IN THE LOOP:
MAKING HISTORICALLY CONSCIOUS PEDESTRIAN CONNECTIONS

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In the Loop: Making Historically Conscious Pedestrian Connections

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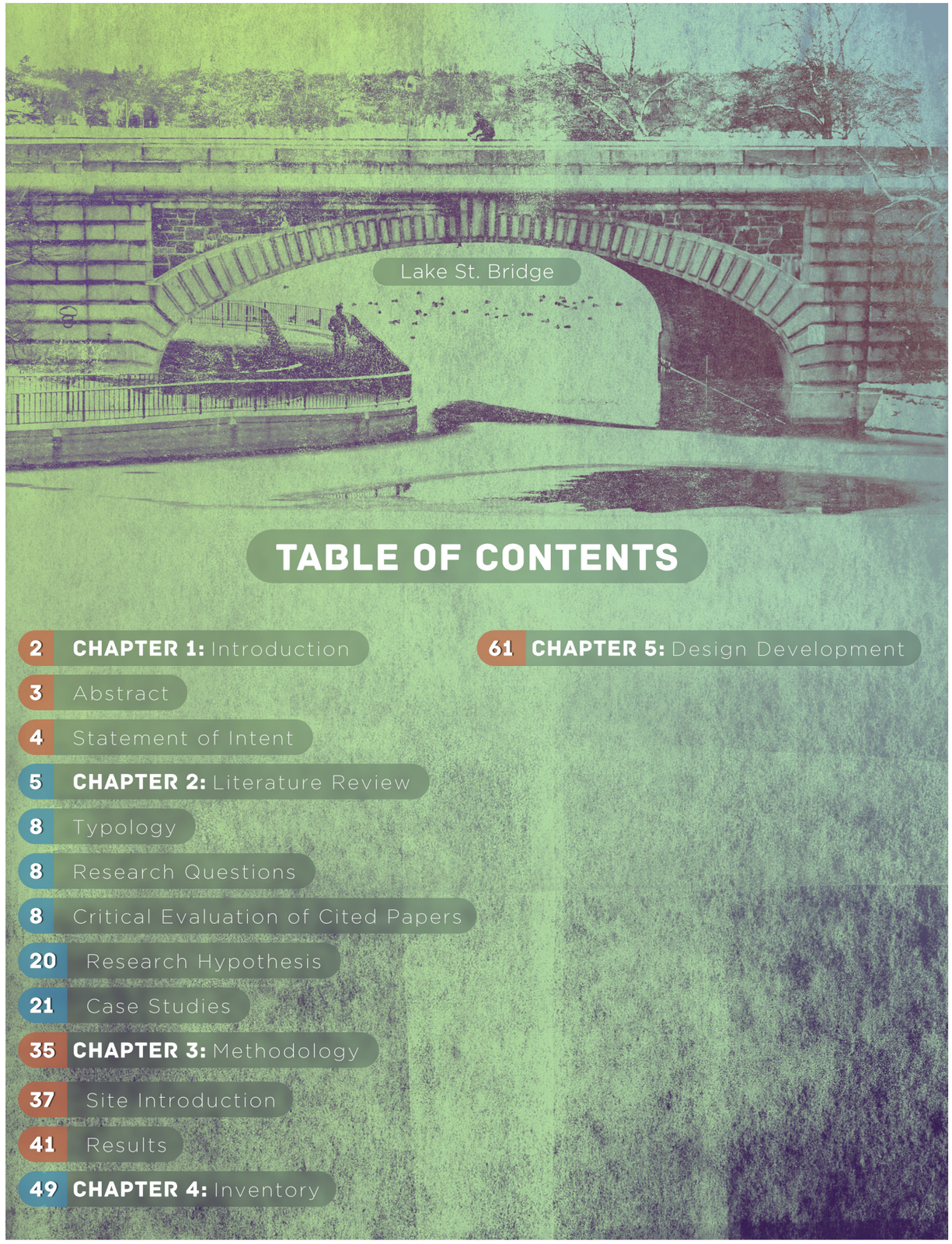

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CHAPTER 1

INTRODUCTION

ABSTRACT

Connecting green spaces, and providing meaningful and convenient pedestrian passage are two ideas that push sustainability, encourage community activity, and create a more enjoyable environment for the users. This is the thought process behind the proposal to redevelop the Minneapolis Chain of Lakes Regional Park. Currently all pedestrians walking through the park (from Lake Calhoun to Lake of the Isles) are forced underneath Lake St. on a single sidewalk that is only accessible near the North East corner of Lake Calhoun, and the nearest alternative crossing is a stop light located more than a block away. This research explores the different solutions that have been used to unite public spaces, and provide useful and convenient pedestrian trails. The park was initially designed as part of a system of parks that wind through the city of Minneapolis called the Grand Rounds, Horace William Shaler Cleveland was the designer, and his philosophy was to create a city that is a work of art. (Nadenicek, p.5). The park system is very successful for recreational purposes but could be updated to accommodate more utilitarian (non-recreational) trips. Manny cultural destinations around the park were not present when Cleveland designed the grand rounds and more meaningful and useful connections can be made to the neighborhood. A process of inventory and analysis will help determine the right solution to fit the site. The aim of this study is to provide updated connections to the neighborhood and motivate more people to walk or bike. Success of this will be determined by the number of pedestrians using the park system for non-recreational trips, and travel time from one end of the park to the other.

KEYWORDS

Green space connections, pedestrian, redevelopment, infrastructure, & circulation.

STATEMENT OF INTENT

In the Minneapolis Chain of Lakes Regional Park there is a real divide of park space one space that exists north of Lake st. and one that exists south of Lake st. Historically the strongest connection these two portions of the park had was the sidewalk that followed the waterway under Lake St. connecting Lake Calhoun to Lake of the Isles. This is not desirable because the approach to the underpass is hidden from view of the busy street, so any pedestrian approaching from that direction unless familiar with the site will have difficulty identifying this connection. There are also lighting issues at night, and even during the day time it gets surprisingly dark under the bridge. If one were to walk the path under the bridge on a nice summer day, there is also a good chance you will walk past a few people fishing from the path, sometimes causing even more congestion. Meanwhile on top of the bridge, all pedestrian traffic and bicycle traffic is converged to two adjacent lanes right next to Lake St. This becomes an issue because the top of the bridge is a fairly common stopping place for people either taking pictures or appreciating the view of the lake, and these people congest the pedestrian lane, occasional forcing runners to cross over into the bike lane causing even more congestion.

In addition to the congestion on the bridge, there is also no bike path connecting the two lakes, although both lakes have bike paths circling them, there is only a pedestrian connection. This means that bikers who want to continue on to the next lake, or wanting to connect to the midtown green-way would need to bike down Lake St. away from the park and cross north and south at the Lake St., E Calhoun Pkwy. intersection.

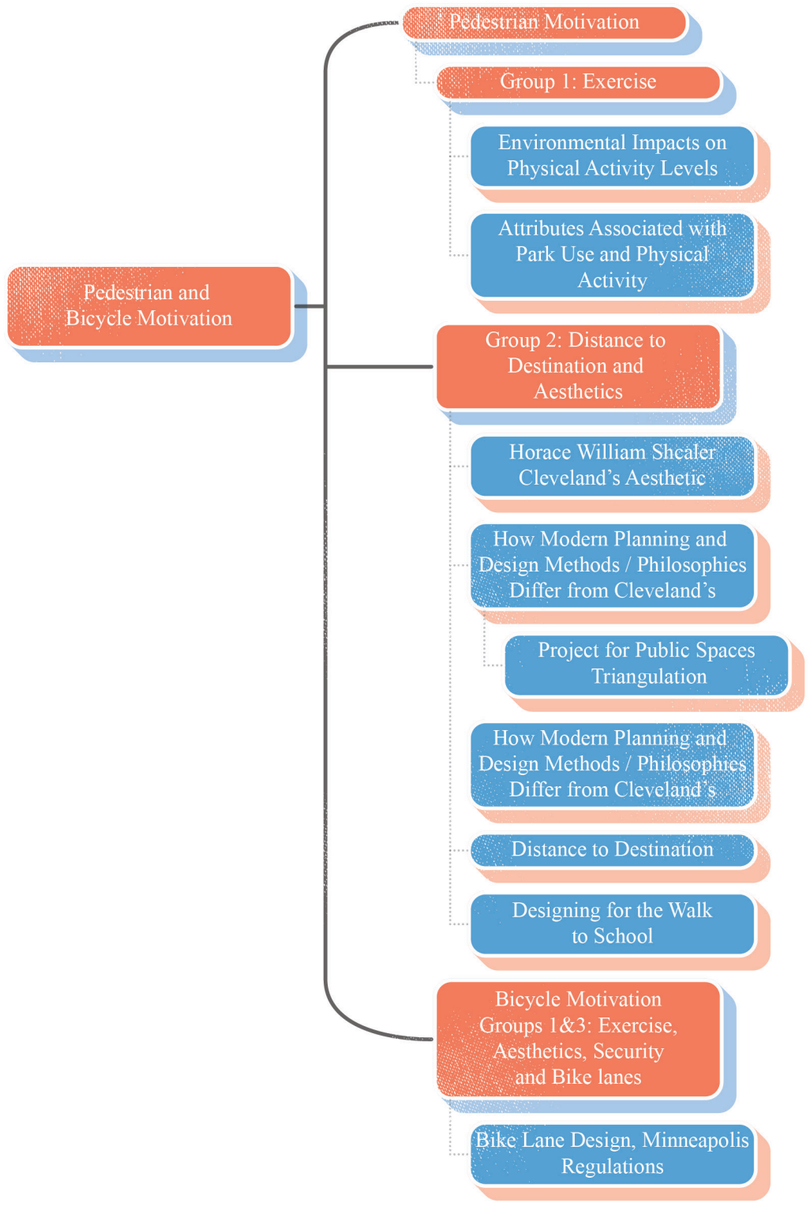
The Lake St., E. Calhoun Pkwy. intersection is very busy, this is because of the way the lakes are situated in the street grid. They stretch mostly north and south with few east-west connections. There is only Lake St. between Calhoun and Lake of the Isles, and Richfield Rd. and E. Lake Harriet Blvd. between Lake Harriet and Lake Calhoun.

These issues have created great potential for redevelopment of the park trail system, there is an opportunity to unite currently divided park spaces, create an oasis from the busy uptown life, and make bike access to the Midtown Green-way and between the two Lakes more safe and convenient. There is also opportunity to make more meaningful connections to cultural destinations within the neighborhood surrounding the park. Meaningful connections are defined in this study as places people want to walk to.

CHAPTER 2

LITERATURE REVIEW

CRITICAL EVALUATION OF CITED PAPERS RESEARCH MAP



PROJECT TYPOLOGY:

Park design/ Greenway design

This pedestrian crossing structure will establish a strong connection between the north and south sides of the Chain of Lakes Regional Park, and provide meaningful connections to the neighborhood.

RESEARCH QUESTIONS:

Where do people want to walk to? / What are the right connections to make to motivate more use of trails?
How can landscape design motivate more people to walk?
How can landscape design accommodate people walking to specific destinations? (Ex. a walk to school)

CRITICAL EVALUATION OF CITED PAPERS

Because of circulation issues and a lack of connectivity within the park and to the surrounding neighborhood, I propose a redevelopment of the pedestrian and bicycle trails through the park.

PEDESTRIAN MOTIVATION

Research conducted by Guinn, 2014 M. J., Stangl, P. in their research paper titled "Pedestrian and bicyclist motivation: an assessment of influences on pedestrian's and bicyclists' mode choice in Mt. Pleasant, Vancouver identifies key motivating factors in the decision to walk or bike. The study was chosen because it looks into motivating factors that transcend physical features, they also inquire about perceptual motivations (Guinn, 2014 p.105). By asking pedestrians to rank spatial characteristics based on the influence they played in their decision to walk or bike Guinn, 2014 and Stangl were able to rank the influence of these characteristics. They would rank these characteristics with either a 1= no influence, 2= little influence, 3= some influence, or 4= highly influenced. The different characteristics in question were: opportunities for exercise, concern for the natural environment, a visually appealing environment, distance to destination, weather on a given day, sense of personal security, saving money, cleanliness of neighborhood, buffering from automobile traffic, presence of sidewalks, opportunities to talk or meet with friends or neighbors, ease of terrain, marked crosswalks with signals, and enforcement of speeding and other traffic laws (Guinn, 2014 107). From the survey they then calculated the means of the influence given to each characteristic and grouped

J.M. Guinn and P. Stangl

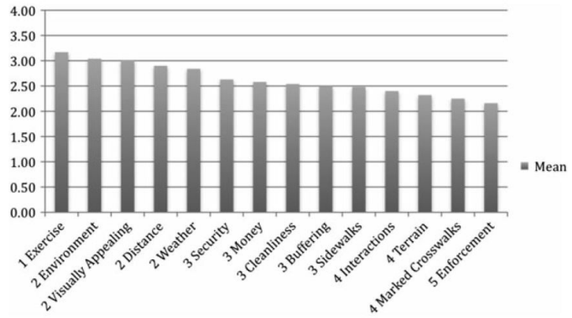


Fig.1: Walking survey results (Guinn, 2014 p.110)

characteristics of similar influence. Above is a graph of the walking survey results.

PEDESTRIAN MOTIVATION GROUP: 1 EXERCISE

The findings of the walking survey provided very useful and interesting outcomes, they state “a desire for exercise is the most important factor for even utilitarian trips. As many survey respondents own cars, which are faster for most trips in Mt. Pleasant, it may be that the desire for exercise trumped convenience”. They go on to quote an article from the American Journal of Preventive Medicine “point to exercise as a motivating factor for pedestrians, but treat it as a type of walking trip that is separate from utilitarian trips, or walking to a destination for a specific purpose”. (Owen et al. 2004). There have been studies that focus on ways to increase walking to improve one’s health but they pay little attention to the individual’s own ambition to enhance their health as incentive to walk. Typically planners and designers have viewed perceptions about the environment as something beyond their control, but outreach programs are working to change these perceptions. An example of an already existing commuter wellness program in Minneapolis is the Zap program by Dero, this program tracks pedestrian and bicyclist travel patterns with a network of check points, and awards those who bike or walk more frequently, these awards could manifest themselves in the form of “prizes, team competitions, healthcare premium rebates, or just recognition” (“Dero ZAP - How”). Fig. 2 is a map of all the existing ZAP checkpoints, as you can see they are very dense in the downtown neighborhood and on the University of Minnesota’s campus, however there are none in the Chain of Lakes Regional Park, or on the majority of the Grand Rounds park system for that matter.

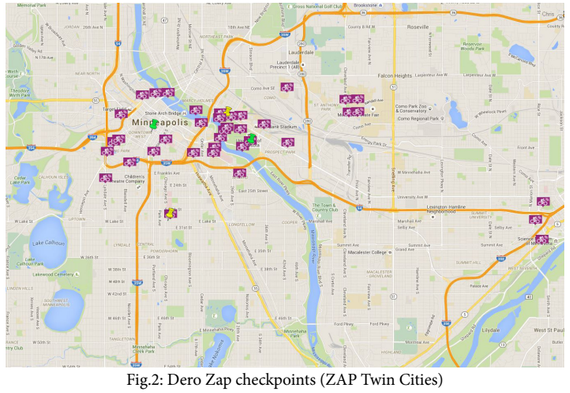


Fig.2: Dero Zap checkpoints (ZAP Twin Cities)

ENVIRONMENTAL IMPACTS ON PHYSICAL ACTIVITY LEVELS

So, knowing that an individuals own desire for exercise is the most significant motivating factor when they are deciding to drive or walk, how can we design for this? Research conduced by Janne Boone-Heinonen and Penny Gordon-Larsen looked into what impacts the physical environment, life stage, and sex had on an individuals moderate to vigorous physical activity (MVPA). They gathered this data from the National Longitudinal Study of Adolescent Health. They looked at waves 1 (adolescence; 1994-1995) and 3 (young adulthood; 2001-2002). At the time data was collected from the first wave, 31.5% of the subjects lived in the Midwest (the area most relevant to the climate of Minneapolis) and by 2001(wave 3) 29.9% of the subjects lived in the Midwest. The first wave represents a US school-based population in grades 7-12 and wave 3 represented the same subjects as young adults (Boone-Heinonen, p. 847). The findings of this research identify high landscape diversity and low crime rates as the largest factors in increased MVPA regardless of sex or life stage, “ In multivariate analysis, every 1% greater landscape diversity was related to 0.04% additional MVPA bouts” (Boone-Heinonen, p. 849). Landscape diversity was calculated using Simpson’s diversity index to identify the diversity of land use within 1km (.6 miles) of the subjects residency, this area was then broken down into a 30 meter grid (approx. 100’x100’). With the grid in place they analyzed 6 different land uses: water or ice, low - medium density developed, high density developed,

CRITICAL EVALUATION OF CITED PAPERS CONT.

recreational developed, undeveloped/natural, and agricultural. (Boone-Heinonen, p. 848). Simpson’s diversity index is usually used to calculate biodiversity but can be applied to landscape diversity if you substitute species populations with counts of land use.

The important takeaways this thesis grabs from the research conducted by Boone-Heinonen and Gordon-Larson simply include the knowledge that increased landscape diversity and lower crime rates improve MVPA for men and women regardless of age. So I will look to areas of lower crime rates to increase landscape diversity to promote more physical activity. Some of the limitations of their research can be attributed to the fact that their study estimated cross-sectional associations meaning that they did not have deliberately selected subjects, they built off data that had already been collected for the National Longitudinal Study of Adolescent Health. Also, holes in data and a lack of follow up left areas of the study open to estimations that could have been skewed by bias. And finally it is possible that many outreach programs that were active between 1994-5 and 2001-2 were having an impact on the routes of MVPA the subjects were entering and may have influenced the data making it hard to know weather environmental conditions or outreach programs were responsible for the levels of activity the subjects were reporting.

$$D = 1 - \left(\frac{\sum n(n-1)}{N(N-1)} \right)$$

Fig.3:Simpson’s Diversity Index (Simpson’s Diversity Index)

In fig. 5 we can see the Simpson’s diversity index formula. The variables in the formula are “D”, which is equal to diversity, and “n” is equal to the population size of the different species in question (or for application to landscape diversity, it would be equal to the total counts of various landscape uses), and “N” is equal to population size of the community in question (or for landscape diversity application, it would be equal to the total number of different land plots that were sampled). The way the formula works, you will get a result that is somewhere between 0-1, the closer to 0 the less diverse the population sample, the closer to 1 the more diverse the population sample.

So as an example lets say that I collected data on 6 different plots, 4 of them were medium density developed, and 2 of them were recreational developed. In this example for medium density developed n would equal 2 and for recreational developed n would equal 2, N would equal the sum of all plots, or 6. To find the sum of n(n-1) we would then need to do this math for both landscape uses in the survey. For med. density developed: 4(3) = 12, for recreational developed: 2(1) = 2, the sum of these is 14. So our formula is D=1-(14/6*5), so D = .5333.

ATTRIBUTES ASSOCIATED WITH PARK USE AND PHYSICAL ACTIVITY

McCormack, G., Rock, M., Toohey, A., Hingell, D. are the authors of a study called “Characteristics of urban parks associated with park use and physical activity “A review of qualitative research”. This research looks to existing studies on parks and physical activity from health, social science, and leisure databases. From the data collected in this research, a list of attributes that have a positive influence on park use and levels of physical activity is generated. The authors identify 5 key attributes: features, condition, accessibility, aesthetics, and safety (McCormack et al. p. 716).

Park features can both positively and negatively influence levels of activity and use. Constructed and natural trails appealed mostly to adults and one study also identified it as being important to adolescent girls as well. Other features that had a positive influence regardless of age were: grills, seating, water fountains, picnic tables, and bathrooms. Some features can also

negatively impact activity, some of these features are: outdated play equipment / lack of diversity in play equipment, open spaces that are too small to foster play habits of older children, and an absence of most of the positive elements was also seen as a negative and deterred high levels of use. Areas for active and passive recreation were also important among adolescents and older children, they desire space for both structured and unstructured exercise (sports or play). The condition of the park also plays a large role in the levels of activity and use the park sees. Cleanliness in particular is important, the article states “characteristics of playing surfaces or cleanliness within parks were regularly identified as important among adults and children” (McCormack et al. p. 716). Cleanliness is judged by: dirty or unkempt areas, the presence of litter, and overfull trash cans. Cleanliness was negatively impacted by: a lack of grass, uneven playing surfaces or ground, and poor quality sidewalks. Accessibility, also had an affect on activity levels in some of t he studies looked at. The major factor with accessibility is proximity. Basically, if driving is necessary to reach the park, then activity levels will drop. One interesting find in the studies was access to specific park elements affecting park usage. Dog owners in particular responded positively to having access to dog exercise areas. Playgrounds near regularly walked routes and access to public transportation were also identified as having a positive impact on activity levels. Besides proximity to home and poor access to dog exercise areas, limited hours of operation for water features requiring a lifeguard was also viewed as a negative (McCormack, p. 716). The article does not state if this is also viewed as a negative for other park features, for example a concessions stand, or public restrooms. Aesthetics is the 4th attribute covered, it’s important to all park users regardless of age or gender. Aesthetics negatively impacted park use if graffiti or vandalism was present. Rubbish, dog feces, and uncleanliness were also reported as negatives, as not every study identified these as components of condition or cleanliness. Wildlife was also included in the aesthetics discussion, having both positive and negative implications. Wildlife was negative among dog owners because they feared encounters with their pets and wildlife. It was also a negative among children who may have feared some of the animals present. Wildlife was a positive when it was a result of the creation of the park. (McCormack, p. 716). I believe this is probably because wildlife that results from a park is probably intended. Trees, shrubs, gardens, grass, flowers, natural settings, and water features also all had positive impacts. Smells and sounds were other dimensions of aesthetics that park users care about. Fresh air and nature sounds are preferable over smog and sound pollution.
The final attribute this study looks at is safety. The largest influence on the perception of personal safety is the presence of undesirable users (drug addicts, homeless, and loiterers). Some studies also suggested that the presence of teenagers / older children created safety concerns for younger children. Park characteristics that affected the potential for injury were also considered in the safety discussion. Heavy traffic and other path users (bicycles, roller-blades, etc.) were programmatic elements that affected one’s fear of injury, as well as the presence of broken glass and other debris, (there is some overlap here with condition and aesthetics).

