor dining café set. Accessed March 5, 2020. https://
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Figure 5.20e. Lowes. 2020. Basic wood bench. Accessed March 5, 2020. https://www.
 lowes.com/search?searchTerm=outdoor+seating.

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Figure 5.21c. Lowes. 2020. Basic wood bench. Accessed March 5, 2020. https://www.
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Figure 5.21d. Lowes. 2020. Outdoor dining café set. Accessed March 5, 2020.
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 Lowes. 2020. Accessed March 5, 2020. https://www.lowes.com/
 search?searchTerm=outdoor+seating.

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 Accessed March 5, 2020. https://www.homedepot.com/b/Wood/Pergola/N-
 5yc1vZ1z0vohgZ1z0wshb

Figure 5.22a. Semco Outdoor Natural Stone and Landscape Supply.
 Accessed March 5, 2020. Flagstone steppers. https://www.semcooutdoor.

com/columbus/product/summit-gray-flagstone/.

Figure 5.22b. Campania International. 2020. Concrete beaufort fountain.
        Accessed March 5, 2020. https://www.campaniainternational.com/fountain-
        types.

Figure 5.22c. Lowes. 2020. Light wood bench. Accessed March 5, 2020. https://www.
        lowes.com/search?searchTerm=outdoor+seating. Lowes. 2020. Accessed
        March 5, 2020. https://www.lowes.com/search?searchTerm=outdoor+seating.

Figure 5.22d. Lowes. 2020. Outdoor dining café set. Accessed March 5, 2020.
        https://www.lowes.com/search?searchTerm=outdoor+seating. Lowes. 2020
        Accessed March 5, 2020. https://www.lowes.com/
        search?searchTerm=outdoor+seating.

Figure 5.22e. Best Buy. 2020. Outdoor projector. Accessed March 5, 2020.
        https://www.bestbuy.com/site/searchpage.jsp?id=pcat17071&qp=category_
        facet%3DProjector%20Screens~pcmcat158900050019&st=outdoor%20
        projector.

Figure 5.22f. Home Depot. 2020. Pea gravel. Accessed March 5, 2020.
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Appendix B: Project Schedule

	September	October	November	December	January	February	March	April	May

Work Plan
Project Definition

Literature Review
Methodology

Committee List

Site Vists
Site Inventory + Analysis

IRB

Proposal

Pilot Test/ Revise Surveys
Conduct Surveys

Data Entry
Data Analysis

Projective Design

Presentation
Compile Report

Breaks

Deadlines

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KANSAS STATE
UNIVERSITY | University Research Compliance Office

TO: Dr. Sara Hadavi   Proposal Number: 9956
        Architecture, Planning, and Design
        1096 Seaton Hall

FROM: Rick Scheidt, Chair
        Committee on Research Involving Human Subjects

DATE: 11/26/2019

RE: Approval of Proposal Entitled, "Relief from an Unquiet Mind: Improving outdoor
        environments for long-term mental health facilities using user-oriented design. / LAR
        897 Proposal Writing."

The Committee on Research Involving Human Subjects has reviewed your proposal and has granted full
approval. This proposal is **approved for three years from the date of this correspondence.**

APPROVAL DATE: 11/26/2019

EXPIRATION DATE: 11/26/2022

In giving its approval, the Committee has determined that:

☒   There is no more than minimal risk to the subjects.
☐   There is greater than minimal risk to the subjects.

This approval applies only to the proposal currently on file as written. Any change or modification
affecting human subjects must be approved by the IRB prior to implementation. All approved proposals are
subject to continuing review, which may include the examination of records connected with the project.
Announced post-approval monitoring may be performed during the course of this approval period by
URCO staff. Injuries, unanticipated problems or adverse events involving risk to subjects or to others must
be reported immediately to the Chair of the IRB and / or the URCO.

