Carmel • Clay Parks&Recreation

Master Plan

Thomas Marcuccilli Nature Park

MKSK

FEBRUARY/2023

Expanding trails and environmental education near the White River will fulfill several goals and recommendations outlined in CCPR's 2020-2024 Comprehensive Parks and Recreation Master Plan.

Project Website:
www.carmelclayparks.com/parks/thomas-marcuccilli-nature-park/

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Carmel • Clay Parks & Recreation

Letter from Director

On behalf of Carmel Clay Parks & Recreation, it is my honor to share the Thomas Marcuccilli Nature Park Master Plan. It has been a privilege to work alongside our community to identify the needs this park can meet. Throughout the pages of the master plan, you'll find the foundational vision for the future of the park.

The parkland was received as a donation from Falcon Nest II, LLC in 2021 and is named in honor of Thomas Marcuccilli, a Hoosier and co-founder of STAR Financial Bank. The 63 acres present a truly unique opportunity for CCPR. As its name implies, this park will offer a space to experience and celebrate nature, while exploring the park's unique ecology and history.

I want to thank everyone who contributed their time and feedback to this master plan. We are ever grateful for a community that is invested in its parks. We value the input and conversation with neighbors, students, community leaders, nature enthusiasts, Native American tribes, and anthropologists who have inspired the park's design.

This master plan is just the first step toward the future of Thomas Marcuccilli Nature Park. Working with our community leaders to secure funding, CCPR looks forward to bringing the vision outlined in this master plan to life.

Recreationally yours,

Michael W. Klitzing, CPRE
Director of Parks & Recreation / CEO
Carmel Clay Parks & Recreation

The park is named for Thomas Marcuccilli (pronounced Mark-a-sell-e), a native Hoosier and one of the original founders of STAR Financial Bank.

The name of the park was chosen by the donor in honor of his late father-in-law. A biography with more information is included in Appendix 02 accompanying this report.

INDEX

CCPR's first step in developing any parkland is creating a park master plan. This document outlines all future development of the park.

REFERENCE MATERIAL

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INDIANA GEOLOGICAL AND WATER SURVEY - THE GEOLOGIC STORY . **HTTPS://IGWS.INDIANA.EDU/REFERENCEDOCS/STATEPARKGUIDE_POKAGON.PDF**

LILLY, ELI. PREHISTORIC ANTIQUITIES INDIANA. INDIANA HISTORICAL SOCIETY. **1937**

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MOERMAN, DANIEL E. NATIVE AMERICAN ETHNOBOTONY. TIMBER PRESS. **1998**

STRIFE, SUSAN AND DOWNEY LIAM. CHILDHOOD DEVELOPMENT AND ACCESS TO NATURE: A NEW DIRECTION FOR ENVIRONMENTAL INEQUALITY RESEARCH. ORGAN ENVIRON. **2009**

LIST OF FIGURES

CCPR Drone Imagery - looking northeast

INTRODUCTION

Thomas Marcuccilli Nature Park (TMNP) is an integral part of the Hamilton County South River District (see Appendix 16 for diagram) - inspired by the White River Vision Plan – a regional effort to celebrate a 58-mile stretch of the White River. The river district will connect at least three parks to an expanded Conner Prairie, a nationally renowned living history museum, via the White River Greenway, a multi-use trail along the river. MKSK consulted with Carmel Clay Parks & Recreation (CCPR) on developing this master plan which will guide the future development of this property.

Located above an aquifer, the property was identified and selected by Carmel Utilities as a viable location for two wellheads in 2007. The wellhead to the north is referenced as Well Number 26, and the one to the south is Well Number 25, as depicted in Figure 01 on the following page. All practical aspects of the wellhead project are separate from the comprehensive master plan of TMNP, but the project will impact the overall park experience. Consequently, Carmel Utilities plans to develop a distinguished exterior shell rather than the traditional utilitarian well pump structure to enhance the appearance and minimize noise pollution from the pumps for nearby residential neighbors and park visitors.

The City of Carmel and the developer chose CCPR to manage the wellhead area and, as such, receive the property via donation. CCPR stewards land where other Carmel wellheads are located, including Founders Park. CCPR presented the potential donation to the Carmel/Clay Board of Parks and Recreation, which adopted Resolution G-2021-004 accepting the donation.

The original plan for this property was to be a common area with trails and other community amenities maintained by the homeowner's association. The Legacy unit development plan approved by the City of Carmel Department of Community Services included trails on the current park site location (see Appendix 17 for diagram of Legacy park plan). The amenities CCPR will develop are substantially similar to what was already approved.

Due to its unique soil conditions, the property can only support passive recreational and nature experiences, such as prairies, wetlands, paths, and interpretive signage. The property is further constrained because of its limited accessibility from neighborhoods, 146th Street, and River Road. Informed by the land's limitations, there is a wonderful opportunity to envision a passive nature park that integrates ecological best practices, way-finding, and educational signage.

Most of the property comprises Saprist soils surrounded by Udalf and Aquoll soil. However, the predominant soil series is Palms Muck. Development of these areas is anticipated to be more difficult and will require boardwalks and specialty structural engineering. These soils supported a rare but historically prevalent ecology similar to a sedge meadow, fen, or marsh. The soil's ability to keep this ecology has been affected by the inclusion of multiple drains throughout the site, including a legal drain system and clay tiles implemented when

Thomas Marcuccilli Nature Park will enhance park and recreation opportunities within the community by expanding trails and environmental education near the White River.

NOTATED AERIAL OF EXISTING PROPERTY

Figure 01

the property was utilized for agriculture. A slightly raised ridge runs down the center of the land and separates the two depressions. There is a woodland on the elevated western edge of the site adjacent to Community Drive. The landscape allows for several high promontory locations, often with long views into a pastoral green verdant landscape. The visual impact of the 63 acres of green within the rapidly developing urban grid is quite valuable.

There is a vital need to balance human and natural systems, resources, and processes. Park development must serve multiple functions.

TMNP Site Photo (looking northeast) Photo credit: MKSK

TMNP Site with fog | Photo credit: Randy Culp

HISTORY OF THE LAND

Prior to the development of any park site, Carmel Clay Parks & Recreation will continue to research the legacy of the land and history of the property.

Sustainable land development works to protect valuable areas that include intact natural systems, functional hydrology, and culturally significant features. Thoughtful design and construction practices can conserve beneficial systems and components. To quantify the benefits and limitations to the disturbance of the site by any development, it was important for CCPR to fully understand the preexisting conditions of the site, including the type, extent, and significance of the natural and cultural resources that exist there. The design team studied historical aerial photography for cues to the past function of the site. A focus group was formed to understand the community's relationship to the park site over time. Multiple folk stories exist about farm machinery and animals sinking and disappearing into the land that is now TMNP. Andy Wright, a Carmel Clay Historical Society historian, provided a report containing plat information and newspaper clippings that helped the team understand how this landscape has changed over time. The majority of Andy's report content is included in this summary. **Text from Andy Wright's report is highlighted in bold.** Reference full report in Appendix 18. A graphic timeline was created (bottom of this page and continued on subsequent pages) to give spatial context to our historical place and organize thoughts around the multiple stories and geologic and anthropological events the site has witnessed.

PREHISTORIC HISTORY

Initial observation of the site forces one to consider the landform of the park. It is distinctive from its surroundings by being depressed. Most of the park site sits 8-12' lower than its context. Thomas Marcuccilli Nature Park is a living example of the types of landforms that remain after glaciation. Two lung-shaped depressions on the park property could be the remains of kettle holes/lakes. The surrounding context is made of gravel outwash that sits proud of the balance of the park site. This relationship would have been in alignment with the kinds of landscapes left by the receding glaciers.

Hundreds of millions of years ago, Indiana was covered by a shallow sea. As the White River and Carmel's creeks erode their banks and beds, fossils of prehistoric sea creatures are brought to the surface.

The excerpt below, from Indiana Geological and Water Survey, Indiana University, describes the effects of glaciers on geology, landform, and vegetation.

"Glaciation erased any trace of the dinosaurs, leaving behind a legacy of geology and landscape formations. As the glacier melted, water transported and deposited outwash of sorted and stratified sand, silt, gravel, and clay. Outwash forms the core of kames, eskers, and other meltwater landforms. Erratics of granite, gneiss, basalt, and other igneous and metamorphic rocks are also prevalent. These massive boulders were plucked from the bedrock surface in Canada and transported to Indiana by the glaciers. When masses of ice would become buried by thick insulating debris, they would remain long after all other glacial ice melted. Eventually, they, too, melted, leaving ice block depressions or kettle holes. The glaciers took centuries to melt, and plant communities colonized and migrated northward over the debris left behind. The postglacial succession from spruce to pine and finally to oak forest indicates the general warming of the climate."

Landscape typology - Fen

During a horticultural assessment of the park property, a Black Oak was found in the HOA woodland adjacent to and west of the park. This type of tree is rare for Carmel but could be another example of a remaining landscape relict of trees typically found around fens/bogs. It is not hard to imagine that the depressed landscape of TMNP was once an opening in a vast forest. This opening would

12,980 – 1000 B.C. PLEISTOCENE ERA

Figure 02: Depiction of Pleistocene Era to Adena Culture

have been void of trees due to the water holding capacity and lack of structural ability of the soils to maintain trees and would have supported a specific type of flora and fauna. This type of landscape, called a fen, is preserved in Northern Indiana at formal nature preserves. If TMNP was once a fen, its scale would have been impressive and would rank as the third largest example of this ecology in the State of Indiana today. Due to overall human development, these habitats and associated historical species no longer exist in Hamilton County. A sustainable approach to the site would capitalize on the opportunity to restore this habitat at an impactful scale by adding necessary physical and biological features and creating a habitat-specific to the needs of targeted species. Ecologists would need to be engaged to study how the site relates to nearby critical habitats and larger corridors.

ICE AGE LEGACY

Many fens and bogs in Indiana have yielded the remains of an extinct mastodon, woolly mammoth, and giant beaver. **Residents have found evidence of prehistoric mammals. Ice Age fossils are rare in Carmel, but there was a significant find on the Lacy farm, part of which constitutes the northeast corner of the Thomas Marcuccilli Nature Park. In 1893, four mastodon teeth were discovered when a ditch was dug on the farm.**

The teeth from the upper jaw measured about eight inches across, and those from the lower jaw were about six inches. Two of the teeth weighed thirteen pounds. In 1905, Joseph McDonald found

Reproduction of a Mastodon skeleton

A RARE RELIC.

TEETH OF A MONSTER MASTODON FOUND WHILE DITCHING.

TWO OF THE LARGE MOLARS WEIGH THIRTEEN POUNDS.

While ditching on the Lacy farm a few miles southwest of this city workmen unearthed four teeth which were once evidently possessed by some monster mastodon hundreds of years ago. As the teeth are too large for any of the animal kingdon now known, it is supposed that they belong to some animal whose race has long been extinct. The upper teeth were about eight inches across and the grinding surface convex. The lower teeth were about two inches smaller than the other and the surface concave to fit the upper. The monster grinders are in a petrified state, two of them weighing thirteen pounds. Tune Girard had the relics on exhibition on our streets today and they attracted much attention.

Newspaper clipping provided by historian, Andy Wright

part of a tooth from a mammoth in Vestal Ditch a mile west of the park site in the Cherry Creek Estates subdivision.

In part, Indiana's agricultural wealth can be attributed to sediments carried by the glaciers. The thick, rich soils that grow Indiana's corn and soybeans owe their existence to this glacial debris. The Ice Age also left us abundant buried sand and gravel beds that supply fresh water or materials for construction and peat and marl for agriculture (*Indiana Geological and Water Survey, Indiana University).*

TMNP property is one example of this legacy, as it contains soil rich in organic matter and a large capacity for storing and holding water. The park property is undeveloped due to the limitations this type of soil presents for developers.

This soil asset could be utilized to great ecological effect. It can be fortified to store water, regulate its flow, cycle nutrients, filter and buffer pollutants, sequester carbon, and sustain plant and animal life. Best management practices (BMPs) can be implemented around and within site to amplify the effectiveness of this natural resource to reduce flooding, prevent erosion, improve water quality, and decrease thermal pollution. Restoration of the site's hydrology can also contribute to groundwater recharge and add ecological, aesthetic, and educational value. Water quality is important for drinking water supply, and riparian habitat and urbanization are major contributors to water quality degradation and cause trash, waste, sediment, and pollutants to enter waterways. Key land-based strategies to maintain and improve water quality include restoring natural ecological systems and processes along waterways. TMNP is a headwater near the White River, making it especially poignant to consider impacts on the larger hydraulic system, particularly downstream. Groundwater recharge can be enhanced by carefully developing the future park infrastructure, including increased pervious surface areas and protection of the area as a known recharge zone for groundwater replenishment. The type of soil present at TMNP is known for its ability to capture, store and prevent the release of carbon into the atmosphere. Reducing and sequestering carbon emissions are essential in the global fight against climate change. Carbon sequestration references the capturing of carbon dioxide from the atmosphere and long-term storage of the carbon in a stable state, such as plant biomass.

Research is needed for CCPR to optimize this soil asset for this use, but the restoration of the site's hydrology would support the soil as a carbon sequestration system. Soil systems like these are more effective than stands of trees of similar size in effecting climate change.

TMNP site photo of organic soil - Photo credit: MKSK

Cultural preservation will be an important element of the sustainable development of this park site.

This park will be a cultural landscape to recognize the site's unique history, express regional identity, and promote an understanding of heritage, place, and community. CCPR will support and amplify the narratives of underrepresented communities to educate and create awareness about their importance.

200 B.C. NATIVE AMERICANS

LENAPE SITE

Residents have also collected artifacts from early Native Americans. Some date as far back as the Early Archaic period. Stone tools, such as arrowheads, hammers, tomahawks, whetstones, mortars, and pestles, were once prevalent; hundreds, if not thousands, were found on Carmel's east side. These are rarer today, but they are still occasionally discovered. In 2017, a city engineer found a banner stone during the construction of a roundabout at Smoky Row Road and Gray Road. The artifact was thought to be as many as four thousand years old. Archaeological finds suggest there was activity as far back as the Late Archaic period near the site of the nature park.

The first people of record in Carmel were the Lenape, also known as the Delaware Indians. At the time of first contact with Europeans in the early 1600s, the Lenape lived in the Delaware Valley near Philadelphia. Two centuries of European colonialism and American expansionism splintered the Tribe, greatly diminished their population, and pushed them west into the Ohio River Valley. After an alliance of Tribes was defeated in the Battle of Fallen Timbers in 1794, the Lenape ceded much of their land in Ohio and Pennsylvania to the United States. The Miami invited the displaced Tribes to settle in their territory, allocating the area around White River to the Lenape.

In August 1802, William Conner built a log trading post in a prairie on the east side of White River, where Conner Prairie is today. A Lenape village developed around the trading post and became called Conner's Town. It extended across the river just east of the park site. Other Lenape villages in the area included Upper Delaware Town, about two miles north of Conner's Town in what was known as the Horseshoe Prairie, Ketchum's Town along Cool Creek in present-day Carmel, and Lower Delaware Town, which was a half mile south of the Marion County line. The exhibits provided by Historian, Andy Wright, on pages 28 and 29 depict the locations of these places.

During the War of 1812, Indiana Territorial Governor William Henry Harrison was concerned that the Lenape would be pulled into the conflict and give up their neutrality, so he moved the Tribe from their villages along the White River to an abandoned Shawnee town in Piqua, Ohio. Many abandoned villages along the White River were burned to the ground during the war. This was the fate of the village site located near the nature park. It was not resettled when the Lenape returned to Indiana.

1818 to PRESENT DAY

THE FIRST SETTLER

In 1818, John and William Conner influenced the Lenape into signing the treaty of St. Mary's, in which the Tribe relinquished its claim to the land along the White River in exchange for a reservation west of the Mississippi River. The Tribe was given three years to vacate the ground, after which it was opened for settlement. However, pioneers began to establish squatter settlements soon after the treaty was signed. Some settled in the prairies around William Conner's trading post.

George Shirts and his family were the first to arrive in what is now Hamilton County. They settled in Conner's Town in March 1819. Later that month, Charles Lacy became the first to settle in Carmel when he set up camp on the remnants of the Lenape village site on the west bank of White River opposite Conner's Town. The exhibits provided by Historian, Andy Wright, on pages 28 and 29 depict the location of the Lacy Farm. **That spring, he planted a crop of corn in a field the Lenape had cultivated for the same purpose. He built a cabin and brought his wife Mary and their eight children to the site in September. The northeast corner of the park site was entered by Charles Lacy in September 1822. Bethel Dunning and Benjamin Blythe entered the remainder of the park site in 1834 and 1835.**

RIVER ROAD

River Road was originally a Lenape trail that connected Barbara Burget's trading post on the Marion County line to the Upper Delaware Town in what came to be called the Horseshoe Prairie. This trail was also part of the first county road petitioned in August 1823. The road commenced at the Madison County border just north of White River, crossed the river at Strawtown, and followed the path of the Lenape trail past Lacy's farm to Burget's trading post. Parts of Hazel Dell Parkway, 116th Street, and River Road follow the course of this two-hundred-year-old road.

LATER USE OF THE SITE

The Lacy farm remained in the Lacy family until Tunis Gerard purchased it in 1881. Gerard sold the farm around the turn of the century. Around 1920, John Owen purchased about four hundred acres that included the old Lacy farm and the park site and operated Owen Dairies, Inc. Before the company dissolved in 1935, it had the county's largest herd of dairy cows.

In 1934 Eli Lilly purchased farms on the east and west of White River, including the original Conner homestead and Owen's dairy, which he transformed into a horse, grain, and hog farm. Lilly's massive farm covered about fifteen hundred acres and employed twenty-two full-time farmhands, many of whom lived on the property. Lilly kept carpenters on staff year-round to keep the buildings and fences in good repair. The farm continued operation on the west side of the river until the 1990s.

Plat maps dating back to 1866 and aerials from 1936 to the present indicate no buildings on the park site. There were dwellings east of the area along River Road in the nineteenth century and farm buildings during the Owen Dairy and Conner Prairie Farm years, but these were outside the park's boundaries. It will be a significant discovery worthy of further investigation if a foundation is uncovered during site work for the park.

Historic Timeline and List of Inhabitants

Figure 03: This figure represents a timeline of the site's inhabitants and owners, and it's general development history.

1000 BC — ADENA CULTURE

200 BC — NATIVE AMERICAN CULTURE

1822 — CHARLES LACY

1834 — BETHEL DUNNING

1835 — BENJAMIN BLYTHE

1881 — TUNIS GERARD

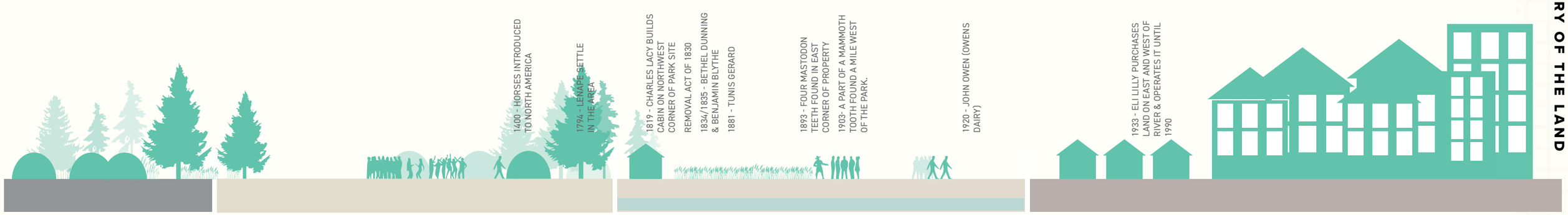
1920 — JOHN OWEN

1933 — ELI LILLY

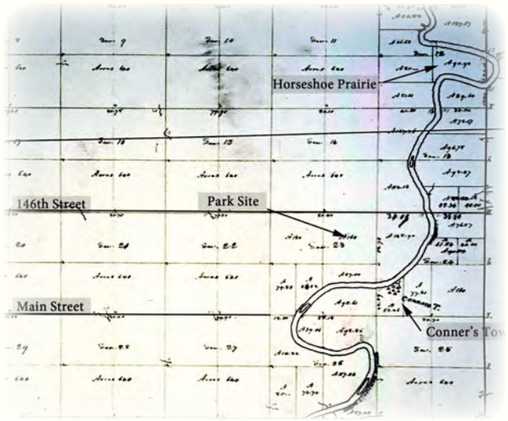
1963 — EARLHAM COLLEGE

2005 — FALCON NEST II LLC

2021 — CARMEL/ CLAY PARKS & RECREATION

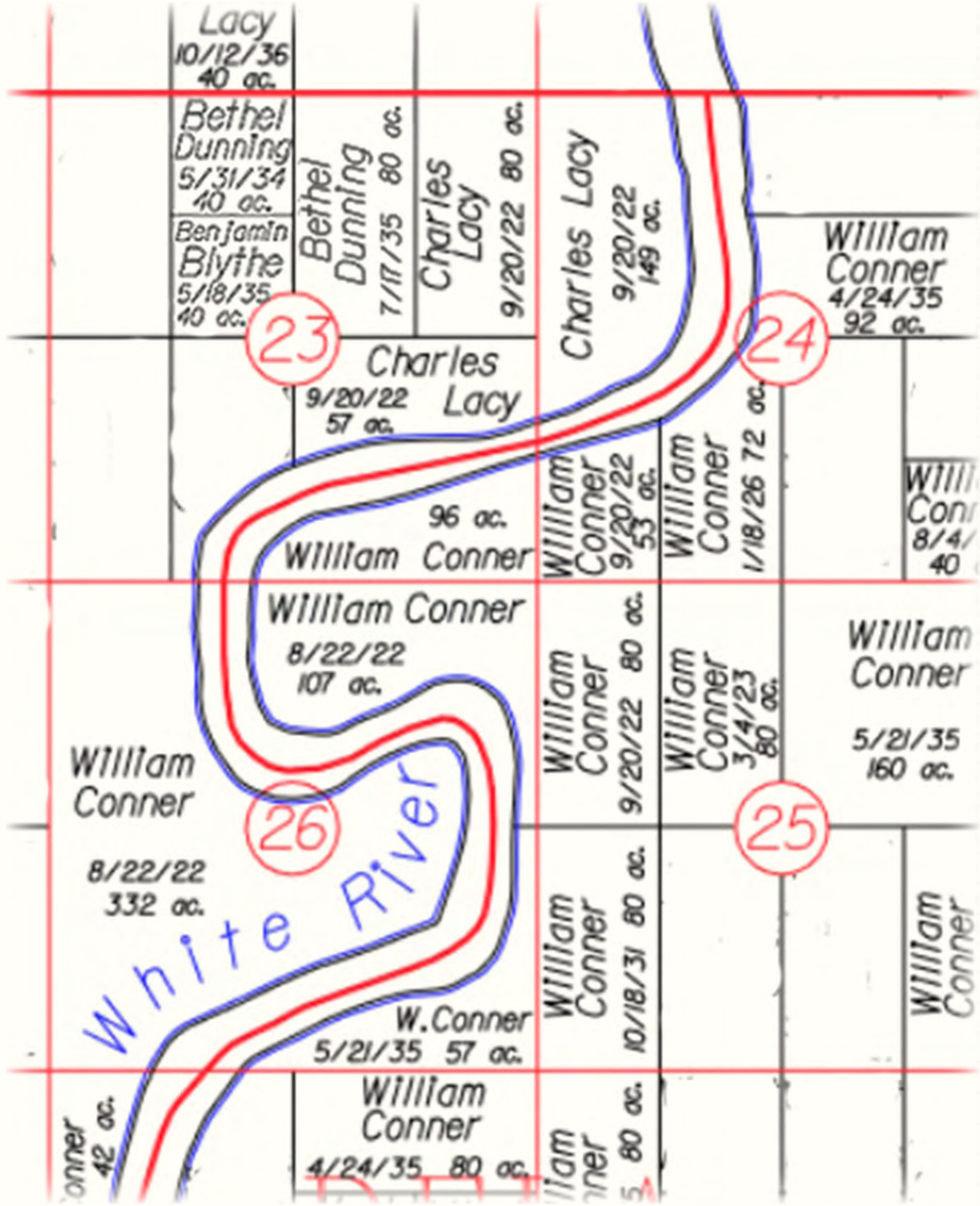


Lenape Settlement locations & Park Site noted



Park site in relationship to Horseshoe Prairie & Conner's Town

Lacy Farm limits over aerial showing park site



Plat Record showing William Conner, Charles Lacy, Benjamin Blythe & Bethel Dunning land limits provided

Historic Aerial Photography

1936 - 1976

The design team studied how key elements of the TMNP site and surrounding development evolved over time. The aerial photos on this and the following pages have specific information or show specific changes that CCPR wished to memorialize.

