

Literature in the landscape: designing public parks to encourage outdoor exploration, activity and reading for elementary school-aged children

by

Katelyn Rose

A REPORT

submitted in partial fulfillment of the requirements for the degree

MASTER OF LANDSCAPE ARCHITECTURE

Department of Landscape Architecture and Regional & Community Planning
College of Architecture, Planning and Design

KANSAS STATE UNIVERSITY
Manhattan, Kansas

2017

Approved by:

Major Professor
Anne Beamish

Abstract

Landscape architects have an opportunity to design outdoor environments that promote exploration and physical activity for elementary school students in an effort to combat childhood obesity and nature deficit disorder, while reinforcing the importance of reading. By layering themes from classic children's literature into the landscape surrounding the Andover Public Library, a landscape was designed where children can explore physically and intellectually while being active in the outdoor environment. Research has identified the importance and benefits of outdoor exploration, activity and reading for elementary school students. Interviewing teachers and librarians about classic children's literature and how they commonly use it helped inform my research efforts in choosing timeless and well-known pieces of children's literature. Completing a site inventory and analysis of Andover Central Park, which surrounds the Andover Public Library, informed my site design process. The intent of my site design is to explore ways of incorporating children's literature into a play landscape that provides opportunity for exploration and physical activity in nature.

LITERATURE in the LANDSCAPE

Katelyn Rose



LITERATURE in the LANDSCAPE

Designing public parks to encourage
outdoor exploration, activity and reading
for elementary school-aged children

Katelyn Rose

Submitted in partial fulfillment of
the requirements for the degree
of Master of Landscape Architecture

Department of Landscape Architecture
College of Architecture, Planning and Design

Approved By:

Major Professor
Dr. Anne Beamish

Kansas State University
Manhattan, Kansas
May 2017

Copyright

Katelyn Rose

Department of Landscape Architecture
College of Architecture, Planning and Design

Major Professor: Dr. Anne Beamish
Committee Member: Professor Jon Hunt
Committee Member: Dr. Anne Phillips

Kansas State University
Manhattan, Kansas
May 2017

Abstract

Landscape architects have an opportunity to design outdoor environments that promote exploration and physical activity for elementary school students in an effort to combat childhood obesity and nature deficit disorder, while reinforcing the importance of reading. By layering themes from classic children's literature into the landscape surrounding the Andover Public Library, a landscape was designed where children can explore physically and intellectually while being active in the outdoor environment. Research has identified the importance and benefits of outdoor exploration, activity and reading for elementary school students. Interviewing teachers and librarians about classic children's literature and how they commonly use it helped inform my research efforts in choosing timeless and well-known pieces of children's literature. Completing a site inventory and analysis of Andover Central Park, which surrounds the Andover Public Library, informed my site design process. The intent of my site design is to explore ways of incorporating children's literature into a play landscape that provides opportunity for exploration and physical activity in nature.

Acknowledgments

Thank you, Mom and Dad, for introducing me to nature at a young age. My love and appreciation for nature has grown from then on, leading to this degree in Landscape Architecture. I am completing this project in hopes of creating spaces for children to enjoy and interact with nature in ways similar to my childhood.

I also want to thank the members of my committee for this project. Dr. Anne Beamish, for spending the time to guide me through this process, as well as offering insight on research and design along the way. Professor Jon Hunt, for providing his knowledge and expertise on both researching with and designing for children. Dr. Anne Phillips for sharing her excitement and passion for children's literature with me, and for her support of play spaces being designed with reading in mind.

A big thanks goes out to all of the teachers and librarians who graciously gave their time to share their knowledge of children's literature and their classrooms, in order to help shape and inform my project research.

Lastly, I want to thank my classmates, and friends for supporting me through these past five years of college and all of the experiences we shared during that time.

chapter one: INTRODUCTION	2
chapter two: LITERATURE REVIEW	8
chapter three: METHODOLOGY	24
chapter four: PROJECT FINDINGS	34
chapter five: SITE DESIGN	64
chapter six: CONCLUSION	96
chapter seven: REFERENCES	100
chapter eight: APPENDICES	112

List of Figures

chapter one: INTRODUCTION	2
Figure 1.0: Regional Context of Andover	
Figure 1.1: Aerial View of Andover Central Park and Surrounding Context	
chapter two: LITERATURE REVIEW	8
Figure 2.0: Literature Concept Map	
chapter three: METHODOLOGY	24
Figure 3.0: Methodology and Work Flow Diagram	
Figure 3.1: List of Children's Literature Analyzed	
Figure 3.2: Interview Questions for K-2 Teachers and Librarians	
chapter four: PROJECT FINDINGS	34
Figure 4.0: Most Common Themes	
Figure 4.1: Most Popular Nature Elements	
Figure 4.2: Most Popular Objects or 'Loose Parts'	
Figure 4.3: Most Used Actions or Movements	
Figure 4.4: Most Frequent Feelings	
Figure 4.5: Most Frequent Sounds	
Figure 4.6: Animals Most Often Referenced	

Figure 4.7: Most Popular Modes of Transportation
Figure 4.8: Site Inventory Reference Map
Figure 4.9: Entrance Sign
Figure 4.10: Andover Public Library
Figure 4.11: Pedestrian Bridge
Figure 4.12: Stream
Figure 4.13: Pergola
Figure 4.14: Playground
Figure 4.15: City Hall
Figure 4.16: Conference Lodge
Figure 4.17: Tree Row Around Edge of Park
Figure 4.18: Duck Feeding Station
Figure 4.19: Dog Park
Figure 4.20: Fishing Dock on Lake
Figure 4.21: Windmill
Figure 4.22: Picnic Shelter
Figure 4.23: Bird Watching Huts
Figure 4.24: Existing Circulation
Figure 4.25: Existing Overhead Utilities
Figure 4.26: Existing Drainage and Topography
Figure 4.27: Suitable Areas to Design
Figure 4.28: Chosen Area for Site Design
Figure 4.29: USDA Hardiness Zone Map

Figure 4.30: Survey Images of Play Activities
Figure 4.31: Preference Results for Play Activities
Figure 4.32: Survey Images of Places to Play
Figure 4.33: Preference Results for Places to Play
Figure 4.34: Survey Images of Transportation
Figure 4.35: Preference Results for Transportation

Figure 5.11: Views of the Slides and Play Mounds
Figure 5.12: Plan of the Tree House Forest
Figure 5.13: Views of the Tree House, Fallen Logs, and Reading Area
Figure 5.14: Plan of Outlook Hill
Figure 5.15: View From Top of Outlook Hill
Figure 5.16: Plan of Rafting Pond
Figure 5.17: Section of Rafting Pond
Figure 5.18: Views of Rafting Pond From Docks
Figure 5.19: Plan of Sand and Boulder Play
Figure 5.20: Views of Sandy River and Boulders Down to River
Figure 5.21: Plan of Hammock Area
Figure 5.22: View of Hammocks Along Stream
Figure 5.23: Plan of Adventure Path
Figure 5.24: Views of Adventure Path
Figure 5.25: Relating Curious George to Design
Figure 5.26: Relating Other Children’s Literature to Design
Figure 5.27: Places to Read in Design

chapter five: SITE DESIGN

64

Figure 5.0: Site Plan
Figure 5.1: Site Plan with Proposed Tree Coverage
Figure 5.2: Design Zones
Figure 5.3: Proposed Circulation
Figure 5.4: Proposed Fencing
Figure 5.5: Schematic Planting Design
Figure 5.6: Zones That Support Each Type of Play
Figure 5.7: Types of Play Represented in Landscape
Figure 5.8: Entrance Plan
Figure 5.9: Views of Entry Walk
Figure 5.10: Plan of the Slide Hill and Play Mounds

chapter six: CONCLUSION	96
chapter seven: REFERENCES	100
chapter eight: APPENDICES	112
Figure 8.0: Letter of IRB Approval	
Figure 8.1: Letter of IRB Approval	

List of Tables

chapter one: INTRODUCTION	2
chapter two: LITERATURE REVIEW	8
chapter three: METHODOLOGY	24
chapter four: PROJECT FINDINGS	34
Table 4.0: Plants for Fragrance and Texture	
Table 4.1: Plants for Wind Effect, Climbing, and Swinging	
Table 4.2: Plants for Hiding Places, Physical Barriers, Wind Screens, and Visual Buffers	
chapter five: SITE DESIGN	64
chapter six: CONCLUSION	96
chapter seven: REFERENCES	100
chapter eight: APPENDICES	112

chapter one

INTRODUCTION



1.1 Introduction & Intent

The intent of my project was to explore ways of incorporating children's literature into a play landscape for children. The final design is based on a site inventory and analysis, analysis of children's literature, interviews with K-2nd grade teachers and librarians, as well as a play preference survey taken by K-2nd grade children. The final design is site specific, but the approach, methodology and findings should still be helpful to others in our profession wishing to design a play area inspired by children's literature, or a site design for a library.

Reading at an early age can cultivate enthusiasm to learn and imagine, leading to higher literacy and articulation later in a child's development. Every child may perceive a book or story differently, which leads to creativity and imaginative storytelling, especially when interacting and playing with other children. Reading combined with a landscape that supports storytelling and imagination can help to enforce the importance of reading while encouraging activity in children. Landscape architects have an opportunity to design outdoor environments that promote exploration, activity and reading for elementary school students while also combating childhood obesity and nature deficit disorders. A re-design of Andover

Central Park, inspired by children's literature has the potential to tackle these physical and intellectual challenges, while providing children a fun and imaginative space to play.

Research Question

How can children's literature be used to inspire a landscape design that encourages outdoor exploration, activity and reading for elementary school-aged children?

1.2 Project Goals

The goal of this project was to explore ways in which children's literature can be tied to the landscape in order to enhance children's connection to nature, encourage physical activity and exploration, and reinforce the importance of reading. Although this project is site specific, my hope is that the park design can be used as an example to spur similar projects that focus on literature in the landscape, where children can use their imagination, be "in a book" they know, explore, and be active.

1.3 Site Definition & Background

The City of Andover, located in Butler County, Kansas is a suburb of Wichita, Kansas. Andover is growing quickly, with a population that has doubled since 2000, to the current population at 12,745 (City of Andover, 2016). The Andover School District consists of six elementary schools, two middle schools and two high schools. Andover is approximately 10 square miles in area and has two city parks, a 1.75-mile recreation trail and many neighborhood parks (City of Andover, 2016).

The climate of Andover, Kansas is mild or moderate. Andover receives an average of 35.6” of rain annually, and 13.3” of annual snowfall, with an average of 76 days of precipitation each year. On average, there are 222 sunny days, with an average July high temperature of 93° and a January low temperature of 20.2° (Andover, N.D).

The geographic boundaries of this project are the limits of Andover Central Park. The park is approximately 0.5 miles in length by 0.25 miles in width, and 70.6 acres. The park currently includes: a gazebo, walking paths, a stocked fishing lake, picnic shelters, a conference cabin, playground, a fenced-in dog park, the City Hall and the Andover Public Library. Surrounding the park are fields to the east, a residential neighborhood to the north, an elementary, middle and

high school to the west and a large naturally vegetated area to the south, with residential beyond that. A few of the annual events that are held in Andover Central Park include: the Greater Andover Days Festival, Farmers Markets and outdoor concerts.

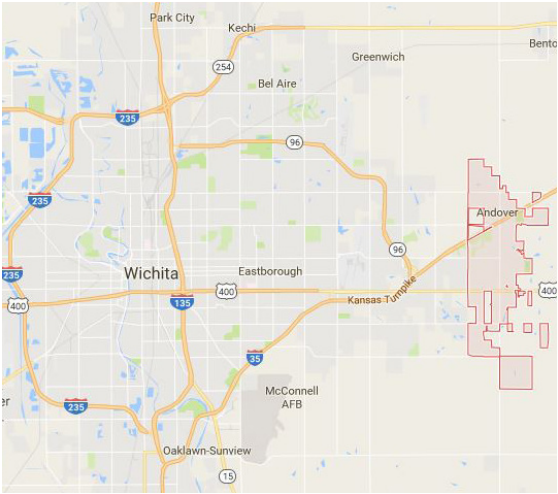


Figure 1.0: Regional Context of Andover



Figure 1.1: Aerial View of Andover Central Park and Surrounding Context

chapter two

LITERATURE REVIEW



2.1 Nature Deficit

Communities often lack green space, or wooded areas where children can explore nature. Both Mark Fenton (2012) and Richard Louv (2008) claim that the decline in free outdoor play is having an impact on children, both physically and mentally. Obesity is a common result due to the lack of exercise, while attention disorders and depression are a few of the mental disorders brought on by the lack of time spent in nature and the overuse of technology at a young age (Louv 2008).

Louise Chawla categorizes types of supervised play as ‘fields of free action’, ‘promoted action’ and ‘constrained action’, and has “observed that environments vary in the quality of the affordances that they provide for children” (Chawla 2007, 150). *Free action* is the ability for a child to play and explore without guidance or close supervision. *Promoted action* occurs when people encourage a child to act in a certain way or perform an action with guidance, such as games with rules. And *constrained action* occurs when parents or caretakers limit what a child can do, or play (Chawla 2007). It is speculated that excessive constrained action has led to the rise of nature-deficit disorder among over-protected children of recent generations. It is important for children to connect with nature because

“it becomes a place where they can go to relax their mind, to be inspired, and to dive deep into a world of imagination” (Hanscom 2016, 93). Nature provides a way to challenge kids, giving them variety and unpredictability, allowing them to take chances, and exposing them to risk and problem solving. There is evidence that dynamic environments, such as those found in nature, positively affect both cognitive and emotional development in children. Physical contact with animals and nature, as well as symbolic experiences in nature all contribute to an increased cognitive development (Tai et al 2006, 11). Nature also helps stimulate emotional development and maturation by testing children, which leads to growth. “Not only does nature inspire joy, excitement, and wonder in a child, but also fear and challenge” (Tai et al 2006, 14). The connection to and experience of nature in the younger generation has dwindled, but the importance of nature in a child’s life has not.

2.2 Health & Physical Activity

The American Obesity Association has two measures of obesity: ‘overweight’ is having a Body Mass Index equal to or greater than the 85th percentile, and ‘obese’ is having a BMI equal to or greater than the 95th percentile based on the individual’s age and gender (Frost et al 2004, 32). Childhood obesity in America is an increasing problem; approximately 17% of American children between the ages of 2-19 are considered obese (American Academy of Pediatrics, 2009). “Obesity with children and adolescents is an alarming trend, as obesity has been linked to numerous physical complications and psychological issues, and it is a persistent problem that carries into adulthood” (Frost et al 2004, 46). Research has found that not only does obesity affect physical health, it also affects a child’s psychological health if they are subjected to judgment, jokes and discrimination from others.

The obesity rate among children can decline if physical activity increases, which means that time outside of school must be devoted to physical activity. Physical activity for children “refers to a broad range of structured and unstructured movement including free play, recreation activities, community movement programs, school physical education classes, and routine daily

activities like walking, bicycling, playground games, sports, and family chores” (Ratliffe 2004, 6). How much physical activity do children need? According to Angela Hanscom, toddlers could benefit the most from having at least five to eight hours of activity a day, preferably outdoors. Children ages five to thirteen need at least four to five hours of physical activity and outdoor play daily, and adolescents age thirteen to nineteen still need three to five hours daily in order to promote health and development of their bodies (Hanscom 2016, 85).

Attention deficit disorder (ADD) and attention-deficit hyperactivity disorder (ADHD) are both problems many children face today. These problems are thought to stem from overuse of electronics including video games and television, which can overstimulate children in their developing years causing an information and sensory overload leading to decreased attention spans (Day et al 2007, 17). Other effects of too much screen time include problems sleeping and depression. The primary solution to these problems is play— not virtual play, but physical and social outdoor play, because natural environment tends to have more gentle stimuli, which can be preventative and even restorative for children (Hanscom 2016, 91).

Outdoor physical activity and play can also positively affect children's immune systems. "Exposure to dirt, animals, and germs from an early age can actually improve the immune system" (Hanscom 2016, 105). By increasing exposure to these things, children's immune systems can be strengthened. Movement on a regular basis helps increase blood flow, increase oxygen intake and activate the lymphatic system, which helps fight infection and remove toxins from a child's body (Hanscom 2016, 83). Increasing the intake of outdoor air can greatly benefit children, since outdoor air is typically ten times cleaner than indoor air (Day et al 2007, 65). Poor indoor air quality can lead to many other health concerns, so allowing children outdoors for their desired physical activity will greatly impact their overall health. The benefits of 'heavy work' through play helps children strengthen bones and learn the capabilities of their muscle in new ways, such as climbing hills, picking up materials or building forts. Spinning during play can also benefit a child's health by "activating the hair cells in the inner ear. This activation sends motor messages throughout the spinal cord, contributing to the maintenance of muscle tone and body posture" (A. Jean Ayers, 2000 quoted in Hanscom 2016, 82).

2.3 Exploration & Play

Play is an important part of every child's social and physical development. "The paradox, however, is researchers and policy makers have begun to highlight the positive effect that independent play has on children's healthy mental, social and physical development, as the form of play has waned" (Ergler et al 2012, 179). Since children's lives are becoming more structured by their parents' schedules, their playtime is being restricted to either indoor play, or a smaller window of supervised outdoor play. As important as play is to a child's development, statistics show that "only 44% of mothers and 24% of fathers reported taking their child outside to play at least once a day" (McBride 2012, 421). The type of play that children engage in is also very important. During play, "children should be away from parents' interventions because of the fact that children explore new things, imitate adult behavior, test their capacities, and therefore widen their worlds when they are free in their play" (Acar 2014, 848).

The benefits of outdoor play for children are many and include: motor development, higher self-esteem, less likelihood of depression, reduced obesity rates, enjoyment and opportunities for leadership of peers (Ergler et al. 2012; McBride 2012; Smith 2010). Play not only benefits children

in many physical ways, but it provides them with joy and a chance to show their enthusiasm about learning and life. Outdoor play challenges children, teaches them how to fail, helps them learn to work together, and to make plans in order to succeed. Children enjoy adventure, but with adventure comes risk; "the real issue, therefore, is how to maximize challenge, while minimizing injury risk" (Day et al 2016, 33). A crucial part of becoming independent is about overcoming challenges, while learning to fail and succeed, but parents must give their children the freedom to do so.

