Ecotourism Lake Design

A Projective Design For The Enhancement Of Social, Natural, and Economic Capital For Cheney State Park

By

Avery Nichols

A REPORT

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Approved by:

Major Professor
Amir Gohar

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Supervisory Committee: Huston Gibson and Ryan Sharp

Abstract

The tourism industry is considered to be one of the largest growing industries in the world, with approximately 700 million international travelers in 2002. Tourism has continued to grow with 1.3 billion travelers in 2017 and earnings around 2.7 trillion dollars (Dossier, 2018). Ecotourism, a subset of the tourism industry is defined as “Responsible travel to natural areas that conserves the environment, sustains the well-being of the local people, and involves interpretation and education” (TIES, 2015). Countries around the world are recognizing the importance of ecotourism, and the economic growth that it brings.

To explore how ecotourism can enhance state parks through design, this project focuses on Cheney State Park. There is an opportunity to enhance conditions at Cheney State Park through designing spaces around the lake. Diminishing infrastructure such as trails, campsites, beaches, and overgrown vegetation are some of the concerns at the lake. A lack of funding in the state parks is one of the contributing factors to low maintenance strategies and diminishing infrastructure. Through previous studies, on-site observation, site analysis, and interviews, a projective design will be produced for the site of Cheney State Park in Kansas. The data and research collected will inform sustainable design, and design guidelines for state parks. This research will focus on the development of infrastructure that reflects the local environment and incorporates local natural resources in a sustainable way. From the design of trails, beaches, campgrounds, and open recreation space at Cheney State Park, with the model of existing conditions, aesthetics, and ecology, an effective form of ecotourism will be achieved. From this research, design guidelines will be created to inform the sustainable design of areas within Cheney State Park to be used as a prototype for other state parks in Kansas. Those design guidelines will be created in an effort to bring about ecotourism and design standards to similar state parks in Kansas.



Figure I:
Lake Sunset
from East Side
(Nichols, 2019)

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Figure: 11
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Figures III-VI:
Lake Sunset
From Wichita
Point
(Nichols, 2019)

Ecotourism

Lake Design





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Figure VII: Lake Sunset from Marina (Nichols, 2019)



Figure VIII:
Sailboats at Sunset
(Ninnescah Sailing
Association, 2019)

1 Introduction

Figure 1.0:
Sailboat Slips
(Ninnescah Sailing
Association, 2019)

Introduction

As landscape architects it is a goal to provide beautiful and attractive tourism sites where people can enjoy nature. Ecotourism is about experiencing nature in an environmentally and culturally sustainable way (TIES, 2015). Ecotourism contributes to the local economy and gives surrounding landowners and businesses the opportunity to catalyze the funds produced from preserving the nature, instead of exhausting it (Honey, 2008). Managers of protected areas are faced with a challenge of controlling and limiting the impacts of tourism to natural areas. Additionally, deciding where and how to plan for ecotourism as a viable economic development option for the benefit of the local economy.

Ecotourism, a subset of the tourism industry is defined as "Responsible travel to natural areas that conserves the environment, sustains the well-being of the local people, and involves interpretation and education" (TIES, 2015). Ecotourism is the use of natural space, which also seeks to minimize the negative impacts on nature and the local area. Ecotourism in nature and outdoor recreation commonly takes place in protected areas and other areas of high conservation significance (Buckley, 2003). Ecotourism aids in the protection and management of natural resources and land conservation; it also affects the long-term participation of local people and government in decision-making to aid in the economic benefits to the local population (Ghoddousi, 2018). Ecotourism is the act of traveling to places for exploration, pleasure, or business, and is almost entirely dependent on the environment. Natural and man-made resources are the primary source of ecotourism. If there is any degradation to the resources, it may cause a reduction in visitor satisfaction and attendance. Thus, ecotourism is of great importance to the economic capital and conservation of an area. (Cvijanović, 2014).

Various definitions of ecotourism have been generated from scholars all over the world, in turn, causing a range of interpretation. Surrounding the term "ecotourism" are topics like nature-based tourism, adventure tourism, and sustainable tourism (Honey, 2008). From these definitions at least three elements can be distinguished: first, the experience of close contact with nature and people from different cultures; second, forms of tourism that maximize revenues for local people; and third, reducing the overall environmental impact of travel (Fennell, 2003). Honey mentions the conflict of vagueness surrounding ecotourism saying, "The travel industry typically classifies ecotourism with nature or adventure tourism; ecotourism is frequently referred to as responsible, sustainable, green, or low impact tourism and, by 2000, new terms such as pro-poor tourism and geotourism were complicating the picture and confusing the public" (Honey 2008). It is important that visitors seeking out ecotourism destinations have a general knowledge of ecotourism and the varying degrees that are enforced throughout the world. A misinformed guest may not fully experience ecotourism and its principals to be conserved (Honey 2008).

As there are various ways to interpret ecotourism, my research will focus on the development of infrastructure that reflects the local environment and incorporates local natural resources in a sustainable way. The design of trails, beaches, campgrounds, and open recreation space at Cheney State Park, with the model of existing conditions, aesthetics, and ecology, an effective form of ecotourism will be achieved.

1.1 From Tourism to Ecotourism

The tourism industry is considered to be one of the largest growing industries in the world, with approximately 700 million international travelers in 2002. Tourism has grown to 1.3 billion travelers in 2017 and earnings around 2.7 trillion dollars (Dossier, 2018). Countries around the world are recognizing the importance of ecotourism, and the economic growth it can bring. Governments are catalyzing the potential of ecotourism to provide regional growth, foreign exchange, and generating employment from economic development (Wearing & Neil, 1999). The UN declared 2002 the “International Year of Ecotourism”, and since then, ecotourism has been considered one of the fastest growing sectors of the tourism industry (EBSCO, 2009).

With an introduction to increased tourism, however, impacts such as increased transportation, overcrowding, littering, air and water pollution, affected vegetation, and development, such as, hotels can bring about negative impacts. Wildlife is similarly affected by the exploitation of visitors by feeding them, photographing them, hunting, and changes in their patterns (Buckley, 2009). Ecotourism is a step forward to a more responsible form of tourism, with planning criteria that gages where, when, and how visitors and development can have the best impact for an area.

1.2 Enforcing Ecotourism Principals

For ecotourism to be successful, protected areas must implement a planning framework that guides the activity and management to generate sustainable benefits. Land conservationists and developers can have a combined role to bring about change that is necessary to ensure the sustainability of activity (Drumm, 2004). Drumm has developed a list of key strategies for a successful ecotourism model listed.

- Zoning for Visitor Use
- Visitor Site Planning and Design
- Sustainable Infrastructure Design
- Revenue Generating Mechanisms
- Visitor Monitoring and Management
- Naturalist Guides

This criteria will determine how ecotourism can be implemented in similar state parks with a body of water through the design of space.

1.3 Project Context: Cheney State Park

With the market of tourism to natural areas increasing, there is a need for visitor and site planning for future visitation of the lake. Utilizing examples of ecotourism strategies and management, the research will influence the enhancement of social, natural, and economic capital for Cheney State Park. Located 17 miles west of Wichita, KS and 20 miles South of Hutchinson, KS, Cheney State Park offers a unique park destination in the vicinity of large metropolitan areas.

There is an opportunity to enhance conditions at Cheney State Park through designing spaces around the lake. Diminishing infrastructure, such as roads, trails, campsites, and overgrown vegetation are concerns for the state park. A lack of funding in the state parks is one of the contributing factors to low maintenance strategies and diminishing infrastructure. The state park has an infrastructure of roads, trails, campgrounds, restroom facilities, and beaches.

The major site concerns of Cheney State Park include shoreline erosion, road maintenance, and control of invasive species (KDHE, 2011). Popular invasive species include, red cedar, sericea lespedezia, Russian olive, white perch, and zebra mussels (KDHE, 2011). Fish species in the reservoir include channel catfish, crappie, striped bass, walleye, white bass, and wiper. Game animals living around the reservoir include doves, pheasants, quail, rabbits, and wild turkeys. Other land animals in the area include beavers, bobcats, muskrats, opossums, raccoons, red foxes, and skunks (KDWPT, 2018). With the focus on ecotourism, design strategies will be utilized for the improvement of the state park. Introducing the design of spaces, or the redesign of current infrastructure around the state park to be sustainable,



Figure 1.1: Current condition example, Overgrowth of vegetation (Nichols, 2019)



Figure 1.2: Current condition example, diminishing infrastructure (Nichols, 2019)



Figure 1.3: Current condition example, diminishing infrastructure (Nichols, 2019)

will contribute to the social, natural, and economic capital of the state park. Bringing design guidelines and a projective design of enjoyable spaces to the state park will provide ecotourism and enhanced capital around the reservoir. With an enhancement of park features, implementation suggestions, and proposed revenue generation, the economic capital will be increased through park fees and local businesses, like the marina and bait shops around the state park.

1.4 Research Question

How can ecotourism be a design tool for the enhancement of social, natural, and economic capital for Cheney State Park?

Subset Questions

- What is being achieved at other Lakes in the U.S. for the benefit of ecotourism?
- What are the desired design conditions for the State Park?

1.5 Objective / Proposition

I'm interested in the enhancement of state park conditions, specifically for the site of Cheney State Park. The enhancement of infrastructure, recreation, and social aspects will be explored through the design of the state park. The development of the lake will be considered through the balance of conservation, needs of surrounding communities, and interpretation for travelers and workers. The objectives of this project are the following:

- Produce a design that can be used to inform future development of Cheney State Park or guidelines of state parks in Kansas that increase opportunities for the efficient marketing and promotion of ecotourism destinations.
- Produce guidelines for sustainable site infrastructure, park amenities, and revenue generating mechanisms.

Activities at local levels like state parks are likely to be more significant and have longer-lasting effects than those at the international level (Buckley, 2003). This is because ecotourism activities are generally small-scale, as are the related services and infrastructure provided by small and medium-sized enterprises. Similarly, monitoring, regulation and supervision of such services is carried out principally by local authorities or local institutions (Buckley, 2003).

2 Background

Figure 2.0: Lake Sunset from Wichita Point (Nichols, 2019)

Background

The term ecotourism was coined in 1983 by Hector Ceballos Lascurain, an environmentalist who defined it as “Nature-based travel to relatively undisturbed areas with an emphasis on education” (Weaver, 2001). Ecotourism is defined in various ways, I’m choosing to use the definition produced by the International Ecotourism Society (TIES) defined as “Responsible travel to natural areas that conserves the environment, sustains the well-being of the local people, and involves interpretation and education” (TIES, 2018). Ecotourism is the use of natural space, which means minimizing the negative impacts on nature and the local area. Ecotourism in nature and outdoor recreation commonly take place in protected areas and other areas of high conservation significance (Buckley, 2003). Ecotourism aids in the protection and management of natural resources and other protected land. It affects the long-term participation of local people, the government in decision-making, and determines the benefits to the local population (Ghoddousi, 2018). As ecotourism is the act of traveling to places for exploration, pleasure, or business, it is almost entirely dependent on the environment. Natural and man-made resources are the primary source of ecotourism. If there is any degradation to the resources, it may cause a reduction in visitor satisfaction and attendance. Thus, ecotourism is of great importance to the economic capital and conservation of an area. (Cvijanović, 2014).

As there are various ways to interpret ecotourism, my research will focus on the development of infrastructure that reflects the local environment and incorporates local natural resources in a sustainable way. The design of trails, beaches, campgrounds, and open recreation space at Cheney State Park, with the model of existing conditions, aesthetics, and ecology, an effective form of ecotourism will be achieved.

2.1 Benefits of Ecotourism

Ecotourism is a complex activity, requiring tools to assist in effective decision making with the competing economic, social, and environmental demands of sustainable development. Ecotourism has specific principles; it contributes to the conservation of natural and cultural habitat; it involves local communities in planning, development and operation activities; it involves education for visitors in regards to the natural and cultural resources; and it is intended for individual visitors and small organized groups. Ecotourism helps in involving local communities for the conservation of the ecology and biodiversity, of which, provides economic incentives to the local community. Ecotourism contributes to conservation of biodiversity, sustains the well-being of local people, involves responsible action for the tourism industry, requires the low consumption of natural resources, encourages local participation and business opportunities, and includes learning experiences (Weaver, 2001).

2.2 Community Capitals Framework

The seven community capitals developed by Jan and Cornelia Flora are natural, cultural, human, social, political, financial, and built (Flora, 2016). The purpose of these capitals is to build a strong and resilient community that strive for balance among the seven capitals. The framework offers a way to analyze each of the capitals individually as well as together (Emery, 2006). Of the seven categories, this research will be focusing on the social, natural, and economic (which is listed as financial) capitals. The other four capitals are of importance to successful community development but have been excluded from my specific research. I’m focusing on the three capitals of social, natural, and economic for their substantial impact on the enhanced design of the site. Therefore,

those capitals have been chosen for further implementation to my research site. The three capitals are relevant to the natural environment and its health, the social interaction of visitors, and the economic revenue that go hand in hand with connecting them together. Those categories will be expanded to show the importance they possess in enhancing community conditions.

The political capital produced by Flora has an effect on the policies within the state park, However, I have not included it for a suspected lack of impact within the design of my project. The state park has already developed policies for the livelihood of the state parks and its visitors, which do not necessarily inhibit the development or design within the state park. Therefore, changing those policies will not have a considerable impact on the type of design or development that will be proposed. While I'm not researching political capital, I do include research for the policies in Kansas State Parks in section 2.5. This research will contribute to the well-being of natural resources, public interaction and recreation, and economic development for the planning of state parks in Kansas.

2.2.1 Social Capital

Social capital is described as the "glue" that holds the community together. Increasing community involvement and fostering activities that create social interaction of family, friends, neighbors, and work associates (Flora, 2016). Sociocultural sustainability goals of ecotourism promote local participation, promotes local ownership, and empowers local people. Social capital fosters the local community's engagement in events and encourages intercultural appreciation and communication between host communities and tourists. Goals in ecotourism would not be achieved without tourists, in this case known as ecotourists.

The Ecotourist

An ecotourist is defined on the basis of an intention to visit undisturbed areas and learn about nature according to Ballantine and Eagles (1994). However, there are earlier studies that classify the ecotourist on the basis of setting, experience, and group dynamics. Kusler (1991) divided ecotourists to three main groups, which are:

1. Do-it-yourself ecotourists- This is the largest percentage of all ecotourists. These individuals stay in a variety of accommodation types and have the mobility to visit any number of settings. Their experience, therefore, is marked by a high degree of flexibility.
2. Ecotourists on tours- This group seeks a high degree of organization within their tour, and travel to exotic destinations.
3. School groups or scientific groups- These groups often become involved in scientific research of an organization or individual, often staying in the same region, and are willing to endure harsh site conditions.

In opposition, Lindberg emphasizes the importance of dedication and time management of a place to determine its function. This includes where they're traveling, how they're traveling, and what they want to experience. Lindberg has identified four basic types:

1. Hard-core nature tourists- Scientific researchers or members of tours specifically designed for education, removal of litter, or similar purposes.
2. Dedicated nature tourists- People who take trips specifically to see protected areas and who want to understand local, natural, and cultural history.
3. Mainstream nature tourists- People who visit unusual places.
4. Casual nature tourists- People who experience nature incidentally as part of a broader trip.

Cheney Sate Park attracts a range of ecotourists that can be categorized from the do-it-yourself ecotourists to the casual nature tourist. From an interview with Cheney State Park, Satterlee stated that the park would like to introduce more programs and tours for the lake. An introduction to more events would cater to more ecotourists, like “ecotourist on tours” and “school groups or scientific groups”.

Community Involvement

Successful ecotourism development depends upon a mutual relationship with local businesses and community leaders and its organizations. If the community sees ecotourism as an asset, the relationship will be positive; if the community views the development as an invader, the local participation and long-term effectiveness will fail (Mehta, 2002). Surrounding landowners and local communities involved in the development of ecotourism foster greater understanding and support. Locals community members can be involved through activities including; nature tours, interaction of ecological functions, and allowing classes to explore and learn about sustainable practices and conservation efforts (Mehta, 2002). Landscape architects can incorporate community involvement by fostering the planning of community events and social engagement.

Environmental programs are intended to educate visitors and serve as a technique to instill an educational experience. For instance, implementing signage along trails that inform visitors of the local flora and fauna is a way to involve guests in an educational experience (Mehta, 2002). Designers must consider the ecosystem itself while planning for educational programs, so that the educational intentions do not compromise the system itself.

If the activates compromise the health of the ecosystem, strategic planning can be enforced to restrict access to an area.

Tourism In Kansas State Parks

A crucial subset of ecotourism is education, which can be introduced to a place through a naturalist guide. The educated site guide enhances the visitors experience of the attraction. For example, National Parks use site guides to enrich the experience and education of the visitor, monitor the impacts of the environment, and often generate income for themselves and others in local communities (Drumm, 2004). With an educated site guide, the visitors can experience the environment in a way that educates and inspires them.

In 2017, tourism spending in Kansas totaled 6.8 billion dollars, with nearly 35 million visitors, sales tax revenue collected from tourism activity reached $1.1 billion dollars in 2017, and 64,700 jobs were directly supported by visitor spending (Tourism Economics, 2017). With an increasing market of tourism in Kansas, the intervention of ecotourism can be of great significance. Promoting more ecotourism, especially within the state parks can have a big impact on the natural and economic benefits.

2.2.2 Natural Capital

Natural capital refers to the land, air, water, and biodiversity of plants and animals (Flora, 2008). The natural capital of a place considers the environment and natural amenities that should be protected. Places where the natural capital is not preserved and monitored are unable to provide valuable ecosystem services (Flora, 2008). The environmental sustainability goals of ecotourism are promoting environmental protection, construction methods and materials, visual impacts, waste minimization, energy minimization, and minimal impact on wildlife (Fennel, 2003). Providing environmental education increases public environmental consciousness, fosters natural appreciation, and encourages contribution to the protection of local natural resources.

Natural Vegetation

Natural vegetation is the plant-life which develops and is suited to a particular physical environment (Senior, 1979). The vegetation present within a specific ecosystem is based on four overarching factors:

- Climatic factors (temperature, humidity, precipitation, wind, light intensity)
- Edaphic factors (soil)
- Geomorphic factors (land forms)
- Biotic factors (living organisms) (Senior, 1979)

These factors play an important role in determining what type of vegetation is considered natural and has the ability to survive. “When vegetation is selected to fit the conditions on the site, it can maintain as well as rebuild a landscapes capacity to provide a wide range of ecosystem services” (Calkins, 2011). Using natural vegetation in the design of spaces contributes to the regional characteristics and ecological function of a place.

Sustainable Site Design

Landscape architects seek to achieve sustainable environmental design, encompassing healthy development, construction, and materials. “Through design, humans plan their technological interventions and express creative urges to satisfy the individual and societal needs” (Dinep, 2010). Examples of resources for landscape architects, designers, engineers, planners, ecologists, architects, developers, and policy-makers include SITES and LEED. These resources help to create ecologically resilient spaces to benefit the environment, the local community, and the economics.

The Sustainable Sites Handbook defines sustainable design as “design, construction, operations and maintenance practices that meet the needs of the present without compromising the ability of future generations to meet their own needs” (SITES, 2009). It is the combination of human and natural ecosystem health, and resource materials for the design of sites. “Sustainable site design emphasizes design of whole, complex functioning systems; a widened scale of analysis and design consideration; highly site-specific (as opposed to universal) design responses; and continued monitoring, management, and adaption to ensure healthy, functioning systems for the life of the landscape” (Calkins, 2011). Designing in a way that best serves the specific environment contributes to the health and longevity of the site and its resources.

Best Management Practices

Best management practices are a "set of operational standards that are considered to be the most effective and efficient within a sector with respect to certain desired outcomes, such as environmental sustainability and effective interpretation in the case of ecotourism." (Weaver, 2001). The best management practices should be focused on a local scale to reflect the region and its needs. Consideration should be placed on natural processes occurring on and off site, so that innovative practices can be effective for the local community. Management practices should be applicable on a daily basis, through examples like the reuse of natural material, mapping and cleaning up debris, and monitoring visitor impacts. Another practice used in places like the tropical rain forest is harvesting rainwater, which can have many reusable purposes like watering gardens, drinking water for animals, and water for surrounding amenities (Weaver, 2001). These management practices can be applied to state parks in Kansas for the monitoring the success of ecotourism.

In order to maintain the quality of both the lake resources and tourist experience, management strategies must be put in place (Hall, 2006). Characteristics of a place must be recognized beforehand, in order to distinguish the correct maintenance strategies. Those characteristics demand management strategies that recognize the area as a part of a larger regional context. Taking into account the factors of human interaction and natural succession, strategies such as land use planning, erosion control, or access control, can be designed to prevent land-based problems that are an integral part of lake management. Maintenance strategies to overgrown areas can be used on return investment for state parks, such as logging investment. If areas cannot generate sufficient revenue from tourism and other activities involving local land use, it is likely that those areas are ineffective in preserving ecosystems, while providing high-quality visitor experiences. The link between environmental, economic and sociocultural sustainability is on one hand, and financial sustainability on the other (Buckley, 2003).

Characteristics of how to apply ecotourism may include: (Patterson, 2002)

- Provide environmental conservation
- Community participation
- Profitable and self-sustained
- Have a low impact upon a protected area's natural resources and recreation techniques.
- Involve stakeholders (individuals, communities, ecotourists, tour operators and government institutions) in the planning, development, implementation and monitoring phases
- Limit/monitor visitation to areas, either by limiting group size or area in a season
- Promote tourism by orienting customers on the region to be visited
- Ensure that wildlife is protected in according zones
- Respect the privacy and culture of local people

Throughout the design process, sustainable methods in construction and material selection should be considered for conservation of a site. Construction methods should be planned in order to minimize the effects to the site. Phasing is often introduced into construction to creating building stages, considering seasonal changes, and work activities (Mehta, 2002). While development is being constructed, "avoid compressing soil to the point of eliminating aeration that would thus kill existing micro-organisms necessary for plant and animal life." (Mehta, 2002). Construction phases should be implemented to ensure that specific parts of the site are being affected by construction rather than the whole site. These strategies strive for low impact development, with the selection of local materials to serve the local economy.

2.2.3 Economic Capital

Economic capital represents the resources available to invest in the development of activities, programs, and projects (Flora, 2008). Economic sustainability goals contribute to lasting local economic development. Creation of permanent jobs for local people drives the development of other related industries, upgrades local infrastructure, promotes consumption and production, finances the establishment and maintenance of protected areas, and uses natural resources efficiently. Ecotourism contributes to economic development and conservation of protected areas by:

- Generating revenues that can be used to sustainably manage protected areas
- Providing local employment
- Promoting sense of community ownership

However, without careful planning and management that balance ecological, social, and economic objective factors, visitation may lead to environmental damage. Furthermore, envisioned as a positive approach towards sustainable development, unplanned or poorly planned and implemented ecotourism, can have negative effects, offsetting the benefits it was designed to provide. Even the potential local benefits of ecotourism can lead to environmental damage to a protected area (Wall,1997).