TREE CANOPY

Focus was spent on identifying where trees have historically been able to survive. The hope is that this will help narrow down future planting locations as CCPR moves to implement tree planting on the park site. CCPR understands that planting trees on the site will be fairly experimental because of the restrictive soils. This historical information will make it less experimental. Trees stands are shown in green.

1941 - Woodland is thinned on the east side and gets nominally smaller.

1974 - The two smaller stands of trees are removed.

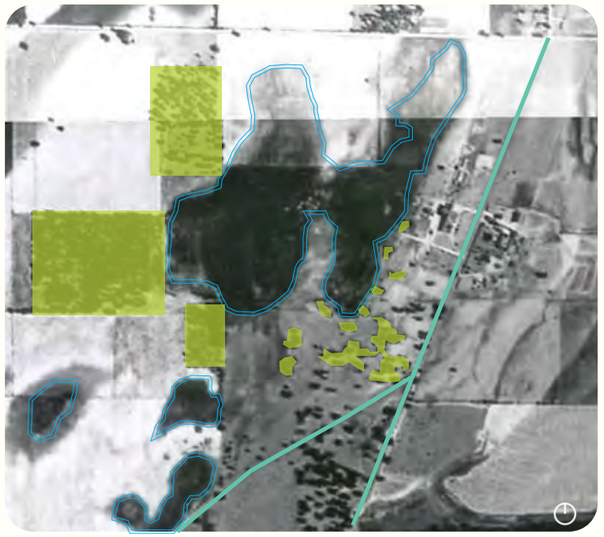
2008 - One woodland is broken into two woodlands to allow for Community Drive to be built. The property exchanged hands in 2005 from Earlham to the future developer. From 2008 on, development around the site grows quickly, starting with roadway infrastructure and utilities.

RIVER ROAD & ROADWAYS

Changes and development of River Road were tracked. Each change in configuration of the roadway and layout is memorialized in a new color. The old layout is represented with a dashed line to help study the story of how this area developed over time. Substantial changes were made to River Road in the following years.

1974 - Appears as though a separation is made between the farm road that historically cuts through present-day Conner Prairie property and River Road public corridor.

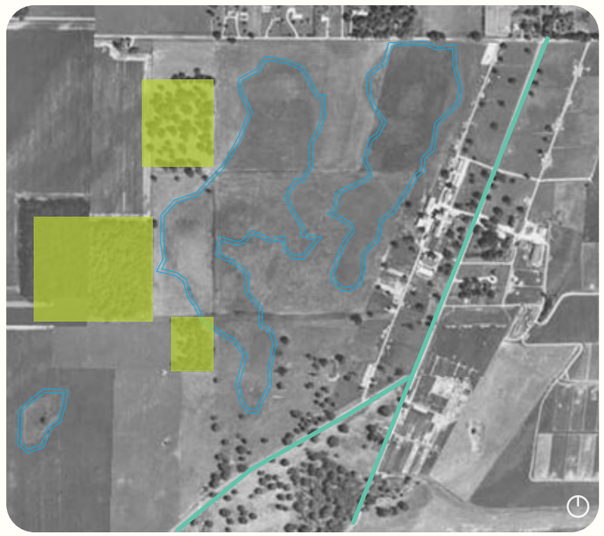
1936



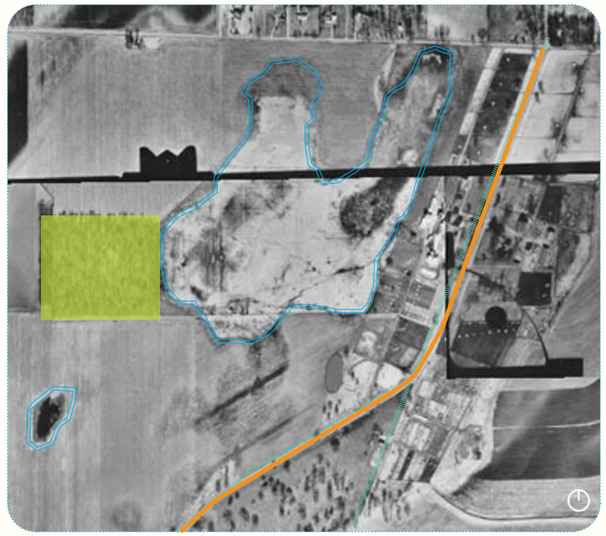
1941

1956

1962



1974



1976

Historic Aerial Photography

1997-2010

2000 - Start to see the beginnings of roadway improvements (dashed line) to River Road.

2001 - Major change, River Road is modernized and the layout changes in a somewhat substantial way.

2008 - Roadway shape is smoothed out on the north end near 146th Street. Implementation of Community Drive and Cherry Creek Boulevard initiates.

2016 - Cherry Creek Boulevard extends east towards River Road.

2018 - Roundabout added.

2021 - There are anticipated changes that will occur at the intersection of 146th and River Road.

LANDFORM

It is unclear if the landscape depressions might have held water, but it is plausible that they would have been fed via groundwater supply which is historically close to the surface. These areas would have been ephemerally wet. In images where wetness appears to be present, the areas are outlined in blue with a solid fill.

2008/2009 - Substantial grading occurs on the western portion of the park site to prepare for developments. It is likely that artifacts were encountered during this excavation but not recorded given the density of archaeological finds in the overall district. The ovalish depression to the southwest starts to recede because of the impact of construction or due to a concerted effort to remove the low point.

2015 - The addition of the commercial node shows significant changes to the landform of the park site on the northeast corner (it is presumably filled to allow for more development).

1997

2000

2001

2008

2009

2010

Historic Aerial Photography

2014-2021

AGRICULTURE

The first aerial photograph is from 1936, three years after Eli Lilly purchased the property. Agriculture has had a substantial impact to the site via physical movement of earth and the implementation of drain tiles for farmland. It appears as though the property functioned as farmland primarily but also pasture. Prior to Eli Lilly's purchase of the property, it was used primarily as pasture. Efforts were made to alleviate the low depressions and in some years they appear less evident in the aerials (blue line shapes get smaller). Over time the landscape depressions present today have persisted through these efforts. This makes sense given the soil typology and what is known about the hydrology of the site. The other element of interest is the Eli Lilly farmstead and roadway infrastructure.

2014 - A substantial portion of the Eli Lilly farmstead west of River Road is dismantled, relocated or demolished.

DEVELOPMENT

2010 - Development completed to the northwest.

2014 - Development begins on peninsula landform on the north side of the site (and central).

2015 - Commercial node at 146th and River Road constructed. Harvest Church constructed. Commercial extends slightly on the westside of Community Drive.

2018 - Development begins on the southwest corner of park site.

2019 - Development continues to the southwest and begins on southeast.

2021 - Development extends around the west and south of the woodland.

2014

2015

2016

2017

2018

2021


37
36

SITE ANALYSIS

Landscapes are open, complex ecosystems across the boundaries of which water, air, species, and people flow freely. Many of a landscape's key outcomes are influenced by outside forces, such as the economy, public health, and context. Any given landscape will have both direct and indirect influences.

An initial assessment of TMNP reveals that as it sits today, the landscape provides a generous amount of social and environmental benefits that can be further amplified by the development of sensitively constructed park infrastructure.

RECREATIONAL VALUE

As urbanization and density intensify in the area, creating spaces for recreation and socialization is increasingly important, offering access to nature and creating a strong sense of community. The development of residences and commercial buildings around the site maximizes the building footprint against the available lot. Some developments have zero lot line arrangements. It is important to consider this context and the role that this site will play with the other facilities in the area. The TMNP landscape promotes play, relaxation, and interaction between neighbors. This master plan will work to further capitalize on this for the surrounding community.

QUALITY OF LIFE

Research supports the cognitive, emotional, and physical benefits of landscapes and greenery. Health benefits include healthier childhood development, increased physical activity, recovery from stress, improved concentration, faster healing, and a more positive outlook and well-being (Strife and Downey, 2009). To this end, plans for the development of TMNP will maintain and frame the long views of the landscape (trees, vegetation, and wildlife).

Understanding these conditions allowed for a more thorough design process of the nature park. Collectively, the data shows how the site functions as a system with complex forces at play.

The master plan was born from an intensive and thorough site analysis phase.

SAFETY

A current assessment of the area's vehicular, pedestrian, and bike traffic identified optimal conditions concerning accessible design, nighttime lighting, crosswalks, street trees, and other traffic calming measures. Safety in the future park design can be further enhanced by clustering activity areas, clear circulation, way-finding, maintaining visibility and sight lines, and other design and maintenance principles known to deter crime. Future traffic studies in the district will help guide the development of these safety features. Long-term, innovative strategies will need to be considered to allow for the monitoring of such a large, natural space. Emphasis could be placed on interventions that maintain the perception of active monitoring and messaging.

SCENIC QUALITY & VIEWS

As depicted on Figure 04 on page 49, the TMNP landscape provides universally preferential views. The landscape puts on a dramatic show as it moves through the seasons. Thoughtful consideration will need to be implemented to maintain certain views for neighbors, showcase prominent views for all community members, and provide key way-finding cues to filter people safely and comfortably through the future park space. Design elements like the north and south wells, site walls, trees, and vegetation can block, screen, or frame views accordingly.

TMNP Site with fog | Photo credit: Randy Culp

TMNP Fauna| Photo credit: Randy Culp

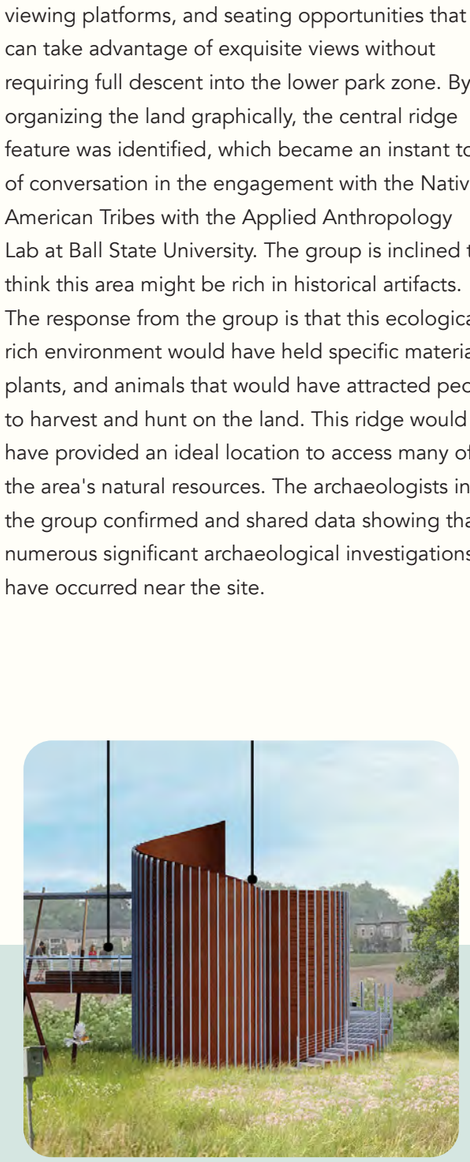
The ridge landform that is centrally located on the site would have provided an optimal location to access many of the area's natural resources.

PEDESTRIAN NETWORK

The surrounding pedestrian network has been studied to identify logical entry points into the park. The woodland to the west of the site contains mulch trails connecting the north and south areas of development. It is important to note that there is an implied connection between TMNP and the HOA Woodland to the west of the property. Considerations should be given to future pedestrian mid-block crossings and whether or not infrastructure in the way of traffic calming and/or signage should be implemented in the near future as the pedestrian traffic to the park increases.

LANDFORM

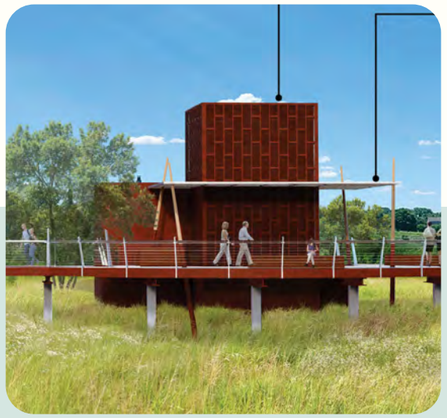
The study of topographic data and overall landform led the team to organize the site into three zones or terraces to assess different programmatic uses. The lower terrace includes two lung-shaped depressions and provides constructibility challenges due to the soil makeup. The upper terrace resides near the surrounding context and sits approximately the same grade as the surrounding residential and commercial buildings. The transitional zone connects the two terraces and is optimal for circulation into the site, viewing platforms, and seating opportunities that can take advantage of exquisite views without requiring full descent into the lower park zone. By organizing the land graphically, the central ridge feature was identified, which became an instant topic of conversation in the engagement with the Native American Tribes with the Applied Anthropology Lab at Ball State University. The group is inclined to think this area might be rich in historical artifacts. The response from the group is that this ecologically rich environment would have held specific materials, plants, and animals that would have attracted people to harvest and hunt on the land. This ridge would have provided an ideal location to access many of the area's natural resources. The archaeologists in the group confirmed and shared data showing that numerous significant archaeological investigations have occurred near the site.



Rendering Carmel Well No. 26 (south well site)

VIEWPOINTS INTO THE SITE AND SITE ELEMENTS

Figure 04: Viewpoints into site and to site elements.



Rendering Carmel Well No. 25 (north well site)

Existing Historic Corn Crib (MKSK)

LANDFORM STUDY

Figure 05

- Upper Terrace
- Transitional Zone
- Lower Terrace

SOILS DIAGRAM

Figure 06

- Palms Muck
- Houghton Muck
- Fox Clay Loam
- Fox Clay Loam - Urban Land Complex
- Oakley Silt Loam
- Urban Land - Houghton Muck Complex

WATERSHED

Figure 07

- Drainage Path
- 752 Flood line
- 744 Flood line
- Legal Drain
- Culvert
- Drainage Swale

0′ 200′ 400′ 600′

The soil composition limits the implementation of conventionally built structures and the planting of most tree types.

SOILS

The water table has been historically shallow. The soil types present on the site have substantial water-holding capability. The soil composition limits the implementation of conventionally built structures and the planting of most tree types. The soils have a high percentage of organic material and lack structural stability. They are spongy and constantly fluctuate. The soil borings report (available in the Appendix 22) is available through the due diligence work of Carmel Utilities for the well project. It will aid constructibility studies. However, additional soil borings will be done as the project progresses.

WATERSHED

A complex but broken network of agricultural clay tile is highly effective at draining water from the site. The agricultural drain tile intermingles with an expansive network of legal drain tiles. The legal drains lie within easements that require the county surveyor to accept and approve future improvements to the park. These approvals are not considered an obstacle given the light infrastructure improvements currently being proposed in the master plan. Culverts relaying water into and out of the site are identified in yellow on Figure 07.

The watershed consists of 470.5 acres of primarily residential subdivisions and apartments. Portions of the watershed are currently farmlands or pasture-type fields, which have been developing in recent years.

On the included watershed exhibit, Figure 07, the depression areas shown in dark blue represent the approximate extents of what would never drain via overland drainage systems. These areas include the proposed wetland and park areas, which may limit the quantity and type of improvements. If channelization is desired, it may be necessary to either fill the site or provide another connection to the White River, potentially via a new crossing under River Road.

Offsite flow is currently conveyed primarily via open channels through the Legacy site and along Cherry Creek Blvd. The flow along Cherry Creek Blvd is split between going to the basin north of the road and the large wetland/dry detention basin to the south. The culvert making this connection is approximately 15" in diameter, which greatly restricts flow into the site. The north/south connection between the two basins is via 30" culverts. Due to the flow restriction caused by the 15" pipe, the drain network's drawdown is long, which may impact how long the basins would remain wet.

Also limiting what can be done at the site is the White River's backwater, which puts most of the area in the 100-year floodplain (Elevation 752 NAVD88). Flooding is caused by backwater conveyed up the existing drainage network via a culvert under River Road. While the size of the culvert would limit the quantity of flow backing up into the site, FEMA flood maps do not consider such constrictions and assume a connection. The floodplain will determine the structural improvements that can be made at the site for park buildings but should not impact the proposed wetlands or trail improvements.

Rough estimates of the peak elevations are noted below. Dimensions and elevations of the culverts and channel were taken from 2019 Lidar data and/or the 2019 aerial photography. A limited survey along River Road is available and was utilized for some of the pipes.

Modifications in the stormwater detention ponds for the Legacy apartment complex may be possible if the overflow from the southern wetland and the two stormwater detention ponds are combined into a single basin to make the site easier to develop. However, doing so will require detailed modeling of the site drainage.

Location	2 year peak	10 year peak	100 year peak
TMNP	**745.74**	**746.05**	**747.13**
South Wetland	**743.18**	**743.57**	**744.19**

The Tribal Representatives Advisory Group expressed an interest in creating an ethnobotany interpretive garden. It was noted that some plants in the different groups brought across geographies for their culture and use are considered non-native.

VEGETATION ANALYSIS

Consulting firm Eco Logic performed a horticultural assessment of the TMNP site. These reports are included as Appendices 19 and 20. TMNP is currently in various stages of old field succession (refer to Figure 09) due to the changing soil conditions brought on by the network of drain tiles and legal drains below. Unfortunately, much of the land cover found along the edges of the site and encroaching on the woodland are invasive plant communities (refer to Figure 08). Detailed lists of invasive plant species and their locations can be found in Appendix 19.

The Eco Logic plant assessment also provided data on existing non-invasive plant communities. The list on the following page is a working collection of plants surveyed within the project limits for TMNP. This list is a resource as CCPR embarks on the next level of design and implementation of the park. Further study on enhancing plant communities will create a rich, sustainable ecosystem with the help of CCPR staff.

GENERAL OLD-FIELD GROWTH

Milkweed	*Asclepias*
Stinging Nettle	*Urtica dioica*
Common Evening Primrose	*Oenothera biennis*
Canada Goldenrod	*Solidago canadensis*
Grass-leaved Goldenrod	*Euthamia graminifolia*

MATURE MESIC WOODLAND

Black Walnut	*Juglans nigra*
Cottonwood	*Populas deltoides*
Green Ash	*Fraxinus pennsylvanica*
Hackberry	*Celtis Sinensis*
Northern Red Oak	*Quercus rubra*
Shagbark Hickory	*Carya ovata*
Sugar Maple	*Acer saccharum*

DEPRESSIONS

Bergamot (perimeter)	*Monarda fistulosa*
Cleavers	*Galium aparine*
Common Elderberry	*Sambucus nigra*
Common Evening Primrose	*Oenothera biennis*
Common Milkweed	*Asclepias syriaca*
Hedge Bindweed	*Calystegia sepium*
Non-Native Field Pennycress	*Thlaspi arvense*
Pennsylvania Smartweed	*Persicaria pensylvanica*
Ragweed	*Amrosia*
Stinging Nettle	*Urtica dioica*
Wild Potato Vine	*Ipomoea pandurata*
Wild Senna (perimeter)	*Senna hebecarpa*

PRAIRIE PLANTING

Bergamot	*Monarda fistulosa*
Big Bluestem	*Andropogon gerardii*
Black-Eyed Susan	*Rudbeckia hirta*
Butterfly Weed	*Asclepias tuberosa*
Common Evening Primrose	*Oenothera biennis*
Dense Blazing Star	*Liatris spicata*
Foxglove Beardtongue	*Penstemon digitalis*
Indian Grass	*Sorghastrum nutans*
Lanceleaf Coreopsis	*Coreopsis lanceolata*
Little Bluestem	*Schizachyrium scoparium*
Mountain Mint	*Pycnanthemum*
Narrowleaf Mountain Mint	*Pycnanthemum tenuifolium*
New England Aster	*Symphyotrichum novae-angliae*
Pale Purple Coneflower	*Echinacea pallida*
Plains Coreopsis	*Coreopsis tinctoria*
Prairie Dock	*Silphium terebinthinaceum*
Prairie Dropseed	*Sporobolus heterolepis*
Purple Prairie Clover	*Dalea purpurea*
Rattlesnake Master	*Eryngium yuccifolium*
Riddell's Goldenrod	*Solidago riddellii*
Rosinweed	*Silphium integrifolium*
Sawtooth Sunflower	*Helianthus grosseserratus*
Showy Black-Eyed Susan	*Rudbeckia fulgida var. speciosa*
Stiff Goldenrod	*Solidago rigida*
Sweet Black-Eyed Susan	*Rudbeckia subtomentosa*
Tall Ironweed	*Vernonia gigantea*
White False Indigo	*Baptisia alba*
Wild Quinine	*Parthenium integrifolium*
Wild Senna	*Senna hebecarpa*
Yellow Coneflower	*Echinacea paradoxa*

STORMWATER BASINS

Cup-plant	*Silphium perfoliatum*
Switchgrass	*Panicum virgatum*
Redtop	*Agrostis gigantea*
Prairie Cordgrass	*Spartina pectinata*