There are many concerns or barriers preventing children from spending time outdoors, but many are misconceptions. Some parents forbid their children to walk to school or other destinations because of distance, traffic safety, weather, and crime (Frank et al 2003, 82). One study revealed that only 1.7 out of 100,000 people are killed due to pedestrian-vehicle accidents in the United States (Hass-Klau 2015, 281), which demonstrates that only in rare cases are pedestrians hurt by vehicles. Although the statistics prove that walking is safe, parents are still making decisions for their children that restrict the amount and types of physical activity and play. Forty percent of parents surveyed in the United Kingdom

“fear that strangers will snatch their children” while still others worry about their children getting hurt, or what their neighbors may think of their children playing unsupervised (Hanscom 2016, 199). Parents are overprotecting their children in hope that they will save them from harm, but they may be smothering their individual development instead. “It may not be coincidental that parental hovering and fear of strangers surfaces at about the same time” (Solomon 2014, 20). Overprotection and parental hovering does not necessarily reduce danger, because accidents will still happen whether the parents are watching or not. Parents need to remember that letting their children play freely and giving them independence during childhood will lead to more capable individuals in the future. Parents can begin to give their child this freedom in small steps: letting children play alone while tending to other outdoor tasks or chores; practicing with your child to have them prove that they know the route to the neighbor’s house and that they will obey the traffic rules; and then set clear guidelines — a little freedom goes a long way, so requiring certain check-in times is always okay (Hanscom 2016, 199-200).

Types of Play

There are many types or stages of children’s play that change with age. These include: unoccupied, solitary/independent, onlooker, parallel, associative, cooperative, dramatic/fantasy, competitive, physical and constructive play (Very Well, 2015). *Unoccupied play* is most common in infants, who may seem engaged in thought or motion, but without a source of focus. *Solitary play* is when a child plays alone, but is staying entertained by teaching himself or herself something or discovering something new. *Onlooker play* is common in younger children, who observe other children near them, but do not participate in the action (Very Well, 2015). *Parallel play* is a step towards cooperative play, and occurs when two children are playing near each other, or with similar toys, but are still focusing on their own with little acknowledgment of the other (Very Well, 2015). *Associative play* and *cooperative play* come after a child moves through the beginning stages of play. Associative play consists of children playing separately, but involved in what the others are doing, or talking with each other while they play on their own. Cooperative play is the next step, in that children are truly playing together, or working together to complete a task they decide upon (Very Well, 2015).

Dramatic/Fantasy play is when children play together in their imaginative state, with a nonliteral use of objects, typically actions or use of language do not begin until after a child turns two (Hendricks 2001, Smith 2010). Engaging in *competitive play* can be a hard learning experience for children, but necessary for development and maturity because it teaches them to win and lose. *Physical play* can often be competitive, but is less about being social, and more about being active with each other while running, jumping or chasing (Very Well, 2015; Smith, 2010). *Constructive play* occurs when the children are most developed, and often includes parts of other play types such as cooperative and fantasy play. In this stage of play, children will often manipulate objects to create something new, such as building towers, roads for cars or blanket forts, which can help to improve cognitive skills (Very Well, 2015).

Though all types and stages of play are important in childhood development, it is crucial that children move through these stages of play on their own accord, through free play.

“Free play is defined by play scholars as an activity that contains five key dispositional factors: free play is voluntary, allowing

players to enter or leave play at will; free play is spontaneous in that the play can be changed by the players; free play involves a pretend element and is different from everyday experience; free play is engaging as players are involved in the activity, separated from all surrounding activities; and free play is fun, pleasurable, and enjoyed by the players” (Frost et al 2004, 18).

This type of play allows children to move their bodies and use their imagination, while nature can stimulate their senses, letting their whole body and mind engage at once — giving them a feeling of being alive. When children get to take ownership of their play, they become more creative and engaged with what is around them (Hanscom 2016, 75). Providing children with outdoor time is key to supporting both free and imaginative play. Indoors, there are often rules to follow and limits to imagination since many indoor objects are known to have a specific purpose. Outdoors, there are fewer rules and restrictions and objects found in nature do not have a specific meaning to children; leading to the use of children’s imaginations.

Once a child becomes independent from parents, “they inhabit a world between self and environment, between fact and fantasy. Through imaginative fantasies, they organize

thoughts and learn to manage feelings” (Day et al 2007, 14). Fantasy lets children learn to deal with life in their own creative way, and to make a mark on the environment around them. “The creative possibilities in a play area are affected by the number of items available for the children to manipulate or use in the play” (Hendricks 2001, 74). Through magic and fantasy play, children can become ‘powerful’ or gain the confidence that they do not fully possess, to deal with problems that may seem overwhelming. Magic can allow children to make up a world where they can use their power and forces to solve problems, and take revenge on those who have threatened to hurt loved ones (Hendricks 2001, 226). Outdoor environments are the ideal place for imaginative and fantasy play to occur; with gentle sensory stimulation, children feel safe and comfortable which helps in allowing their imagination to run free.

2.4 Experience & Learning

In the early stages of development, children learn through play, observation and interaction, not through being taught. “Most of what children learn isn’t taught, but ‘found out’ by exploratory play, both constructive and destructive. Smashing things, though fun, is quickly over. Creation, however, offers ever-increasing layers of experience— more fulfilling than destruction” (Day et al 2007, 6). Children go through stages of learning, including: trust, wonder, curiosity and control, which lead them to full engagement with their surroundings (Day et al 2007, 19). Although children are taught in school, they need a chance to apply the different stages of learning to their own lives and use them through play experiences before they can fully learn. Clare Cooper Marcus claims that “children are more deeply affected by the environment than any other age group” (Acar 2014, 846). Research supports this claim by suggesting that students remember outdoor visits or fieldwork during school better than typical schoolwork. It is clear to teachers that outdoor learning, field trips and schoolwork can be beneficial to many students’ learning styles, however there seems to be continued barriers from letting outdoor learning happen. These barriers include: “fear and concern about health and safety, teachers’ lack of confidence in

teaching outdoors, school curriculum requirements, as well as shortages of time, resources, and support” (Dillon et al 2006, 108).

Exposure to nature during childhood also teaches environmental stewardship. “Indeed, if we are to save this planet, exposing children to the wonders of nature at a very young age is essential” (Day et al 2007, 172). Being in nature at a young age leads to a feeling of belonging to their environment and surroundings. Adult environmentalism is thought to have its roots in childhood. “Active care for the environment in adulthood is frequently associated with positive experiences of nature in childhood or adolescence, along with childhood role models who gave the natural world appreciative attention” (Chawla 2007, 144). Parents can provide a positive influence to children by sharing their experiences, which will increase their children’s exposure to and interest in nature. When parents show their interest in the environment, the children will more likely be engaged in and have magnified responses to the environment as well. “Through what they attend to with care of fascination, role models indicate that elements of nature have value” (Chawla 2007, 157). Parents have seen the amount of environmental

damage that has happened within one generation, and can influence their children to care about the environment and to think about sustainability at a young age. “More helpful is to demonstrate how to live sustainably by example. Fear paralyzes – but challenge inspires” (Day et al 2007, 245).

2.5 Designing for Children

It is difficult for almost any adult in any profession to be an expert at designing for children because we are separated from our own childhood by many years. However, we must continue to strive for designs that enhance the outdoor environments that children play in, while supporting physical activity and education. “Nowadays we have to make child-friendly places— traffic-safe, neighborly, soft to eye and ear, climatically comfortable and sense-stimulating; they won’t just happen” (Day et al 2007, 28). Though designing spaces for children is a continuous challenge, there are guidelines that address: materiality of spaces, sensory stimulation, accessibility, scale and safety of play areas, and other elements to include.

Materiality

When designing play areas, there are four categories of materials to include: Hardscaping (concrete, brick, wood, metal, stone); landscaping (the living elements in the environment such as plants, soil and water); cultural connections (references to history of the place); and 'loose parts' (things that are movable by children) (Hendricks 2001, 114). The hardscaping elements in design are often used as the base, to create and divide areas and to provide accessibility. However, designers

should consider using natural materials such as wood, wood chips or stone, which are more gentle on a child’s senses than manufactured bright pieces of equipment. Natural materials in play areas also blend in to the surroundings better and are often much cheaper (Tai et al 2006, 180). Vegetation and wildlife are key components of designing outdoor environments for children, because they encourage exploration, imagination and tactile experiences. Providing a natural habitat through vegetation and water will increase the amount and diversity of wildlife in the area, which helps support a healthy ecosystem. Having wildlife in areas for discovery helps children to foster more interest and connection to nature. “Loose parts” in a play environment let children use their imagination and creativity to change the purpose and location of elements. Materials such as sand and water can be considered loose parts, since they are movable or moldable (Broto 2012, 7, 23).

Sensory Experiences

Sensory experiences for children can be both fun and educational; incorporating them into children’s play areas have many benefits. Since children are “unable to separate out different sensory currents into selective aesthetics, music means movement,

seeing invites touching, tasting (hence smelling), shaking and banging. They need—and seek—to experience things with their whole bodies and through all their senses” (Day et al 2007, 81). When designing, there should be elements incorporated in which children can make their own sounds, for them to interact with many textures including water and mud, and to smell the many scents of vegetation and wildlife in a natural setting. Nature is an ideal place for children to spend time, since the colors found in outdoor environments are gentler on children’s eyes, helping to improve their visual sense (Hanscom 2016, 97).

Accessibility

Accessibility, and the ability to include people with all levels of mobility is another important aspect in the design of children’s play spaces. Paying attention to width, slope and material of pathways is key in designing for accessibility (Broto 2012, 12). As well as designing accessible routes for children with limited mobility, we should consider other barriers they may face in exploration areas and attempt to provide alternatives for them. An example is designing raised ‘play tables’ or gardens, so that children in wheelchairs can interact easily (Broto 2012, 11). Designers should try to find ways to

make physical barriers more usable in the landscape, such as using fences as places to grow plants or incorporating walls as part of a game. This will help make the environment more friendly and less constraining to children (Day et al 2007, 143). Breaking down the restrictive barriers that many outdated play areas use for containment needs to be addressed in the design of new play areas. “The objective is to develop intergenerational space, with an emphasis on children and places to play, in order to help kids become mature, independent young adults” (Solomon 2014, 142). Leaving some spaces undefined in a play area helps foster more imagination among children, letting them decide what their space is and how to use it.

Scale

Scale and division of spaces are both important in designing for child comfort. “What is necessary for the children to feel comfortable to initiate fantasy play are settings at an appropriate small scale with some aspect of shelter” (Hendricks 2001, 76). Large spaces often make young children feel insecure, which ultimately restricts their engagement with the environment. Dividing a play area into several subspaces can help give children a better feel of scale; “there should be several spaces or subspaces within

a public park play area. There should be at least one space where children can play with materials of the earth, like sand and water, and one or more spaces where children can gather and socialize while moving their bodies” (Hendricks 2001, 159). In creating a successful outdoor exploration area for children, a recommended range of habitats includes: “vegetables and fruit, woodland, pond, wet area, short grass, long grass meadow for butterflies, hedgerow for songbirds, old dry wall for insects and a roofed garden for wet days” (Day et al 2007, 179). Other considerations in creating a successful design for children include curving lines and serpentine patterns that invite play while being easy on the eye, as well as creating good hiding places for ‘secret’ play (Hendricks 2001, 163).

Examples

An example of designing a play area that blends into the natural landscape, supports imagination and creates a secret place for children is the Vondelpark Canopy Walk in Amsterdam, which uses natural materials to build a series of elevated walks among a network of tree houses (Galindo 2012, 82). Two play areas that incorporated interactive water elements are the Darling Quarter in Sydney, NSW as well as the Garden City

Play Environment in Richmond (Galindo 2012, 100, 152). In both of these examples are stream-like play areas where the children can walk through, play in and move the water through various tactile learning experiences. Another successful example of an interactive play area is the Imagination Playground in New York City, which includes an open space with large sand and water features. The intent of this play area was to include many loose parts, for children to move, build and interact with (Broto 2012, 50).

2.6 Children's Literature

Children's literature serves the important role of helping children learn to be literate and articulate. Though reading for young children should be fun and imaginative, it will be important to their success in school and work later on. Children's literature is often a "mixture of pictures, rhymes, riddles, stories, alphabets and lessons on moral conduct" (Grenby et al 2009, 4). Children are the intended audience for picture books because they are "inexperienced—in need of learning how to think about their world, how to see and understand themselves and others. Consequently, picture books are a significant means by which we integrate young children into the ideology of our culture" (Hunt 2005, 131). Picture books have the ability to spark imagination in children and show them ways in which they can interact with their world. The words and pictures in children's literature often do not match; places and events may be depicted differently in text than in pictures. This is why "picture books are inherently ironic, therefore: a key pleasure they offer is a perception of the differences in the information offered by pictures and texts" (Hunt 2005, 137). Every child may learn and perceive a book or story differently, which gives them leverage for creative and imaginative thinking. The twentieth-century was the first time that picture books began

relating children's lives to nature, and books about visits to a farm, boatyard or train station became popular (Grenby et al 2009, 65). Children's books then moved towards teaching lessons about the environment.

Within children's literature, there are commonly two types of fantasy narratives, called 'fantasy of the first age' and 'fantasy of the second age' (Bearne et al 2000, 173). Both types of fantasy make use of the 'other world', but fantasy in the first stage is when children overcome their uncertainties in life with an underlying optimism and confidence. Fantasy in the second stage is often more dramatic, dealing with death, self-control and the struggle of protagonists, although often still ending on a positive note (Bearne et al 2000, 173). Children's literature will continue to evolve, but should always maintain its link to nature and the imagination of children. "Memories of childhood may become indelibly linked to early memories—visual, tactile, spatial—of reading picture books, whose 'picture worlds' may permanently shape readers' worldview" (Grenby et al 2009, 55).

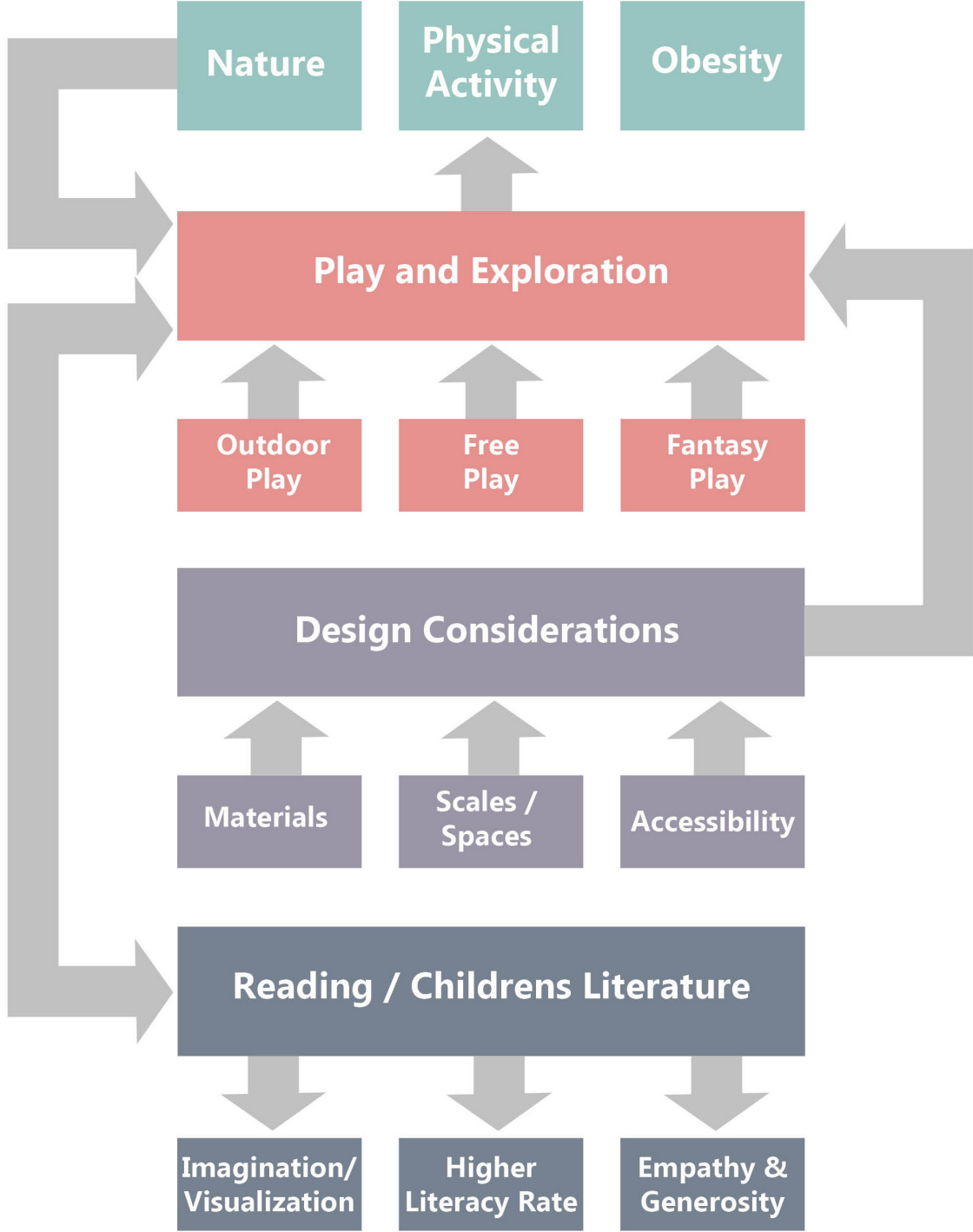


Figure 2.0: Literature Concept Map

chapter three

METHODOLOGY



Methodology

The methodology framework was based on a projective design strategy, using interviews and content analysis of children's literature to complete a site design that incorporates the books into the landscape to promote education, activity and play for children. The collection of data included interviewing librarians as well as undertaking a site inventory. The content analysis involved identifying common themes in the literature, analyzing information collected through the site inventory, and then completing a site design based on analysis of the interviews, children's play preferences survey, site inventory, and content analysis of children's literature.

Research Question

How can children's literature be used to inspire a landscape design that encourages outdoor exploration, activity and reading for elementary school-aged children?