203 Fairchild Hall, Lower Mezzanine, 1601 Vattier St., Manhattan, KS 66506-1103 | 785-532-3224 | fax: 785-532-3278
comply@k-state.edu | k-state.edu/comply

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KANSAS STATE
UNIVERSITY | University Research Compliance Office

TO: Dr. Sara Hadavi
        Architecture, Planning, and Design
        1096 Seaton Hall

FROM: Rick Scheidt, Chair
        Committee on Research Involving Human Subjects

DATE: 12/20/2019

RE: Proposal #9956.1, entitled "Relief from an Unquiet Mind: Improving outdoor environments for long-
        term mental health facilities using user-oriented design. / LAR 897 Proposal Writing."

        MODIFICATION OF IRB PROTOCOL #9956, ENTITLED, "Relief from an Unquiet Mind:
        Improving outdoor environments for long-term mental health facilities using user-oriented design. / LAR
        897 Proposal Writing"

        EXPIRATION DATE: 11/26/2022

The Committee on Research Involving Human Subjects (IRB) has reviewed and approved the
request identified above as a modification of a previously approved protocol. **Please note that
the original expiration remains the same.**

All approved IRB protocols are subject to continuing review at least annually, which may include
the examination of records connected with the project. Announced in-progress reviews may also
be performed during the course of this approval period by a member of the University Research
Compliance Office staff. Unanticipated adverse events involving risk to subjects or to others
must be reported immediately to the Chair of the IRB, and / or the URCO

It is important that your human subjects activity is consistent with submissions to funding /
contract entities. It is your responsibility to initiate notification procedures to any funding /
contract entity of any changes in your activity that affects the use of human subjects.

203 Fairchild Hall, Lower Mezzanine, 1601 Vattier St., Manhattan, KS 66506-1103 | 785-532-3224 | fax: 785-532-3278
comply@k-state.edu | k-state.edu/comply

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Scale: ☺ = 5   ☺ = 4   ☺ = 3   ☺ = 2   ☺ = 1

This space would help to clear my head.					
This space would motivate me to go outside.					
I currently have access to a space similar to this one.					
I would use this space three or more times per week.					
I would feel comfortable sharing this space with the community.					

Please circle three of your favorite elements about this space:

Lawn   Size of space   Sky   Birds
Colors   Park idea   Sunlight

Scale: ☺ = 5   ☺ = 4   ☺ = 3   ☺ = 2   ☺ = 1

This space would help to reduce my stress.					
This space would motivate me to go outside.					
I currently participate in an activity similar to this one.					
I would feel appreciated selling my own plants to the public.					
This space would make me feel connected to the community.					

Please circle three of your favorite elements about this space:

Fire place   Plants   Size of space   Colors
Number of people   Farmer's Market   Shade

4P

Scale: ☺ = 5   ☺ = 4   ☺ = 3   ☺ = 2   ☺ = 1

This space would help me to clear my head.					
This space would motivate me to go outside.					
I currently have access to a space similar to this one.					
I would enjoy using this space for group activities.					
I would enjoy creating art in this space.					

Please circle three of your favorite elements about this space:

Seating   Plants   Size of space   Creating art   Colors   Shade

Scale: ☺ = 5   ☺ = 4   ☺ = 3   ☺ = 2   ☺ = 1

This space would help me relax.					
This space would motivate me to go outside.					
I currently have access to a space similar to this one.					
I would use this space three or more times per week.					
This space would encourage me to spend time with others.					

Please circle three of your favorite elements about this space:

Water feature   Plants   Size of space   Colors
Chalkboard wall   Sunlight   Seating

5P

Page 294 (left column)

Scale: ☺ = 5   🙂 = 4   😐 = 3   🙁 = 2   ☹ = 1

This amphitheater space would help me relax.					
This space would motivate me to go outside.					
I currently have access to a space similar to this one.					
I would enjoy using this space for group activities.					
Watching movies outside would be fun.					