2.3 Introduction to Cheney State Park

Size

Cheney Reservoir is the sixth largest lake in the state of Kansas, with a holding capacity of 168,000 acres (KDHE, 2011). The reservoir offers 1,913 acres of state park land and a wildlife area that consists of 5,249 acres (KDWPT, 2018). In 2010, a bathymetric survey by the Kansas Biological Survey indicated that the height of the reservoir is at 1,420.7 feet above sea level, and covers 9,937 acres (KBS, 2011). A shoreline distance of 67 miles defines the reservoir with surrounding land use/land cover predominantly agricultural. Land use measures 79.4% in rangeland such as pasture and hay field and cultivated cropland. Woodland occupies approximately 2.4% of the total area of the watershed and about 2% of the watershed is residential or commercial use (Wang, 2005).

Location

Cheney Reservoir is located approximately 14 miles south of Hutchinson on K-17 and approximately 17 miles west of Wichita. Outside of Wichita going West the state park is located off highway U.S. 54 about 4 miles north on K-251 to the Cheney Reservoir Dam. Coordinates for Cheney Reservoir are at 37°45°35°N 97°50°06°W (KDWPT, 2018).

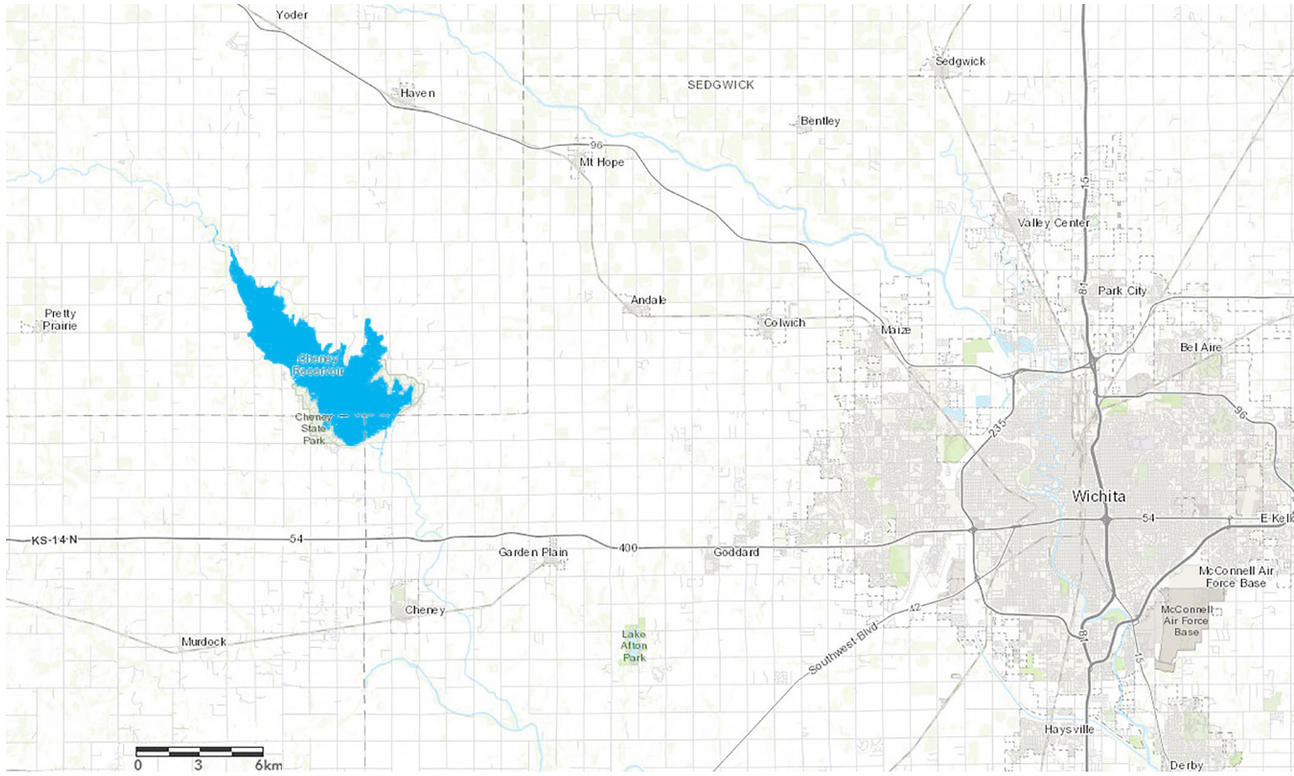


Figure 2.1: Cheney Reservoir Regional Location (Nichols, 2019)



Figure 2.2: Cheney State Park Location (Nichols, 2019)

Distance

There are two settlements located near Cheney Reservoir, both unincorporated. Mount Vernon located 1 mile west of the dam, and St. Joe, located 2 miles east of the reservoir's southeastern entrance. 5.5 miles to the south is the nearest town of Cheney Kansas (KDWPT, 2018).

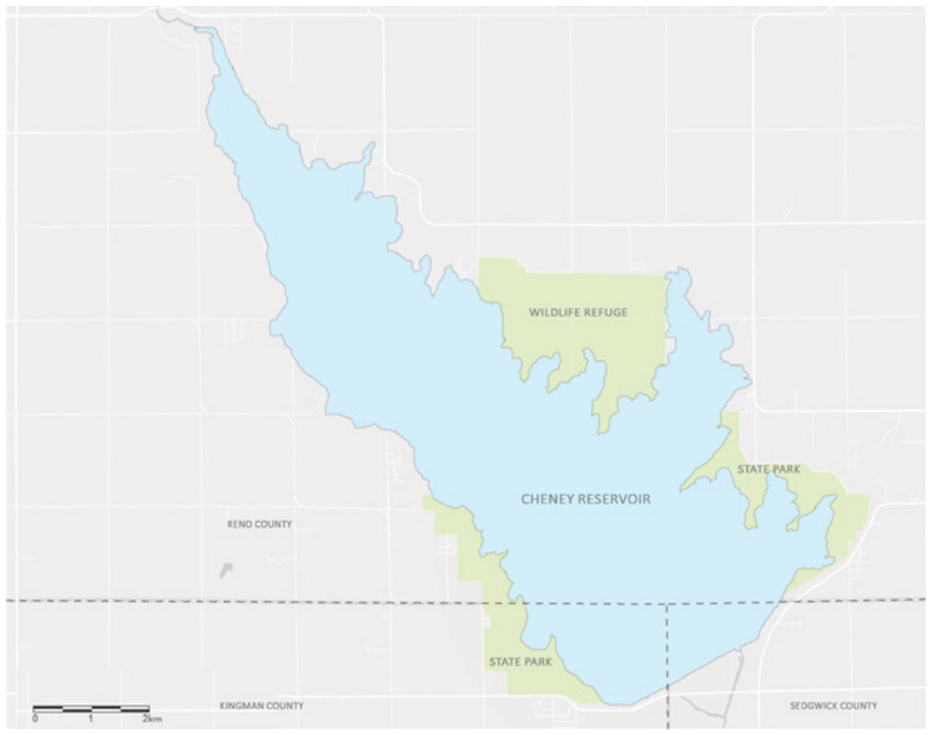


Figure 2.3: Cheney State Park & Wildlife Refuge Context (Nichols, 2019)

2.4 History: The Making of Cheney Reservoir

In 1957 the Bureau of Reclamation issued a water supply report authorizing the construction of Cheney Dam and Reservoir in 1960 by the United States Congress. Construction of the reservoir began in 1962 and finished in 1965. The storage of water in the reservoir began with the closure of the Ninnescah river outlet in November 1964, and delivery of water to the city of Wichita began in the summer of 1965. Conservation storage of water increased until the reservoir was filled in October 1968 (KDHE, 2011). Wichita needed an additional water supply to supplement its existing supply wells. The water of the Arkansas River was of poor quality and too polluted to use, leaving the Ninnescah River as the next closest potential source (KBS, 2011).

Cheney Reservoir is known for its recreational sports of windsurfing, sailing, fishing, and boating; also, for its land activities of trails, camping and hiking (KDWPT, 2018). Cheney Reservoir is considered to be a premier sailing, windsurfing, and kite-boarding lake, voted among the top ten sailing lakes in the U.S. for its windy conditions (Ibesn, 2013). The state park offers 1,900 acres of public land that is scattered with trails, cabins, playgrounds, and campsites. Located 17 miles west of Wichita, Kansas and 14 miles South of Hutchinson, Kansas you can take a short trip into Wichita to see its world-class zoo, the city's famed museums, and other great attractions (KDWPT, 2018). Attendance in Cheney State Park has been recorded, with visitors in 2017 being approximately 432,489 people visiting the park (Satterlee, 2019). 2018 had fewer attendance records with approximately 429,974 visitors (Satterlee, 2019). Those numbers are approximate due to counter data that has had some issues, but the attendance of the park remains fairly close.

The State Park offers lodging to visitors of the lake year-round with rentable cabins. A majority of the cabins are located on the west side of the lake which were built through the efforts of the “Cheney Lake Group”. There are currently nine rental cabins ranging from 1 bedroom to a 2-bedroom cabin, the first in the state. There are also three more cabins currently under construction on the east side of the Lake near the marina. The board members include the former manager of Cheney State Park, members of the Ninnescah Sailing Association, as well as members of the Cheney Lake Association; which is another group formed to enhance Cheney State Park. These cabins can be rented throughout the year and reserve a unique experience for visitors coming to the state park. Another attraction to the lake is its abundance of campsites offering a variety of camping experiences for its visitors. The camping types range from spaces for tent camping known as “primitive sites”, to full hookup campsites that have electric, and water hookups (KDWPT, 2018).

Private business within the state park include the Ninnescah Sailing Association and O’Brien’s Marina. Both businesses have been at the State Park since it was built in 1964 and have been catalysts for keeping visitors coming to the lake. Ninnescah Sailing Association is a private business with a long-term lease on the ground. Ninnescah is a not for profit association, community based 501c4, in which members pay an initiation fee and annual dues. While leasing the land, they are capable of making improvements to the area at their expense. Those improvements over the years include the main building, boat slips, boat yard, and property management residence. They have also helped to pay for the shelter house and two bathrooms in which they partnered on 50% of the expenses with the state park. The beaches in the area and its facilities are open to the public except the residence, boat yards, and Sailing Association building. The Ninnescah Sailing Association sponsors events that draw participants nationwide to the park (Orr & Adams, 2018).

O’Brien’s Marina recently went through new management and is newly remodeled. O’Brien’s Marina is open year-round and offers beverages, groceries, food and items for camping and fishing. New



Figure 2.4: Aerial lake View Taken September, 2018 (Nichols, 2019)

fuel pumps have also been built, offering fill-up points for boats on land and in water, along with 86 boat slips for boat storage (KDWPT, 2018).

Partnerships with Cheney State Park include, the Friends of Cheney Lake, and the Cheney Lake group. These organizations have contributed to the economic capital of the state park through funding various projects around the lake.



Figure 2.5: Regatta Races (Ninnescah Sailing Association, 2019)



Figure 2.6: Aerial lake View Taken September, 2018 (Nichols, 2019)

2.5 State Park Policy

The polices outlined by the Kansas State Parks are considered in this research for the direction of development. Any development at Cheney State Park must go through the Bureau of Reclamation for approval. Analyzing current regulations within the state park, the polices will inform the decisions being made in my research. State park policies in Kansas fall predominantly in the uses of the site, from boat usage, to fishing and hunting policies, with no policies regulating how and where development should take place. The policy statement in the Kansas Department of Wildlife Parks and Tourism Statute states, (32-701) “It shall be the policy of the State of Kansas to protect, provide and improve outdoor recreation and natural resources in this state and to plan and provide for the wise management and use of the state’s natural resources, thus contributing to and benefiting the publics health and its cultural, recreational and economic life.” (KDWPT, 2019).

The Kansas Office of Revisor of Statutes outline policies that include state parks in Kansas. Those policies include SB49, which sets fees for cabins and campsites without the approval of the Kansas Wildlife, Parks and Tourism Commission (KDWPT, 2019). Another regulation is SB50, which is set to adjust fee limitations on certain Kansas Department of Wildlife, Parks and Tourism licenses, permits, stamps and other issues (KDWPT, 2019). The 2019 Kansas Legislature created an updated plan as of March 18th, 2019 that will potentially affect the Kansas Department of Wildlife, Parks and Tourism (KDWPT, 2019). This legislature outlines various policies in the parks updated in 2019, one of which includes trails. Listed next are a portion of those regulations involving trails. Policy 58-3212: Relating to recreation trails and the applicability of conditions for operating such trails. (KSrevisor, 2019)

(1) Perform the duties imposed by K.S.A. 2-1314 and amendments there to along the recreational trail;

(2) provide for the safety, use and accessibility of existing easements, utility facilities and access licenses along the recreational trail;

(3) provide for trail-user education and signs regarding trespassing laws and safety along the recreational trail;

(4) provide for litter control and the enforcement of laws prohibiting littering along the recreational trail, including but not limited to trail-user education and signs about laws prohibiting littering and the provision of trash receptacles and the cleanup of trash and litter;

(5) develop and maintain the recreational trail in a condition that does not create a fire hazard;

(6) designate the recreational trail for non-motorized vehicle use with exceptions only for motorized wheelchairs and maintenance, law enforcement and emergency vehicles.

This is a portion of the regulations involving trails, and fees. With these regulations, a projective design will inform design zones and guidelines that can inform future development in Cheney State Park, which can be used as a prototype for other state parks in Kansas.

2.6 Funding

The revenue in Kansas State Parks go through two agencies that are separated as federal and state revenue. Cheney is a state agency that receives no state general fund money. Federal revenue like hunting license, fishing license, and deer tags, don't go back to the state park. Revenue is made in the state park through park fees, vehicle permits, camping fees, utility fees, and special event fees that the state park generates (Satterlee, 2018). As stated earlier in the history of Cheney Reservoir, private businesses and partnerships additionally contribute to Cheney State Park. Both the marina and Ninnescah Sailing Association pay a portion of their revenue to lease the land they operate. O'Brien's Marina pays 3% of gross sales goes to statewide park fee fund along with 5 cents per gallon of gas sold also going to the statewide park fee fund. The Ninnescah sailing Association paid roughly $10,000 per year for the first 5 years and around $12,500 per year for the following years; that money also goes to the statewide park fee fund.

For 2018 Kansas State Park revenue was $9,278,395 for Park Fee Fund. Cheney State Park revenue for 2018 was $441,839 (Laterman, 2019). This number does not include revenue from the cabins or the concessions (Laterman, 2019).

Funding for the wildlife conservation is earned through two sources, the revenue from the sale of fishing and hunting equipment, and federal excise tax revenue, which is then appointed back through the US Fish and Wildlife Service. Efforts have been successful to raise funds through the Endangered Species Act, and the Wildlife Conservation and Restoration Program (KDWPT, 2005).

Additional funding opportunities are outlined in statute 115-35-1. "Local government outdoor recreation grant program" Requiring that the application demonstrates: (KDWPT, 2018).

(1) A local need for the proposed project and a strong likelihood of ongoing local involvement and support.
(2) The proposed project provides new outdoor recreational opportunities to a significant population or geographic area, or the proposed project enhance existing outdoor recreation facilities and would improve facilities for users with a wide range of physical abilities, or both.
(3) The proposed project has a likelihood of completion within one year from the time of award.
(4) The grant request would not constitute more that 25% of funds appropriated for the grant program in a given fiscal year.
(5) The proposed project would meet applicable environmental standards and would be compatible with existing land use capabilities and surrounding uses.
(6) The application is consistent with the 2002 focus plan for Kansas wildlife and parks, as published by the department.

Funding opportunities in Cheney State Park have been successful with private partnerships and businesses. With an introduction to more private businesses that can sustain visitation throughout the year or during summer months of April through October, more revenue and park improvements can be implemented.

3 Methods

Figure 3.0: Sunset taken from the top of Cheney Reservoir Dam (Nichols, 2019)

3 Methods

Using research and previous examples, ecotourism will inform a projective design methodology. Conducting precedent studies will aid in looking at previous examples of ecotourism and state park development. Interviews with state park officials and private business representatives within the state park, will assist in gaining insight to the lake and aid in design development. Another method to be used is on-site observation. Through observation of the site, I will determine the conditions of the reservoir and initial zones to be designed. Finally, site analysis will be conducted in conjunction with the other methods to determine the state of the infrastructure and ways for improvement. Utilizing these methods, I will have a deeper knowledge of the state park and the application of the research that will aid in the design of Cheney State Park.



Figure 3.1: Sunset taken from the West side of the state park (Nichols, 2019)

3.1 Precedent Studies

Cheney State Park presents design opportunities of improving beaches, trails, signage, campgrounds, and recreation park space. The design of these spaces will be produced with the consideration of state park policies, low funding constraints, and the continued conservation of the park. Precedent studies have been chosen for their use of sustainability practices, development plan of parks, and similarities in their application to Cheney State Park. Solutions for similar challenges can be found through precedent studies of other park projects. The goal of this research method is to extract successful sustainability strategies, and site design solutions that can be applied to Cheney State Park as well as similar state parks in Kansas.

3.2 On-Site Observation

The purpose of on-site observation is to gain a sense of place for the site of Cheney State Park and the reservoir. Observing the physical and aesthetic qualities of the area will give me a greater understanding of its needs and ways to design. During this qualitative data method, photos will be collected in all areas of the state park. The photos will then be used in the report to showcase the existing conditions of beaches, shorelines, campgrounds, existing trails, playgrounds, native vegetation, and facilities of the state park. On-site observation presents personal context to the site and provides a structure for a well-informed decision-making process within the planning and design stage.



Figure 3.2: Sunset taken from Wichita Point (Nichols, 2019)

3.3 Interviews

Interviews have been conducted with representatives that are familiar with Cheney State Park. Those people will represent the organizations of Kansas State Parks, Cheney State Park, and Ninnescah Sailing Association; A private business within Cheney State Park. Open-ended, conversational interviews will be conducted to help learn more about Cheney State Park and its inner-workings to then produce a design that will improve the existing conditions. The purpose of interviewing a representative from the Kansas State Parks is to generate knowledge about the policies and funding for state parks in Kansas. The purpose of interviewing the Ninnescah Sailing Association is to learn more about the possibilities of private funding for state parks as well as the attraction of visitors.

All interviewees names and positions have been documented and representatives were given a brief about the purpose of the project to then sign a consent form. The interviews provide information about Cheney State Park that cannot be obtained through site analysis, precedent studies, and the literature review.

3.4 Site Analysis

To better understand the opportunities and constraints of the project site, analysis will be conducted. Site analysis will better inform the zones that the state park has, to apply the development of ecotourism in a successful way. The site analysis will be done at various scales, looking at the regional context of the reservoir and at the site scales within the state park, using data collection through photos, GIS, and Google Earth. These diagrams and maps will reveal opportunities and constraints that will inform the design process.



Figure 3.3:
Sunset taken
from Marina
(Nichols, 2019)

4 Results

Figure 4.0: Sailboats (Ninnescah Sailing Association, 2019)

4.1 Precedent Studies

Five precedents have been chosen with the criteria listed below:
Location:
Size:
Land Use:
Site Background:
Selection Reasoning:
Ecotourism Application to Project:



Figure 4.1: Precedent Locations (Nichols, 2019)

Cheney State Park Site Scale Map

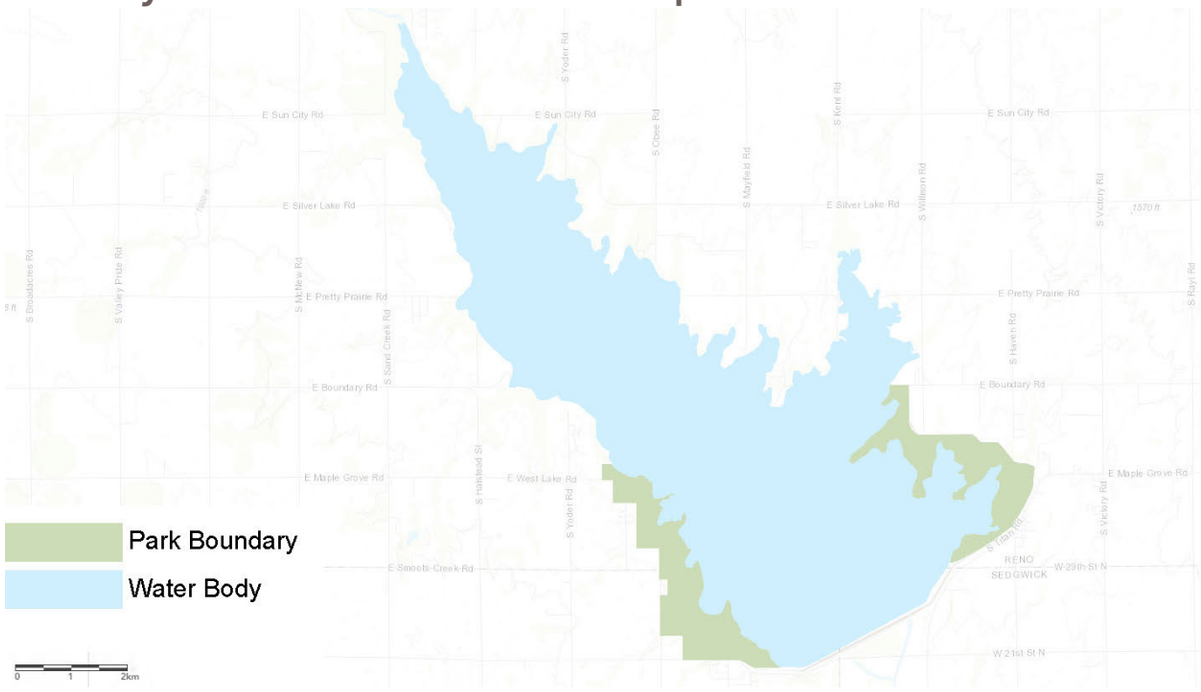


Figure 4.2: Cheney State Park precedent context map (Nichols, 2019)

4.1.1 Nisqually State Park, Washington

Location: Eatonville, WA
Size: 1,300 acres
Land Use: State Park

Site Background:

Nisqually State Park was created in partnership between the Nisqually Tribe, Washington State Parks, and other local agencies. The park provides 1,300 acres of state park in a combination of forest and prairie land (WSP, 2018). The area offers 13 miles of forest trails that connect to surrounding parks and spots for a riverside activity.

Selection Reasoning:

In 2010 Washington State Parks adopted a master plan and land-use planning project for Nisqually State Park (WSP, 2018). The masterplan developed criteria and guidelines for land use planning and design in the state park. The master plan has been evaluated to explore design guidelines that can be applied to Cheney State Park.

