Revitalizing the Jean-Pierre Chouteau Trail
OU Urban Design Studio

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Revitalizing the Jean Pierre Chouteau Trail

A PROFESSIONAL PROJECT

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MASTER OF URBAN DESIGN

By

Dylan Siers

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REVITALIZING THE JEAN PIERRE CHOUTEAU TRAIL

A PROFESSIONAL PROJECT APPROVED FOR THE

URBAN DESIGN STUDIO

CHRISTOPHER C. GIBBS

COLLEGE OF ARCHITECTURE

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Introduction

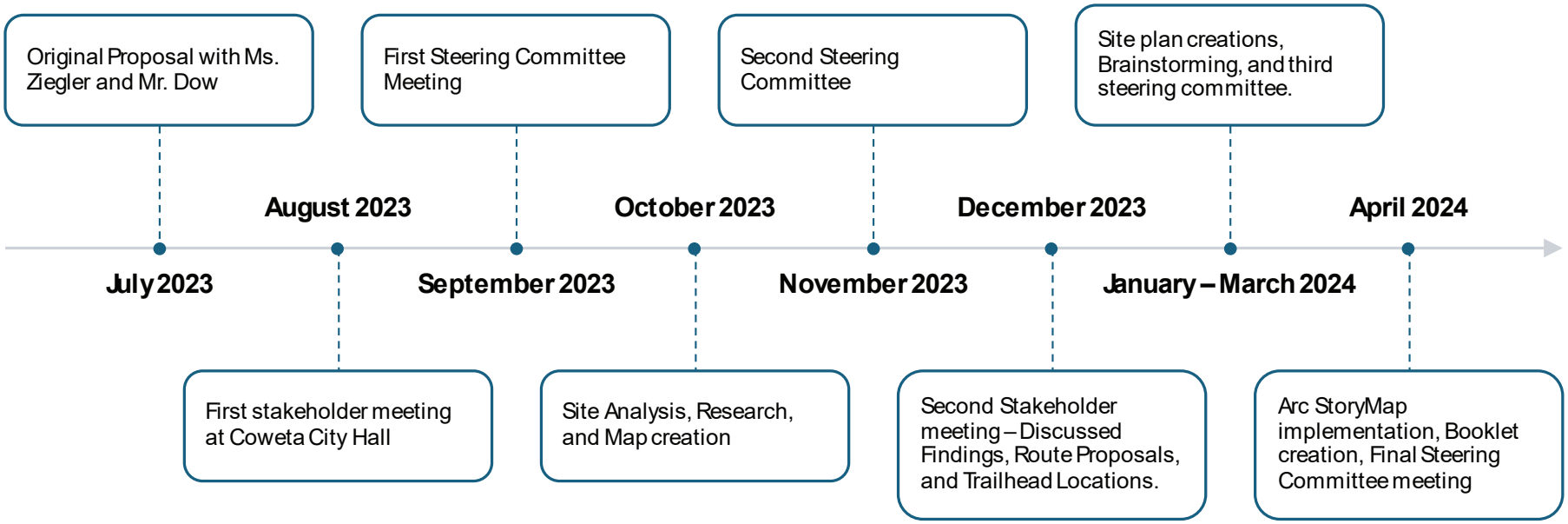
The Jean-Pierre Chouteau Trail, once a 60+ mile route stretching from the Port of Catoosa to Fort Gibson, opened in 1970 and initially garnered attention from adventure groups like The Boy Scouts and hikers. However, after about two decades, the trail fell into disrepair due to inadequate maintenance, leading to its abandonment with only some segments remaining walkable since the 1990s.

In recent years, various municipalities near the trail have shown renewed interest in reviving it. However, revitalizing the trail poses challenges, including but not limited to maintenance, the trails alignment around the port of Inola, the material of the trail and the location of the trails beginning and end.

The project was initiated by Ms. Rachel Cooper and Wagoner County. Ms. Cooper serves as an Engineer and the Director of the Planning and Zoning Department at Wagoner County, has sparked significant discussions concerning the trail within the county. Her advocacy and deep knowledge of transportation projects make her a vital supporter of the trail's development. Without the advocacy performed by Ms. Cooper the trail would likeley have many more years of disrepair.

Working closely with a steering committee, who consists of University of Oklahoma Staff, it became clear that adopting a multi-scale approach is essential for addressing the project's complexities effectively. This approach involves emphasizing collaboration between municipalities and tribes, as well as a focus on mapping and visualization techniques to visualize the trail's potential.

Throughout the project, you will notice how these elements are addressed and how the multi-scale approach informs the strategies and solutions proposed for the Jean-Pierre Chouteau Trail revitalization.



The stakeholders consisted of a team assembled by Ms. Cooper. This team was selected due to their relation to the trail, and the nearby communities and projects. Each member played a key role in the project from beginning to end, bringing different perspectives from all different backgrounds.

The schedule of the project can be found above. Each month consisted of a different goal, and meeting type. Working at different scales, it was important to ensure we stay on tract with the project. So ensuring that we referenced the timeline frequently was important to making progress.

There has been a total of two stakeholder meetings and three steering committees. Each of these resulting in different ideas and suggestions on how to move the project forward.

The goal with the entire project was for the last month, be a compilation of piecing together all of the information, renderings, and knowledge I have gathered during the project.

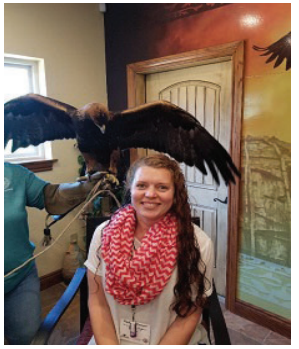
Stakeholders

Brian Bigbie
Tulsa Ports
Economic Development -
Grant Administration and
Special Projects

Brian Bigbie is an integral member of Tulsa Ports, specializing in Economic Development, Grant Administration, and Special Projects. His expertise has been instrumental in the development of the Port of Inola. For this particular project, Mr. Bigbie has provided valuable insights into the operations of the port and collaborated with the team on economic aspects of the project.

Jane Ziegler
INCOG
Senior Transportation Planner/
Bicycle & Pedestrian
Coordinator

Jane Ziegler is a Senior Transportation Planner/Bicycle & Pedestrian Coordinator at INCOG, where she holds a crucial position in managing trail systems within the Tulsa Area. She was instrumental in initiating the project with the Urban Design Studio and has been a key contributor throughout its development. Jane's expertise in trail standards and her collaboration with neighboring municipalities have been pivotal in shaping the project's direction and ensuring its alignment with regional plans for trail development.



Rachel Cooper
Wagoner County
Wagoner County Engineer
& Director of Planning and
Zoning

Rachel Cooper, serving as an Engineer and the Director of the Planning and Zoning Department at Wagoner County, has sparked significant discussions concerning the trail within the county. Her advocacy and deep knowledge of transportation projects make her a vital supporter of the trail's development.

Stakeholders Meetings and Findings

There were two stakeholder meetings, each serving its distinct purpose and providing valuable ideas and insights.

The first meeting brought together the three primary stakeholders along with representatives from the Army Corps of Engineers, the Cherokee Nation, and Wagoner County. Its primary goal was to gain an understanding of the trail's potential benefits and address concerns.

Stakeholders expressed concerns about safety, ownership, sustainability, and expectations. Safety emerged as a major concern due to hunting activities along the trail, as well as crime and natural causes. Ownership issues were highlighted as the trail bordered privately owned land, necessitating careful consideration to avoid interference with private land owners. Sustainability was another key concern, emphasizing the need for a practical revitalization approach. Managing expectations, particularly regarding the time frame for such a project, was deemed crucial to maintain community interest.

The discussions during the first meeting focused on opportunities, highlighting economics, connectivity, and tourism as key areas. All parties agreed that the trail could have a positive economic impact, by increasing tourism in the region. Wagoner County representatives specifically saw the potential for enhanced tourism through improved connectivity.

The next meeting involved Ms. Ziegler, Mr. Bigbie, and Ms. Cooper, focusing on brainstorming and refining the trail's routing. Brian's focus was on how the trail would interact with the Port of Inola, considering the lack of precedent for trails and industrial parks. Rachel contributed by sharing historical photos of trail amenities and highlighting Wagoner's connections to the trail. Jane provided insights on bridge designs, trail widths, and materials to enhance trail utilization, fostering a collaborative and innovative approach to trail development.