The limitations of this literature fall mostly on the fact that they did not select studies concentrated in one specific climate, therefore their findings are a sum of results gathered in a variety of climates, ranging from Wisconsin to Australia. However climate is addressed in the second group of significant influences in the Guinn and Stangl research (the next section).

PEDESTRIAN MOTIVATION GROUP: 2 DISTANCE TO DESTINATION AND AESTHETICS

The second group of characteristics of similar influence consisted of the following: concern for the natural environment, a visually appealing environment, distance to destination, and the weather on a given day. A

visually appealing environment and distance to destination both relate to the physical environment and are characteristics that city planners have commonly addressed. This thesis will only address the factors that can be influenced by design of the physical environment. Distance to destination can be addressed with the addition of more mixed use zoning, higher densities, and improvements to neighborhood connectivity. A visually appealing environment can be addressed with street improvements and urban design guidelines. That being said, typically a visually appealing environment has been most closely related to recreational trips, while this study suggests that it is an equally important motivating factor for all trips (Guinn, 2014 p. 112) Concern for the natural environment is a perceptual motive and is primarily addressed with outreach programs. For this thesis the focus is on physical design and therefore the furthest extent concern for the natural environment will be addressed is the possibility of areas of environmental education.

Components that affect the aesthetic perception of a park have already been discussed in the McCormack, Rock, Toohey, and Hingel research. These components included things like wildlife, trees, shrubs, grass, cleanliness, and overall condition of the space. In addition to these components, this thesis is also concerned with the existing aesthetic condition of the park. Designed by H.W.S. Cleveland the space already has a very successful aesthetic character, and this proposal intends to harmonize with the existing design of the park.

HORACE WILLIAM SHCALER CLEVELAND’S AESTHETIC

This thesis looks to a historical review of the origins of the philosophies of Cleveland for aesthetic standards, and design approach methodologies.

“I would have the city itself such a work of art as may be the fitting abode of a race of men and women whose lives are devoted to a nobler end than money-getting, and whose efforts shall be inspired and sustained by the grandeur and the beauty of the scenes in which their lives are passed.” (Cleveland, p. 13)

This quote is how Nadenicek begins his review of the influences that formed the philosophies and views of the role of the artist in the landscape of Cleveland. The idea of the city as a work of art suggests that Cleveland’s work was influenced by an elemental aesthetic. Also stating “Cleveland also suggested that his art must be inspired by the natural environment. He believed that the careful manipulation of the elements of nature communicated to individuals in society, which ultimately resulted in the advancement of civilization.” (Nadenicek, p. 5). He goes on to inform that Cleveland was adamant about introducing a new perspective on planning, one that would incorporate and highlight the landscape as opposed to viewing it in disregard. A large influence on his view of the landscape and civilization was formed from the literature of Irving, Longfellow, and Emerson.

To gain a deeper understanding of his inspirations and influences we look to his early life. Cleveland was born in Massachusetts, and raised by a family who, in his early years converted to Unitarianism. Unitarianism emphasizes individual improvement and development of character, and views these actions as essential to societal advancement. Horace’s father Richard Cleveland viewed the leaders of society as being responsible for ensuring greater fortune and better lives for the rest of society. Still in his youth H.W.S. Cleveland attended the school in Lancaster MA, where the study of the landscape was an essential component of the curriculum. Frequent excursions, drawing, map making, collecting, and observing the natural environment were critical parts of the curriculum and all of these activities sunk into the young Cleveland.

In his youth he was attracted to the writings of Irving, naming “Tales of a Traveler” and “The Sketchbook of Geoffrey Crayon” some times referred to as “The Sketchbook” as influencing his life and aesthetic the most. Much of the subject matter in “The Sketchbook” is focused on the passage of time, decay, and the squalor of urbanity in contrast to the pristine American landscape (Nadenicek, p. 7). Irving was a student of the picturesque, and many of these qualities found their way into his writing, one of the most obvious examples from “The Sketchbook” is “The Legend of Sleepy Hollow”. Themes of change over time, tangled masses and irregularity are present in his description of the landscape. Later in the professional stage of Cleveland’s life influences of Irving’s writings remained prominent in his work. Actually designing a site called Sleepy Hollow Cemetery (the site was named that because of the resemblance between the landscape and the description in Irving’s writing), Nadenicek states “It is reasonable to assume that Irving’s writing influenced Cleveland’s thinking about the dynamic qualities of the landscape as much as Uvedale Price and other picturesque theorists.” (Nadenicek, p.7).

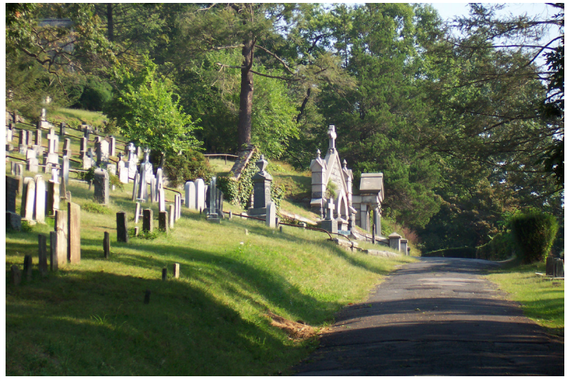


Fig.4:Sleepy Hollow Cemetery

Longfellow, another author that influenced the thinking of Cleveland, wrote on issues of character development, and moral and spiritual development. He also wrote on the idea of social responsibility, stating those best suited for the task of moral improvement must be the ones to guide (Nadenicek, p. 7). In his writing “The Song of Hiawatha” Longfellow paints a picture of two contrasting perspectives on civilization and challenges one to think of the responsibility “for guiding civilization across the landscape.” (Nadenicek, p.7). It was “The Song of Hiawatha” that influenced Cleveland’s work the most in his design of Minnehaha Falls in Minneapolis, challenging him to reflect on his own responsibilities to the land and to civilization (Nadenicek, p.8) Unitarianism also emphasizes the issue of character development, and the advancement of civilization, so it should come as no surprise that Cleveland tuned into literature the touched on some of the same ideals that were imprinted on him as a child.

Fig.5: Minnehaha Falls Minneapolis, MN

Cleveland’s ideas on art and the role of the artist in the landscape were what the writing of Emerson (who focused his ideas on the concern of “unplanned movement of civilization in America” (Nadenicek, pg.9)) influenced the most. Emerson and Cleveland shared views on the role of the artist in making the communicative qualities of landscape discernible and available to the general populace” (Nadenicek, pg.9). Emerson believed that the artist in the landscape was capable of higher understanding, that the artist is capable of propagating truth to users of the space. Cleveland believed that an artistic approach that just sought out to mimic nature, would always fall

short of an approach that propagated truth through the use of symbolic elements of nature. In his publication “A Few Words on the Central Park” Cleveland describes his understanding of the artist’s responsibility “...to interpret and render legible to the popular mind the lessons... [nature] convey [s], and this is to be done not by any finical display of artificial embellishment, but by the tasteful use of such natural additions as are required to develop and carry out the sentiment which to the truly devoutly cultivated mind is evident at a glance, even without addition. The true artist perceives the majestic grandeur of the rude cliffs and moss covered rocks, and the beauty of the graceful forms in which the hills and fields were molded by the hand of God; but his task is to elaborate the characteristics which excite these sentiments till they impress themselves on every mind...” (Cleveland, 1856). This quote illustrates the belief that Emerson and Cleveland shared, a belief that the lessons embedded in our art must be true to, and radiate from the natural environment. They believed that it is the social responsibility of the artist to communicate the lessons of nature through the medium of landscape. After years of literary study (most influential literature originating from Irving, Longfellow, and Emerson) and work scientific farming (applying modern (for the time) and scientific methods to the practice of farming) that prepared him for a professional career in landscape gardening, the profession that would evolve into landscape architecture today Nadeniceck states “Olmsted and Vaux used the term ‘landscape architecture’ for the new profession beginning in 1863. Cleveland used the words to describe the profession in his treatise, but he was always troubled by the name.”

One example of a successful landscape that Cleveland and Copeland designed in early on in their career is the Sleepy Hollow Cemetery design. Emerson was invested in the landscape, serving on the cemetery board, and had a few thoughts to share on the design of landscape which he remarked on in his Sleepy Hollow address. He talks on his view of the role of art in the landscape stating that “art should only bring out the ‘natural advantages’ of a landscape and warned of the dishonesty and deformation that was possible as a result of ‘bad art’” (Nadeniceck, p.10). Cleveland had a vast understanding of what the natural advantages of the landscape were, and in the case of the cemetery design placed importance on the lessons of the ‘vast circulations of nature’, to use Emerson’s words. These lessons communicated themes like infinity and mortality to the users of the space. Emerson later stated that the living need the cemetery much more than the dead.

Cleveland then went on to live and work in Chicago for a period of time and he faced success and hardships there, but his most significant contribution to landscape architecture came towards the end of his life in Minneapolis. Community leaders in Minneapolis recognized the potential for growth the city exhibited and as a result, Cleveland’s proposal for a system of parks for the city was received with much appreciation. The idea was that the Mississippi and the landscape

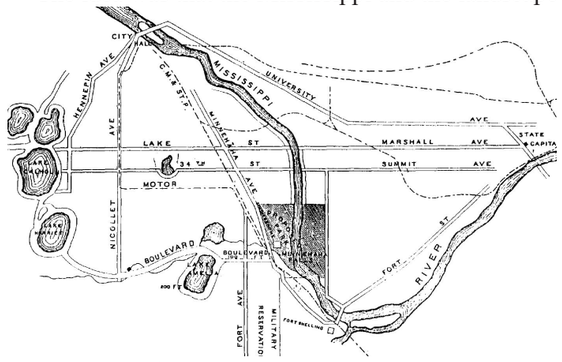


Fig.6:Diagram of the Minneapolis park system including the addition of Minnehaha Park and Minnehaha Parkway

surrounding the city would provide the structure for the city to grow. The park system was implemented before the city grew to the reaches of the scope of the park system, this was made possible because the Minneapolis parks board was an entity independent from government, and therefore was capable of much faster action than most cities. Cleveland and the park board members acknowledged the

urgency in developing this park system “before the city’s growth rendered the scheme unworkable” (Nadeniceck, pg.13). Cleveland’s final significant contribution to the Minneapolis parks system was the design of Minnehaha falls. In his address to the Minneapolis society of fine arts titled ‘The Aesthetic Development of the United Cities of St. Paul and Minneapolis’ he addresses the land around Minnehaha falls. He states that “If we fail to secure these natural features and suffer them to be destroyed no power on earth can restore them, and instead of being the chief feature of attractive interest, they will become a hideous scene of desolation, a blot that can neither be erased or kept out of sight” (Cleveland, 1888, pg.13). Longfellow’s ‘The Song of Hiawatha’ was the primary literary influence in his design of the park. Cleveland designed the park with many of the same philosophical intentions he developed early on in his career being true to nature and emphasizing the communicable and dynamic qualities of the landscape.

To review, the philosophical views that Cleveland formed from the literary influences and his experience in early life at school in Lancaster center around being true to nature. From Irving, he was challenged to think on the dynamic qualities of nature, specifically themes of change over time, irregularity, and tangled masses. Longfellow challenged him to think on issues of character development, moral development, and spiritual development. Longfellow also wrote on issues of the social responsibility leaders have to guide civilization across the landscape. Emerson challenged Cleveland to think on the role of the artist in the landscape, believing the artist was capable of higher perception and that it is the role of the artist to communicate the lessons nature has to offer us to the public in a discernible fashion. Cleveland also believed that an approach that just aims to mimic nature would never hold weight against an approach that aimed to communicate truth through symbolic elements of nature.

HOW MODERN PLANNING AND DESIGN METHODS AND PHILOSOPHIES DIFFER FROM CLEVELAND’S

To equate Cleveland’s design and planning approach to creating pedestrian friendly spaces to modern methods book *Creating Walkable Places* by: Adrienne Schmitz, and Jason Scully, was read. In the second chapter the authors discuss how to design for the pedestrian. They start their discussion with the topic of creating destinations, providing a few guidelines for designing a destination, those are: “a mix of commercial tenants and noncommercial activity that will keep people coming back, a nearby population base of residents, workers, or both; and daytime and evening uses, to keep life on the streets for as much of the day as possible” (Schmitz, 2006, pg. 23). Next the Project for Public Spaces (PPS) and their concept of triangulation is discussed, they define triangulation as, “organizing elements-both public and private-in ways that increase the activity around them” (Schmitz, 2006, pg. 23).

The Project for Public Spaces provides 11 steps to creating great community places on their website, # 7 of which is triangulation. The following quote is how the PPS defines triangulation on their website “Triangulation is the process by which some external stimulus provides a linkage between people and prompts strangers to talk to other strangers as if they knew each other” (William H. Whyte). In a public space, the choice and arrangement of different elements in relation to each other can put the triangulation process in motion (or not). For example, if a bench, a wastebasket and a telephone are placed with no connection to each other, each may receive a very limited use, but when they are arranged together along with other amenities such as a coffee cart, they will naturally bring people together (or triangulate!). On a broader level, if a children’s reading room in a new library is located so that it is next to a children’s playground in a park and a

CRITICAL EVALUATION OF CITED PAPERS CONT.

food kiosk is added, more activity will occur than if these facilities were located separately. (“Eleven Principles for Creating Great Community Places - Project for Public Spaces”)

Destinations should include what the authors describe as a third place. This term comes from Ray Oldenburg a sociologist who defines the term as a place that is neither home nor the workplace but a “third place” . These “third places” are to be places where people can socialize and meet others. The authors give a list of characteristics of successful third places, they are: free or relatively inexpensive to enter, easily accessible, preferably on foot, a number of people can be expected to be there, and everyone feels welcome. Some examples of a third place that are provided in the book include: libraries, coffee shops, bars, and barbershops. These destinations can help with the concept of triangulation previously mentioned in the book by thinking about what other program elements would mix well with these places. Creating a sense of place is another topic of importance when designing pedestrian destinations, and the book gives a few guidelines to follow to successfully cultivate a sense of place, including: short blocks to be manageable for someone on foot, mixed land uses, developments are connected in meaningful ways. Examples of this include: streets or paths that connect neighborhoods to open spaces, commercial developments, and other public amenities. Other guidelines mentioned in the book include: parking does not have an overpowering presence in the streetscape - although it is still available, and barriers like highways or gated communities or culs de sacs are avoided. After guidelines are laid out the authors dive into more site specific discussion on place making, stating “from a design perspective, successful place making requires elements that define and identify a particular location” (Schmitz, 2006, pg. 25). A sense of place can be communicated by signage, and creating entry conditions, if these elements are implemented successfully they can help tell the story of a place, weather it’s the sites history or what makes the site special. Other factors that help develop a sense of place include the implementations of landmarks or public art, these elements can promote social interaction, and establish a sense of place. Examples of landmarks could include fountains, amphitheaters, historical building or structure, etc.

Although its never explicitly stated in the book, I gather from the reading that modern philosophies on designing a pedestrian oriented space in an urban setting revolve mostly around the most basic and logistical ways to get pedestrians on the street and out of their cars. A quote from Anthony Catanese in Urban Planning 2nd ed. 2000 shines some light on what it is planners do: “1. Urban planning is concerned primarily with public issues involving a broadly defined group of clients with diverse interests. 2. It is a deliberate, self conscious activity that usually involves persons trained professionally as planners. 3. Its goals and objectives, as well as the means of achieving them, are often highly uncertain. 4. Urban planners themselves seldom make decisions; rather, they lay out major alternatives and recommendations for those elected or appointed to make such decisions. 5. Urban planners employ a variety of specialized tools and methods in analyzing and presenting alternatives. 6. The results of most planning activities are discernible only 5 to 20 years after the decision has been made, making feedback and corrective actions difficult.” (Catanese, 2000, pg.44). It almost feels like you’re reading a recipe book when reading a modern urban design standards book. That is not to say that any of the ingredients they include are poorly thought out or unnecessary, in fact one could argue that many of these standards come from looking at neighborhoods that were designed in Cleveland’s era. This quote from the book helps to justify the last statement “architect Richard Heapes, of Street - Works, advises planners and designers to imitate the best of the older developments” (Schmitz, 2006, pg. 29). Knowing that designers and planners draw inspiration from successful planning projects in the

past, the major differences come into play when one examines the variety of perspectives planners view their work through today. In Cleveland's day the profession of planning did not exist and consequently there is no documentation of the various disciplines planners would consider when approaching a project. In Urban Planning 2nd. ed. Catanese references a hierarchy of orders that includes all the disciplinary perspectives that must be considered to understand complex social systems in planning. The hierarchy of orders consists of the physical order at the bottom, and moving up through the biotic order, economic order, political order, social order, and at the top is the ideological order The ideological order is described as a moral order that consists of the ideologies and morals a group of people believe and find meaning in (Catanese, 2000, pg, 46-47). This ideological order is where Cleveland's view of his role as a designer most closely relates to modern practices. That being said the modern approach aims more at understanding existing ideologies, while Cleveland aimed at communicating and furthering civilization through implementation of symbolic elements of nature and philosophical views he adopted from literature. Now these are all personal philosophies that Cleveland chose to embrace as a designer and not necessarily equatable with the design standards we can find in any modern planning handbook today. I believe this is due to the fact that Cleveland was one of the founders of the profession of landscape architecture, many of the standards we are fortunate enough to have today did not exist in the 1860's. So he had to rely more on his own personal philosophies and motivations to discover what his methods would be. That being said, it does appear that most modern day planning standards are just universal guidelines that aid in making walking more convenient, but I believe that good design needs to go one step further and implement some sort of philosophical view towards the landscape and what its role will be in the development of society will be.

DISTANCE TO DESTINATION

Since travel distance is an important factor in a pedestrians motivation to walk or drive this thesis looks at the shortest average trips Americans take. By identifying the shortest trips we take we can design more appealing pedestrian infrastructure along paths that lead to these destinations, and generate more use on these paths.

The national household transportation survey of 2009 identified the shortest average trip Americans take as the trip to and from school or church averaging just 2.24 miles (NHTS). The survey states that 70.7% of these trips were made by Americans driving, and only 20% of these trips were people car pooling (NHTS). This is why I have identified designing pedestrian (walking/bicycling) paths specifically for the trip to school as an important factor in increasing park and trail use. There is existing research on environmental traits that promote walking to school, however no equivalent research on walking to religious institutions was found. Because of this the only information on religious institutions included in this thesis will be data on locations of popular religious institutions identified by survey respondents.

DESIGNING FOR THE WALK TO SCHOOL

This thesis aims to identify factors that influence a students decision to walk to school so as to make the walk more desirable.

Research conducted by Su, J., Jerrett, M., McConnell, R., Berhane, K., Dunton, G., Shankardass, K., Reynolds, K., Chang, R., and Wolch, J. looks at factors that influence rates of children walking to school in Los Angeles. The research consisted of 4338 students, ages 5-7 from 10 different communities. They found that walking rates were positively influenced by greater age, living in lower traffic density neighborhoods, and home to school proximity. They also identified

higher walking rates among students in a free or reduced meals program, and among schools with more English language learners. Interestingly enough they identified higher income communities as having substantially lower rates of walking (Su et al. p.153). They also note that although yes higher connectivity should increase walking rates, this is only true if it is local streets that are connected, if the connectivity is a result of highway, major road, or railroad then walking rates are negatively affected (Su et al. p.159).

This study was chosen because it shines a light on the environmental impacts on walking rates among children. This is significant because elementary schools are typically more evenly dispersed throughout the city meaning there is a greater chance a younger student will live within walking distance of school than, say a high school student. This thesis also shines a light on specifically younger students because in high school more students have access to their own forms of inactive transportation (students are getting their drivers license). The fact that this research only focuses on children is also the major weakness of the study, as it leaves a gap in information on what environmental impacts affect walking rates of adolescents and young adults. To close this gap in knowledge a research article examining active transportation (non motorized) among adolescents is evaluated. And a survey will be sent to a near by high school to evaluate walking rates among the student body.

A study conducted by Babey, S., Hastert, T., Huang, W., and Brown, R. analyzed the walking rates to school among adolescents age 12-17. Their study had 3,451 subjects from California. They gathered their data from telephone interviews, they asked two questions to determine weather or not the adolescent participated in active transportation or not. The two questions asked were, how many days in the past week did you walk, bicycle, or skateboard to school? and how many days in the past week did you walk, bicycle, or skateboard home from school? Adolescents who responded with 1 day or more to either of the two questions were identified as participating in active transport to school (Babey, et al, pg.S207). Other measures were collected to determine different influences on a subjects disposition to active transport to school, those measures include: urbanicity levels (urban, suburban, and rural), the name of the school they attended, if the school was public or private, age, gender, ethnicity, perceived safety, and distance to school (this was broken down into 4 categories, < 800m (approx 1/2 mile), 800-1599m, 1,600-3,199m, and >= 3,200m. 800m is considered an acceptable walking distance for the subjects, although this study also included other means of active transportation that expand the acceptable distance of active transportation, so larger distances were also included. Urbanicity was identified in this study as follows: urban = >4,150 people per square mile (ppsm), suburban = <4,150 - 1,000 ppsm, and rural = > 1,000 ppsm. Identification of public or private school was included because previous research had identified private school students as relying more heavily on non active (motorized) transport (Babey, et al, pg.S108). Environmental impacts that positively affected the students walking rates to school include population density (urbanicity) and distance to school. The study reports that 25% of subjects utilize active transportation to and from school three or more days a week. The study also reports that subject living more than 3,200m (approx. 2 miles) were less likely to actively commute to school, age was inversely related to active commute rates, and females and whites were less likely to actively commute. On the other side of the coin, the study found that individuals from lower income families, Latinos and mixed-race individuals, and students attending public schools were more likely to actively commute to school.

Some limiting factors to think about with this study include the fact that the cultural background of California and the climate of California are not exactly representational of

that of the proposed site location of this thesis (Minneapolis). And they address this in the discussion portion of their paper stating that in other research conducted in other areas of the country active transportation rates among the Latino population are different and this could be because of varying population sizes of different ethnic groups in different parts of the country.