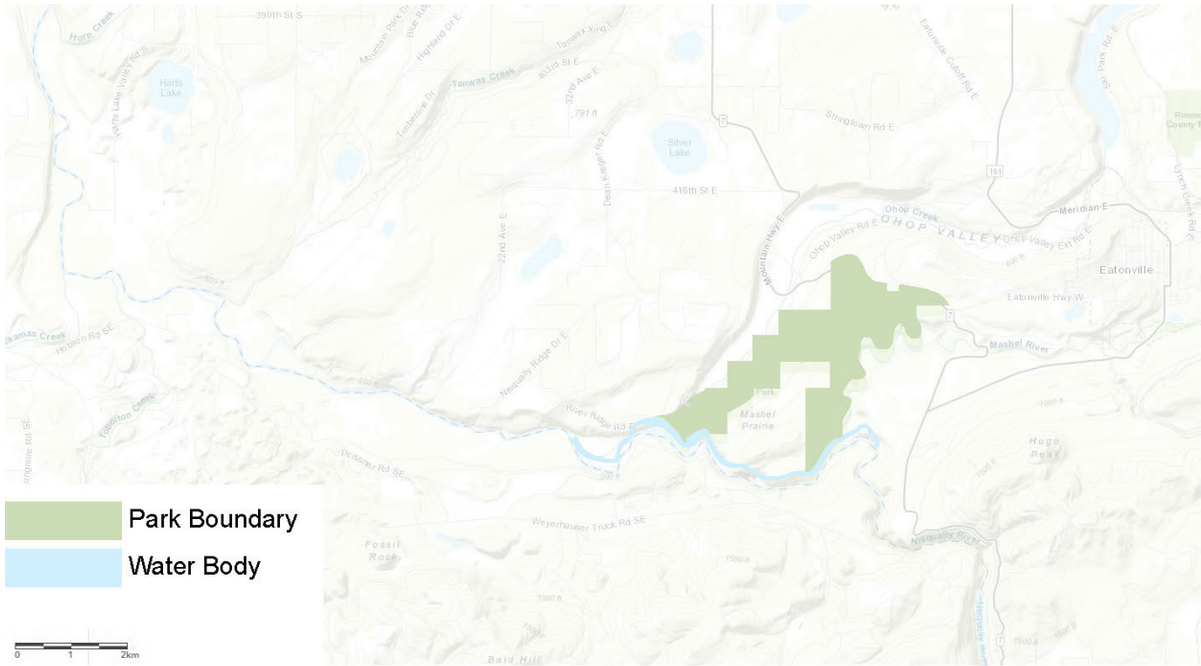


Figure 4.3: Nisqually State Park precedent context map (Nichols, 2019)

4.1.1 Nisqually State Park, Washington

Ecotourism Application to Project:

Masterplan vision
Site Planning & Design
Storm Water Management Design
Construction Activities management
Campsite Design Guidelines
Sustainable Design standards
Energy Efficiency
Service Access
Site Utilities
Solid Waste removal
Grading considerations
Material selection
Interpretive and Wayfinding Signs
Irrigation
Planting
Exterior Lighting
Vehicle Circulation- Design and dimensions
Pedestrian, Bicycle and Equestrian Trails (secondary, Tertiary)



Figure 4.4: Nisqually State Park signage (Geocaching, 2019)

4.1.2
Sandy Beach State Park, New York

Location: Pulaski, NY
Size: 229 acres
Land Use: State Park

Site Background:

Sandy Beach State Park is a part of a 17-mile connection of sandy shoreline, coastal dunes, and wetlands beach along lake Ontario's eastern shore. Along lake Ontario's eastern shore are a series of wetland areas composed of many separately owned properties. Five of which are open to the public, one state park, three wildlife management areas, and an area owned by a nature conservancy. Managers of the areas composed an interpretive plan to better educate visitors and the impacts on the area.

Selection Reasoning:

Through the destruction of dunes due to informal trials by visitors, a trail structure was built to minimize the impacts on the site. A plan for Sandy Beach State Park was created to monitor the success of the trails and other amenities through the use of signage. The plan is made up of a brochure, interpretive signs, and public access points highlighting educational information. The plan sought to reveal information such as ecology of the area, and signage indicating erosion control projects. The nature conservancy and the New York State Department of Conservation conducted a survey, showing that 98% of visitors used the interpretive erosion control signage, 94% followed the "Stay off the dunes signage", 44% used the educational signage, 23% used the directory signage, 20% used the brochures, and 11% used the guidebook (USDOS, 2009).

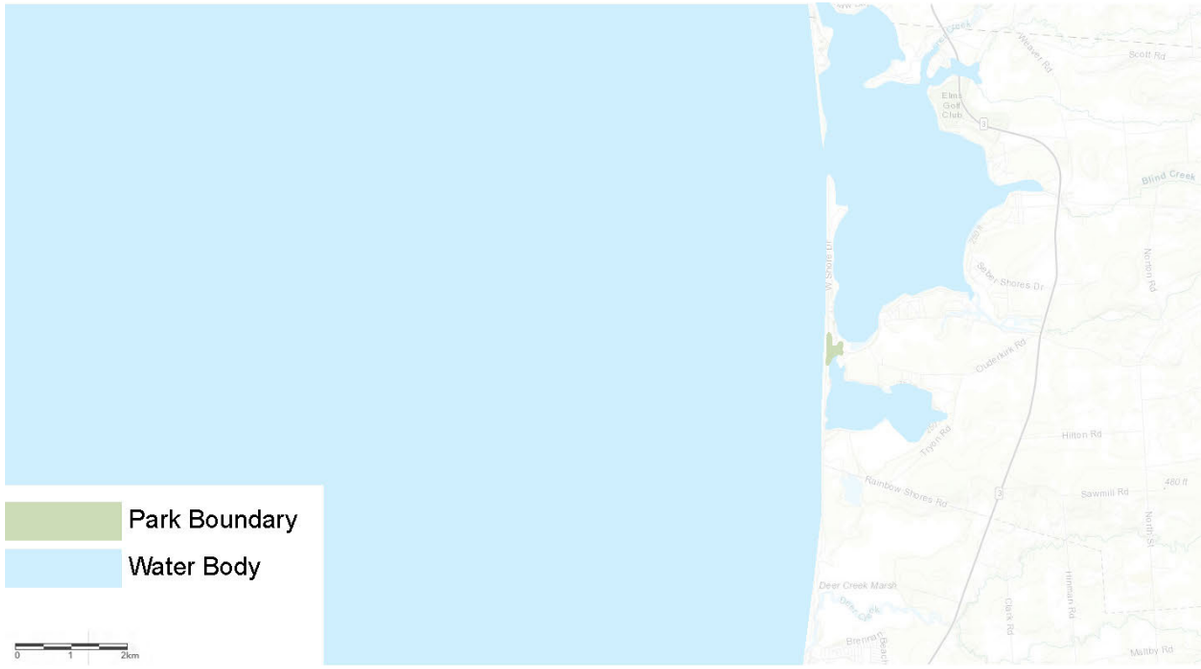


Figure 4.5: Sandy Beach State Park precedent context map (Nichols, 2019)

4.1.2
Sandy Beach State Park, New York

Ecotourism Application to Project:

Land conservation
Monitoring system for dune conservation
Sustainable activity
Planning decision making for public participation
Partnership participation
Interpretative signage design
Parking fee
From conservation area to public beach development



Figure 4.6: Sandy Beach State Park trail and beach (Easchiff, 2009)

4.1.3 Clear Lake State Park, Iowa

Location: Clear Lake, Iowa
Size: 3,643 acres
Land Uses: State Park

Site Background:

Clear Lake State Park is positioned in the Southeast corner of the 3,643-acre Clear Lake. The lake is an urban area, offering an abundance of activities and land uses. The State Park offers 55 acres of land encompassing a diversity of recreational opportunities.

Selection Reasoning:

In 2011 The Iowa department of Natural Resources created a long-term vision of design guidelines for 85 of its state parks. These guidelines provided sustainable approaches for the design of beaches, campgrounds, trails, cabins, boat launches, shorelines, picnic shelters, and lodges (USDOS, 2009). The plan includes the vision for the state parks with design guidelines, and sustainable approach criteria. The design of the amenities has brought economic, and environmental quality of life to the state and its citizens (USDOS, 2009). They provide a sustainable design approach as well as design guidelines to be applied to amenities such as kiosks, shelters, signage, site furnishings, and many more.

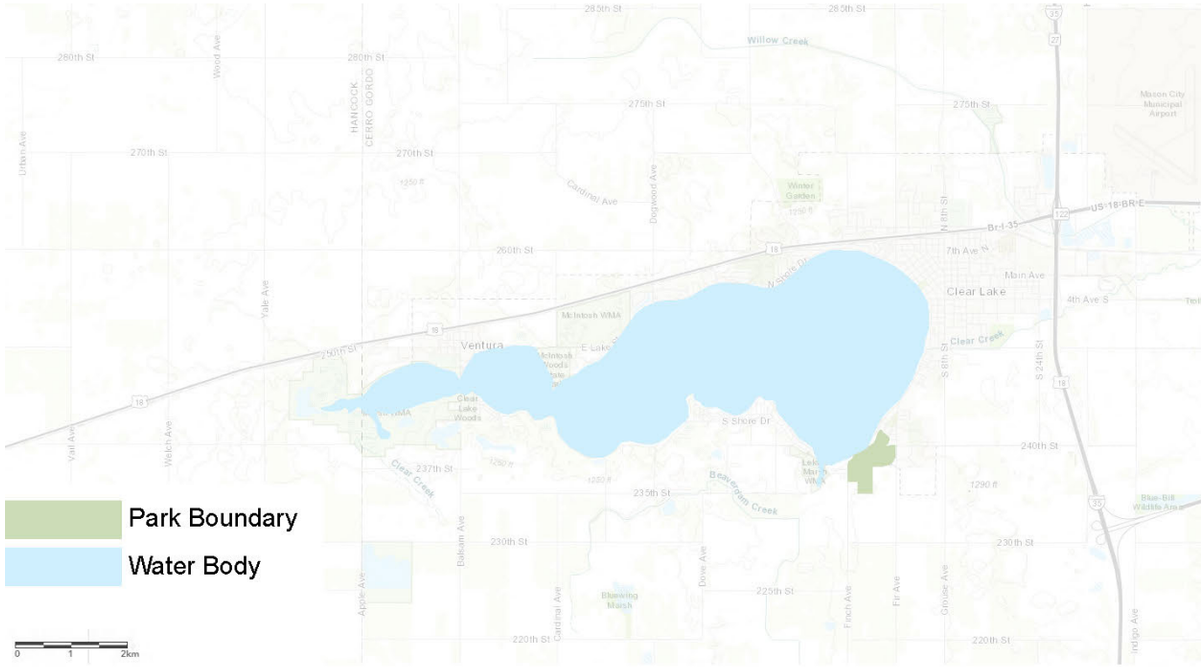


Figure 4.7: Clear Lake State Park precedent context map (Nichols, 2019)

4.1.3 Clear Lake State Park, Iowa

Ecotourism Application to Project:

Masterplan vision for all Iowa State Parks
Ecology study
Material selection
Sustainability criteria for site development
Energy Efficiency
Water Conservation
Design guidelines for park amenities



Figure 4.8: Clear Lake State Park (Clear Lake Iowa, 2019)

4.1.4 Gulf State Park, Alabama

Location: Gulf Shores, AL
Size: 6,150 acres
Land Uses: State Park

Site Background:

Gulf State Park in Alabama is a large preserved open space on the Gulf of Mexico. The park serves as a major tourism attraction, drawing visitors from the state and beyond. The tourist destination attracts park revenue that supports the rest of the Alabama State Park system (Sasaki, 2016). After oil pollution threats in 2010, closed beaches lead to other long-lasting economic restraints. The park looked to Sasaki associates for a three-year master plan of the area to transform it into a model of economic and environmental sustainability (Sasaki, 2016).

Selection Reasoning:

The master plan includes the design campgrounds, trails, open recreation space, beaches, and restoration of dunes in the park. The 6,150-acre park design includes phasing for continued transformation over time. The design of these spaces is concentrated within already disturbed areas of the park, preserving natural habitat.

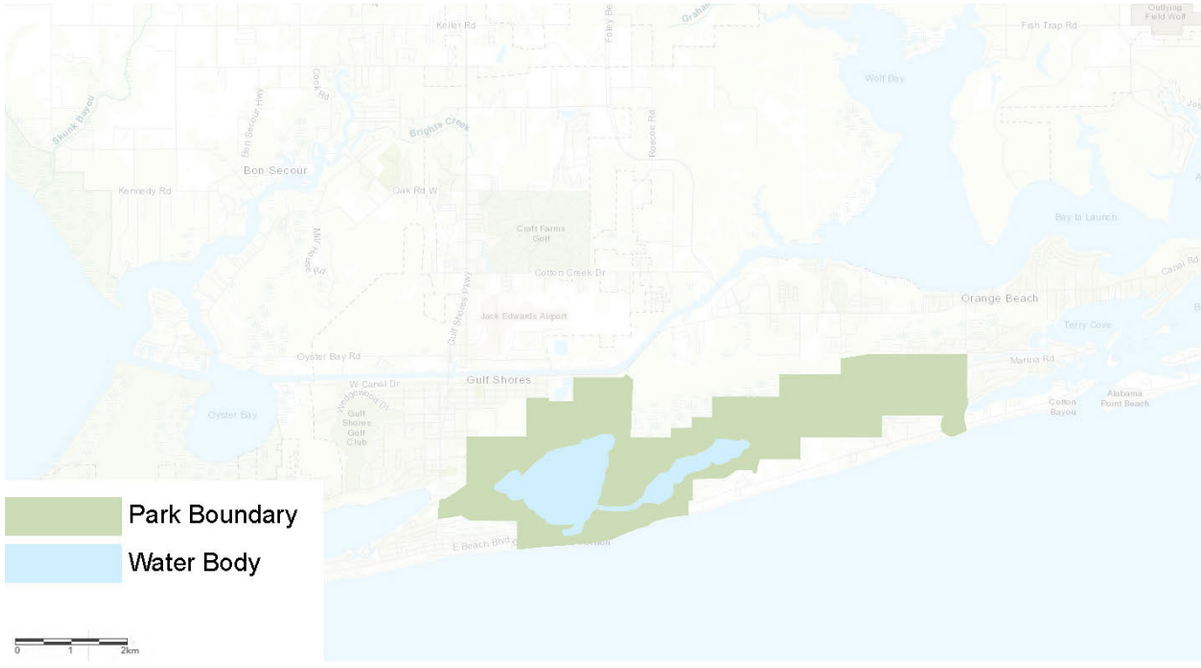


Figure 4.9: Clear Lake State Park precedent context map (Nichols, 2019)

4.1.4 Gulf State Park, Alabama

Ecotourism Application to Project:

Masterplan
Sustainable site design
Design of park amenities
Development and conservation strategies
Economic sustainability
Phasing strategy
Creating educational opportunities
Management /Maintenance strategies
Major trials, nature trails, wetland crossings

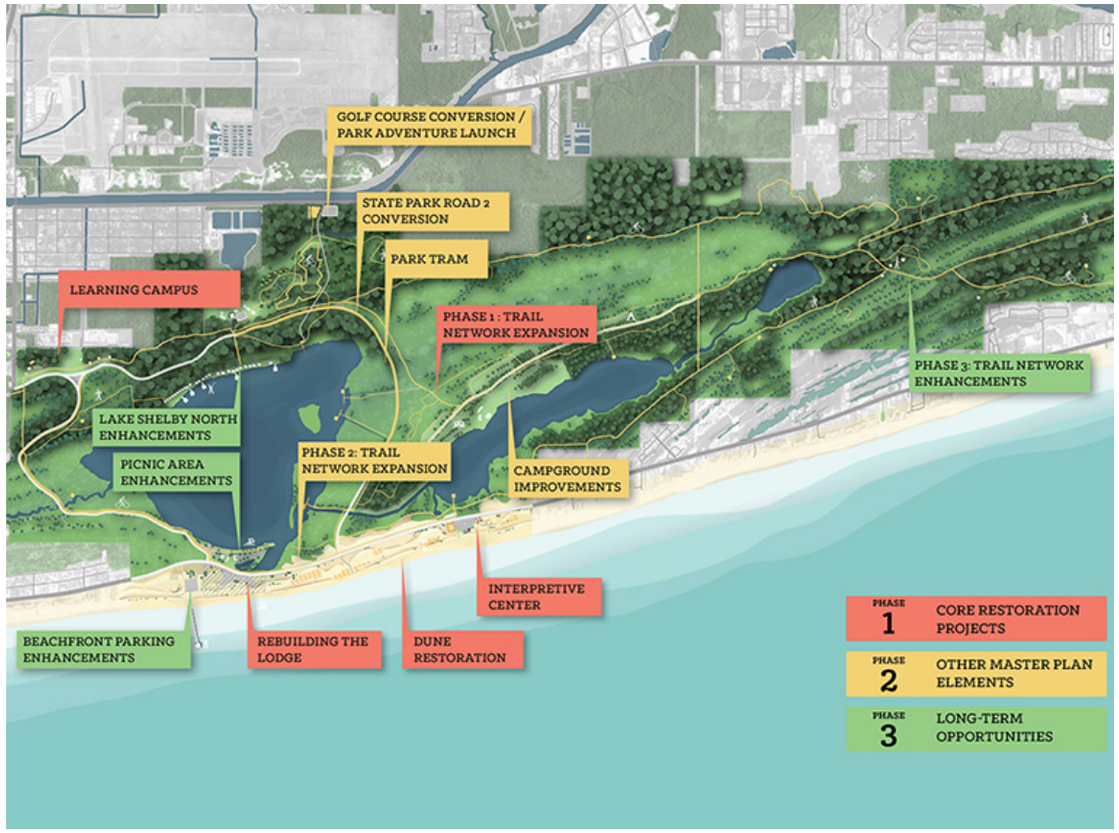


Figure 4.10: Gulf State Park Plan (Sasaki, 2016)

4.1.5
Lake Meredith National Recreation Area

Location: Fritch, Texas
Size: 45,000 acres
Land Use: National Park Recreation Area

Site Background:

Lake Meredith National Recreation area was established in 1965. The National Park was established "in order to provide for public outdoor recreation use and enjoyment of the lands and waters associated with Lake Meredith in the State of Texas, and to protect the scenic, scientific, cultural, and other values contributing to the public enjoyment of such lands and waters, there is hereby established the Lake Meredith National Recreation Area." (NPS, 2019).

Selection Reasoning:

Decreasing water levels have become concerning for recreation area staff, park visitors, and local communities (NPS, 2009). With visitation decreasing due to the fluctuation of the Lake, the park has implemented more land-based projects for visitors. A multi-use trail project gives the visitors various ways of experiencing the park, such as hiking, and biking in a way that conserves the environment. The project examined the regulations and policies laid out by the National Parks to inform the implementation of the trails and other project criteria (NPS, 2019).

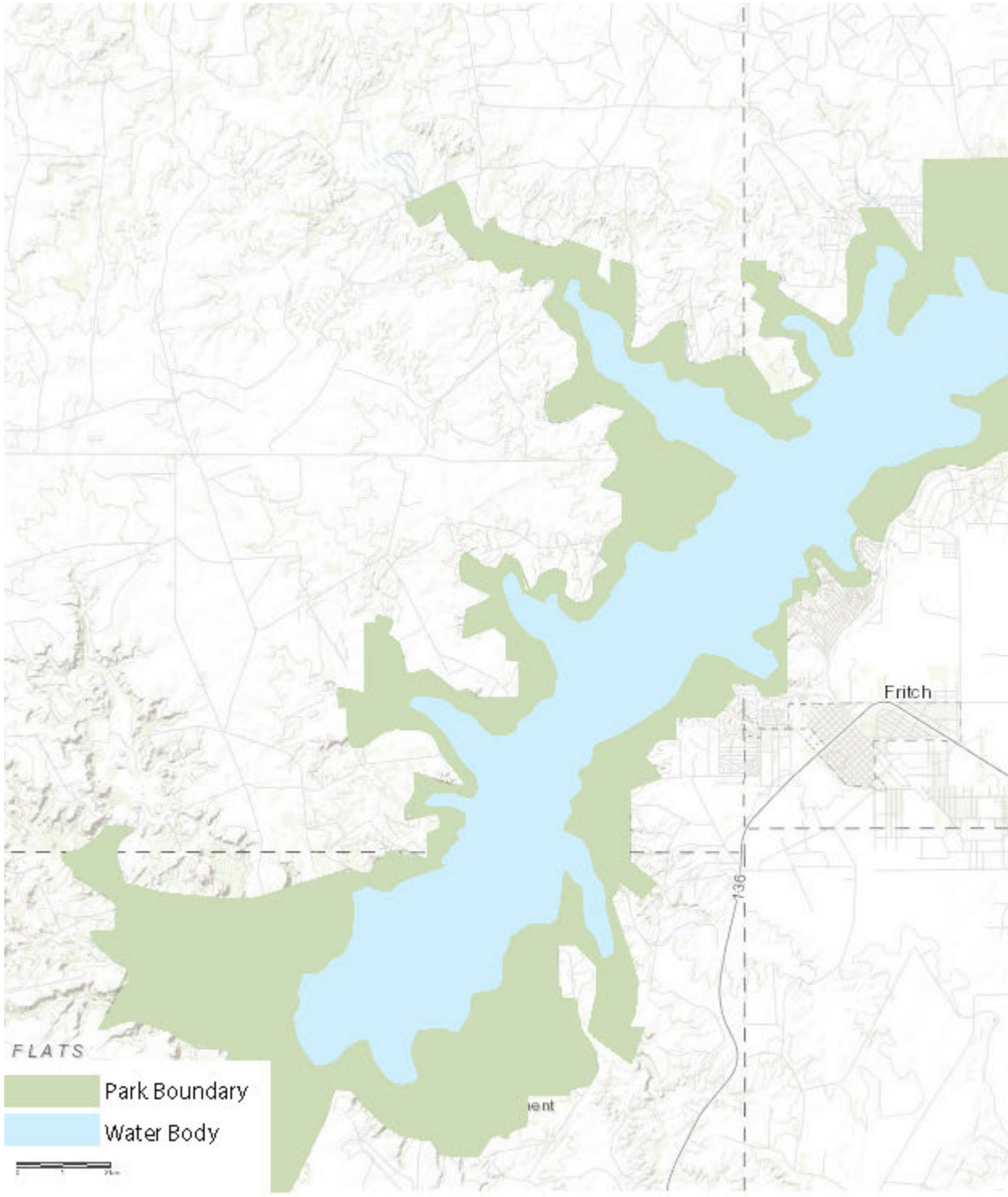


Figure 4.11: Clear Lake State Park precedent context map (Nichols, 2019)

4.1.5
Lake Meredith National Recreation Area

Ecotourism Application to Project:

Master Plan (1973)
Wildland Fire Management Plan (1998)
Strategic Plan (FY 2008-2012)
Soils and Sedimentation study
Vegetation selection
Sustainable design and Construction
Visitor Use and Experience (including Health and Safety)
National Recreation Area Management and Operations
Lightscape Management



Figure 4.12: Lake Meredith Trail (NPS, 2019)

On-Site Observation

Figure 4.14: Washed up ice taken on the West side of the lake (Nichols, 2019)

Figure 4.13: Ice over lake taken on the West side of the lake (Nichols, 2019)

4.2.1 Trails

Trails throughout the state park vary from asphalt surfaces to mowed paths. As shown in figure 4.15 asphalt trials are diminishing and narrow. The trails have signage at the beginning and end but offer no other signage or seating throughout the trail. A constraint regarding the trails is that they do not lead to the water's edge or provide a walkable path along the reservoir. While there are trails throughout the state park there are also disconnects of those trails and a lack of trails in highly traveled areas of the park that would encourage walking and biking rather than driving. Introducing the design of walkable paths along the reservoir will serve visitors with views of the water while providing erosion control.