VEGETATION ANALYSIS - INVASIVE PLANTS

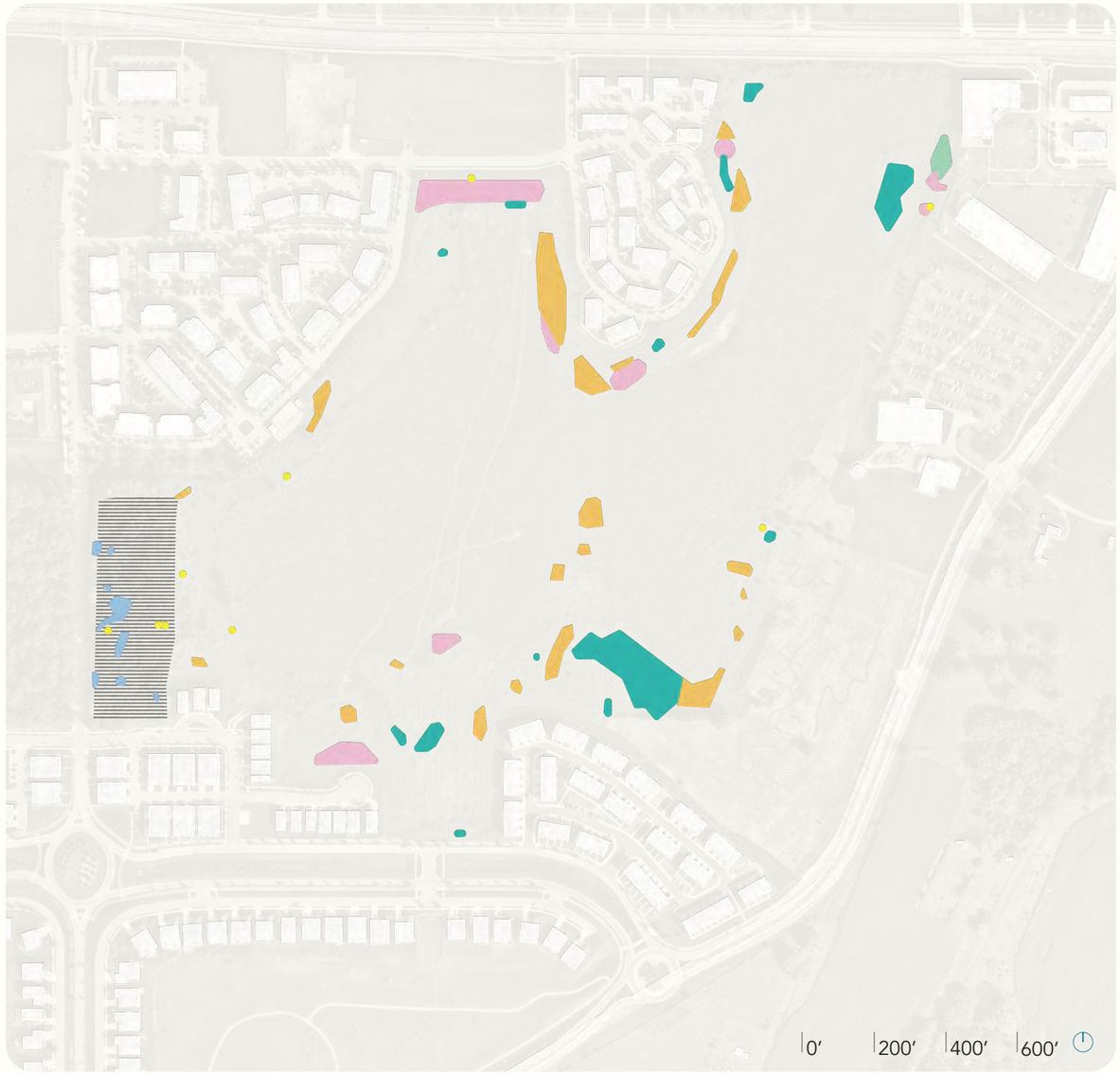


Figure 08

VEGETATION ANALYSIS - EXISTING PLANT ECOLOGIES

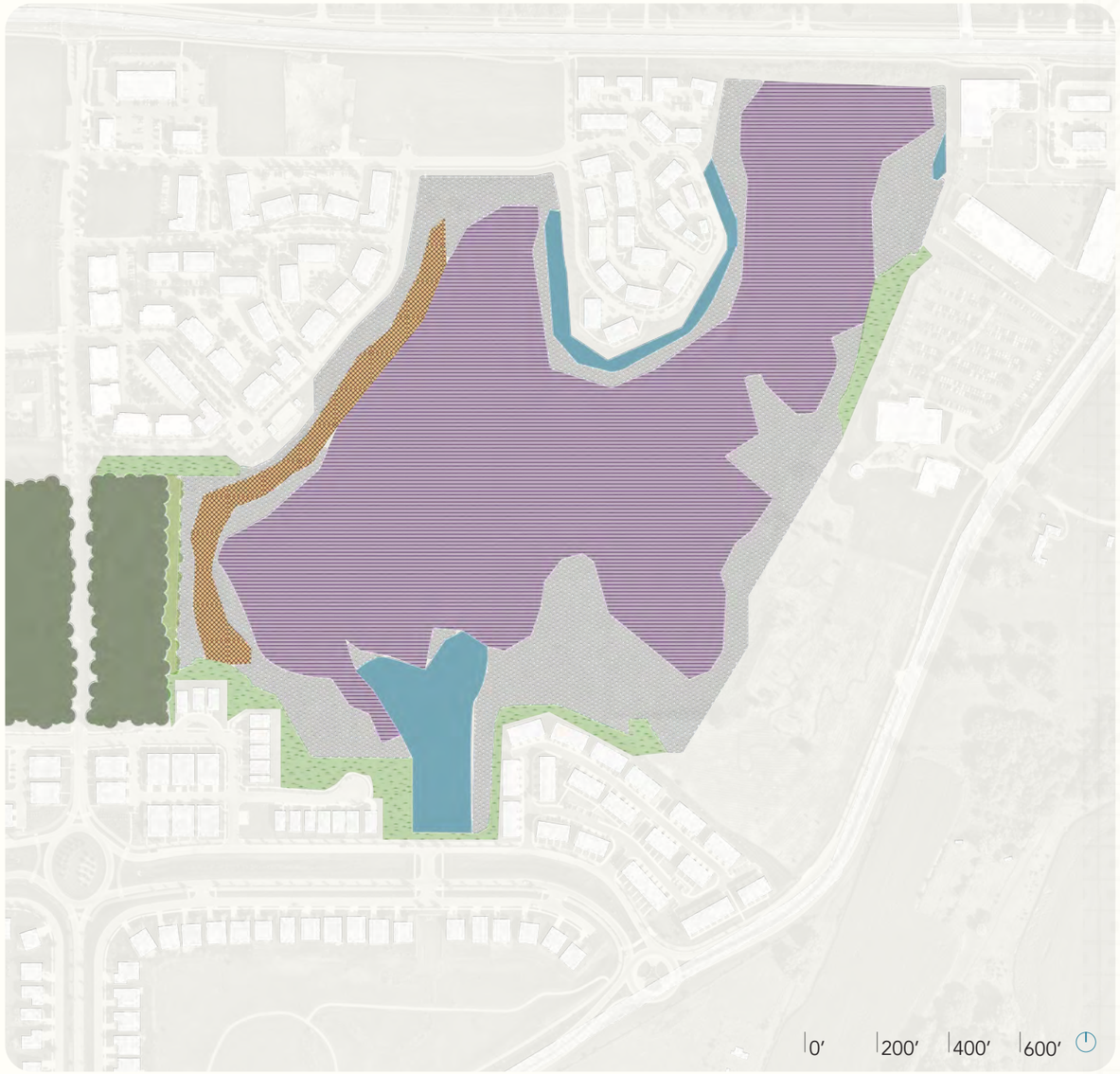


Figure 09

TMNP Site - Thistle (MKSK)

Wintercreeper
https://www.swiftgreenhouses.com/plant/Euonymus-Fortunei-Coloratus

Amur Honeysuckle
https://plants.ces.ncsu.edu/plants/lonicera-tatarica/

LEGEND

- Amur Honeysuckle
- Widespread Wintercreeper
- Widespread Poison Hemlock
- Widespread Canada Thistle
- Widespread Reed Canary Grass
- Widespread Teasle
- Widespread Hybrid Cattails

White False Indigo
https://i.etsystatic.com/15971531/r/il/e1ac79/2821667274/il_fullxfull.2821667274_bh5h.jpg

Wild Quinine
https://cnps.org/johnclayton/wp-content/uploads/sites/17/2018/09/Wild-Quinine.jpg

Dense Blazing Star
https://www.directnativeplants.com/wp-content/uploads/2020/04/dreamstime_m_156625318.jpg

LEGEND

- Mature 2nd Growth Mesic Woodland
- Young Successional Woodland
- General Old-Field Vegetation
- Prairie Planting
- Muck Plant Community
- Storm Water Basins
- Lawn Areas

Future development of these zones will be studied with plant ecologists and Parks and Natural Resources maintenance staff to develop a diverse nature experience with multiple seasonal aspects.

ECOLOGICAL ZONING

A deep analysis of the site has allowed the project team to identify multiple ecological planting zone opportunities, as depicted on Figure 10. These zones have further influenced the development and location of path systems to provide ease of maintenance into the future and that will help define different planting ecologies and natural functions. Future development of these zones will be studied with plant ecologists and Parks and Natural Resources staff to develop a diverse nature experience with multiple seasonal aspects. These different ecologies will also attract diverse flora and fauna into the community and provide a rich park and educational experience.

Dedicating land to restoring native plant communities is critical. Ecological zones at TMNP been created by analyzing the topography and soil typologies existing on the site. Development of the zones will be in alignment with native ecologies documented in the Midwest Subset of Plant Ecologies so that remnant native landscapes once prevalent in Indiana can be reintroduced to the community and familiarity with a native Indiana landscape can be achieved. The native restoration approach being suggested in this park is geared towards achieving more specificity in the landscape. The result of which will be taking what is present in the landscape and building on that ecology by removing invasives and replacing with specific plants that have historic synergies and relationships to each other. There is a lot that is unknown about why different plant species often co-exist with each other, but plant families are prevalent and it is a worthwhile practice to implement across a nature park like TMNP.

This kind of application will amplify the park as a nature park and not just recreationally based but placing honor and importance on the landscape of the park itself and the nature, plant ecologies and wildlife that will call it home.

ECOLOGICAL ZONING OF THE PROPERTY

Figure 10

Ecological zones, based upon topography and soil typologies, that inform park paths and infrastructure.

Community Engagement at Clay Middle School (CCPR)

MASTER PLAN PROCESS

A process to create a framework plan to guide the future development of the park site.

Opportunities and constraints concerning soil, drainage, regulated drains, wetlands, and the floodplain were synthesized with project goals and community feedback to arrive at a compelling yet realistic plan for TMNP.

MKSK worked with CCPR to vet ideas and new opportunities during the master plan process to arrive at a consensus for the elements within TMNP. MKSK employed various forms of engagement in close collaboration with CCPR. A project website was maintained by CCPR during the process to gather feedback from the community. This feedback has been memorialized in this report.

The overall approach relied on cultivating feedback from the community with a robust engagement strategy. The input gathered allowed the team to produce a plan that incorporates imagination alongside an action-oriented implementation strategy.

Public engagement meetings were conducted throughout the development of the master plan. The design team (CCPR/MKSK) met with the steering committee, Park Board representatives, critical stakeholders, Tribal Representatives Advisory Group, and focus groups at each step of the master plan process.

All meetings were held in person and virtually to reach the greatest number of residents and stakeholders. Residents were encouraged to offer their input via online surveys. Below is a summary of the meetings held during each phase of work.

March/April - Setting the Foundation

Meetings were held to set project goals with the steering committee, Carmel Clay Historical Society, environmental stewardship partners, elected officials, and park neighbors.

May - Opportunities & Concept Alternative

A presentation was given to share three concept alternatives, and a series of worksheet activities were made available online and in person to garner public feedback. Meetings were held with Carmel Clay Historical Society, Clay Middle School, Carmel Mayor's Youth Council, Carmel Clay Public Library Teen Volunteer Corps, park neighbors, the steering committee, elected officials, and environmental stewardship partners; in addition to a public meeting advertised to all Carmel residents.

August - Refinement & Report

The preferred concept was presented, and metrics were developed to better understand public acceptance of the park concept. Meetings were held with park neighbors in addition to a public meeting advertised to all Carmel residents.

MONTH 1-3

SETTING THE FOUNDATION

Project management and administrative functions were initiated, including reviewing and refining the project schedule, milestones, and deliverables; confirming responsibilities; vetting and establishing project goals; reviewing and assembling site information and relevant reports; identifying project stakeholders; and finalizing the public engagement strategy. A first round of focus group meetings was conducted during this phase to get valuable input at the forefront of the project. History, site easements, and project mapping were studied to develop an overview of features to guide the master planning of the park.

MONTH 4-7

OPPORTUNITIES & CONCEPT ALTERNATIVES

The design team explored multiple program scenarios and design strategies based on the project goals and existing conditions assessments. Program scenarios included the previously considered park elements and those uncovered through further dialogue. Design strategies studied park program elements and their spatial relationships throughout the park. The design team studied universal access for all users, integration into natural and recreational systems, the opportunity to align with programmatic partners, and the park's position in the greater context.

MONTH 8-12

REFINEMENT & REPORT

Three-dimensional renderings were prepared to illustrate key park features. The master plan report was drafted and assembled to document the collaborative planning process for the park. This included an opinion of probable costs and ideation into organized project bundles enabling the park to be built in projects/phases independent from each other. This report also documents the beginning plans of how the maintenance and revitalization of the natural systems of the parkland would be approached by CCPR, as well as studied loop distances within the park trail system and trail typologies based on constructibility studies.

Project Goals

Photo credit: Kevin Tungsevick

Photo credit: https://encrypted-tbn1.gstatic.com/is?q=tbn:ANd9GcSkiYMmvtWKLVePFpfb2dpXb7btO3iUTem3V3NGQSt6kg7OgRp8

Photo credit: AAL (BSU)

Photo credit: Harvest Church

Photo credit: LINK Arkitektur AS Landskap

1

PRESERVE UNIQUE NATURE AND EXPERIENCE OF THE SITE.

This site is considered a headwater with a unique soil typology that can support a specific type of habitat restoration. Associated flora and fauna communities could include fen, sedge meadow, and marsh and attract herons, marsh wrens, red-winged blackbirds, swamp sparrows, rare dragonflies, and four-toed salamanders.

2

ACCOMMODATE PASSIVE USAGE.

Provide opportunities for sitting, hiking, wildlife viewing, nature photography, picnicking, bird watching, botanical study, historical and archaeological exploration, and running/jogging.

3

PROVIDE EDUCATION AND STORYTELLING FROM UNIQUE PERSPECTIVES.

Highlight the site's hi ıtory by building strong partn ərships with and allowing underre ɔresented communities to tell it ı story from their perspective.

4

CONNECTIVITY TO THE SURROUNDING COMMUNITY.

Provide connectivity to nearby Prairie Trace Elementary School, Harvest Church, White River, residential context, wildlife passages, hydrology, and the future development of Conner Prairie.

5

INNOVATIVE APPROACH TO PLANNING.

Include Tribal engagement, forest mitigation, sustainable maintenance solutions, and an elevated interpretive signage experience.

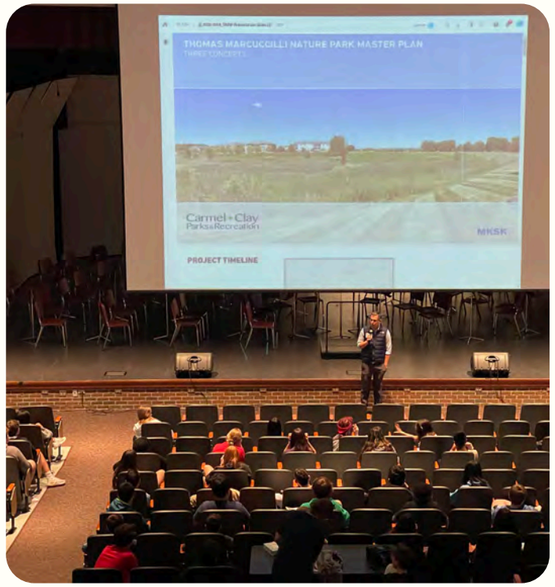
GAUGING SUCCESS & DEFINING MEASURES

As the park develops, performance measures can be defined and tracked to measure the effectiveness with which landscape solutions fulfill the goals of the master plan and contribute to the overall sustainability of the park system. Continuing to study the connections between landscape and the health of ecosystems, people, and economies will increase our understanding and collective capacity to create a more sustainable and resilient future by using park system solutions to their fullest potential.

Focus Group Feedback

An intensive schedule of meetings occurred with focus groups that offered specific expertise or perspectives to aid the process of developing the master plan. This feedback was an extremely valuable and integral piece of the overall process. Typical input from each group is noted here. Meeting minutes are included in Section One of the Appendix with more detailed commentary.

Focus Group Meeting | Photo credit: CCPR



Community Engagement at Clay Middle School| Photo credit: CCPR

STEERING COMMITTEE

Shared wisdom of experiences with similar park developments encountered in the past on similar soils. Pertinent questions about facility storage and mobilization of maintenance staff and emergency access. Discussion of visibility and safety of park infrastructure.

HARVEST CHURCH FOCUS GROUP

Engage the commercial node and create a more park-like setting along the existing pedestrian connection from River Road to the future park. Keep pedestrians safe by creating dedicated paths through parking/vehicular areas.

ENVIRONMENTAL STEWARDSHIP FOCUS GROUP

63 acres of this type of soil is a rarity and, if restored, could be a major draw for naturalists across the State. Similar landscapes can be found in the far northern portions of our State and attract more biodiversity in our local flora and fauna.

CLAY MIDDLE SCHOOL FOCUS GROUP

Offer more play opportunities because it seems like you are designing a park for old people. Where is the fun stuff?

CARMEL CLAY HISTORICAL SOCIETY FOCUS GROUP

This site is the first place people settled in Hamilton County. River Road was once a Lenape Trail called Lenape Trace, with many important trading posts and opportunities for commodities between people.

Community Engagement | Photo credit: CCPR

CARMEL MAYOR YOUTH COUNCIL

The idea of engaging with different Tribes is very exciting. "I'd like to be a part of something like that!"

Are there opportunities for continued engagement with the Tribes beyond the park's development?

CARMEL CLAY PUBLIC LIBRARY TEEN VOLUNTEER CORPS

Many school collaborations and field trips could use a park site like this one. There are lots of educational opportunities in this park.

ELECTED OFFICIALS & PUBLIC SERVANTS FOCUS GROUP

We want to see an award-winning project that keeps our neighbors and citizens safe, protected, and not inconvenienced.

TRIBAL REPRESENTATIVES ADVISORY GROUP

The ridge landform in the center of the property is likely full of artifacts as it would have been the more active portion of the site utilized by the Native American Tribes. The Tribes are not often openly engaged in projects; more often, parks and recreation groups are forced into collaboration with the Tribes because of federal mandates. This is an exciting opportunity. The site would have been a one-stop shopping spot for Native Americans where many supplies could be found in one place (Woodland, River corridor, and Fen Ecology)

TMNP Site View looking northeast | Photo credit: Randy Culp

CONCEPT ALTERNATIVES

Three concepts were presented to the public, focus groups, steering committee, and CCPR for consideration. There was an effort made to showcase a variety of options for each functional element of the park to garner feedback and instigate conversation among all parties. As is often the case, the final concept held elements of each approach to the site. One of the more challenging aspects of the site became solving the location of restrooms and parking. The park site itself does not have ample buildable area. Harvest Church, which holds adjacent private property along River Road and the park property, has engaged in preliminary conversations with CCPR to consider the development of a trailhead and dual-use (church use as well as public use) parking area.

A summary of each conceptual approach follows along with supplementary graphics to support exploring the concepts and their impact on the site and context.

1

TOUCHSTONE

The first concept, Figure 11, imagines the land as a touchstone to the past. It connects visitors to various periods of historical significance. The goal is to showcase the land's history through multiple perspectives. For example, looking north, one could stand in a specific location and consider Eli Lilly and his farm on the property. Looking south, standing in the same place, they could consider the forest/prairie/sedge ecosystem. They could think about how pre-European settlement people would have managed multiple types of resources in settings like this. This concept explores the most intensive infrastructure of the three concepts. It contains a variety of settings for guests to engage with interpretive content. This concept also allows space to showcase different ways to manage the land as a resource and highlight and educate the community about best practice land management techniques from the past.

A restroom location was studied that would be a part of a trailhead experience and shared parking experience between Harvest Church and CCPR.

2

LANDSCAPE FORWARD

The second concept, Figure 12, focused on environmental education and what a park infrastructure would look like if it were based primarily on what the land was asking for. Future plant ecologies were proposed based on the study and overlay of the topography with the soil data. The path system was used to define those ecologies and allow for easier long-term maintenance and definition. The ridge in the center of the site was defined and protected to allow room for including a Native American interpretive area. Interpretation concepts were explored further in dedicated meetings with the interested Tribes and the Applied Anthropology Lab (AAL). This document includes a summary of these findings in the "Preferred Concept" section.

A parking arrangement dedicated primarily to the park programming but on the Harvest Church property was considered in this concept. Future refinements show a large buffer planting separating the parking area from the nearby neighbors. Restrooms are offered in the western woodland off Community Drive, and another facility is included as a part of the gateway and parking trailhead on Harvest Church property.

3

FRAMEWORK

The third concept, Figure 13, is an exploration of minimal infrastructure and interpretation called framework. The design team explored what the park could be like if there was an easy loop trail through a restored landscape of prairie and wetland ecosystems.

This concept emerged initially as a response to nearby neighbors who were interested to see what the most basic approach to a park might look like on the property. The concept showcases a loop trail with one bisector, one restroom located at the intersection of Simplicity and Hopewell, and minimal parking shown along the northern portion of the park site (along Hopewell and Simplicity).

Three concepts were presented with the goal of instigating conversation and vetting ideas.

Touchstone to the Past

CONCEPT 01

This landscape has been the stage for many stories over time.

TRAIL LAYOUT

CONCEPT

RESTROOM

PARKING

Figure 11: Concept 01 - Touchstone

The park infrastructure would support and incorporate the stories of the site into a visitor experience.

LEGEND

- A — Public Restrooms
- B — Native Landscape Exhibit
- C — Pedestrian Path
- D — Small Gathering Node
- E — Depressions
- F — Overlooks
- G — Parking
- H — Drop Off

Landscape Forward

CONCEPT 02

Park infrastructure follows the lead of the land. Forms based on an overlay of soil typology with topographic information.

TRAIL LAYOUT

CONCEPT

RESTROOM

PARKING

Figure 12: Concept 02 - Landscape Forward

This concept allows for a more diverse set of ecological experiences to exist within the site.

LEGEND

- A Public Restrooms
- B Native Landscape Exhibit
- C Pedestrian Path
- D Small Gathering Node
- E Depressions
- F Overlooks
- G Parking
- H Drop Off

Framework Plan

CONCEPT 03

A study of light infrastructure and minimal approach to implementation of a nature park.

TRAIL LAYOUT

CONCEPT

RESTROOM

PARKING

Figure 13: Concept 03 - Framework

Views of the landscape would be amplified over immersive accessibility to and through nature.

LEGEND

- A Public Restrooms
- B Native Landscape Exhibit
- C Pedestrian Path
- D Small Gathering Node
- E Depressions
- F Overlooks
- G Parking
- H Drop Off

Community Feedback

THREE CONCEPTS

Community feedback was gathered at each phase of the master planning process. Multiple surveys were conducted for the public to express how they felt about the designs. These surveys included the community's preference for the location of site elements, parking locations, and restrooms. Feedback was used to guide the development of the preferred concept and phasing of the park. CCPR created and will continue to maintain a website for TMNP to keep the community updated and garner feedback as plans develop.

GATHERING LOCATIONS

Preference was shown for gathering configurations shown in Concept 01 and Concept 02 as they related to the number, space, scale, and location of gathering nodes shown on the concepts (Figure 14).

PARKING

Parking was and still is an important aspect of the design, which is why several locations were studied, and feedback was requested for each. Following the survey, it was evident that the shared parking option showed the strongest interest from the public. This location also offers the largest parking spaces available and could also act as an event space, shown in Concept 1 (Figure 11). Concern was expressed around increased traffic along Community Drive, and there were requests that the character along Community Drive be retained as it is well-loved and canopy covered.