Meeting with the various parties was crucial as each provided a different perspective and sentiment about the trail. One of the most significant takeaways was that the United States Army Corps of Engineers (USACE) would be willing to help maintain if an agreement was met.

Figure 3

History of Jean Pierre Chouteau

Jean Pierre Chouteau played a significant role in the history of Oklahoma during the early 19th century. As a prominent fur trader and businessman, Chouteau was instrumental in establishing trade relations with Native American tribes in the region. His connections and influence allowed him to navigate the complex political and economic landscape of the frontier. Chouteau was involved in the establishment of several trading posts and settlements in what would later become Oklahoma, contributing to the development of commerce and inter-cultural exchange in the area. His legacy in Oklahoma is marked by his contributions to the fur trade, his interactions with Native American communities, and his influence in shaping the early economic and social dynamics of the region. The Chouteau family maintained close collaborative ties with the Osage tribes inhabiting the region surrounding the Verdigris River and throughout the entirety of what is now Oklahoma.[1]

It seemed that the Chouteau family did leave a positive mark on the Native communities. This was confirmed after talking with Mr. Austin of the Cherokee Nation. [2] During this meeting the idea of changing the name of the trail was brought up, but since there seems to be positive history of Jean Pierre Chouteau that was avoided.

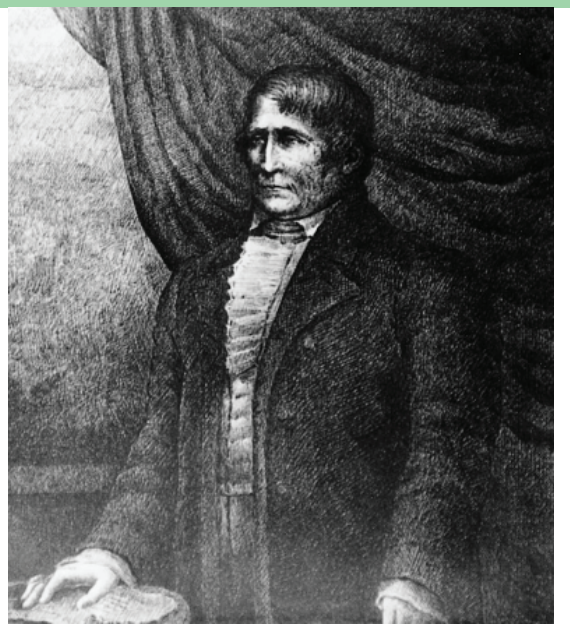


Figure 4

History of The Jean Pierre Chouteau Trail

The Jean Pierre Chouteau Trail in Oklahoma has a relatively short but eventful history. It gained traction in the 1970s, particularly among groups like the Boy Scouts and hiking enthusiasts. At its peak, it even attracted attention from cross-country hikers who made detours to explore it. However, by the 1990s, the trail had fallen into disrepair, leading to its gradual abandonment and eventual obscurity.

There were discussions about integrating the Jean Pierre Chouteau Trail into a larger trail system that would span from Kansas to Texas, but this idea never materialized. A study conducted by INCOG in the 1990s assessed the trail's condition and found that most parts were unusable, further contributing to its decline. [3]

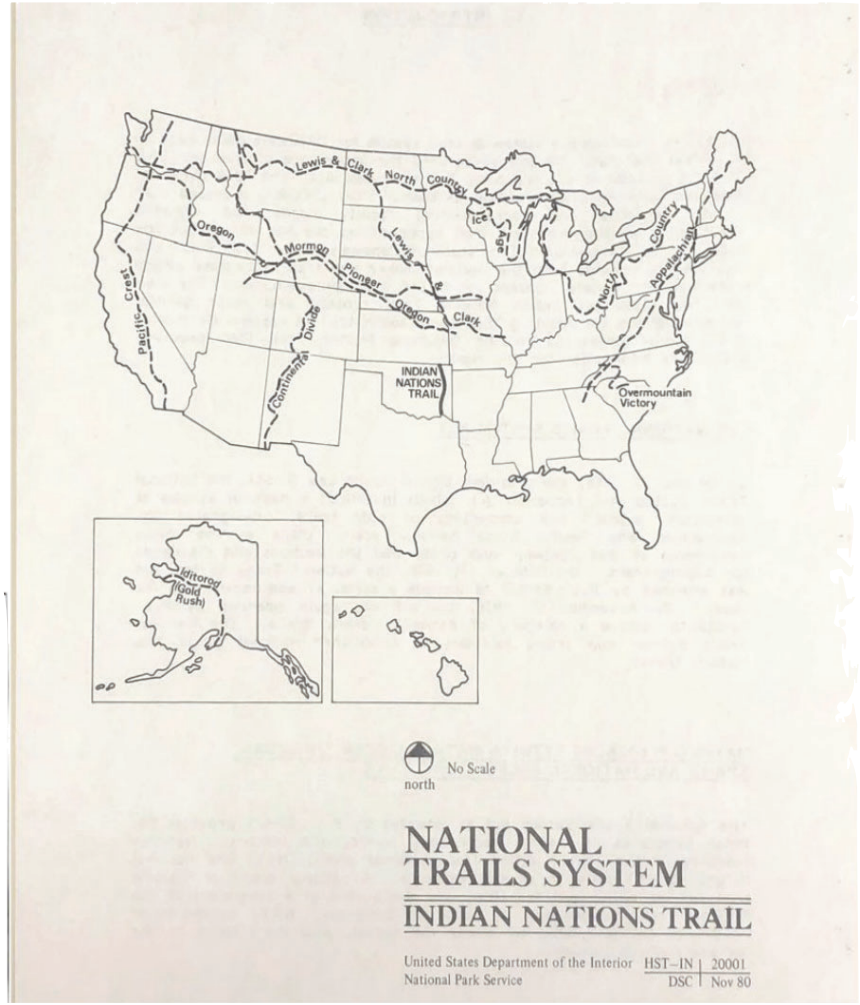


Figure 5

Despite its challenges, the history of the Jean Pierre Chouteau Trail serves as a valuable lesson, influencing decisions regarding the design and maintenance of similar projects. The emphasis on low maintenance became a crucial design concept of this project, reflecting the challenges faced by the trail and highlighting the importance of sustainable trail management practices.

Figure 6

Analysis

The analysis process encompassed a thorough examination involved on extensive site visits, extensive online research, and the creation of detailed maps. However, due to time constraints and the challenging state of much of the trail, it was not feasible to traverse the entire length. Instead, multiple trips were made to various sections of the trail, with detailed observations and notes recorded during each visit.

This trip involved hiking approximately 4 miles along the trail, during which a comprehensive set of photographs was taken, supplemented by aerial images captured using a drone. This aerial perspective provided valuable insights into the scale of the project and the vast area covered by the trail. Despite covering only about 6% of the trail on that particular day, it became evident that completing even half of the trail within the available time-frame would be impractical.

The mapping component of the site analysis focused on key aspects such as flood management, Jurisidictional boundaries, and parcel mapping. Each category played a crucial role in determining the optimal route for the trail along the river, providing stakeholders and project leaders with essential information for decision-making.

Every phase of the site analysis process contributed to the development of viable solutions and proposals. While limited to one comprehensive trip, the insights gained were invaluable in understanding the trail's condition and the navigation challenges that lie ahead, emphasizing the importance of strategic wayfinding strategies throughout the trail.

Figure 7

Figure 8

Bridge Analysis

During my research I learned that the bridges were once a highlight of the trail. Users would seek out the bridges for photos. As we did the site visits, we were looking out for things such as users, state of the trail, wayfinding and accessibility. We quickly learned that none of these factors were there.

The bridges that once were all along the trail were smaller pedestrian suspension bridges. Some would call these miniature Golden Gate Bridges. While these bridges were great to look at. I feel that these would be expensive to maintain, and with maintenance being one of the biggest issues for the trail, it is important that we think of other ways to cross

Another example of the bridges

waterways. It is not certain when exactly the bridges fell into disrepair. There unfortunately just is not a lot of data regarding the bridges, other than a article from 1980[4], and a hike from 2017[5].

All of the following photos (except the two bridge photos) were taken on the first site visit. The goal of the site visit was to find the bridges that use to scatter the trail and to get an idea of the state that the trail currently sits in.

Site Analysis - Bridge Crossing September 27th 2023

The first location I considered for a bridge was near a boat ramp. This location was quiet, besides some construction noises across the river. There were not any notable visitors while we were here either.

We walked a little ways down the water here but had no luck in finding anything except some litter and arrows.