Take aways this thesis grabs from this research include the knowledge that areas of lower household income, and higher population density positively influence active transportation rates of students. Also most individuals that live beyond 2 miles from school and students attending private schools will most likely not utilize active transportation.

BICYCLE MOTIVATION GROUPS 1&3: EXERCISE, AESTHETICS, BUFFERS, BIKE LANES AND SECURITY

The group of traits of similar influence in motivating bicyclists that was most influential contained one characteristic again and it was the same as pedestrians, opportunities for exercise. To design for bicycle exercise initial research pointed to simply providing the infrastructure to allow safe and convenient bike travel. Other methods of encouraging one's own desire to exercise as a motivating factor include incentive and outreach programs (Guinn, 2014, pg. 118). As mentioned in the pedestrian motivation section of the critical evaluation of cited papers, there is an existing incentive program in place in Minneapolis called Zap by Dero. Zap works for both pedestrians and bicyclists, for bikes the transponder is a chip implanted in a reflective strip one would attach to the spokes of their wheel. And for pedestrians it is a card the size of a credit card one could walk a round with in their wallet ("Dero ZAP - How").

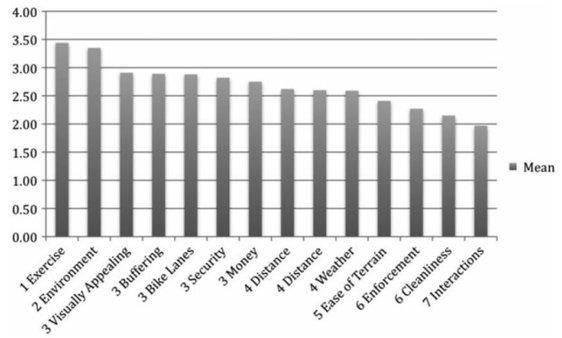


Fig.7: Walking survey results (Guinn, 2014 p.110)

The approach to aesthetics in respect to bike path design will be the same as that of the pedestrian path and park design, drawing influence from the philosophies and work of Cleveland.

Buffers were included in the pedestrian survey, but were ranked much lower than they were in the bike survey. This is most likely due to the fact that bicyclists are much more vulnerable than pedestrians (Guinn, 2014, pg. 119).

BIKE LANE DESIGN, MINNEAPOLIS REGULATIONS

To gain an understanding of bike path design, the city of Minneapolis' guidelines to bike-way types was analyzed. The first bike-way type analyzed is the bike lane. A bike lane ranges in width from 5-6', these lanes are either located adjacent to the curb or adjacent to on street parking. In the instance of a curb side bike lane it is important to provide at least 5' of space outside of the gutter pan to allow for snow removal, and discourage bicyclists from riding in the gutter pan. If a bike lane is adjacent to on street parking, an 8-10' parking lane is preferred so as to keep bicycle traffic out of danger of hitting a car door ("Bicycle Facility Design Guidelines Chapter 4 - On-Street Facilities "). It is anticipated that the majority of bike paths proposed as a part of this thesis will be interior park paths and not on street bike paths, and as the existing on site bike paths are already

successful for the most part (aside from a few connectivity issues) the existing path conditions will be continued into any proposed bike paths.

The last factor in group 3 was security, a topic that the authors admit is scarce in literature on bike path design the authors also state that it is possible that the subjects misunderstood what security (crime prevention) meant and may have confused it with safety from automobiles. Because of the ambiguous nature of the responses to security in the bike survey, and time restrictions, no research will go creating a sense of personal security on bike paths. he primary efforts to aid in creating a sense of security will be just ensuring proper lighting, and visibility on paths.

Some of the limitations of the pedestrian and bicyclist motivation paper include the fact that the survey was conducted during the summer months, people may have different feelings about the impacts weather have on their motivation to walk or bike. Also as mentioned above in the bike survey it is possible people misinterpreted the security question. Important takeaways this thesis grabs from this paper primarily come from the research this paper inspired and is spelled out in the research "map" graphic.

RESEARCH HYPOTHESIS:

By applying a regional planning thought process and historical sensitivity to a park trail system scale we can create more meaningful connections and motivate more people to walk or bike to near by destinations.

"A good project design can increase the actual distance that people will walk by reducing the perception of distance" (Schmitz, 2006, pg. 22-23).

CASE STUDY 1: CEDAR LAKE TRAIL

Cedar lake trail is a rail trail project that forms a strong connection to the city and Mississippi River. The project works to provide quality trails for bikes and pedestrians while preserving the unique and dynamic environmental features present in the site. The land the park sits on was reclaimed from Burlington Northern after they removed a few of their tracks and placed the land up for bid. The land was contested by developers, but the people of Minneapolis had a different vision

"Depending on one's point of view, Cedar Lake Park is either a recreational trail with a wide spot in the middle or a nature preserve with long, thin panhandles." (Garvin - Harnik, 1997, pg., p.59)

Fig.8:Cedar Point, a part of Cedar Lake Park looking north to downtown Minneapolis, photo credit Brian Moe

CEDAR LAKE PARK/TRAIL CASE STUDY

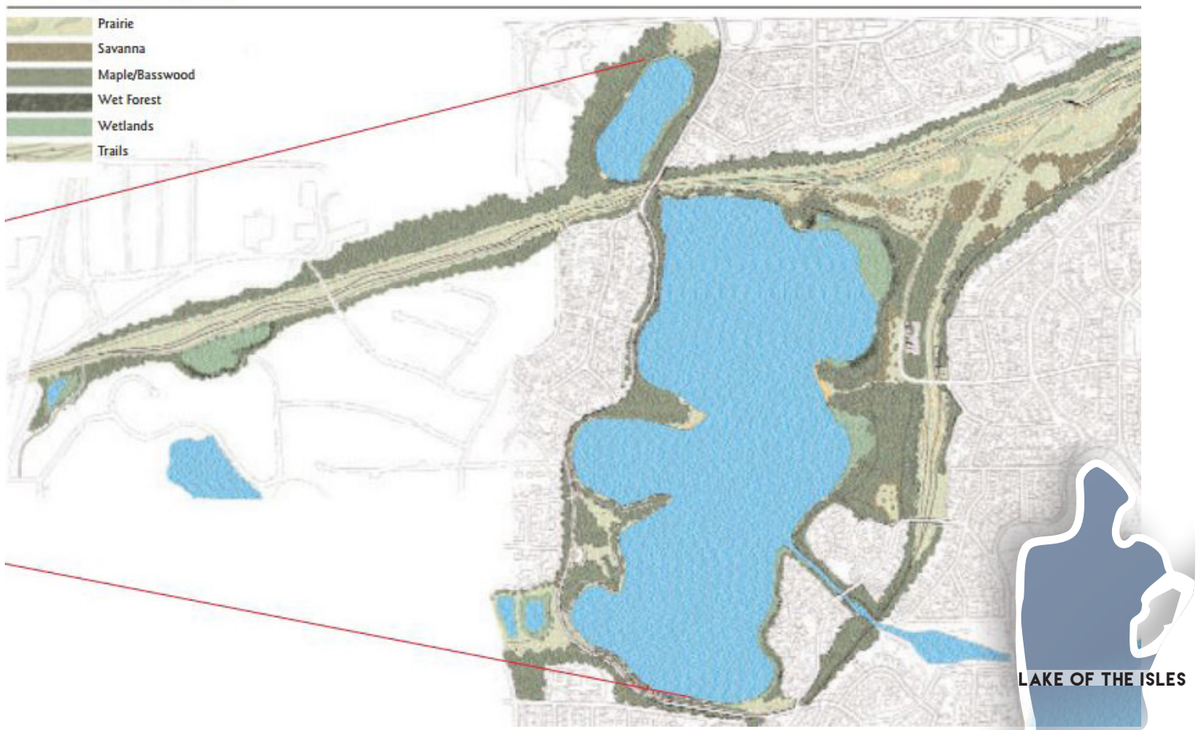


Fig.9:Cedar Lake Park Master Plan

Project name:
Cedar Lake Park

Location:
Kenwood neighborhood, Minneapolis Minnesota

Date designed/ planned:
Master Plan approved 1994

Construction completed:
1997

Cost:
$3,476,000

Size:
48 Acres

Landscape Architects:
Jones & Jones
Grant Jones, Principal
Steve Durant, Partner
Mario Campos, Partner
Richard Haag Associates
Richard Haag, Principal
Balmori Associates
Diana Balmori, Principal
Brauer and Associates
George Watson, Principal
Jeff Schoenbauer, Partner
Wirth Design Associates
Theodore Wirth II, Principal
(Garvin - Harnik, 1997, pg. 69)

Client:
Minneapolis Parks Board & The Cedar Lake Park Association (CLPA)

CEDAR LAKE PARK/TRAIL CASE STUDY CONT.

Consultants:
N/A

Managed by:
N/A

Context:
The park is located adjacent to Cedar Lake and in primarily residential zoned land, the trail extends east to downtown Minneapolis, and to the Mississippi River.

Typology:
Natural restoration
Regional Planning
Urban Planning
("Cedar Lake Park Concept Master Plan")

SITE ANALYSIS:

Cedar Lake Park is a good example of how meaningful and useful trails can coexist with areas of natural preservation. The park trail system extends just 3 miles to connect to an existing trial trail system that Hennepin County had developed, allowing users, and especially bicyclists (because distance to destination is a much smaller issue for bicyclists)the means to span the width of the entire city within this delicate natural restoration. The park has been restored to a state where a user would never know that the land beneath the trails and plantings used to be railroad tracks. The design of the site fosters the natural aesthetics of various ecosystems. And the serpentine layout of the trails remind one of the Mississippi river, which provided power, transportation and means of commerce and trade to the young and full of potential Minneapolis. It is clear the designers of the park shared a vision with H.W.S. Cleveland (who designed the original park system in Minneapolis). I say this because the symbolism of nature and the slight alteration and exaggeration of the dynamic and unique qualities of the landscape in Minneapolis is evident in the design. I believe these philosophies manifest themselves in the form of the additional effort that went into developing these environments that foster more rare and unique plant communities. Also the idea of developing a naturalistic trail system that connects bicyclists to the whole city of Minneapolis is right in line with Cleveland's philosophy of seeing the city as a work of art. I know the idea of choosing a case study that is just a stones throw away from the site of the proposed design intervention may seem like I'm not expanding my horizons or exercising very much creativity in selecting unique design for inspiration and study. But the neighborhood the poposed site is located in is one of firmly grounded tastes in both aesthetics and the sense of stewardship necessary to generate a sensitive design. This quote from Fisher (superintendent of the Minneapolis Park and Recreation Board) illustrates this well "This park was not even in the top 20 projects on our list, but we decided to stick with it and encourage the neighborhood residents. We were dealing with a neighborhood that didn't really trust the government but did have a powerful vision of what it wanted"(Garvin - Harnik, 1997, pg. 62).

PROJECT BACKGROUND AND HISTORY:

One of the visionaries behind the park and trail system Dan Dailey, discovered the site after Burlington had removed some of the tracks, he believed the space should be restored to what it once was, wild, natural, and undefined, although the space soon began to attract crime and undesirable uses so he saw that this landscape typology needs to be handled differently in an urban setting.

Eventually a builder announced plans to develop the now vacant space with roads and houses, this started a fire under Dailey to call a community meeting, and they were in favor of adding more parkland to Cedar Lake, as all that had existed before was a thin band of parkland outlining the lake. Burlington set the price of the land at 1.7 million. With this information the community

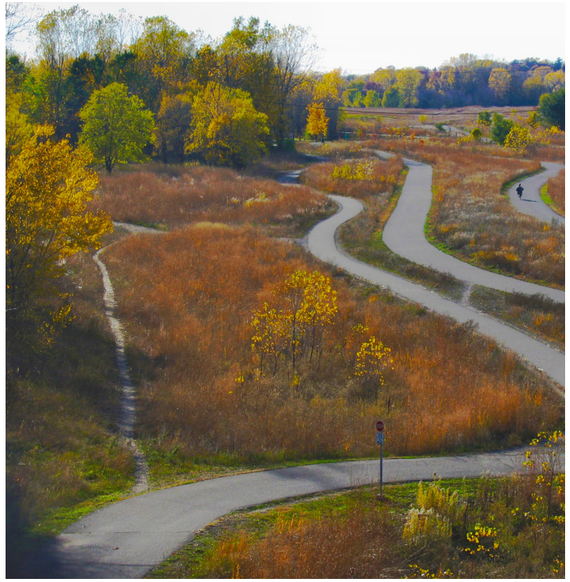


Fig.10: Cedar Lake Trail, paths in autumn

reached out to David Fisher (superintendent of the Minneapolis Park and Recreation Board, who informed them that "the city had such a large backlog of park acquisition and improvement expenses that a normal public purchase of Cedar Lake Park would entail many years' delay much longer than the railroad would consider" (Garvin - Harnik, 1997, pg., 61). For this reason the future of the park was now in the hands of community organizations like Save Cedar Lake Park, which was later renamed the Cedar Lake Park Association, Inc. (CLPA). The other big public organization involved with the success of this park was the Minneapolis Park and Recreation Board, although they couldn't fund the venture they were open to working with the CLPA.

In 1990 it was Glacier Park Company that urged Save Cedar Lake Park's leadership to purchace 48 acres instead of the original 28, and these additional 20 acres are what make up most of the trail system now.

Adding the additional acreage caused jurisdiction of the project to also reach into St. Louis Park, this helped the park gain some political backing and public funding, as the new jurisdiction included a few pro park districts. It also now became a regional project with regional benefits. The major benefit was the existing trail system that Hennepin county had, with the addition of only 3 miles of trails this park was connected to the county's trail system.

DESIGN DEVELOPMENT, AND DECISION MAKING PROCESS:

The CLPA developed a list of primary objectives for the project: 1) protect and improve the water resources and soils, 2) reconstitute a wide variety of native plant communities which reflect lake, wetland, prairie, Savannah, woodland, and forest ecosystems, 3) manage the plant and animal communities for their long-term integrity, stability, and beauty, 4) connect ecosystems, green corridors, and trail systems, 5) minimize human artifacts and amenities within the conservancy area, 6) integrate the surrounding land and land uses, 7) facilitate experiences in which people can learn about nature and gain greater appreciation for humanity's role in the web of life, 8) celebrate people living in harmony with nature and each other. The overall design of the park and trail system fosters the nurture nature philosophy, this is achieved by use of, areas of minimal mowing, minimal lighting, and buffer strips between pedestrian paths and bicycle paths. Within the organizations at work on this project there were a few decisions that proved to be divisive and saw the influence of two different interests begin to form, some members of the organization were more nature centric, and others were more bike centric. The group of naturalists in the organization set their sights high, desiring to foster unique and rare (to Minneapolis) plant communities like: dry and mesic prairies, climax lakeside, maple and basswood forests, and oak savannahs. You can see in Fig. 10 where some of these plant communities manifest themselves in the plan.

CEDAR LAKE PARK/TRAIL CASE STUDY CONT.

ROLE OF LANDSCAPE ARCHITECTS:

Jones & Jones, and Richard Haag Associates were brought in to facilitate the design of the trail system and later the aid of Balmori Associates was requested for the design of specific sites within the park (Garvin - Harnik, 1997, pg., p.64). The community was very involved in the design process developing plans for future development and establishing strong and strict design goals for the site. This, I would assume made the job of the landscape architects somewhat easier as the organizations involved in the design process had strong visions for the space.

PROGRAM ELEMENTS:

Program elements in this case study include:

-Unique and rare plant communities
  - Prairie
  - Savanna
  - Maple/Basswood
  - Wet Forest
  - Wetlands

-Trails to facilitate:
  - Hard surface trail biking
  - Running
  - Rollerskating/blading
  - Dog walking, both on and off leash

-Beach development to facilitate:
  - Fishing
  - Swimming / Sun bathing

-Habitat creation to facilitate bird and wildlife observation

USER / USE ANALYSIS:

Most of the site users are either commuting on their bicycles or out exercising, some people may be out on trips of leisure as well, as much of the park and trail system has redeemable aesthetic value. The bike trails lead directly into downtown, giving users street access near Target Field, and further north east where 2nd Ave. N. and Azine Way intersect. Then the trail continues to the Mississippi River and connects to the trail that follows W River Pkwy. This level of connectivity allows the site to foster a diversity of trip destinations. Users can travel to the south west side of downtown and the north east side.

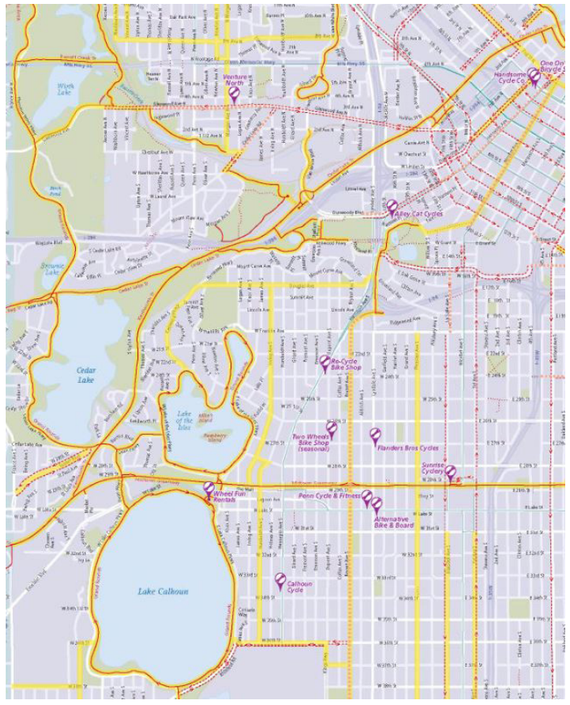


Fig.11: Bike paths in Minneapolis (minneapolismn.gov).

Other users of the park and trail environments are the local wildlife. Some common backyard birds of the Twin Cities metro area include: Northern Cardinals, Downy / Hairy Woodpeckers, American Goldfinches, Black-capped Chickadees, White-breasted Nuthatches, Orioles, and American Robins ("Metro Area Bird Species Composition"). Animals that inhabit the Oak Savanna environment include: Deer, Wild Turkey, Ruffed Grouse, Red-headed Woodpecker, and cavity-nesting birds. Other oak savanna bird species include: Eastern wood-pewee, Eastern kingbird, White-breasted nuthatch, and the Indigo bunting. The Federally Endangered Karner Blue Butterfly is specific to savanna plants living

off of lupine (*Lupinus perennis*) (“Animals of Oak Savannas”). Mammals that inhabit wetlands in Minnesota include: Shrews, Moles, Mice, Voles, Lemmings, Muskrats, Beavers, and Mink (“Wetland Mammals”, 2001). Birds that thrive in metro area wetlands include: Swan, Mallard, Blue-winged Teal, Redhead, Pied-billed Grebe, American Bittern, Least Bittern, Black-crowned Night-heron, Sora, Common Gallinule, American Coot, Wilson’s Snipe, American Woodcock, Black Tern, Forster’s Tern, Willow Flycatcher, Bells’ Vireo, Marsh Wren, and Yellow-headed Blackbird (“Metro Area Bird Species Composition”). Other forest animals that may inhabit the forest environments include: squirrels, rabbits, and common backyard birds.

CRITICISM:

As the trail stretches north east away from the lake the planting design becomes more sparce and eventually disipates entirely, exposing users to unsightly views of train yards, rubbish and rubble. There is also limited access to the bike trails connecting to the rest of the Chain of Lakes Regional Park. Also there are very limited winter activities.

SIGNIFICANCE & UNIQUENESS OF PROJECT:

This project finds its significance in its multi faceted functions, both as natural restoration to unique plant communities that foster habitat for a wide diversity of wildlife in addition to forming meaningful trail connections to preexisting regional trails.

CONTACT FOR FURTHER INFORMATION:

Cedar Lake Park Association
314 Clifton Ave. Suite 50
Minneapolis, MN 55403
T (612) 377 9522
E info@cedarlakepark.org

Fig.12: Cedar Lake Trail, paths in winter

CASE STUDY 2: CENTENNIAL LAKES

Centennial Lakes is located in Edina, a first ring suburb of Minneapolis, the project site is located about 10 miles south west of the metro area. It is a unique infill project in the sense that its size is large for an in fill project at 100 acres.

Fig.13: Centennial Lakes case study

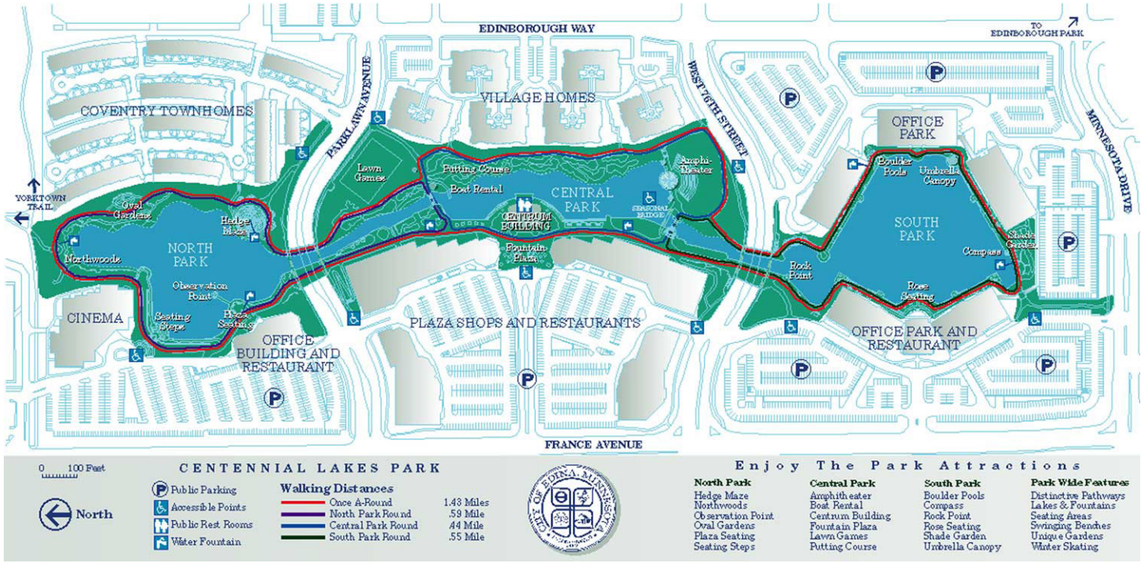


Fig.14:Cedar Lake Park Master Plan ("Centennial Lakes Park Map")

Project name:
Centennial Lakes

Client:
City of Edina

Location:
Edina, Minnesota

Consultants:
N/A

Date designed/ planned:
Master Plan approved 1988

Managed By:
City of Edina

Construction completed:
2000

Context:
Centennial Lakes is located in Edina, a first ring suburb of Minneapolis, the project site is located about 10 miles south west of the metro area. It is a unique infill project in the sense that its size is large for an in fill project at 100 acres.