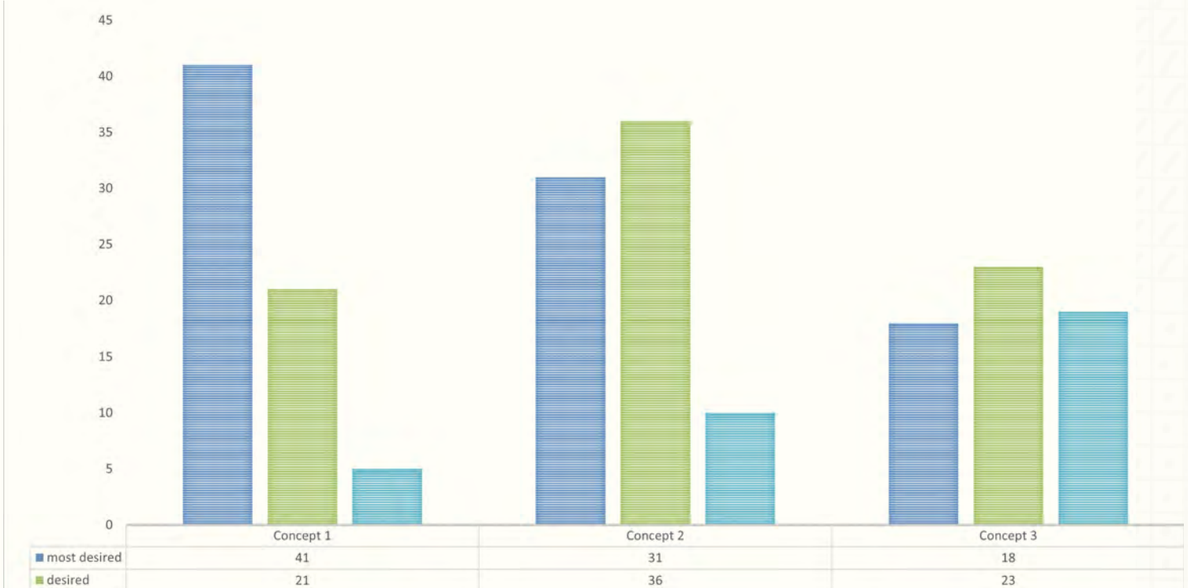
RESTROOM

Several locations for a public restroom were studied for the park (Figure 17): the western woodland, the corner of Hopewell Parkway and Simplicity Parkway, and the Harvest Church property. The preferred location out of these three was the Harvest Church property, as it offers the most minimal disturbance to the site while acting as a trailhead location for the park. The northern location at the corner of Hopewell Parkway and Simplicity Parkway was the survey's second location, followed by the site to the west. Preference was shown for restroom locations shown in Concept 02 and Concept 03 (Figures 12 and 13).

TRAILS AND CONNECTIONS

An overwhelming number of votes prefer that trails and boardwalks be implemented within the first phase of construction for the park (Figure 18). This would be a wise strategy as it would allow park users into the site for passive recreation and wildlife viewing. Preference was shown for more complex trail systems in Concept 01 and Concept 02 (Figures 11 and 12).

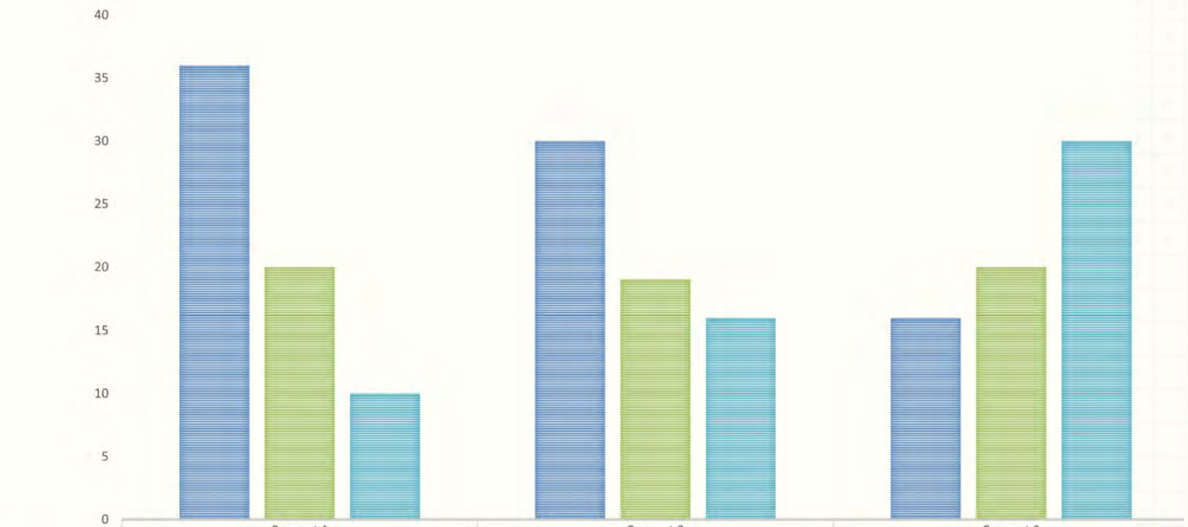
GATHERING LOCATIONS



	Concept 1	Concept 2	Concept 3
most desired	41	31	18
desired	21	36	23
least desired	5	10	19

Figure 14

PARKING



	Concept 1	Concept 2	Concept 3
most desired	36	30	16
desired	20	19	20
least desired	10	16	30

Figure 15

DATA ANALYSIS OF COMMUNITY FEEDBACK

Figure 16

Some concepts studied were ultimately deemed undesirable after further consideration with the community and focus groups. Included in this group are:

A. Parking along Community Drive. Omitted to preserve the existing tree canopy and feel of the streetscape.

B. Restroom on the west side of TMNP near Community Drive. Omitted because of visibility concerns.

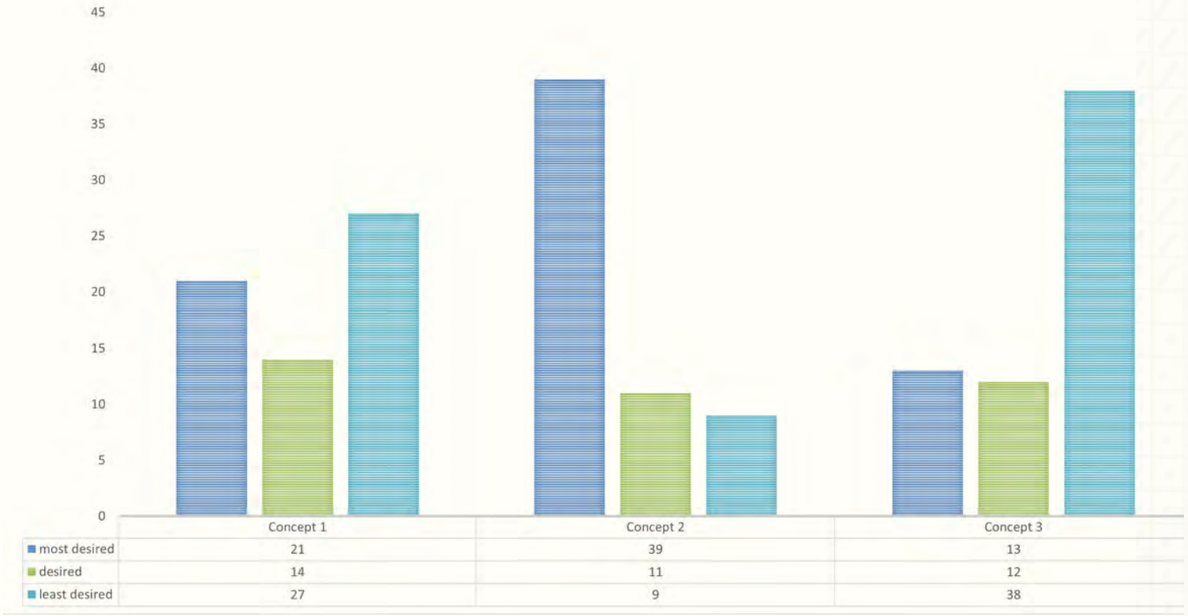
C. Drop Off on Cherry Creek Boulevard. Omitted because of safety concerns from the community.

D. Feedback on removing the overlook on Well number 25 was conveyed to Carmel Utilities as this project is not included in the master plan of TMNP but is peripherally related to its use and enjoyment.

E. Parking adjacent to neighbors of Harvest Church needs a strong visual buffer and consideration. It was recognized that current zoning would allow the parking lot to come within close proximity of the property line. It is the desire of CCPR to allow ample vegetative visual buffer between the neighboring property and the parking lot.

F. Trails and infrastructure running through the central ridge were removed to be sensitive to archaeological considerations.

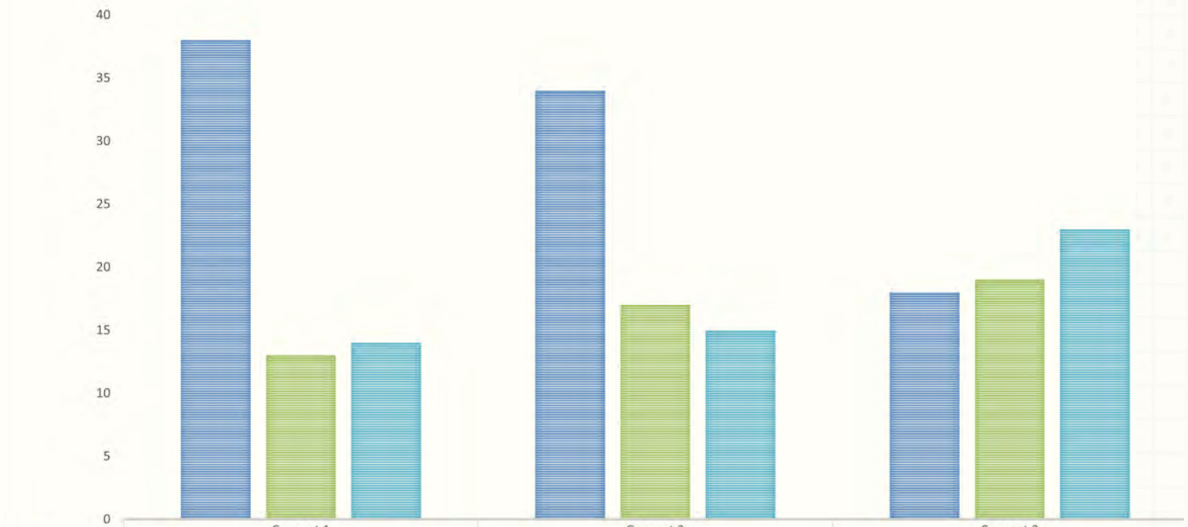
RESTROOM LOCATION



	Concept 1	Concept 2	Concept 3
most desired	21	39	13
desired	14	11	12
least desired	27	9	38

Figure 17

TRAILS AND CONNECTIONS



	Concept 1	Concept 2	Concept 3
most desired	38	34	18
desired	13	17	19
least desired	14	15	23

Figure 18

TMNP Site Photo looking northeast | Photo credit: Randy Culp

PREFERRED CONCEPT

The preferred concept (Figure 19) selected for TMNP was extrapolated from public input and input from CCPR. This plan considered combined elements from the previous three concepts combined with site analysis.

TMNP will be implemented sensitively and intentionally to provide access and engagement with the land while minimizing disturbance to the ground, habitat, and surrounding neighborhood. The end result will be a passive park experience with opportunities for seasonal moments of activation in a few key areas of focus: ancient ecology, Tribal engagement, progressive land management, and rural history/settlement. The community will gain access to unique nature immersion, observation opportunities, and cultural interpretation. The signage and design of park elements will provide further opportunities for learning from this cultural and environmental community asset. The park will be designed beyond current accessibility standards in many cases to be sensitive to the needs of all community members. Organized activities and opportunities for community engagement will center on education and environmental stewardship. Examples might be the creation of animal habitats, participation in archaeological activities on the central ridge, the management and care of the landscape flora and soil asset (carbon-reducing), and opportunities for Tribal engagement that emerge from the ongoing work with the Tribal Representatives Advisory Group.

The trail system is the major design component of the overall park. It provides a passive experience that allows users to participate in wildlife observation and education. The trail will widen at certain points to allow for small gatherings and conversations. Focus is placed on providing accessible paths that offer a variety of framed views of the expansive nature park. The land was studied, and paths were strategically placed in areas for minimal disturbance to the land and native habitat. There is an upper trail system associated with the upper terrace of the site, a lower terrace trail system made of boardwalks and pedestrian bridges, and sloping accessible walks in the transitional areas of the site that connect the upper and lower terrace. The elevated boardwalks in the northeast corner of the site are envisioned to be a highly memorable and iconic experience in the park.

Elevated boardwalks in the northeast corner of the site branch off the existing public walk along 146th Street. The iconic feature of the park will incorporate overlooks highlighting optimal vantage points of nature. Informational signage and shade will be incorporated into the structure. In the spirit of the passive usage envisioned for the park, various areas of the elevated boardwalk will support unique hammocks that can be utilized universally as a gathering node for play, rest, and seating. These elements' character will complement the design of the adjacent but separate project implemented by Carmel Utilities, Well no. 25 and Well no. 26.

The southeastern portion of the site serves as the primary entrance into TMNP. The existing topography is optimal for terraced seating, viewing, and passive recreation. A structure is planned here that will be multi-use, serving the needs of park staff and providing a trailhead for the park, events, and the expanded White River Greenway along River Road.

The parking is a shared venture with Harvest Church that serves private and public uses. The Harvest Church

ILLUSTRATIVE MASTER PLAN

Figure 19

KEY PLAN OF ENLARGEMENTS

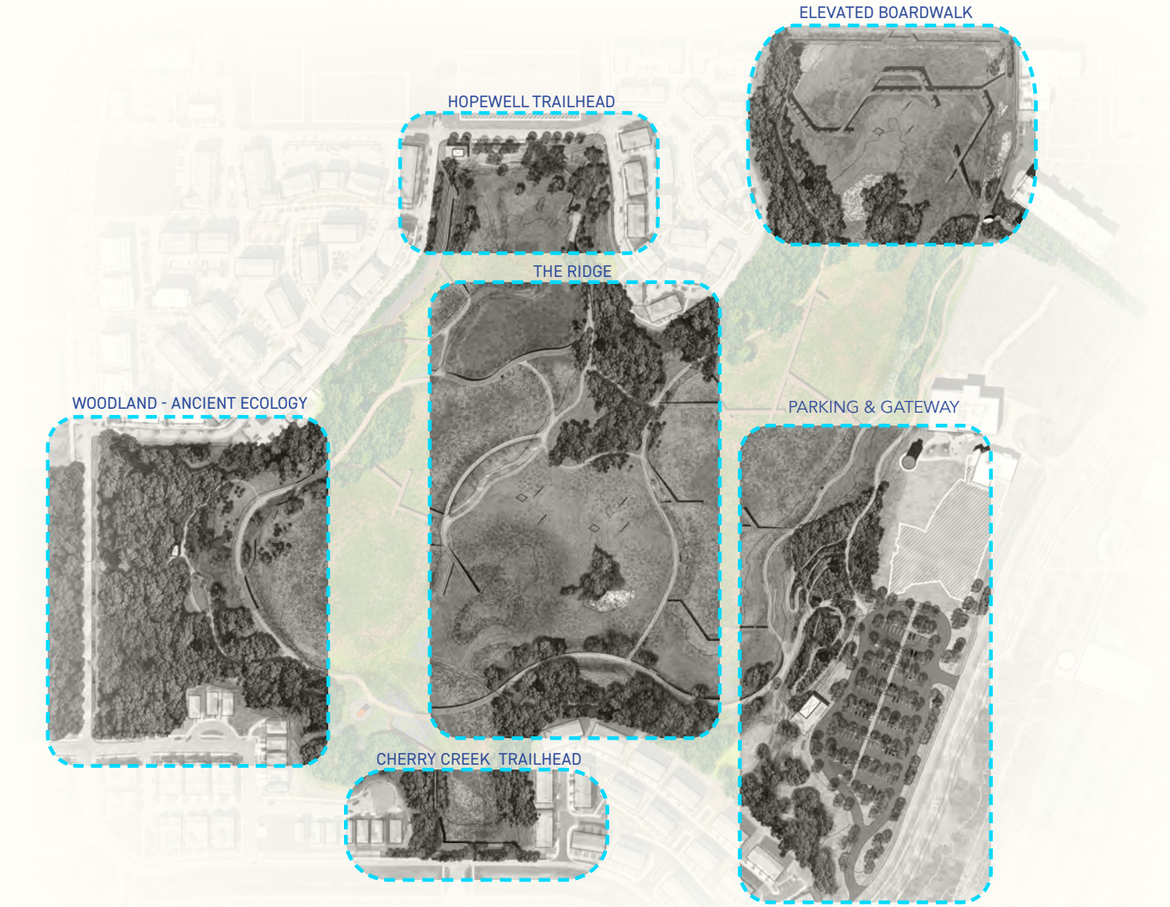


Figure 20

INTERPRETATIVE ZONES

Figure 21

property parking area and trailhead will be developed and implemented to be attractive and inviting. The space is envisioned to provide parking and support gatherings as a public plaza that has the dual function of parking on an ordinary day in the park.

Development will be avoided on the central ridge of the property. It is proposed to remain as is, with trails only located along the periphery to allow for minimal habitat disturbance and reduce the potential risk of artifact disturbance. Future plans for the space will be closely coordinated through ongoing work with the Tribal Representatives Advisory Group. The central ridge will remain open for the future development of interpretation that will emerge from further interaction and engagement with the Tribal Representatives Advisory Group. CCPR aims to restore health to the land and create a sustainable ecosystem. Biodiversity will be a key measure of success regarding soil micro-organisms, insects, flora, and fauna. The goal is to optimize this land's positive net environmental and social effects on the community. There will be a substantial wooded buffer with plantings between the park and the surrounding residents whenever possible. Tree plantings in most locations will be very experimental as the viability of the soil to hold the trees upright is not likely. Specific species like Bald Cypress (Taxodium distichum) have succeeded in similar environments.

Figure 20 is a key map depicting several areas that are further detailed on the following pages. See below for a listing of associated figures.

Woodland (Figure 23)
Hopewell Trailhead (Figure 26)
The Ridge (Figure 27)
Cherry Creek Trailhead (Figure 32)
Elevated Boardwalk (Figure 33)
Parking and Gateway (Figure 36)

Aerial View of Overall Park

FACING NORTHWEST

The trail system will align with the form of the natural ecological zones of the site. This arrangement will help facilitate the maintenance requirements of each programmed habitat zone.

The scale of the park is large. It is an expansive 63 acres of dense vegetation. The layout was conceived to allow for two path types: hard surface and soft surface. Hard surface trails align with a more urban grid form and provide touchstones within the expansive park space that give visitors a better sense of way-finding. These forms connect to a soft surface trail system that predominates the site. Soft surface trails encourage visitors to feel more lost in nature. This system combines and rectifies the different urban and pastoral conditions present in the site's context and provides a place where all come together in the park's interior, as depicted in Figure 22. This arrangement ties portions of the park site to the surrounding urban grid while allowing other parts of the trail to belong more to the land and nature of the site. The future trail system will align closely with the ecological and habitat zoning of the site. Future development of the park will include consultation with a wildlife specialist who can assess the impact of the park infrastructure on the existing and future wildlife. The trail layout will be adjusted to support habitat restoration for animal inhabitants while balancing the community's human need and desire for access to nature and passive park usage. The wildlife specialist will also be able to provide design specifications for animal habitat creation. These installations might be partially installed by CCPR but could also be built alongside community volunteers.

Figure 22

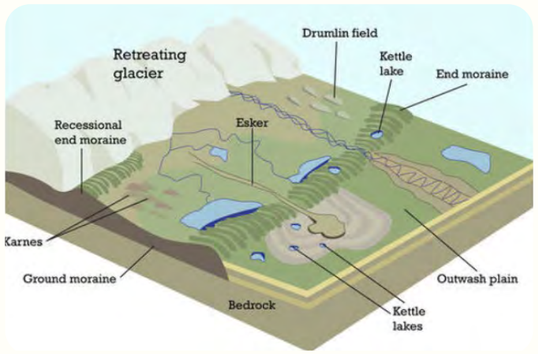
Carmel • Clay Parks&Recreation

Woodland -- Ancient Ecology

ENLARGEMENT PLAN

Source: https://images.squarespace-cdn.com/content/v1/56b15eb140261dd5dfec7da0/1537699419585-FCP820AEU6JEJBNH3OUB/Healesville+Sanctuary+September+2018+++Mamma+Knows+East+%2815+of+23%29.jpg?format=750w

Community Drive provides an enjoyable experience that nearby residents value. Mature trees, existing tree cover, and canopy create a pleasant streetscape. It is a favored walking spot and will provide a wonderful neighborhood pedestrian gateway into the park. As depicted in Figure 23, pedestrians entering TMNP from Community Drive will enjoy long, dramatic views of this expansive park after exiting the mature second growth mesic woodland. The existing mulched pathways will be maintained and enhanced as a low-impact trail system sensitive to the woodland as an ecological asset. A restroom facility was studied in this area, but after public feedback and more discovery, it was decided to forgo plans to provide a restroom facility in this location. Site interpretation in the woodland will focus on the site's natural history. The property was originally formed by receding glaciers many thousands of years ago and was dominated by native hardwood forests and various wetlands. Remnants of this are evident when observing the landform, remaining natural wet areas and soils, as well as the last remaining piece of woodland. CCPR would like to see a portion of the TMNP site rehabilitated into an ecological condition similar to what it might have been historically. A crucial step to providing this kind of rehabilitation will be identifying a portion of the site where the hydrology could be rehabilitated without compromising the current legal drain system.



Source: https://www.town.northborough.ma.us/trails-committee/pages/station-2-glacial-end-moraine-and-oakhickory-forest

Landform remnant: CCPR will consider including a geologist on the future schematic design team to study the validity of whether this landscape is a remnant of the receding glaciers. The forms left behind are very specific and represent a rich opportunity for education.

The site's soils would have supported a plant community like a fen, marsh, or sedge meadow.

Figure 23: Woodland Enlarged Plan

NOT TO SCALE

Soil remnant: The site's soils would have supported a plant community like a fen, marsh, or sedge meadow. This type of environment is not readily available locally, even though it was once likely a prevalent condition in the area. A fen of this scale would have been a large draw for animals and humans alike because of the specific flora and fauna that would have been attracted. Assuming a fen, marsh, or sedge meadow could be established, TMNP might attract herons, Marsh Wrens, Red-Winged Blackbirds, Swamp Sparrows, rare dragonflies, and Four Toed Salamanders, among other ecological assets. These animals are not currently present in geographical regions. The closest ecology that attracts these types of fauna is Eagle Creek Park in Indianapolis, IN, 22 miles from this site.

Woodland remnant: Kevin Tungesvick, Senior Ecologist of Eco Logic surveyed the site horticulturally (report included in Appendices 19 and 20). Kevin noted that he found a Black Oak tree in the HOA woodland west of the site. He believes this could be another remnant clue of what kind of ecology TMNP property might have supported. Black Oaks would be prominent in the gravelly land that would sit on the high ground surrounding a wetland community of this scale. Black Oaks are a rarity in the general area, especially of the age and size that Kevin identified.

Source: Richard W Hartlage

Fen landscape - Source: Terry Seidel|TNC

Source: https://www.thehindu.com/sci-tech/science/rare-biological-phenomenon-in-dragonflies-sighted-at-kole-wetlands/article31939658.ece

Source: J.D. Willson

Source: Walter Siegmund

Figure 24: View Depicting Woodland Amenities

NOT TO SCALE

Skewed interpretive poles are currently shown in the master plan as a place for potential interpretive signage that could develop from the engagement with participating Native American Tribes/ Nations. These poles also could call attention to the elevation flood zones by changing material at specific elevations. During different seasons, the effect of this storytelling might be stronger than others as vegetation recedes and park elements show more prominently across the site. These poles could also support light shading elements that would not impede views through the overall site.