Unfortunately, we did not find a bridge or even the remnants of one. This area seemed to be heavily trafficked, as we noticed a significant amount of trash along the way.

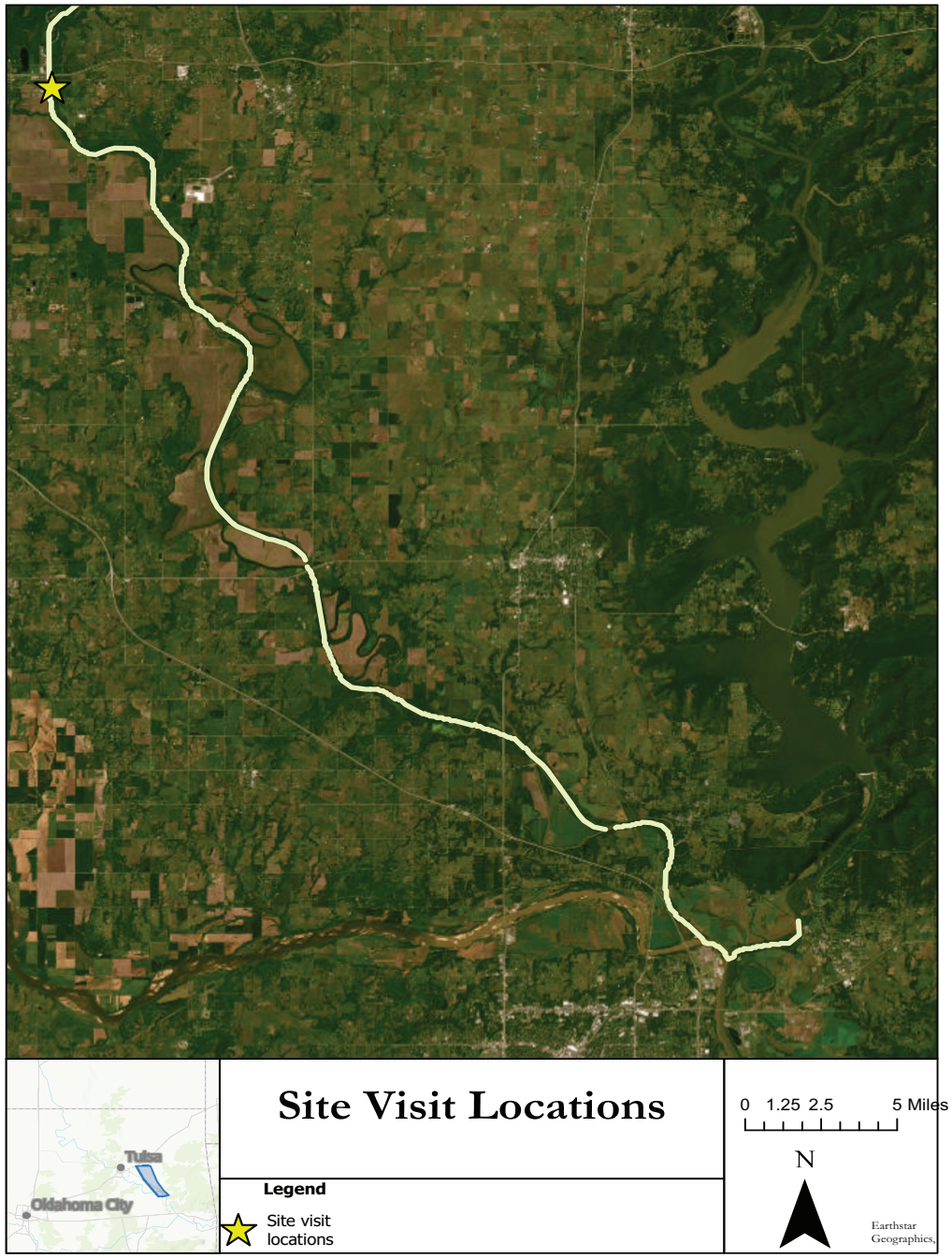


Figure 9

Figure 10

Site Analysis - Public Access Area
September 27th 2023

The second site was the closest we got to the Port of Inola site. We wanted to visit some older structures that were there once there. This spot was the one I was most excited for since from an aerial view it seemed that there were structures there. The site used to be a public use area, but unfortunately fell into disrepair, like much of the trail.

We arrived at the road that would of led to this area, and it was gated off. We did notice a farmer near the area that was working. We asked him what the condition of the land was beyond this gate and he said that it was about as tall as myself. This discussion with the farmer showed us that there was knowledge of the trail, but also that private land will be an issue we deal with for much of the project. We decided to turn around from here and move onto the next stop.

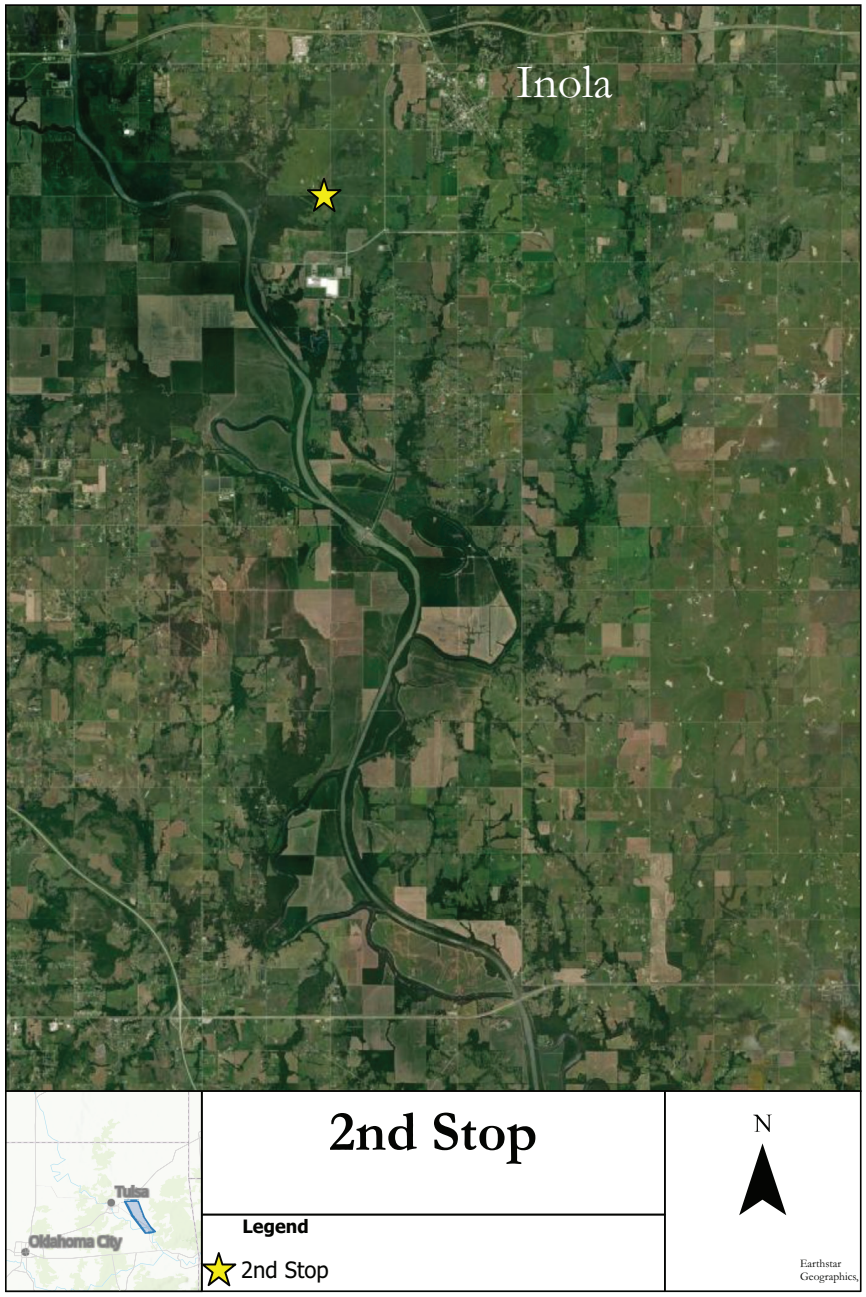


Figure 11

Figure 12

USACE Robert F. Hunter Visitor Center
September 27th 2023

Our third stop is where we were able to actually hike part of the trail. The path we hiked can be found on the map to the left.