Please circle three of your favorite elements about this space:

Seating   Size of space   Outdoor movie   Night time

Scale: ☺ = 5   🙂 = 4   😐 = 3   🙁 = 2   ☹ = 1

This space would help me relax.					
This space would motivate me to go outside.					
I currently have access to a space similar to this one.					
I would use this space three or more times per week.					
This space would encourage me to spend time with others.					

Please circle three of your favorite elements about this space:

Water feature   Seating   Plants   Lawn   Fence   Shade   Size of space   Colors

Page 295 (right column)

Scale: ☺ = 5   🙂 = 4   😐 = 3   🙁 = 2   ☹ = 1

This space would help to reduce stress.					
This space would motivate me to exercise outside.					
I currently have access to a space similar to this one.					
I would use this space three or more times per week.					
I could use this space by myself.					

Please circle three of your favorite elements about this space:

Exercise equipment   Seating   Plants   Sunlight   Size of space   Shade

---

Scale: ☺ = 5   🙂 = 4   😐 = 3   🙁 = 2   ☹ = 1

This space would help me to clear my head.					
This space would motivate me to go outside.					
I currently have access to a space similar to this one.					
I would use this space three or more times per week.					
I would use this space for walks or jogging.					

Please circle three of your favorite elements about this space:

Seating   Plants   Size of space   The path   Colors   Trees

(top left form)

Scale: 😊 = 5 😊 = 4 😐 = 3 😕 = 2 😣 = 1

This space would help me relax.

This space would motivate me to go outside.

I currently have access to a space similar to this one.

I would use this space three or more times per week.

I would use this space for Tai Chi or other group activities.

Please circle three of your favorite elements about this space:

Lawn   Size of space   Tai Chi activity   Trees
Colors   Buildings nearby   Sunlight

(bottom left form)

Scale: 😊 = 5 😊 = 4 😐 = 3 😕 = 2 😣 = 1

This interior space would help me relax.

I would enjoy looking out or sitting by a window to see nature.

I currently have a view similar to this one.

I would use this space three or more times per week.

I would feel connected to nature in this space.

Please circle three of your favorite elements about this space:

Seat by window   Plants   View from window   Coziness   Colors

(top right form)

Scale: 😊 = 5 😊 = 4 😐 = 3 😕 = 2 😣 = 1

This space would help to reduce my stress.

This space would motivate me to go outside.

I currently have access to a space similar to this one.

I would enjoy making food over the fire during the summer.

I would enjoy interacting with others in this space.

Please circle three of your favorite elements about this space:

Seating   Sunset   Fire pit   Shade
Plants   Size of space   Colors

(bottom right form)

Scale: 😊 = 5 😊 = 4 😐 = 3 😕 = 2 😣 = 1

This space would help me to clear my head.

This space would motivate me to go outside.

I currently have access to a space similar to this one.

I would use this space three or more times per week.

I would feel connected to nature in this space.

Please circle three of your favorite elements about this space:

Colors   Size of space   Butterflies   Shade
Plants   Gazebo   Sky

Scale: 😊 = 5 🙂 = 4 😐 = 3 🙁 = 2 😣 = 1

This space would help me relax.					
This space would motivate me to go outside.					
I currently have access to a space similar to this one.					
I would use this space three or more times per week.					
I could use this space by myself.					

Please circle three of your favorite elements about this space:
Seating   Plants   Water feature   Size of space   Colors

Scale: 😊 = 5 🙂 = 4 😐 = 3 🙁 = 2 😣 = 1

This rooftop garden would help to reduce my stress.					
This space would motivate me to go outside.					
I currently have access to a space similar to this one.					
I would use this space three or more times per week.					
I could use this space by myself.					

Please circle three of your favorite elements about this space:
Seating   Plants   Rooftop location   Size of space   Colors

Scale: 😊 = 5 🙂 = 4 😐 = 3 🙁 = 2 😣 = 1

This park space would help me relax.					
This space would motivate me to go outside.					
I currently have access to a space similar to this one.					
I would use this space three or more times per week.					
The signs would help me to navigate this space.					