Cost:
$175,455,000

Size:
100 Acres
Buildings = 70 Acres
Landscaping = 30 Acres

Typology:
Storm water management
Urban Design
(Schmitz, 2006, pg. 186-187)

Master Planner:
URS
An AECOM company

SITE ANALYSIS:

Centennial lakes is a good example of a pedestrian oriented park that serves users of a wide diversity. Because of its location right at the cross section of residential, commercial, and office zones many of its users either arrive in a car or already live there. It's location in the middle of all these land uses gives it the opportunity to reach users who are there on a variety of different trips. It also means that the site is fairly dominated by automobile traffic. However, the park trail network is designed so that one can navigate the entire park and never cross a street. The provides amenities for a variety of activities (Schmitz, 2006, pg. 179). One of the more unique activities hosted at the park is the use of model boats by the Edina Model Yacht Club Other activities the park provides amenities include: ice skating, farmers market, paddle boating, walking, mini golf, and formal (amphitheater) and informal (benches) seating ("Centennial Lakes Park Welcome Page"). All of these activities can serve as the external stimulus in triangulation as defined by William H. Whyte "triangulation is the process by which some external stimulus provides a linkage between people and prompts strangers to talk to other strangers as if they knew each other" ("Eleven Principles for Creating Great Community Places - Project for Public Spaces"). The park can also control the drainage of the lake at the south west corner, making it capable of handling 1/4 of the storm-water runoff in the city and maintain constant water levels allowing it to be an aesthetic asset even in a dry spell (Schmitz, 2006, pg. 182). Some of the activities the park allows are common activities users could easily find other locations to do the same things, but the park is fairly consistently busy. I believe this is because of the spatial relationships of the amenities, and its location to a variety of other land uses. Take ice skating for example, there are plenty of lakes, and ice rinks with warming houses located in the area but people tend to choose Centennial Lakes, Google reviews were used to back this statement up, Centennial lakes park is rated at a 4.8 with 35 reviews the next park that comes close to that is Lake Harriet park, at a 4.7 rating with 23 reviews, and that park does not offer ice skating. The next closest park that does offer ice skating and a warming house is Lake of the Isles park, at a 4.5 rating with 9 reviews. I believe that people tend to enjoy their experience at Centennial Lakes more because of the amenities they offer. Centennial Lakes offers ice skate rentals, concessions, indoor and outdoor fire places, and all this in a warming house situated rink-side. The design of the park with three lobes in the lake connected with canals makes for an entertaining ice skating experience. When you take into account all these amenities and the fact that the park is located in the cross section of such diverse land uses, this park becomes much more desirable and it shows. One component of the trail network avoiding road crossing involves a few pedestrian underpasses. This is an element this case study and the proposed thesis site have in common, although I would argue the centennial lakes instance of a pedestrian underpass is more successful. I think it achieves its success from the large arches that form the underpass, the widened shape allows for more natural light, and aesthetic plantings right up to the foundation of the bridge, Fig. 16 illustrates this.

Fig.15: Centennial Lakes, outdoor fireplace and warming house overlooking what is in winter, the ice skating rink.

Fig.16: Centennial Lakes, outdoor fireplace and warming house overlooking what is in winter, the ice skating rink.

PROJECT BACKGROUND AND HISTORY:

The majority of the 100 acre site that is Centennial Lakes today was once a gravel pit. In 1986 the owners of the Hedberg Gravel Pit put their property up for sale. The city of Edina however had some requirements for the development, they wanted a public park and some residential land use included in the plan. The site would also need to be able to manage the runoff of a 100 year storm (34 acre feet). The final master plan was developed by United Properties, a Twin Cities based property management and development firm, that specalizes in office and industrial developments. Several other developers were added to the project. URS was the master planner, the residential piece of the project was developed by Larr Laukka (Laukka-Jarvis, Inc.), the retail center was handled by Gabbert & Beck, and Eagle Enterprises developed the medical office building. The city approved the plan for the park and development in 1988 (Schmitz, 2006, pg. 180-181).

DESIGN DEVELOPMENT, AND DECISION MAKING PROCESS:

The aim of the design of this project is to give the public an aesthetic gathering space while still functioning as and effective storm water retention facility. It does this well, the majority of the difficulties that URS faced when designing the site concerned views, primarily how to deal with a 2 story blank wall of the shopping center that faced the park, and keeping truck access to the shopping center out of view. They overcame these difficulties by placing the shared loading docks for service access to the side of the buildings. And large coniferous and deciduous trees were planted along the blank wall of the shopping center to hide it from view. These decisions leave the views of the park an asset for the surrounding business and residential land uses. And a few restaurants in the plaza also take advantage of the views of the park. (Schmitz, 2006, pg. 182).

ROLE OF LANDSCAPE ARCHITECTS:

URS, a branch of AECOM was responsible for master planning, and also produced a planned unit development zoning code that accommodates the diverse mix of land uses planned on the site (Schmitz, 2006, pg. 181).

PROGRAM ELEMENTS:

Program elements in this case study include:

Social hall / Warming house
Walking paths
Fountains
Lake
Benches
Amphitheater
Mini-golf grounds
Paddle boat rentals
Healthy fish population for fishing

MAINTENANCE AND MANAGEMENT:

Centennial Lakes is the city's most valuable park asset and because of this fact the city maintains the park through a variety of funding sources that form a total annual budget of $1.5 million. Tenants pay for half the park's maintenance fees through association, for example residents of the development pay a 15$ per month fee, another example is office tenants who pay an annual fee based on square feet ($0.20/sq. ft.) (Schmitz, 2006, pg. 185). Other sources of funding for maintenance include revenue raised by paid park activities, including things like: equipment rentals, concessions, mini-golf fees, etc. The city also contributes about 20 % of the financing, mostly through a trust fund.

USER / USE ANALYSIS:

Because of the site's location in the cross section of a variety of different land uses, the site sees a variety of different users. With the construction of the Edina Promenade in 2008 there is improved bicyclist and pedestrian connectivity to the surroundin commercial land uses (Southdale shopping center, and Galeria shopping center), and allowing more of the users to arrive via active transportation ("Edina Promenade"). The majority of users however either arrive in a car or already live there. Users that would drive to the site would include employees of the surrounding commercial, office, and medical buildings, or patrons of the same building uses. Other users could be on site for the sole purpose of going to the park, either to exercise or make use of the wide diversity of amenities the park provides for a variety of activities.

CRITICISM:

Being surrounded by so many parking lots and roads, the park could do a better job of combating petrochemical pollution coming from these areas. Also there is a large amount of impervious surface used in the design, more ecologically friendly materials could have been implemented to aid more in combating pollution. Also seeing as how the park is nearly completely surrounded by parking lots (becasue the majority of site users arive via car) the majority of site entrances require a user to enter the site through a parking lot. Until the construction of the Edina Promenade in 2008 there were no specific connections to paths that promote active transportation.

SIGNIFICANCE & UNIQUENESS OF PROJECT:

This project is unique in both terms of scale and the manor in which it interconnects a diversity of land uses. The project is successful in economic stimulation, as measurable by sales prices, occupancy rates, and rent rates. The project is also a good example of how complex projects can require a variety of developers and public and private input to achieve success. And when the community knows what it wants and is willing to work with developers the chances of success and of seeing the communities desires manifested in the final design are greatly increased (Schmitz, 2006, pg. 185).

PEER REVIEWS:

BRW now URS, received the Merit Award for Public Landscape Design in 1998 from MASLA (Minnesota Chapter of the American Society of Landscape Architects).

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Fig.17: Centennial Lakes, ice skating

METHODOLOGY

APPROACH TO RESEARCH:

This thesis is primarily concerned with establishing a strong pedestrian connection between Lake Calhoun and Lake of the Isles and drawing users to the site. Evidence found in the literature review suggests that the most influential factor in deciding to use non-automotive transportation is an opportunity for exercise, and there was even some evidence that trails for only exercise could prove to motivate more people to use the space. Other data that will be gathered is the historic character of the park, where is the evidence of H.W.S. Cleveland's original design and philosophical approach present, and where can it be pushed?

DATA MEASURES:

To begin to gather quantifiable data on historical character, first the characteristics that will be observed and quantified must be defined. This thesis observes and defines characteristics based on elements that build the picturesque aesthetic, and characteristics that emphasize the native landscapes. These were the themes that most directly translate to landscape design from the literary influences of Cleveland (Irving and Emerson), so they are the characteristics in question. This research breaks down the picturesque aesthetic into two categories of characteristics, the sublime and the beautiful, as the aesthetic is described as being a harmony of these two aesthetics by the man accredited with the conception of the theory of picturesque landscape design, William Gilpin. It is also important to note that Gilpin stated that the largest difference between a landscape designed for beauty and one designed as picturesque is the element of roughness. The matrix of images on pg. 65 illustrate how these characteristics have manifested themselves into the design of the park today.

To describe what these characteristics are, first, elements of the sublime aesthetic will be discussed. Gilpin described elements of subime in a landscape design as elements that communicate power, magnitude and vastness. Characteristics in the park that communicate these themes are: distance, a lake view, and hills.

Characteristics of beauty in the context of picturesque landscape design as defined by the creator of the concept, William Gilpin are characteristics that bring a sense of smoothness, order and regularity to the composition. Characteristics of beauty that exist in the park today include: trees or plantings as a compostional accent piece (see the photo labeled "Trees (accent) on pg. 65), native plantings, broken grounds (an element of order with the introduction of roughness), rocks & texture, infrastructure as beauty, beaches, and a natural articulation of paths.

Characteristics that emphasize the native landscape that are present in the park as it exists to day include: path articulation, viewshed articulation, appropriate programming elements, restraint in design, and topography manipulation.

SITE INTRODUCTION:

The Chain of Lakes Regional Park runs north and south along the western edge of Minneapolis. It is a network of parks made up of Lake Calhoun park, Lake Harriet park, Lake of the Isles park and Cedar Lake park. With all the parks included the Chain of Lakes park is roughly 1555.3 acres. It contains 14.81 miles of pedestrian trails and 15.27 miles of bike trails, and is located within the Bryn-Mawr, Cedar-Isles_Dean, East Harriet, East Isles, ECCO, Kenwood, Linden Hills, Lowery Hill, and West Calhoun neighborhood boundaries ("Chain of Lakes"). The park receives 2.5 million visitors annually ("Lake Calhoun"), and is one of 7 byway districts along the Grand Rounds National Scenic Byway designed by H.W.S. Cleveland in the 1883 ("Chain of Lakes"). The location of the serious congestion and pedestrian disconnect occurring in the park is where Lake St. transects the park.

Fig.18: Project Boundary

Site history: the Chain of Lakes was created as a result of settling glaciers that were covered in windblown dirt. This formed a meltwater valley that filled with sediment eroded from the surrounding hills, the size and insulation of this sediment caused the glaciers to melt slowly. When they did melt they formed the Chain of Lakes. The lake now known as Lake Calhoun had a different original name from the native Dakotas who "called the lake "Mde Ma-ka-ska," meaning "Lake of the White Earth," presumably because of a sandy shore on the north side of the lake." ("Lake Calhoun"). The lake then changed names 2 more times the later of which being Lake Calhoun, the origins of which come from the Secretary of War, John C. Calhoun in 1817, who sent Army surveyors to the west to map the environment. Dakota natives inhabited the land near the lake until 1851 when the Treaty of Traverse des Sioux vacated the land. The village near the lake was located on the eastern shore, and went by a name that translates to village of Cloud Man ("Lake Calhoun"). The village was a farming village that used the lake for fish and gathering rice. Once the area was vacated European settlement moved in, the lake was originally a part of the Tort Snelling military preserve. The property changed hands and was owned by a farmer who harvested the same areas the native Dakotas used to tend. There wasn't much activity on the lands around the Lake, until 1883 when the Minneapolis Park Board began purchasing the lands around the lake, acquisition was completed in 1909. The land cost the park board $127,414.25. The park board began altering the land around the lake infilling all the surrounding wetlands that were situated along the south and east shorelines, decreasing the lake size by 35.5 acres. The elimination of the wetlands removed a natural buffer that would filter the storm water runoff, and with all the development around the lake, there is an estimated 30% land coverage of impervious surfaces, all this results in increased levels of pollution in the lake. The level of pollution entering the lake has caused an accelerated rate of phosphorus accumulation. In 1911 the channels linking Lake Calhoun, Lake of the Isles, and Cedar Lake were dug, the channels opened on July 5th 1911 ("Lake Calhoun"). In 1883 Cleveland finished his proposal for a system of liked parks throughout the city the would become the Grand Rounds, that would serve as the structure the city would grow from. Cleveland's aim when designing the parks system was to "emphasize features of the native landscape" and in contrast to Central Park, he wanted his design to leave "natural elements in all sectors of the city available for the moral and spiritual sustenance of the people" (Nadenicek, p.9).

Strengths:

-Located within a diversity of land uses

-Strong existing design and character

-Good existing view sheds

-Site has strong potential for wetland restoration

-With its vast range the park trail network has potential to be an asset in paths leading to schools, as that was the trip research pointed towards designing for

-The sites poor circulation issues make it a good candidate for renovation

Limitations:

-There is limited space to work within

-The site is surrounded by fairly constant automobile traffic, with various controlled intersections dispersed around the park

-To the east of the park in Uptown there are moderately high crime rates

SITE INTRODUCTION:

Client:

My Client would be the City of Minneapolis Parks Department, and the surrounding community. I believe with a park that is a part of such an iconic design, one must treat any redevelopment proposal with a sensibility that aims to preserve the cultural significance of the aesthetic and symbolic nature of the design implemented by H.W.S. Cleveland.

Users:

Users of all kinds utilize the park space in the Chain of Lakes Regional park. People walking to or from uptown for any variety of reasons. The vast majority of uptown is designed with ground level pedestrian interests, promoting lots of pedestrian activity. Visitors from around the world, and locals, students walking to school and people out exercising.

Specific users include:

Bicyclists
Runners/walkers
Beach goers
Ice skaters
Kayakers
Boaters

Fig.19: West Lake of the Isles bridge

RESULTS

Results were influenced by 3 different sections of this thesis: 1= Critical evaluation of cited papers, 2= Case Studies, and 3= Surveys.

RESULTS CONCLUDED FROM CRITICAL EVALUATION OF CITED PAPERS

This section of the thesis is where all the research started and the basic ideas of the proposal to apply a regional planning thought process to a park design scale was conceived. A paper describing the top motivational factors in deciding active transport over non active transport served as the base influence to other research. Opportunities for exercise were identified as the most influential factor for deciding mode of transportation. This then led to research on what environmental design principles encourage active transport (see the section labeled environmental impacts on physical activity, pg. 9 and attributes associated with park use and activity, pg. 10) The results from the first paper (pg.9) conclude that areas of low crime rate and high land use diversity encourage more physical activity in the landscape. The low crime rates as depicted below in Fig. 20 make the chain of lakes a valid site selection although the land use is only diverse to the east side of the park along Lake St. (Fig. 21), the majority of the rest of the park is surrounded with single family residence. Results from the second paper (attributes associated with park use and activity) include: bathrooms, open spaces large enough to foster the play habits of older children, and natural paths. Young adults and adolescents also value areas for passive and active recreation, aka areas for sports and for play. Other features that promote park activity but not necessarily physical activity were picnic tables, seating, and water fountains.

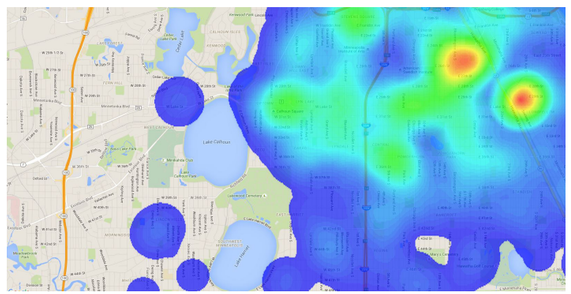


Fig.20:Crime rates in Minneapolis in 2015 (from Jan. 1st to Nov. 21st)

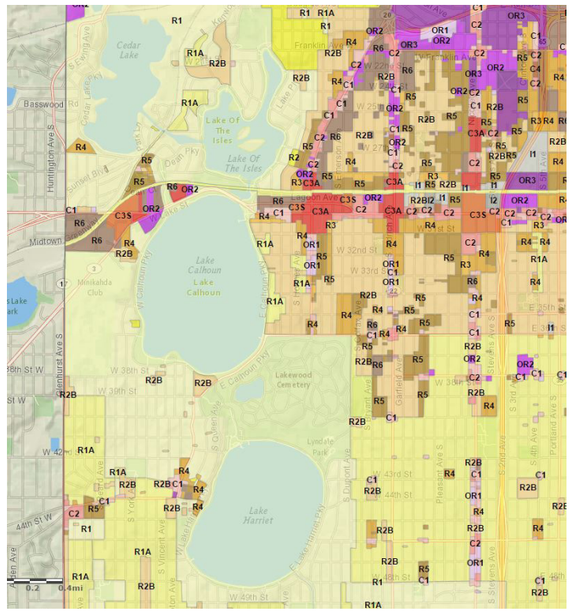


Fig.21: Land use near the Chain of Lakes Regional Park

RESULTS CONCLUDED FROM CRITICAL EVALUATION OF CITED PAPERS CONT.

The second group of influential factors in deciding active or non active transportation consisted of: distance to destination and aesthetics. To address distance, information from the National Household Transportation Survey was gathered to identify the shortest average distance trip Americans take, that trip was identified as the trip to school. Fig. 22 identifies all the schools within a 3 mile buffer of the park.

Although areas of high land use diversity have been identified as encouraging exercise, these areas have also been identified as a negative factor in influencing adolescents to walk to school (see designing for the walk to school, pg. 17), for this reason, areas identified as being areas of high traffic areas for adolescents walking to school will not receive increased diversity in land use. This thesis will also design for adolescents and young adults walking to high school, although there is not much research that has gone into what environmental characteristics motivate active transportation among high schoolers.

Other results this thesis grabs from papers on environmental impacts on active transportation rates among students include:

-knowledge of the fact that students from lower income households are more likely to walk (Fig. 23 illustrates all areas around the park that have an average household income of <$100,000).

-Most students wont use active transportation beyond 2 miles

-whites are less likely to use active transportation

-Too much connectivity, and land use diversity can negatively influence walking rates among children walking to school

-Highways and major roads can serve as barriers deterring active transportation among students

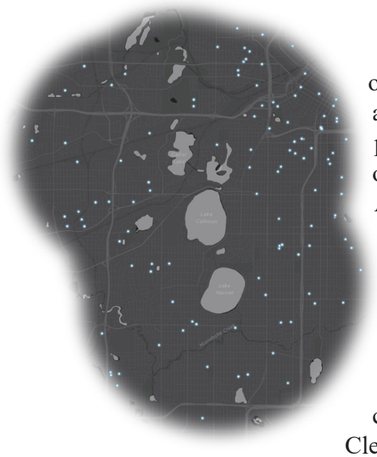


Fig.22:School locations within a 3 mile buffer of the park

And in order to ensure the new proposed park development is synonymous with that of the original design by H.W.S. Cleveland, guidance and understanding of his philosophies and aesthetic preferences were gathered from a historical review of his work (see Horace William Shcaler Cleveland's Aesthetic, pg.12). From Irving, he was challenged to think on the dynamic qualities of nature, specifically themes of change over time, irregularity, and tangled masses. Longfellow challenged him to think on issues of character development, moral development, and spiritual development. Longfellow also wrote on issues of the social responsibility leaders have to guide civilization across the landscape. Emerson challenged Cleveland to think on the role of the artist in the landscape, believing the artist was capable of higher perception and that it is the role of the artist to communicate the lessons

RESULTS CONCLUDED FROM CRITICAL EVALUATION OF CITED PAPERS CONT.

nature has to offer us to the public in a discernible fashion. Cleveland also believed that an approach that just aims to mimic nature would never hold weight against an approach that aimed to communicate truth through symbolic elements of nature.

Other results concluded from the critical evaluation of cited papers include, the city regulations for bike lanes on the street, and the possibility of adding buffers between bike lanes and traffic. And the possibility of expanding the Zap program into the park.

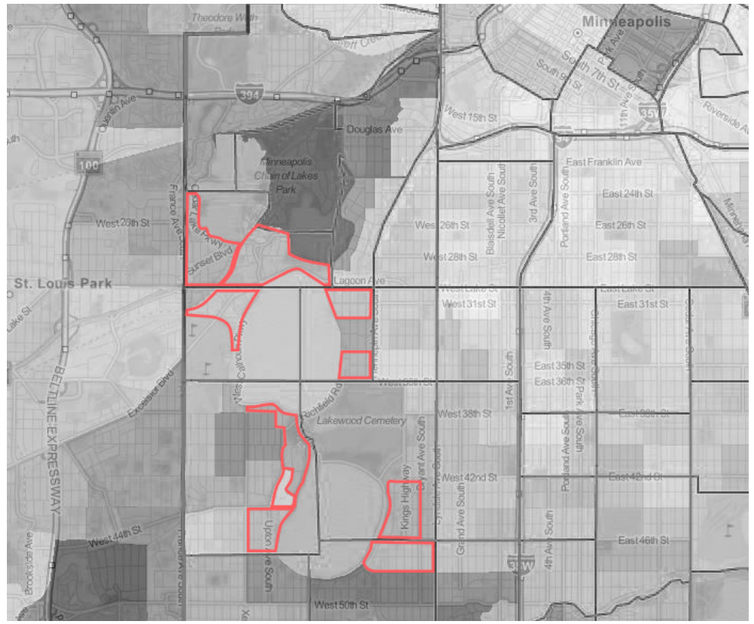


Fig.23: Areas where average household income is less than $100,000

RESULTS CONCLUDED FROM CASE STUDIES (CEDAR LAKE PARK/TRAIL)

Case studies provided insight to what activities should be designed for and what program elements should be included.