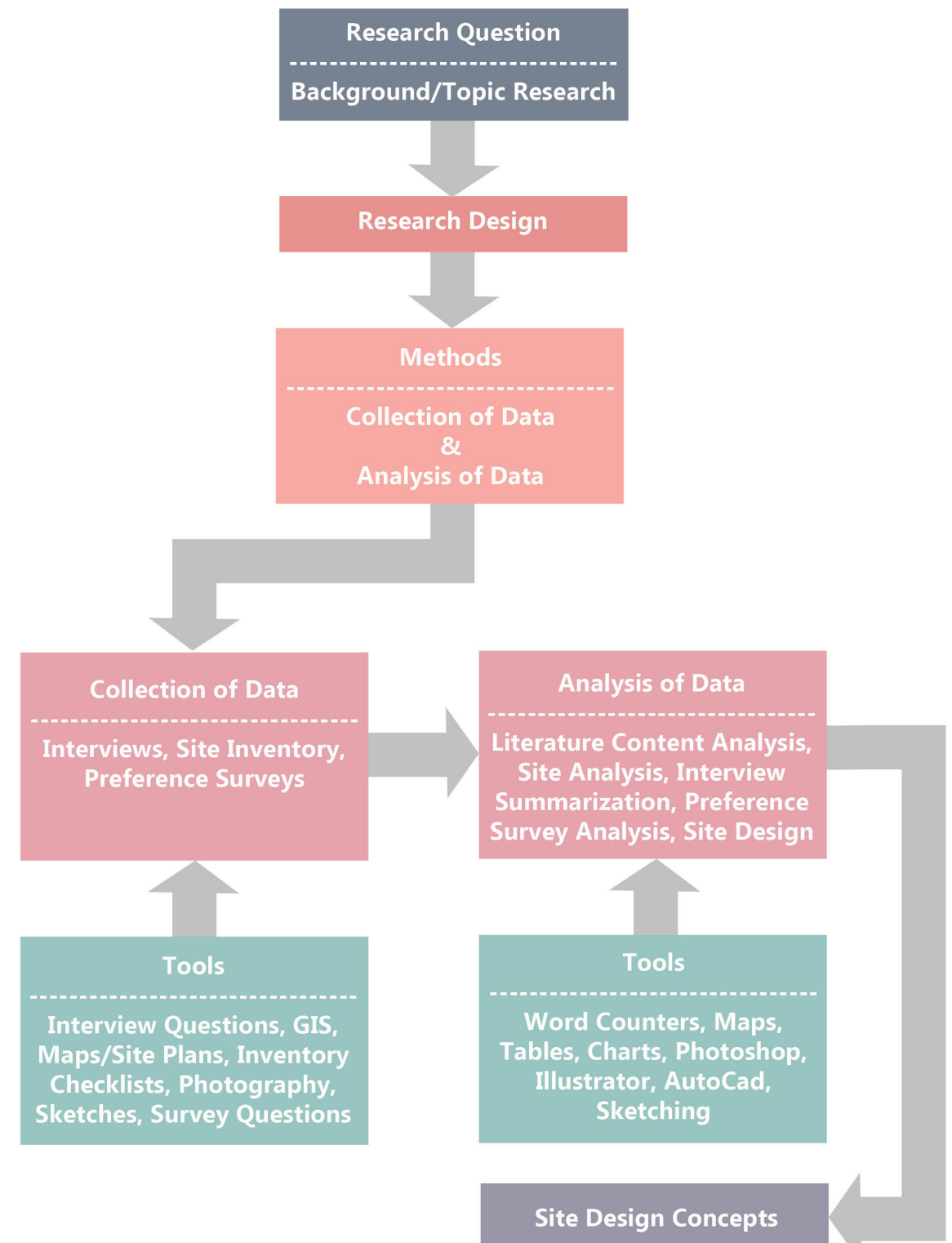


Figure 3.0: Methodology and Work Flow Diagram

3.1 Children's Literature Analysis

Thirty-eight classic children's books were read and analyzed to determine common or recurring themes. The children's literature selected were those recommended by children's literature experts in the English Department at Kansas State University, the children's librarians at the Manhattan Public Library and Andover Public Library, and the librarians and teachers from the Andover Public Elementary Schools.

The overall themes of the books, nature elements, objects used, as well as movements, feelings, and sounds depicted in the stories were recorded and analyzed.

Jumanji by Chris Van Allsburg
The Little House by Virginia Lee Burton
Biscuit Visits the Big City by Alyssa Capucilli
Twelve Tales From Aesop by Eric Carle
Click, Clack, Moo, Cows That Type by Doreen Cronin
Princess in Black by Shannon and Dean Hale
Purplicious by Victoria & Elizabeth Kann
The Carrot Seed by Ruth Krauss
The Story of Ferdinand by Munro Leaf
Pete the Cat and His Four Groovy Buttons by Eric Litwin
Make Way for Ducklings by Robert McCloskey
The McElderry book of Aesop's Fables by Michael Morpurgo
Plantzilla by Jerdine Nolen
Amelia Bedelia by Peggie Parish
The Wump World by Bill Peet
The Story of Miss Moppet by Beatrix Potter
The Tale of Benjamin Bunny by Beatrix Potter
The Tale of Gloucester by Beatrix Potter
The Tale of Mr. Jeremy Fisher by Beatrix Potter
The Tale of Mrs. Tiggy-winkle by Beatrix Potter
The Tale of Peter Rabbit by Beatrix Potter
The Tale of Squirrel Nutkin by Beatrix Potter
The Tale of Tom Kitten by Beatrix Potter
The Tale of Two Bad Mice by Beatrix Potter
Curious George by H.A. Rey
Curious George Visits the Library by Margret and H.A. Rey
Curious George Goes to School by Margret and H.A. Rey
Curious George and the Firefighters by Margret and H.A. Rey
Curious George and the Dump Truck by Margret & H.A. Rey
Curious George Gets a Medal by H.A. Rey
Curious George Rides a Bike by H.A. Rey
Henry & Mudge and the Happy Cat by Cynthia Rylant
McElligot's Pool by Dr. Seuss
The Little Prince by Joann Sfar
The Gardner by Sarah Stewart
The Librarian from the Black Lagoon by Mike Thaler
Max and Ruby by Rosemary Wells
Don't Let the Pigeon Drive the Bus by Mo Willems

Figure 3.1: List of Children's Literature Analyzed

3.2 Site Inventory & Analysis

Inventory and analysis of the project site was completed in a weeks time frame, prior to the conceptual site design. The inventory documented the site conditions, utilities, topography, hydrology, vegetation and wildlife, historic or cultural features, as well as environmental concerns. The findings were then mapped graphically, with accompanying descriptive text. Topographical information came from Andover and Butler County GIS Data, and the rest of the inventory data was collected through photography and base map annotation while observing the site.

3.3 Interviews with Teachers & Librarians

Semi-structured interviews were conducted with six librarians and teachers from the USD #385 Elementary Schools, as well as the children’s literature specialist at the Andover Public Library. The six elementary schools include: Cottonwood Elementary, Meadowlark Elementary, Prairie Creek Elementary, Robert Martin Elementary, Sunflower Elementary, and Wheatland Elementary. I interviewed three K-2nd grade teachers and three librarians.

The IRB Application (#8475) was submitted on October 4, 2016, and the IRB Board approved this research on October 18th, 2016. The IRB approval is included in the appendix.

Interview Questions

1.What are a few books that are students’ favorites, highly read or recognized by the students?

a. Are there any fables or nursery rhymes that are highly read/used?

b. How are these books used in the school/classroom? Lesson plans/activities?

2. How do students respond to classic pieces of children’s literature compared to new literature?

3.What are a few common themes you see used or referenced in many children’s books?

4.How do you think children would react to exploring a landscape in which they could imagine or recreate books that they know well?

a. What kind of landscape do you think they could recognize from books that would encourage their engagement to the landscape?

b. In a workshop setting, do you think the K-2 children would be able to provide imaginative feedback about depicting stories they know in to the landscape?

Figure 3.2: Interview Questions for K-2 Teachers and Librarians

3.4 Children's Play Preferences

Collecting play preference data from children through a simple survey provided insight on which landscape and play elements to include in my design. The survey was distributed to three classes of K-2nd grade children, to be taken on classroom computers or iPads under supervision of their teachers. Thirty-seven students completed the play preference survey.

The survey consisted of three questions; each question was a group of images of play theme, activities or locations, in which the child will select their favorite four images. Refer to pages 58-62 to see the survey images. After the survey was complete, data was analyzed to determine which types of movements, places and themes children liked best. In addition to providing insight, the goal of the survey was to bring this project to the attention of K-2nd grade children and their parents, to gain their involvement and excitement about the possibility of a new play landscape.

The IRB Application #8620 was submitted on January 23, 2017, and the IRB Board approved this research on February 14, 2017. The IRB approval is included in the appendix.

3.5 Site Design

The outcome of this research and analysis was a site design for a new play landscape near the Andover Public Library, which is within Andover Central Park. The design was driven primarily by common themes found in children's literature, information from interviews with the children's literature experts, teachers and librarians, information from the children's play preference survey, as well as site inventory and analysis.

chapter four

PROJECT FINDINGS



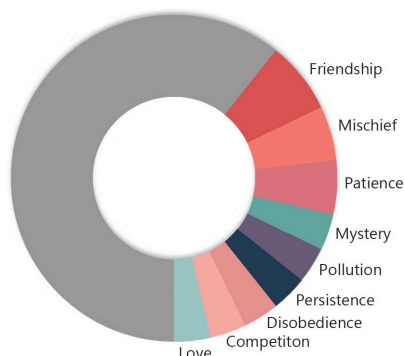


Figure 4.0: Most Popular Themes

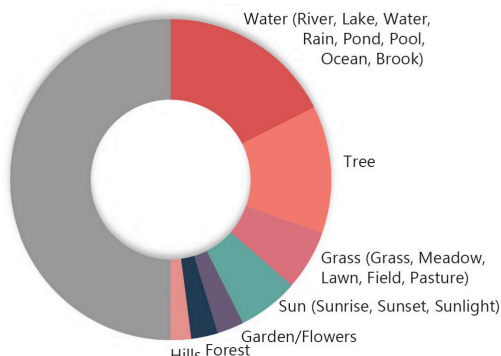


Figure 4.1: Most Popular Nature Elements

4.1 Children's Literature Analysis

The literature analysis determined the overall themes of the books, nature elements and objects commonly used, as well as movements, feelings, and sounds depicted in the stories. The analysis of the thirty-eight books helped to identify design elements that can be included into the final site design. The themes also helped to inform the play preferences survey that was taken by K-2nd grade children.

From the content analysis, came eight categories, followed by a word count of each category. The categories included: Themes, Nature Elements, Loose Parts/ Objects, Movement/Actions, Feelings, Sounds, Animals, and Transportation.

Themes

There were 56 themes recorded through the content analysis. Themes were identified by finding the moral of the story, or main issue resolved within the story. Similar themes were grouped together for the word count determining the most highly used themes.

All themes identified are listed below, with the most common themes in bold: adventure, attachment, beauty, collecting, **competition**, compromise, deception, development of open land, discouragement, **disobedience**, failure, farm, fear, following directions, **friendship**, growing plants, helpful, hope, jealousy, **love**, **mischief**, motivation, **mystery**, naughty, **patience**, **persistence**, **pollution**, positivity, protection, seasonal change, secret place, stewardship, struggle, surprise, threat.

Nature Elements

All elements of nature that appeared or were discussed in the literature were recorded. Many of the 149 nature elements fall into similar categories, which were used to determine the most popular nature elements.

All nature elements identified are listed below, with the most common elements in bold: beans, blackberries, **brook**, bulbs, bushes, carrot, cave, climbing, clouds, country, daisies, dark, dirt, dust, farm, fields, **flowers**, **forests**, frost, fruit, **garden**, grain, **grass**, **fields**, ground, **hills**, house, island, jungle, **lake**, **lawn**, leaf, leaves, lettuce, **meadow**, moon, mountains, mud, **ocean**, pansies, park, parsley, **pasture**, pathway, plant, **pond**, **pool**, **puddle**, **rain**, **river**, roses, sandy desert, seasons, shade, snow, spring, stars, sun, sunrise, sunset, thunder, **tree**, tunnel, volcano, **water**, weeds, wind, woods.

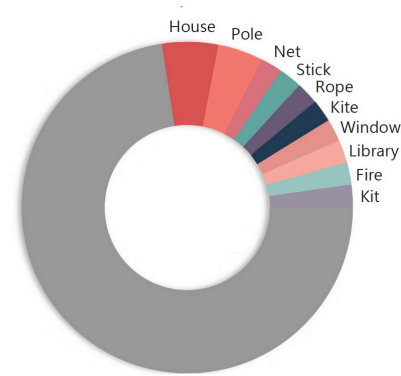


Figure 4.2: Most Popular Objects or 'Loose Parts'

Loose Parts & Objects

Many of the children's books analyzed contained objects or parts significant to the story. 91 total objects were identified, and many of them occurred multiple times.

All loose parts and objects are listed below, with the most popular objects in bold: balloons, balls, barn, basket, big city, board game, book, bubbles, cage, chain, clothes, crown, cup, dolls, farmer, feathers, **fire**, **fire-house pole**, fire station, flute, fountain, garden hose, gardeners, giant machines, handkerchief, hook, **house**, junk, **kit**, **kites**, ladder, **library**, **light poles**, mailman, monkey bars, museum, **net**, nuts, oar, painting, picnic, pile of dirt, prison, pump, rag, ribbons, rod, roof, **rope**, scarecrow, seeds, shed, **stick**, stop light post, tall buildings, **telephone pole**, toys, tractors, trap, trucks, watering can, wheel barrow, **window**, zoo.

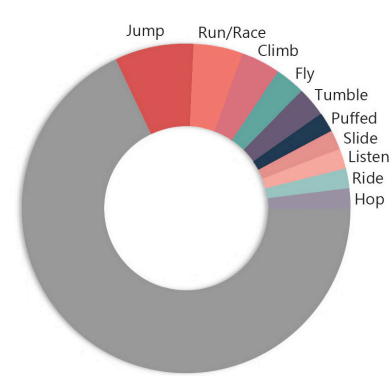


Figure 4.3: Most Used Actions or Movements

Actions & Movements

Throughout the content analysis, any characters action or movement was recorded for this category. Of the 103 actions recorded, many of them occurred more than once.

All of the movements and actions identified are listed below, with the most used actions in bold: balancing, biking, bowed, catch, chased, **climbed**, collected, cutting, dance, dive, eating, exploded, fell, floating, **fly**, hanging, held on tight, hiding, hip-hop, **hopped**, juggling balls, **jumping**, listen, looking, munching, nibbled, peek, planting seeds, play, **puffed**, pulled, **race**, **ran**, **riding**, rolling, **running**, scrubbed, scurried, sewing, shivered, shouted, ski, skip, **sliding**, smell, smiled, stroll, strutted, swimming, swung, throw, tosses, **tumbled**, waddling, walk, wandered, whispered, worked, yelped.

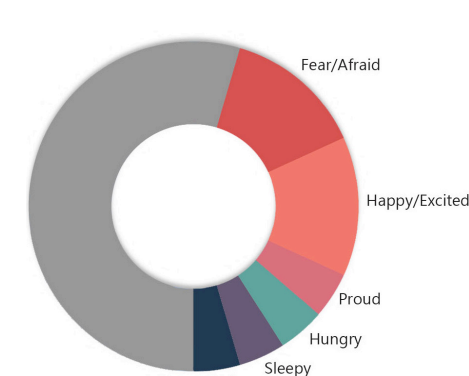


Figure 4.4: Most Frequent Feelings

Feelings

All feelings that a character in a story felt were recorded. Similar feelings such as happiness and excitement were then grouped together.

All 44 feelings identified are listed below, with the most frequent feelings in bold: **afraid**, anger, bored, bragged, care, cold, confusion, disappointment, doubt, **excitement**, **fear**, **frightened**, **happy**, **hungry**, little, lonely, love, mad, **overjoyed**, patience, peaceful, **pride**, rage, restless, **sad**, scared, shy, **sleepy**, small, strong, worry.

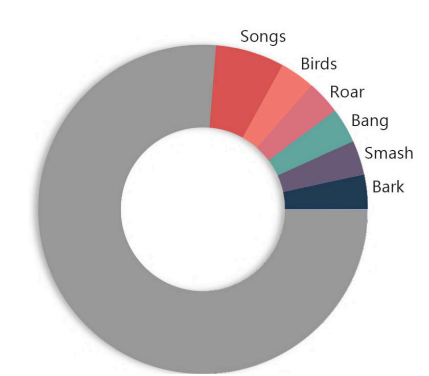


Figure 4.5: Most Frequent Sounds

Sounds

Any sound that occurred in the children's literature was recorded: 59 sounds in total. Most of the sounds identified are very unique sounds, which is why the word count shows there was not a large grouping of any similar sound.

All sounds identified are listed below, with the most frequent sounds in bold: **bang**, **bark**, bells, **birds**, bubbling, clack, click, clucking, crash, ding dong, horn, huffing and puffing, humming, laughter, meow, moo, music, Pit pat paddle, pop, quack, quiet, ring, **roar**, rumbled, scratching, **singing**, siren, sloppy-sloppy, **smash**, **song**, splash, squeak, tip tap tip tap, trit-trot, whispers, whistle, wind, woof woof, yelling.

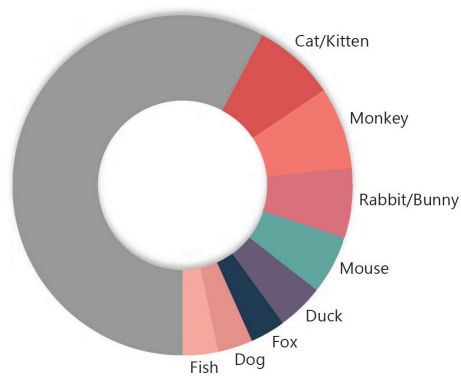


Figure 4.6: Animals Most Often Referenced

Animals

Any animal that was included as a character, or mentioned in the stories was recorded for this category. With 90 animals identified in total, many of them occurred more than once.

All animals recorded are listed below, with the most referenced in bold: ants, bat, bear, beasts, birds, bumble bee, **bunny**, butterfly, **cat**, cow, crane, crow, **dog**, dragon, **duck**, **fish**, **fox**, frog, goat, grasshopper, hedgehog, hen, **kitten**, lamb, lion, lobster, **mice**, minnows, **monkey**, monsters, **mouse**, ostrich, owl, ox, peacock, pigeon, pigs, pony, puppy, **rabbit**, rooster, seagulls, snake, spider, squirrel, turtle, whale, wolf, worms.

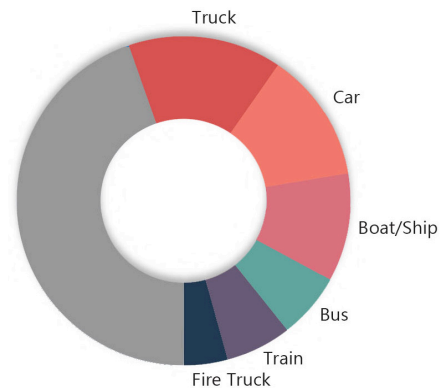


Figure 4.7: Most Popular Modes of Transportation

Transportation

Many types of transportation were used or referenced throughout the children's literature. Of the 47 modes of transportation recorded, many were reoccurring.

All modes of transportation are listed below, with the most reoccurring in bold: bicycle, **boat**, **bus**, **car**, crane, dump truck, elephants, **fire truck**, ice cream truck, machines, plane, police car, rafts, rocket ship, **ship**, steam rollers, tractors, trailers, **train**, trolley cars, **truck**.