Please circle three of your favorite elements about this space:
Seating   Trees   Signage   Gazebo   Size of space

Scale: 😊 = 5 🙂 = 4 😐 = 3 🙁 = 2 😣 = 1

This outdoor cafe would help to reduce my stress					
This space would motivate me to go outside.					
I currently have access to a space similar to this one.					
I would use this space three or more times per week.					
I could use this space by myself.					

Please circle three of your favorite elements about this space:
Seating   Plants   Time of day   Size of space   Colors

SITE VISIT PACKET

LOCATION: Larned State Hospital

DATE: 10/29/19

TIME OF DAY: 11am

LENGTH OF VISIT: 11am-12pm

CONTACT: Nicole Tice

✓ 11/17/
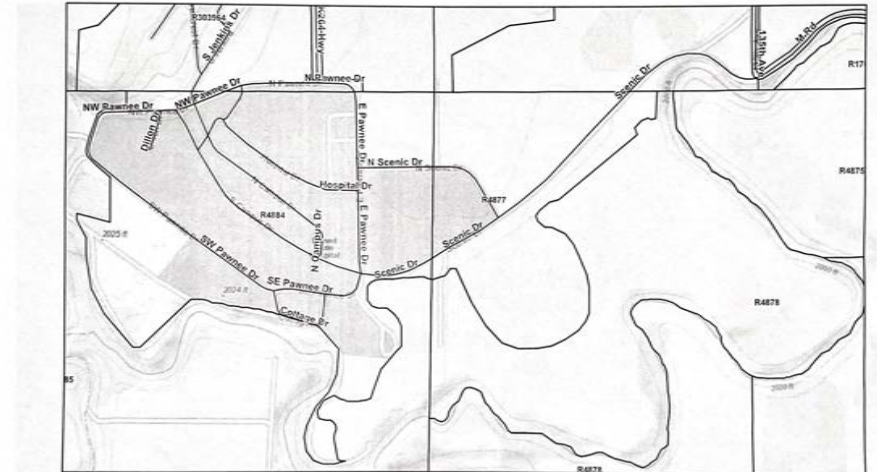
10/15/2019, 11:30:11 PM

□ Parcels

— RoadCenterline

Topography

1:9,028

0   0.05   0.1   0.2 mi
|————|————|——————————|
0   0.07   0.15   0.3 km

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri

* These are the only spaces outside that are available to patients. Except for the greenhouse.

Building ⊢ outdoor space ⊣ sidewalk Parking

offices   sidewalk   Amphitheatre

Sections Show building heights to outdoor space + accessibility issues

Checklist

Condition of Space	Existing Vegetation	Micro-Climate	Circulation
☑ New	Height _5' or less_	☐ Air Temperature _?_	☑ Wayfinding (signage?)
☐ Old		☐ Wind _minimal_	☑ Legibility
☐ Natural materials		☐ Air Humidity _minimal_	☐ Clarity
☐ Steel/stone	Enclosure _w/fences_	☐ Shade/ Light _minimal_	☑ Sight lines
☑ Concrete			☐ Density (how busy it is)
☐ Loud		Notes:	☑ Adjacent uses
☑ Quiet	Density _on edges in wooded areas_		☐ Ground Materials
Notes Odors	Color _Reds/Pink/yellow/ green_		Notes:
Notes Perception of Safety	Types _Oaks Maple Redbud Crabapple Sumac_		

The entire campus was surrounded by a correctional facility which made it have an "unsafe" feeling

TAKE PHOTOS

Existing Vegetation/ Micro-climate

Legend:
- ⁓⁓⁓ Shrubs
- · Trees
- ▬ Drainage area
- ◎ Lawn

Condition of Spaces

Legend:
- 🟡 Outdoor spaces
- 🟠 New
- 🔵 Older

Materials = concrete, Red Brick (_____/tan)

Circulation + Wayfinding

Legend:
- 🟪 Sidewalks
- 🟧 Roads
- 🟩 Parking

Checklist (page 304)

Comfort	Views	Other	
☐ Seating	☑ Sight lines to buildings	☑ Schedule of staff	
☑ Accessible	☑ Buildings	☑ Schedule of patient	
☑ Temperature	☐ Landscape	☐ How long are breaks?	
		☐ Where are breaks taken?	
	Get pictures of outdoor space from patient room?		