This stop started at the USACE Robert F. Hunter Visitor Center. This location had a worker at the station that we spoke to. He did show some interest in the trail and pointed us in the direction of the portion we hiked. He also mentioned that this portion of the trail is used mostly for motor vehicles.

We went about 2.5 miles north. During this hike we noticed that it looked like much of the trail has been used for off road vehicle use, and not hikers, as the worker stated. We also noticed some hunting blinds and arrows on the ground.

Our goal was to find a bridge but we had no luck regardless. This hike allowed us take a look at the hunting fears that some of the steering committee raised during their first meeting. The visitor center itself seemed to be very well maintained, with ample parking.

Figure 13: Drone Photograph of the looking South Verdigris River. The trail follows the banks of the Verdigris River.

Figure 14 Drone Photograph of the looking North Verdigris River. The trail follows the banks of the Verdigris River.

Maps

The following maps were created to help perform analysis for the project. Each served their own distinct purpose for the project. These were created throughout the time of the project but mostly used during the recommendation portion, as leverage for

County Boundaries

The JPCT presents a unique opportunity for collaboration among many municipalities, counties, and tribes. The map on the left depicts the Verdigris River (Blue Line) crossing through three different counties. The three counties involved could potentially reap the benefits of a regional trail system that attracts attention from other states.

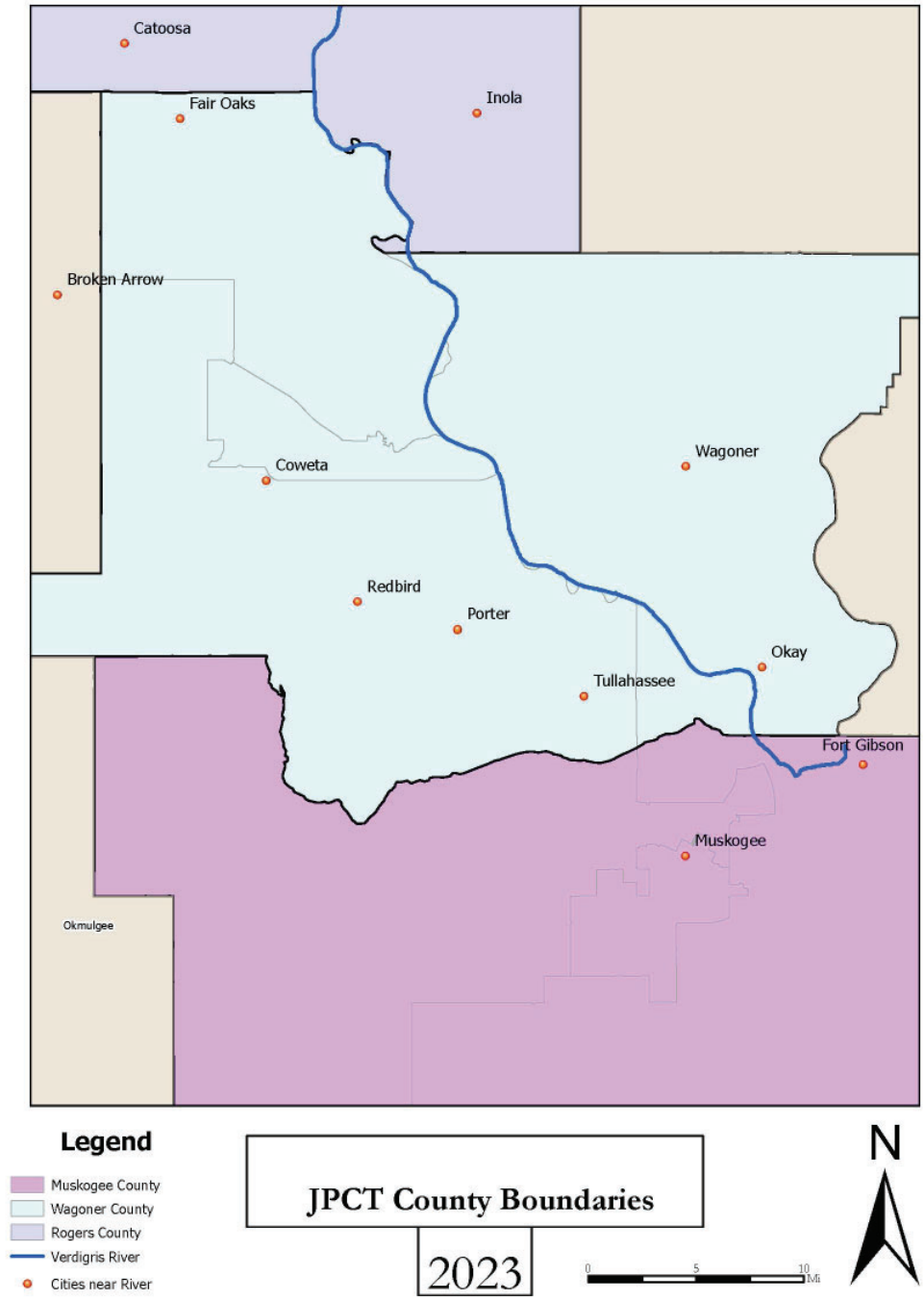


Figure 15

Indian Nation Boundaries

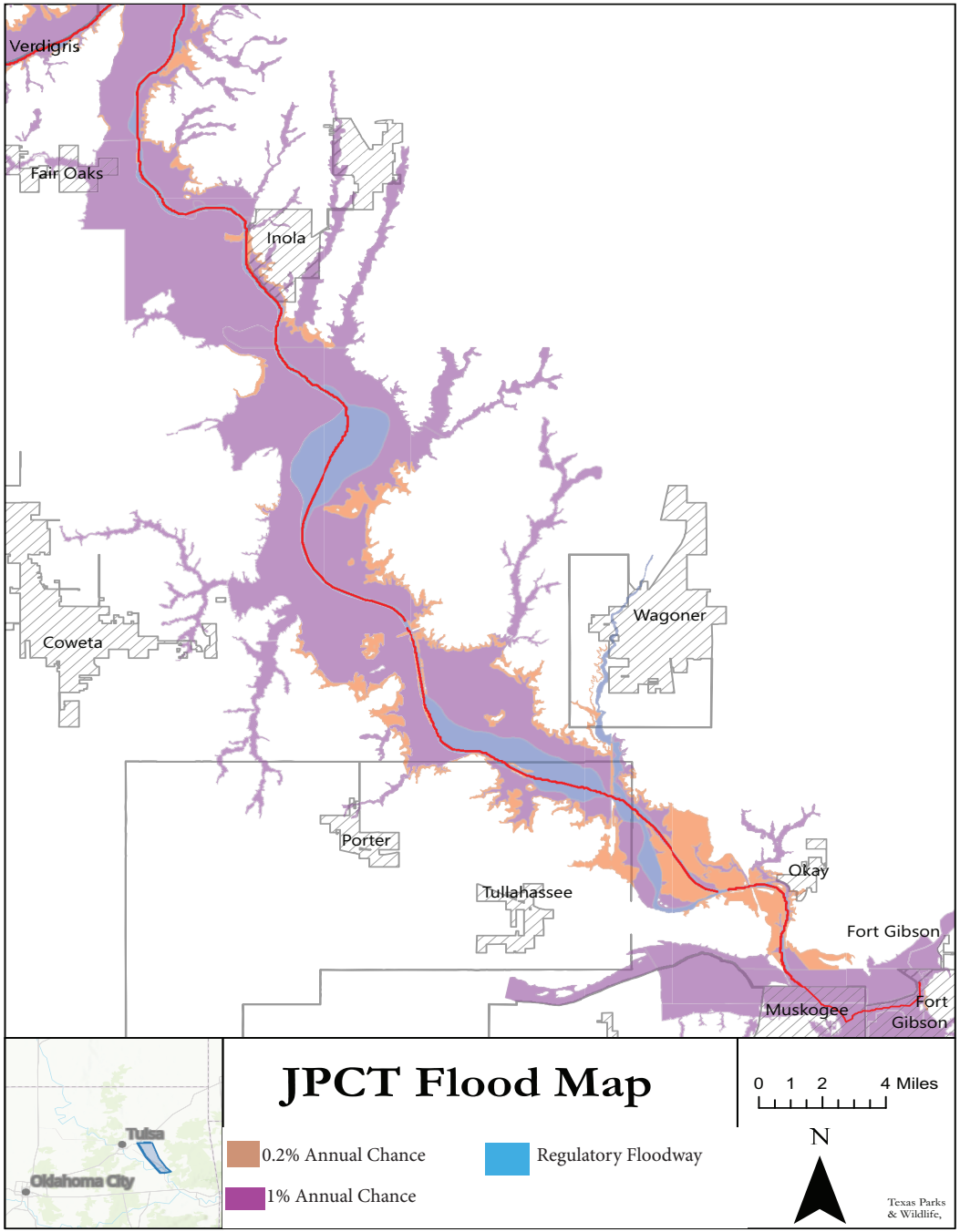
Once again, the opportunity for collaboration among the parties of interest is a unique one. The Muscogee Creek Nation and the Cherokee Nation host major sections of the trail and could add their own personal touch to their portions. This collaboration would involve working with neighboring communities. The Cherokee Nation expressed interest during our stakeholder meeting regarding the economic development impacts this project could have. Keith Austin with the Cherokee Nation mentioned that there is not a ton of Cherokee history along the trail but would still be interested in being a part of the project if it came to fruition.