The Cedar Lake Park and trail case study provided the following list of program elements to include.

-Unique and rare plant communities

Prairie: Examples of grasses in this plant community include: Little Bluestem, Prairie Dropseed, Sideoats Grama, Kalm's Brome, Big Bluestem, Prairie Cordgrass, Bluejoint Grass,

RESULTS CONCLUDED FROM CASE STUDIES (CEDAR LAKE PARK/TRAIL) CONT.

Great Bulrush, Pennsyvania Sedge, June Grass, Needle Grass, and Blue Grama

Examples of forbs in this plant community include: White Prairie Clover, Prairie Larkspur, Lupine, Black-eyed Susan, Showy Goldenrod, Rough Blazingstar, Bush Clover, New England Aster, Joe-pye-Weed, Bottle Gentian, Prairie Dock, Cup Plant, Culver's Root, Swamp Milkweed, Prairie Smoke, Stiff Sunflower, Slender Penstemon, Gray Coneflower, Prairie Phlox, Zig zag Goldenrod, and Wild Bergamont

Savanna: Examples of trees in this plant community include: Bur Oak, and Red Cedar

Examples of shrubs in this plant community include: Chokecherry, Gray Dogwood, American Hazlenut, and Leadplant.

Examples of grasses in this plant community include: Switch Grass, Side Oats Grama, Little Bluestem, Blue Grama, June Grass, and Canada Wild Rye

Examples of forbs in this plant community include: Butterfly Milkweed, Yarrow, Prairie Onion, Purple Prairie Clover, Dotted Blazingstar, Prairie Phlox, Stiff Goldenrod, Common Oxeye, Fragrant Hyssop, Azure Aster, Stiff Tickseed, Golden Aster, Wild Bergamot, and Hoary Vervain

Maple/Basswood: Examples of trees in this plant community include: Sugar Maple, American Basswood, Ironwood, Blue Beech, Black Walnut, and Red Oak.

Examples of shrubs/ vines: Common Elderberry, and Prickly Gooseberry.

Examples of ferns/forbs: Maidenhair Fern, Ostrich Fern, Jack-in-the Pulpit, Dutchman's Breeches, Wild Ginger, Hepatica, Wild Geranium, Bloodroot, Lady Fern, Interupted Fern, Showy Trillium, Spring Beauty, Canada May Flower, White Trout Lily, Virginia Bluebells, and Solomon's Seal

Wet Forest: Examples of trees in this plant community include: Black Willow, Silver Maple, Eastern Cottonwood, American Elm, Green Ash, and Hackberry.

Examples of shrubs and vines in this plant community include: Speckled Alder, Red Alder, Red-osier Dogwood, Common Elderberry, Highbush Cranberry, Buttonbush, Virginia Creeper, and Wild Grape

Examples of forbs in this plant community include: Horsetails, Wood Nettle, Cardinal Flower, Virginia Waterleaf, Jewelweed, and Sensitive Fern

RESULTS CONCLUDED FROM CASE STUDIES (CEDAR LAKE PARK/TRAIL- CONT.

Wetlands: Examples of grasses in this plant community include: Cattail, Giant Bur-reed, Hardstem Bulrush, Needle Spike-rush, Reed Grass, and Wool Grass

Examples of forbs in this plant community include: Sweet Flag, Bladderwort, Marsh Marigold, Yellow Water Lily, Water Plantain, Duck Potato, Wild Iris, and Jewelweed

-Trails to facilitate:
Hard surface trail biking
Running
Rollerskating/blading
Dog walking, both on and off leash

-Beach development to facilitate:
Fishing
Swimming / Sun bathing

-Habitat creation to facilitate bird and wildlife observation. Birds that would benefit from these proposed habitats include:
Eastern wood-pewee, Eastern kingbird, White-breasted nuthatch, the Indigo bunting, Swan, Mallard, Blue-winged Teal, Redhead, Pied-billed Grebe, American Bittern, Least Bittern, Black-crowned Night-heron, Sora, Common Gallinule, American Coot, Wilson's Snipe, American Woodcock, Black Tern, Forster's Tern, Willow Flycatcher, Bells' Vireo, Marsh Wren, and Yellow-headed Blackbird. Mammals that would benefit include: Deer, Shrews, Moles, Mice, Voles, Lemmings, Muskrats, Beavers, Squirrels, Rabbits and Mink.

RESULTS CONCLUDED FROM CASE STUDIES CENTENNIAL LAKES PARK

Program elements in this case study include:

Social hall / Warming house (feasibility of enhancements to existing warming house located at Lake of the Isles)

-Enhancements would include things like indoor/outdoor fireplaces, concessions, skate rentals, and adequate lounging space

Walking paths
Fountains
Lake
Benches
Amphitheater
Mini-golf grounds
Paddle boat rentals
Healthy fish population for fishing

Other results concluded from this case study include the lessons learned from their method of handling a pedestrian underpass. By widening the overhead arch of the bridge, more natural light is shed on the path. And by strategically placing plantings up to the foundation of the bridge, the environment is perceived more as a landscape and less as a tunnel.

DESIGN GOALS

- Amend pedestrian and bicyclist congestion issues
-Form meaningful and culturally relevant connections to community

- Preserve ideals and symbolic nature of the existing site as implemented in the original design proposal from Cleveland in 1883.

APPLICABLE SITE VALUES

One of the concepts behind Cleveland's proposal for a connected park system in Minneapolis was that in contrast to Central Park, the Minneapolis parks system was not to be located in just one centralized location, but that it spreads out areas of preservation throughout the city. This concept has landed Minneapolis with a network of scattered parks that the city naturally evolved around. The result of these actions taken early in the genesis of the city of Minneapolis has provided the city with incredibly valuable park spaces that scatter the cityscape. One of these parks is the Chain of Lakes Regional park. Unfortunately however, as a part of the process by which the lakes became connected and developed, all preexisting wetland ecosystem has been removed.

This site is a good fit for my design proposal for the following reasons:

-The damaged and missing wetland ecosystem provides great potential for a wetland buffer to be restored to the shoreline of Lake Calhoun, that phytoremediates phosphorus

-Its location in the middle of a variety of land uses gives it potential to form updated and meaningful connections to the surrounding community

-It's strong existing character is an asset that already draws users and visitors from both local communities and tourists from around the world

APPLICABLE SITE VALUES CONT.

-Its relationship to surrounding residential areas and city schools gives it potential for stronger cultural connections to specifically schools.

-When Cleveland designed the parks system, habitat and native unique plant communities were not necessarily at the top of his priorities, a redevelopment of the site could more thoughtfully address habitat and plant community restoration and development.

CH4

SITE INVENTORY

Residence Districts
- R1-Single-family District (low density)
- R1A-Single-family District (low density)
- R2-Two-family District (low density)
- R2B-Two-family District (low density)
- R3-Multiple-family District (medium density)
- R4-Multiple-family District (medium density)
- R5-Multiple-family District (high density)
- R6-Multiple-family District (high density)

Office Residence Districts
- OR1-Neighborhood Office Residence District
- OR2-High Density Office Residence District
- OR3-Institutional Office Residence District

Commercial Districts
- C1-Neighborhood Commercial District
- C2-Neighborhood Corridor Commercial District
- C3A-Community Activity Center District
- C3S- Community Shopping Center District
- C4-General Commercial District

Downtown Districts
- B4-Downtown Business District
- B4S-Downtown Service District
- B4C-Downtown Commercial District

Industrial Districts
- I1-Light Industrial District
- I2-Medium Industrial District
- I3-General Industrial District

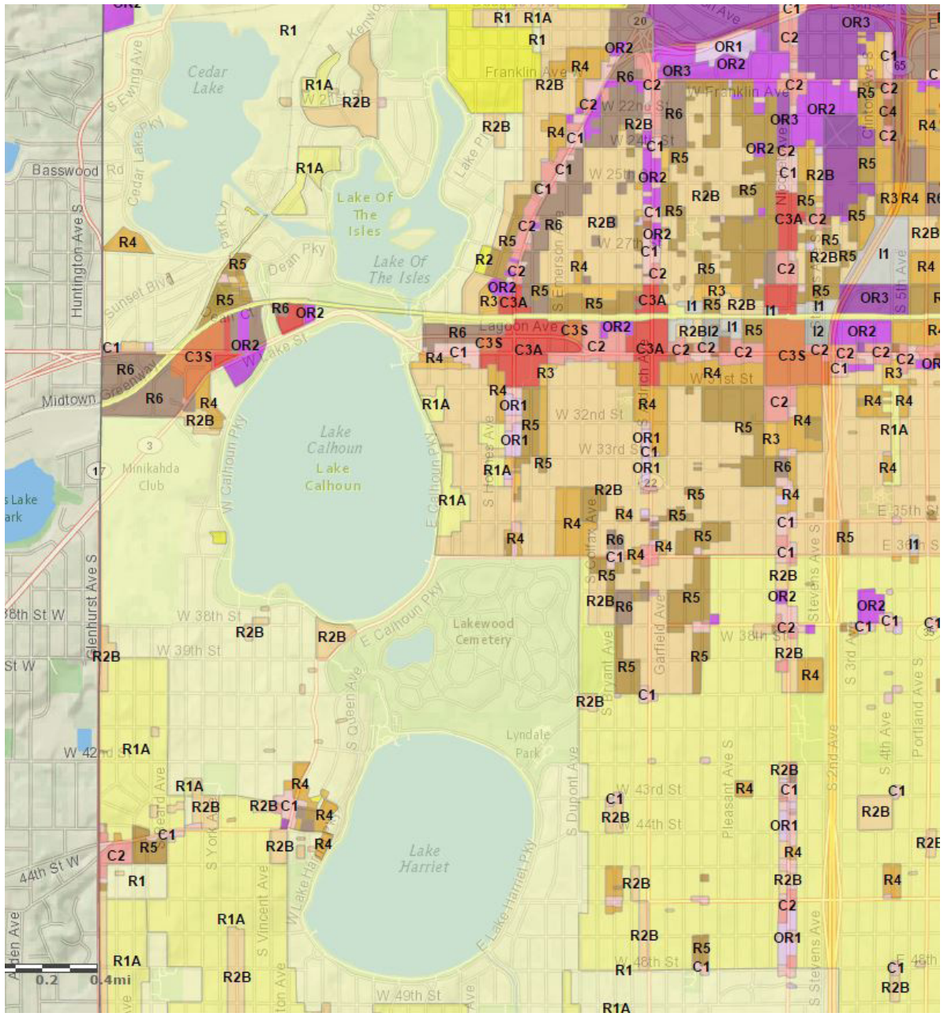


Fig.24: Land use near the Chain of Lakes Regional Park

Fig. 24 Illustrates where there is high land use diversity, a potential deterrent of active transportation to school among children, as parents are less likely to have their kids walk through urban centers to school as discussed in the critical evaluation of cited papers.

Transit stop locations were inventoried because they are all potential points of pedestrian access, there is also a bus transit shelter within 1/2 a mile of the park, the maximum distance most people are willing to walk. They are also potential sites for effective triangulation.

Fig.25: Transit locations, the white circle around the shelter and blue shaded region around the park represent a 1/2 mile buffer

PARKS AND NEIGHBORHOODS INVENTORY:

The opportunity to develop the city roads that follow Minnehaha Creek to better accommodate students on a walk towards Washburn High, and other users headed towards 50th St. will be examined

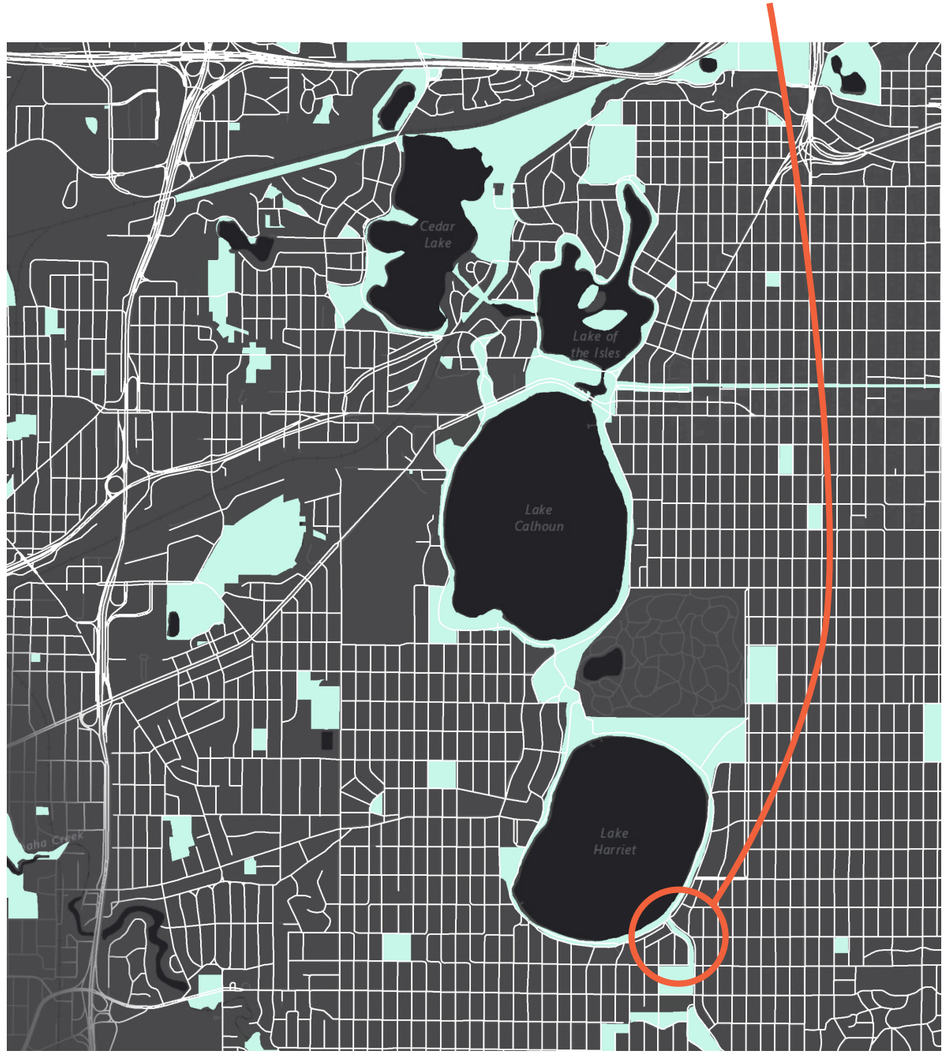


Fig.26: Near by park inventory

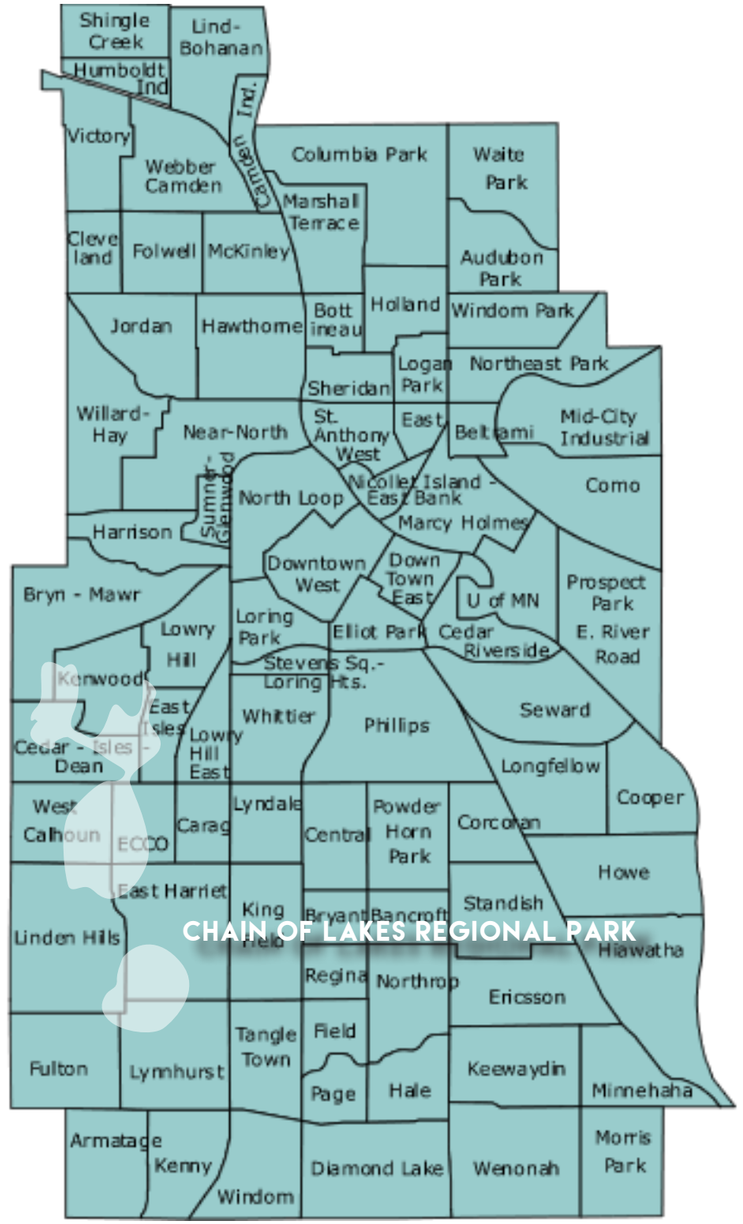


Fig.27: Minneapolis neighborhoods

TOPOGRAPHY AND CRIME RATES:

The Chain of Lakes Regional Park is home to some of the more dramatic topography change in south Minneapolis, the area around south Lake Harriet (southernmost) and on the east and west sides of Lake Calhoun (north of Harriet) are the most dramatic in height.

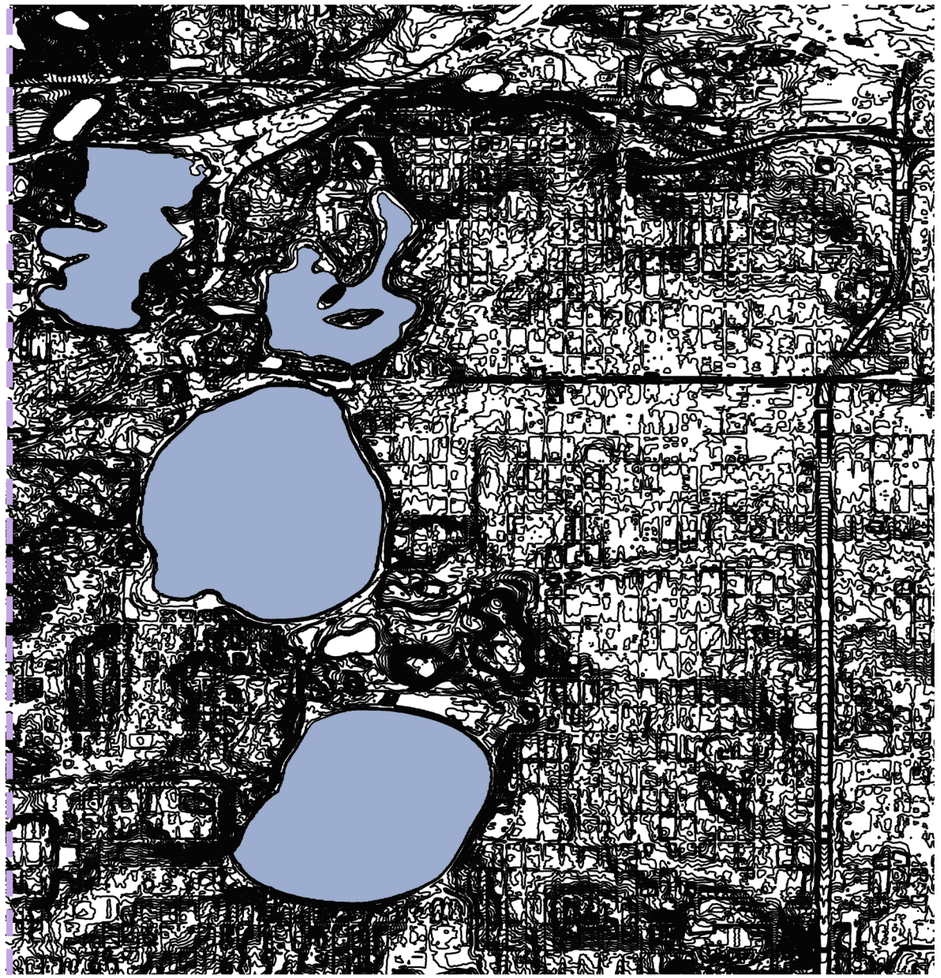


Fig.28: Elevation of city

The Chain of Lakes Regional Park is a relatively safe park, especially near the west side, its the east side with more diverse land uses where there is more crime, and this is a factor in why there is less frequent active transportation to school among children through more diversely zoned areas.