Figure 25: Enlarged View Depicting Woodland Amenities

Hopewell Trailhead

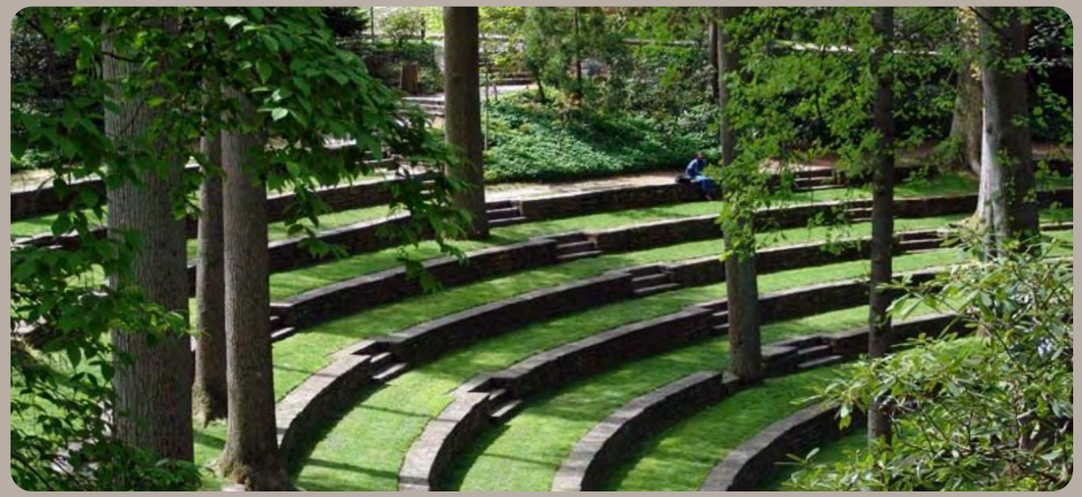
ENLARGEMENT PLAN

The area along Hopewell Parkway is an important public frontage that provides parking and access to TMNP from the public realm. As depicted in Figure 26, seven on-street parking spaces are shown along the southern edge of Hopewell Parkway. The north side of Hopewell Parkway could also be encouraged for additional parking opportunities along this development. Ideally, future commercial development would acknowledge the park frontage and engage users with the park experience. Signage is necessary to facilitate on-street parking dedicated to parking use.

A trailhead is located on the northwest corner of TMNP at the intersection of Hopewell Parkway and Simplicity Parkway. This trailhead would provide a public restroom, signage, seating, water, and shade amenities. Way-finding signage would be appropriate for this location as well.

Source: DELV Architects

Source: SCAPE - US Golf Association Campus



Source: https://www.swarthmore.edu/a-brief-history/1929-scott-arboretum

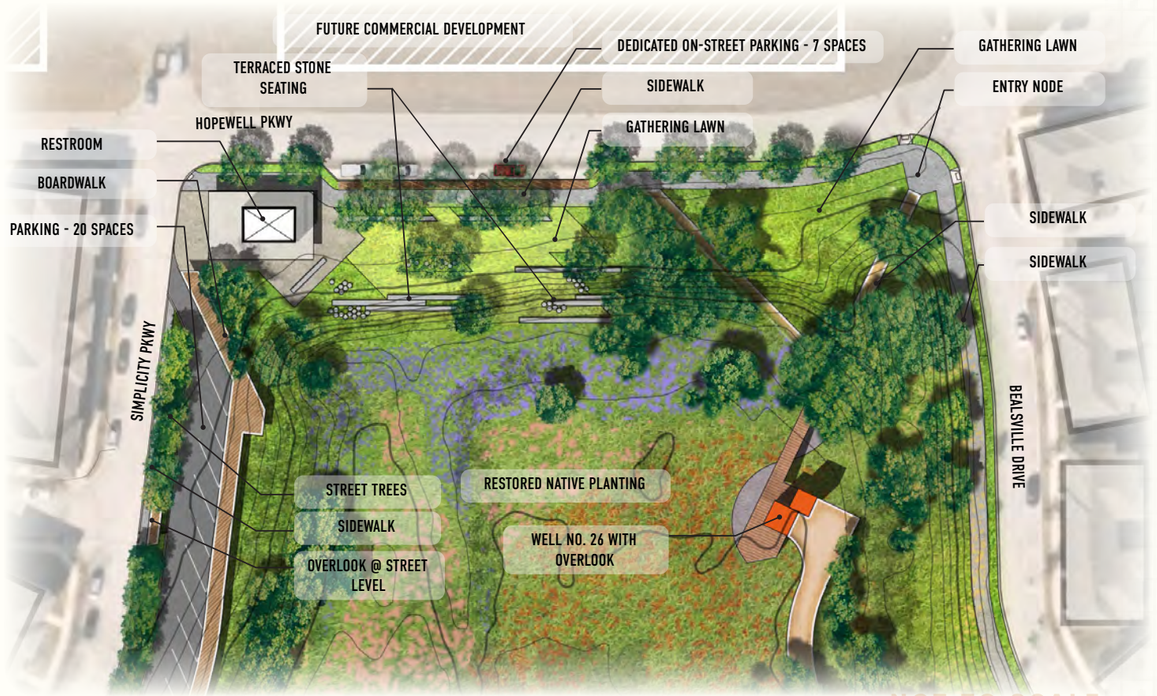


Figure 26: Hopewell Trailhead Enlarged Plan

Additional parking is provided along Simplicity Parkway. This parking would take advantage of the existing grade change and be sunken into the park site. Doing this allows closer access from the parking to the park experience and also is sensitive to retaining views that nearby residents currently have into the nature park. Opportunities are identified along Simplicity Parkway to provide overlooks at street-level nodes. These nodes would offer accessible places to enjoy optimal vantage points for wildlife viewing and the restored plant ecologies in TMNP.

Well number 26 is accessed from the corner of Hopewell Parkway and Beallsville Drive. A service drive will exist and connect Beallsville Drive (not currently shown on the plan) to the wellhead. This drive will be a part of Carmel Utilities Wellhead project. Well number 26 is planned to include a public overlook and access point to the park. Carmel Utilities plan on incorporating shade elements, seating, interpretive signage, and tables for picnics in this area. There is ample flat grade adjacent to and south of Hopewell Parkway. This grade could be utilized as a simple lawn or park space ideal for small gatherings. As the grade descends into the park, terraced stone seating elements are proposed to provide seating and flexible play opportunities where the public can engage with the site easily from parking areas.

The Ridge -- Tribal Interpretation

ENLARGEMENT PLAN

Through site analysis and initial engagement with focus groups, it was acknowledged that the site could have some significant artifacts, given the proximity of nearby archaeological sites. CCPR welcomed Tribes interested in or knowledgeable of their history in or near the area. CCPR engaged the Applied Anthropology Lab at Ball State University (AAL) to guide the process of connecting with the interested Tribes. Fifty-five of the federally recognized Tribes were identified by AAL as having a potential stake or relationship to this region and land. This list is included in Appendix 23. These Tribes were asked whether they would like to be included in the park design development and provide guidance on the master plan process. Out of the Tribes contacted, the following were actively engaged throughout the master plan process.

Interactive storytelling idea | "boulders" created to mimic the earth's shape after the water recedes. Specific geometries in the landscape indicate a lack of or abundance of water. These forms could also be representative of the erratics left by the glaciers in materiality — showcasing basalt, granite, etc., brought from Canada to this area by glaciers.

Source: Martha Schwartz, Inc. - Exchange Square

1. **Delaware Nation**
2. **Delaware Tribe of Indians**
3. **Miami Tribe of Oklahoma**
4. **Ottawa Tribe of Oklahoma**
5. **Pokagon Band of Potawatomi Indians**
6. **Shawnee Tribe**
7. **Wyandotte Nation**

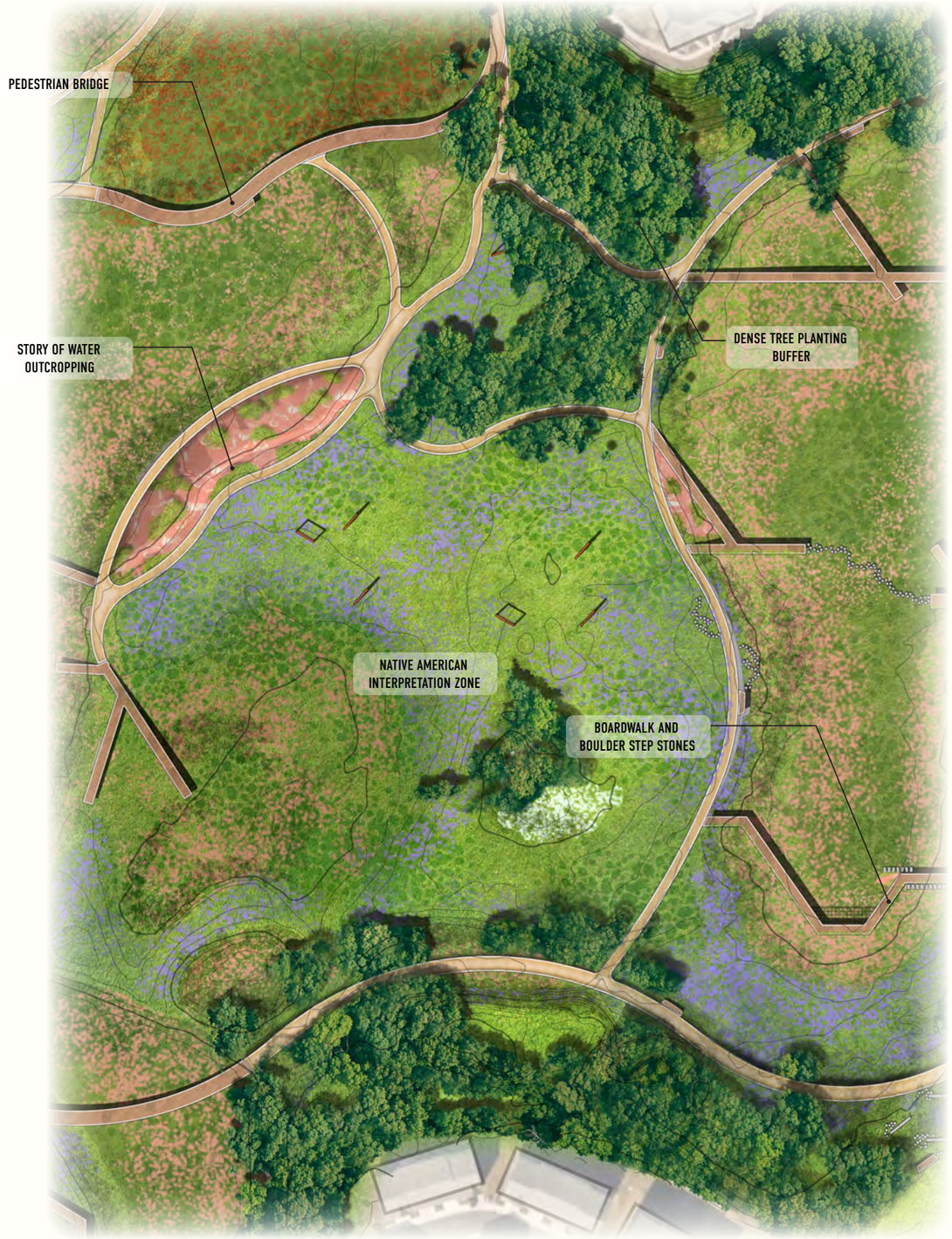


Figure 27: The Ridge Enlarged Plan

NOT TO SCALE

TRIBAL ENGAGEMENT AND UNDERSTANDING

The design team has benefited from the advisement of AAL. This has included guidance to the character and pacing of the engagement process, identifying and highlighting the importance of listening rather than talking or oversharing, and allowing the conversation to unfold without preconceived outcomes. Allotting a generous amount of autonomy and time for the participating groups to develop their interpretation is vital to the integrity of the interpretive program. Representatives of the participating Tribes will be invited back on an annual or more frequent basis, once funding for development is secured, to review the interpretation of the site and confirm whether it remains or needs updating. This conversation and process will extend past the master plan and greatly inform this park's future design.

Various interpretive themes emerged from the conversation with the Tribal Representatives Advisory Group. The TMNP project team intends to continue engaging with this group to understand the storytelling that could be illustrated on the site. Future engagement with consultants from each nation will be formalized contractually to facilitate a more dedicated process. This process will arrive at a refined message and interpretive signage program that can be implemented and inform the schematic design of the other park elements, such as the restroom facilities, signage, park furnishings, and more. Some of the potential themes are described below. The development of these storytelling themes will depend on future conversations with the Tribal Representatives Advisory Group and their desire to pursue these topics.

1. Ethnobotany

Ethnobotany provides valid information about the utility of plant species by indigenous peoples. Native and non-native plants were utilized in different cultures and regions for medical, artistic, and agricultural needs. The types of plants and the practices used by a group helped define the collective culture's beliefs, aesthetics, language, and knowledge. This knowledge contributed to the group's ability to survive and thrive. Plants were used to craft medicines and provide food and shelter, dyes, fibers, oils, resins, gums, soaps, waxes, and tannins.

2. Land management practices

The history of the United States presents the myth that before European settlers the land was untouched and unspoiled. The creation story of the National Park Service has also historically relied on this myth of pristine wilderness. CCPR understands that this is not the case. Much of the land has been managed since its early history of engagement with people.

3. Patterning and Identification of Tribes

The design and character of Native American bead patterns, basket weaving, clay pottery designs, and architecture will be used to inform the shape and structure of site elements, shading elements, seating, surface finishes of restroom facilities, paving patterns of walkways, or interpretive signage.

4. Artifacts found on or near the site

The design and character of artifacts found on or near the site could inform the shape and structure of site elements (as depicted in Figures 28, 29, and 30), including pedestrian bridges over particularly wet areas, seating elements, or interpretive signage. Weaving, beading, basket-making methods, and tools could be good starting points for site feature design.

A collection of imagery is included in this report. These images have been collected via preliminary research on these topics and can be the springboard for future interpretation programs and the development of site elements in the park. The desire is that this story of the site will begin to inform the character of the park and a person's experience while being in the park.

Future ideas would need to be vetted through a defined process with the Tribal Representatives Advisory Group to see if they align with and are in order with how they want to see their culture represented in the park. Ideas have emerged through the Tribal engagement process (facilitated through the Applied Anthropology Lab at Ball State University).

The 10 plants with the greatest number of uses, and with uses in all five categories, by Native Americans

PLANT	DRUG	FOOD	FIBER	DYE	OTHER	TOTAL
Thuja plicata, Western Red Cedar	52	6	188	1	121	368
Prunus virginiana, Common Chokecherry	132	163	4	2	36	337
Urtica dioica, Stinging Nettle	114	20	36	1	51	222
Yucca baccata, Banana Yucca	9	126	47	1	39	222
Cornus sericea, Redosier Dogwood	97	21	9	6	58	191
Heracleum maximum, Common Cowparsnip	112	57	2	1	17	189
Rhus trilobata, Skunkbush Sumac	38	69	29	11	34	181
Pseudotsuga menziesii, Douglas Fir	67	18	18	1	72	176
Betula papyrifera, Paper Birch	28	9	59	3	76	175
Populus balsamifera, Balsam Poplar	103	16	18	,		

Source: Moerman 1998

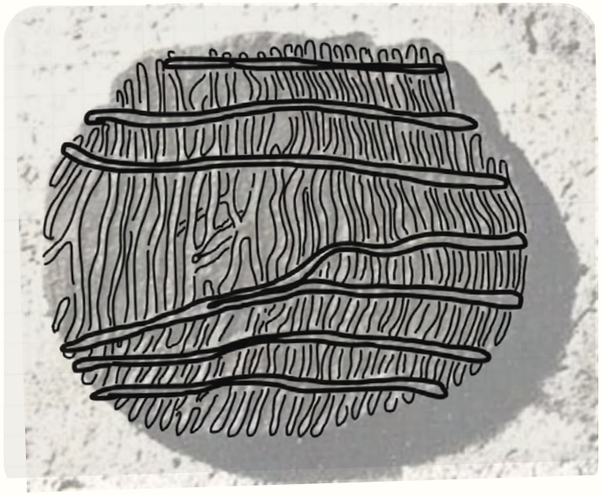
The 10 plants with the greatest number of uses, regardless of category, by Native Americans

PLANT	DRUG	FOOD	FIBER	DYE	OTHER	TOTAL
Thuja plicata, Western Red Cedar	52	6	188	1	121	368
Achillea millefolium, Common Yarrow	355	3	0	1	7	366
Prunus virginiana, Common Chokecherry	132	163	4	2	36	337
Typha latifolia, Broadleaf Cattail	50	71	105	0	28	254
Acorus calamus, Calamus	219	4	0	1	5	229
Urtica dioica, Stinging Nettle	114	20	36	1	51	222
Yucca baccata, Banana Yucca	9	126	47	1	39	222
Artemisia tridentata, Big Sagebrush	166	5	11	0	34	216
Amelanchier alnifolia, Saskatoon Serviceberry	30	117	7	0	38	192
Cornus sericea, Redosier Dogwood	97	21	9	6	58	191

Source: Moerman 1998

The central ridge landform on the site rests between the two ancient landform depressions. The Tribal Representatives Advisory Group has identified this landform as having special significance to how past cultures might have engaged with this site. The area would have been an especially active space for accessibility reasons. It is believed that this specific ecology would have been utilized heavily to gather resources and hunt, while residences would have existed in upland areas (much like they do today).

Because this area likely holds artifacts, Carmel Utilities, trail development, and infrastructure activities requiring construction and disturbance should be avoided. The master plan, as depicted on Figure 27, currently identifies this area for future



MKSK Interpretation of pattern on pottery shard - potential use on facades of buildings on site or on interpretive signage elements

Source: Hunt 1996

Figure 28: Skewed Poles as Landmarks
Skewed poles could serve as landmarks in the park. The alignment of the poles and the taper is a reference to some of the architectural practices of people who inhabited the land near this site.

BUILDING METHODS: BENT SAPLINGS/POLES & THIN BARK COVERING

Source: http://www.woodlandindianedu.com/wigwamlonghouselodge.html

BUILDING METHODS: THIN, IRREGULAR BARK SHINGLES

Source: https://flic.kr/p/5DqGge

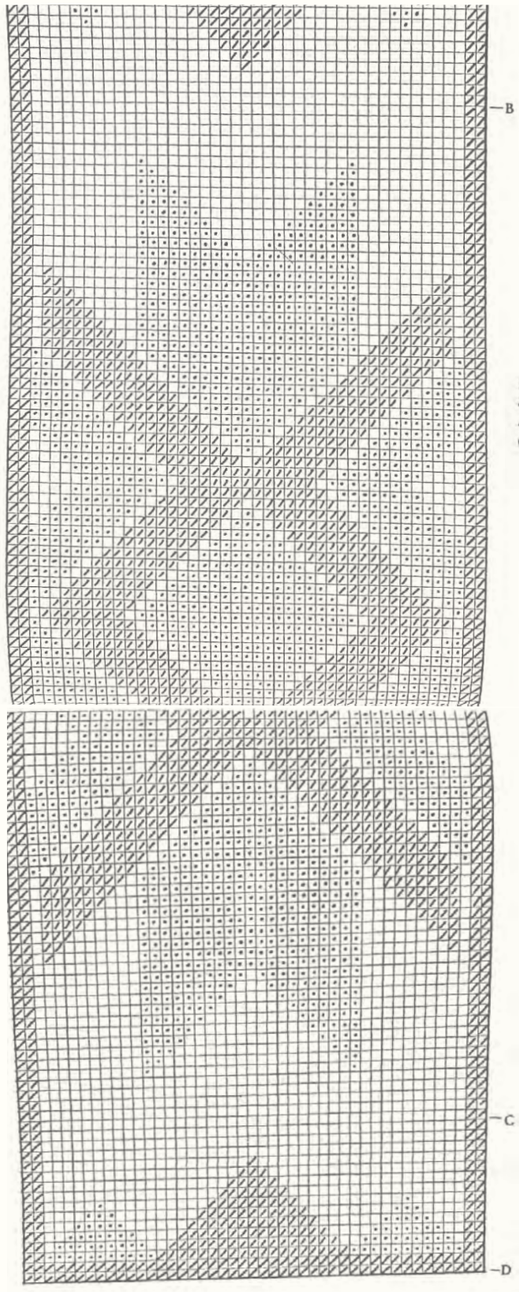
BUILDING METHODS: BENT SAPLINGS/POLES & THIN BARK COVERING

Source: http://www.woodlandindianedu.com/wigwamlonghouselodge.html

BUILDING METHODS: TAPERED SAPLING POLES SET IN SKEWED ARRANGEMENT

Source: https://miamitribe.weebly.com/

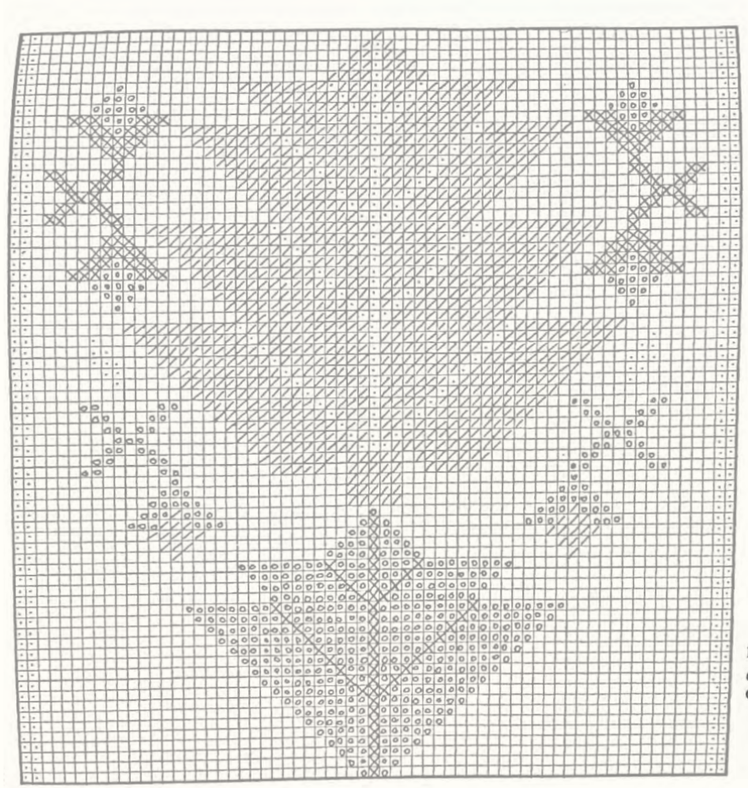
All images on this page sourced from: Molliner 1995



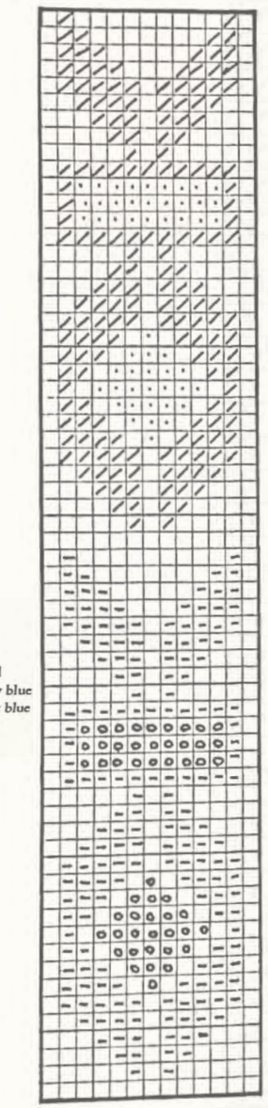
DELAWARE
Shown in color on back cover.
46 warp threads
COLOR KEY ▨ light blue
⊡ red
warp threads: red

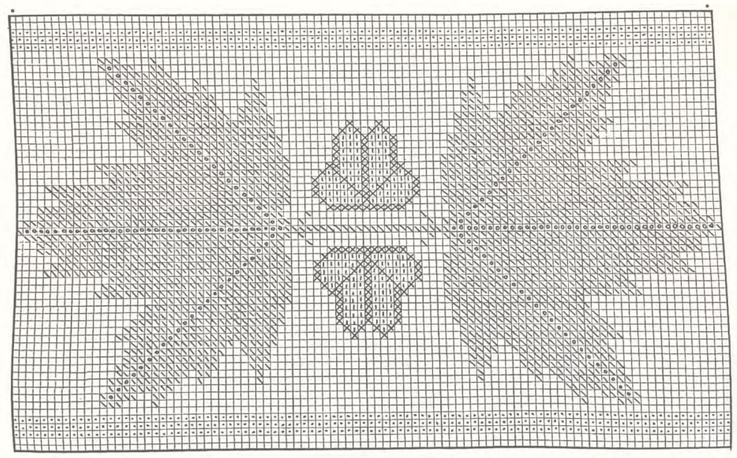
KICKAPOO
Shown in color on back cover.
48 warp threads
COLOR KEY ▨ white
⊠ medium blue
⊡ pink
black background
Repeat from A to C for pattern; end last repeat at B.