Figure 16

Maps

Flood Plain Map

The primary objective of the floodplain map is to highlight the challenges associated with development along the trail, particularly the necessity for bridges in specific areas. Initially, the intention was to promote commercial development along the trail. However, upon reviewing the flood map, it became apparent that this goal might be unrealistic due to issues developing in the floodplain. As a result, the focus has shifted towards highlighting businesses located a few miles away in neighboring communities, offering a more feasible approach to supporting economic activity along the trail. Structures being built along the trail need to be able to pass water in the case of a flood.



FEMA Floodplain Information

Figure 17

Parcel Map

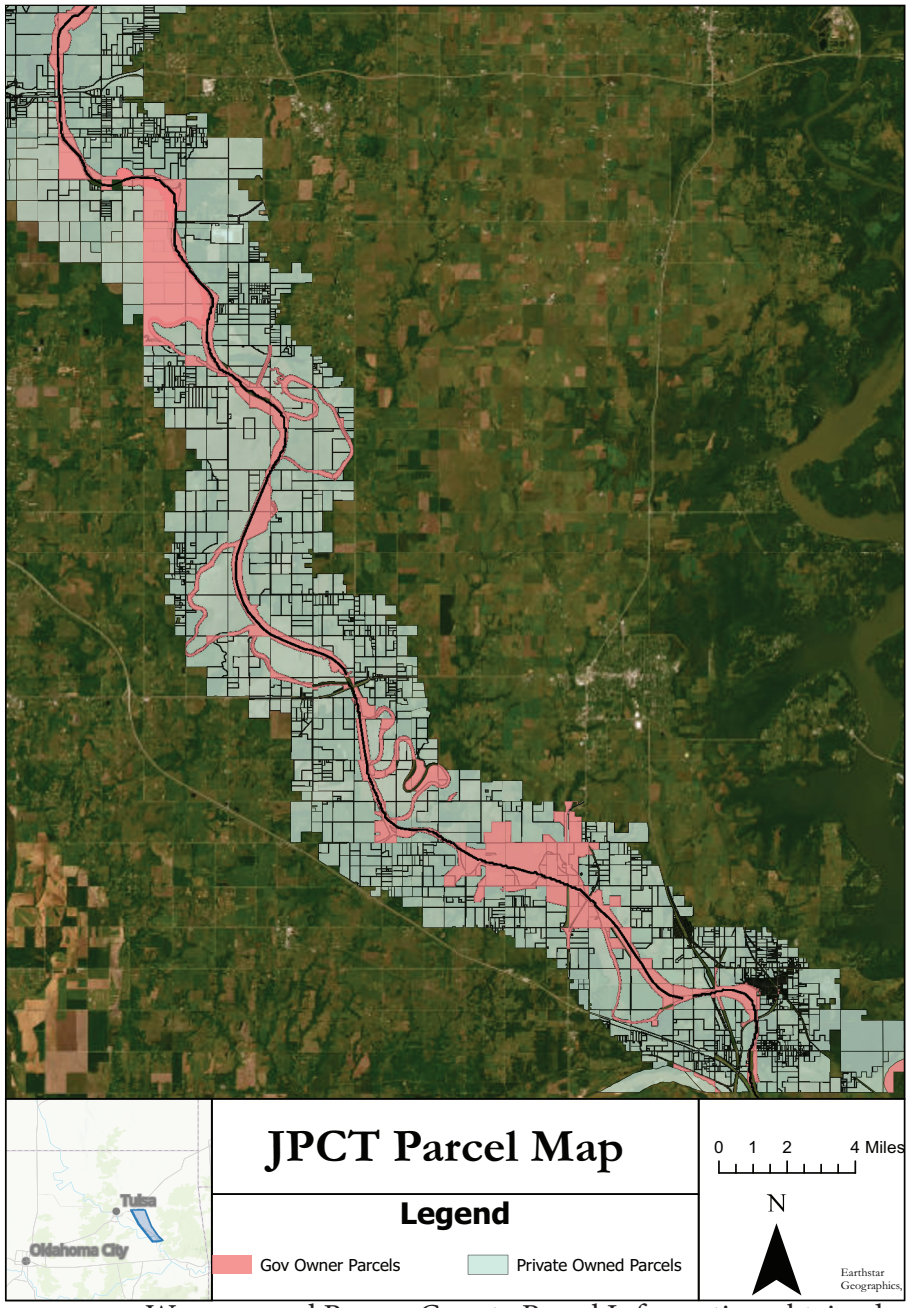


Figure 18 Wagoner and Rogers County Parcel Information obtained from the assessors office.

As previously mentioned, much of the land surrounding the trail is privately owned, making it imperative to avoid encroaching on these properties when proposing routes. Fortunately, a map revealed that the land near the Verdigris River is government-owned, specifically belonging to the Corps of Engineers. This information significantly streamlines the route selection process and eliminates the need for negotiations with private landowners.

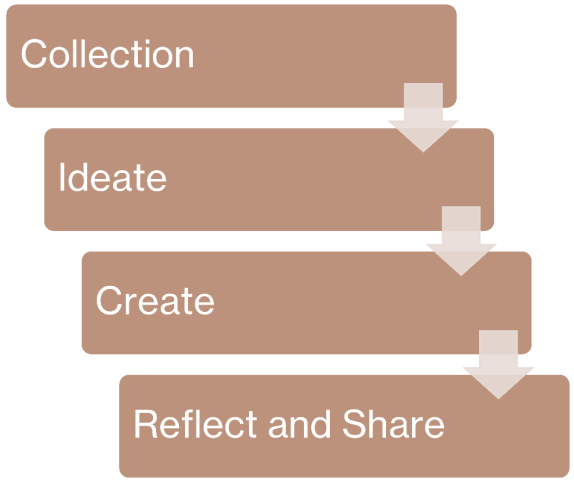
Another important aspect this map held was the selection of trailheads. It was important that trail heads did not have to cross private property, and be easily accessible by the public.

Recommendations

Design and Planning Process

The design and planning process of the project consisted of collection of information, whether that be historic information, parcel data, or photographs. Ideate, which was brainstorming. Creating, which consisted of siteplans, renderings, and a wayfinding guide. Last but not least reflecting and sharing, which is happening now. Each step in this process played its own importance throughout the project.

The design process focused heavily on functionality and easy maintenance. It was imperative to the entire project that all designs could be easily repaired and kept in good condition. Each design started from a siteplan, and then



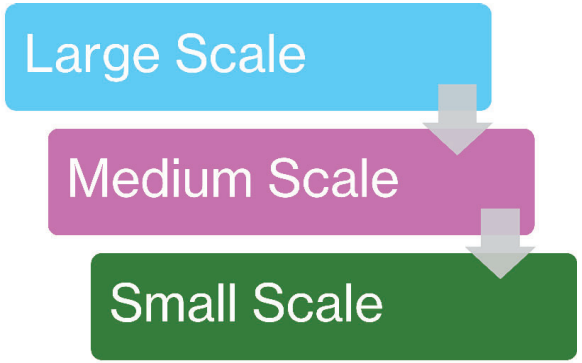
transitioned to a 3D visualization. While these are not to be taken too literally, these can be used to inspire communities as they review this plan.

Scales

The project consisted of different scales. This was due to the overall size of the trail. This involved myself bouncing between these scales as the project progressed.

These scales were large, medium and small. Large scale items include things such as the route, the connections and locations of trailheads. Medium scale items included the siteplans, and renderings of the trailheads. As well as the wayfinding guide. Small scale items included the design standards of the trail,. This included the trail type, the location of the trail material.