4.2 Site Inventory & Analysis

Site information was collected from Andover and Butler County GIS Data, as well as through personal site inventory, observation and photography. Collected information included: site amenities, site conditions, environmental concerns, circulation, utilities, topography, hydrology, vegetation and wildlife.

Site inventory and observation helped to identify and map several park components that were not seen via online resources or preliminary base maps. Key amenities of Andover Central Park are identified and photographed, which can be seen in the following figures.

There does not appear to be any dramatic environmental concerns in the park, although there is minor erosion along the creek and banks of the lake.

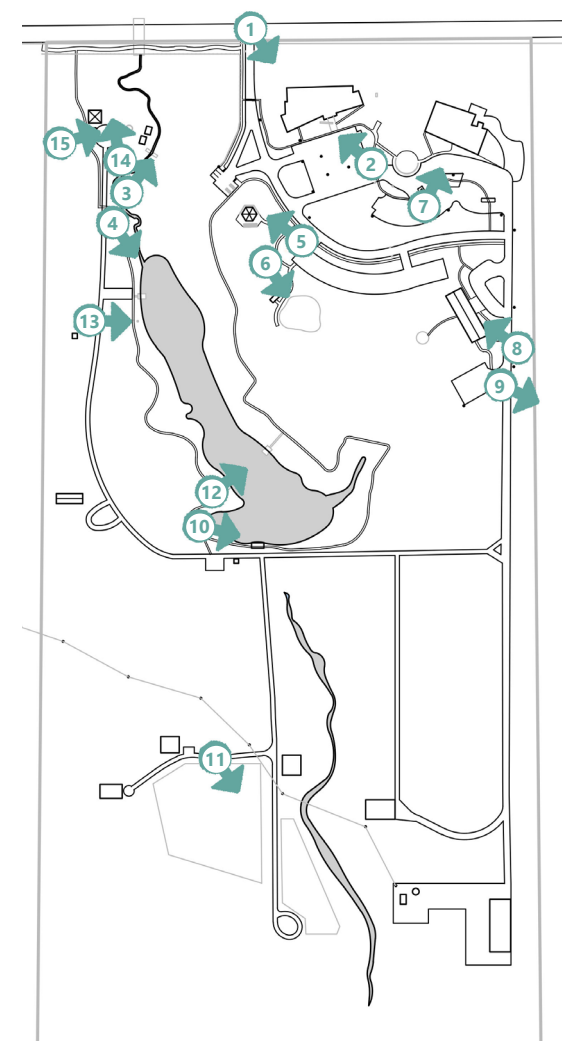


Figure 4.8: Site Inventory Reference Map



Figure 4.9: Entrance Sign



Figure 4.10: Andover Public Library



Figure 4.11: Pedestrian Bridge



Figure 4.12: Stream



Figure 4.13: Pergola



Figure 4.14: Playground



Figure 4.15: City Hall



Figure 4.16: Conference Lodge



Figure 4.17: Tree Row Around Edge of Park



Figure 4.18: Duck Feeding Station



Figure 4.19: Dog Park



Figure 4.20: Fishing Dock on Lake



Figure 4.21: Windmill



Figure 4.22: Picnic Shelter



Figure 4.23: Bird Watching Huts

Existing Site Circulation

Currently, the entrance to Andover Central Park is off Central Avenue, about one mile east of Andover Road. There are vehicular roads and parking areas, as well as pedestrian sidewalks and trails throughout the park.

- Vehicular Circulation
- Pedestrian Circulation

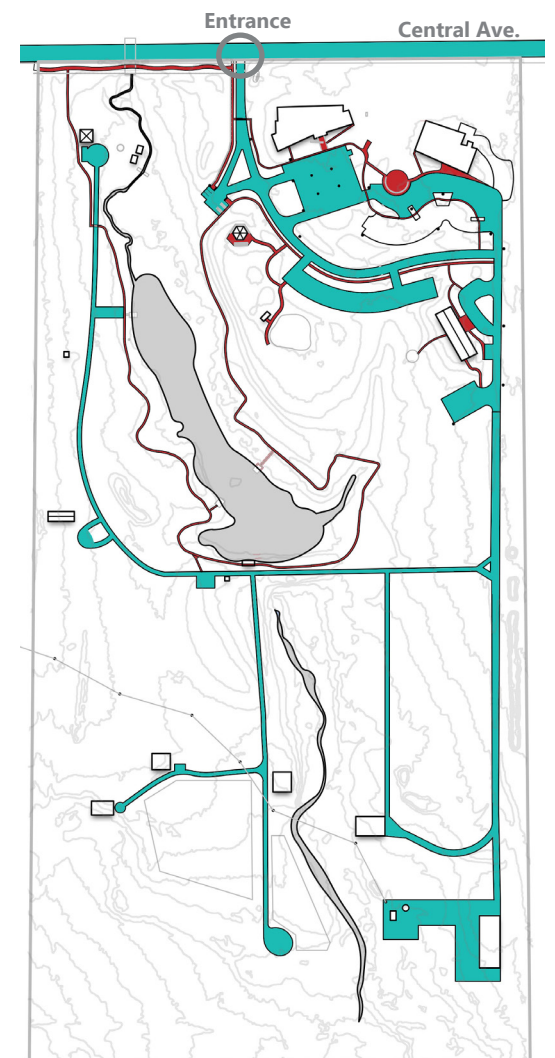


Figure 4.24: Existing Circulation Diagram

Site Utilities

Overhead utility lines, light poles, and electrical boxes were identified through site inventory, and are identified on the diagram.

- Overhead Utility Line
- Light Pole

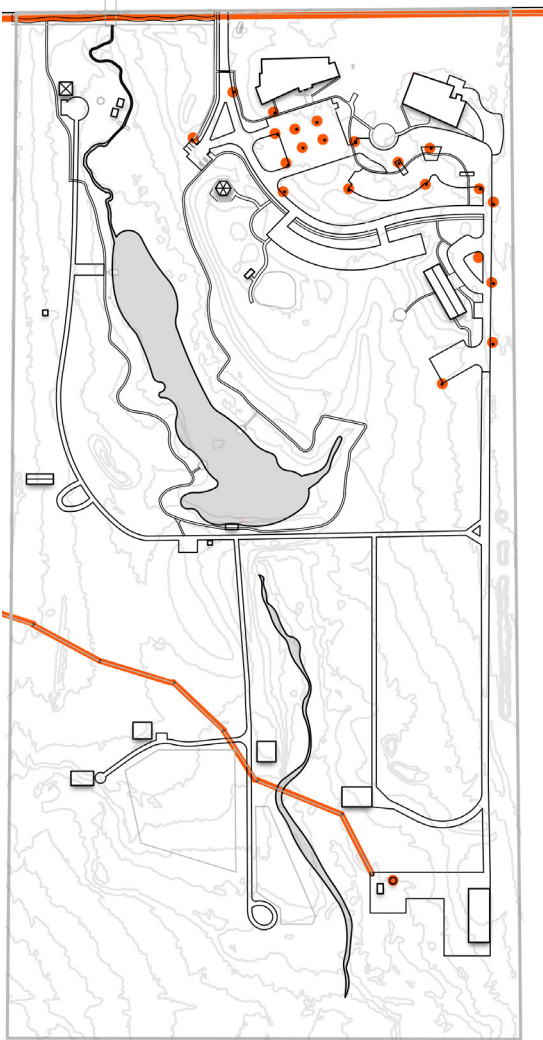


Figure 4.25: Existing Overhead Utilities

Hydrology & Topography

There is an underground drainage system, with curb drains installed along the entrance road, as well as in the Library and City Hall parking lots. The rest of the site transitions to surface drainage along roads and parking areas. Much of the water drains into the streams and lake on site.

- Drain Inlets
- On Site Detention
- Contour Lines - 1ft

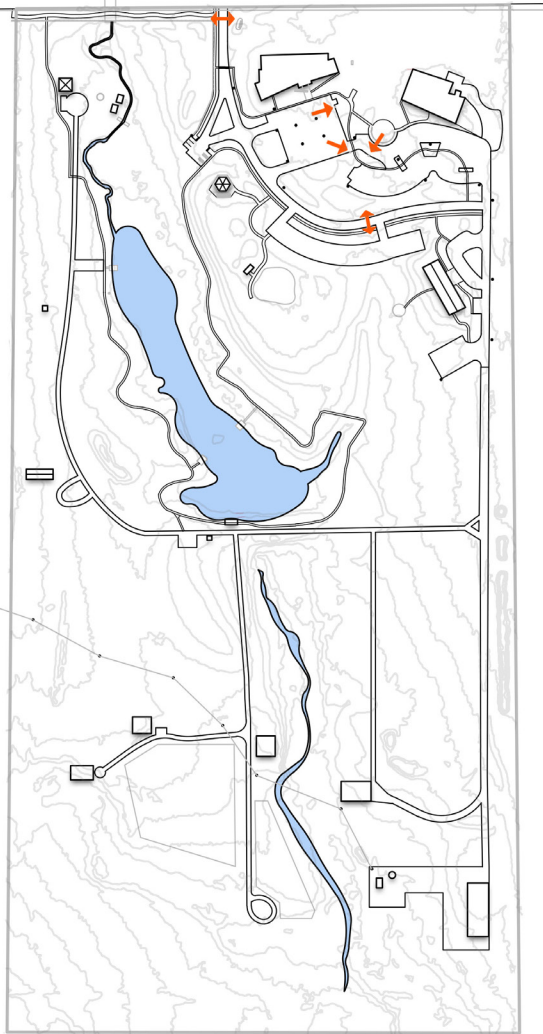


Figure 4.26: Existing Drainage and Topography

Design Suitability

After completing an inventory of the 70.6-acre Andover Central Park, key areas were identified that could be suitable for the new play area. After considering each of these areas and their location within the park, area 1 was chosen since it is near the park entrance, easily accessible from the library and parking lot, and has the most tree coverage of the three options suitable for design. A factor considered in this decision was the length of time it would take a group of children to walk to the play area from the library; the average adult can walk approximately 265 feet a minute, which means children walking even slower (David et al., 2005).

- Suitable Area 1
- Suitable Area 2
- Suitable Area 3

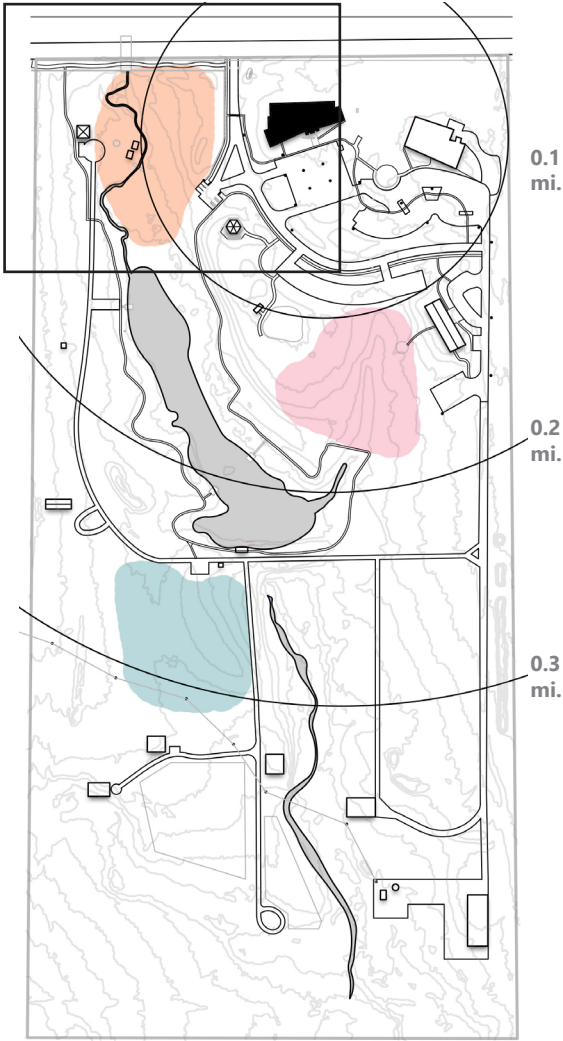


Figure 4.27: Suitable Areas to Design

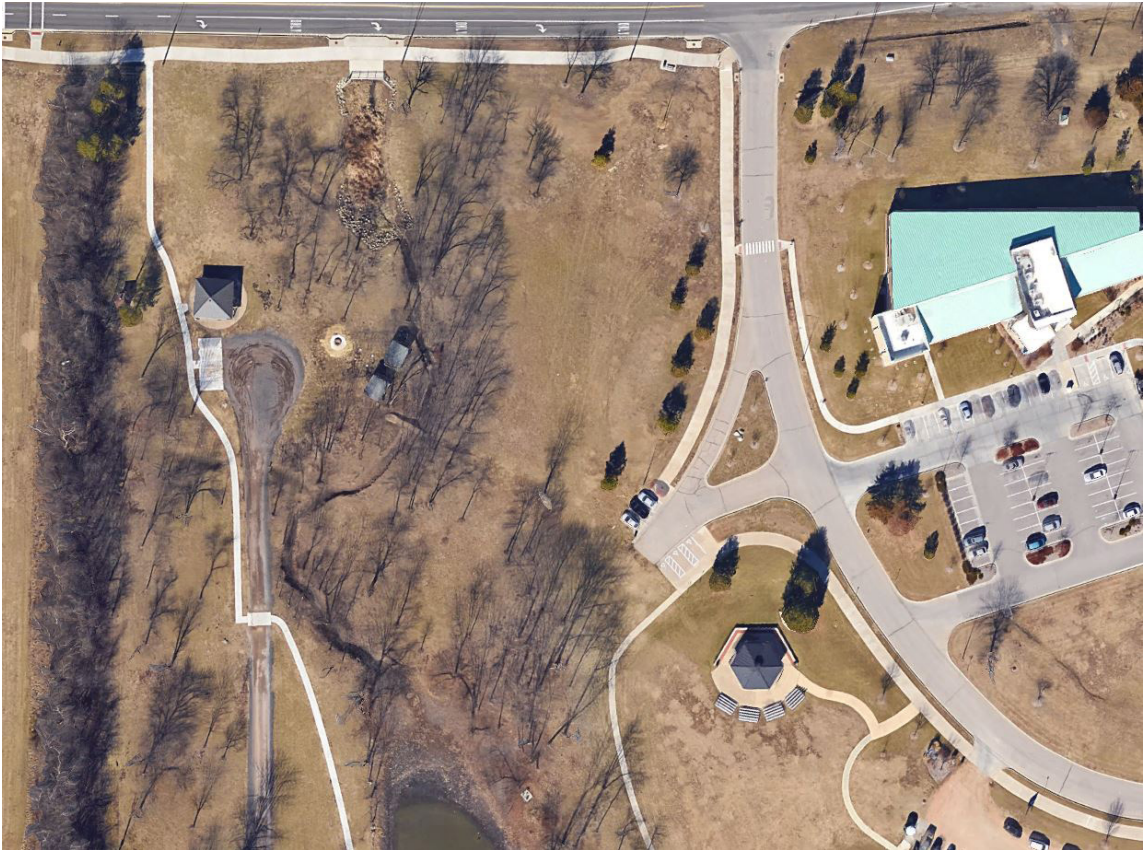


Figure 4.28: Chosen Area for Site Design

Vegetation & Wildlife

According to the USDA, Andover Kansas falls into zone 6 on the Hardiness Zone Map, which helps determine how well plants grow in the area. The plant list (Table 4.0-4.2) contains plants that are suitable for play environments, and grow well in hardiness zone 6. The plant list is categorized to show which plants are suitable for each use in the play environment.

Currently, wildlife commonly seen in the park includes: ducks, fish, deer, birds and insects. Upon the addition of a new play area, more wildlife and insects should be expected since there will be a purposeful plant palette that attracts wildlife.

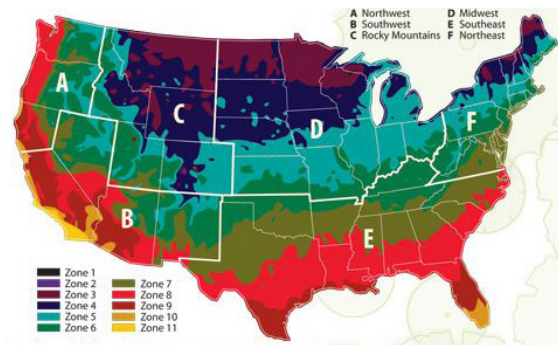


Figure 4.29: USDA Hardiness Zone Map

Fragrance					
Common Name	Botanical Name	Zone	Fragrant Part	Fragrance	Season
Bigroot Geranium	Geranium macrorrhizum	4 to 8	leaf	geranium	Spring-Fall
Wintergreen	Gaultheria procumbens	3 to 8	crushed leaf	wintergreen	Warm Weather
Sweet Woodruff	Galium odoratum	5 to 8	crushed leaf	mown hay	Spring-Fall
Ornamental Allium	Allium spp.	4 to 10	cut/bruised leaf	onion	Spring-Fall
Giant Allium	Allium giganteum	6 to 10	cut/bruised leaf	onion	Spring-Fall
Bee Balm	Monarda didyma	4 to 9	crushed leaf	mint/basil	Spring-Fall
Chamomile	Chamaemelum nobile	3 to 9	leaf	chamomile	Summer- Fall
Daylily	Heemerocallis spp.	3 to 9	flower	varies	Summer- Frost
Fragrant plantain Lily	Hosta plantaginea	3 to 9	flower	honey	Late Summer
Pink Cottage	Dianthus plumarius	4 to 8	flower	spicy	Spring- Summer
Spring Snowflake	Leucojum vernum	4 to 8	flower	sweet	Early Spring
Lemon Thyme	Thymus x citriodorus	5 to 9	leaf/flower	lemon	Spring-Fall
Common Honeysuckle	Lonicera periclymenum	5 to 9	flower	sweet	Summer- Frost
Honeysuckle Gold Flame	Lonicera x heckrottii	4 to 9	flower	sweet	Spring-Fall
Winter Honeysuckle	Lonicera fragrantissima	5 to 9	flower	sweet	Jan-Mar
Bayberry	Myrica pensylvanica	4 to 9	bruised leaf	spicy	All Year
Butterfly Bush	buddleia davidii	5 to 9	flower	sweet	July- frost
Eastern Red Cedar	Juniperus virginiana	3 to 9	bark, leaf	cedar	All Year
Dwarf Fothergilla	Fothergilla gardenii	6 to 9	flower	honey	Apr-May
Large Fothergilla	Fothergilla major	5 to 9	flower	honey	Apr-May
Fringe Tree	Chionanthus Virginicus	3 to 9	flower (male)	sweet	May-June
Chamaedrys Germander	Teucrium chamaedrys	4 to 9	bruised leaf	pungent	All Year
Chinese Witch Hazel	Hamamelis mollis	5 to 9	flower	sweet	Feb-Mar
Juniper Hetz Blue	Juniperus chinensis 'Hetzii'	4 to 9	leaf	cedar	All Year
Juniper Pfitzer	Juniperus chinensis 'Pfitzerana'	4 to 9	leaf	cedar	All Year
Juniper Sargent	Juniperus chinensis var. sargentii	5 to 9	leaf	cedar	All Year
English Lavendar	Lavandula angustifolia	5 to 9	flower/leaf	lavender	June- Aug
Star Magnolia	Magnolia stellata	5 to 9	flower	sweet	Apr-May
Sweet Bay Magnolia	Magnolia virginiana	6 to 9	flower	lemon	May- Sept
Wax Myrtle	Myrica cerifera	6 to 9	bruised leaf	spicy	All Year
Russian Olive	Elaeagnus angustifolia	2 to 9	silvery flower	gardenia-like	May
Eastern White Pine	Pinus strobus	4 to 9	needle	pine	All Year
Red Pine	Pinus resinosa	3 to 6	needle	pine	All Year
Austrian Pine	Pinus nigra	5 to 8	needle	pine	All Year
Mountain Pine	Pinus mugo	3 to 7	needle	pine	All Year
Scotch Pnc	Pinus sylvestris	3 to 7	needle	pine	All Year
Memorial Rose	Rosa wichuriana	5 to 9	flower	rose	Late Summer
Rugosa Rose	Rosa rugosa	4 to 9	flower	rose	June-frost
Spice Bush	Lindera benzoin	4 to 9	flower, leaf & stem	spicy	Spring-Fall
Summer Sweet	Clethra floridus	3 to 9	flower	spicy/sweet	July-Aug
Common Sweet Shrub	Calycanthus foetidus	5 to 9	flower, leaf	strawberry	July
Judd Viburnum	Viburnum x juddii	5 to 9	flower	sweet	Apr-May
Korean Spice Viburnum	Viburnum carlesii	6 to 9	flower	sweet	Apr-May
Fragrant Wintersweet	Chimonanthus praecox	6 to 9	flower	sweet	Dec-feb