2 - 15min. breaks
1 - 30 min break
in 8hrs shift

Break rooms ~~&~~ leave
or Sunflower cafe

Checklist

Comfort + Views

View to corr facility
View to correctional facility
View to power plant

- Mediocre view
- Good view (to landscape)
- Least comfortable
- Most comfortable

NOTES (page 305)

- The hospital is a lot smaller than I thought
- Only 90 patients
- There are only 2 spaces for patients directly outside the hospital
- Parking is all around the edges
- Each ward is different based on patient type, length of stay, sex
- Patients have 2 breaks to go outside weather permitting
- Rooms were individual or double with private bathrooms

NOTES

SITE VISIT PACKET
LOCATION: Osawatomie State Hospital
DATE: 10.25.19
TIME OF DAY: 10 a.m.
LENGTH OF VISIT: 10 - 2 pm
CONTACT: Iryna Yeromenko

Topography (2ft contours)

Condition of Spaces

Holds Patients:
- A Building
- B Building
- C Building
- Biddle Bui

Patios

Interior Courtyard

Old + Vacant
Vacant
Older + Used
Newer

Sections Show building heights to outdoor space + accessibility issues

12'

Entry

OR

OR

"outdoor space"
or

Existing Vegetation/ Micro-climate

455.40
120.00
535.40

Wooded Area
Grasslands or ag

Circulation + Wayfinding

x – didn't have sign
• – sign + location

Dark Grey
white Text

Comfort + Views

■ Views to nature
■ Views to buildings
■ Felt unsafe

Comfort	Views	Other
☐ Seating	☑ Sight lines to buildings	☑ Schedule of staff — work about
☑ Accessible	☑ Buildings	☐ Schedule of patient — 15-70 minute breaks
☑ Temperature	☑ Landscape	☑ How long are breaks?
		☑ Where are breaks taken?
	Get pictures of outdoor space from patient room? ✓	– Inside or just outside doors or on patios
	All patients have a view from their room either to a building or landscape	– Some go on walks