4.15



4.16


4.17


4.18


4.19



4.20

Figures 4.15-4.20: Trails in the state park (Nichols, 2019)

4.2.2 Shoreline

Edge conditions range from sand beaches to overgrown vegetation to rip rap. Each of these conditions serve a specific purpose within the state park, from handling large groups of people on the beach to providing erosion control. These edge conditions start to inform zones within the lake that I can use for design considerations. The execution of shorelines in the projective design will utilize three types of shorelines sand beaches, Sea wall, and vegetated strips of natural grasses to control the bank and erosion. While rip rap is utilized throughout the state park, minimal maintenance of the ground causes for overgrown vegetation between the rocks. That overgrown vegetation causes decreased views from the shoreline and creates a maintenance problem if the vegetation is left untreated. Untreated shorelines like figure 4.25 causes for overgrown vegetation and erosion that increases the sediment input into the lake.


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Figures 4.21-4.26: Shorelines in the state park (Nichols, 2019)

4.2.3 Facilities

Facilities within the state park offer uses such as restrooms, bath houses, shelters, and cabins. From observation of the site the facilities are in good condition and placed throughout the state park for easy access to visitors. Figure 4.29 is an un-used building that previously served as a concessionaire during the summer months at the lake, providing a space for gathering and economic revenue. Figure 4.27 is an example of a restroom facility which are placed throughout the state park. Figure 4.31 is an example of the cabins located on the West Side of the Reservoir. The facilities of the park are shown to highlight the character of the state park but will not be considered for design improvements in the projective design.


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Figures 4.27-4.32: Facilities in the state park (Nichols, 2019)

4.2.4 Park Signage

Park signage has been observed for the quality of direction for visitors to the state park. Examples of park signage are shown here to examine how park directions and information is portrayed to the public. Figure 4.33 is an example of what visitors see upon arrival to the state park, and the other examples are signage for park information and wayfinding. Newer signage shown in figure 4.34 uses metal signage with powder coated protection and letters and images. Most signage for the state park utilizes wood material with etched letters for information and wayfinding. While the wooden signage may be cost effective, I will seek to utilize different locally sourced material for sustainable, long-lasting, and aesthetic qualities.



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Figures 4.33-4.38: Signage in the state park (Nichols, 2019)

4.2.5 Campgrounds

Examples of campgrounds in the state park vary from full electrical hookups to land space for tents. The images show a range from a new camp space with concrete material to an older space with diminishing infrastructure. Newly established campgrounds that are ADA accessible use concrete paving, while non-ADA accessible campgrounds use crushed rock material with a wooden ground border. My design will focus on the material selection for campgrounds to sustain heavy usage that will be cost effective, long lasting, and fit the character of the state park.



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Figures 4.39-4.44: Campgrounds in the state park (Nichols, 2019)

4.2.6 Recreation

Recreational opportunities at the lake can be found in both land and water activities. Examples include boating, playgrounds, and open fields for sports. Shown below are conditions of playgrounds ranging from new to old. Examples of recreation fields are located on the West side of the reservoir near the cabins. The fields are mowed open space with either goals for soccer or a backdrop for other sports. The fields create open space but lack execution and maintenance. There are opportunities around the state park to improve site conditions through designing recreational spaces.


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Figures 4.45-4.50: Recreation in the state park (Nichols, 2019)

4.3 Interviews

Interviews have been conducted with representatives that are familiar with Cheney State Park. Those people represent organizations of Kansas State Parks, Cheney State Park, and Ninnescah Sailing Association; A private business within Cheney State Park. Open-ended, conversational interviews were conducted to help learn more about Cheney State Park and its inner-workings to then help produce a design that will improve the existing conditions. The purpose of interviewing a representative from the Kansas State Parks is to generate knowledge about the policies and funding for state parks in Kansas. The purpose of interviewing the Ninnescah Sailing Association is to learn more about the possibilities of private funding for state parks as well as the attraction of visitors. All interviewees names and positions have been documented and representatives were given a brief about the purpose of the project to then sign a consent form. A brief synopsis of the question responses have been recorded to provide insight to the interview responses.

4.3.1 Kansas State Parks

Linda Laterman

- How long have you been working with Cheney State Park/ Kansas State Parks/ Sailing association?
- What are your responsibilities?

Linda Laterman, (Director of KDWPT) Has worked at the Kansas Department of Wildlife, Parks, and Tourism for 22 years.

- What makes Cheney State Park unique from other State Parks? What's the "feel of the reservoir?
- Can more designed spaces within the State Park celebrate more of those unique qualities?

Cheney is unique for being more of an urban park, making quick access from the municipalities or even out of state. The park provides an atmosphere for families while law enforcement is around to insure a safe environment but is not seen as overwhelming for visitors.

- How do private partnerships contribute to the Reservoir?
- How can more funding be introduced?

O'Brien's Marina provides a business that helps to keep visitors in the state park, offering food, fuel, and other goods.
Ninnescah Sailing Association is a non-profit organization that keeps people coming to the state park for many recreational opportunities.

- How was the Park initially designed / what were the considerations?
- How has it changed?

The original master plan of the state park was produced by the Federal Land and water conservation who also built the Marina. The Bureau of Reclamation built the Dam and all new development

has to go through them.
Entry gates that monitor park tags and fees are not the vision for Cheney, they want people to be able to come into the State Park and enjoy the site, while the park rangers have the responsibility to check tags and create the opportunity engage with park visitors to create a friendly environment.

- What has worked for tourism of the park / What has not?
- What areas of the Lake can be redesigned or benefit from the design of space?

The area near the Marina on the East side of the State Park is considered an area of importance for future development.

- With the State park offering an abundance of land can some areas be temporarily closed that are underutilized or unmaintained?

They would like to keep all areas within the State Park available to visitors. Visitors are usually particular to an area and when they get closed they still go to that area.

- What are some problems with the State Park?
- How can those problems be solved?

Some of the comments we get are about cleaning of facilities, mowing, customer service, and maintenance. As the director of all state parks I have to focus on the whole system of state parks. They all need more capital improvement and staffing to keep the area growing.

Cheney is a State agency that receives no state general fund money. No taxes are revenue for the Park, some money has came from lottery funds but that was cut 8 years ago. Federal dollars like hunting license, fishing license, deer tags, don't go back to the state park. State money such as park fees, vehicle permits, camping fees, utility fees, and special event fees are revenue for the State Park that they have to generate.

- What are the busiest times of the year for the State park?
- Is it overused? How can it be planned for better use?

Cheney is in the close vicinity of Wichita and is used by other visitors coming from outside of Kansas as well. During the summer and especially Memorial Day, it can bring in as many people as a small city.

- With the Highway in a close vicinity, is the State Park well-traveled?
- Is it marketed in a sufficient way that brings travelers to the area?

We want to entertain people better through programs and interpretative events, school programs and Boy Scout Groups.

4.3.2 Cheney State Park

Mike Satterlee
Shayn Koppes

- How long have you been working with Cheney State Park/ Kansas State Parks/ Sailing association?
- What are your responsibilities?

Mike Satterlee, (Cheney State Park manager) Worked at the park for 11 years, has been the manager for last 2 years.

Shayn Koppes, (Natural Resource Officer) Natural resource officer for four years and was just given the assistant manager position.

- What makes Cheney State Park unique from other State Parks? What's the "feel of the reservoir?
- Can more designed spaces within the State Park celebrate more of those unique qualities?

Sailing opportunities, beaches and swimming opportunities, are a big draw for visitors. A wide range of campground types and locations are also an attraction. Changes in staffing have improved the dynamic around the state park.
Its the second largest state park in Kansas, accessible boast ramps, large number of camp sites and experiences making some areas more secluded as well as recreational opportunities.

- How do private partnerships contribute to the Reservoir?
- How can more funding be introduced?

Cheney Lake Association helps with anything they can do for the whole lake including the wildlife area. The groups sponsors events such as OK Kids Day, gravel bike race, and movie night. Friends of Cheney Lake is a private membership group that have helped with the cabin program that returns revenue back to Cheney

for improvements. The concessionaires O'Brien's marina and Ninnescah Sailing Association are privately owned businesses that lease the land around them.

- I've been following social media of Cheney Reservoir State Park and have noticed quite a few events and activities at/for the lake. Have these events helped to bring more tourism and business to Cheney State Park or surrounding areas?

We've had some ideas of how we can look at our use of space within the park. Some people have mentioned horse trails a few years back but the land mass is pretty maxed out. There is about 1,900 land acres that is being used but we want to improve area within the park.

- I've been following social media of Cheney Reservoir State Park and have noticed quite a few events and activities at/for the lake. Have these events helped to bring more tourism and business to Cheney State Park or surrounding areas?

We hold small events with the hope to bring people out to the state park. Things like bike races, and an annual first day hike bring people to the park.

- How was the Park initially designed / what were the considerations?
- How has it changed?

Societal changes and user groups have changed, lots of entrances and exits presented problems in the past, therefore 3 entrances in and out have helped to keep the State Park monitored.

Campground loops are also one way in and out to provide monitoring and safety.

Signage plays a big role in informing visitors of park fees, and directions that a low level of workers accomplish. The State Park is pretty maxed out in landmass, but those areas can always be improved 1900 land acres of State Park space. Toll gates at entrances that would enforce park fees are not the vision for Cheney State Park. As a Park Ranger it is our responsibility to check and enforce tags. It also gives the rangers the opportunity to engage with the public in a friendly way. Signage also plays a role in informing visitors on park fees as well as directions

- What has worked for tourism of the park / What has not?
- What areas of the Lake can be redesigned or benefit from the design of space?

The area near the Marina on the East side of the State Park is considered an area of importance for future development. The area near the marina, near the cabins, boat ramp and campground are currently being looked at for design changes.

- With the State park offering an abundance of land can some areas be temporarily closed that are underutilized or unmaintained?

Visitors have had objections with closing areas. Even with gates or road blocks, visitors will find ways to get to areas they want to be in.

- What are some problems with the State Park?
- How can those problems be solved?

Park problems/ hurdles include money, and staffing, although revenue and visitation are increasing. There are 50 - 60 buildings that have to be maintained with, utilities, water electric, and sewer systems; adding more will increase that need and staffing but with growth in numbers the need for amenities goes up with it

- What are the busiest times of the year for the State park?
- Is it overused? How can it be planned for better use?

Busy times for the State Park are April through October, visitation wise. Although people area at the park 12 months out of the year fishing, birdwatching, or other events like the first-year hike which brought 300 people to the State Park on the first week of January.

During some of the summer weekends like Memorial Day can bring as many as 35,000 - 40,000 people at some points with the surrounding metropolitan areas. Making new areas within the State Park is hard to do with most of the land mass being maxed out. But improvements within those areas can always be done.

- With the Highway in a close vicinity, is the State Park well-traveled?
- Is it marketed in a sufficient way that brings travelers to the area?

There are state signs out on the highway, but there can be better marketing for people that don't know that the State Park is out here. We would like to get the word out to local communities to use areas within the State Park more and experience it.

4.3.3 Ninnescah Sailing Association

Scott Orr
Patrick Adams

- How long have you been working with Cheney State Park/ Kansas State Parks/ Sailing association?
    - What are your responsibilities?

Scott Orr (Commodore/Director of the Ninnescah sailing association)

Patrick Adams (Resource Manager, Ninnescah Ground Resident)

The Ninnescah Sailing Association has been at the reservoir 55 years, since the park opening. They are a private business with a long-term lease on the ground that pays the state. Ninnescah is a not for profit association, community based 501c4, in which members pay an initiation fee and annual dues. Additional dues are added if guests use the boat yard or slips. While leasing the land they are capable of making Improvements to the area at their expense. Those improvements over the years include the main building, slips, boat yards, and property management residence. They also helped to pay for the shelter house and two bathrooms in which they partnered on 50% of the expenses. The beaches in the area and its facilities are open to the public except the residence, boat yards, and Sailing Association building.

- What makes Cheney State Park unique from other State Parks? What's the "feel of the reservoir?
    - Can more designed spaces within the State Park celebrate more of those unique qualities?

Cheney is considered to be among the top 10 windiest lakes in the country. The lake is also within close vicinity to Wichita, making it easy for people to travel out to their facilities.

It's an open/ wide lake that is predominantly flat causing great wind opportunities for sailing. The wide-open area of the lake also makes it easier for sailboats to maneuver around the reservoir.

- How do private partnerships contribute to the Reservoir?
    - How can more funding be introduced?

Ninnescah is a premier public private partnership which contributes to the reservoir by bringing in visitors and improvements. Events held by the sailing club include regional regattas that bring people in from all over the state. Junior and adult learn to sail classes that bring people in over the year, The Marina is another business that keeps visitors in the State Park by providing visitors with concessions and lake goods. Other partnerships include the Friends of Cheney Lake, and Cheney Lake Association who have made improvements to the State Park. The cabins are a great revenue source for people coming into the State Park.

- I've been following social media of Cheney Reservoir State Park and have noticed quite a few events and activities at/for the lake. Have these events helped to bring more tourism and business to Cheney State Park or surrounding areas?

The sailing association has had channel 8, KAKE news come out and have sailing interviews to talk about the organization, which has given use more coverage out to the area. In the summer months we have weekly regatta races that bring our members and other visitors that want to watch.

- How was the Park initially designed / what were the

considerations?
- How has it changed?

The lake began with a Corps of Engineer's project to bring clean water into Wichita and flood control because flooding at the lake influences Wichita. The land is owned by the Bureau of reclamation deportment of the interior. The state leases the land from the Bureau and they lease the land from the State. Land around the State Park and especially entrances to the park have been closed due to problems of control. The changing of that land made it easier for the park to control who was coming in and out of the park and the campgrounds.

- What has worked for tourism of the park / What has not?
  - What areas of the Lake can be redesigned or benefit from the design of space?

We dedicate improvement to the sport of sailing, we use our land space for some camping but also big open areas for sailors. They have a space called "Sailboat Cove" that is for sailboats and swimming beaches. The cove near sailboat cove is large open beach that is underused and unmaintained that can benefit from more design. A lot of spaces along the lake can be redesigned on the West side.

- With the State park offering an abundance of land can some areas be temporarily closed that are underutilized or unmaintained?

Some areas suffer from trash and lack of maintenance but closing parts of the lake would not really work or be beneficial for more conservation. The area will benefit from re-designing the roads and beaches for more public use that has trashcans. Signs play a big role in telling people where they can go and what they can and cannot do in those areas.

- What are some problems with the State Park?
  - How can those problems be solved?

The Park does a great job with the little money and funding that they have available. Among the states, Kansas is considered 49th in supporting our state parks in the nation.

- Can you describe the tourist trends or the most frequent tourist types?
  - Groups, couples, individuals? How long do they stay? What services do they require or use?

Ninnescah holds events for all major holidays for members, including cookouts, weddings, and annual fireworks on Labor Day.

- With the Highway in a close vicinity, is the State Park well-traveled?
  - Is it marketed in a sufficient way that brings travelers to the area?

The sailing association has had channel 8, KAKE news come out and have sailing interviews to talk about the organization. There is a Small State Sign showing location for the State Park, but the sailing association has had better luck with articles in magazines, and online search engines.
Ninnescah has also been working with a marketing committee that is helping to bring names to roads within the area, to have an address for people that google the business. Center of three counties presents a constraint when making those things possible. There has been proposed street names that are subject to change. There's a possibility for billboards out on the highway to highlight the State Park and the Ninnescah Sailing Association.

4.3.4 Interview Summary

Kansas State Parks

- Cheney is one of the more heavily traveled parks in Kansas with its close vicinity from Wichita and Hutchinson.
- Improvements in the parks depend on funding and there is small amount of revenue they get to make those changes.

Cheney State Park

- Near the marina on the East side of the lake is being considered for design improvements.
- The park wants to better entertain people through programs, interpretative events, and school activities.

Ninnescah Sailing Association

- Private partnerships and businesses contribute significantly to improve the State Park.
- Marketing in and out of the park can have a bigger influence on the programs that are provided within the State Park and the Sailing Club.



Figure 4.51: Winter view of the reservoir (Nichols, 2019)

4.4 Site Analysis

Figure 4.32: Cheney Reservoir site context (Google Earth, 2019)

4.4.1 Land Cover & Regional Context

The reservoir was built in 1964 by the Bureau of Reclamation, who also owns the reservoir and its shorelines (KDWPT, 2019). Cheney State Park was established shortly after and leases the land on the Southeastern edges of the reservoir. Outside of the state park, the land is owned by the Kansas Department of Wildlife, Parks, and Tourism (KWDPT, 2019). As shown in Figure 4.55, the land has various site regulations ranging from wildlife refuge habitat to public hunting land. The reservoir is also separated by Sedgwick, Reno, and Kingman counties. The separate ownership of those counties however, have very little effect on the reservoir. Most of the effects are seen outside of the state park, such as in the condition of roads and taxing differences in the counties.

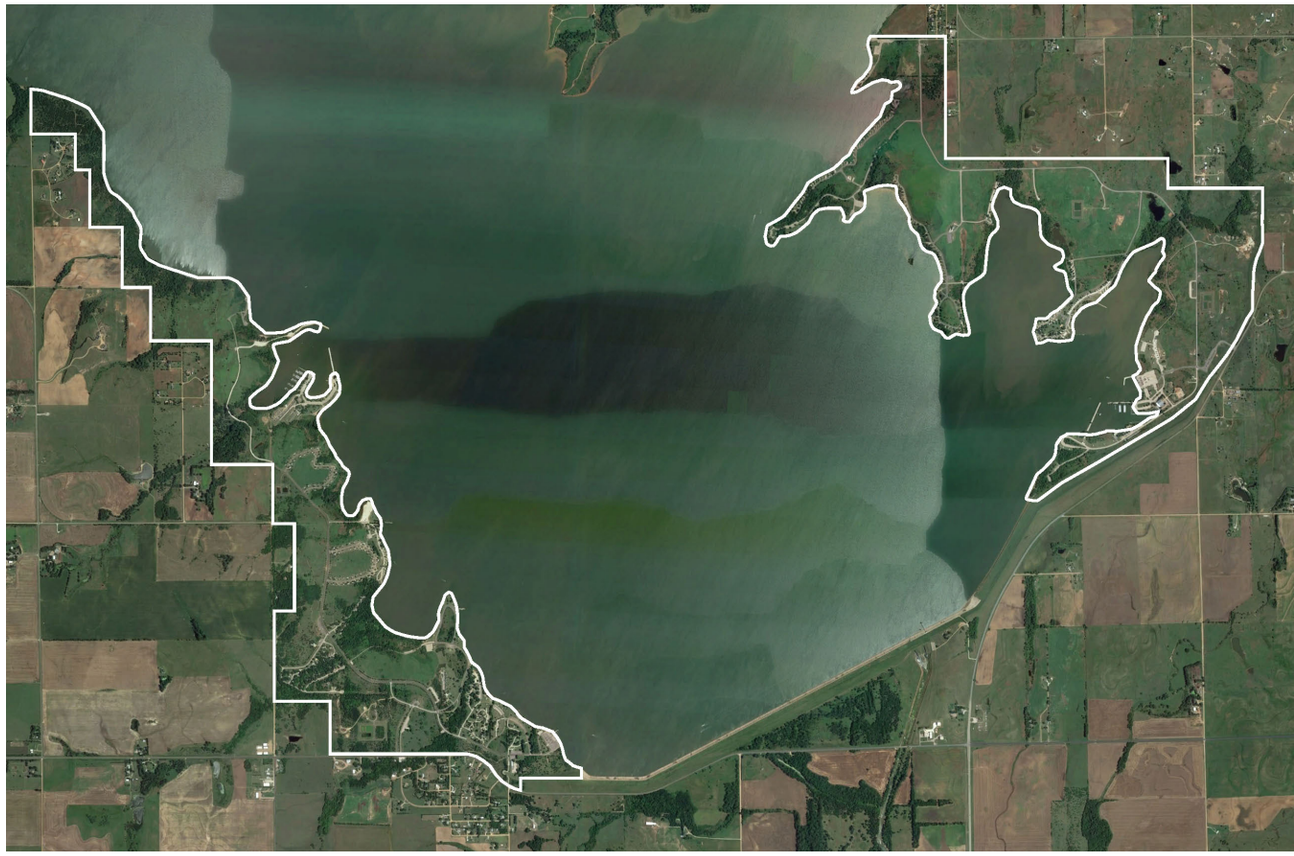


Figure 4.53: State Park Boundary (Nichols, 2019)

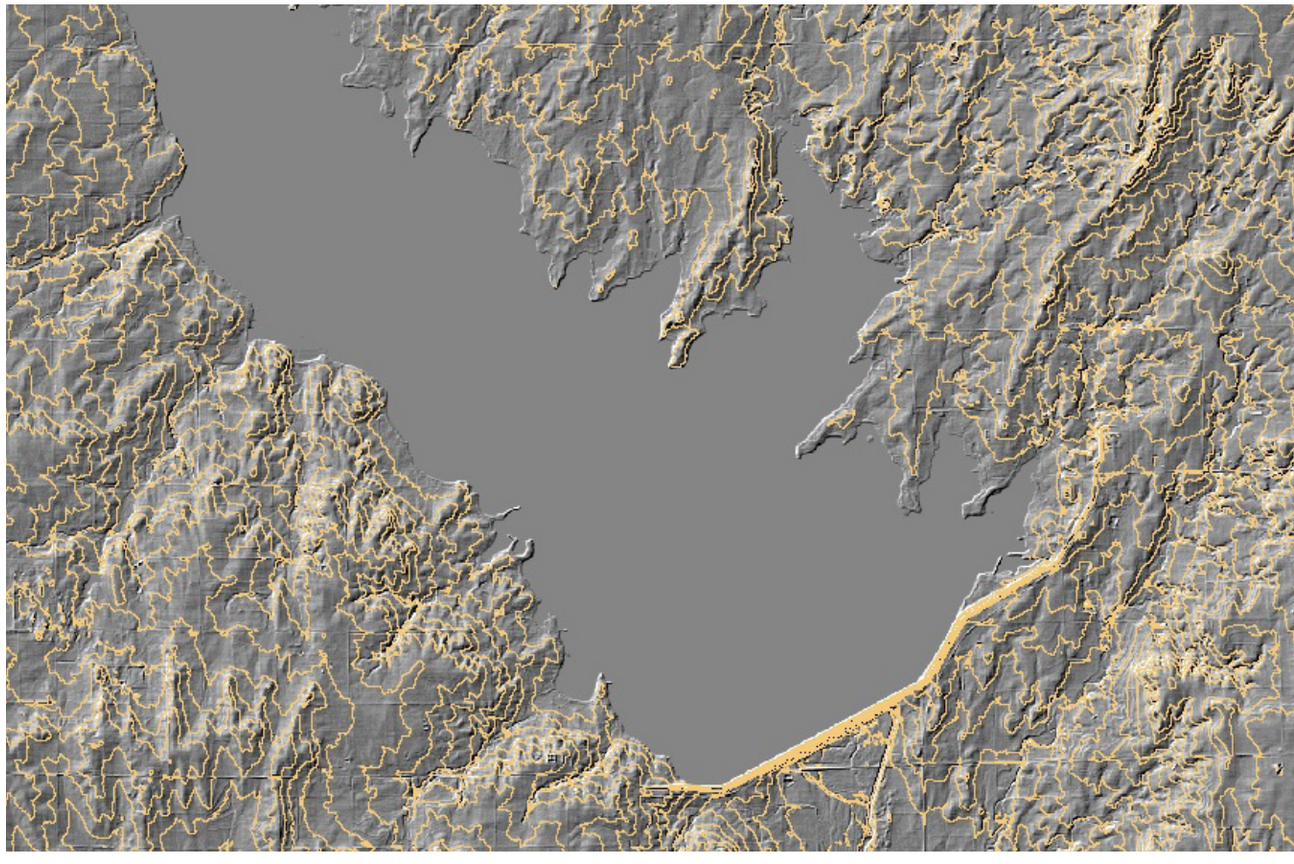


Figure 4.54: One meter contours (Nichols, 2019)

4.4.2 Park Programming & Mobility

The reservoir separates Cheney State Park into two sides, The East side of the state park and the West side. The two side of the state park create a disconnect of mobility, for instance, in order to go from one side of the park to the other the visitor must travel outside of the state park, around the dam and enter into the other side of the park. The marina is located on the East side of the state park and is a major attraction for visitors. The West side does not include a marina or a concessionaire, I believe an introduction to another concessionaire on the West side of the state park can have a successful impact for revenue generation.