Texture					
Common Name	Botanical Name	Zone	Part	Texture	Season
Oriental Arborvitae	Thuja orientalis	6 to 9	leaf	reptilian	All Year
Leyland Cypress	x Cupressocyparis leylandii	6 to 9	leaf	reptilian	All Year
Lamb's Ears	Stachys byzantina	4 to 9	leaf	velvety	Spring-Fall
American Smoke Tree	Cotinus Obovatus	3 to 8	flower	feathery	Summer
Stoncrop	Sedum spp.	4 to 10	dried seed capsule	woody	All Year
Goat Willow	Salix caprea	5 to 8	catkin	like stiff suede	Mar-Apr

Table 4.0: Plants for Fragrance and Texture

Wind Effects					
Common Name	Botanical Name	Zone	Effective Part	Effect	Season
Monkey Grass	Liriope spicata	4 to 10	leaves	rustling	Spring-Fall
River Birch	Betula nigra	4 to 9	leaves	wispy	Spring-Fall
Sweet Birch	Betula lenta	4 to 9	leaves	white underside	Spring-Fall
Common Bald Cypress	Taxodium distichum	5 to 10	leaves	wispy	Spring-Fall
Golden RainTree	Koeleruteria	5 to 9	dried fruit cases	rustling/ light airy	All Year
Thornless Honey Locust	Gleditsia triacanthos var. inermis	5 to 9	leaves	light, airy	Spring- Summer
Japanese Maple	Acer palmatum	5 to 8	samaras	red, twirling	Sept-Oct
Red Maple	Acer rubrum	3 to 9	leaves, samaras	white underside	Spring-Fall
Money Plant	Lunaria annua	4 to 9	dried seed cases	papery	Summer- Winter
Russian Olive	Elaeagnus angustifolia	2 to 9	leaves	silvery underside	Spring- Summer
Dawn Redwood	Metasequoia glyptostroboides	4 to 8	leaves	wispy	Spring-Fall
Giant Feathergrass	Celtica gigantea	5 to 10	leaves	wind shimmer & sound	June- Sept
Pin Oak	Quercus palustris	4 to 8	leaves	wind shimmer & sound	Spring
Double file Viburnum	Viburnum plicatum tomentosum	5 to 8	leaves	white underside	Spring-Fall

Climbing and Swinging					
Common Name	Botanical Name	Zone	Shape	Height	Spread
American Beech	Fagus grandifolia	3 to 9	oval	50'-70'	< height
Chinese Elm	Ulmus parvifolia	4 to 9	oval to round	40'-50'	70'
Common Hackberry	Celtis occidentalis	2 to 9	round	40'-60'	40'-60'
Red Maple	Acer rubrum	3 to 9	oval to round	40'-60'	3/4 height
Sugar Maple	Acer saccharum	3 to 8	oval to round	60'-75'	2/3 height
Sawtooth Oak	Quercus acutissima	5 to 9	oval to round	35'-45'	35'-45'
White Oak	Quercus alba	5 to 9	round	50'-80'	50'-80'
Willow Oak	Quercus phellos	5 to 9	oval	40'-60'	30'-40'
Japanese Pagoda Tree	Sophora japonica	5 to 9	spreading	50'-75'	50'-75'
Japanese Black Pine	Pinus thunbergii	5 to 8	irregular	up to 40'	variable
Chinese Pistache	Pistacia chinensis	6 to 8	oval to round	30'-35'	25'-35'
Eastern Sycamore	Platanus occidentalis	4 to 9	round	75'-100'	75'-100'
Yellowwood	Cladrastis lutea	3 to 8	round	30'-50'	40'-55'
Japanese Zelkova	Zelkova serrata	5 to 8	vase	up to 100'	50'-80'

Table 4.1: Plants for Wind Effect, Climbing and Swinging

Hiding Places				
Common Name	Botanical Name	Zone	Height	Spread
Golden-groove Bamboo	Phyllostachys aureosulcata	6 to 10	20'-25'	spreading
Japanese Beautyberry	Callicarpa japonica	5 to 8	4'-6'	4'-6'
Cutleaf European White Birch	Betula pendula 'Gracilis'	2 to 6	10'-15'	10'-15'
European Cranberry Bush	Viburnum opulus	3 to 8	8'-12'	10'-15'
Fringe Tree	Chionanthus virginicus	3 to 9	12'-20'	12'-20'
Prairie Cord Grass	Spartina pectinata	5 to 9	4'-6'	spreading
Silver Grass	Miscanthus spp.	4 to 10	3'-12'	clump-forming
Switch Grass	Panicum virgatum	5 to 9	3'-6'	spreading
Hedge Maple	Acer campestre	5 to 8	25'-35'	25'-35'
Japanese Maple	Acer palmatum	5 to 8	15'-25'	15'-25'
American Smoketree	Cotinus obovatus	3 to 8	20'-30'	10'-20'
Black Haw Viburnum	Viburnum prunifolium	3 to 9	12'-15'	8'-12'
Double-file Viburnum	Viburnum plicatum tomentosum	5 to 8	8'-10'	9'-12'
Weeping Willow	Salix babylonica	6 to 9	30'-40'	30'-40'

Physical Barriers				
Common Name	Botanical Name	Zone	Height	Spread
Five-leafed Aralia	Acanthopanax sieboldianus	4 to 9	8'-10'	8'-10'
Barberry (most varieties)	Berberis	3 to 9	2'-8'	3'-8'
Thorny Elaeagnus	Elaeagnus pungens	6 to 9	10'-15'	10'-15'
Flowering Quince	Chaenomeles speciosa	4 to 9	6'-10'	6'-10'

Wind Screens & Visual Buffers				
Common Name	Botanical Name	Zone	Height	Spread
American Arborvitae	Thuja occidentalis	3 to 8	40'-60'	10'-15'
Wareana Arborvitae	Thuja occidentalis 'Wareana'	3 to 8	8'	3'-5'
Eastern Red Cedar	Juniperus virginiana	3 to 9	40'-50'	8'-20'
Leyland Cypress	x Cupressocyparis leylandii	6 to 9	60'-70'	1/4 height
Canada Hemlock	Tsuga canadensis	3 to 7	40'-70'	25'-35'
Carolina Hemlock	Tsuga caroliniana	4 to 7	45'-60'	20'-25'
Laurel Oak	Quercus imbricaria	4 to 8	50'-60'	50'-60'
Eastern White Pine	Pinus strobus	4 to 9	50'-80'	20'-40'
Norway Spruce	Picea abies	2 to 7	40'-60'	25'-30'
Serbian Spruce	Picea omorika	4 to 7	50'-60'	20'-25'
Leatherleaf Viburnum	Viburnum rhytidophyllum	5 to 9	10'-15'	10'-15'
White Sagebush	Artemisia ludoviciana	4 to 10	1'-5'	2'-3'
Maney Juniper	Juniperus chinensis 'Maneyi'	3 to 8	6'-8'	5'-6'
Hollyleaved barberry	Mahonia aquifolium	4 to 8	3'-6'	3'-5'
Common Lilac	Syringa vulgaris	3 to 7	20'	6'-15'
Boxelder	Acer negundo	2 to 9	30'-50'	30'-50'
Red Maple	Acer rubrum	2 to 9	30'-75'	30'-45'
Sugar Maple	Acer saccharum	4 to 8	60'-80'	35'-50'
River Birch	Betula nigra	4 to 8	40'-70'	40'-60'
Hornbeam	Carpinus caroliniana	3 to 9	20'-30'	30'-40'
Pecan	Carya illinoensis	5 to 9	70'-100'	40'-75'
Sugarberry	Celtis laevigata	5 to 9	60'-80'	60'-80'
White Ash	Fraxinus americana	3 to 9	50'-80'	40'-60'
Green Ash	Fraxinus pennsylvanica	3 to 9	50'-80'	25'-40'

Table 4.2: Plants for Hiding Places, Physical Barriers Wind Screens & Visual Buffers

4.3 Interviews with Teachers & Librarians

Interviews were conducted with three K-2 teachers and three children's librarians, which helped to better understand the literature that children of that age are being exposed to in and out of the classroom. The interviews consisted of four main questions, with sub-questions and open discussion as well. Although not all of the answers collected from these interviews aligned with each other, they still provided a basis to build from. Below is a synthesis of answers that were collected.

1. What books are students' favorites, highly read or recognized by the students? Are there any fables or nursery rhymes that are highly read/used? How are these books used in the school/classroom? How do students respond to classic pieces of children's literature's compared to new literature?

The question about student's favorites or highly read and recognized books generated enthusiastic responses and resulted in a list of over fifty recommended books to read. Some of these books included classics, but some were newer ones as well. The teachers and librarians indicated that the children still enjoy the classics and show the same excitement towards them as they do newer books. However, the popularity of nursery

rhymes and fables got split responses, with most teachers agreeing that nursery rhymes may be more highly used in preschool and kindergarten, but that they are not as commonly known by all of the students as they were many years ago. Nursery rhymes and fables do not seem to grab the student's attention any more unless they are presented to the children in a fun way as a piece of the curriculum. Teachers did express that curriculum requirements are fairly strict and demanding, however they do incorporate literature into many of their curriculum based activities.

2. What are a few common themes you see used or referenced in children's books?

“We always try to teach them to be kind, giving and caring through the stories we choose.” – 2nd grade teacher

Themes that teachers use from children's literature include: friendship, family, kindness, caring, giving and other moral lessons, as well as historical references. Librarians indicated different themes from children's literature, including: modes of

transportation, animals, fairytales, monsters, dragons, and fantasy lands, which seem fascinating to K-2 students.

3. How do you think children would react to exploring a landscape in which they could imagine or recreate books that they know well? What kind of landscape do you think they could recognize from books, that would further their exploration? In a workshop setting, do you think the K-2 children would be able to provide imaginative feedback about depicting stories they know in to the landscape?

Teachers and librarians both stated that their students would be excited to have an interactive park design that incorporates their favorite stories. However, a majority of those interviewed agreed that the park design would need to be quite literal in telling a story in order for young children to understand that it relates to the piece of literature at all. Although they agree that second graders might be able to draw more conclusions and see similarities between a park design and a children's book, kindergarten and first grade students would not make those connections. Including key elements or even characters from the chosen

pieces of children's literature would be the best way to ensure that all children would understand the experience the park is trying to portray. Both teachers and librarians thought that interacting with the children to collect their opinions of park elements would be of benefit to this project; although they indicate that it must be a pretty simple activity or survey, since it might be difficult to explain how a story will be interpreted in to a park design.

“This library goes hand-in-hand with the park outside.”
– Andover Public Librarian

The most important part of this interview process was hearing that Andover Public Library conducted a summer-long survey, asking which book from the children's collection was their favorite. The Curious George books, by H.A. Rey was the winner of this survey, which provides support in using Curious George as key inspiration behind this new park design.

4.4 Children's Play Preferences

The play preferences survey was distributed to nearly 60 K-2nd grade children, who took it on classroom computers or iPads; Of those children, 37 participated. The participants of the survey were asked three questions, each question consisting of a group of pictures and asking them to choose their favorite four. Images were used in the question formatting, for the ease of children being able to understand the survey on their own.

1. Which 4 of these activities look the most fun?

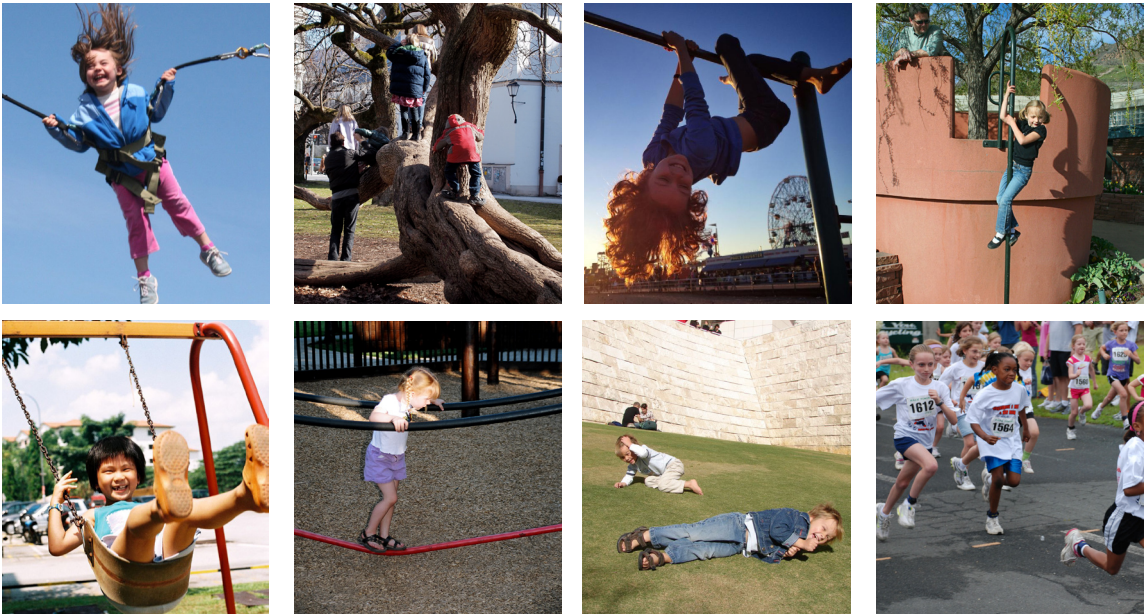


Figure 4.30: Survey Images of Play Activities

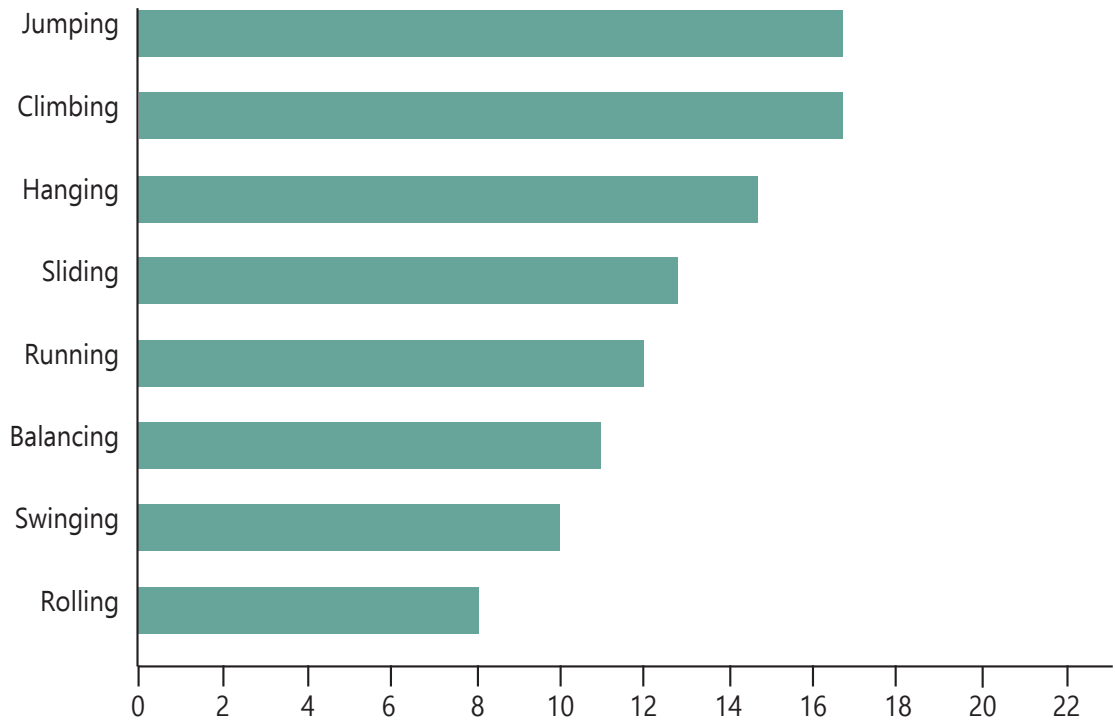


Figure 4.31: Preference Results for Play Activities

As seen in the graph, the children indicated that jumping and climbing were their favorite activities, followed by hanging and sliding. This data was used to support play elements included in the new play area design.