Checklist

SITE VISIT PACKET

LOCATION: Parsons State Hospital

DATE: 10/17/19

TIME OF DAY: 1:30PM

LENGTH OF VISIT: 3:30 pm
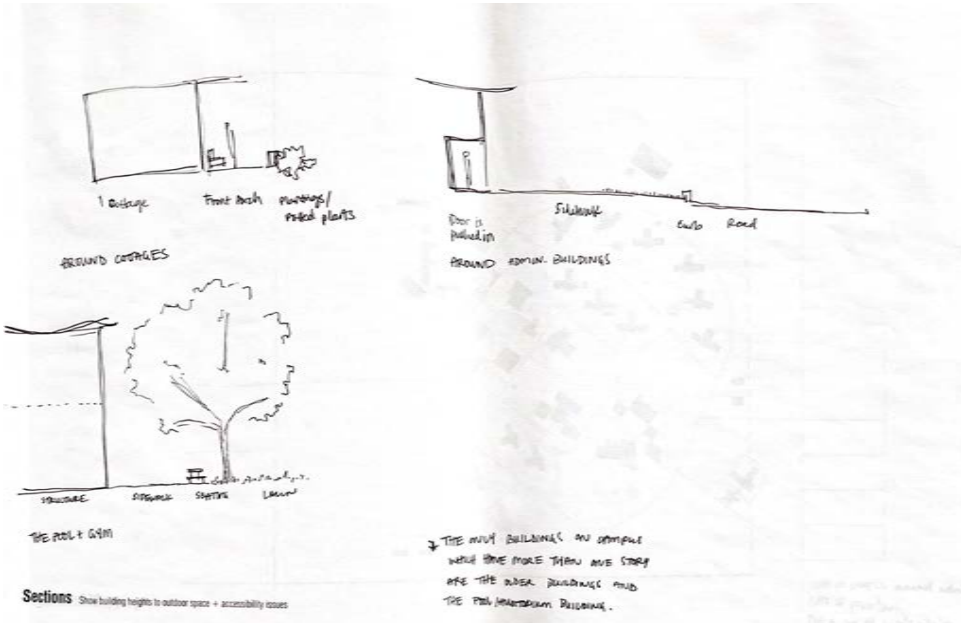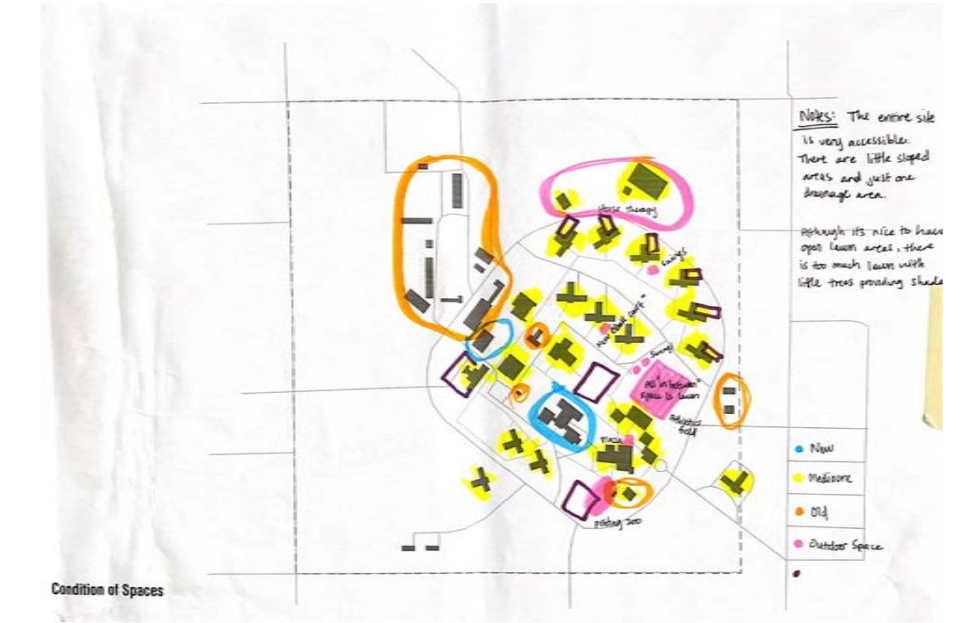
CONTACT: Roger Stanley

Condition of Space	Existing Vegetation	Micro-Climate	Circulation
☐ New	Height Tall/mature trees	☑ Air Temperature	☑ Wayfinding (signage?)
☑ Old	other vegetation is "lower"	☑ Wind Good air flow	☐ Legibility
☐ Natural materials	- Maples	☐ Air Humidity – normal	☐ Clarity
☐ Steel/stone	- Redbuds	☐ Shade/ Light	☑ Sight lines
☐ Concrete	Enclosure		☐ Density (how busy it is) no
☐ Loud	All open... could benefit from	Notes:	☑ Adjacent uses –
☑ Quiet	some enclosure		☑ Ground Materials
	Density	Hot... open spaces don't	
	low	have enough trees	Notes:
Notes Odors			→ Residential
Clean/Park like	Color orange brick		→ connection to park
	tan windows/building		→ Research center of Kth
	beige		→ Fairgrounds
Notes Perception of Safety	Types		
Feels safe	Maples		→ Concrete
but no lighting for night time	Redbuds		used
	Spruce		
	Maple		
	Oaks		
	TAKE PHOTOS		

Checklist

1 cottage   Front Porch   plantings/ potted plants

AROUND COTTAGES

Door is pulled in

Sidewalk   Curb   Road

AROUND ADMIN. BUILDINGS

sidewalk   sidewalk statues   Lawn

THE POOL & GYM

→ THE MANY BUILDINGS ON CAMPUS WOULD HAVE MORE THAN ONE STORY ARE THE OLDER BUILDINGS AND THE POOL/AUDITORIUM BUILDINGS.