During this next Chapter, each portion will be color coordinated with what scale it belongs to. Those colors can be found below.



Plans and Routing

Proposed Route

The route of the trail project is a crucial aspect as it determines the users' experience and the connections they can access. Given the stakeholders' emphasis on economic development and opportunity, the route holds significant value in this project.

The proposed route follows the original path, staying on Army Corps of Engineer's land to avoid private landowner issues. This strategic decision simplifies the process and minimizes potential complications.

Additionally, the start and end points of the trail have been carefully chosen for maintenance feasibility and user accessibility. The trail will begin just south of Highway 412 and end at the renovated Fort Gibson Site. This site has users currently and has gotten attention from the mountain bike community.

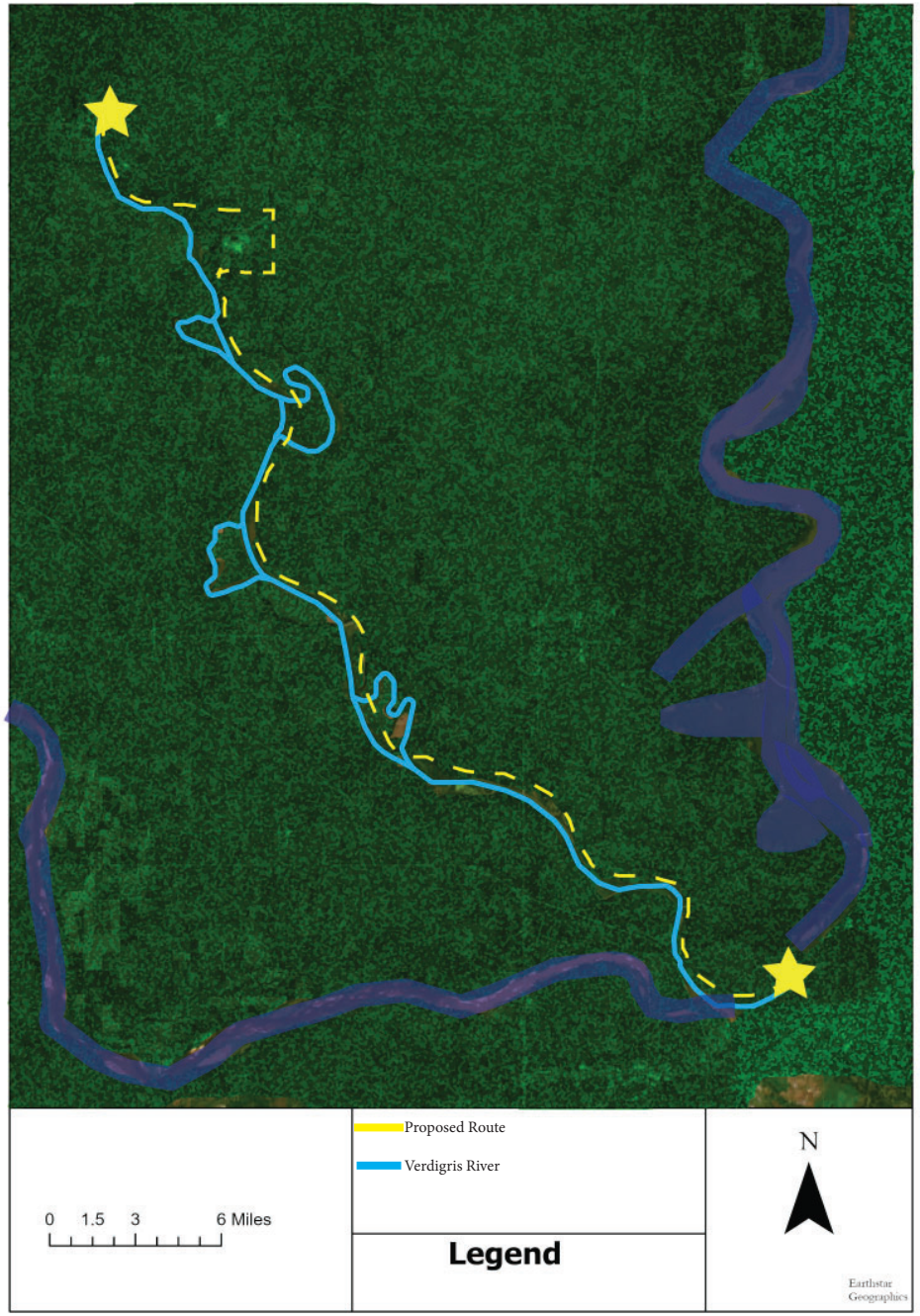


Figure 19

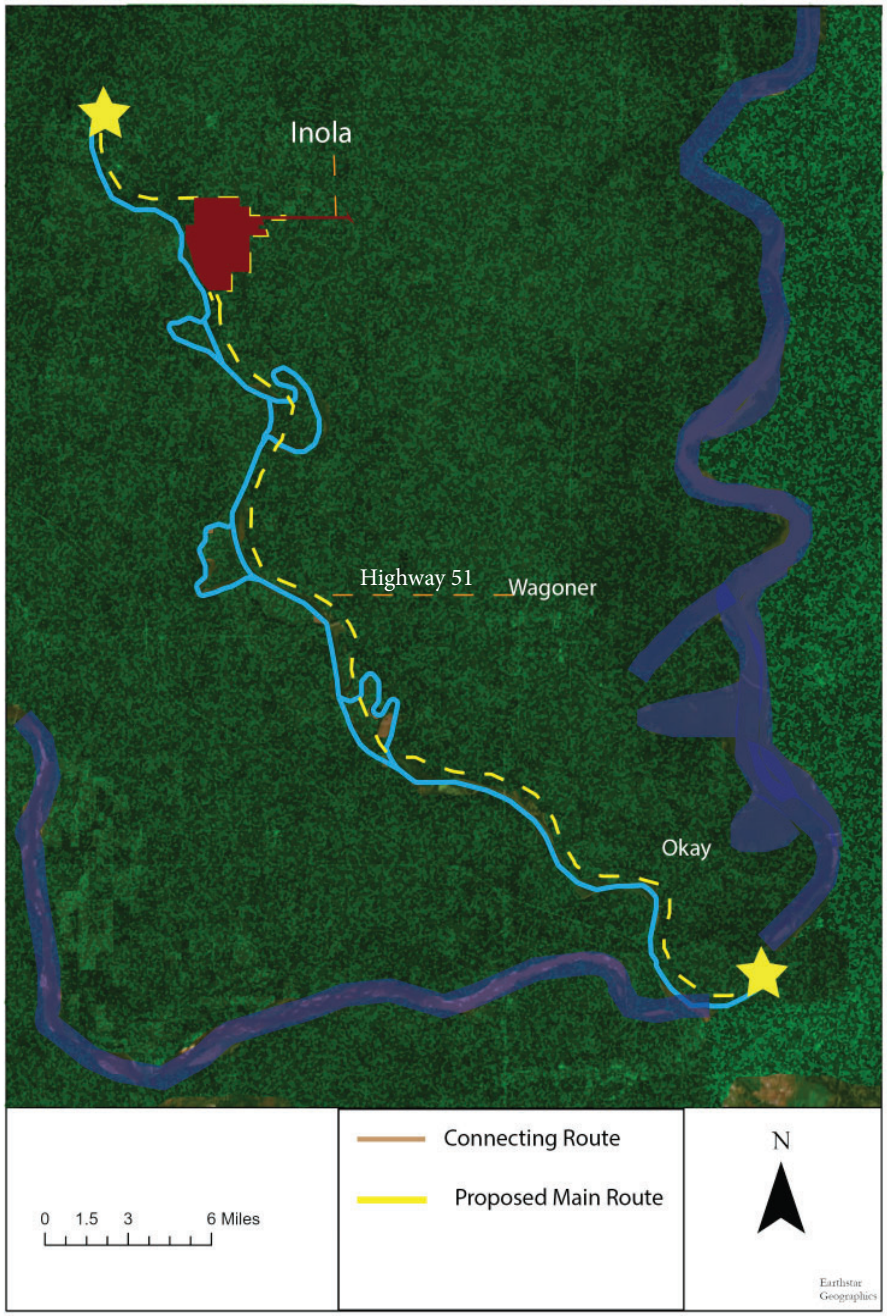


Figure 20

Plans and Routing

Connections

The proposed connections would connect the trail to three towns: Inola, Wagoner, and Fort Gibson, as they offer the most amenities for users. Inola has restaurants and a medical office, while Wagoner provides hotels for a convenient mid-trail stop. Fort Gibson offers hotels, dining options, and a rich history of the area.