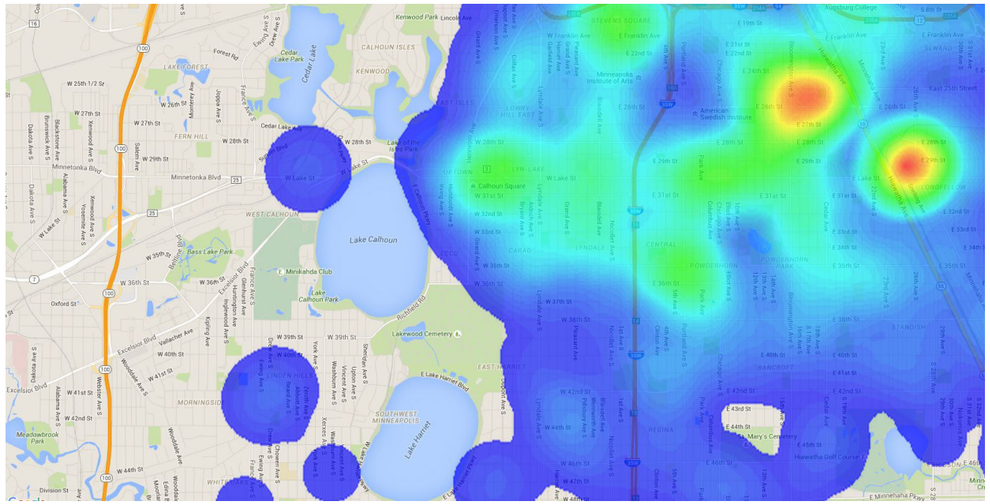


Fig.29:Crime rates in Minneapolis in 2015 (from Jan. 1st to Nov. 21st)

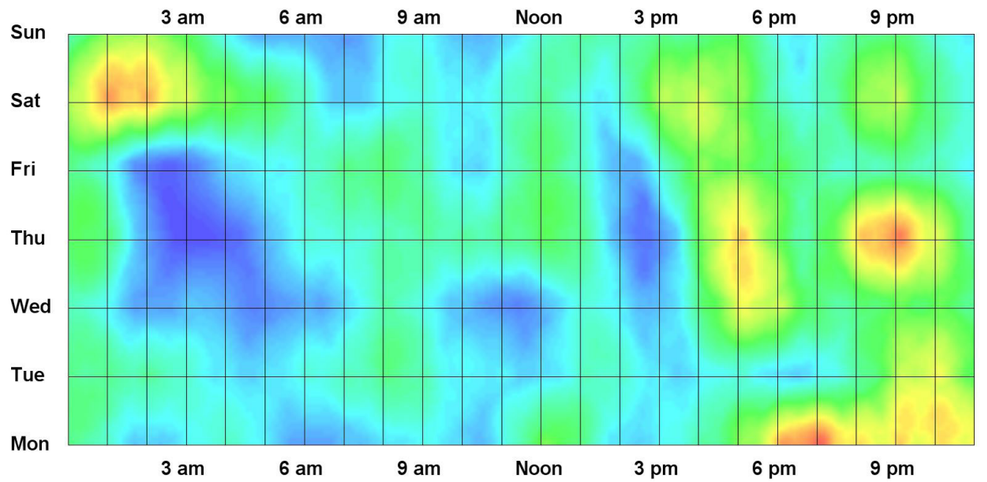


Fig.30: Crime rate density based on time for selected region (Jan 1st 2015- Nov. 21st. 2015)

SCHOOLS AND TRANSIT:

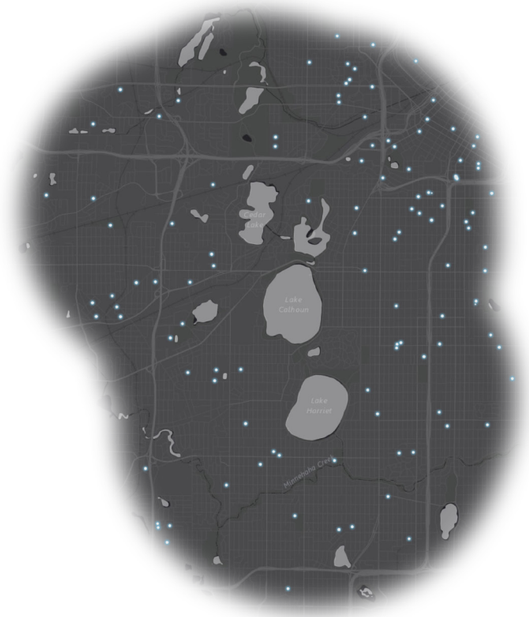


Fig.32: All school locations within a 3 mile buffer, the end of the walking range identified in the national household transportation survey

Fig.31: Washburn High and Southwest, the two schools with the largest student body located within the buffer of the park

Identified species that would either be affected by development or could bennefit from some of the proposed ecologies (identified in case studies and background research) include common backyard birds of the Twin Cities metro area: Northern Cardinals, Downy / Hairy Woodpeckers, American Goldfinches, Black-capped Chickadees, White-breasted Nuthatches, Orioles, and American Robins ("Metro Area Bird Species Composition"). Animals that inhabit the Oak Savanna environment include: Deer, Wild Turkey, Ruffed Grouse, Red-headed Woodpecker, and cavity-nesting birds. Other oak savanna bird species include: Eastern wood-pewee, Eastern kingbird, White-breasted nuthatch, and the Indigo bunting. The Federally Endangered Karner Blue Butterfly is specific to savanna plants living off of lupine (*Lupinus perennis*) ("Animals of Oak Savannas"). Mammals that inhabit wetlands in Minnesota include: Shrews, Moles, Mice, Voles, Lemmings, Muskrats, Beavers, and Mink ("Wetland Mammals", 2001). Birds that thrive in metro area wetlands include: Swan, Mallard, Blue-winged Teal, Redhead, Pied-billed Grebe, American Bittern, Least Bittern, Black-crowned Night-heron, Sora, Common Gallinule, American Coot, Wilson's Snipe, American Woodcock, Black Tern, Forster's Tern, Willow Flycatcher, Bells' Vireo, Marsh Wren, and Yellow-headed Blackbird ("Metro Area Bird Species Composition").

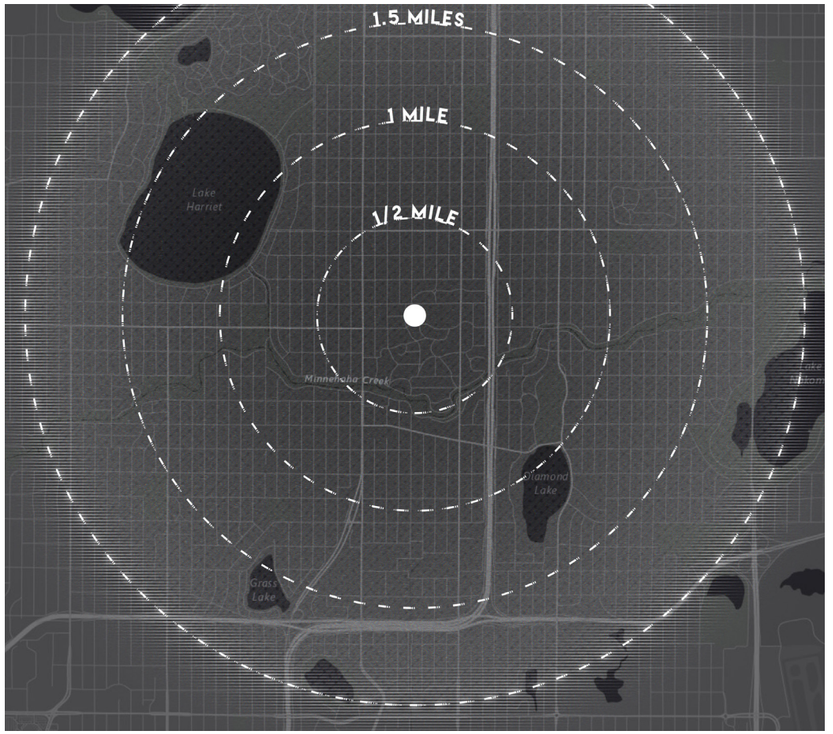
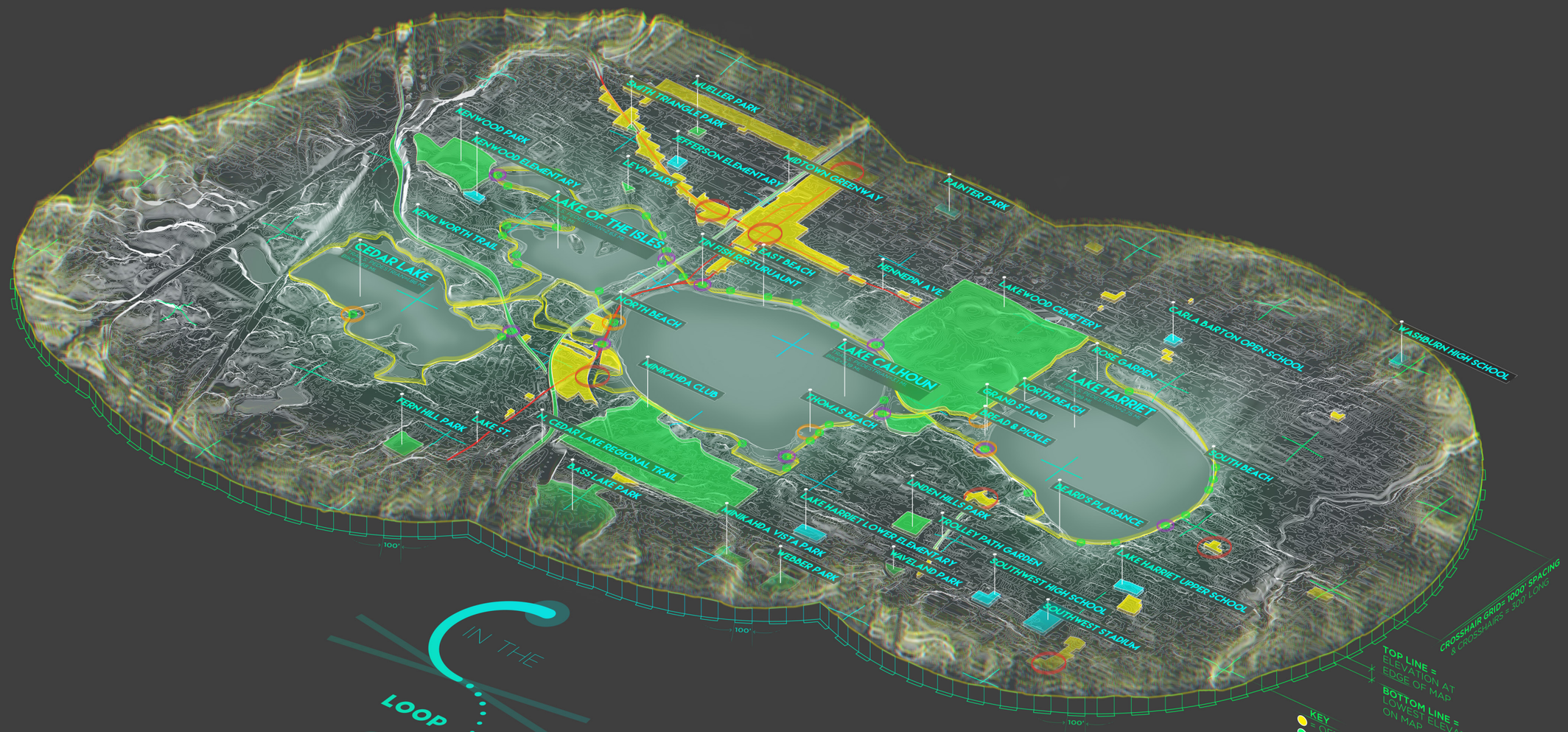


Fig.33: 2 mile buffer from Washburn high, the school identified for student walking survey

PEDESTRIAN CONNECTIONS INVENTORY



IN THE LOOP

CH5

DESIGN DEVELOPMENT

SITE PHOTOS:

Fig.34: Lake Harriet hills

Fig.35: Lake Harriet Dramatic Views

Fig.36: South Lake Calhoun

Fig.37: Lake St. Bridge

Fig.38: Calhoun Open Spaces

Fig.39: Lagoon view from Lake St.

Fig.40: Lake of the Isles Pkwy. Bridge

Fig.41: Lagoon view of Midtown Greenway Bridge

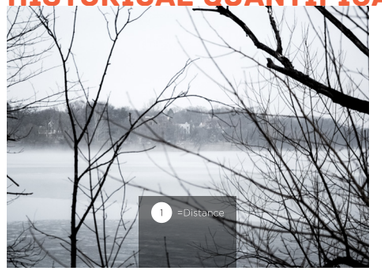
Fig.42: Lake of the Isles Pkwy.

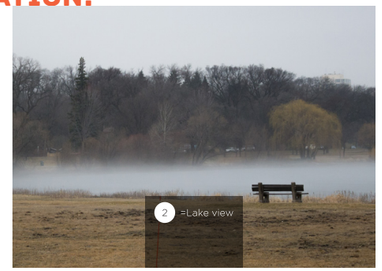
Fig.43: Site Furnishings @ Cedar Lake

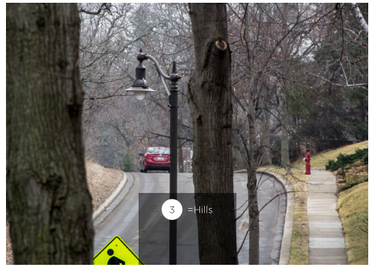
Fig.44: Cedar Lake, Naturalistic Paths

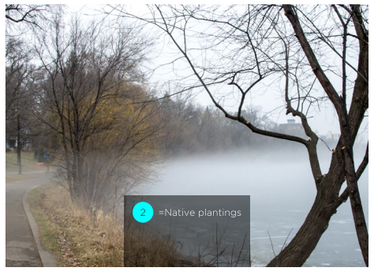
Fig.45: Cedar Lake Shoreline

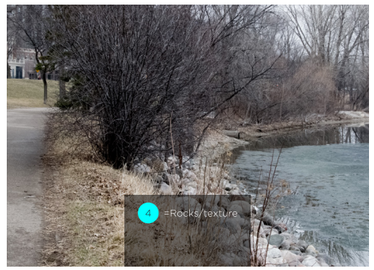
HISTORICAL QUANTIFICATION:

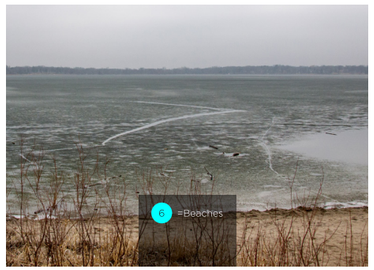


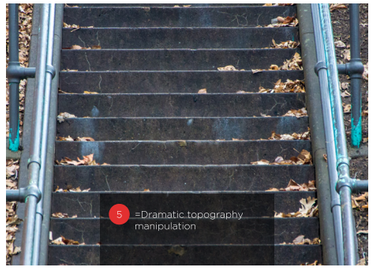












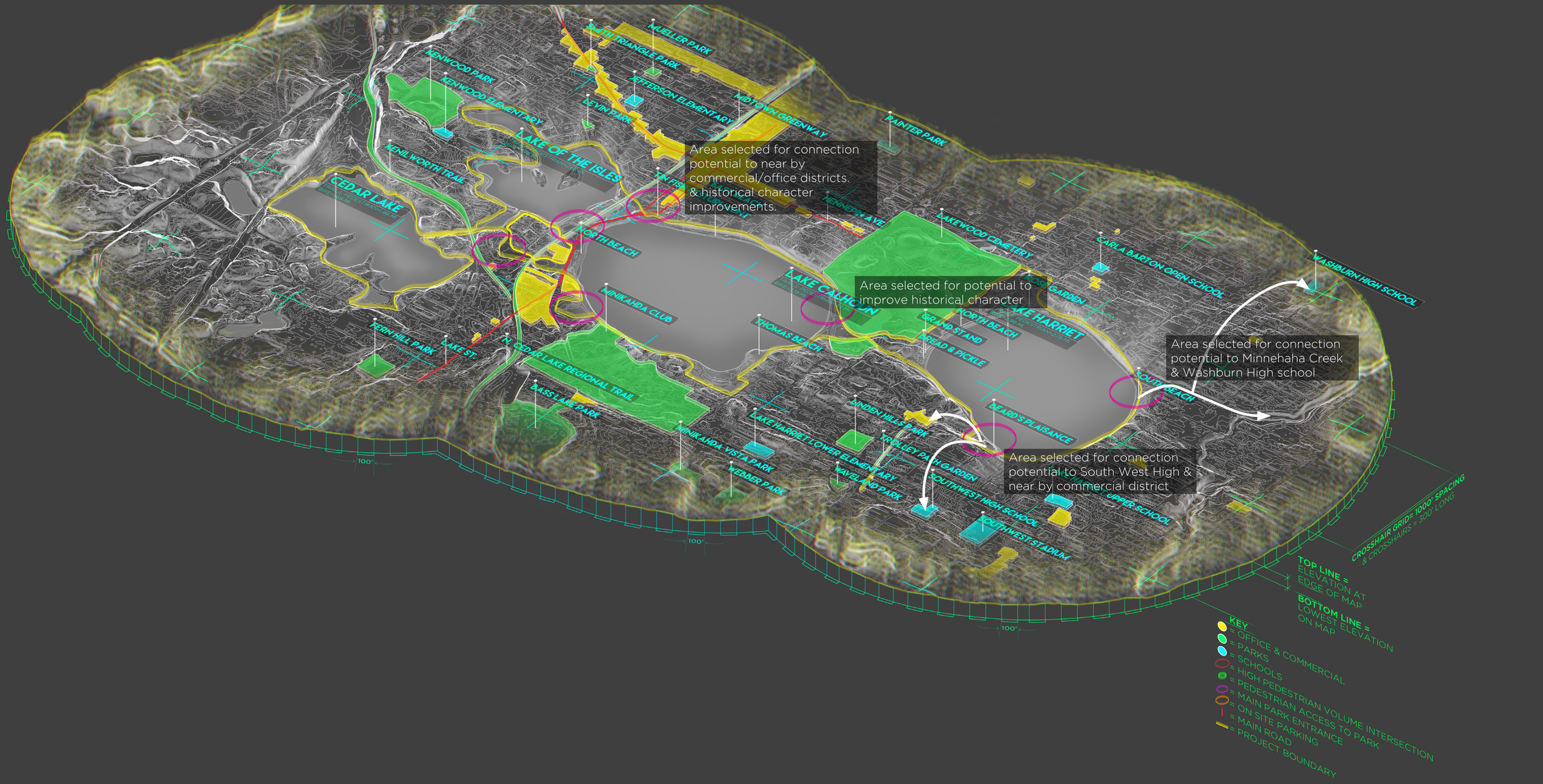
This capstone breaks the picturesque aesthetic down into characteristics of two different aesthetics, the first being elements of the sublime with the white labels, and elements of beauty with the blue labels on the page to the left. The characteristics with the red labels are design elements that emphasize the native landscape. These categories of historical character were chosen because of the influences that formed H.W.S. Cleveland's aesthetic and philosophy, the picturesque coming from Irving, and emphasis of the native landscape coming from Emerson, discussed in the critical evaluation of cited papers.

Elements of sublime character, are those that communicate power, and vastness.

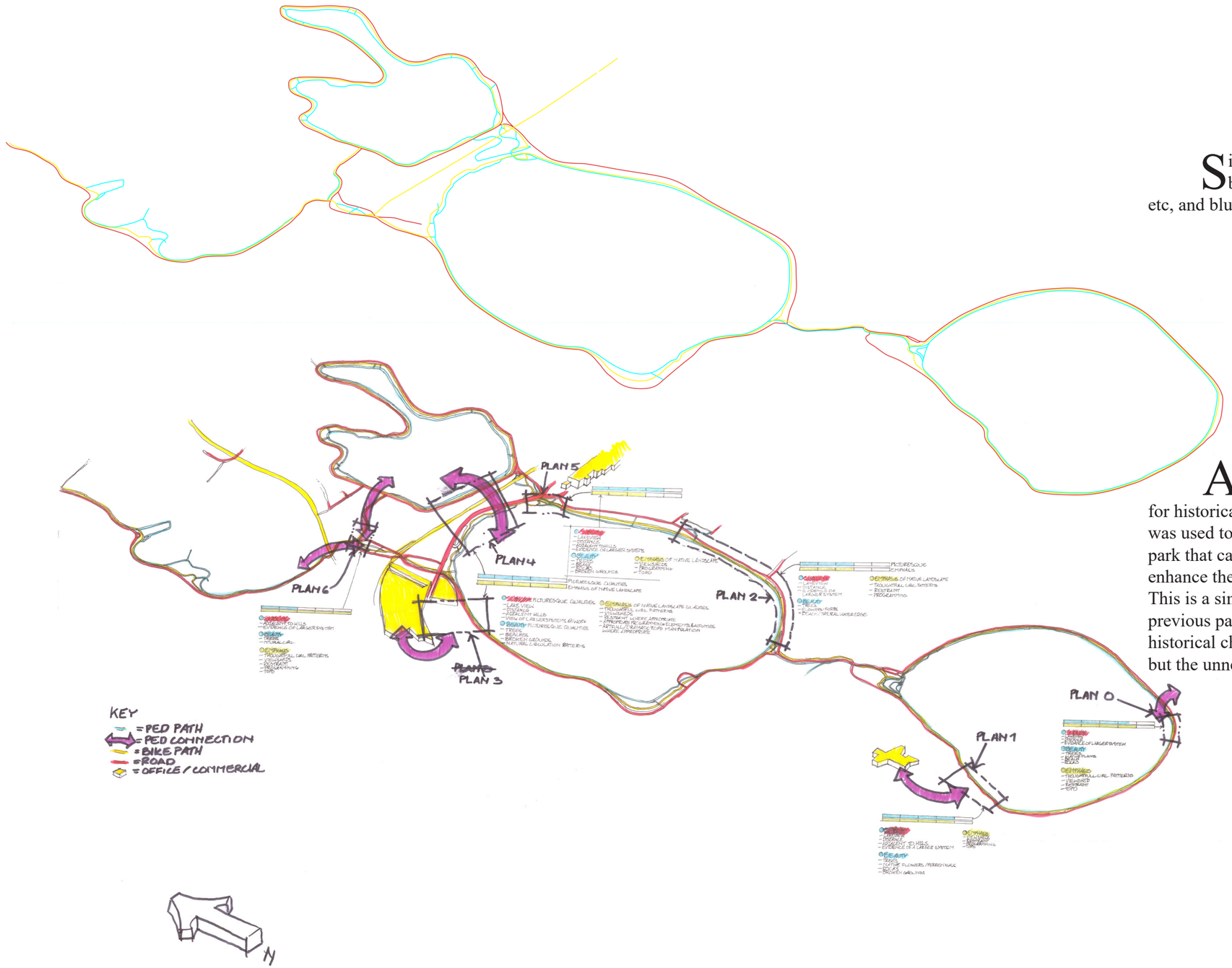
Elements of beauty are those that communicate smoothness, and uniformity, things of intimate detail, and discovery.