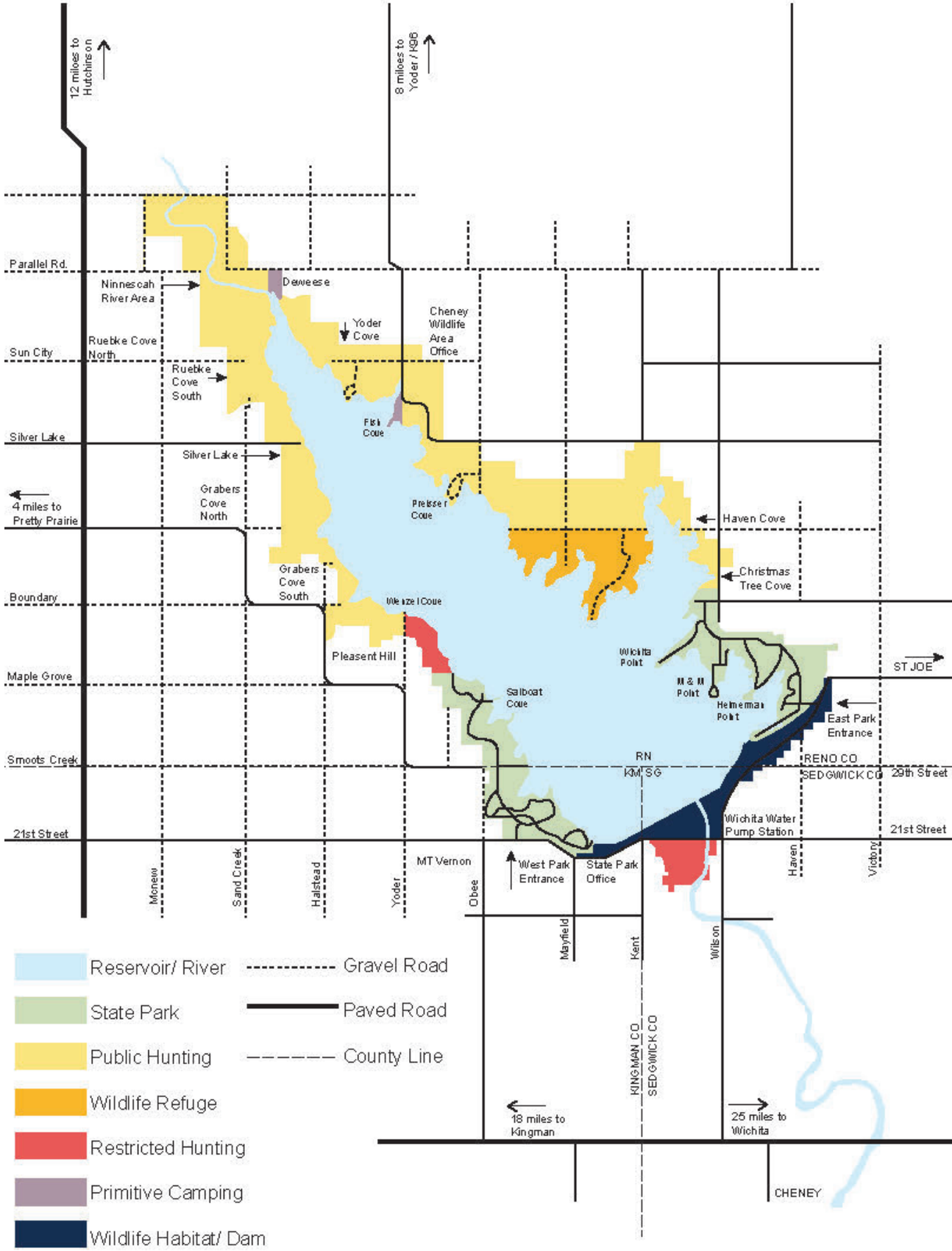
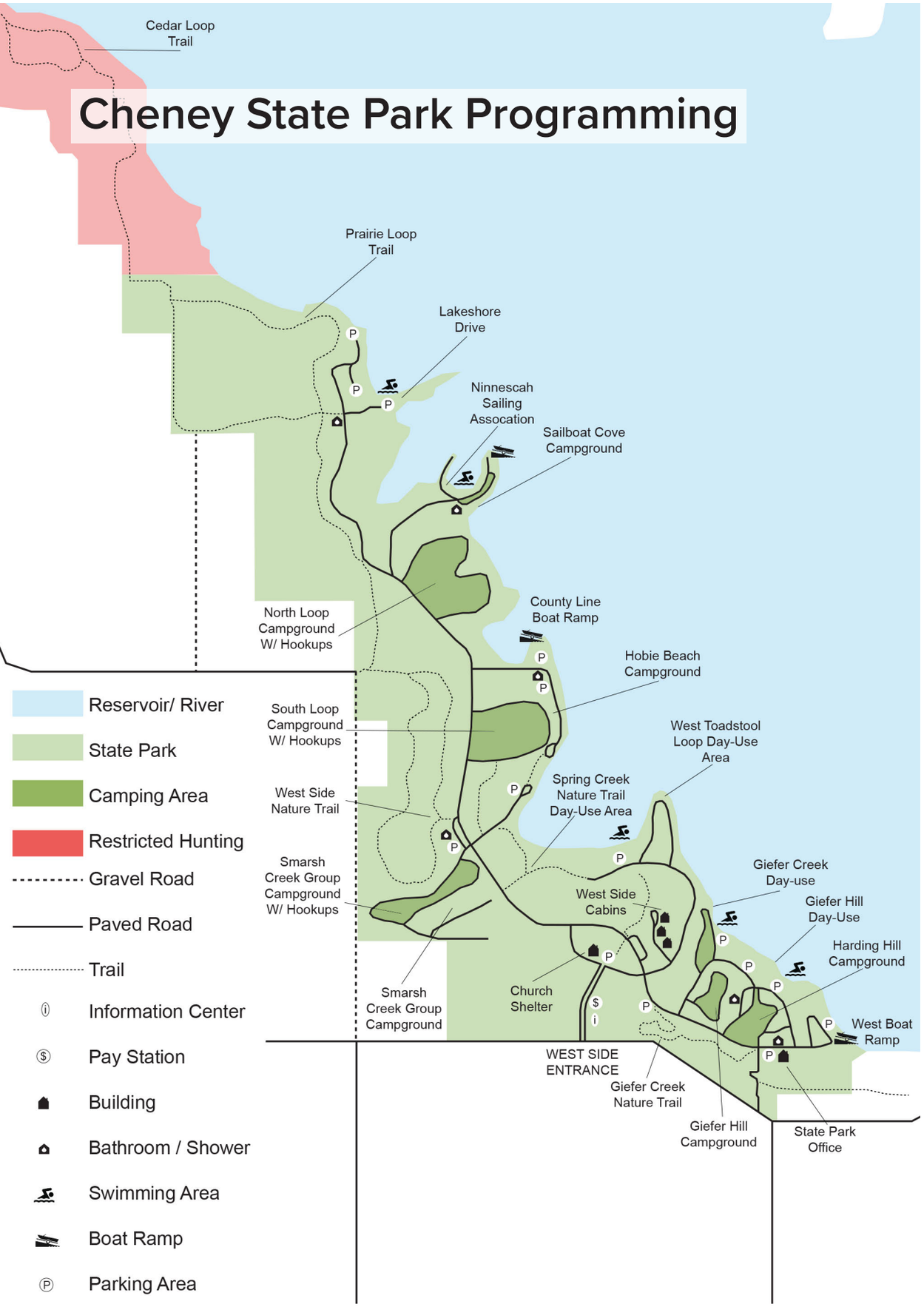


Figure 4.55: State park land-use and mobility (Nichols, 2019)

Cheney State Park Programming



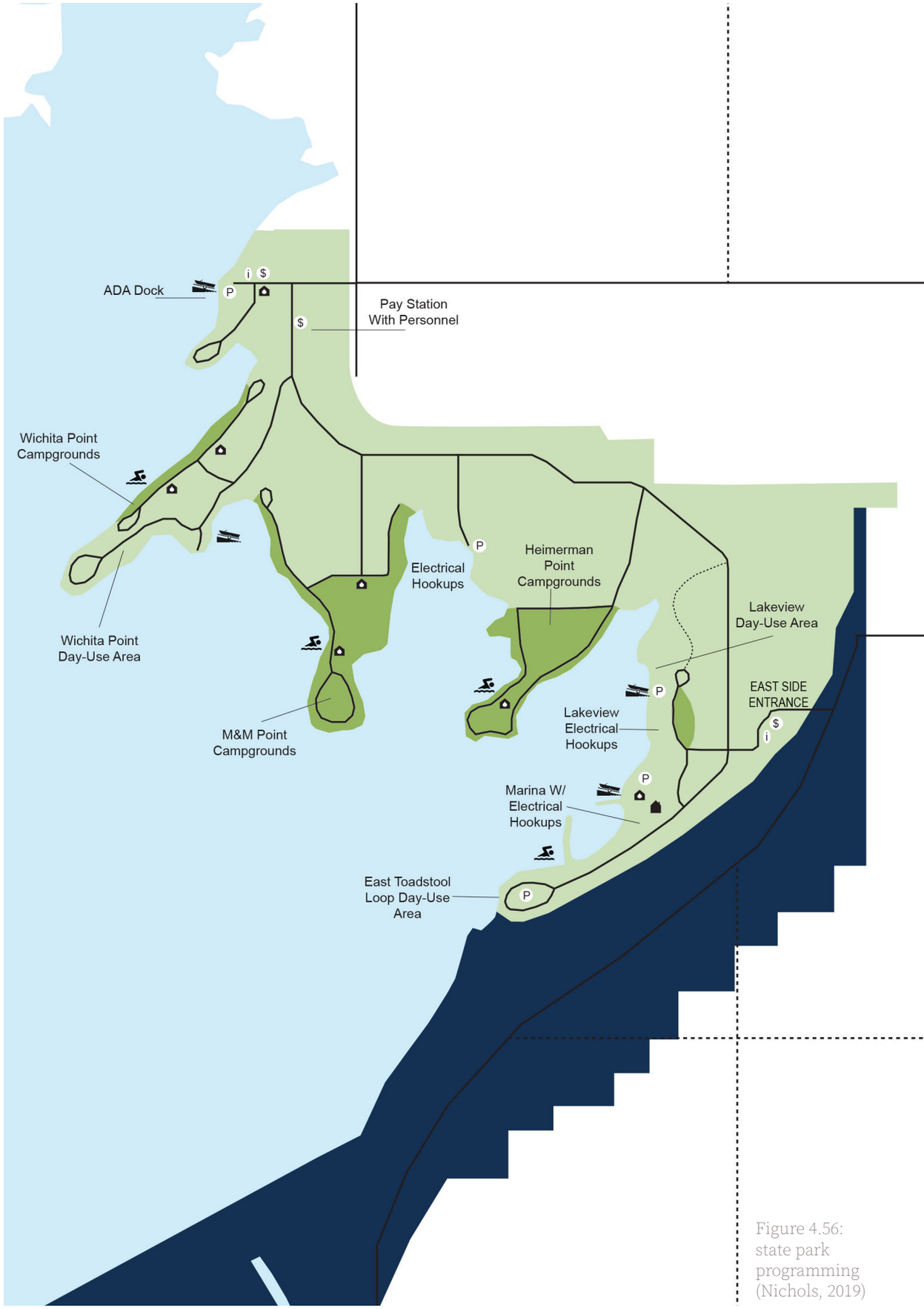


Figure 4.56: state park programming (Nichols, 2019)

4.4.3 Marked Park Trails

Trails in the state park vary from asphalt surfaces to mowed paths. The trails contain some signage and seating at the entrances and exits of the trail. While there are current trails in the park, they do not offer trails along the water's edge. Introducing the design of a walkable path along the reservoir will serve visitors with views of the water while providing erosion control. Examples of current trails and their conditions are shown figures 4.57-4.59.

Spring Creek Trail

Spring Creek Trail, located on the West side of the reservoir is approximately ½ mile in distance. The trail offers some seating and access up to the water's edge. The trail offer a small stretch of asphalt material while other trail material is mowed grass.

Giefer Nature Trial

Giefer Nature Trail is located on the west side of the reservoir and is approximately 1/8 mile in distance. The trail offers a wooded nature walk with seating.

West Side Trail

West Side Trial runs from Giefer trail and up the west side of the reservoir. The trail offers tables, benches and includes prairie loop and cedar loop.



Figure 4.57: Spring Creek Trail sign (Nichols, 2019)



Figure 4.58: Giefer Nature Trail sign (Nichols, 2019)



Figure 4.59: West Side Trail sign (Nichols, 2019)

4.4.4 Hydrology

Water levels for Cheney reservoir have fluctuated throughout the years of 1999 to 2019 with a consistent average between 7 and 6 feet of a measuring level shown in figure 4.61 Normal water level of the lake is 1,421 feet, flooding and drought inhibited level changes in the reservoir. Recent lows and highs of the lake flooding to 1,425 feet in June of 2017 and a substantial low of 1,413 feet in 2013.



Figure 4.60: Flooding (O'Brien's Marina, 2019)

Cheney Reservoir is used for supplemental water supply for municipal and industrial uses in the city of Wichita. The flooding and receding water levels of Cheney result from the need of water resources in Wichita. The flooding and receding water levels of the lake will inform design decisions when examining trail, campground, and shoreline design. The design of site features will allow for rise of fall of the water level to have accessible trials beaches and campgrounds for visitors.

Water Year	00065, Gage height, feet
Period-of-record for statistical calculation restricted by user	
1999	7.615
2000	7.420
2001	7.625
2002	7.321
2003	7.515
2004	7.583
2005	7.644
2006	7.342
2007	7.564
2008	7.523
2009	7.750
2010	7.614
2011	7.144
2012	6.963
2013	7.051
2014	6.279
2015	6.247
2016	6.423
2017	6.485
2018	6.489
2019	7.361

Figure 4.61: Annual Water Levels 1999 - 2019 (USGS, 2019)

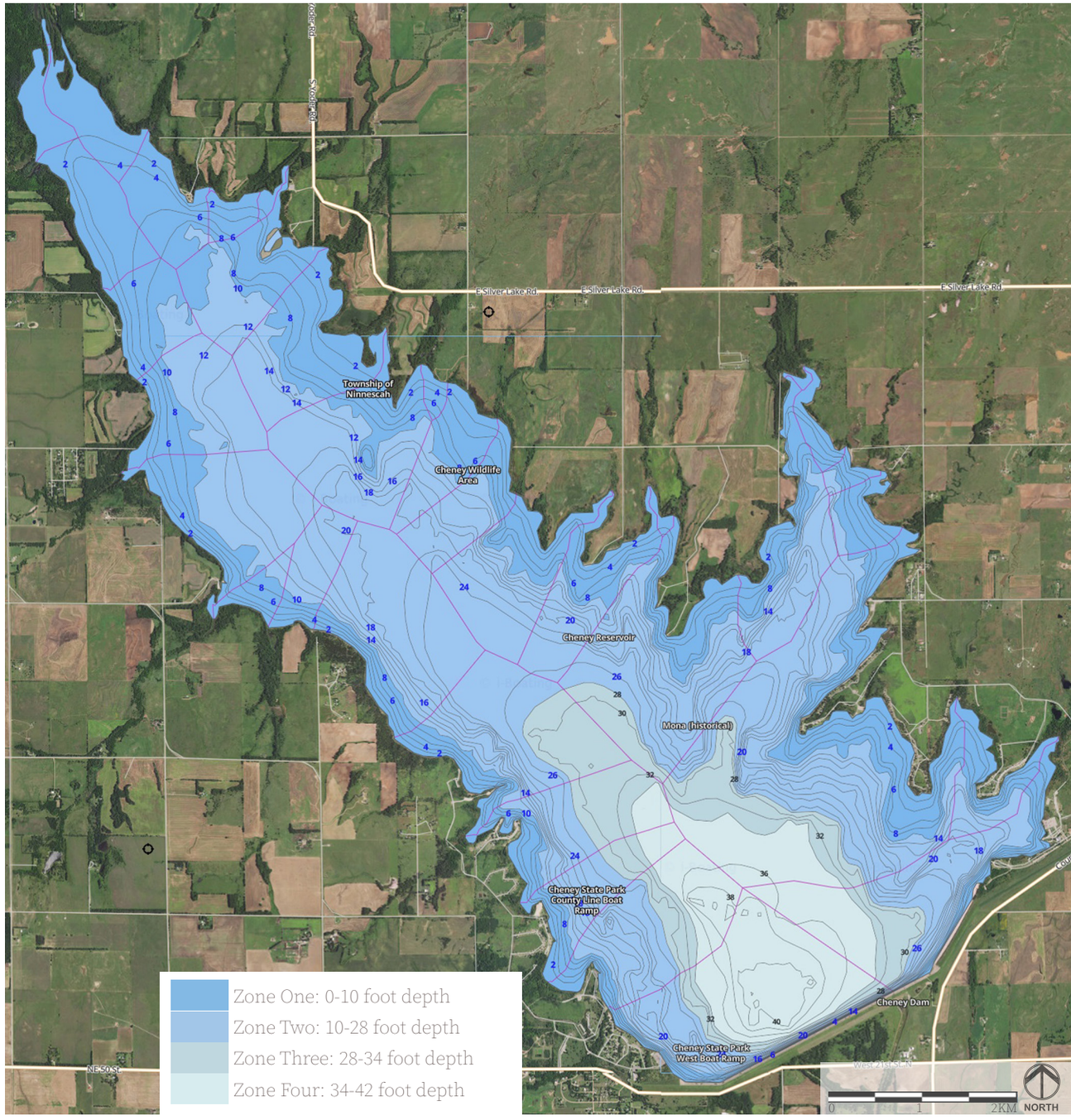


Figure 4.62: Bathymetric Survey of the Reservoir (USGS, 2019)

4.4.5 Ecology

The vegetation types of Kansas are defined by its ecoregions. The area of Cheney Reservoir is placed in South Central Kansas in the ecoregion of tallgrass prairie. Major vegetation types in the tall grass prairie include big bluestem, switchgrass, indiangrass, and little bluestem (KNPS, 2019). The site of Cheney Reservoir offers an abundance of trees, major tree cover types are cottonwood, cedar, and honey locust trees. With The major site concerns of Cheney Reservoir being control of invasive species, I will consider planting design that utilizes native vegetation types of the tallgrass prairie.