All images on this page sourced from: Molliner 1995



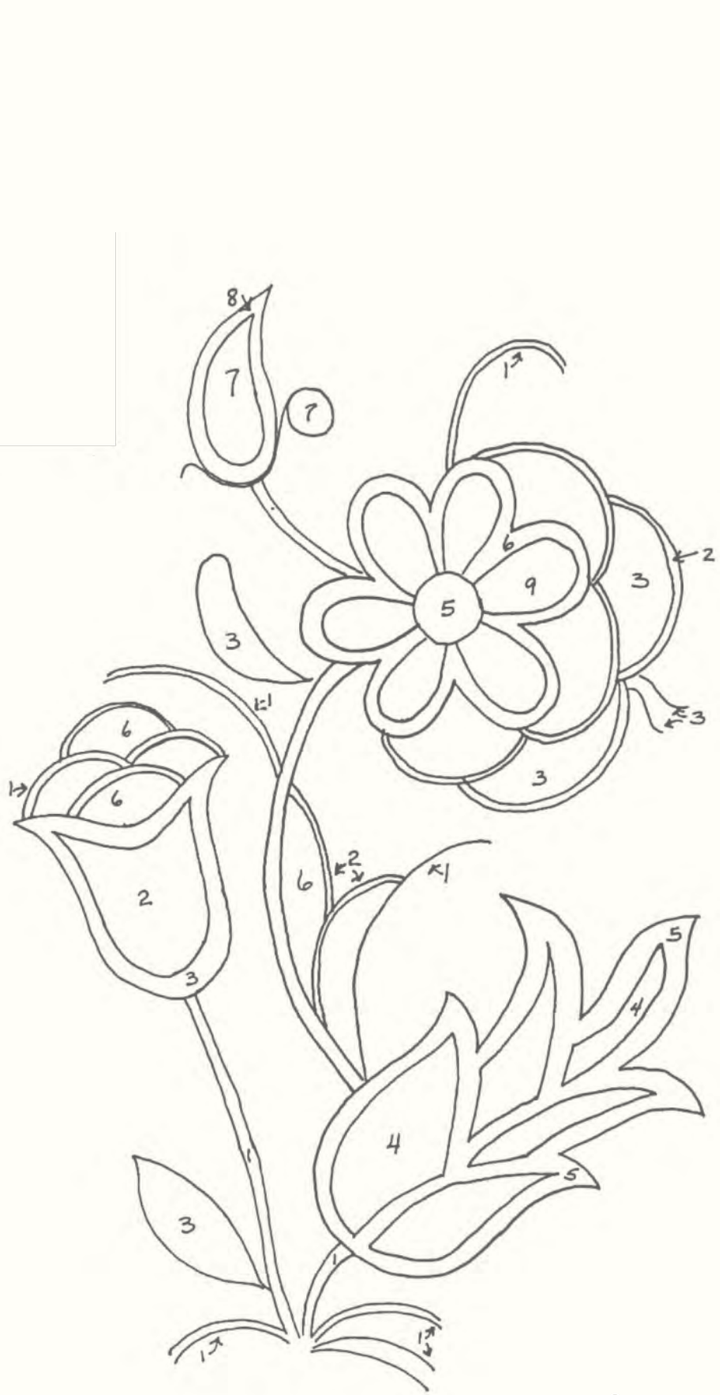
POTAWATOMI
66 warp threads
COLOR KEY ⊡ gold
⊠ navy blue
⊡ light blue
▨ red

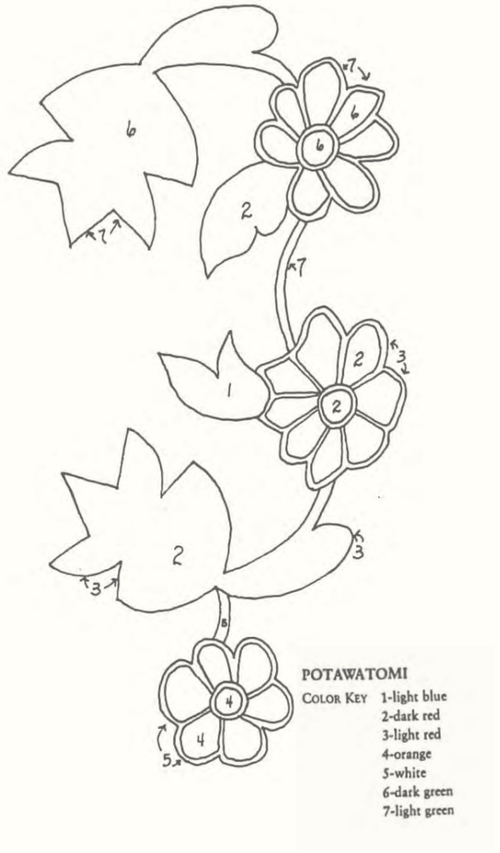


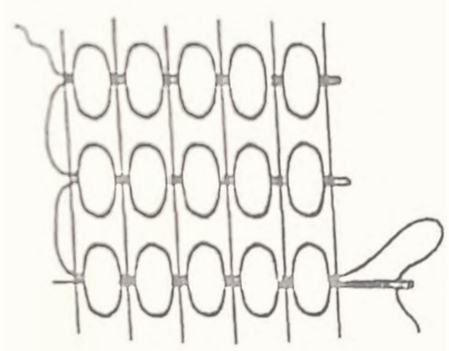


KICKAPOO
62 warp threads
COLOR KEY ⊡ orange
▨ yellow
⊡ navy blue
⊟ red
⊠ light blue
navy blue background

WOODLAND
14 warp threads
COLOR KEY ▨ royal blue
⊡ red
⊟ green
⊡ yellow







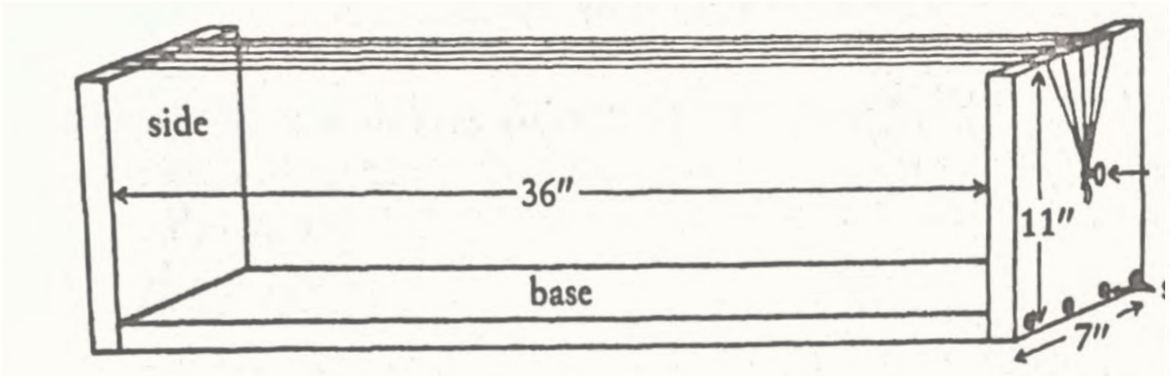
BEAD WEAVING DIAGRAM AS INSPIRATION FOR OVERHEAD SHADE CANOPY

discovery and engagement with the Tribes as it has a special significance to the overall story they might choose to tell on the site.

Temporary structures could activate the central ridge at different points of the year. It could showcase educational activities led by the Native American nations and Tribes interested in sharing their story and culture with the community. CCPR could consider implementing temporary shade structures in alignment with the park's character and developed in a way to maintain the broad views through the site in an unobtrusive way. Permanent receptors could be installed in the park to allow for easy setup and tear down of temporary shade structures.

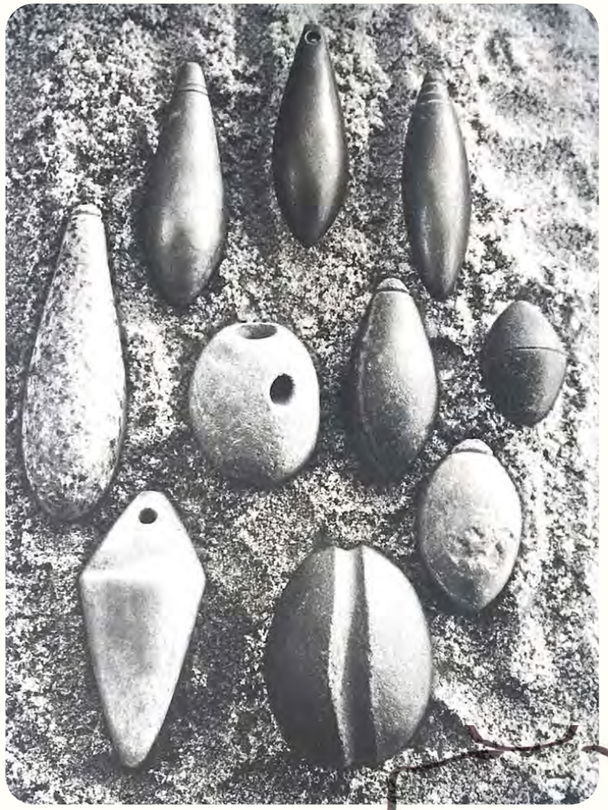
If an archaeological dig is deemed appropriate, it could be planned so that the community and nearby schools are engaged in the dig activities.

Areas of the depressions adjacent to the ridge are also identified for Native American history storytelling and interpretation. These areas might be utilized for agriculture and identified as potential interpretive garden areas where Native American flora could be showcased. Education could be provided in the form of interpretive signage or programming.

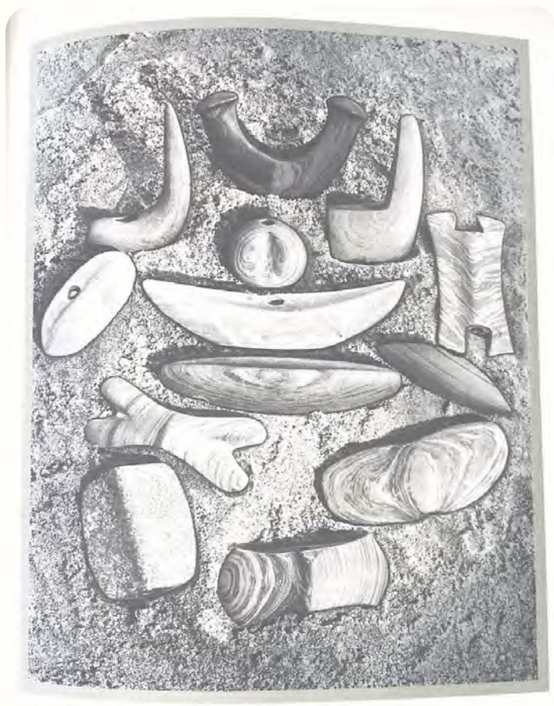


BEAD LOOM AS INSPIRATION FOR PARK BENCH

All images on this page sourced from: Lilly 1937



PLUMMETS



BANNER STONES

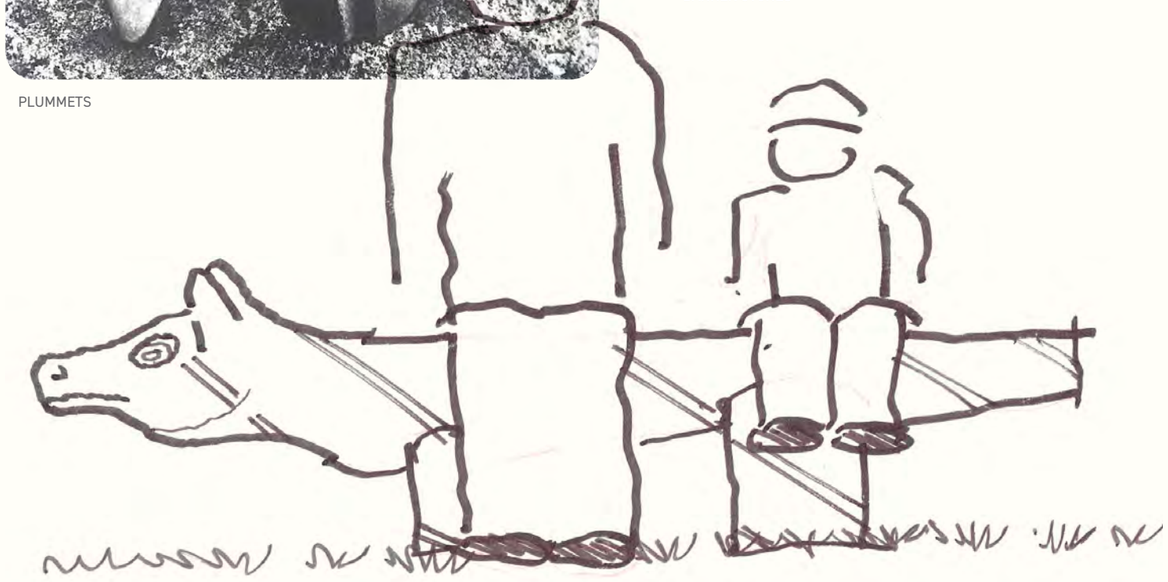


Figure 29: Interpretive Sketch - Bench. Bench depicted from interpreted elements.

All images on this page sourced from: Lilly 1937

INSPIRATION FOR SCULPTURE OR SCULPTURAL SEATING ELEMENTS

FISH HOOKS

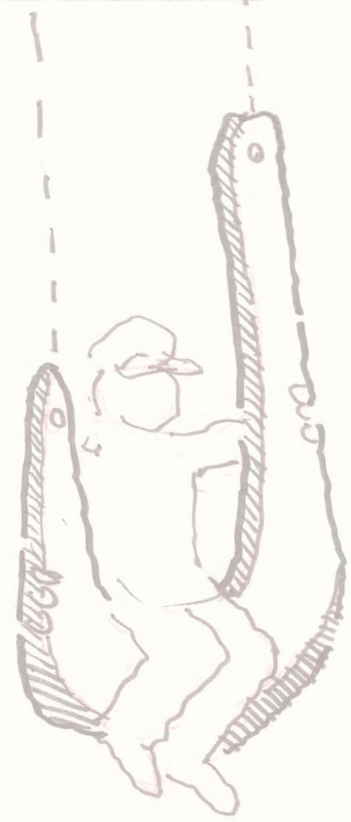


Figure 30: Interpretive Sketch - Swing. Swing depicted from interpreted elements.

Cherry Creek Trailhead

ENLARGEMENT PLAN

The Cherry Creek Trailhead will be a substantial pedestrian gateway into the park. Signage will announce the park's presence here at the entrance from Cherry Creek Boulevard. Boardwalks will welcome visitors into the park on a dedicated path designed to route park visitors to the interior of the park amenities.

A drop-off was studied off Cherry Creek Boulevard but ultimately not included in the overall master plan. The drop-off may be brought back into consideration if City engineering views it as a safe solution of providing access to the nature park. This would require traffic studies.

Original plans for Carmel Utility Well no. 25 included public overlooks and access. Through the process of this master plan, it was decided that the observatories, as planned, would be altered so that the structures could provide less impact on the nearby neighbors.

Source: Everett McIntire

Photo credit: Jacob Deason MKSK

Figure 31: View from Cherry Creek Trailhead

Figure 32: View from Cherry Creek Trailhead

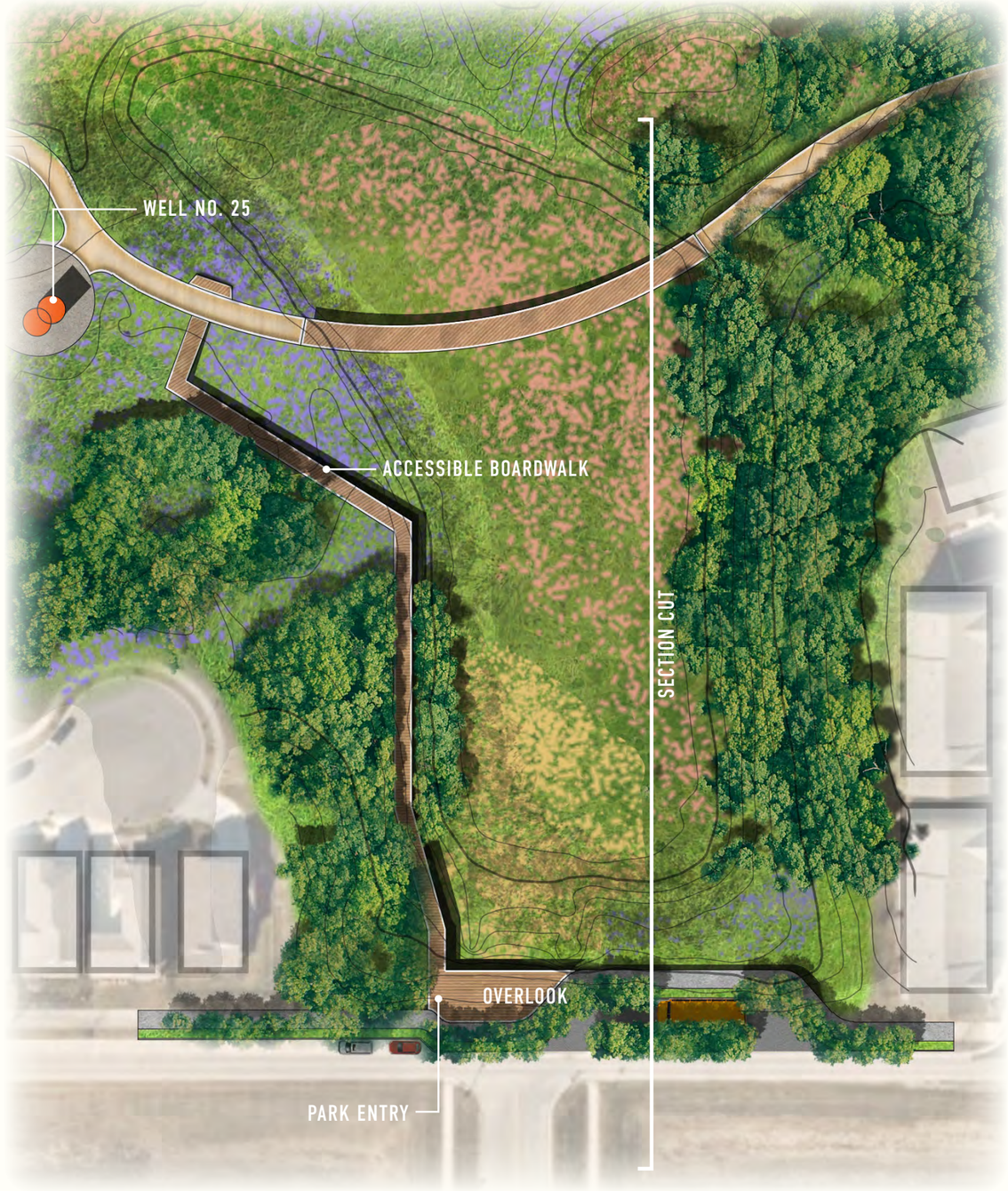


Figure 33: Cherry Creek Trailhead Enlarged Plan

NOT TO SCALE

Elevated Boardwalk at 146th Street

ENLARGEMENT PLAN

The elevated boardwalk, Figure 34, provides an easily accessible path at the upper terrace level that connects the park with 146th Street, the commercial node at 146th and River Road, and Harvest Church property/trailhead and parking. Within the elevated boardwalk's structure, various additional amenities will be provided, such as seating areas, interpretive signage, shade, and lounge or hammock areas or swings for whimsical experiences for all ages. The area is meant to be visually engaging to provide more of a presence along 146th Street - a major corridor from which the park has some visibility but no access beyond pedestrians. It will be ideal if this park feature encourages the existing commercial property at 146th and River Road to engage with the park more directly. For example, restaurants might provide patio seating overlooking the park. This engagement would create a safer and more vibrant community space in the park.

Improvements such as tree plantings, seating, and pavement upgrades are suggested along the existing pedestrian corridor that connects River Road to the commercial node (between Harvest Church property and the commercial properties). This walk is not included in TMNP but is a periphery connected to the park. This improvement might encourage more walk-up or pedestrian-oriented amenities along the commercial node and provide a more interconnected campus-like experience for the community.

Source: Metcalfe - Whiting Forest

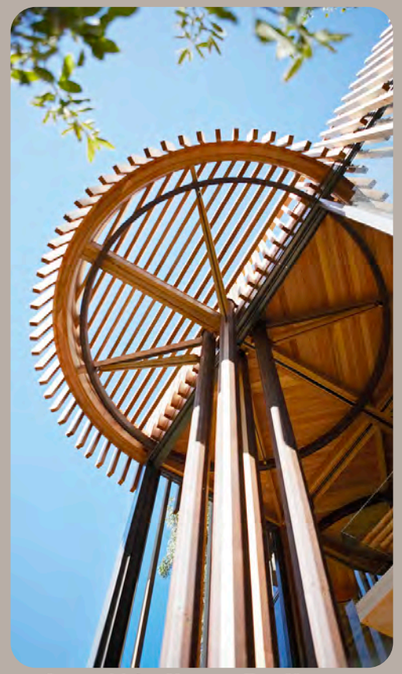
Source: Metcalfe - Whiting Forest

Within the elevated boardwalk's structure, various additional amenities will be provided, such as seating areas, interpretive signage, shade, and lounge/hammock areas or swings for whimsical experiences for all ages.

Figure 34: Elevated Boardwalk at 146th Street Enlarged Plan

Highly visible park spaces are safe park spaces.

Photo credit: LINK Arkitektur AS Landskap



Source: Malan Vorster - Tree House

Source: Sylvatica Studio - Fernbank Museum WildWoods

Source: Metcalfe - Whiting Forest

Source: MKSK - Scioto Audubon Metro Park

Upper Terrace View of Park

FACING SOUTH - ELEVATED BOARDWALKS

The elevated boardwalk sits 10-12 feet above park grade and activates an area of the park which currently has the least amount of visibility.

The elevated boardwalk, Figure 35, sits 10-12 feet above park grade and activates an area with the least amount of visibility. Highly visible park spaces are safe park spaces. This feature occurs adjacent to and takes advantage of the limited park frontage along 146th Street, a major thoroughfare.