Users can access these towns by walking along the side of the roads, eventually connecting to the trail via side paths. For Inola, users would walk up S 4210 Road, a 3-mile walk to downtown Inola. Wagoner could be reached by following Highway 51, a 5-mile walk from the Afton Landing Trailhead. Fort Gibson access would involve crossing the Grand River Bridge from the current JPCT trailhead parking lot, leading to the Fort Gibson Historical Site.

Plans and Routing

Port of Inola

Navigating the relationship between the trail project and the Port of Inola has indeed been a significant challenge. The presence of truck traffic within the port area made it impractical to route the trail directly through it. However, it was also crucial not to exclude the port from the benefits that the trail could bring to the area.

To address this, a careful route was chosen to keep the trail off private property while still allowing access for both port users and trail enthusiasts. This approach ensures that the port can leverage the trail's advantages, such as increased visibility and potential for economic activity, without compromising its daily operations.

By maintaining a separate but accessible path for trail users near the port, we strike a balance where both entities can coexist. Trail users will have the opportunity to appreciate the port's activities and significance to the region without interfering with its essential functions, fostering a mutually beneficial relationship between the JPCT and the Port of Inola.

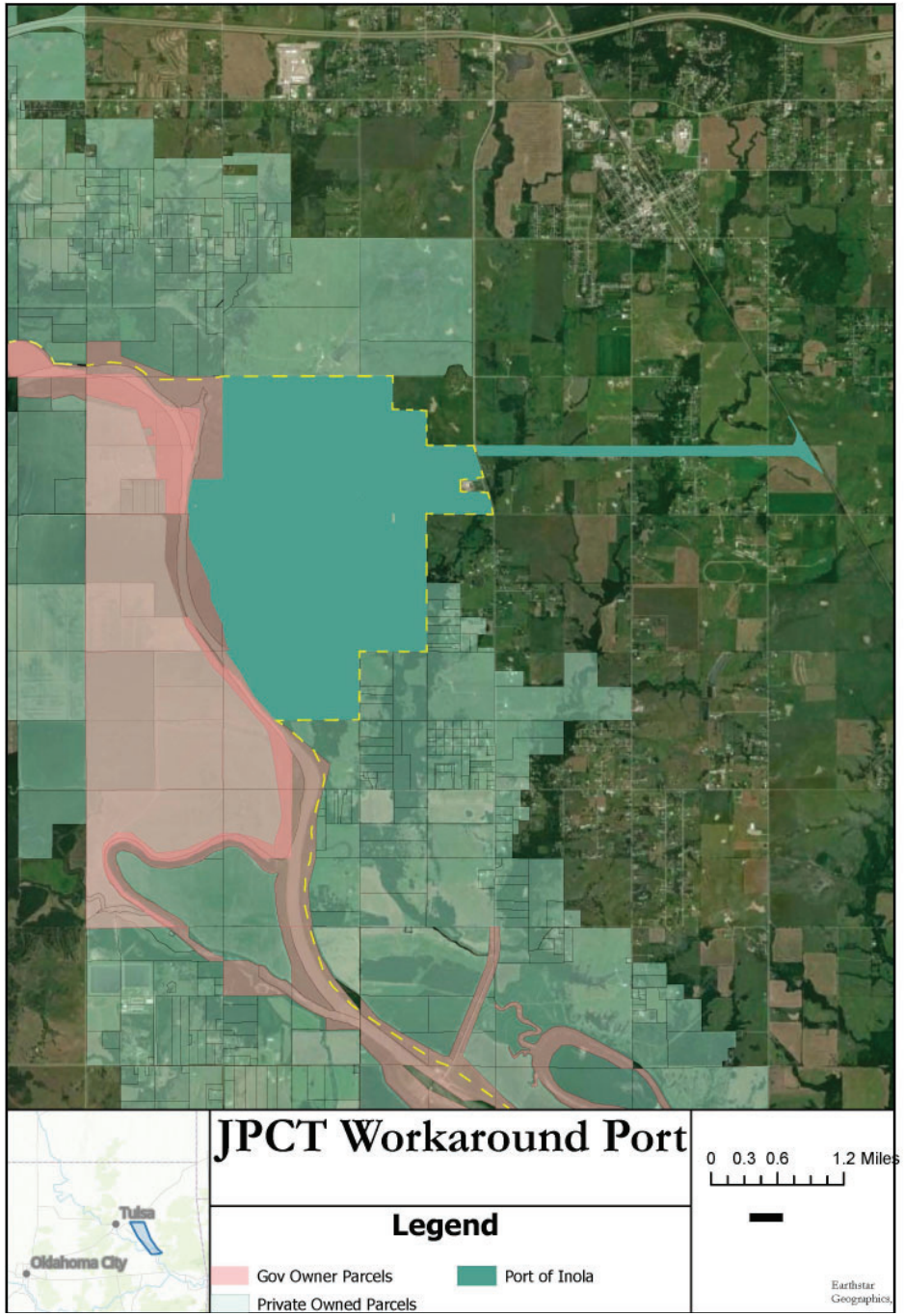


Figure 21

Trailheads and Campgrounds Locations

The trailheads and campgrounds locations were very important to the project. It was important for the trailheads to have a somewhat already established space, and for the campgrounds to be functional, but low maintenance. It was also important for these amenities to close to the connecting towns.

The trailheads will have vehicle access, places to camp, walking trails that are more accessible. Each trailhead has their own amenities that separate them from one another. The spacing of the trailheads allow for endurance races to begin at either end since they aren't too far apart.

The map to the right shows the proposed location of the trailheads and campgrounds, as well as marking a beginning and an end to the trail.