And the images depicting emphasis of the native landscape are design elements that place the viewer's attention on the beauty and composition of the existing landscape.

CONNECTIONS ANALYSIS:



ANALYSIS DRIVEN PLANNING:

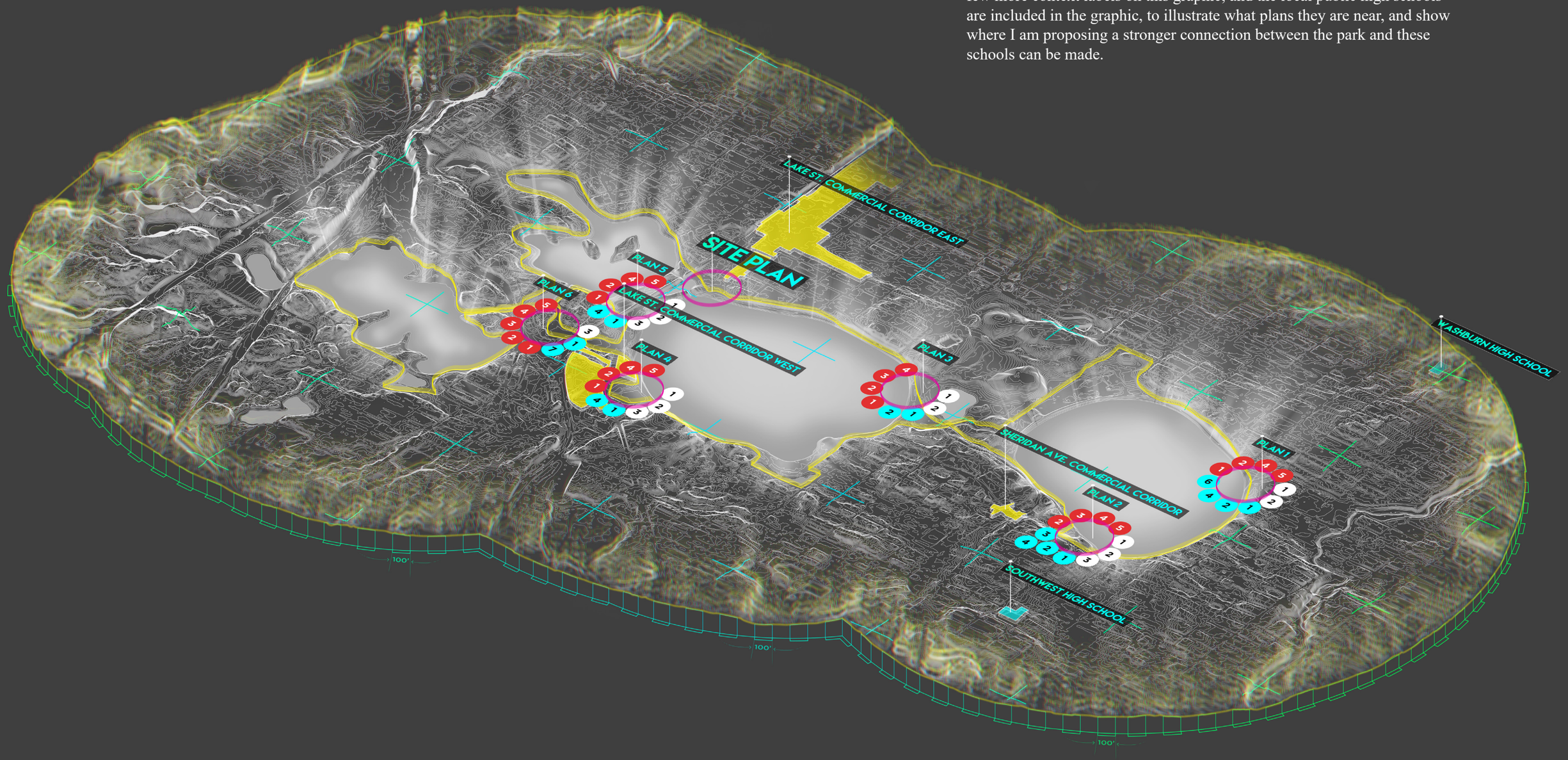


Site circulation, red= cars, yellow= bikes, roller blades, skateboards, etc, and blue= pedestrians.

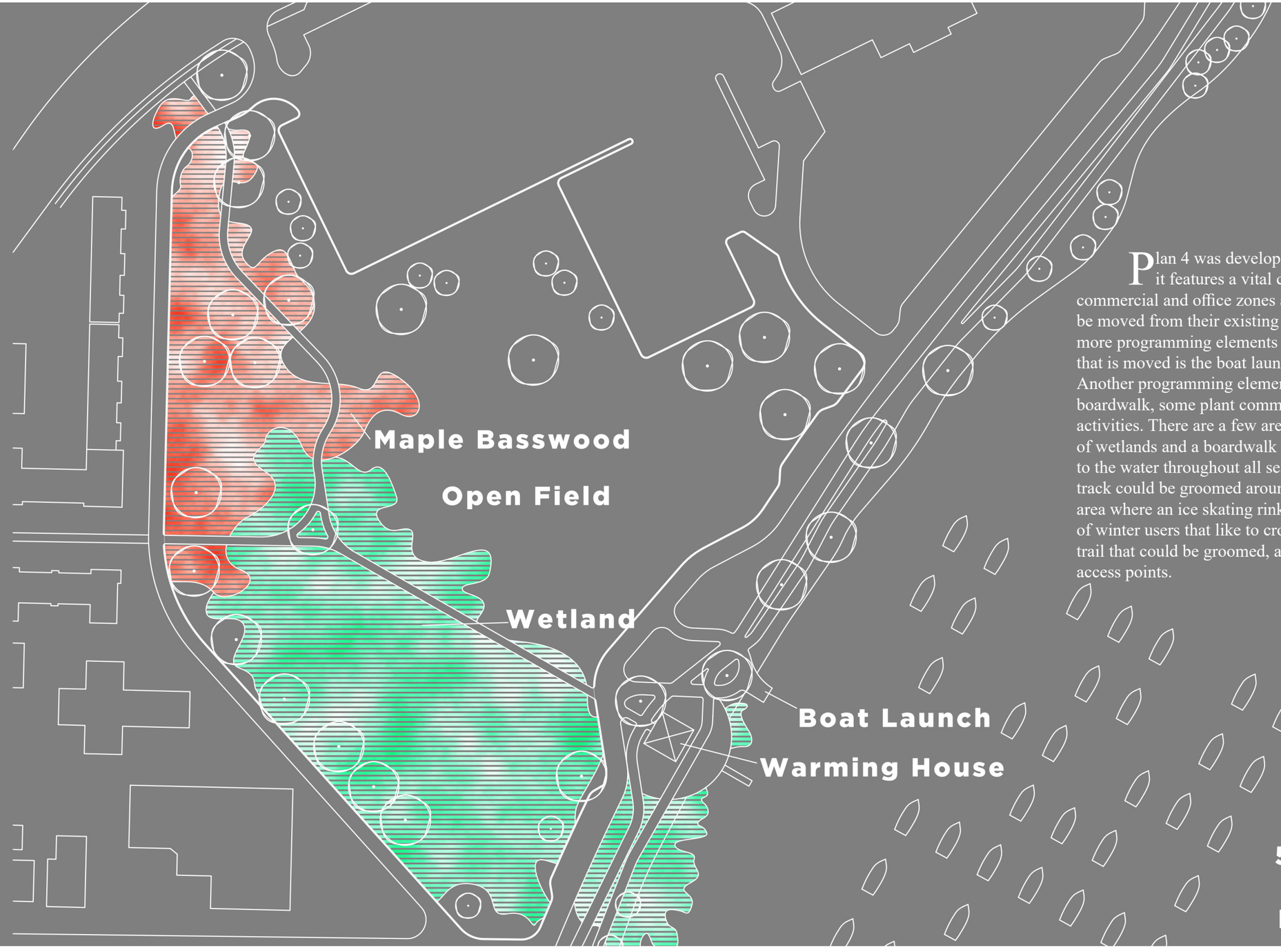
Analysis using inventory of surrounding land uses, and need for historical character throughout the park was used to choose 7 locations throughout the park that can either enhance connections or enhance the historical character of the park. This is a simplification of the graphic on the previous page, the same connections and historical character information are present, but the unnecessary land use info is removed.

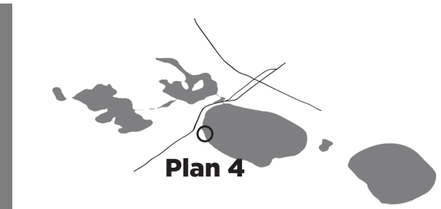
MASTER PLAN:

The master plan on this page is essentially a more developed and polished version of the hand rendering on the previous page, the ideas are the same, and the areas developed are the same. There are a few more context labels on this graphic, and the local public high schools are included in the graphic, to illustrate what plans they are near, and show where I am proposing a stronger connection between the park and these schools can be made.



PLAN 4:



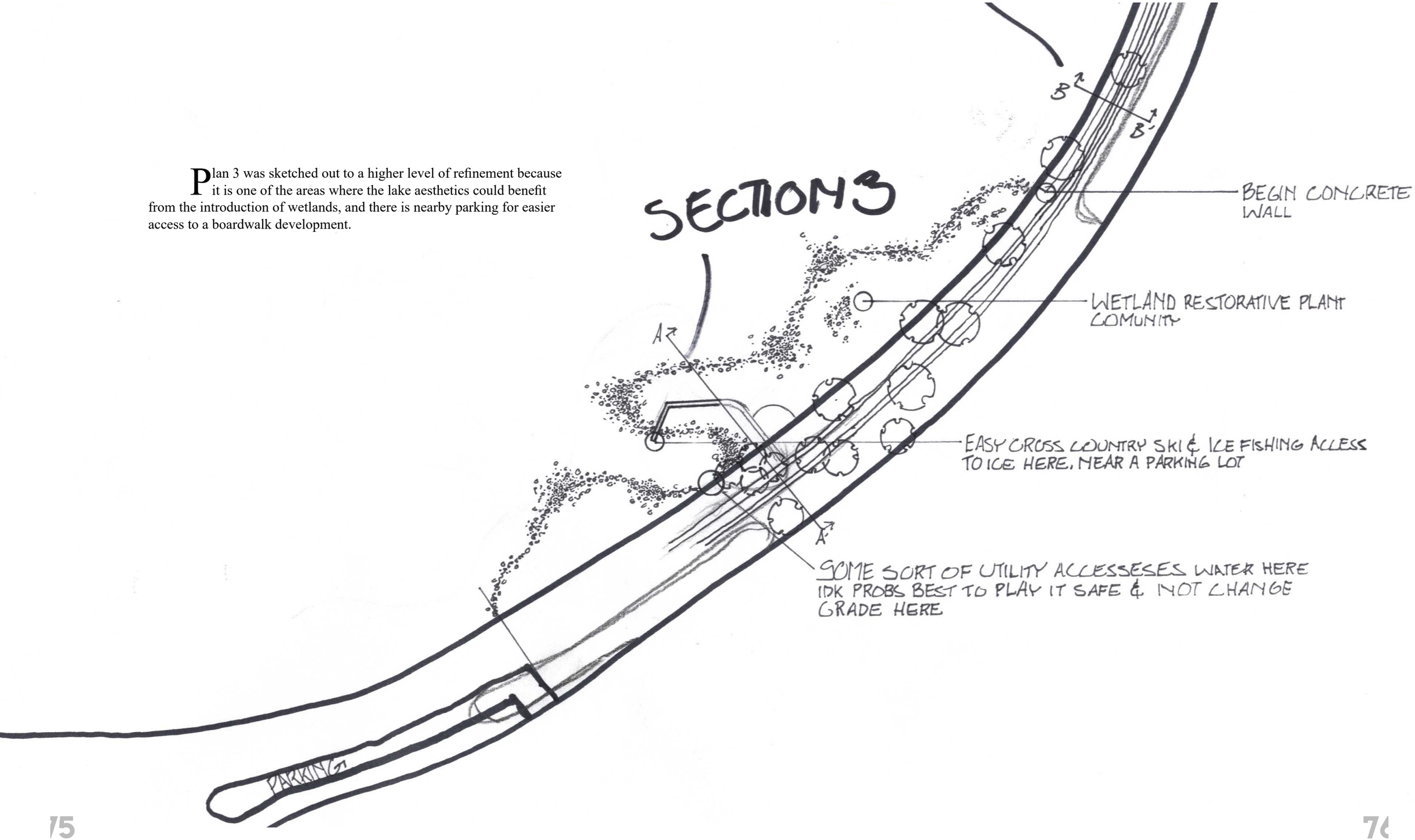


Plan 4 was developed further than a sketch, this is because it features a vital connection proposal to the surrounding commercial and office zones as well as programming elements that would be moved from their existing location, on my site plan, to make way for more programming elements in that location. The programming element that is moved is the boat launch for the sailing club on Lake Calhoun. Another programming element featured on this plan is a warming house, boardwalk, some plant communities and an open field for unstructured activities. There are a few areas throughout the park where a combination of wetlands and a boardwalk are proposed to give pedestrians better access to the water throughout all seasons. If the demand was there an ice skating track could be groomed around the lake, or in my site plan there is an area where an ice skating rink could be groomed. There are also plenty of winter users that like to cross country ski on the ice, this is another trail that could be groomed, and would benefit from the presence of these access points.

10’
5’
50’
N

Plan 4

Plan 3 was sketched out to a higher level of refinement because it is one of the areas where the lake aesthetics could benefit from the introduction of wetlands, and there is nearby parking for easier access to a boardwalk development.



SECTIONS, IN CONCEPT:

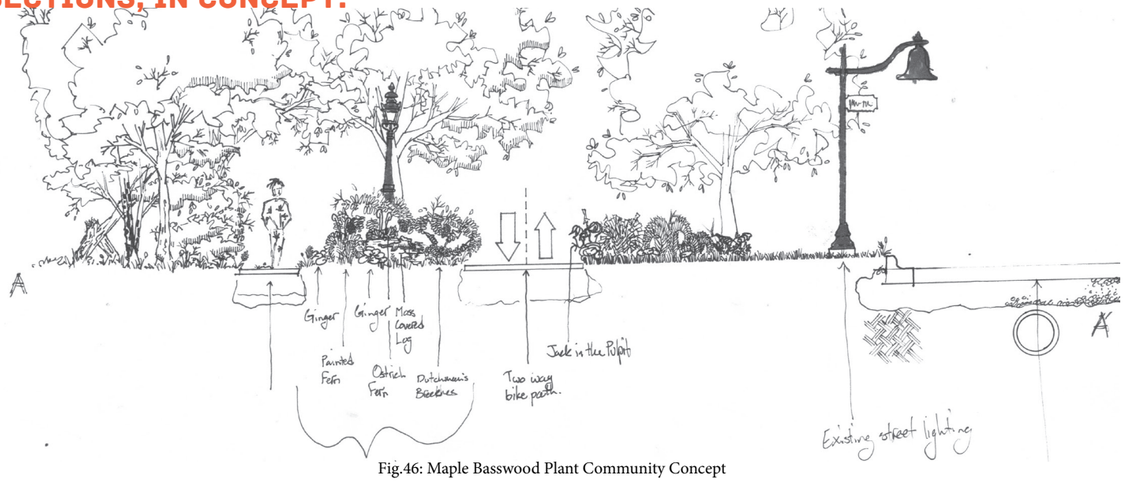


Fig.46: Maple Basswood Plant Community Concept

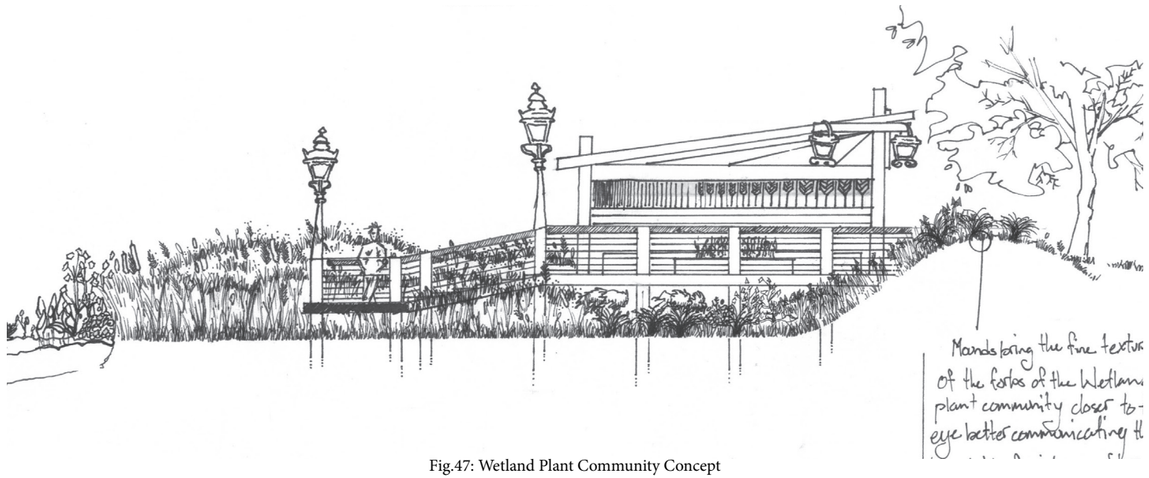


Fig.47: Wetland Plant Community Concept

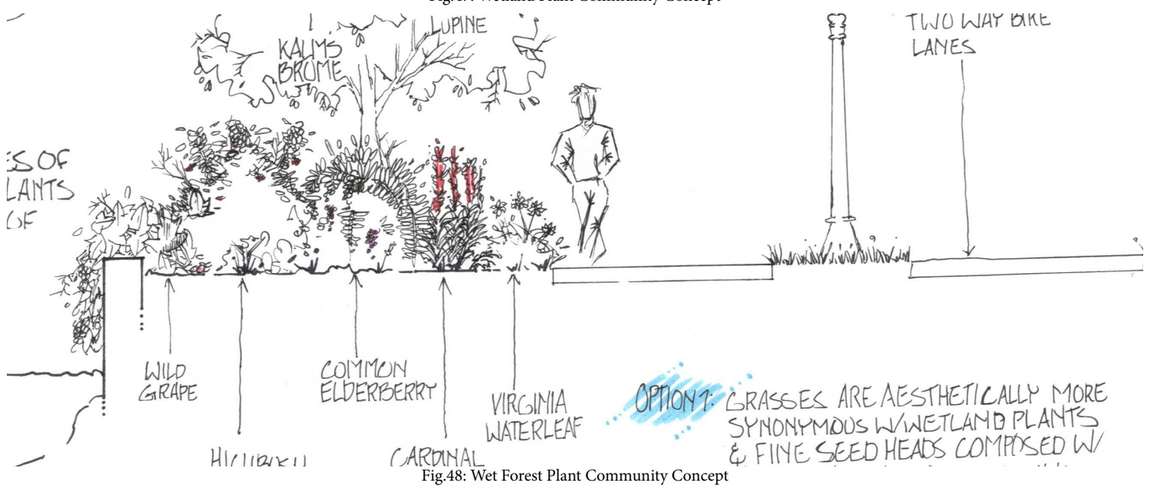


Fig.48: Wet Forest Plant Community Concept

The maple basswood plant community serves as an amendment to trails that are adjacent to forest conditions that are lacking mid story vegetation. This is a restorative plant community (all of the proposed plant communities are restorative in the historical and ecological sense) that was gathered from the Cedar Lake Park case study. The planting design for this plant community creates a tapestry of broad leafed forbs, interrupted by fine textured ferns, the ferns provide contrast to the textures of the forbs as well as acting as a textural and vertical buffer between the forbs and shrubs.

Wetlands are implemented where there are opportunities to develop better pedestrian access to the water via boardwalk development. The planting design creates a canvas of reed grasses on top of which more eye catching grasses are sprinkled in. Forbs populate the waters edge where soil conditions permit.

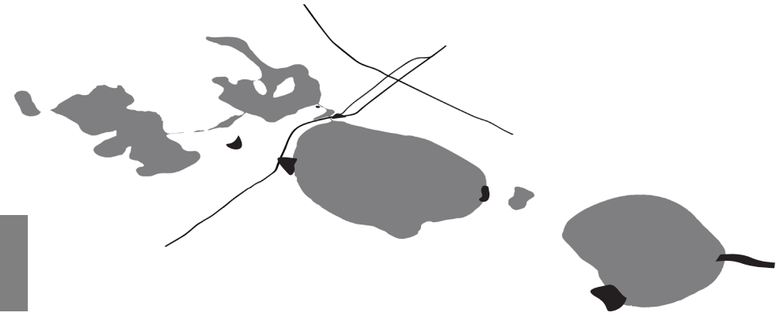
The wet forest plant community is implemented where stunning viewing gardens can enhance the experience of the viewer, or where there are vast spans of concrete or masonry lake walls that can benefit from vegetated interruptions. The planting design creates a canvas of vines and ferns that is accented by vibrant forbs, with interruptions of shrubs and a diversity in vertical height in the plants used in this community, there is the opportunity to hide and reveal viewsheds with the use of plant material.