This elevated experience provides novel views of the park and might create a healthy separation between wildlife and visitors. The formal walkway is also placed in a location that least impedes the long dramatic views of the park.

Interpretive signage and rest opportunities with shade will be built into the structure.

Carmel • Clay Parks&Recreation

Figure 35: Upper Terrace View of Park

Progressive Land Management

INTERPRETIVE ZONE

Source: Greater Minnesota Parks & Trails

As the park develops, CCPR will consider stewarding the plant communities according to defined ecological zones which share soil characteristics, microclimate, and drainage capabilities. These plant communities could be developed under the guidelines of the document published by the Nature Conservancy in collaboration with local ecologist Mike Homoya, or similar resources. This document is called Plant Communities of the Midwest and is included as Appendix 25. The authors have attempted to compile a description of Midwest plant communities to further the work of national vegetation classification. Plants grow in communities and have symbiotic relationships with each other that still need to be fully documented and understood. The re-creation of naturally occurring (and documented) plant communities in the development of green spaces can achieve more success than randomized seeding methodologies in providing biodiversity and a sense of place unique to the Midwest. An overlay enlargement of the ecological zoning study is provided on Figure 36. Each zone represents a specific ecology/plant zone that could be developed. This diagram is highly conceptual but based on our current best knowledge. Future development of the park will rely heavily on reaching a consensus on these ecological zones and their boundaries. Once settled, the park infrastructure can abide by and support this idea of organizing the park. This particular soil typology is a substantial ecological asset to this community in its carbon-reducing ability. Caring for and stewarding this asset will require education and special care in how it is taken over time. It is believed that soils like these contribute more to carbon management than tree canopy does. The landscape also requires special care regarding managing the planting and accessibility to the site. This story will want to be highlighted and celebrated on the site.

Source: The Wetlands Boardwalks at Wakehurst

PROPOSED ECOLOGICAL ZONES - ENLARGEMENT

CCPR Park Volunteer

Figure 36
Enlargement of ecological zones, based upon topography and soil typologies, that inform park paths and infrastructure. Refer to Figure 10 for full diagram.

NOT TO SCALE

Parking & Gateway Entrance

ENLARGEMENT PLAN

It is recommended that the primary parking area be situated on the Harvest Church property, as depicted in Figure 37. CCPR and Harvest Church have worked together to envision a progressive arrangement between the private and public sectors. Preliminary usage schedules have been compared, and it seems viable that the church and park visitors could benefit from a shared parking experience. The parking lot would be built with upgraded materials to support a portion of the parking lot, feeling more like a plaza than an asphalt parking surface. Lush plantings would integrate the parking area into its surroundings, buffer views of the parking from the neighboring uses, and support a positive entrance experience into the nature park. Visitors can park in the shared parking lot and descend into the park via one of the access paths.

The gathering space and trailhead at the upper terrace level will provide a restroom facility and storage for park maintenance and programming staff. This space will also include public amenities for water, picnicking, and shade and could potentially serve the expansion of the White River Greenway trail east of River Road. Interpretive signage will introduce visitors to TMNP, the existing environmental systems, and the various trail loops available within the overall trail system. Current plans show 170 parking spaces. Harvest Church and CCPR need to review this, and many other aspects of the parking lot design as this idea moves forward.

The restroom facility, signage design, and other design elements would be good opportunities to consider the implementation of Tribal patterning (in coordination with Tribal Representatives Advisory Group's input and advice) and as an opportunity to educate and familiarize visitors with Native American building methods and materials. Other inspiration could come from ancient ecology, agriculture history, and progressive land management opportunities.

Planting strategies on the park's upper terrace should consider the amplification of seasonal aspects of the planting scheme and allow for a further connection of the community to the seasonal rhythm of spring, summer, fall, and winter specific to this region. Planting in the park's interior will require a lighter hand from the gardener (park maintenance) as they are less easily accessed and will evolve more naturally over time under the influence of CCPR maintenance staff.

The pedestrian entrance to the park requires users to ascend to the high point of the region (atop a berm created by Harvest Church during the construction of their facility). This promontory spot offers one of the best vantage points of the 63-acre park and a dramatic entrance to the experience of the park.

The transitional zone could be terraced to provide accessible places to enjoy the view and gather for a picnic or read books, etc., close to the parking area but in great relationship to views of nature.

Further discussions with Harvest Church, including development of a formal agreement, will be required to pursue this shared-use opportunity.

Figure 37: Parking and Gateway Entrance Enlarged Plan

Parking & Gateway Entrance

PRECEDENT IMAGERY

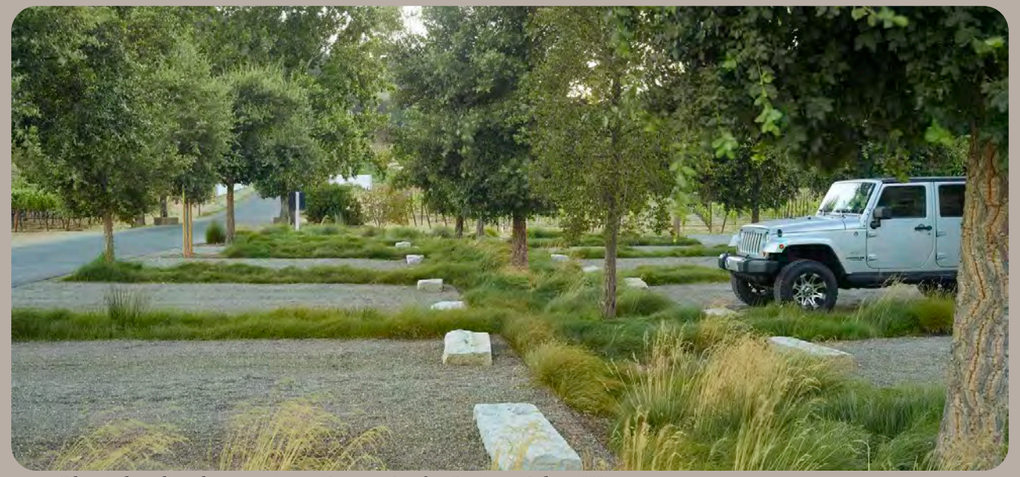
Imagery shown on this and the following page is representative of an elevated parking experience for the park. The parking lot can be a real welcoming feature and potential community gathering space. It is primed for this because the land location and topography serves to connect many of the amenities in the overall developing district.

Additionally, there are terraced seating opportunities in particular areas on the site. The overall character of TMNP might determine the actual implementation be more casual/natural-looking than what is shown in this image.

Seasonal ornamental plantings . Source: MKSK

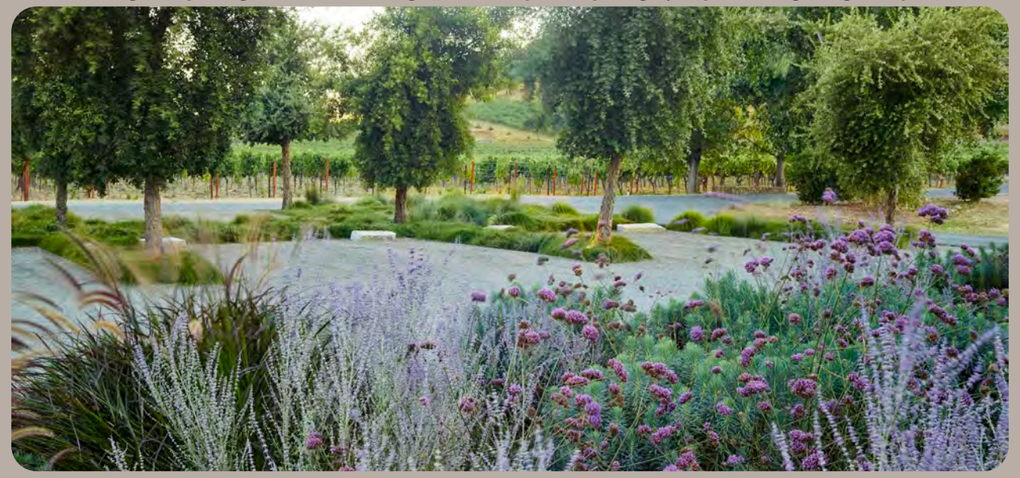
Terraced Seating . Source: SCAPE - NY Presbyterian Hospital

Restroom Facility | Signage |Amenities . Source: Plant Architect - Toronto Park Bird-watching Pavilions



Elevated parking lot experience . Source: SurfaceDesign - Odette Winery

Elevated parking lot experience . Source: https://tectonicengineering.com/project/great-neck-plaza-parking-lot/



Elevated parking lot experience . Source: SurfaceDesign - Odette Winery

Lower Terrace View of Park

FACING SOUTHEAST

Once the tree plantings around the perimeter of the park establish, the experience in the Lower Terrace of TMNP will feel immersive.

The landscape, ecology, flora and fauna of the ecosystem will take center stage in this portion of TMNP. A key success factor for this terrace will be to strategically offer reprieve from the mid-day sun. It is likely that if shade cannot be achieved, that the usage of this area of the park will taper off during the hottest parts of the day. Terracing of the transitional zone is indicated in the background of Figure 38. The trailhead and restroom facility will be visible from the interior of the park as well. It is likely that many interpretive elements will be incorporated into this space. The intent is that this signage be innovative and playful in order to encourage a deeper engagement with the community about the four topics: Ancient Ecology/Natural History, Native American Interpretation, Progressive Land Management, and Agricultural/European Settlement. The team envisions that some large stepping stone elements could be considered that could bridge areas between boardwalks. This would also be a varied experience that would be very different than the experience of being on the boardwalk.

Figure 38: Lower Terrace View of Park

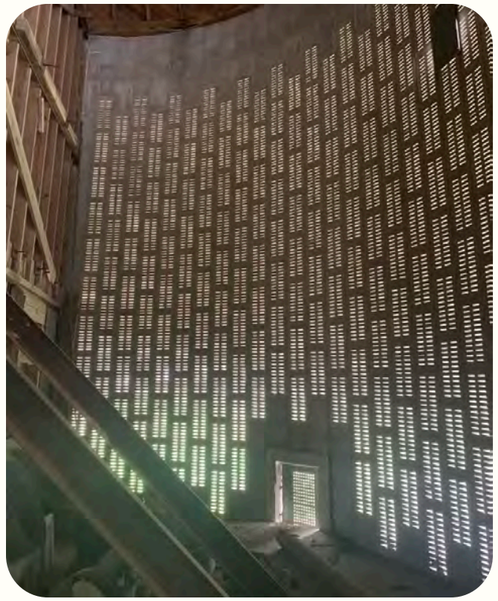
Agrarian History & Settlement

INTERPRETIVE ZONE

Source: Conner Prairie

This portion of Carmel holds a rich history of European settlement and agricultural roots. It only makes sense to tie into the fabric of the community and the context of what is occurring east of River Road at Conner Prairie by telling the story of what happened on and near this site (particularly on Harvest Church property) to support the site-specific history being related.

Historic Corn Crib @ Harvest Church (MKSK photo)



Interior view of similar structure (Sonny Beck barn)

Eli Lilly Farmstead . Source: Conner Prairie

Community Feedback and Analysis

PREFERRED CONCEPT

A total of 289 public online surveys were collected. Eight were removed due to duplicate IP addresses and answers. Some responses were left blank; therefore, they have been omitted when creating the following graphs.

The series's first three graphs show the public's preferred site elements, parking locations, and restroom locations proposed for the park.

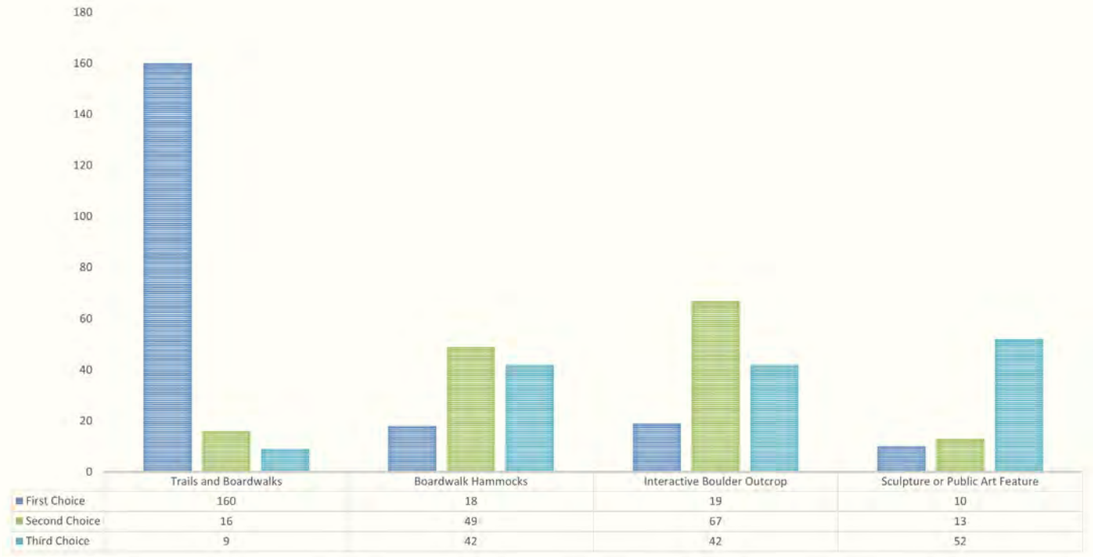


Figure 39

SITE ELEMENTS

SITE ELEMENTS

Listed in order of preference, these park components should be implemented first.

1. Trails and Boardwalks
2. Interactive Boulder Outcrop
3. Boardwalk Hammocks
4. Sculpture or Public Art Feature

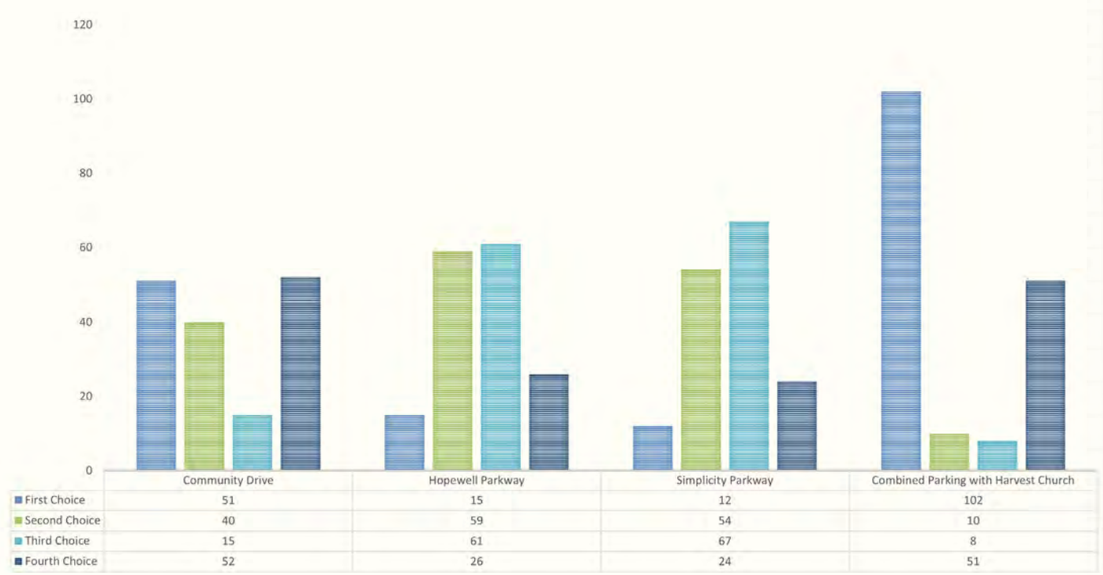


Figure 40

PARKING LOCATIONS

PARKING LOCATIONS

The shared parking concept at Harvest Church property is the most well-received by the public.

Parking proposed along Community Drive was met with concern by residents and was therefore removed from the master plan. Further traffic studies need to occur for the broad area to consider implementing parking in a location like Community Drive. The area is developing quickly, and residents want to be sure that the data is regarded before proposing solutions for the park that could amplify their traffic concerns.

As amenities for the park are developed, additional focus should be on appropriate play elements and animal habitat creation.

RESTROOM LOCATIONS

Several restroom locations were considered as a part of the design process.

The community agreement aligned with the location on Harvest Church's property as the primary choice, followed by the Hopewell Trailhead (north) location.

The restroom considered for the west portion of the park was omitted from the final design due to community feedback concerns about it being too visible. Administratively, there were concerns about the need for more visibility from the outside into the park to this structure. Ultimately, it seemed best to not include it in the final master plan layout.

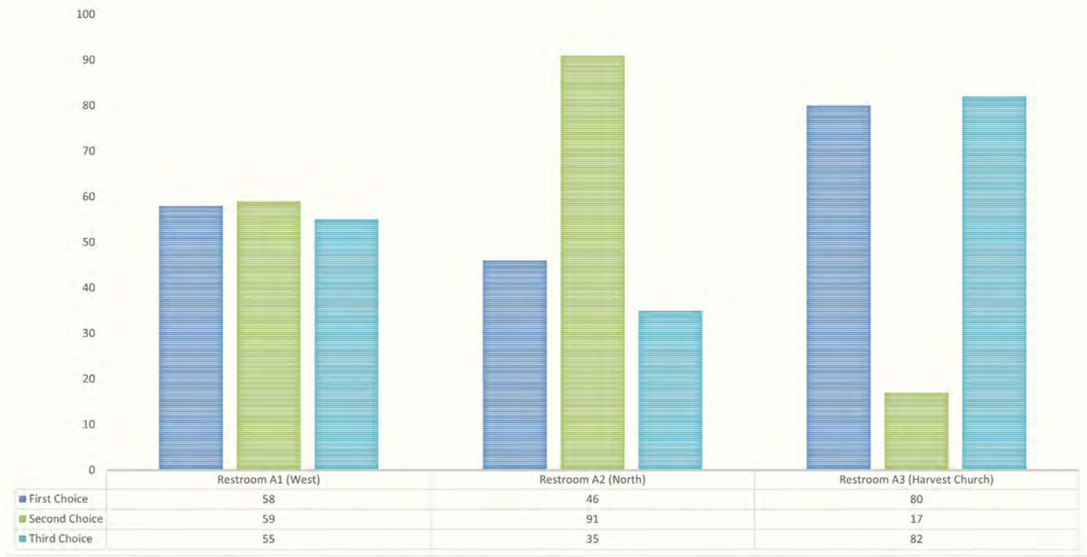


Figure 41

RESTROOM LOCATIONS

The overall satisfaction with the park's design and the community was measured by asking four additional questions (represented by the circle diagrams shown on the next two pages). A total of 89 responses were used to create this chart. The remaining responses in this survey category consisted of blank responses, questions, or answers with negative reactions that were inappropriate for the question.

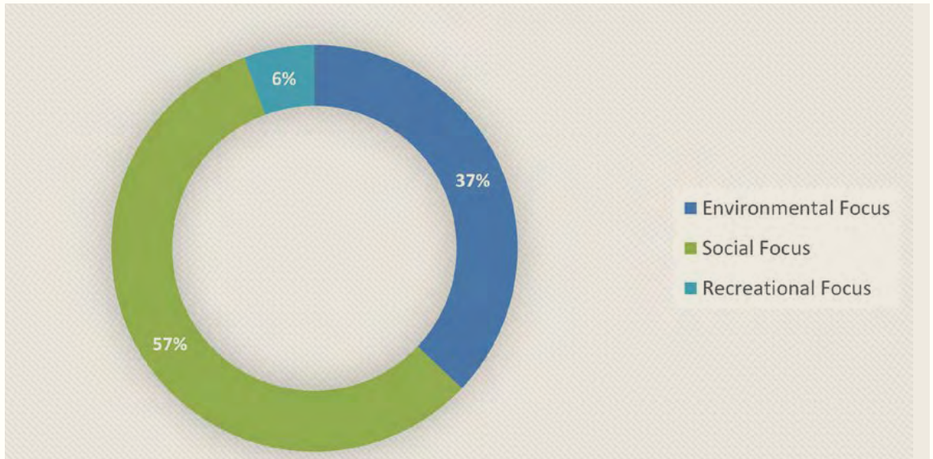
The key takeaways are that the community agrees that the park's focus should be environmental and social. Many were accepting of the amenities proposed (30%). As amenities for the park are developed, the additional emphasis should be on: play elements, animal habitat creation, and dog parks. The community is interested in seeing best practices utilized to create minimal disturbance during the implementation of the park (minimal impact development). They would also like CCPR to consider adding trees where they can and working within the restraints of the soil-supporting capability of the soil. The park design aligns with the community's previously measured desires for the park's development to support nature observation and to include trails and paths in the space.

Community Engagement at Clay Middle School (CCPR)

The public was asked what they liked most about the draft concept plan; their input was broken down into three themes that were pulled from the commonalities among the results. The following criteria were used to filter the responses:

ENVIRONMENTAL: Nature, Park, Trees, Vegetation, Animals / Wildlife, Flowers, Green-space
SOCIAL: Path / Trail / Walking, Gathering Space, Seating, Eating / Dining
RECREATIONAL: Play, Sports / Games, Running / Jumping, Climbing, Accessibility

WHAT DOES THE COMMUNITY LIKE ABOUT THE DRAFT PLAN?



WHAT ADDITIONAL AMENITIES WOULD THE COMMUNITY LIKE TO SEE?

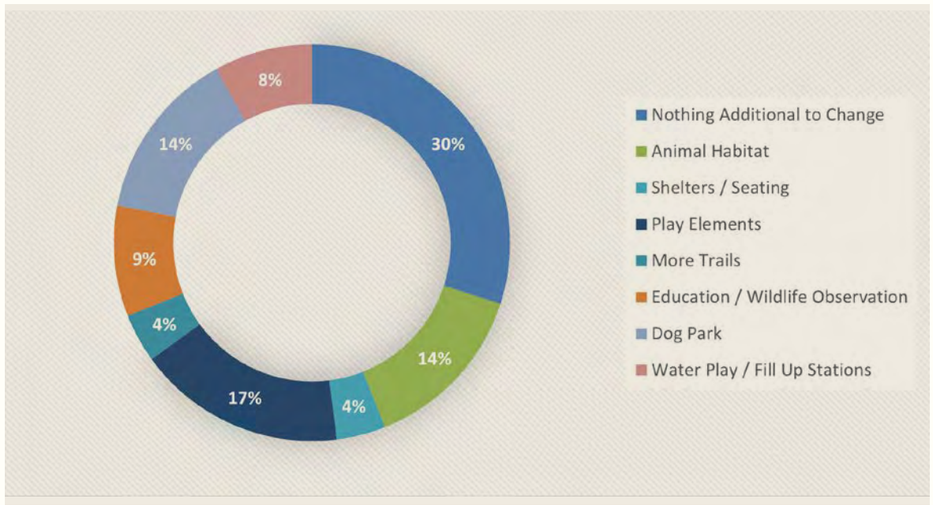
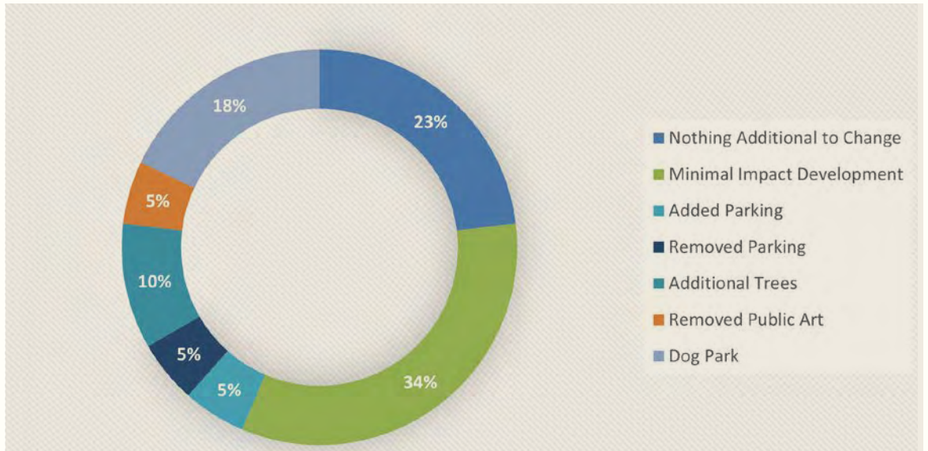


Figure 42: Data Analysis 1 and 2

WHAT WOULD THE COMMUNITY PROPOSE DOING DIFFERENTLY?