Sections Show building heights to outdoor space + accessibility issues

Notes: The entire site is very accessible. There are little sloped areas and just one drainage area.

Although it's nice to have open lawn areas, there is too much lawn with little trees providing shade.

● New
● Mediocre
● Old
● Outdoor Space

Condition of Spaces

Existing Vegetation/ Micro-climate

Circulation + Wayfinding

Comfort — Views — **Other**

- [ ] Seating *Not enough*
- [x] Accessible
- [ ] Temperature *Too Hot!*

- [x] Sight lines to buildings
- [x] Buildings
- [ ] Landscape

Get pictures of outdoor space from patient room?
Roger will send

- [ ] Schedule of staff
- [ ] Schedule of patient *7am – 10pm but curfew is 8pm*
- [ ] How long are breaks?
- [ ] Where are breaks taken?

Checklist

Comfort + Views

Action
Factor Analysis

Rotated Component Matrix

Component	1	2	3
A3.2goout	.872		
A3.1relx	.845		
A3.5cmnty	.790		
A3.4usefrq	.746		
A2.2goout		.856	
A2.4usefrq		.818	
A2.1stres		.752	
A1.5cmnty	.461	.519	
A2.5cmnty		.512	
A1.1clrhd			.863
A1.2goout			.774
A1.4usefrq			.729

Reliability Statistics

COMPONENT 1

Cronbach's Alpha	.806
Cronbach's Alpha Based on Standardized Items	.810
N of Items	3

COMPONENT 2

Cronbach's Alpha	.815
Cronbach's Alpha Based on Standardized Items	.814
N of Items	4

COMPONENT 3

Cronbach's Alpha	.879
Cronbach's Alpha Based on Standardized Items	.881
N of Items	4

Social
Factor Analysis

Rotated Component Matrix

Component	1	2	3
S2.1relx	.880		
S2.2goout	.839		
S2.5usebrk	.836		
S2.4usefrq	.796		
S1.4usefrq		.851	
S1.2goout		.848	
S1.5usebrk		.830	
S1.1clrhd		.800	
S3.4grpact			.873
S3.2goout			.850
S3.1relx			.832
S3.5use			.817

Reliability Statistics

COMPONENT 1

Cronbach's Alpha	.914
Cronbach's Alpha Based on Standardized Items	.918
N of Items	4

COMPONENT 2

Cronbach's Alpha	.924
Cronbach's Alpha Based on Standardized Items	.930
N of Items	4

COMPONENT 3

Cronbach's Alpha	.901
Cronbach's Alpha Based on Standardized Items	.902
N of Items	4

Exercise
Factor Analysis

Rotated Component Matrix

Component	1	2	3
E2.2goout	.866		
E2.5usebrk	.865		
E2.1stres	.852		
E2.4usefrq	.835		
E3.2goout		.868	
E3.1relx		.861	
E3.5taichi		.821	
E3.4usefrq		.771	
E1.2goout			.873
E1.1clrhd			.856
E1.5usewlk			.801
E1.4usefrq			.753

Reliability Statistics

COMPONENT 1
Cronbach's Alpha .888
Cronbach's Alpha Based on Standardized Items .897
N of Items 4

COMPONENT 2
Cronbach's Alpha .949
Cronbach's Alpha Based on Standardized Items .950
N of Items 4