2. Which 4 places look the most fun to play?



Figure 4.32: Survey Images of Places to Play

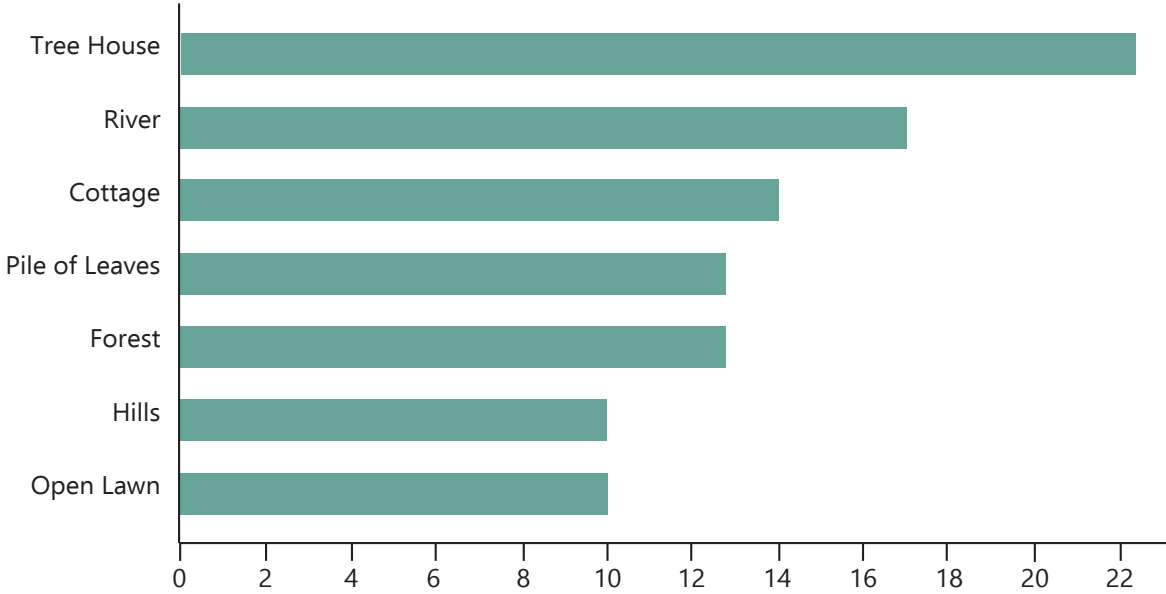


Figure 4.33: Preference Results for Places to Play

As seen in the graph, the children indicated that the tree house looks the most fun to play in, followed by the river and cottage. This data highly supports including a tree house element in the new play area, since 65% of participants favored it.

3. Which 4 modes of transportation do you like the best?

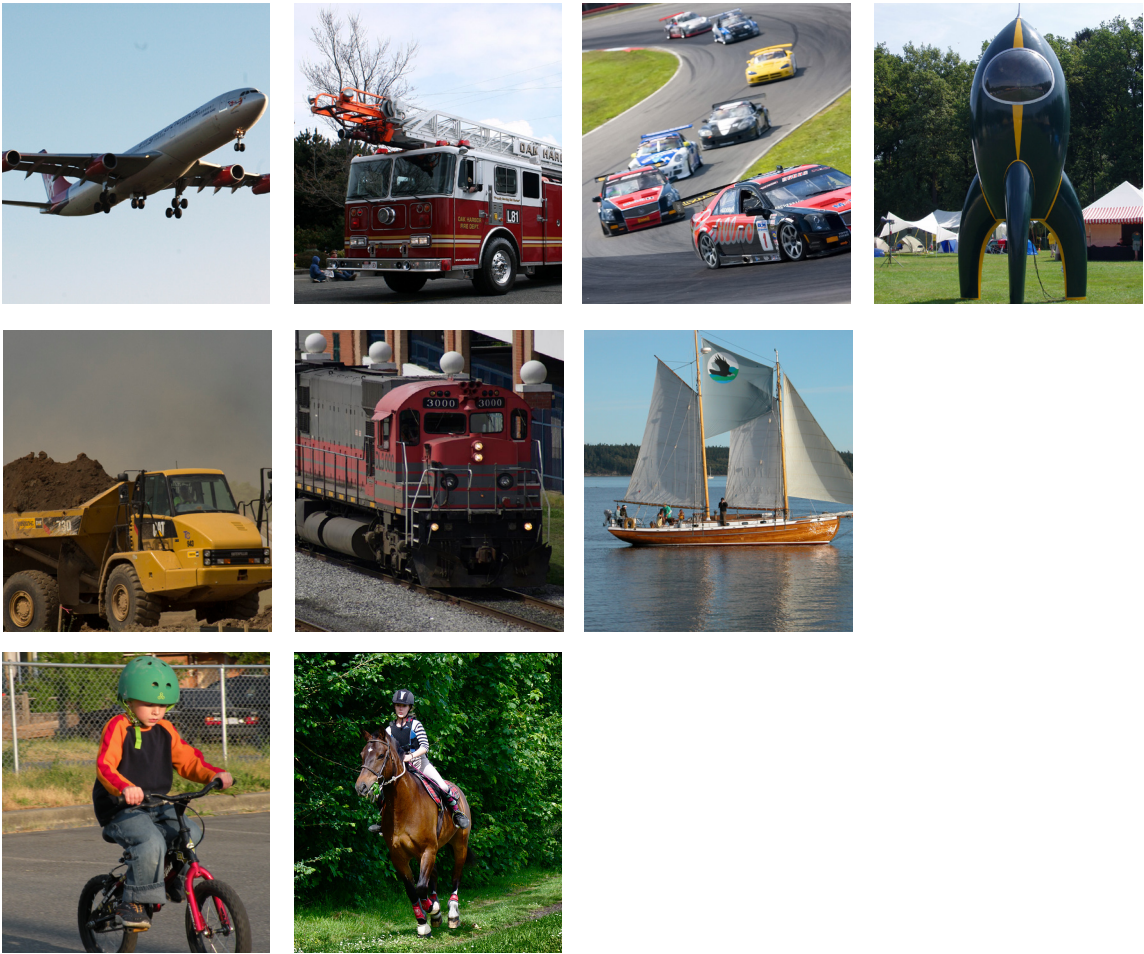


Figure 4.34: Survey Images of Transportation

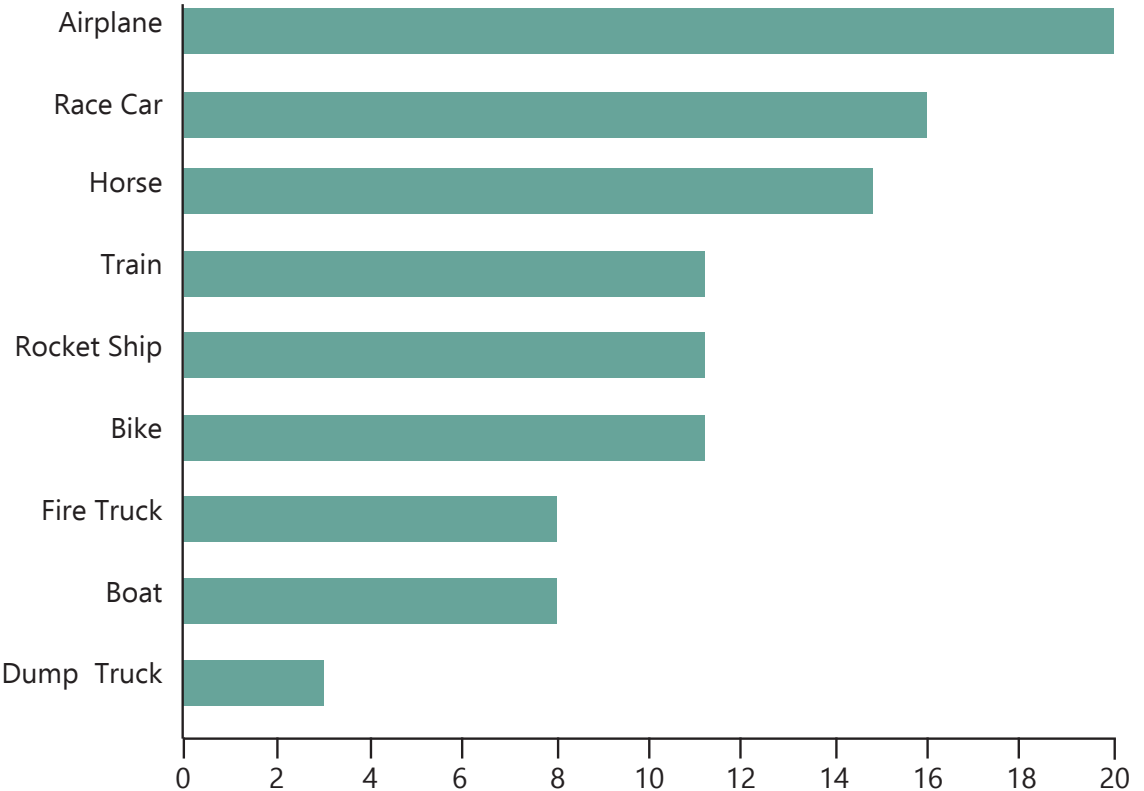


Figure 4.35: Preference Results for Transportation

As seen in the graph, the participants appear to have more interest in airplanes, horses and race cars than any other modes of transportation.

chapter five

SITE DESIGN



5.1 Site Design

The design for the new play area was driven by a combination of data, evidence, best practices, and creativity. The design considered many perspectives, including: types of play, incorporation of natural elements, materials, tactile and movable elements, as well as safety and comfort. Most important was to create a design that would spark children's imagination and encourage reading, by making connections to the stories and books they know.

The types of play that the new design supports, include but are not limited to: physical play, social play, creative play, sensorial play, solitary play, unoccupied play, onlooker play, competitive play, parallel play, and dramatic or fantasy play. Most all elements in the new design support physical play, as there is plenty of area for children to walk or run, as well as use and test new muscles that certain play elements can help strengthen. Muscle movements and strength can be explored through balancing, climbing, swinging, sliding, hopping, running and rolling, on the elements included in the design. Creative and sensorial play are supported in this design through the plants and materials chosen. Loose parts such as sand, water, mulch and tree droppings such fruit, leaves or branches are tactile objects, which can spark

creativity and provide sensory experiences. The planting design also supports sensorial play by incorporating plants that move or make sound in the wind, or as children run by them. Unoccupied play and onlooker play can both take place in less programmed areas, such as the open lawn, outlook hill or hammock forest; these areas give children the ability to observe the action around them, or a chance to make up a play scheme of their own. Many elements in the new play area support competitive and parallel play. For example, climbing elements on the tree house, as well as the slide hill both offer children a way to compete while ascending or descending those elements. Dramatic and fantasy play can be explored in any area of the new design, but especially within the tree house forest, which the imagination can transform to fit many play scenarios.

This design makes many connections to the Curious George books and the adventures that George encounters. The Andover Public Library may program children's reading time to focus on Curious George, which would encourage the children to make those connections and use their imagination to recreate the stories in the new play area. However, the design does not limit the children to Curious George books, as many other books were analyzed and relate to the design of the play area as well.

Materials chosen for this design provide a variety of textures, smells, sounds and color. Ground materials include concrete paving, wooden bridges and docks, turf lawn, engineered wood fiber mulch, sand, and limestone boulders. The river and rafting pond also provide sounds and sensory textures to experience. The plant list was created to include plants that are safe for play areas, provide textures, sounds, fragrances, and drop fruit, leaves or branches to be used as play props.

Safety, scale, comfort, accessibility, seating, shade and art were all considered in the design of the new play area. Fencing and the scale of spaces both play a role in the safety of children, and comfort of parents in letting their children play freely. From distances of around 230 feet, adults should be able to determine the age and gender of a person, as well as reading body language or exaggerated gestures. Within distances of around 115 feet, adults can hear yells or shouts for help, as well as sense moods and reactions of people. At around 80 feet can people begin to have conversations and read facial expressions (Gehl 2013, 34). The new play area was designed so that there are seating areas for parents within that range of all play elements. All play areas are fenced along the perimeter to contain children; and

there are three entrances, two of which have latching gates. The main entrance is the only entry point without a latching gate since it has been more highly designed as a tunnel into the world of imagination. Three seating areas for parents are provided within the new design, as well as additional seating along the entrance wall, on the outlook hill, and in the forest area. All seating is at least partly shaded, to ensure the comfort of visitors. Accessibility and inclusivity standards were considered and met through the new design. All slopes of walkways and ramps meet accessibility standards, as well as ground materials in many play areas. Although the sand, boulders in the river, and the turf lawn do not qualify as handicap accessible surfaces, those play areas have been designed to still be inclusive of children with physical disabilities. Accessible pathways run within and around the turf hills, so that physically disabled children can be included in play and conversation with the children who may be on the hills. Alongside children playing in the sand, physically handicapped children can be included in play by using the water pump and hand operated sand scoop, which are both on an accessible path.



Figure 5.0: Site Plan



Figure 5.1: Site Plan with Proposed Tree Coverage

Design Zones



Figure 5.2: Design Zones

Circulation



Figure 5.3: Proposed Circulation

Boundary Fencing



Figure 5.4: Proposed Fencing

Planting & Materials



Figure 5.5: Schematic Planting Design

Types of Play

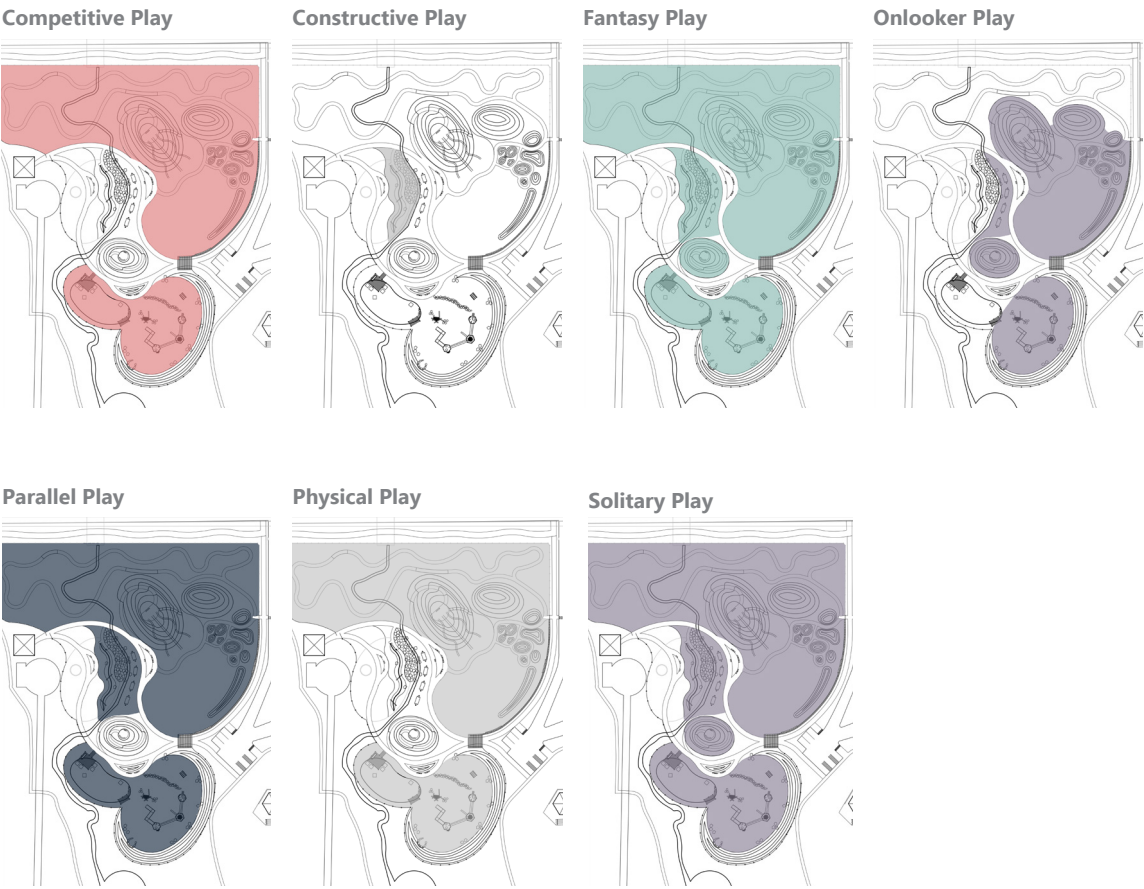


Figure 5.6: Zones That Support Each Type of Play

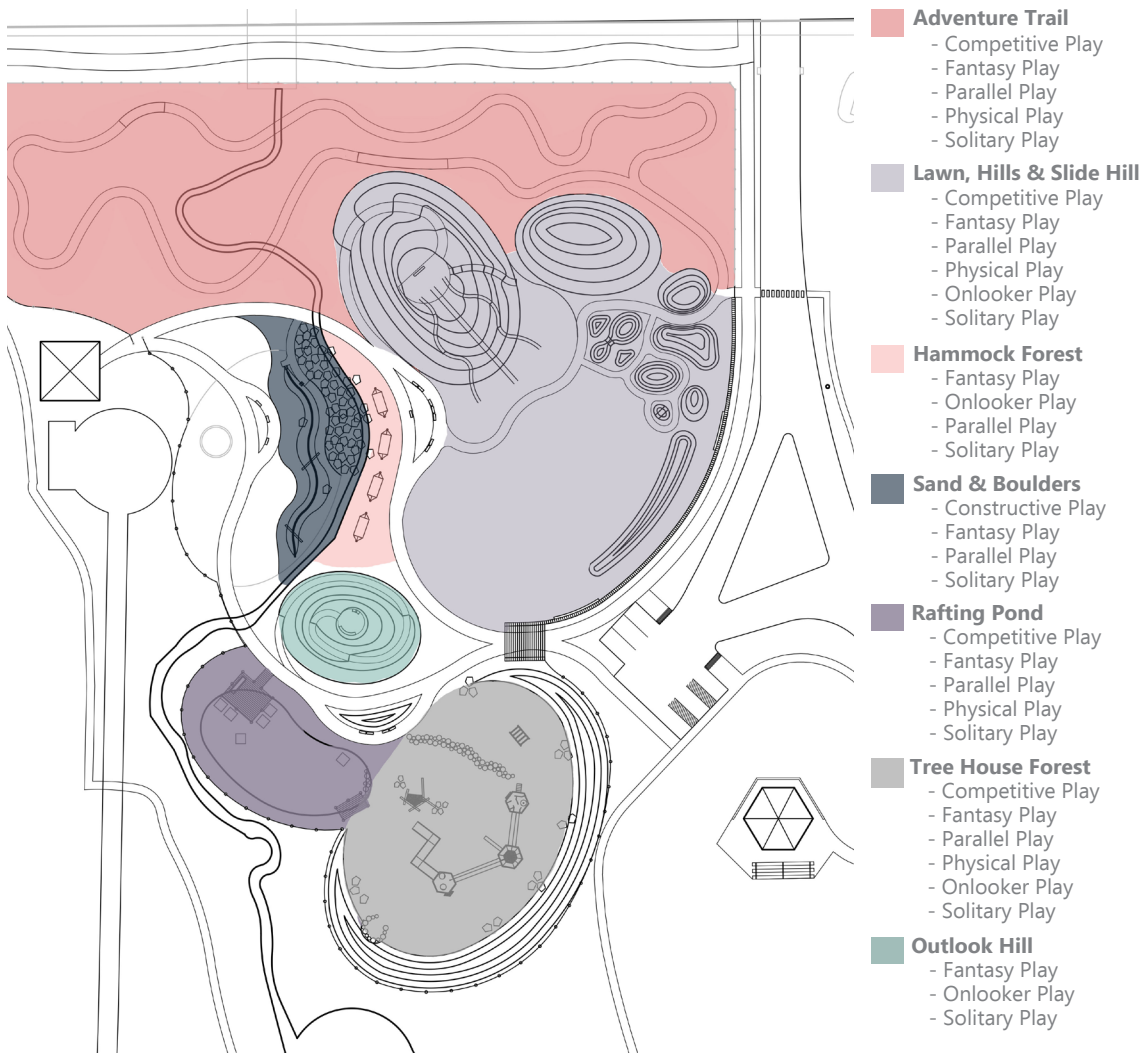


Figure 5.7: Types of Play Represented in Each Zone

Entrance

The entry wall was designed to attract children to the primary entrance of the play area. With a playful, undulating wall built of wood, as well as the colorful planting along it, children’s excitement will build before even entering the play area. The wall grows in height until the entry archway, which is covered in vines to act as the portal into the world of adventures and imagination. As well as the entry wall acting as a fencing element, it acts as seating along the interior of the wall, facing the open lawn area.