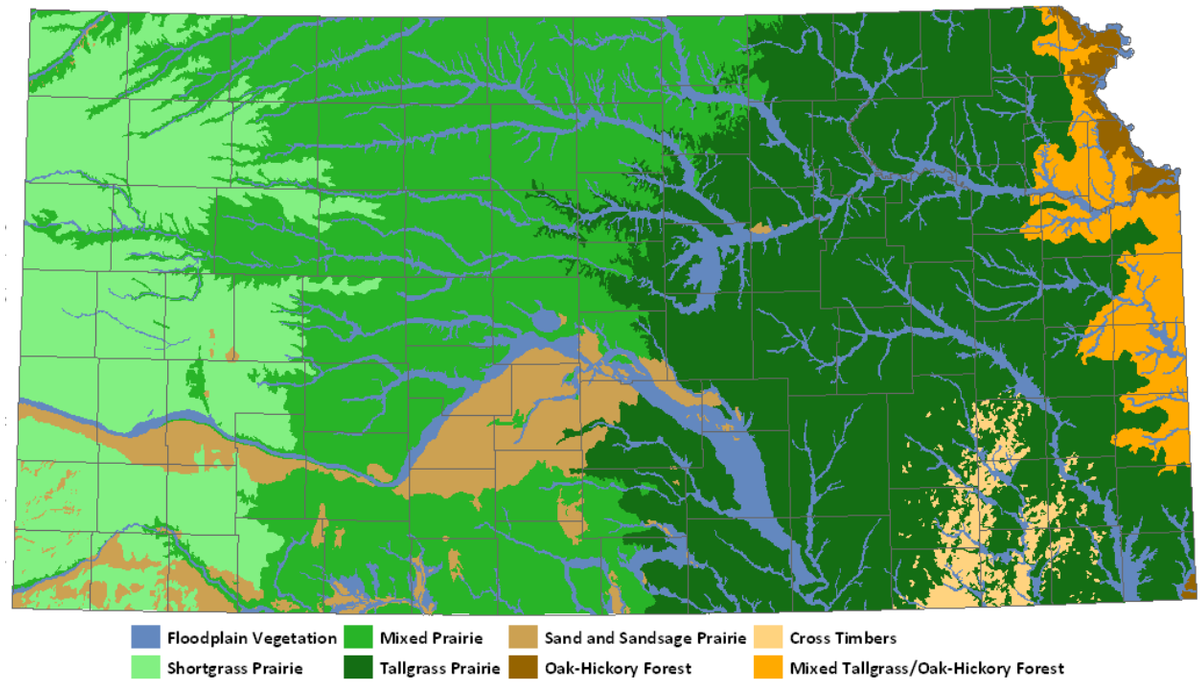


Figure 4.63: Kuchlers Map of The Potential Vegetation of Kansas (KNPS, 2019)



Figure 4.64: Aerial lake View Taken September, 2018 (Nichols, 2018)

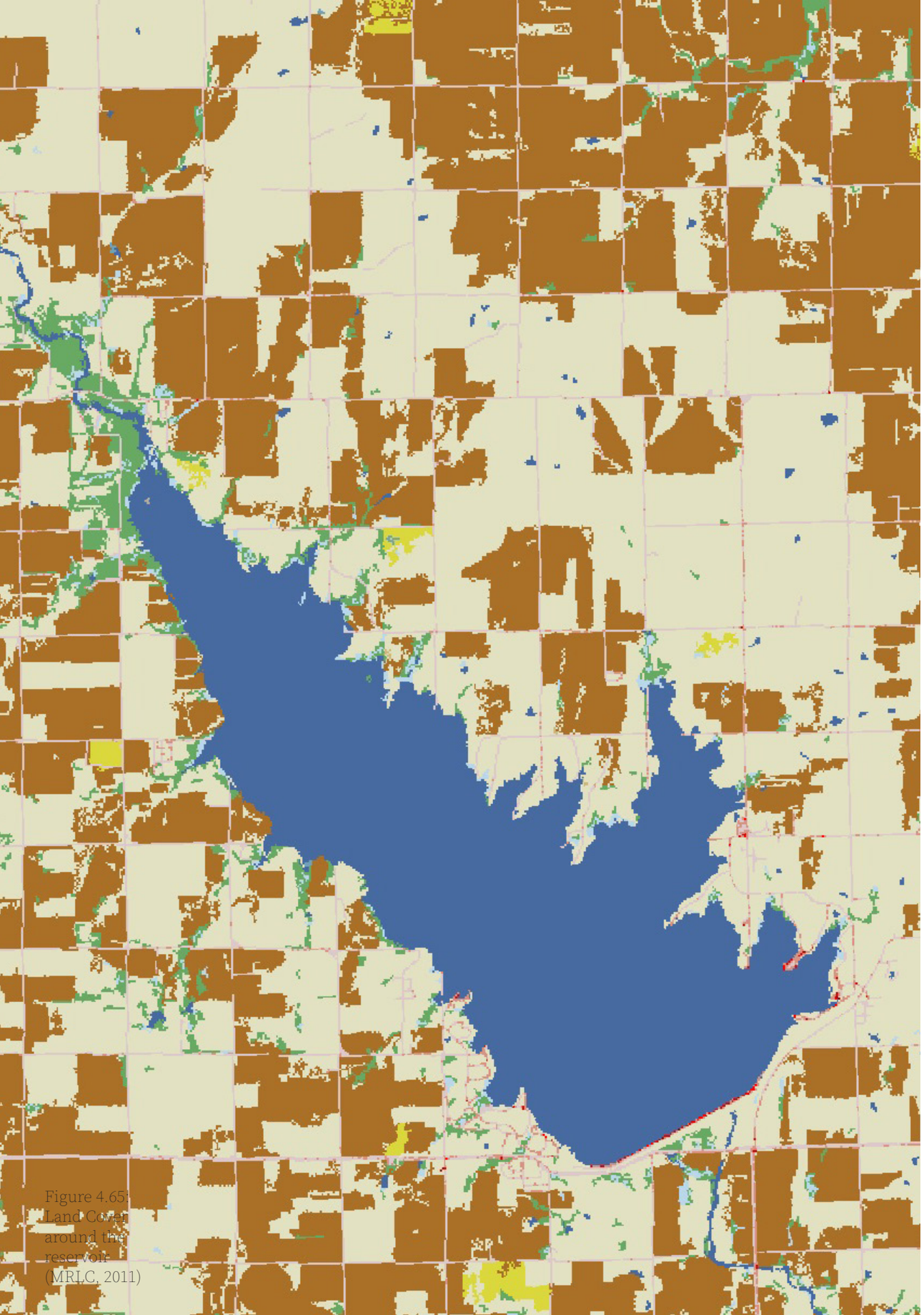


Figure 4.65: Land Cover around the reservoir (MRLC, 2011)

Legend

Value / Classification Description (MRLC,2011)

- Open Water- areas of open water, generally with less than 25% cover of vegetation or soil.
- Developed, Open Space- areas with a mixture of some constructed materials, but mostly vegetation in the form of lawn grasses. Impervious surfaces account for less than 20% of total cover. These areas most commonly include large-lot single-family housing units, parks, golf courses, and vegetation planted in developed settings for recreation, erosion control, or aesthetic purposes.
- Developed, Low Intensity- areas with a mixture of constructed materials and vegetation. Impervious surfaces account for 20% to 49% percent of total cover. These areas most commonly include single-family housing units.
- Developed, Medium Intensity -areas with a mixture of constructed materials and vegetation. Impervious surfaces account for 50% to 79% of the total cover. These areas most commonly include single-family housing units.
- Developed High Intensity-highly developed areas where people reside or work in high numbers. Examples include apartment complexes, row houses and commercial/industrial. Impervious surfaces account for 80% to 100% of the total cover.
- Deciduous Forest- areas dominated by trees generally greater than 5 meters tall, and greater than 20% of total vegetation cover. More than 75% of the tree species shed foliage simultaneously in response to seasonal change.
- Evergreen Forest- areas dominated by trees generally greater than 5 meters tall, and greater than 20% of total vegetation cover. More than 75% of the tree species maintain their leaves all year. Canopy is never without green foliage.
- Mixed Forest- areas dominated by trees generally greater than 5 meters tall, and greater than 20% of total vegetation cover. Neither deciduous nor evergreen species are greater than 75% of total tree cover.
- Shrub/Scrub- areas dominated by shrubs; less than 5 meters tall with shrub canopy typically greater than 20% of total vegetation. This class includes true shrubs, young trees in an early successional stage or trees stunted from environmental conditions.
- Grassland/Herbaceous- areas dominated by gramanoid or herbaceous vegetation, generally greater than 80% of total vegetation. These areas are not subject to intensive management such as tilling, but can be utilized for grazing.
- Sedge/Herbaceous- Alaska only areas dominated by sedges and forbs, generally greater than 80% of total vegetation. This type can occur with significant other grasses or other grass like plants, and includes sedge tundra, and sedge tussock tundra.
- Pasture/Hay-areas of grasses, legumes, or grass-legume mixtures planted for livestock grazing or the production of seed or hay crops, typically on a perennial cycle. Pasture/hay vegetation accounts for greater than 20% of total vegetation.
- Cultivated Crops -areas used for the production of annual crops, such as corn, soybeans, vegetables, tobacco, and cotton, and also perennial woody crops such as orchards and vineyards. Crop vegetation accounts for greater than 20% of total vegetation. This class also includes all land being actively tilled.
- Woody Wetlands- areas where forest or shrubland vegetation accounts for greater than 20% of vegetative cover and the soil or substrate is periodically saturated with or covered with water.
- Emergent Herbaceous Wetlands- Areas where perennial herbaceous vegetation accounts for greater than 80% of vegetative cover and the soil or substrate is periodically saturated with or covered with water.

4.4.6 Wildlife

The state park contains areas of grass campsites that contain a large number of cottonwood trees, where red-headed woodpeckers, orioles, kingbirds, and Mississippi kites can be found. The lake is used for large flocks of waterfowl during migrations and bald eagles can be spotted during the winter. The Wildlife Refuge area on the north side the reservoir has a more diverse habitat for wildlife where wildlife can be seen for frequently. In the wildlife refuge area vegetation such as trees, shrubs, native grasses, and forbs have been planted (KDWPT, 2018).



Figure 4.66: Wildlife (O'Brien's Marina, 2019)

Animals spotted in the wildlife refuge include pheasants, quail, rabbits, squirrels, deer, coyotes, raccoons, and black-tailed jackrabbits (KDWPT, 2018). Sign of beavers has been seen in the streams and watersheds flowing into the reservoir and a Canada goose restoration flock has been established (KDWPT, 2018). The North Fork of the Ninnescah river is great habitat for wood ducks, belted kingfishers, green-backed herons, and woodland birds. Additionally, the shallow areas on the north end of the reservoir attract flocks of white pelicans during spring and fall migrations (KDWPT, 2018). The wildlife refuge located at the north section of the reservoir is a great area to remain conserved and keep wildlife habitat in a close vicinity to the state park wildlife around the state serve as a tourist attraction with activities of bird watching and hunting in the designated zones. The wildlife of the state park also creates an opportunity to introduce programs of wildlife education. Wildlife programs can build upon the success of the wildlife conservancy to integrate learning and environmental education into all aspect of the state park.



Figure 4.67: Wildlife (O'Brien's Marina, 2019)

4.4.7 Recreation

Recreation at Cheney Reservoir can be found in many forms. The large lake offers an abundance of water activities that include boating, sailing, kite boarding, and fishing, to name a few. Land activities can be experienced in the state park through trails, a disc golf course, open fields for baseball and soccer, and playgrounds. Surrounding communities recognize the opportunities at the state park to hold events such as cross county practices and the large open fields to be used for practice. To further engage the surrounding communities, recreational sports fields will be enhanced for practices or organized sporting events.



Figure 4.68: Sailboat Slips (Ninnescah Sailing Association, 2019)

5 Design

Figure 5.0: Calm lake view from the West side (Nichols, 2019)

Design Plan

This design is a comprehensive approach to providing Cheney State Park with design zones and guidelines. The design builds upon the parks unique character to enhance the social natural and economic capital for the state park. The design guidelines are considered a prototype of economic and environmental sustainability, demonstrating the best practices for outdoor recreation, educational programs, and revenue generating possibilities. Limited budgets, costs of improvements, ongoing maintenance, and operational expenses are considered when developing this design and design guidelines. Utilizing state park values that are grounded in quality and durability while also balanced with affordability to produce a design. The design of Cheney State Park will consider minimal design alterations that enhance the area in a substantial way for visitors.

The design integrates five components with existing park elements to create a cohesive, sustainable state park design in Kansas. The elements of design include trails, beaches, signage, campgrounds, and open field recreation. The higher long-term costs vs. lower short-term costs of improvements will be factored into the phasing of design improvements for the economic benefit of quality facilities. Phasing is included in the design to implement one design site at a time, starting with phase one; the next phases will focus on other zones within the state park that are considered for design enhancements.



Figure 5.1: View from the Dam (Nichols, 2019)

5.1 Site Selection

The following sites have been selected through research from interviews, on site observation, and site analysis. Each of these sites pose an opportunity to be a catalyst for visitor impacts through design. While there are more sites that can be considered, with time limitations of the project these three sites are chosen to best serve the state park and its visitors.

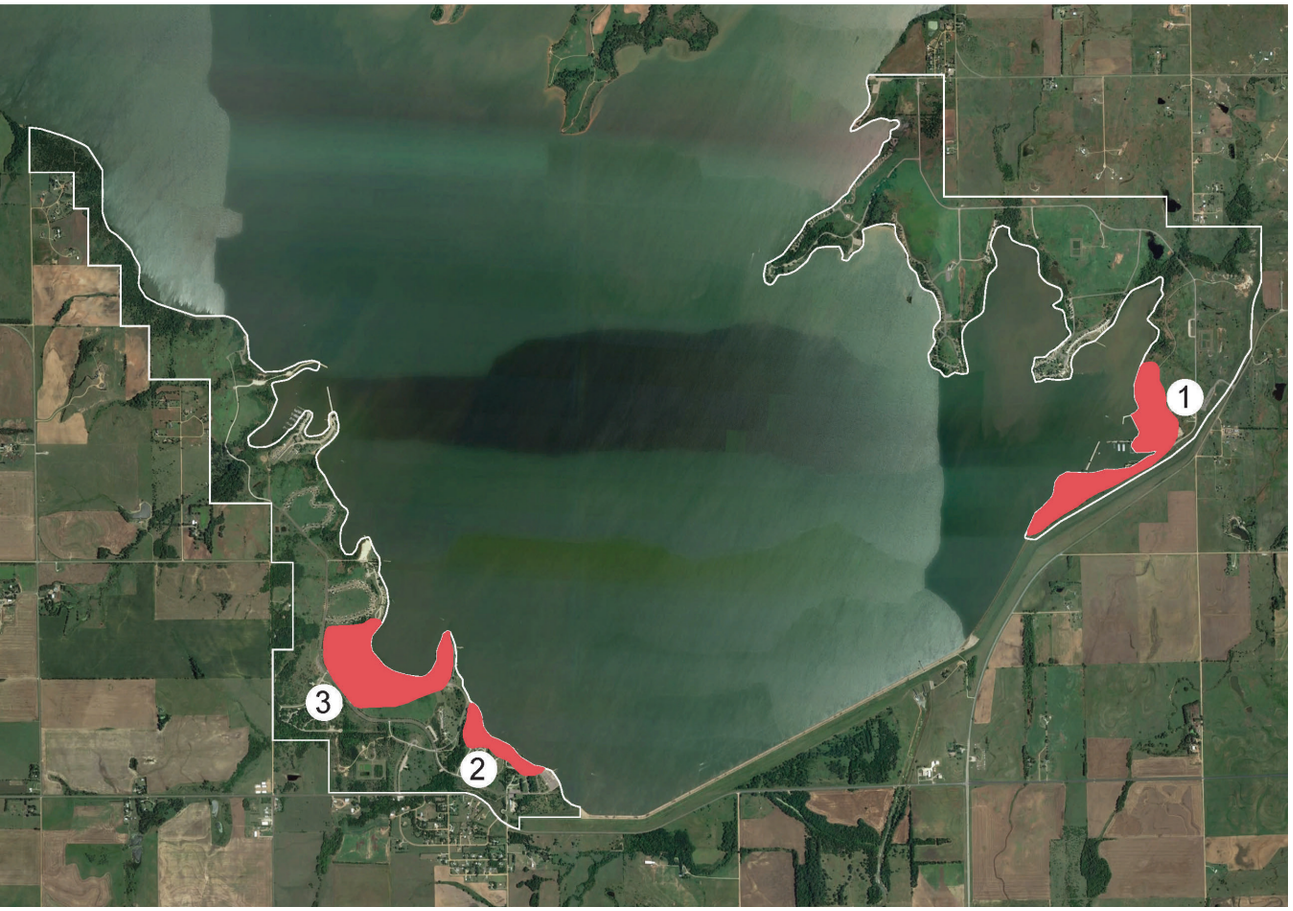


Figure 5.2:
Site location
and phasing
(Nichols, 2019)

Site One Analysis

Site one is located on the East side of the reservoir, near the East side entrance. The site is located near O'Brien's Marina which is a major attraction for visitors, the area also contains campgrounds, beaches, and a trail that will be included in the redesign of the space. Through interviews with Kansas State Parks and Cheney State Park representatives, site 1 was mentioned for its opportunity to have a substantial impact for visitors and increased designed lake space.















Figure 5.9:
Site Analysis
(Nichols, 2019)

Site One Design Strategies

Major design moves for site one includes shoreline treatment, trail connections, a swimming beach, signage, and recreational field enhancements. Site one has been selected for its close proximity to the marina and newly constructed cabins on the East side of the state park. The design of a primary trail is implemented to provide erosion control close to the shoreline with vegetation that is used to establish the shoreline and prevent erosion. Design enhancements to trails also include a trail system that connects to important site locations and material selection that fits the design guidelines for trails. The placement of recreational enhancements are highlighted on land to show what areas can both benefit and sustain the implementation of recreational fields and playgrounds. Site one has been selected for its location on the East side of the reservoir. An area that has an abundance of parking and can attract visitors from design improvements.



Figure 5.10:
Design Strategy
(Nichols, 2019)

Site Plan



Figure 5.11:
Site Plan One
(Nichols, 2019)

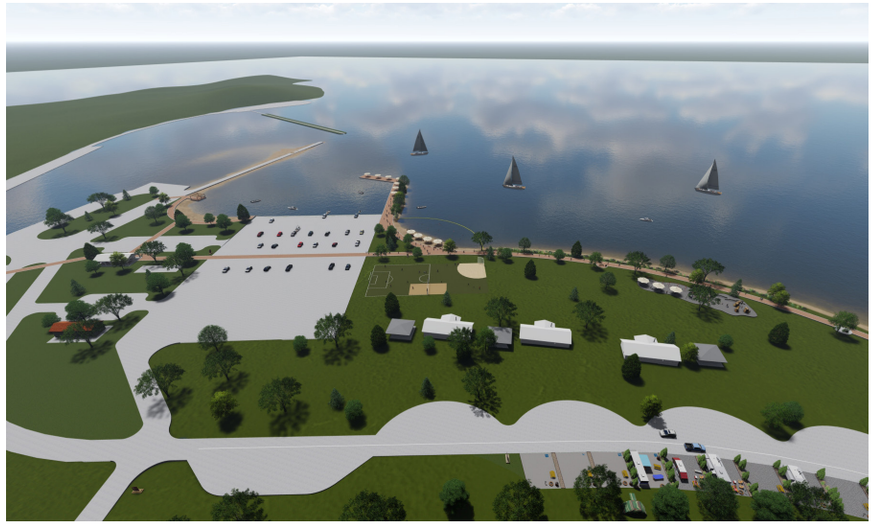


Figure 5.12: Aerial view of site one



Figure 5.13: Campground amenities and RV-back in example



Figure 5.14: Multi-use recreation field



Figure 5.15: Swimming beach with shade and seating for site one



Figure 5.16: Recreational playground with nature play elements



Figure 5.17: Informative/ Rule signage along the trail

5.2 Site Two Analysis

Site two is located on the West side of the reservoir and is a close to a popular beach area for visitors. The area includes three campgrounds, multiple beaches, and an empty building that is being considered for revenue generating opportunities. While the area is popular for its beaches, the site lacks trial access and connectivity to other areas for visitors, outside of vehicle access.













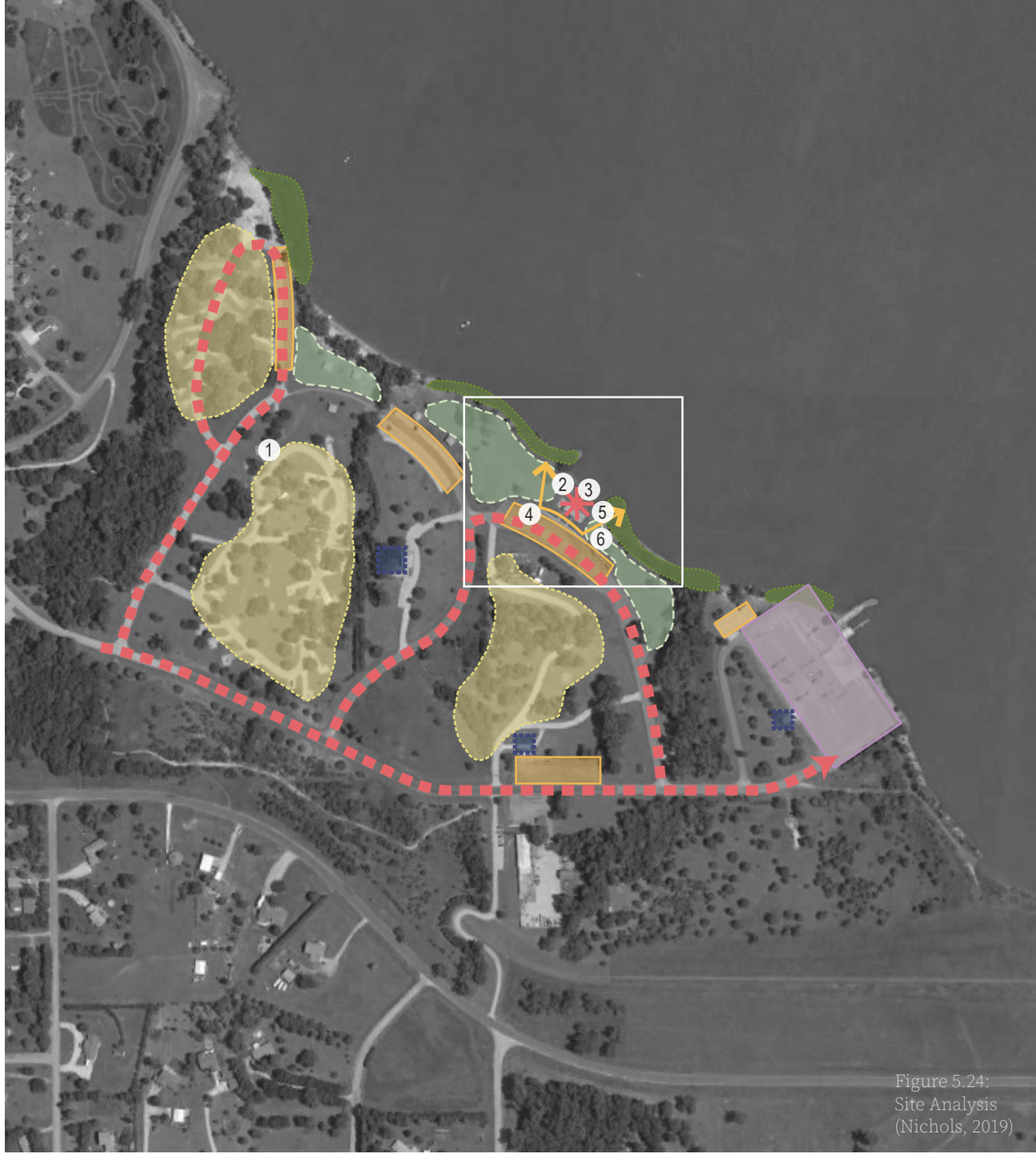


Figure 5.24:
Site Analysis
(Nichols, 2019)

Site Two Design Strategies

Major design moves for site two include shoreline treatment, trail connections, a swimming beach, signage, and recreational enhancements. Site two has been selected for its infrastructure of an empty building that I'm proposing to be used as a private business concessionaire. A proposition for that concessionaire are to rent bicycles and pedal boats. By renting out these products, sustainable activities can be introduced for visitors while also providing a source of income within the state park. Erosion control is accomplished from the design of a primary trail and a sea wall that includes vegetation. The sea wall is tiered to create walking paths and seating that fit within the rise and fall of lake water levels. Design enhancements to trails also include a trail system that connects to important site locations and material selection that fits the design guidelines for trails. The placement of recreational enhancements are highlighted on land to show what areas can both benefit and sustain the implementation of a recreational playground. Site two has been selected for its location on the West side of the reservoir. An area that has an abundance of parking and can attract visitors from design improvements.