SECTIONS, IN DEVELOPMENT:

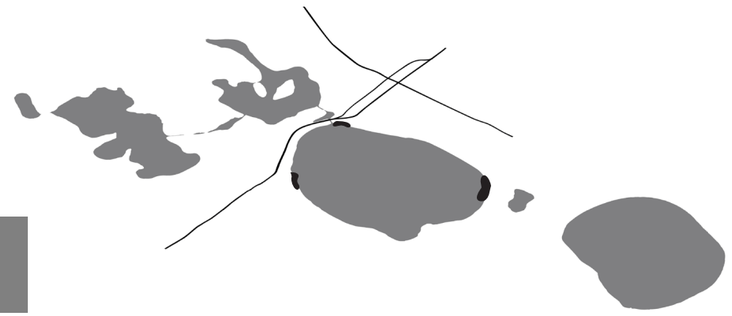
Fig.49: Maple Basswood Plant Community Development

Fig.50: Wetland Plant Community Development

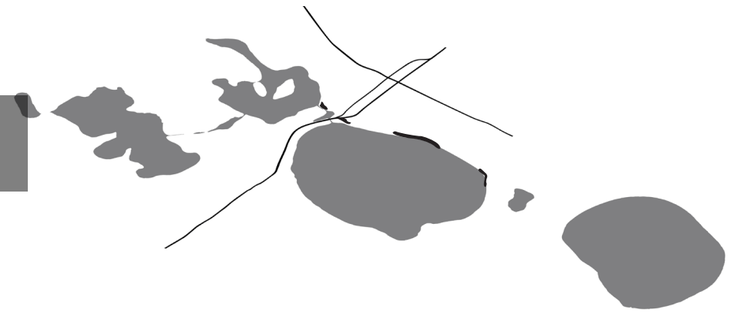
Fig.51: Wet Forest Plant Community Development



Areas where this plant community/ trail condition is implemented



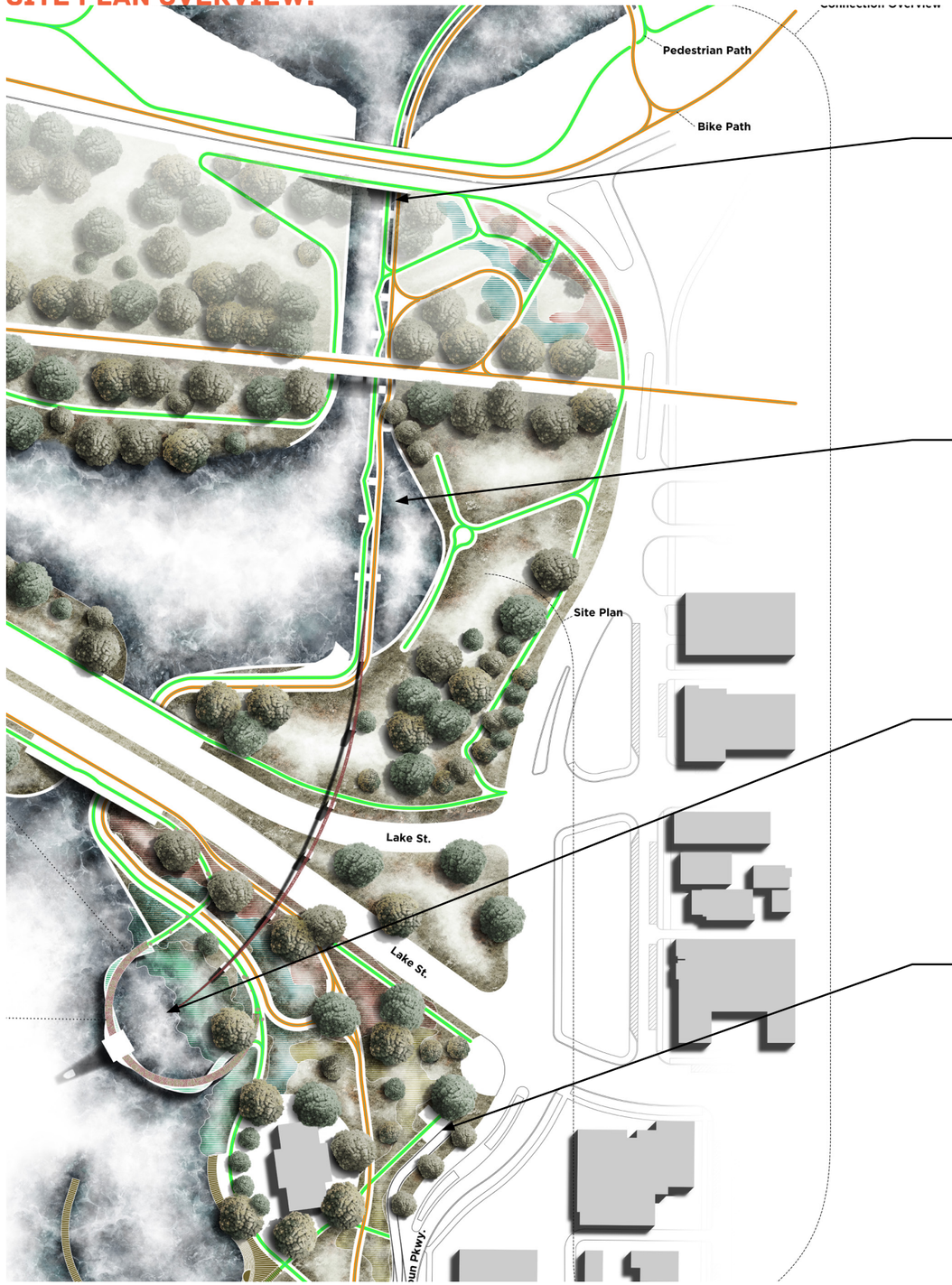
Areas where this plant community/ trail condition is implemented



Areas where this plant community/ trail condition is implemented

SITE PLAN EXISTING CONDITIONS

SITE PLAN OVERVIEW:



The pedestrian and bike connection brings users under the Lake of the Isles Pkwy. bridge as opposed to forcing them to cross the street to reach the paths that circle Lake of the Isles. This also brings users closer to the beauty of the bridge, which has a significantly different character than that of the Lake St. bridge providing a change in aesthetic.

The boardwalk that connects the two lakes winds its way around support pillars that sport lighting elements. This feature is inspired from the naturalistic articulation of paths in other parts of the park that continually change the perspective of the viewer. The support pillars alternate sides, each side blocking the view of half of the epath, so in section the viewer's viewshed is limited to the distance of every other pillar.

At the point of the pedestrian loop bridge, in the Calhoun end of the park, there is a clock tower. This element acts as way finding on a large scale. Visitors can see the tower from across the lake and are provided incentive to check out that part of the lake. Upon their approach to the clock tower, the sculptural arch reveals itself, providing the same visual que to journey under the Lake St. bridge and follow the pedestrian boardwalk up to Lake of the Isles.

The existing street car tracks that wind between Lake Harriet and south Lake Calhoun would be extended along E. Calhoun Pkwy. to make a stronger connection between the Tin Fish area of Calhoun with the Bread & Pickle/Band shell area of Lake Harriet.

LAKE CALHOUN/LAKE OF THE ISLES CONNECTION

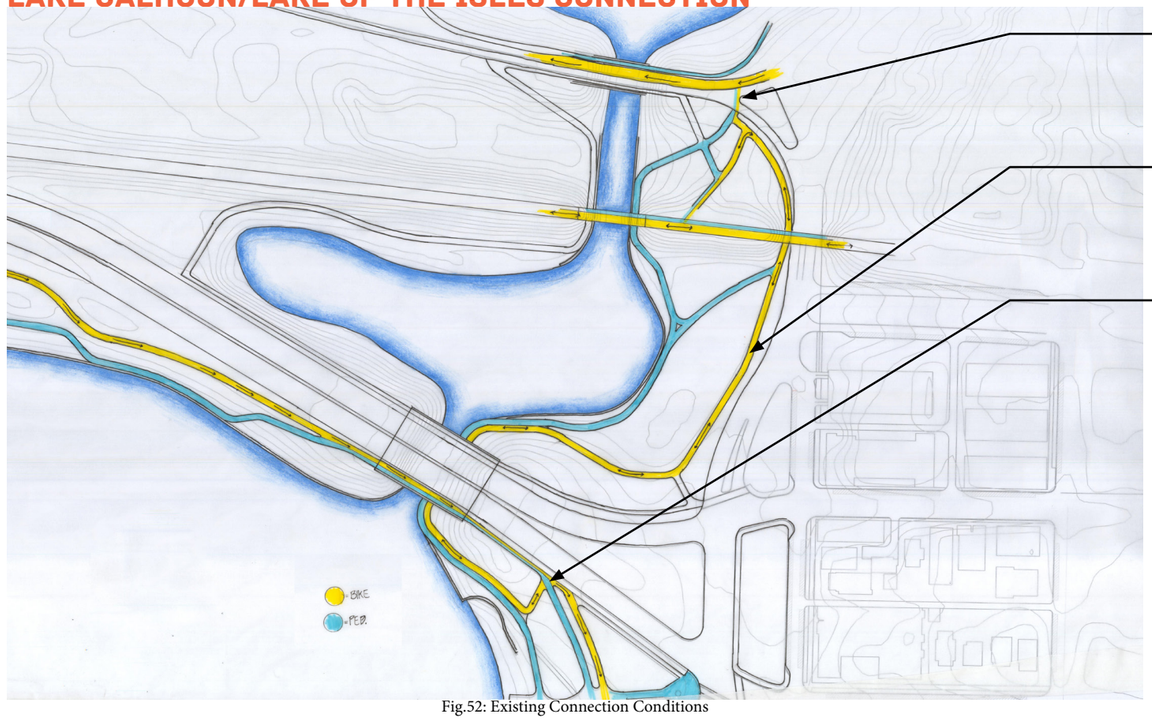


Fig.52: Existing Connection Conditions

As the connection between the two lakes exists, pedestrians and bicyclists need to cross Lake of the Isles Pkwy. to reach the paths that circle Lake of the Isles.

The existing connection is also confusing as a bicyclist needs to go all the way east to E. Calhoun Pkwy. to travel north to Lake of the Isles.

There are also a few unsafe intersections where bicyclists and pedestrians need to cross paths.

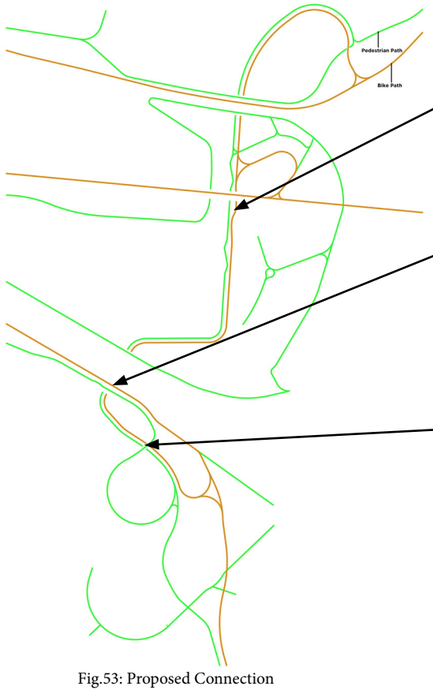


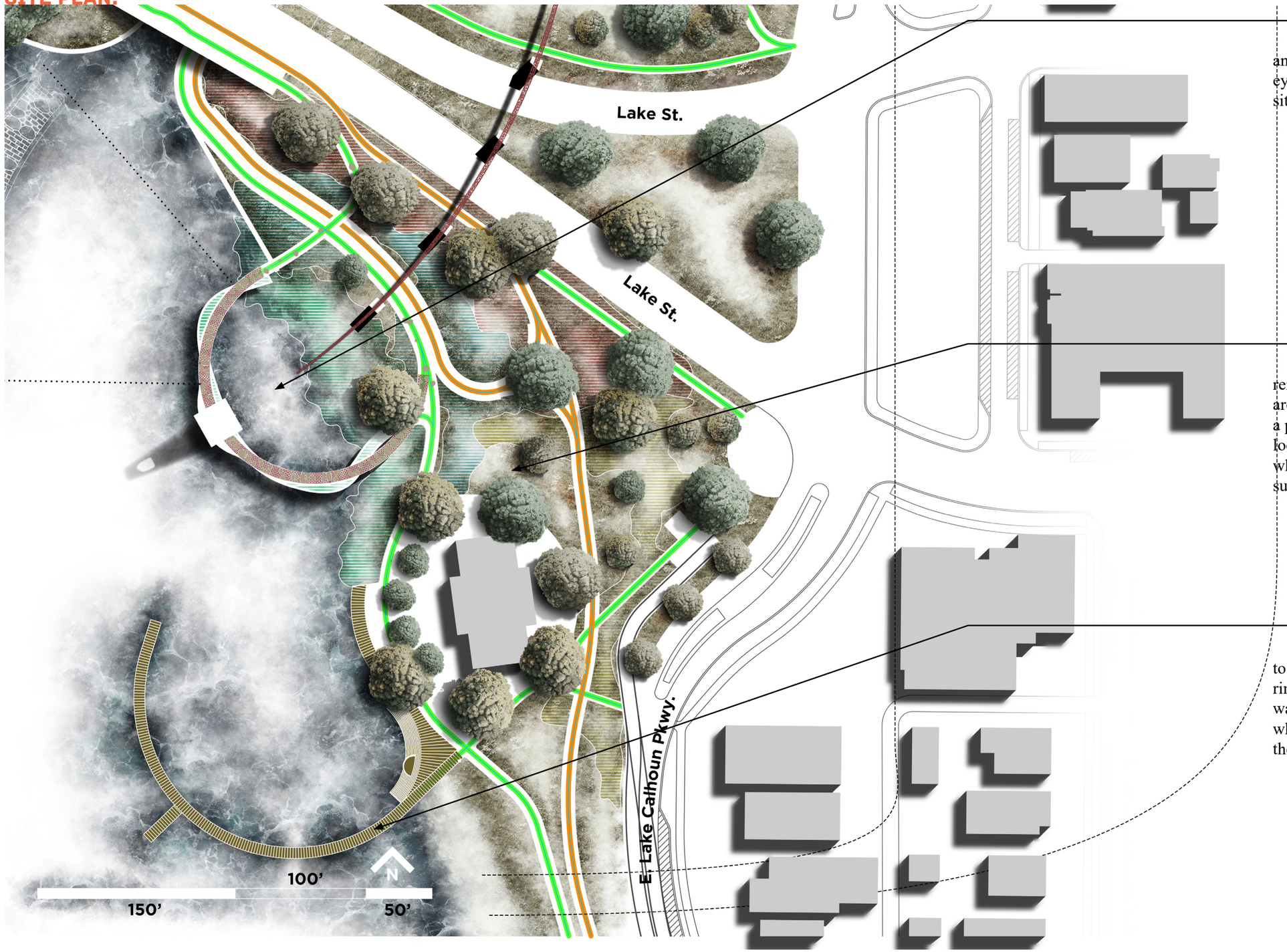
Fig.53: Proposed Connection

The proposed connection follows the straight created from the channel that connects the lakes, this simplifies the connection.

The proposed connection also moves bikers onto Lake St. over the bridge to give pedestrians more room, and to narrow lanes of traffic to calm traffic near the park, and make Lake St. feel more like a part of the park.

All unsafe intersections are removed, and paths avoid streets.

SITE PLAN:

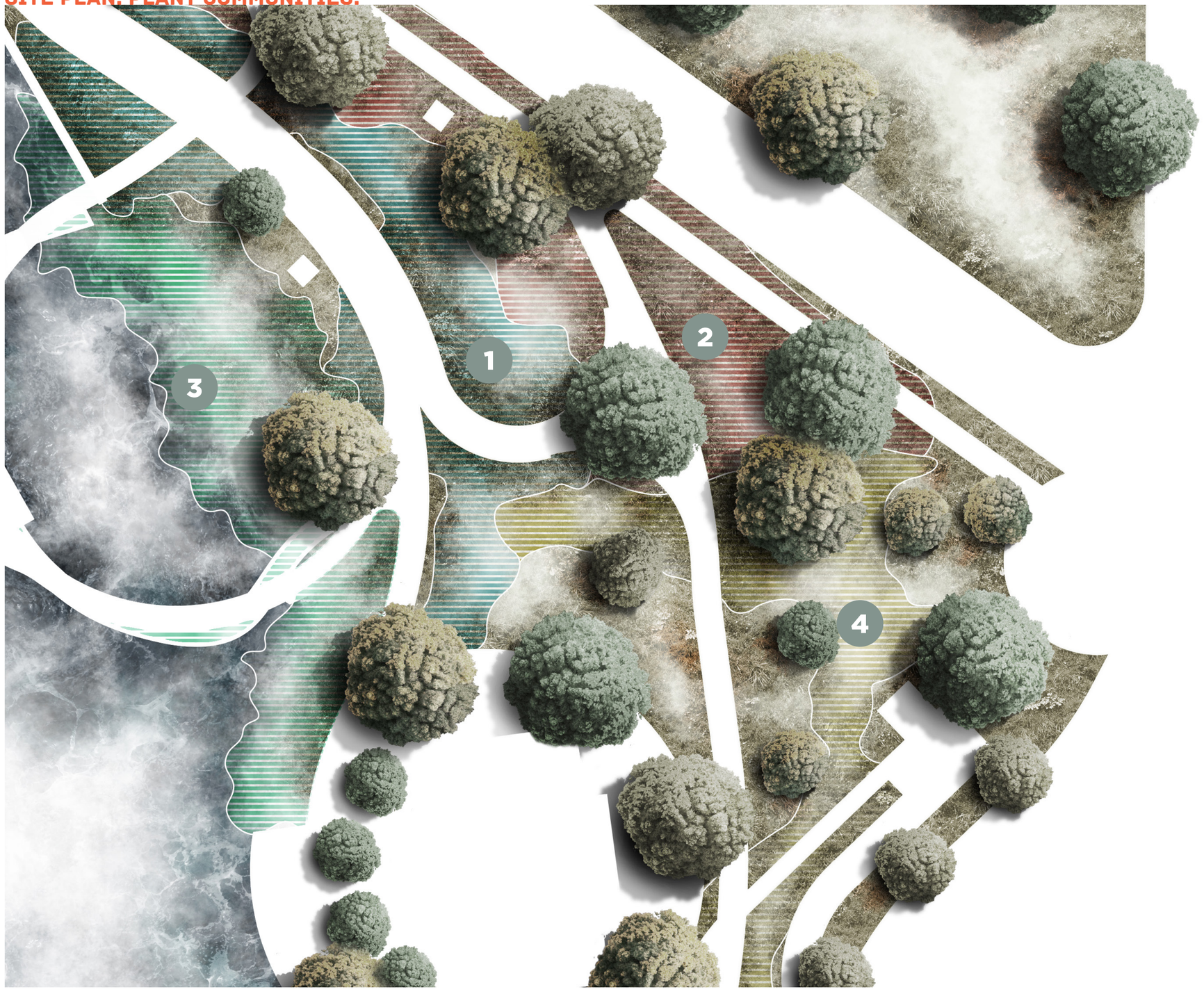


Attention is directed along the connection with the use of the tower and sculptural arch working together, one leads the eye to the other, directing the viewer through the site from both directions.

The plant communities used are intended to make the visitor feel like they are removed further from Lake St. and the uptown area. However, there are some outcroppings where a person can sit and enjoy the day, these areas are located adjacent to paths, and easy to navigate to, while still isolating the user from the busy urban surroundings

To the south of the Tin Fish bldg. there is a boardwalk designed to point attention to the tower, and in winter, it defines an ice skating rink. There is a wide staircase leading users to the water/ice. To the south of the boardwalk is a beach where Wheel Fun Rentals would be able to launch their canoes and paddle boards.

SITE PLAN, PLANT COMMUNITIES:



1 Wet Forest

2 Maple Basswood

3 Wetland

Prairie (not pictured) 4

PERSPECTIVES AND JUSTIFICATION:

Fig.54: Looking at Pedestrian Bridge

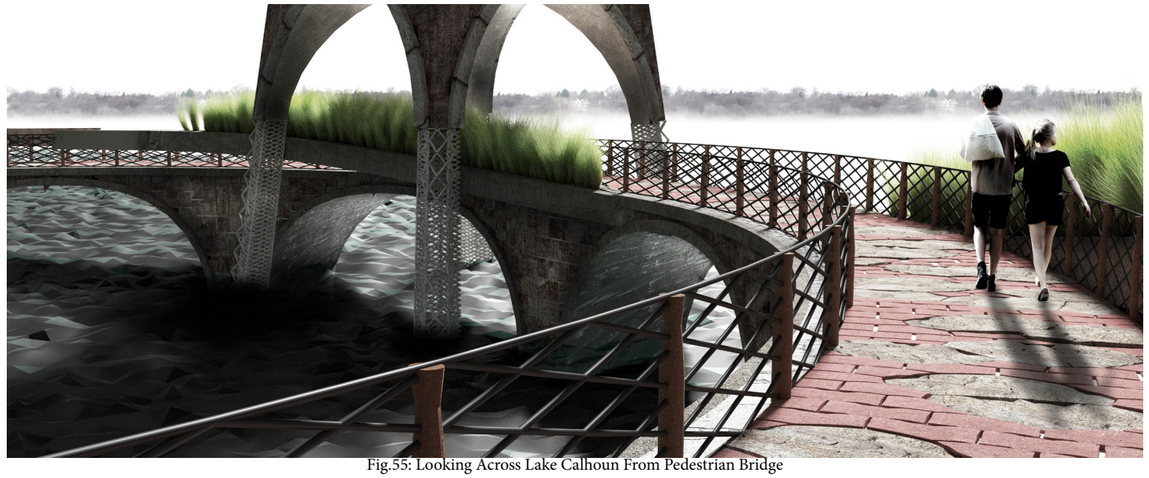


Fig.55: Looking Across Lake Calhoun From Pedestrian Bridge

Fig.56: Sculptural Arch

The picturesque: the pedestrian bridge facade is made up of irregularly shaped dimensioned stone much like the existing Lake St. bridge, making this infrastructure an element of roughness. The forms however, are graceful and consistent, and the clock tower is treated as an accent piece situated on display as a focal point much like the stand alone trees in many picturesque landscape paintings.

The picturesque: the dramatic view across the lake, and of the hills on the west side of the lake lay the ground work for the picturesque scene here. But with the introduction of the planters, and tall grass hiding and revealing this view, a sense of irregularity like Irving wrote about is introduced. Also the broken grounds aesthetic of the paving and the treatment of the clock tower as an accent piece speak to the beauty element of the picturesque aesthetic.

The metaphor: the sculptural arch is designed to be a metaphor for picturesque design, the random organic forms made by the primary structure of the tubing talk to the random and tangled quality that Irving writes about. And the secondary structure (the actual arch) is the smooth and regular quality found in the elements of beauty while at the same time communicating the magnitude and vastness necessary for the sublime half of the aesthetic. The function of the arch translates to Cleveland's philosophy as well, working much like a rainbow, leading the eye to a destination, and by using an element that communicates this message while not aiming to recreate nature verbatim, the lessons Cleveland learned from Emerson are applied to my design.

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