Figure 5.8: Entrance Plan



Figure 5.9: Views of Entry Walk

Slides & Hills

The hills and slide hill provide children with places to run, climb, roll and slide, while the open lawn provides ample space for team games or larger groups to interact. An accessible path winds between the smaller hills, to allow handicapped children to be included in play with the children playing on the turf mounds. The larger slide hill has an accessible path to the top, along with a steeper path up the side near the slides.

Three slides provide different experiences of speed and movement, while being near enough to each other to allow for competitive play to occur. The planting design for the slide hill consists of plants that move and create sounds in the wind, created as children speed down the slides. There are also shade trees planted along the slides, to prevent the slides from getting too hot in the summer sun.



Figure 5.10: Plan of Slide Hill and Play Mounds



Figure 5.11: Views of Slides and Play Mounds

Tree House Forest

The forest is shaded by the overhead canopy of trees, which allows for children’s creativity and imagination to run wild. A 3 foot landscaped berm surrounding the area helps to contain the children, as well as being heavily planted with trees to give children the experience of climbing among the trees. Within the forest area is a large tree house, a swinging log bridge, a pile of fallen logs to climb, as well as a reading cove. Since the tree house was most preferred by the children who completed the preference

survey, it is the main feature in the forest. The tree house has multiple access points—one is handicap accessible. There are three platforms of varying heights, including elements such as a slide, a fire pole, a zip line, and a tight rope line. Under the tree house platforms are an enclosed playhouse area, a spider web net, and a maze. The forest area opens up on one side to a shallow pond, where children can float and paddle across to the other side.

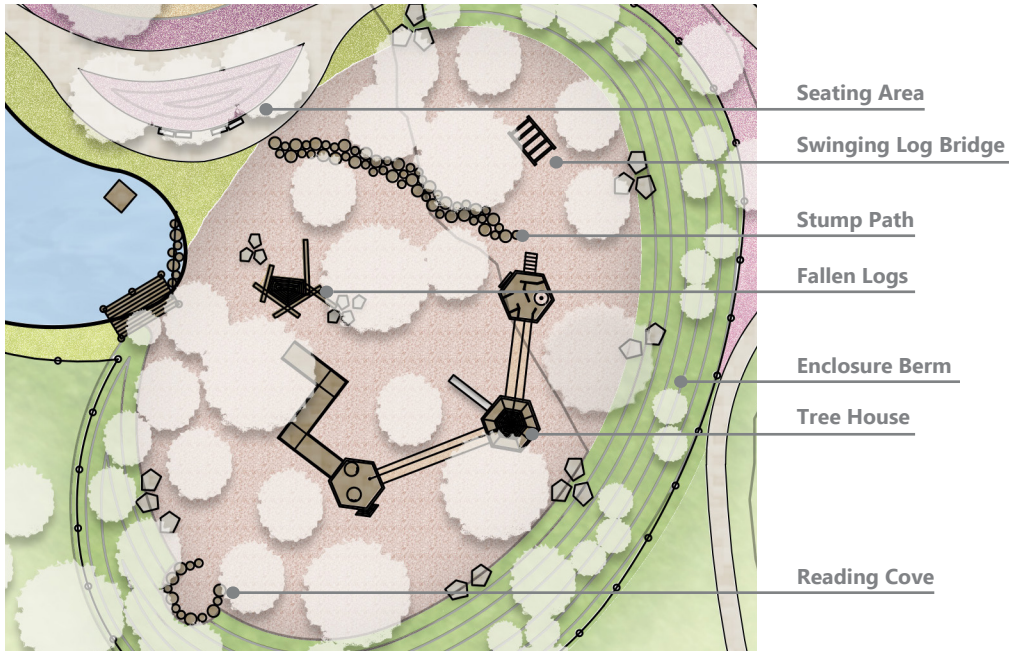


Figure 5.12: Plan of the Tree House Forest



Figure 5.13: Views of the Tree House, Fallen Logs, and Reading Circle

Outlook Hill

The outlook hill is located centrally within the play area, which enables children to view many things from the top. Along the accessible path winding to the top, are fragrant and colorful plants, as well as plants to make sound in the breeze. At the top, children will find a telescope which they can use to spy on the activities happening elsewhere in the park. Seating is also provided if they wish to read or relax.

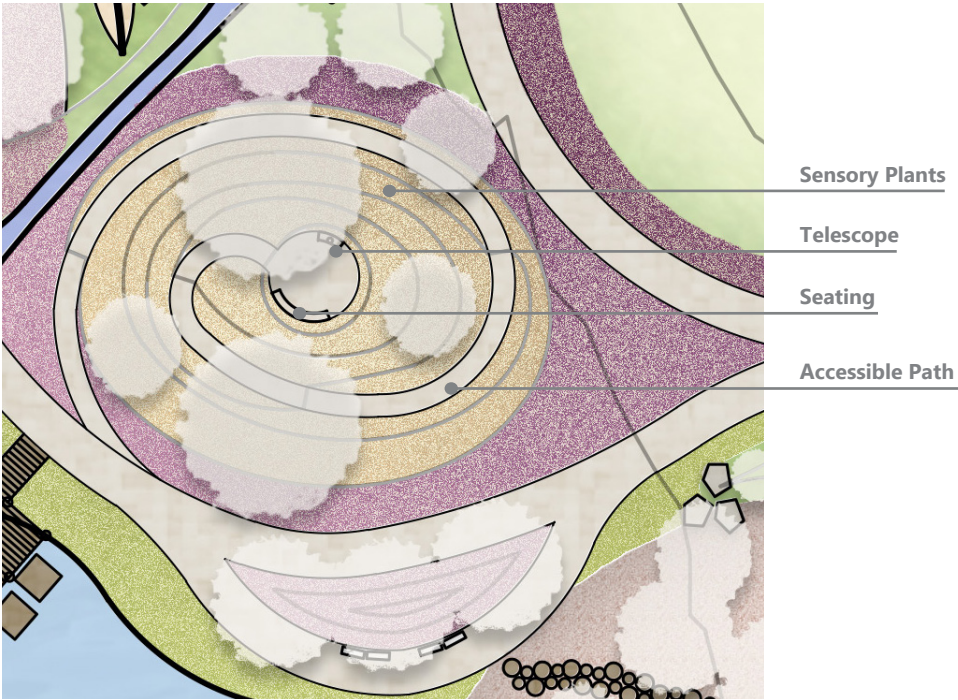


Figure 5.14: Plan of Outlook Hill

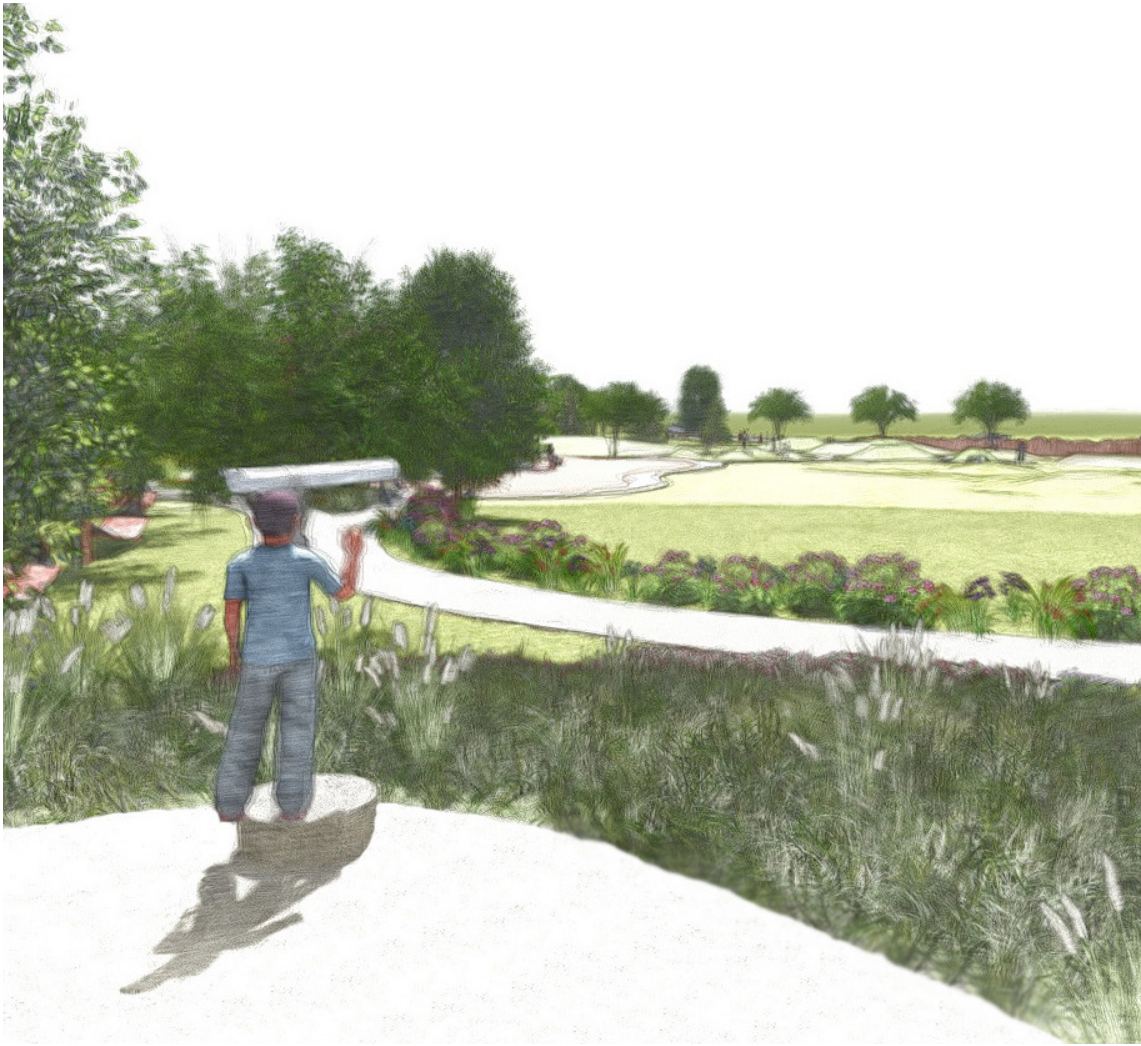


Figure 5.15: View From Top of Outlook Hill

Rafting Pond

The rafting pond, though shallow, allows children to experience floating, paddling and splashing. With less than twelve inches of water, the rafts are on wheels to prevent tipping or capsizing, but the children can still use paddles to navigate through the water. On each of the two docks are posts for rafts to be tied to, as well as a chest of paddles and poles for the children to use.

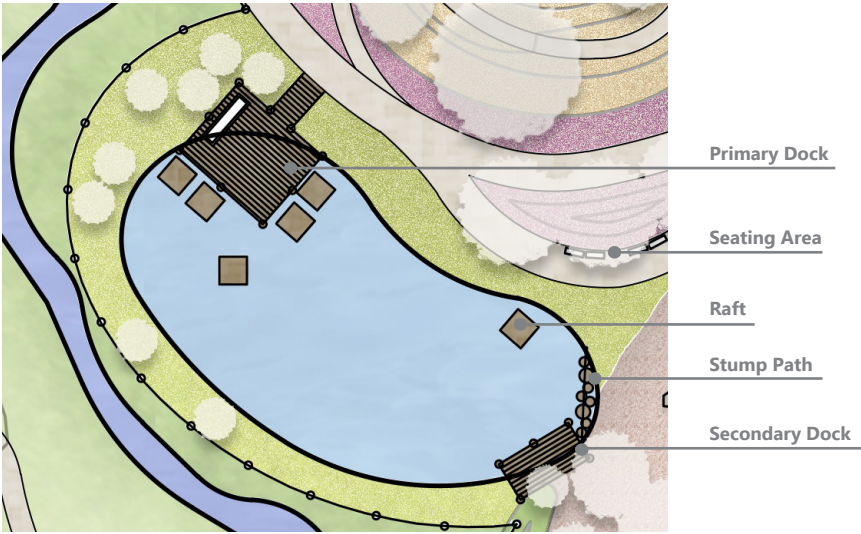


Figure 5.16: Plan of Rafting Pond

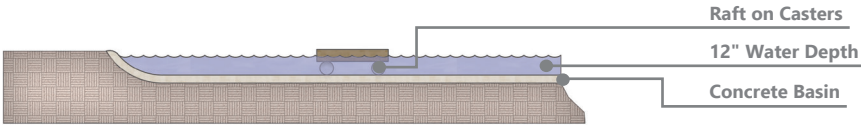


Figure 5.17: Section of Rafting Pond



Figure 5.18: Views of Rafting Pond From Docks

Sand & Boulder Play

Across either bridge is the sandy river and boulder play area. The sandy river allows for children to sculpt, move and create anything they wish. Boulders and logs within the sandy area can be used as seats while digging or as part of the many creations that children may build. An accessible path allows handicapped children to be included in play by pumping water from the top of

the sandy river into the canal, or scooping sand with a claw contraption. From the sandy river down to the actual stream are limestone boulders so that children can access the water in warmer months. The stream is not very deep, but is continually babbling, which will provide many fun scenarios for play and imagination.



Figure 5.19: Plan of Sand and Boulder Play



Figure 5.20: Views of Sandy River and Boulders to Water

Hammock Forest

Nestled within a row of trees along the river is a line of hammocks. These can be used to gently swing in, lay in while observing others playing, or used for a quiet individual reading spot. From the hammocks you can see the open lawn, slide hill, and the boulders in the river.

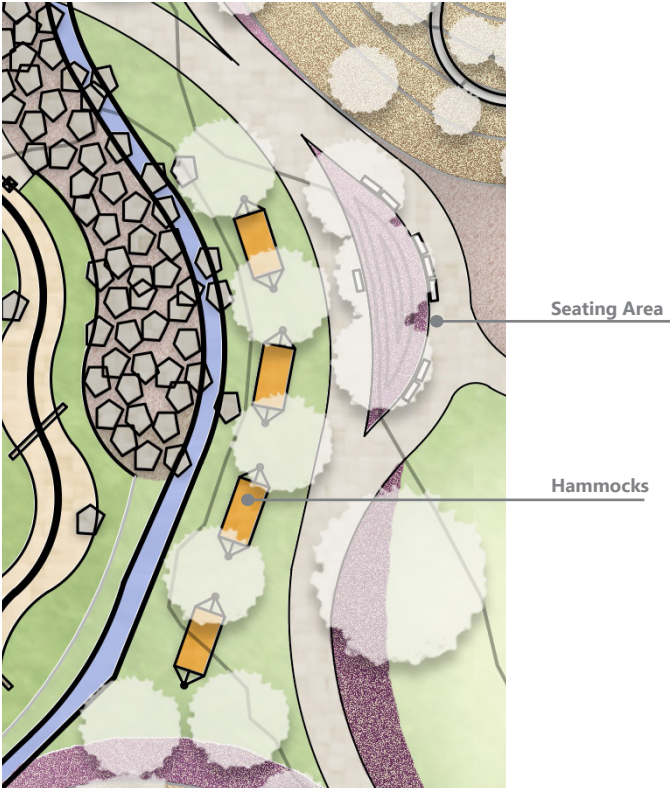


Figure 5.21: Plan of Hammock Area



Figure 5.22: View of Hammocks Along Stream

Adventure Path

At the north end of the play area, hiding behind the hills is an adventure path which older kids can explore on foot or by bicycle. This is the only area in which cannot be easily seen by parents from one of the seating area areas, although the perimeter is fenced in to ensure that children must exit in the same place where they entered. With curves, bridges, trees and tunnels along the path, there is plenty to explore while gaining confidence and trust in being farther from direct supervision.

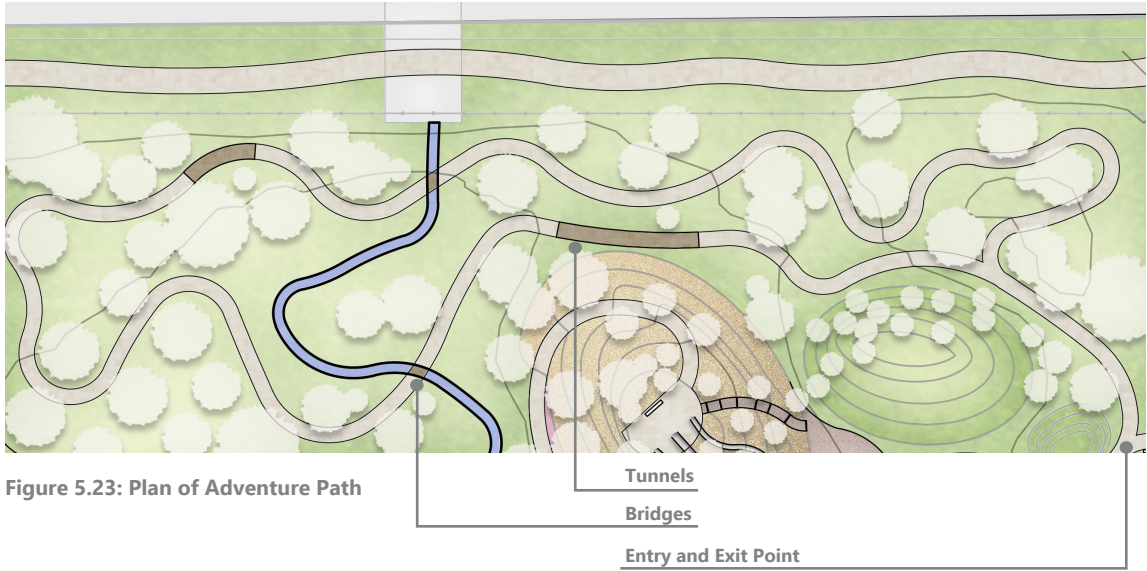


Figure 5.24: Views of Adventure Path

5.2 Literature in the Landscape

Many of the pieces of children's literature that were reviewed and analyzed in this report, can be related to the play area design. Since the Andover Public Library indicated that the most popular children's series at their library is Curious George, how these stories relate to the design is shown in Figure 5.25. Other children's literature in relation to the design is shown in Figure 5.26. The design of the play areas also incorporate a variety of spaces in which group or individual story telling reading can take place, which is shown in Figure 5.27.