Figure 5.25:
Design Strategy
(Nichols, 2019)

Site Plan



Figure 5.26:
Site Plan Two
(Nichols, 2019)

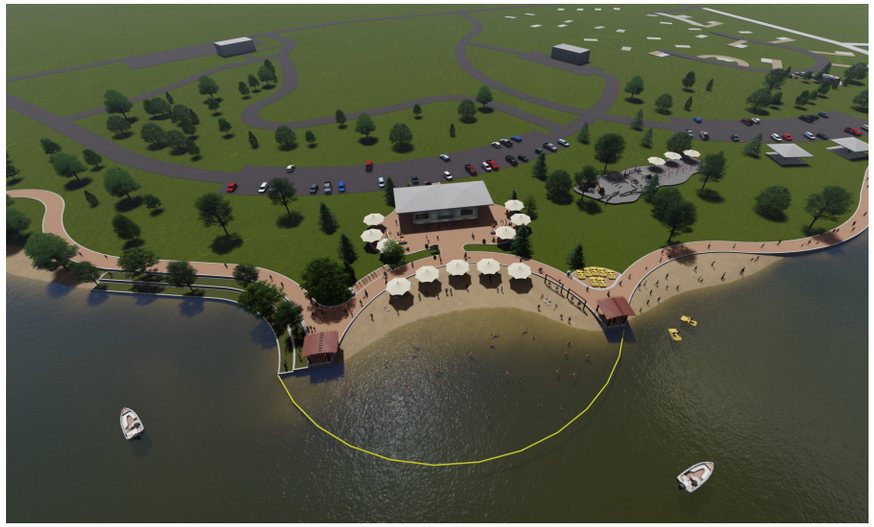


Figure 5.27:
Aerial view of site two



Figure 5.28:
Beach with shade and play elements



Figure 5.29:
Beach with swings and pedal boat rental

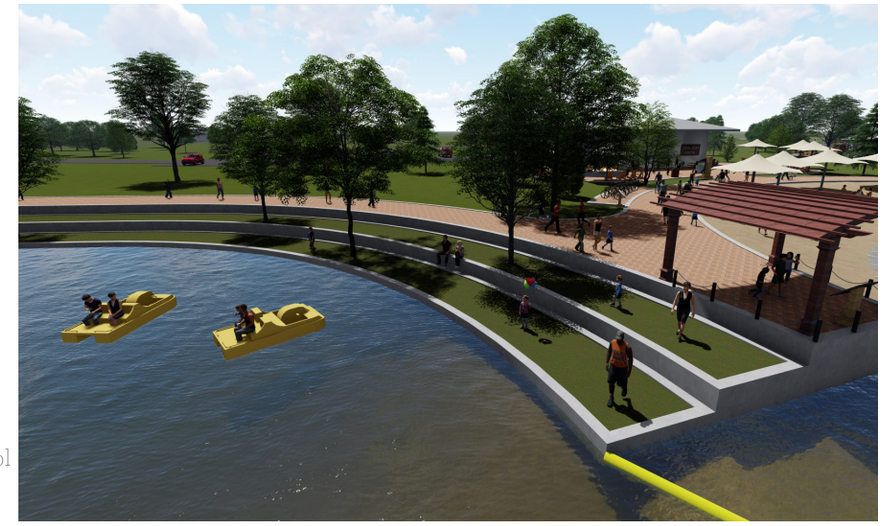


Figure 5.30:
Sea walls for erosion control and gathering space



Figure 5.31
Concessionaire rental shop



Figure 5.32:
Trail with viewing platform and signage

5.3 Site Three Analysis

Site three is located on the West side of the reservoir and is in an area of heavy vegetation overgrowth. The site contains an abundance of parking opportunities and an existing trail that can be used as a connection for newly designed trails. The site includes a beach within a large cove that acts as a wind block and can be enhanced for more beach access and visitor access.















Figure 5.39: Site Analysis (Nichols, 2019)

Site Three Design Strategies

Major design moves for site three include shoreline treatment, trail connections, signage, and recreational enhancements. Erosion control is accomplished from the design of a sea wall that includes locally sourced crushed rock. The sea wall is tiered to create walking paths and seating that fit within the rise and fall of lake water levels. Design enhancements to trails include a trail system that also connects to existing trails and material selection that fits the design guidelines for trails. The placement of recreational enhancements are highlighted on land to show what areas can both benefit and sustain the implementation of recreational fields and playgrounds. Site three has been selected for its location on the West side of the reservoir. An area that has an abundance of parking and can attract visitors from design improvements.



Figure 5.40:
Design Strategy
(Nichols, 2019)

Site Plan



Figure 5.41:
Site Plan Three
(Nichols, 2019)

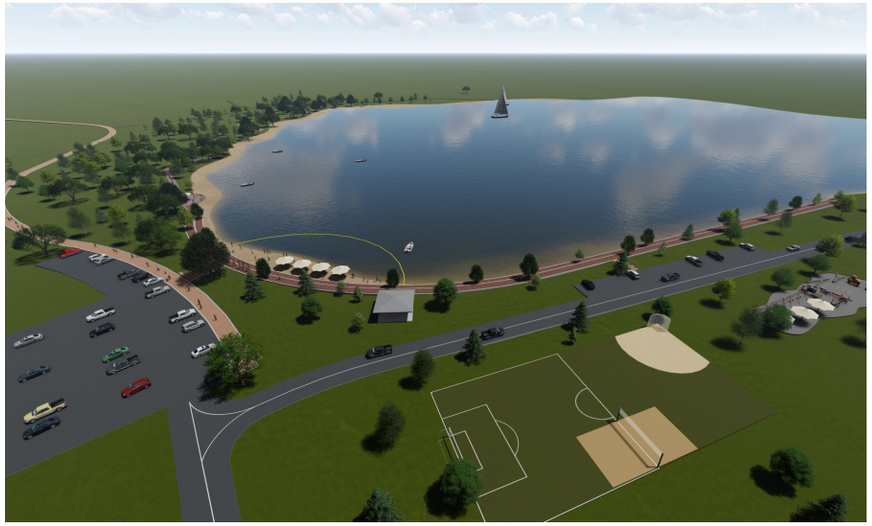


Figure 5.42:
Aerial view of site three



Figure 5.43:
Swimming beach with trail access and swings

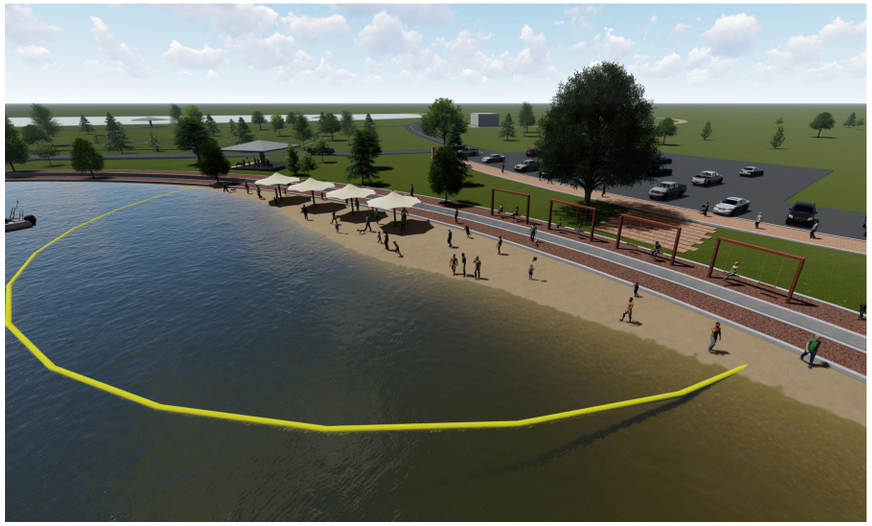


Figure 5.44:
Swimming beach with trail access and swings



Figure 5.45:
Gathering space for trail entrance with signage, shade, and seating



Figure 5.46:
Pause moment along secondary trail with shade and signage



Figure 5.47:
Convergence of secondary and tertiary trails with seating and signage

5.4 Design Guidelines

Figure 5.48:
Lake view from
the East side
(Nichols, 2019)

5.4.1 Trails

Park mobility opportunities will be enhanced through a system of trials that provide an integrated multi-modal circulation system. Trails invite exploration and provide convenient and safe access for all. This trail system will provide beach access along a trail system while expanding the trail network and giving a greater diversity of trials for visitors. Pause moments like in figure 5.49 are included in the design of trails to provide rest spots with seating, signage, and trash receptacle for users.

1 Primary Multi-Use Trails

- 15-foot-wide multi-modal concrete paver material
- Pause moments providing seating and informative signage
- Stormwater runoff achieved through concrete pavers and collected through native plants
- Trail connections throughout the park
- Minimal lighting interference
- ADA Compliance:
  - o Provide universal accessibility
  - o Visibility and warning at crossings
  - o Trail profile grades less than 3%
  - o Trail cross grades less than 2%

2 Secondary Multi-Use Trails

- 10-foot-wide crushed rock with metal border
- Naturally sourced material for crushed rock
- Pause moments providing seating and informative signage
- ADA Compliance:
  - o Visibility and warning at crossings
  - o Trail profile grades less than 3%
  - o Trail cross grades less than 2%

3 Tertiary Multi-Use Trails

- 10-foot-wide soil/ Mowed path
- Use for hiking/ Mountain biking
- Pause moments providing seating and mile markers



Figure 5.49: Primary Trial with pause moment



Figure 5.50: Secondary Trial with signage located the West side

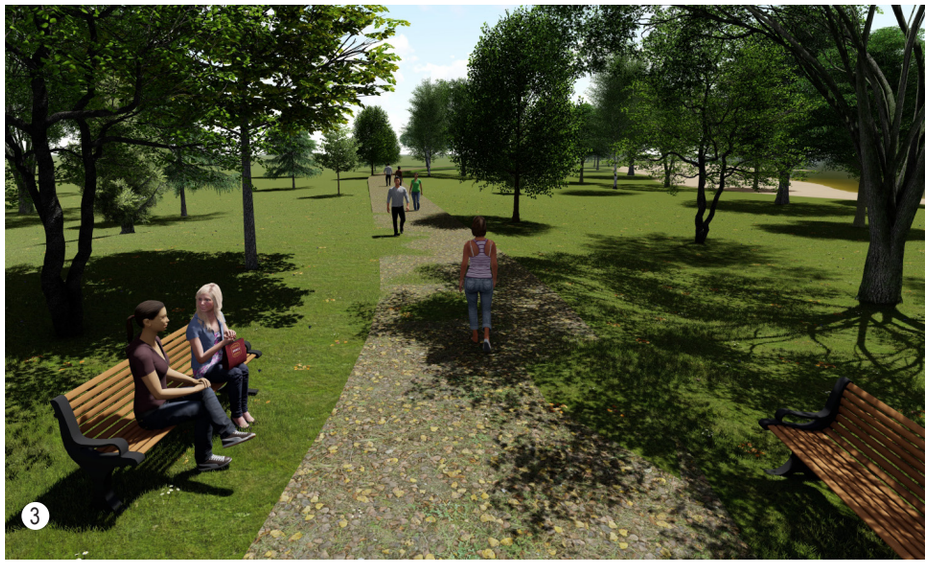


Figure 5.51: Tertiary Trial with seating located the West side

5.4.2 Beaches & Shorelines

The design of swimming beaches enhance safety and health, reduce the risk of drowning and other injuries, and provide the public with desirable beach space. The design of beaches considered the anticipated number of visitors, and the size of the area.

1 • Swimming beach design includes boundaries marking the swimming area, removal of obstructions and sudden drop-offs in the water, and near-by restrooms and changing facilities.

Areas outside of swimming beaches will rehabilitate shorelines and streambank areas impacted by erosion to improve water quality and habitat. Shoreline and streambank rehabilitation is completed through planting native vegetation or introducing bank stabilization like concrete walls and rip rap.

Methods for streambank habitat rehabilitation include:

2 • Sea Walls with tiered levels for seating as well as to accommodate the rise and fall of the water levels.

• Rip rap, the use of rock to control erosion is suggested if the area is maintained to mitigate to growth of vegetation within the rocks and does not decrease the amount of desirable beach space.

• Additional methods of shoreline stabilization for natural areas include brush layering with native vegetation, live staking of trenched vegetation, and coir logs for erosion control until the shoreline is established and stable.



Figure 5.52: West side swimming beach with sea walls and proposed rent shop concessionaire



Figure 5.53: East side swimming beach with seating and shade umbrellas



Figure 5.54: West side swimming beach with sea walls, shade umbrellas, and swings

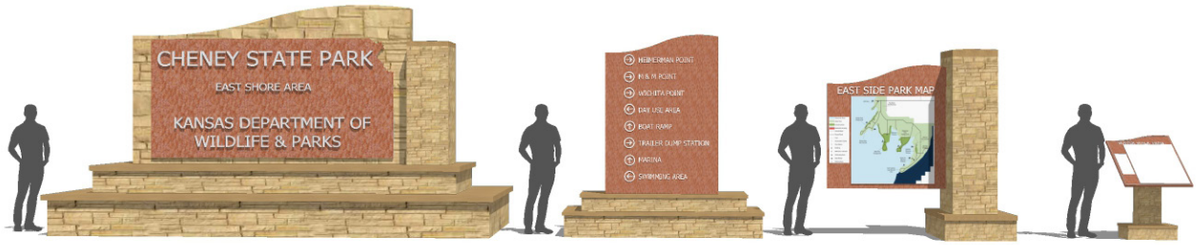


Figure 5.55: Park Signage Family

5.4.3 Park Signage

Gateways and identity for the state park is explored through park signage. Giving visitors clear direction and learning opportunities through signage that are developed in conjunction with the current signage for the park. Current park signage will be used in the design with an introduction of more locations with signage that assist visitors with wayfinding and information. The material of rock and corrugated metal is used in the design of park signage for sustainable, long-lasting, and aesthetic qualities.

1 Entrance Sign

The purpose of the entrance sign is to identify the entrances of the park.

2 Directional Sign

The purpose of the directional sign is to provide vehicle direction, and orientation within the park.

3 Informative / Rule Sign

The purpose of the Information and rule sign is to provide information and interpretation for park users.

4 Trail and Trail Orientation Sign

The purpose of the trail sign is to identify an individual trail and provide information in the park. The trail signs are placed throughout the trial for orientation and interpretation.



1 Figure 5.56: Entrance Sign



2 Figure 5.57: Directional Sign



3 Figure 5.58: Informative / Rule Sign



Figure 5.59: Informative / Rule Sign Backside



4 Figure 5.60: Trail and Trail Orientation Sign

5.4.4 Campgrounds

Campgrounds have already been established within the state park. Campground dimensions, amenities, and hookups have been examined as a starting point for the design of proposed campsites with minor alterations. Major changes in campground design involves material selection, vegetative planting, and overall aesthetics for visitor satisfaction.

Camping Pad Sizes

o RV back-in (allowing for one RV vehicle and one additional non-RV vehicle)

1 - 36-foot width & Length for parking and amenity space

2 - 70-foot length and 16-foot width for parking, with 16-foot length and width for amenity space.

o Vehicle/ small RV back-in

3 - 20-foot width for small RV/Car parking & 16-foot width for campground amenity space. 30-foot length for vehicle parking and amenity space

Campsite Amenities

- Picnic table
- Trash Receptacle
- Fire Pit
- Open park space for tent camping
- Metal strip border with rock and plants for buffer
- Retained and enhanced vegetation screening

Camp Utility Services

- Full hookup services (Electric, water)
- Basic services (Electric)
- No services (primitive tent camping)



Figure 5.61: RV back-in campground, ADA accessible

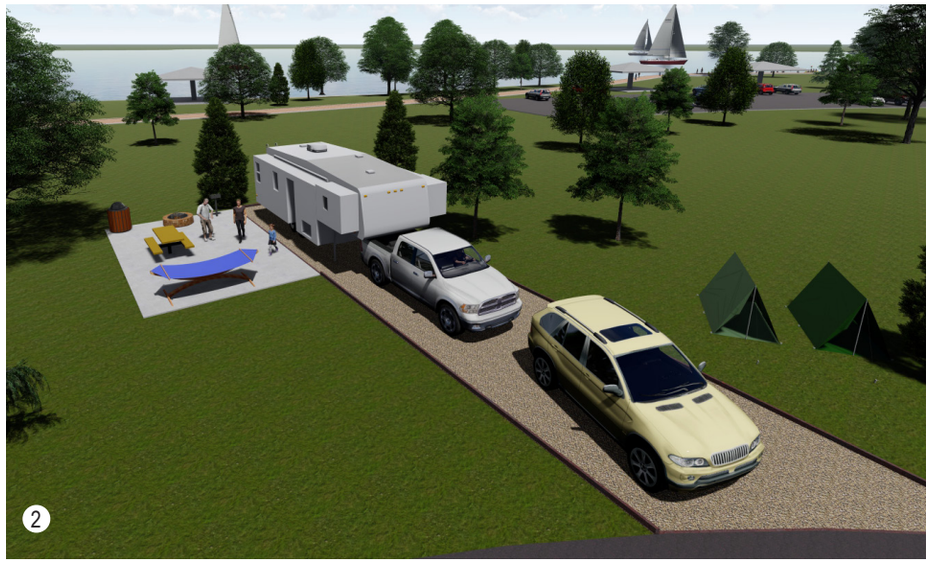


Figure 5.62: RV back-in campground, 70-foot length



Figure 5.63: Vehicle/ small RV back-in, parking and amenity space

5.4.5 Recreation

Recreational opportunities for this project will be for land activities of open sports fields and playgrounds.

1 · Manicured open fields are provided for recreation with multiple sport opportunities such as baseball, soccer, and volleyball. Open fields can be chalked for multiples sports with figure 5.64 showing soccer, baseball, and volleyball availability. Transitional spaces are to be used for un-structured play or practice fields for the surrounding communities. Fields can vary in size to allow flexibility in the function of sport. Recreation fields will not include irrigation in the projective design therefore field condition will vary seasonally, initial planting of turf grass should be maintained by mowing. Grading of the fields should be at a 3% or less slope allowing for stormwater drainage and adequate watering during a rain event. Another recreation component will be playgrounds within the state park. Playgrounds will incorporate nature play elements like climbing rocks and logs that are locally sourced material for the play elements, that also serve a wide age range of visitors.

2 · Playgrounds are considered for recreational play in areas of high visitor traffic and in the vicinity of a campground, swimming beach, and restroom/ bath house. Specific playgrounds and elements are not included in the design guidelines but playgrounds that incorporate nature play elements like climbing rocks and logs are encouraged.

3 · Additional recreation opportunities are included in the proposal of bicycle and pedal boat rentals. Renting out bicycles and pedal boats create alternate revenue generation and provides sustainable recreation opportunities.



Figure 5.64: Multi-Recreational sports field



Figure 5.65: Playground with nature play elements like climbing logs



Figure 5.66: Empty building proposed for rent shop concessionaire

Applying Ecotourism Principals

The purpose of the design guidelines are to provide direction for the design of elements at state parks in Kansas. The guidelines can be used over time with changing state park staff, and design consultants. The design guidelines are established to provide standards for aesthetics, quality, and environmental health and safety. The guidelines include trails, shorelines, signage, campgrounds, and recreation, with suggestions for other elements.

Zoning for Visitor Use at the Lake has been established within the designated state park zone. The state park has applied zoning access in and out of the park for proper use and enforcement of lake policies.

Material Selection/ Plant Palette

- Materials for site elements include materials such as concrete, corrugated metal, and crushed rock; allowing for consistency with other park materials within each development zone
- Color selection of the palette is chosen for its consistency to the character of Cheney State Park. Through on-site observation and site analysis I've discovered that soil material around the site has a heavy mix of red clay. Those red tones have been used for consideration when choosing materials and color.

The purpose of planting design at Cheney State park is to provide suggestions for native plants that will thrive in the area and establish beautiful, lasting plant life. Trees and grasses have been chosen for their applicability to the South Central region of Kansas which considers growing conditions of soil, precipitation, and cultural requirements. The vegetation palette suggests a small amount of native vegetation for the site that can be expanded with future research.

Tree Species

Eastern Redbud (Cercis canadensis)

River Birch (Betula nigra)

London Planetree (Platanus x acerifolia)

White Oak (Quercus alba)

Bur Oak (Quercus macrocarpa)

Red Oak (Quercus rubra)

Baldcypress (Taxodium distichum)

Upright Chinese Juniper (Juniperus chinensis)

Southwestern White Pine (Pinus strobiformis)

Grass Species

Big bluestem: (Andropogon gerardii)

Switchgrass: (Panicum virgatum)

Indiangrass: (Sorghastrum nutans)

Little bluestem: (Schizachyrium scoparium)

Sustainable Infrastructure Design

The design of infrastructure includes trails, signage, campsites, recreation fields, and shorelines. The design of sustainable trials is considered through material selection. The use of concrete pavers have been chosen for its longevity, permeation, and ability to be easily replaced if a piece is inoperable. Trial design considered the topography of the site and elevation of water levels for continued use in instances of high water. Campsites have been designed with consideration of material in high traffic, privacy with plant barriers, and material longevity and aesthetics. Signage design utilizes local material for aesthetics, and longevity on the site. With the implementation of this design, maintenance strategies are equally as important. Maintaining the control of vegetation and operation of the design elements will continue to provide visitors with inviting spaces. One suggested maintenance factor is the control of vegetation on the shorelines.

Stormwater management

- Use alternative green technologies where appropriate including impervious surfaces, and water collection and harvesting
- Integrate stormwater management into design considerations
- Minimize and manage storm water and the source or location of development

Design Implementation Suggestions

- Establish erosion and sediment control from the beginning through completion of construction
- Limit the removal or compacting of soils on site
- Limit the construction zone to minimize the disturbance to surrounding land
- Use on-site materials where appropriate
- Provide planting for reforestation or cleared areas

Revenue Generating Mechanisms

An introduction to more private business and partnerships within the state park like O'Brien's marina, Ninnescah Sailing Association, Friends of Cheney Lake, and Cheney Lake Group will bring more revenue and opportunities for park enhancements.

Site two of the design includes an empty building that I'm proposing to be reestablished as a concessionaire and rental shop for visitors on the West side of the state park. O'Brien's Marina currently operates as a large concessionaire on the East side of the state park, but there is no opportunity to buy goods on the West side. With an introduction to ecotourism revenue generation, examples of bicycle and pedal boat rentals will contribute to a sustainable element of activity around the lake. The newly implemented trails and constructed beaches can sustain the traffic of bicycles as well as the pedal boats on the water.