WHAT DID THE COMMUNITY PREVIOUSLY DESIRE HERE?

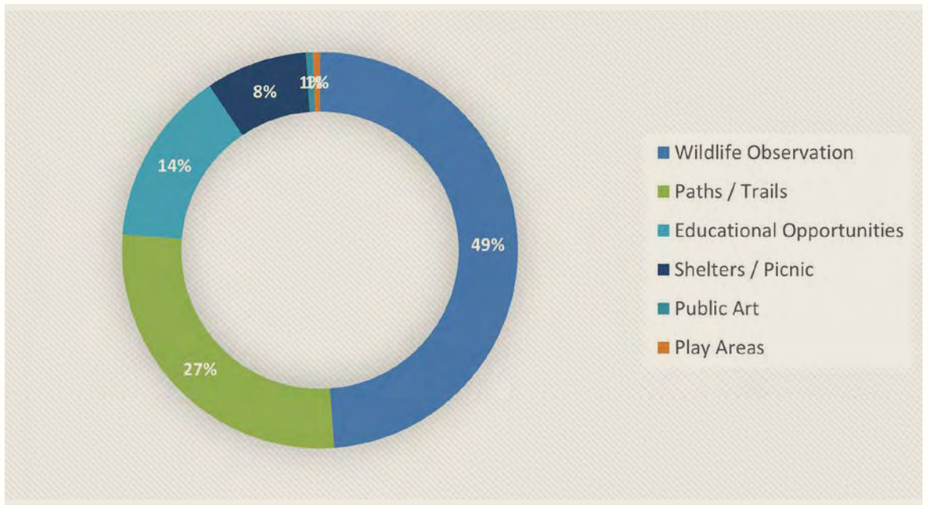


Figure 43: Data Analysis 3 and 4

PRO FORMA

OPINION OF PROBABLE COST

Overall park budget broke out into five
4-6 million dollar implementation bundles.

PRO FORMA

Maintenance Plan

TRAIL SYSTEM ANALYSIS

Form & Path Typology

Material Types / Character

Circulation Analysis

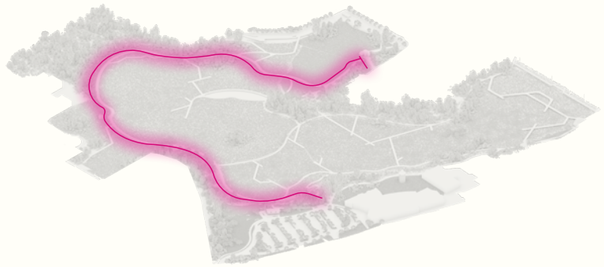
TMNP Site Photo looking northeast | Photo credit: Randy Culp

Opinion of Probable Costs

PARK BUNDLES

BUNDLE A

This implementation phase would include a simple route through the site providing access for the initial maintenance of the landscape and a way for the public to engage with the interior of the park site. This work is a good potential first phase for the park implementation strategy dependent on further site discovery and study by CCPR.

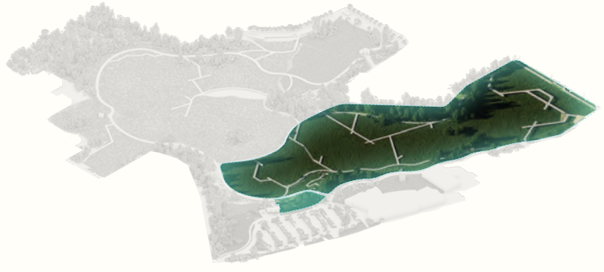


BUNDLE B

Landscape restoration efforts would be implemented, small gathering nodes/rock outcrops created, mulch trails maintained and improved in existing woodland, pedestrian trailhead at Cherry Creek and Community Boulevard, and public parking provided along Simplicity Boulevard. Additional paths and boardwalks could be added.

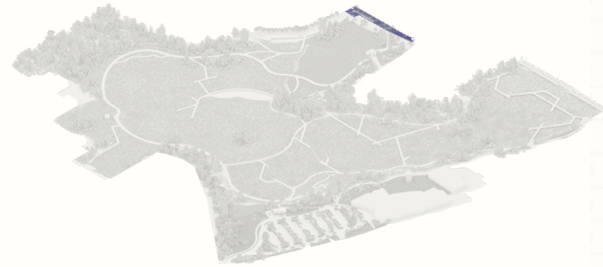
BUNDLE C

This bundle of scope includes the elevated boardwalk, potential art opportunities, boardwalks and paths, intensive landscape restoration (including tree buffers along the periphery of the park), as well as way-finding and interpretive signage.



BUNDLE D

Includes small restroom facility, signage, on-street parking, gathering lawn, and terraced boulder seating.



BUNDLE E

Bundle E embodies the collaborative design and implementation of a trailhead and shared parking experience between CCPR and Harvest Church. This area includes a large restroom facility with storage and an elevated parking experience with upgraded pavers, best-practice ecological stormwater management, and plantings. Way-finding and interpretive signage programming included.

Thomas Marcuccilli General Site Work									BUNDLE A	BUNDLE B	BUNDLE C	BUNDLE D	BUNDLE E
Item	Ext. Description	Qty.	Unit	@	Unit Cost	=	Base Cost		Est. Budget	Est. Budget	Est. Budget	Est. Budget	Est. Budget
Earthwork													
	Site Clearing and Prep, Noxious Tree Removal, etc.	1	Allow	@	$ 50,000.00	=	$ 50,000.00		$10,000	$20,000	$10,000	$10,000	
	Erosion Control	1	Allow	@	$ 50,000.00	=	$ 50,000.00		$10,000	$10,000	$10,000	$10,000	$10,000
					Subtotal		$ 100,000.00						
Pavements													
AG-1	Crushed Aggregate Path - H-20: Vehicular Duty / Geotextile Fabric	42,800	Sq. Ft.	@	$ 20.00	=	$ 856,000.00		$856,000				
AS-1	Asphalt Paving Trail - Pedestrian (3" + 6")	1,300	Sq. Yd.	@	$ 65.00	=	$ 84,500.00					$84,500	
CP-1	Concrete Pavement (Pedestrian)	22,430	Sq. Ft.	@	$ 8.00	=	$ 179,440.00					$179,440	
CP-3	Concrete Pavement (Specialty - Architectural)	3,250	Sq. Ft.	@	$ 9.50	=	$ 30,875.00				$30,875		
MT-1	Mulched Trails (Wooded Area)	25,500	Sq. Ft.	@	$ 7.00	=	$ 178,500.00			$178,500			
					Subtotal		$ 1,329,315.00						
Parking Areas													
	Community Drive												
	Simplicity Parkway									$126,975			
	Hopewell Parkway										$35,134		
	Harvest Church Expansion												$1,689,270
					Subtotal		$ 1,851,378.75						
Site Structures													
PB1	Pedestrian Boardwalk - Typ. Elevated incl. ramps, overlooks, benches	27,850	Sq. Ft.	@	$ 75.00	=	$ 2,088,750.00		$1,566,563				$522,188
PB1a	Pedestrian Boardwalk Railing (Required)	4,900	LF	@	$ 225.00	=	$ 1,102,500.00		$826,875				$275,625
	Restroom 'B' - Hopewell Plaza	1	Allow	@	$ 90,000.00	=	$ 90,000.00					$90,000	
	Restroom 'C' - Harvest Church	1	Allow	@	$ 350,000.00	=	$ 350,000.00						$350,000
					Subtotal		$ 14,247,350.00						
Site Furnishings / Specialty Items													
D-1	Sculpture / Public Art	1	Allow	@	$ 150,000.00	=	$ 150,000.00					$75,000	$75,000
D-2	Sculpture / Public Art	1	Allow	@	$ 250,000.00	=	$ 250,000.00					$125,000	$125,000
E-1	Passive Play Area	2,825	Each	@	$ 15.00	=	$ 42,375.00					$21,188	$21,188

Thomas Marcuccilli General Site Work									BUNDLE A	BUNDLE B	BUNDLE C	BUNDLE D	BUNDLE E
Item	Ext. Description	Qty.	Unit	@	Unit Cost	=	Base Cost		Est. Budget	Est. Budget	Est. Budget	Est. Budget	Est. Budget
E-2	Passive Play Area		Each	@									
H-1	Cargo Netting Area	835	Sq. Ft.	@	$ 25.00	=	$ 20,875.00					$10,438	$10,438
H-2	Cargo Netting Area	3,100	Sq. Ft.	@	$ 25.00	=	$ 77,500.00					$38,750	$38,750
I-1	Interactive Boulder Play Area	13,100	Sq. Ft.	@	$ 20.00	=	$ 262,000.00			$262,000			
I-2	Interactive Boulder Play Area	2,250	Each	@	$ 20.00	=	$ 45,000.00					$22,500	$22,500
J-1	Terraced Seating	2,500	F.F.	@	$ 45.00	=	$ 112,500.00					$56,250	$56,250
	Signage	1	Allow	@	$ 250,000.00	=	$ 250,000.00					$125,000	$125,000
					Subtotal		$ 1,210,250.00						
Landscaping													
	Prairie/Meadow Planting	13.5	Acre	@	$ 4,500.00	=	$ 60,750.00		$12,150	$24,300	$6,075	$12,150	$6,075
	Wetland/Fen Planting	41.4	Acre	@	$ 4,500.00	=	$ 186,300.00		$37,260	$74,520	$18,630	$37,260	$18,630
	Soil Amendments (Seed bed preparation / soil amendments)	55	Acre	@	$ 8,000.00	=	$ 439,200.00		$87,840	$175,680	$43,920	$87,840	$43,920
	Tree Mass Planting	390,000	Sq. Ft.	@	$ 1.25	=	$ 487,500.00			$195,000		$195,000	$97,500
	Understory Mass Plantings	109,500	Sq. Ft.	@	$ 1.50	=	$ 164,250.00			$65,700		$65,700	$32,850
					Subtotal		$ 1,338,000.00						
COST SUMMARY													
Hard Cost													
					Total		$ 20,076,293.75		$3,504,713	$4,335,113	$4,205,396	$4,510,890	$3,520,183
Soft Cost													
					25% Construction Contingency		$ 5,019,073.44		$876,178	$1,083,778	$1,051,349	$1,127,723	$880,046
					10% Design Contingency		$ 2,007,629.38		$602,289	$401,526	$401,526	$301,144	$301,144
					5% General Requirments		$ 1,003,814.69		$175,236	$216,756	$210,270	$225,545	$176,009
					Total Probable Construction Cost		$ 28,106,811.25		$5,158,415	$6,037,172	$5,868,541	$6,165,301	$4,877,382

Pro Forma

MAINTENANCE PLAN

A specific Maintenance plan will be tailored to implement the overall master plan.

Maintenance standards are generally defined and guide how the park should be maintained. Maintenance standards can change by season and month, depending on the level of use. These standards are consistent with the other CCPR properties.

BEFORE DEVELOPMENT

STORM EVENT MANAGEMENT	• Create detour or closure around storm affected area for public safety • Remove obstructions from trails and open space • Inspect and clear out drains, outflows, ditches, and bioswales • Alert public of closure
LAWN MAINTENANCE	• Inspect and remove trash, pet waste, and debris • Mow, blow, and trim • Fertilize • Edging • Pest control
TREE MAINTENANCE	• Inspect, identify, and remove hazardous trees and limbs • Prune tree limbs or remove trees that impede user areas • Water new plantings • Install and maintain tree protectors for new plantings
WASTE REMOVAL	• Litter pick-up in wooded or natural areas • Empty pet waste stations, change liner • Restock pet waste bags in dispenser
TRAIL MAINTENANCE	• Add surfacing material (mulch) • Clear branches • Repair washouts • Trim back vegetation corridor • Inspect for overhead hazards • Inspect for surface hazards • Use vegetation control in and along surfacing
SIGN MAINTENANCE	• Clean surfaces • Inspect for quality standards • Straighten • Vegetation control to maintain visibility
WILDLIFE/NUISANCE PEST CONTROL	• Remove roadkill from trails
VANDALISM & GRAFFITI REMOVAL	• Inspect/check for vandalism and graffiti • Call CPD to report vandalism/graffiti • Remove graffiti • Clean up after vandalism

Maintenance after development will include all the previous standards and the standards listed below, depending on what types of assets are developed.

AFTER DEVELOPMENT

SNOW & ICE EVENT MANAGEMENT	• Salt and plow parking lots, driveways, and greenways according to snow and ice management plan • Salt, shovel, and snow blow sidewalks handicap parking areas and other pedestrian access areas
LANDSCAPE MAINTENANCE	• Inspect and remove trash, pet waste, and debris • Inspect and report any dead or dying plants, pests, and weeds to landscape contractor • Spring clean up • Mulching and bed maintenance • Fall clean up • Pre-emergent • Edging • Pruning shrubs • Pruning trees • Perennial cutbacks • Perennial flower dead head • Leaf removal
ASPHALT SURFACES & PARKING LOTS	• Inspect and clean drains • Sweep • Asphalt striping and painting • Repair/replace curb stops • Fill potholes with cold patch • Asphalt repairs • Crack fill as needed • Sealcoat • Replacement – milling and overlays • Debris removal • Vegetation trimming • Maintain gravel berm edge (if necessary) • Vegetation control in cracks and edges
CONCRETE SURFACES	• Inspect and identify uneven surfaces • Correct uneven surfaces by grinding or replacement • Remove debris • Remove graffiti • Vegetation control in cracks and edges • Epoxy fill or caulk cracks as needed
FIXTURE, FURNITURE, EQUIPMENT, & OUTDOOR LIGHTING	• Clean surfaces (environmental waste, food waste, trash, etc.) • Apply protection to wood surfaces • Inspect for proper function • Winterize and energize water fountains
RESTROOM FACILITIES	• Turn on heater, confirm operational, and check for system failures • Recaulk toilets and sinks • Paint interior walls and doors • Replace lightbulbs • Annual backflow testing • Flush water heater • Inspect locks, light, toilets, urinals, sinks, hand dryers, and soap dispensers for proper function • Roof replacement • Paint exterior structural posts, walls, etc. • Power wash floors and foundation • Clean out vents

Trail System

FORM & PATH TYPOLOGY

TRAIL SYSTEM FORM

The trail system is one of the major form-giving components of this nature park. Even though the site provides rich storytelling opportunities and provides access to a large natural greenspace, the park infrastructure is simply a set of trails and paths through a natural area. Constructability remains a major cost and planning consideration nonetheless because of site specific soil typologies and accessibility.

Due to the soil conditions and various site conditions, the following path typologies have been planned for the proposed nature park. Each of these typologies have been carefully selected for the zone it is placed in and will be studied in further detail as the park moves into schematic design.

Various routes and loops have been planned and are explained in more detail in a diagram to follow.

PATH TYPOLOGIES LEGEND (FIGURE 44)

PATH TYPE A
Upper terrace path system - Typical construction methods.

PATH TYPE B
Multi-use path used for maintenance.

PATH TYPE C
Locations where a pedestrian bridge will likely be required.

PATH TYPE D
Elevated boardwalk (10-12′ above park grade) The final style of supports will need to be studied but a minimal and light infrastructure is desired to reduce interruption to views.

PATH TYPE E
Elevated Boardwalk (18-24″ above park grade) The material will likely be composite material or metal grating.

PATH TYPE F
Multi-use path at upper terrace level that will double as firetruck access route but will be used by pedestrian only on a more typical basis. This path is on Harvest Church property.

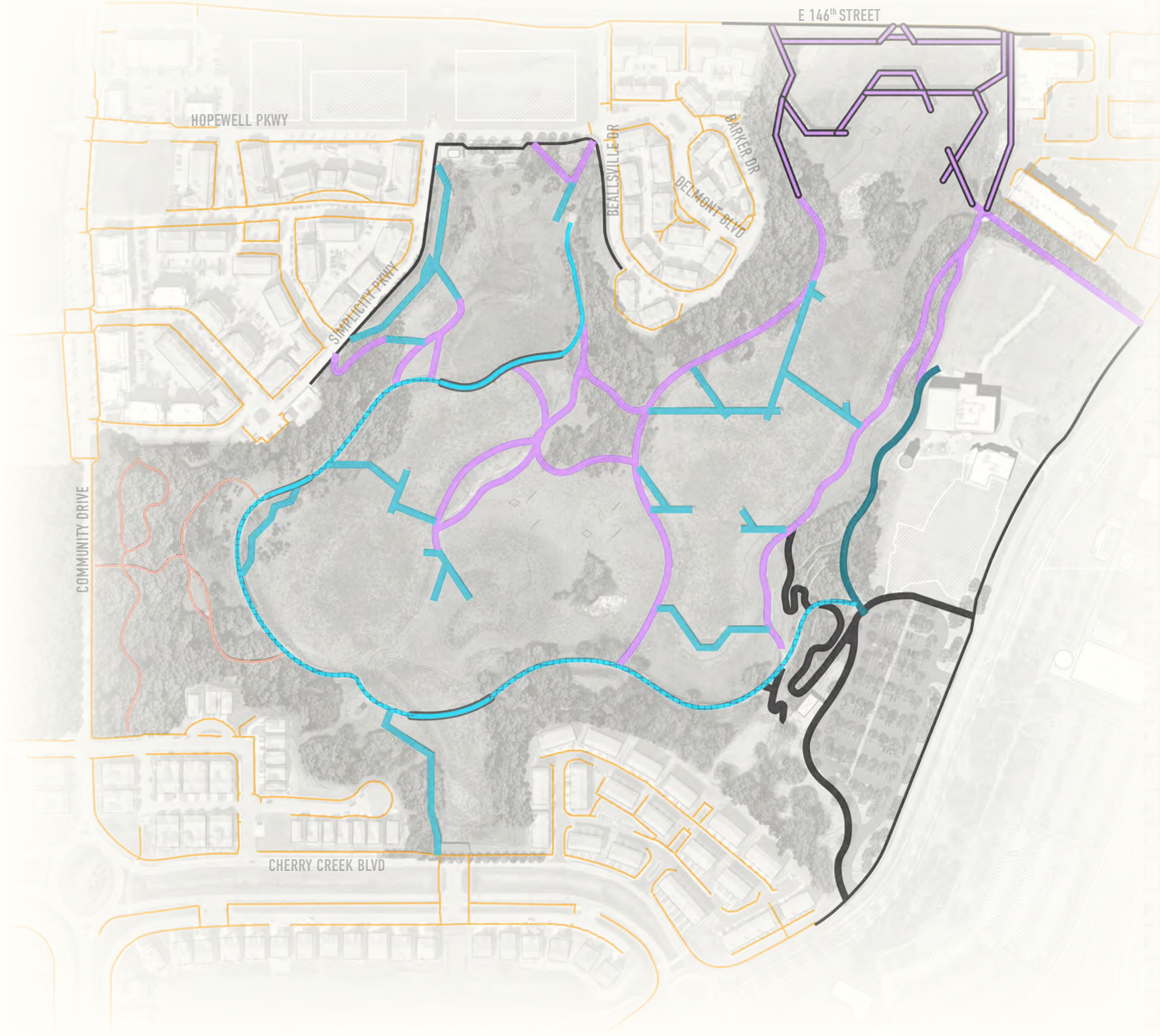


Figure 44: Circulation Form and Path Typology

PATH MATERIAL TYPES / CHARACTER

3/8" Minus decomposed granite path (or dolomite flume) stone path . Source: SWA - Buffalo Bayou Park

Mulched path - Source: Explore Kirkland - Bridle Trails State Park

Metal grate path or boardwalk - Source: Minnesota DNR - Big Bog State Recreation Area

Crushed stone path . Source: https://encrypted-tbn1.gstatic.com/s?q=tbn:ANd9GcSkiYMmvtWKLVePFpfb2dpXb7btO3iUTem3V3NGQSt6kg7OgRp8

Boardwalk (composite preferred) - Source: Stimson Studio - Lake Forest Park

Boardwalk with toe kick . Source: MKSK - Scioto Audubon Metro Park

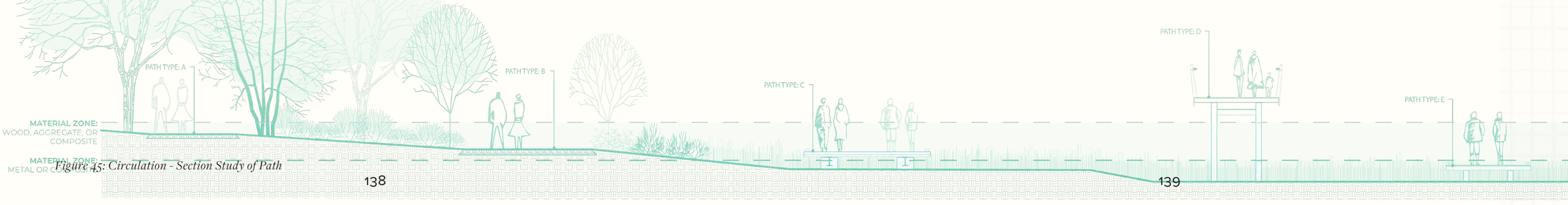


Figure 45: Circulation - Section Study of Path

CIRCULATION ANALYSIS (FIGURE 46)

Given the scale of the park, dedicated trail loops were included and studied in order to aid the development of the trail system for education, routing and design of visitor experience of the nature park. This preliminary study highlights trail loop distances and potential educational and experiential opportunities within the known context of the site.

TRAIL LOOP A

This trail loop would allow visitors to experience multiple plant ecologies and would highlight the ancient landscape that might have been present here at one time. This loop would include interaction with the central ridge and Native American interpretation zone as well as an experience across multiple boardwalk paths in the western depression of the park. This loop also engages with the existing woodland and many small gathering nodes, rock outcrops, and play opportunities would be found along this loop trail.

Loop Distance: .6 miles

TRAIL LOOP B

This loop comprises the entirety of the western half of the site and would educate visitors about the ecological history of the site and the fragility of the landscape. This loop also allows for users to experience the Well Overlook provided by Carmel Utilities. Interaction with the Central Ridge/Interpretation Zone would occur as well.

Loop Distance: .85 miles

TRAIL LOOP C

Trail Loop C represents the a portion of the elevated boardwalk experience off of 146th Street. It allows visitors to briefly enter the site and experience Thomas Marcuccilli Nature Park from a distance. This loop would also allow for access to the commercial node to the northeast.

Loop Distance: .33 miles

TRAIL LOOP D

Similar to Loop B, this loop circulates around the eastern depression of the site and will consist of both, shorter boardwalks as well as the elevated boardwalk. This loop will offer education pertaining to the Native American Interpretation and history as well as education about progressive land management.

Loop Distance: .9 miles

Figure 46: Circulation Analysis - Loop

TRAIL LOOP E

Trail Loop E is the longest experience available that would offer an experience from each zone of the nature park. Almost all of the ecological zones are available with this experience as well as each of the proposed elements.

Loop Distance: 1.3 miles