COMPONENT 3
Cronbach's Alpha .909
Cronbach's Alpha Based on Standardized Items .911
N of Items 4

Fascination
Factor Analysis

Rotated Component Matrix

Component	1	2	3
F2.2goout	.912		
F2.1clrhd	.898		
F2.4usefrq	.861		
F2.5connnatre	.855		
F1.4usefrq		.872	
F1.5connnatre		.851	
F1.2viwnatre		.845	
F1.1relx		.803	
F3.1stres			.864
F3.2goout			.842
F3.4grpact			.775
F3.5cowork			.752

Reliability Statistics

COMPONENT 1
Cronbach's Alpha .896
Cronbach's Alpha Based on Standardized Items .898
N of Items 4

COMPONENT 2
Cronbach's Alpha .930
Cronbach's Alpha Based on Standardized Items .934
N of Items 4

COMPONENT 3
Cronbach's Alpha .836
Cronbach's Alpha Based on Standardized Items .858
N of Items 4

Privacy
Factor Analysis

Rotated Component Matrix

Component	1	2	3
P2.2goout	.929		
P2.5usebrk	.919		
P2.4usefrq	.905		
P2.1relx	.897		
P1.2goout		.916	
P1.1stres		.892	
P1.5usebrk		.846	
P1.4usefrq		.844	
P3.2goout			.907
P3.5usebrk			.862
P3.1stres			.852
P3.4usefrq			.767

Reliability Statistics

COMPONENT 1
Cronbach's Alpha .944
Cronbach's Alpha Based on Standardized Items .944
N of Items 4

COMPONENT 2
Cronbach's Alpha .962
Cronbach's Alpha Based on Standardized Items .963
N of Items 4

COMPONENT 3
Cronbach's Alpha .920
Cronbach's Alpha Based on Standardized Items .921
N of Items 4

Wayfinding
Factor Analysis

Rotated Component Matrix

Component	1	2	3
W3.1relx	.882		
W3.2goout	.859		
W3.4usefrq	.797		
W2.1stres	.683		
W2.4usefrq	.648	.549	
W1.2goout		.862	
W1.4usefrq		.849	
W1.1relx		.779	
W2.2goout	.608	.608	
W2.5sign			.876
W1.5navspc			.839
W3.5navspc	.492		.612

Reliability Statistics

COMPONENT 1
Cronbach's Alpha .903
Cronbach's Alpha Based on Standardized Items .906
N of Items 3

COMPONENT 2
Cronbach's Alpha .815
Cronbach's Alpha Based on Standardized Items .817
N of Items 2

COMPONENT 3
Cronbach's Alpha .917
Cronbach's Alpha Based on Standardized Items .917
N of Items 4

Regression Test Results

Theme	Image	Adjusted R Square	ANOVA f	ANOVA p-value	Standard Beta	Beta t	Beta p-value
Meaningful Action	Farmers Market	-.007	.400	.529	.068	.633	.529
	Outdoor Learning	-.008	.283	.596	.137	.532	.596
	Comm. Park	.034	.047	.047	.086	.792	.047
Exercise	Trail	.001	.692	.304	.111	1.034	.304
	Exercise Room	-.012	.003	.954	-.006	-.058	.954
	Tai Chi	-.008	.347	..557	-.064	-.590	.557
Social	Lounge	-.008	.348	.557	-.064	-.590	.557
	Outdoor Movie	-.008	.283	.596	.058	.532	.596
	Art Space	.012	.003	.954	-.006	-.580	.954
Fascination	Garden gazebo	-.008	.348	.557	-.064	-.590	.557
	Fire pit	-.008	.354	.553	.064	.595	.553
	Window	-.011	0.84	.773	.031	.290	.773
Privacy	Rooftop	-.009	.205	.652	-.049	-.452	.652
	Interior Ct. yard	-.012	.000	.991	.001	.011	.991
	Outdoor Cafe	-.008	.287	.594	.146	.536	.594