Community Capital Influence

The projective design contributes to the social, natural, and economic capital of the site. Social capital is enhanced through the design of recreation space, swimming beaches, trails, signage, and campgrounds. These spaces provide visitors with gathering areas and space for community events. The natural capital is enhanced by designing for lake conditions to address erosion control and provide native planting design. Finally, the economic capital has suggestions for revenue generation through a proposed concessionaire.

6 Conclusion

Figure 6.0: Sunset from the East side of the lake (Nichols, 2019)

Conclusion

Project Significance and Results

As landscape architects, it is a goal to provide beautiful and attractive tourism sites where people can enjoy nature. Ecotourism contributes to the local economy and gives surrounding landowners and businesses the opportunity to catalyze the funds produced from preserving nature, instead of exhausting it (Honey, 2008). Managers of protected areas are faced with a challenge of controlling and limiting the impacts of tourism to natural areas. Additionally, deciding where and how to plan for ecotourism as a viable economic development option for the benefit of the local economy. Ecotourism, a subset of the tourism industry is defined as "Responsible travel to natural areas that conserves the environment, sustains the well-being of the local people, and involves interpretation and education" (TIES, 2015). Ecotourism is about experiencing the nature in an environmentally and culturally sustainable way.

Research in ecotourism and the community capitals framework have been applied to a projective design and design guidelines. Key strategies of ecotourism include; zoning for Visitor Use, visitor site planning and design, sustainable infrastructure design, revenue generating mechanisms, visitor monitoring and management, and naturalist guides, those strategies have been considered in the projective design and suggestions of site use. The community capitals framework has been utilized to enhance the social natural and economic capital of the state park through the design of the three sites.

Through the examination of precedents, on-site observation, site analysis, and interviews, guidelines were established for the design of spaces at Cheney State Park. Design elements produced for those guidelines are trails, shorelines, signage, recreation, and campgrounds. Those guidelines can be used as a prototype for similar state parks in Kansas as a greater contribution to the field of landscape architecture.

As there are various ways to interpret ecotourism, my research has focused on the development of infrastructure that reflects the local environment and incorporates local natural resources in a sustainable way. The design guidelines of trails, beaches, campgrounds, and open recreation space at Cheney State Park, with the model of existing conditions, aesthetics, and ecology, an effective form of ecotourism has been produced.

6.1 Future Potential Research

Cheney Reservoir Entrances and Accessibility

The reservoir separates Cheney State Park into two sides, The east side of the state park and the West side. The two side of the state park create a disconnect of mobility, for instance, in order to go from one side of the park to the other the visitor must travel outside of the state park, around the Dam and enter into through the other side of the park. Major roadways leading to the reservoir are K-17 which runs North and South on the West side of the reservoir and highway U.S. 54 which runs East and West about 4 miles South of the reservoir. These major roadways create access to Cheney Reservoir but there is an opportunity to enhance their effect on the traffic and arrival into the state park. Future research for the state park can analyze the accessibility of major roadways to better serve the site of Cheney Reservoir.

Water Quality Improvement

Cheney Reservoir is the primary water source for the city of Wichita Kansas, supplying 350,000 people and is the largest reservoir of that purpose in Kansas. The current water quality and eutrophication of Cheney Reservoir is providing problems for plant life, wildlife, and further applications like drinking water. The reservoir is impaired by siltation and eutrophication, both are a threat to the suitability of the source as a public water supply (KDHE, 2011). Suspended sediment loads are the most common non-point source pollutant in surface waters in the USA (Voli, 2013). The sediment degrades waterways by reducing the light penetration through the water during high flow events, leading to the buildup of nutrients and contamination (Voli, 2013). Examining the watersheds and shorelines with an implementation of management practices can begin to improve the water quality of Cheney Reservoir.

The Clean Water Act introduced by the EPA, manages the standards and regulations for water quality. In the Clean Water Act, the topic of polluted runoff was named the most pressing factor (Haygarth, 2002). Watersheds and shorelines are the most impactful aspect of a waterbodies quality. The transport of runoff from surrounding land (non-point source pollution) contributes to the declining water quality. With the proper implementation of watershed or shoreline management, the runoff can be captured and treated for the quality of the waterbody they attribute to (KDHE, 2011). Watersheds are a primary factor for the pollution that attributes to waterbodies. Streams and rivers that lead into a lake can be modified to cleanse the runoff before it enters the waterbody. Runoff of surrounding land can lead to a decrease in water quality through chemicals as well as sediments. In addition, shorelines of freshwater bodies are some of the most diverse zones in terms of plant and wildlife. They can also be a primary factor effecting the quality of a water body (KDHE, 2011). At the shoreline scale, water quality can be managed through small scale runoff leading into the water. The two basic types of shore zones are natural and built. Natural shore zones take on the soil type and material found there, often sand, clay, rock, or soil and vegetation. Built shore zones are from human intervention and can incorporate various materials such as sand, rip rap, and concrete walls. Each of these watershed treatments have purposes that depend on the context of urban or rural location, but managed, can have a profound impact on the water quality (KDHE, 2011).

Residential Growth

Residential growth is a topic that I'm not focusing on for the research of this project, but it has the possibility of affecting the State Park in the long term. The growth of residential development around the borders of protected areas introduces new challenges for protected-area managers (Buckley, 2003). Residential land divisions are commonly much smaller than farms, and more often fenced, so residential estates provide more of a barrier to wildlife movement than farms or forests. Straying livestock may become less common, but wild cats and dogs may increase, as well as other exotic species kept as pets. A new pallet of weeds may be added to introduced pasture grasses and other farm weeds. Ranchers concerns over livestock losses to native predators may be replaced by residents' needs for greater recreational access. Residential areas not only increase fire sources, but also restrict fire-management options and increase the financial and human risks from wildfires that escape from the borders of protected areas (Buckley, 2003).

Sprawl and residential growth from surrounding towns have trends of growing toward Cheney Reservoir. Population growth primarily from Wichita, and suburbs located on the west side of Wichita, pose the greatest threat to impeding residential sprawl. Colwich Kansas, a small town 11 miles East of Cheney, is opening an ethanol power plant that will bring a greater population to the area (Finger, 2018). With residential building trends and population increases, zoning considerations should be kept to ensure the conservation of land surrounding the State Park.

Appendices

Figure 6.1. Sunset from the West side of the lake (Nichols, 2019)

Appendices A

References

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Appendices C

Image Approval

A majority of the images used in this report are taken by the author or, received approval to use by either the Ninnescah Sailing Association or O'Brien's Marina. Precedent images were obtained through creative commons with usage rights or through sites with usage rights cover by copyright licenses.

Re: Ninnescah website photos

Scott Orr <scottrorr@gmail.com>
Sat 2/2/2019 6:06 PM
To: Avery Nichols <averyn@ksu.edu>

Avery, I don't see any problem with that kind of use. By copy of this message I will ask Curtis Gibson to help you get access to the ones you want.

Curtis, Avery is the landscape architecture student who is working on the plan for the park for ecotourism. Can you please help him to get access to some photos for use in his project? Thanks!

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O'Brien's Marina
1K people like this including Jessica Tanner

FEB 20, 1:35 PM

Good afternoon! I'm currently a 5th year student majoring in Landscape Architecture at Kansas State University. I'm conducting a masters thesis that involves doing a conceptual design at Cheney lake. You display beautiful photos on the Facebook page and I was wondering if I could use a few of them for my masters thesis? If so I will source them as O'Brien's Marinas photos.

FEB 20, 2:35 PM

Yes that is fine, we would love to see the end project

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Appendices D

IRB Approval & Interview Consent Forms

KANSAS STATE UNIVERSITY | University Research Compliance Office

TO: Dr. Amir Gohar
Landscape Architecture/Regional and Community Planning
1102 Seaton Hall

Proposal Number: 9575

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

DATE: 12/19/2018

RE: Proposal Entitled, "Ecotourism Development A Projective Design for the Enhancement of Social, Natural, and Economic Capital for Cheney Reservoir State Park"

The Committee on Research Involving Human Subjects / Institutional Review Board (IRB) for Kansas State University has reviewed the proposal identified above and has determined that it is EXEMPT from further IRB review. This exemption applies only to the proposal - as written – and currently on file with the IRB. Any change potentially affecting human subjects must be approved by the IRB prior to implementation and may disqualify the proposal from exemption.

Based upon information provided to the IRB, this activity is exempt under the criteria set forth in the Federal Policy for the Protection of Human Subjects, **45 CFR §46.101, paragraph b, category: 2, subsection: ii.**

Certain research is exempt from the requirements of HHS/OHRP regulations. A determination that research is exempt does not imply that investigators have no ethical responsibilities to subjects in such research; it means only that the regulatory requirements related to IRB review, informed consent, and assurance of compliance do not apply to the research.

Any unanticipated problems involving risk to subjects or to others must be reported immediately to the Chair of the Committee on Research Involving Human Subjects, the University Research Compliance Office, and if the subjects are KSU students, to the Director of the Student Health Center.

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/research/comply

Interview Questions

- How long have you been working with Cheney State Park/ Kansas State Parks/ Sailing association?
  - What are your responsibilities
- What makes Cheney State Park unique from other State Parks? What's the "feel of the reservoir?
  - Can more designed spaces within the State Park celebrate more of those unique qualities?
- How do private partnerships contribute to the Reservoir?
  - How can more funding be introduced?
- I've been following social media of Cheney Reservoir State Park and have noticed quite a few events and activities at/for the lake. Have these events helped to bring more tourism and business to Cheney State Park or surrounding areas?
- How was the Park initially designed / what were the considerations?
  - How has it changed?
- What has worked for tourism of the park / What has not?
  - What areas of the Lake can be redesigned or benefit from the design of space?
- What additional design programming would you like to see, or that Cheney needs to improve on for accommodations, tours, or activities?
- With the State park offering an abundance of land can some areas be temporarily closed that are underutilized or unmaintained?
- What are some problems with the State Park?
  - Via - tourism, maintenance
    - How can those problems be solved?
- Can you describe the tourist trends or the most frequent tourist types?
  - Groups, couples, individuals? How long do they stay? What services do they require or use?
- What are the busiest times of the year for the State park?
  - Is it overused? How can it be planned for better use?
- With the Highway in a close vicinity, is the State Park well-traveled?
  - Is it marketed in a sufficient way that brings travelers to the area?

Consent to Interview

Principal Investigator: Avery Nichols | averyn@ksu.edu | 620-575-6962

Institution: Kansas State University

Project Title: Ecotourism Lake Design: A Projective Design for the Enhancement of Social, Natural, and Economic Capital at Cheney State Park

Research Question: How can Ecotourism be used as a design tool for the enhancement of social, natural, and economic capital at Cheney State Park?

Project Purpose: This research investigates the interrelationships between the social, natural, and economic capital brought by connecting human activities with the ecological environment at State Parks. Ecotourism development is the responsible travel to natural areas that conserves the environment, sustains the well-being of local people, and involves interpretation and education. Data will be collected from precedent studies, on-site observation, site analysis, and interviews to inform a design for the site of Cheney Reservoir State Park in Kansas.

Research and previous examples of ecotourism development will inform a projective design methodology. Conducting precedent studies will aid in looking at previous examples of ecotourism development and State Park development. Interviews, with State Park officials, and private business owners within the State Park will help me to gain insight to the lake and ways to design the spaces that are needed. Another method to be used is on-site observation. Through observation of the site, I can determine the conditions of the reservoir and initial zones to be designed. Finally, site analysis will be conducted in conjunction with the other methods to determine the state of the infrastructure and ways for improvement. Utilizing these methods, I will have a deeper knowledge of the State Park and the application of the research that will aid in the design of Cheney State Park. Interviews will be conducted in person, scheduled at the convenience of the subjects within the budgeted time frame. If in-person interviews are not possible for the subject, interviews will be conducted via Zoom or Skype. Interviews will be audio recorded.

EXTENT OF CONFIDENTIALITY: Subjects will determine if their names will be included with their answers. I will fully disclose the intent and the purpose of this research to promote open answers and total honesty. The most to be revealed about a subject is the association of which they are associated.

Terms of participation: I understand this project is research, and that my participation is voluntary. I also understand that if I decide to participate in this study, I may withdraw my consent at any time, and stop participating at any time without explanation, penalty, or loss of benefits, or academic standing to which I may otherwise be entitled.

I verify that my signature below indicates that I have read and understand this consent form, and willingly agree to participate in this study under the terms described, and that my signature acknowledges that I have received a signed and dated copy of this consent form.

PARTICIPANT NAME: Mike Satterlee

PARTICIPANT SIGNATURE: Mike Satterlee

Date: 01/03/19

Consent to Interview

Principal Investigator: Avery Nichols | averyn@ksu.edu | 620-575-6962

Institution: Kansas State University

Project Title: Ecotourism Lake Design: A Projective Design for the Enhancement of Social, Natural, and Economic Capital at Cheney State Park

Research Question: How can Ecotourism be used as a design tool for the enhancement of social, natural, and economic capital at Cheney State Park?

Project Purpose: This research investigates the interrelationships between the social, natural, and economic capital brought by connecting human activities with the ecological environment at State Parks. Ecotourism development is the responsible travel to natural areas that conserves the environment, sustains the well-being of local people, and involves interpretation and education. Data will be collected from precedent studies, on-site observation, site analysis, and interviews to inform a design for the site of Cheney Reservoir State Park in Kansas.

Research and previous examples of ecotourism development will inform a projective design methodology. Conducting precedent studies will aid in looking at previous examples of ecotourism development and State Park development. Interviews, with State Park officials, and private business owners within the State Park will help me to gain insight to the lake and ways to design the spaces that are needed. Another method to be used is on-site observation. Through observation of the site, I can determine the conditions of the reservoir and initial zones to be designed. Finally, site analysis will be conducted in conjunction with the other methods to determine the state of the infrastructure and ways for improvement. Utilizing these methods, I will have a deeper knowledge of the State Park and the application of the research that will aid in the design of Cheney State Park. Interviews will be conducted in person, scheduled at the convenience of the subjects within the budgeted time frame. If in-person interviews are not possible for the subject, interviews will be conducted via Zoom or Skype. Interviews will be audio recorded.

EXTENT OF CONFIDENTIALITY: Subjects will determine if their names will be included with their answers. I will fully disclose the intent and the purpose of this research to promote open answers and total honesty. The most to be revealed about a subject is the association of which they are associated.

Terms of participation: I understand this project is research, and that my participation is voluntary. I also understand that if I decide to participate in this study, I may withdraw my consent at any time, and stop participating at any time without explanation, penalty, or loss of benefits, or academic standing to which I may otherwise be entitled.

I verify that my signature below indicates that I have read and understand this consent form, and willingly agree to participate in this study under the terms described, and that my signature acknowledges that I have received a signed and dated copy of this consent form.

PARTICIPANT NAME: Shayn Koppes

PARTICIPANT SIGNATURE: Shayn Koppes

Date: 1-3-19

Consent to Interview

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PARTICIPANT NAME: SCOTT ORR

PARTICIPANT SIGNATURE: Scott C

Date: 12/19

Consent to Interview

Principal Investigator: Avery Nichols | averyn@ksu.edu | 620-575-6962

Institution: Kansas State University

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PARTICIPANT NAME: DPAdams

PARTICIPANT SIGNATURE: DPAdams

Date: 1219

Consent to Interview

Principal Investigator: Avery Nichols | averyn@ksu.edu | 620-575-6962

Institution: Kansas State University

Project Title: Ecotourism Lake Design: A Projective Design for the Enhancement of Social, Natural, and Economic Capital at Cheney State Park

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PARTICIPANT NAME: Linda S. Austin- Lanterman

PARTICIPANT SIGNATURE: Linda S. Austin-Lanterman

Date: 1-3-18

Appendices E

Photo Library June 2017

All photo library
images by author
(Nichols, 2019)














Photo Library

June 2017
















Photo Library

March 2018















Photo Library

March 2018














Photo Library

March 2018



















Photo Library

June 2018














Photo Library

September 2018














Photo Library

September 2018














Photo Library

September 2018












Photo Library

October 2018

























Photo Library

October 2018





















Photo Library

October 2018













Photo Library

October 2018
















Photo Library

October 2018

























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October 2018

























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October 2018

























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October 2018

























Photo Library

October 2018















Photo Library

October 2018













Photo Library

November 2018








December 2018








Photo Library

December 2018













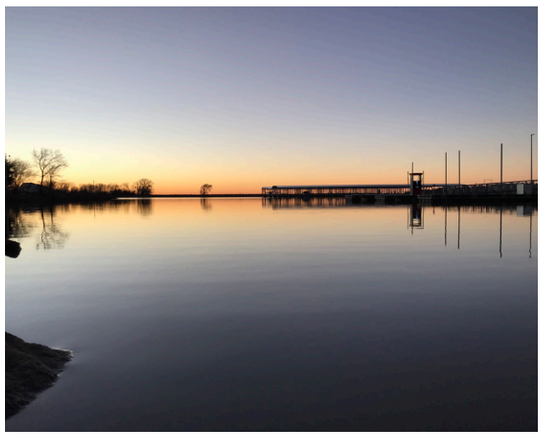












Photo Library

December 2018














Photo Library

December 2018













February 2019





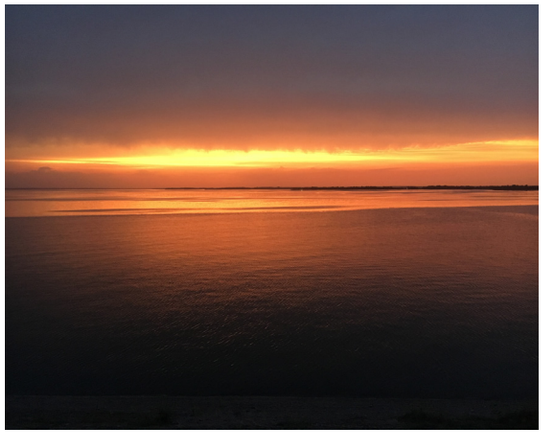


Photo Library

Miscellaneous Images









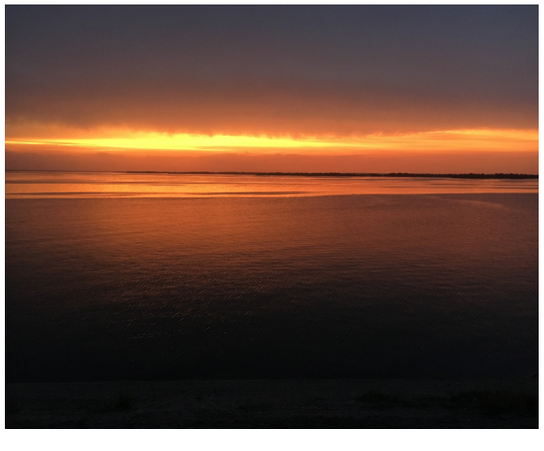





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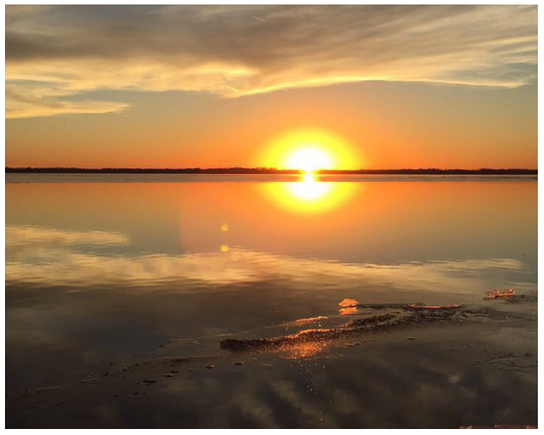
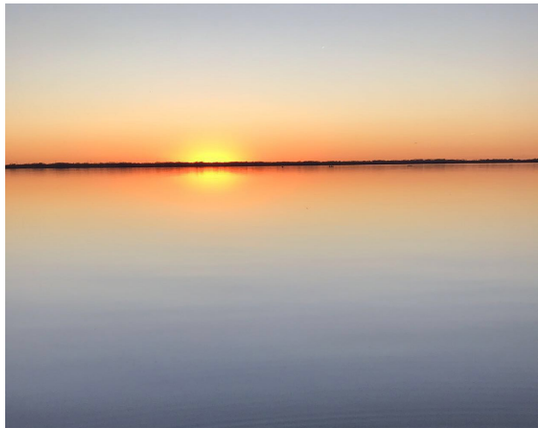
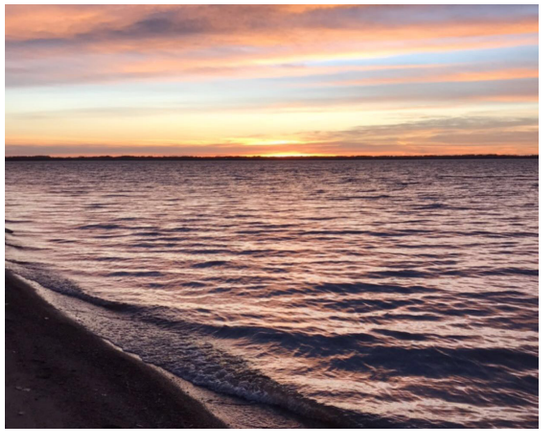



Photo Library

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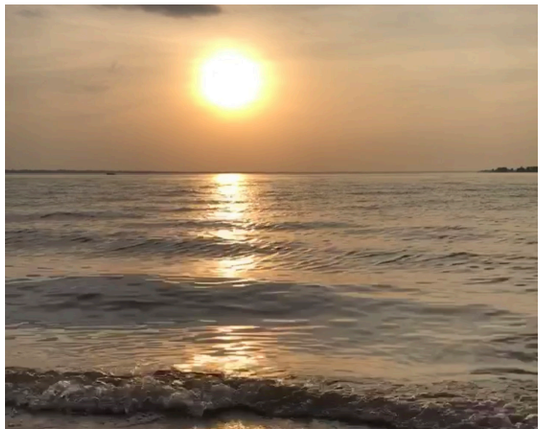


Photo Library

March 2019

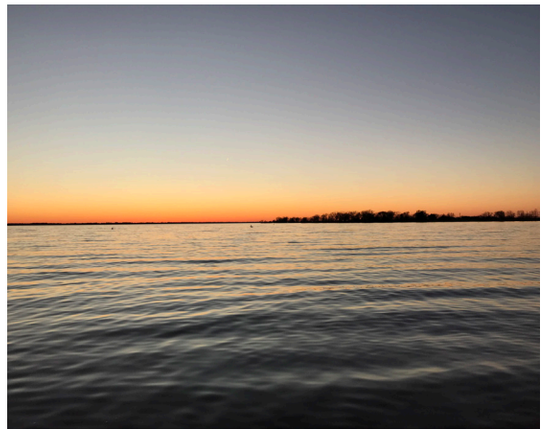










Ecotourism
Lake Design

A Projective Design For The Enhancement Of Social, Natural, and Economic Capital For Cheney State Park

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Major Professor: Amir Gohar
Supervisory Committee: Huston Gibson and Ryan Sharp



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