Curious George



Figure 5.25: Relating Curious George to Play Area Design

Other Literature



Figure 5.26: Relating Other Children's Literature to Play Area Design

Reading Areas



Figure 5.27: Places to Read in Play Area

chapter six

CONCLUSIONS



6.0 Conclusion

Summary

A site design that encourages outdoor exploration, activity, and reading is sure to be timeless, ensuring that children should be able to enjoy the play features for many years. Although the design relates nicely with current children’s literature, the elements and themes should be able to connect with future literature as well. While the site design connects to literature in many ways, children will be able to enjoy the play area even if they are not of age to draw those connections. With a range of spatial environments, play elements, and components of nature, this play area will help children strengthen their bond with nature. If children learn to enjoy the outdoors while they play here, they will hopefully continue their outdoor activity and exploration as they grow up, while learning environmental stewardship. Designing places for children to build new muscle groups, exert energy, test their skills, and use their imagination can help to solve many of the health threats facing children in coming generations.

Relevance

Several reasons that make this project relevant and important to contemporary landscape architecture include:

- 1) Providing outdoor spaces for children to connect with nature, which can lead to higher levels of environmental stewardship as adults.
- 2) Allowing children to further develop both their reading skills and imagination, by drawing connections from their favorite literature to the play design.
- 3) Encouraging higher levels of activity and exercise, which can help in solving health related threats children are facing, such as nature-deficit disorder, ADD, ADHD and obesity.

Reflection

In completing this research and design, I have found that children’s literature can be used to inspire a play landscape in many ways. I took the route of designing a play area in which relates to many children’s books by using common themes, items, and actions popular across many authors and books. Since the Andover Public Library held a survey that discovered Curious George is the most popular children’s series, I chose to relate the design most closely to those books, but avoided strongly theming my design to represent details of Curious George so that it does not limit the relevance of other literature, or the children's imagination.

My research methods worked well, and provided valuable information. Collecting information from the children, as well as teachers and librarians was successful in providing a variety of feedback. Although my data was collected in Andover, it could be used by others who are designing for a similar population and age group. Incorporating children’s literature to this design worked well since the Public Library is located within the park, however I believe designs based on children’s literature could

be successful in other parks as well. I have hopes that Andover will adopt this design and develop the site, so that children have this opportunity to connect with literature and nature.

chapter seven

REFERENCES



“ ”

7.1 Text References

- Acar, Habibe. 2014. "Learning Environments for Children in Outdoor Spaces." *Procedia - Social and Behavioral Sciences* 141: 846-53.
- "Andover, Kansas Climate". N.D. Andover, Kansas (KS) climate and weather - View the weather in Andover, Kansas (KS). Accessed January 27, 2017. <http://city-stats.org/ks/andover/climate/andover-climate-data>.
- American Academy of Pediatrics. 2009. "The Built Environment: Designing Communities to Promote Physical Activity in Children. (Policy Statement)." *Pediatrics* 123, no. 6: 1591-1595.
- Bearne, Eve, and Victor Watson. 2000. *Where Texts and Children Meet*. London: Routledge.
- Broto, Carles. 2012. *New Playground Design: Design Guidelines and Case Studies*. Barcelona: Linkbooks.
- Chawla, Louise. 2007. Childhood Experiences Associated with Care for the Natural World: A Theoretical Framework for Empirical Results. *Children, Youth and Environments*, 17(4): 144-170. Retrieved from <http://www.jstor.org/stable/10.7721/chilyoutenvi.17.4.0144>.
- City of Andover. 2016. *Community Profile*. Andover, KS. Accessed October 26, 2016. <http://www.andoverks.com/index.aspx?NID=220>.
- City of Andover. 2016. *Parks Department*. Andover, KS. Accessed October 27, 2016. <http://www.andoverks.com/index.aspx?NID=17>.
- David, K. S., and M. Sullivan. *Expectations for walking speeds: standards for students in elementary schools*. Pediatric physical therapy : the official publication of the Section on Pediatrics of the American Physical Therapy Association. 2005. Accessed March 06, 2017. <https://www.ncbi.nlm.nih.gov/pubmed/16357662>.
- Day, Christopher, and Anita Midbjer. 2007. *Environment and Children: Passive Lessons from the Everyday Environment*. Amsterdam: Architectural.
- Dillon, Justin, Mark Rickinson, Kelly Teamey, Marian Morris, Mee Young Choi, Dawn Sanders, and Pauline Benefield. 2006. "The Value of Outdoor Learning: Evidence from Research in the UK and Elsewhere." *School Science Review* 87: 107-111.
- Ergler, Christina R., Kearns, Robin A., and Witten, Karen. 2012. "Seasonal and Locational Variations in Children's Play: Implications for Wellbeing." *Social Science & Medicine* 91: 178-85.
- Fenton, Mark. 2012. "Community Design and Policies for Free-Range Children: Creating Environment that Support Routine Physical Activity." *Childhood Obesity* 8 (1): 44-51. Doi:<http://dx.doi.org/10.1089/chi.2011.0122>.
- Frank, Lawrence D., Peter O. Engleke, and Thomas L. Schmid. 2003. *Health and Community Design: The Impact of the Built Environment on Physical Activity*. Washington, DC. Island Press.
- Frost, Joe L., Pei-San Brown, John A. Sutterby, and Candra D. Thornton. 2004. *The Developmental Benefits of Playgrounds*. Olney MD: Association for Childhood Education International.
- Galindo, Michelle. 2012. *Playground Design*. Salenstein, Switzerland: Braun Publishing.
- Gehl, Jan, and Lord Richard Rogers. 2013. *Cities for People*. Washington DC: Island Press.
- Grenby, M. O., and Andrea Immel. 2009. *The Cambridge Companion to Children's Literature*. Cambridge: Cambridge University Press.
- Hanscom, Angela J. 2016. *Balanced and Barefoot: How Unrestricted Outdoor Play Makes for Strong, Confident, and Capable Children*. Oakland, CA: New Harbinger Publications.

Hass-Klau, Carmen. 2015. *The Pedestrian and the City*. New York, NY: Routledge.

Hendricks, Barbara E. 2001. *Designing for Play*. Aldershot, England: Ashgate.

Hunt, Peter. 2005. *Understanding Children's Literature: Key Essays from the Second Edition of The International Companion Encyclopedia of Children's Literature*. 2nd ed. London: Routledge.

Louv, Richard. 2008. *Last Child in the Woods: Saving our Children from Nature-Deficit Disorder*. North Carolina: Algonquin books of Chapel Hill.

McBride, D. 2012. Children and Outdoor Play. *Journal of Pediatric Nursing*, 27(4), 421-422.

Moore, Robin C. *Plants for Play*. Berkeley, CA: MIG Communications, 1993.

“Plant Database.” Nature Grounds. Accessed February 24, 2017. <http://www.naturegrounds.org/plantsearch/index.asp>

Ratliffe, T. 2004. Introduction to children’s fitness: Developing lifetime physical activity. *Teaching Elementary Physical Education*, 15(1) 6.

Smith, Peter K. 2010. *Children and Play: Understanding Children’s Worlds*. West Sussex, UK: Wiley-Blackwell.

Solomon, Susan G. 2014. *The Science of Play: How to Build Playgrounds That Enhance Children's Development*. Lebanon, NH: University Press of New England.

Tai, Lolly, Mary Taylor Haque, Gina K. McLellan, and Erin Jordan Knight. 2006. *Designing Outdoor Environments for Children*. New York, NY: McGraw-Hill.

“United States Department of Agriculture.” USDA Plant Hardiness Zone Map. Accessed January 27, 2017. <http://planthardiness.ars.usda.gov/PHZMWeb/>.

Very Well. 2015. “10 Types of Play Important to Your Child's Development.” Types of Play - Early Childhood Social Development. Accessed November 4, 2015. <http://preschoolers.about.com/od/activitiesfun/a/Types-Of-Play.htm>.

7.2 Figure References

All figures and images were created by the author, except for the following:

Figure 1.0: *Andover*. Google Maps. Accessed April 04, 2017. [https://www.google.com/maps/place/Andover, KS/@37.6647497, -97. 1614681](https://www.google.com/maps/place/Andover,+KS/@37.6647497,-97.1614681).

Figure 1.1: *Butler County GIS*. ArcGIS Web Application. Accessed March 06, 2017. <http://bucogis.maps.arcgis.com/apps/webappviewer/index>

Figure 4.28: *Andover Central Park*. Google Maps. Accessed April 04, 2017. [https://www.google.com/maps/place/Andover Central Park/@37.6922561,-97.1205861](https://www.google.com/maps/place/Andover+Central+Park/@37.6922561,-97.1205861).

Figure 4.29: *Plant Database*. Nature Grounds. Accessed February 24, 2017. <http://www.naturegrounds.org/plantsearch/index.asp>

Figure 4.33:

Jumping: Verdin, Billy. *Untitled Photograph of Child in Air*. Digital Photograph. April 6, 2006. Accessed January 16, 2017. <https://www.flickr.com/photos/hanus/136584909/>. Made available under Attribution 2.0 Generic Creative Commons License, <https://creativecommons.org/licenses/by/2.0/>.

Climbing: Dijle. *It's wrong that children don't climb on trees anymore*. Digital Photograph. February 27, 2010. Accessed on January 22, 2017. <https://www.flickr.com/photos/dijle/4417610586/>. Made available under Attribution 2.0 Generic Creative Commons License, <https://creativecommons.org/licenses/by-nd/2.0/>.

Hanging: Eden, Janine and Jim. *Maya*. Digital Photograph. September 26, 2013. Accessed January 16, 2017. <https://www.flickr.com/photos/edenpictures/9959357686/>. Made available under Attribution 2.0 Generic Creative Commons License, <https://creativecommons.org/licenses/by/2.0/>

Sliding: Mcgrath, Tavia. *Children's Garden*. Digital Photograph. February 24, 2011. Accessed January 16, 2017. <https://www.flickr.com/photos/taviamcgrath/5474104271/>. Made available under Attribution 2.0 Generic Creative Commons License, <https://creativecommons.org/licenses/by-nd/2.0/>.

Swinging: Glass and Mirror. *Swing*. Digital Photograph. June 17, 2007. Accessed January 16, 2017. <https://www.flickr.com/photos/hokaicila/565236988/>. Made available under Attribution 2.0 Generic Creative Commons License, <https://creativecommons.org/licenses/by/2.0/>.

Balancing: Shultz, Jason. *Walking the Tight Rope*. Digital Photograph. August 25, 2005. Accessed January 16, 2017. <https://www.flickr.com/photos/jshultz/37113547/>. Made available under Attribution 2.0 Generic Creative Commons License, <https://creativecommons.org/licenses/by-nd/2.0/>.

Rolling: Miles, Jeremy. *Rolling Down the Hill*. Digital Photograph. December 27, 2006. Accessed January 16, 2017. <https://www.flickr.com/photos/jeremymiles/338048008/>. Made available under Attribution 2.0 Generic Creative Commons License, <https://creativecommons.org/licenses/by-sa/2.0/>.

Running: Terren in Virginia. *Determination*. Digital Photograph. May 23, 2010. Accessed January 22, 2017. <https://www.flickr.com/photos/8136496@N05/4655738165/>. Made available under Attribution 2.0 Generic Creative Commons License, <https://creativecommons.org/licenses/by/2.0/>.

Figure 4.35:

Forest: Silfver, Jussi. *Green Forrest Path*. Digital Photograph. August 17, 2014. Accessed January 16, 2017. <https://www.flickr.com/photos/jsilfver/15019024235/>. Made available under Attribution 2.0 Generic Creative Commons License, <https://creativecommons.org/licenses/by/2.0/>.

River: ForeverSeptember. *Creek*. Digital Photograph. April 30, 2010. Accessed January 16, 2017. <https://www.flickr.com/photos/60375653@N05/6230054966/>. Made available under Attribution 2.0 Generic Creative Commons License, <https://creativecommons.org/licenses/by-nd/2.0/>.

Open Lawn: Wiechers, Stan. *Lawn*. Digital Photograph. April 3, 2006. Accessed January 16, 2017. <https://www.flickr.com/photos/whoisstan/319638369/> Made available under Attribution 2.0 Generic Creative Commons License, <https://creativecommons.org/licenses/by-sa/2.0/>.

Tree House: Bohman, Linus. *Treehouse*. Digital Photograph. June 16, 2006. Accessed January 16, 2017. <https://www.flickr.com/photos/bohman/168266798/>. Made available under Attribution 2.0 Generic Creative Commons License, <https://creativecommons.org/licenses/by/2.0/>.

Pile of Leaves: Sullivan, Mathew. *I Rule the Autumn*. Digital Photograph. November 8, 2005. Accessed January 16, 2017. <https://www.flickr.com/photos/thesullys/61095237/>. Made available under Attribution 2.0 Generic Creative Commons License, <https://creativecommons.org/licenses/by/2.0/>.

Hills: Nilsson, Susanne. *Hills*. Digital Photograph. March 28, 2015. Accessed January 22, 2017. <https://www.flickr.com/photos/infomastern/17259307778/>. Made available under Attribution 2.0 Generic Creative Commons License, <https://creativecommons.org/licenses/by-sa/2.0/>.

Cottage: Rowland, Claire. *Cottage*. Digital Photograph. April 11, 2009. Accessed January 22, 2017. <https://www.flickr.com/photos/clurr/3442070005/>. Made available under Attribution 2.0 Generic Creative Commons License, <https://creativecommons.org/licenses/by/2.0/>.

Figure 4.37:

Airplane: P, Steve. *Plane*. Digital Photograph. December 2, 2006. Accessed January 16, 2017. <https://www.flickr.com/photos/stevepj2009/3333523138/>. Made available under Attribution 2.0 Generic Creative Commons License, <https://creativecommons.org/licenses/by/2.0/>.

Fire Truck: Shawnie_0405. *Ladder 81*. Digital Photograph. April 24, 2010. Accessed January 16, 2017. <https://www.flickr.com/photos/girlshawn/4549754591/>. Made available under Attribution 2.0 Generic Creative Commons License, <https://creativecommons.org/licenses/by-sa/2.0/>.

Race Car: Mikegreen1985. *Car Race*. Digital Photograph. July 22, 2007. Accessed January 16, 2017. <https://www.flickr.com/photos/32926724@N08/9699960920/>. Made available under Attribution 2.0 Generic Creative Commons License, <https://creativecommons.org/licenses/by-sa/2.0/>.

Rocket Ship: Heipei. *What the Hack*. Digital Photograph. July 28, 2005. Accessed January 16, 2017. <https://www.flickr.com/photos/heipei/29329724/>, Made available under Attribution 2.0 Generic Creative Commons License, <https://creativecommons.org/licenses/by-sa/2.0/>.

Dump Truck: Anthony. *Caterpillar Articulated Dump Truck*. Digital Photograph. June 4, 2014. Accessed January 16, 2017. <https://www.flickr.com/photos/26424952@N00/14602193862/> Made available under Attribution 2.0 Generic Creative Commons License, <https://creativecommons.org/licenses/by-nd/2.0/>.

Train: Jeffrey. *Train*. Digital Photograph. April 27, 2008. Accessed January 16, 2017. <https://www.flickr.com/photos/formatc1/2455112001/>. Made available under Attribution 2.0 Generic Creative Commons License, <https://creativecommons.org/licenses/by-sa/2.0/>.

Boat: Cyr, Steve. *DSCN0759*. Digital Photograph. September 10, 2005. Accessed January 16, 2017. <https://www.flickr.com/photos/33346716@N03/3177429275/>. Made available under Attribution 2.0 Generic Creative Commons License, <https://creativecommons.org/licenses/by-nd/2.0/>.

Bike: Hamilton, Paul. *Bicycle*. Digital Photograph. June 6, 2009. Accessed January 16, 2017. <https://www.flickr.com/photos/paulhami/3867932646/>. Made available under Attribution 2.0 Generic Creative Commons License, <https://creativecommons.org/licenses/by-sa/2.0/>

Horse: Schmitz, Stefan. *Reiten_5424*. Digital Photograph. May 25, 2014. Accessed January 22, 2017. <https://www.flickr.com/photos/stefanschmitz/14080154220/>. Made available under Attribution 2.0 Generic Creative Commons License, <https://creativecommons.org/licenses/by-nd/2.0/>.

chapter eight

APPENDIX A



TO: Anne Beamish
LARC
251 Seaton

Proposal Number: 8475

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

DATE: 10/13/2016

RE: Proposal Entitled, "Literature in the Landscape: Designing public parks to encourage outdoor exploration, activity and reading for elementary school-aged children"

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.

TO: Dr. Anne Beamish
Landscape Architecture
Seaton Hall

Proposal Number: 8620

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

DATE: 02/14/2017

RE: Approval of Proposal Entitled, "Literature in the Landscape: Designing public parks to encourage outdoor exploration, activity and reading for elementary school-aged children."

The Committee on Research Involving Human Subjects has reviewed your proposal and has granted full approval. This proposal is **approved for one year from the date of this correspondence, pending "continuing review."**

APPROVAL DATE: 02/14/2017

EXPIRATION DATE: 02/14/2018

Several months prior to the expiration date listed, the IRB will solicit information from you for federally mandated **"continuing review" of the research.** Based on the review, the IRB may approve the activity for another year. **If continuing IRB approval is not granted, or the IRB fails to perform the continuing review before the expiration date noted above, the project will expire and the activity involving human subjects must be terminated on that date. Consequently, it is critical that you are responsive to the IRB request for information for continuing review if you want your project to continue.**

In giving its approval, the Committee has determined that:

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

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

Figure 8.0: Letter of IRB Approval

Figure 8.1: Letter of IRB Approval