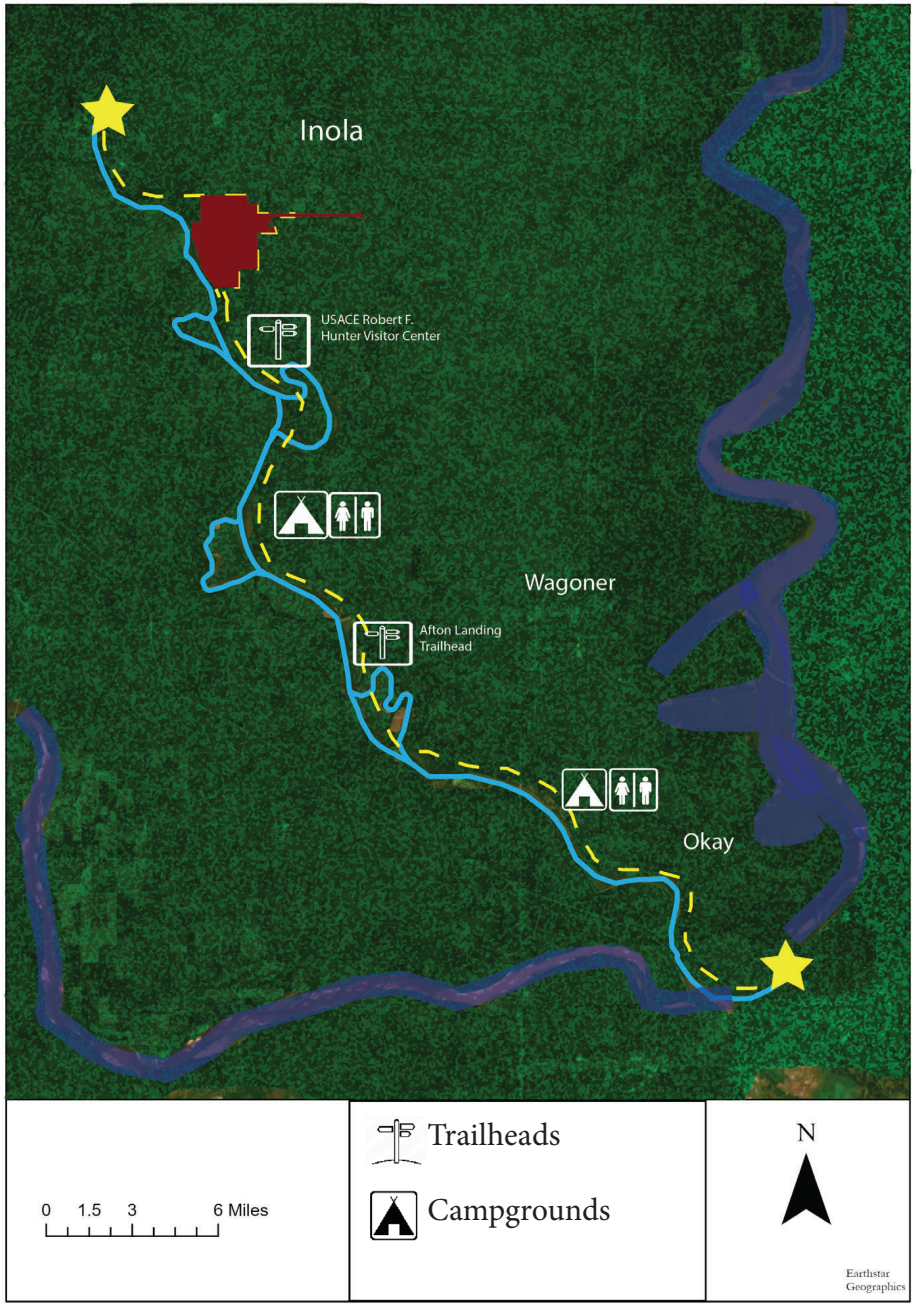


Figure 23

Trailheads

USACE Robert F. Hunter Visitor Center Trailhead

The USACE Robert F. Hunter Visitor Center is one of the locations for the proposed trailheads. Currently the site has a visitor center where you can learn about the Lock and Dam. USACE are actively working on adding bathrooms to the site.
With the proposed additions and ample parking, it seemed like a good idea to place a trail head here. By increasing utilization of the site, it may be possible to increase the investment of the site. This project will have a viewing area right along the banks of the Verdigris rivers, a paved trail, and parking for campers. The goal with the paved paths is to make the trail as accessible as possible for users. The site would also have a multi-use trial in the elevated portion to the east. Hopefully by filling the area with trees, the more rural feel of the trial could continue even at a trailhead. This location made the most sense when it came to selecting a trailhead. Mostly due to its existing state, and the USACE's mission to drive more visitors to the existing site.

Above is an aerial photograph of the lock and dam as it currently sits.

USACE Robert F. Hunter Visitor Center Trailhead

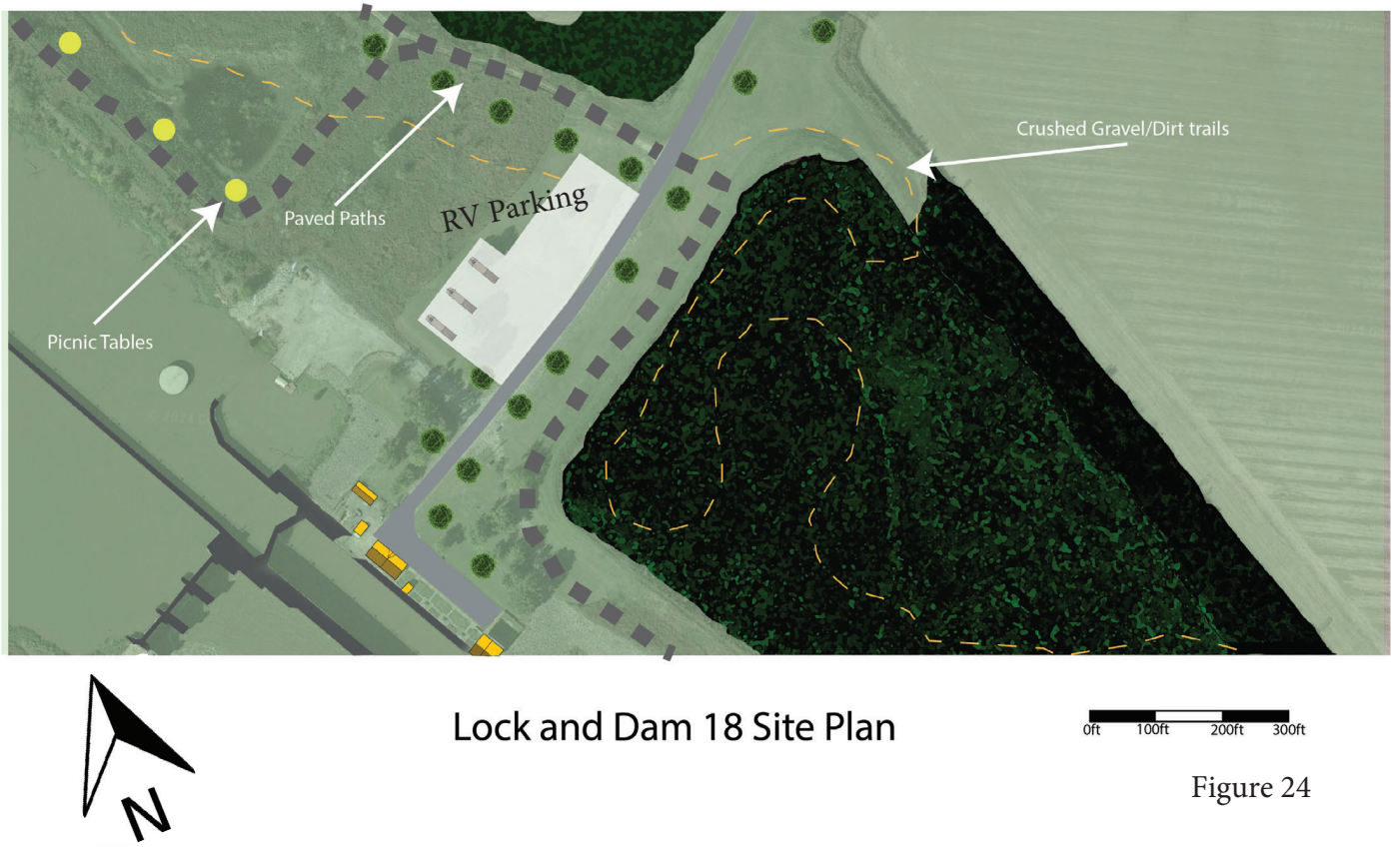


Figure 24

The only existing features on the plan is the dark grey drive through, and the buildings.

There are currently 5 existing buildings on the site. Those can be found in orange on the plan.

The added parking is mostly for Recreational camping vehicles.

Picnic Tables

Added Parking

Picnic Tables and Viewing Station

Labeled as Picnic Tables in Red on previous site plan.

Figure 25

Featured is a rendering of the picnic area next to the Verdigris River. The paved trail would tie into the trail going north, and would eventually lead to the main portion of the proposed trailhead. This would be the more accessible portion of the trail, and would be close to parking so users could enjoy this for a few hours and go leave rather than hiking for multiple days.

Entry Of the Trailhead and Trail

Labeled as Entry on the site plan.

Figure 26

Above is an entry to the trail. Currently the landscaping is lacking, but with increased in landscaping, and continuing the paved trail it allows the space to feel fuller. To the left the cyclist is heading to the more rugged terrain trail to ride some single track. While the runners are heading to the Visitor Center along the river.

Campgrounds

The campgrounds along the trail are meant to be simple, functional, and easy to maintain. Considering they will not have heavy vehicle access, it is important to ensure they are easy to maintain.

Two things were highlighted during the design process. Those were structures, and feasibility. It was important to create a feasible campsite, with permanent structures so if you are hiking along the trail and forget a tent, you are able to have a place to take shelter. Grills would be placed so users can cook for themselves, as well as bathrooms.

The Appalachian Trail – Rangeley Lakes Region

A lean-to provides shelter to Appalachian Trail hikers in the Rangeley Lakes section of the trail.

Figure 27

The inspiration for the permanent structures comes from the structures along the Appalachian Trail. These seem to be possible to build piece by piece. [6]

Figure 28

Campground Renderings

Figure 29

Above is an idea of how the campgrounds along the trail. Both campgrounds would be similar in style but could vary to based on their site. The bathrooms would be like the ones featured here, which are flush toilets. There would lights that are solar powered above the bathrooms. The campgrounds would be placed along the wider multi use trails. These would act as checkpoints before getting back onto the smaller dirt path. Featured on this image is an example of a mile marker, these will be discussed in more detail in the wayfinding guide.

Trailheads

Afton Landing Trailhead

The Afton Landing Trailhead, situated just under 10 miles from the USACE Robert F. Hunter Trailhead is an existing facility boasting a boat ramp, bathrooms, and space for tents. In enhancing this trailhead, the additions will include an enhanced playground, paved trails, and a dedicated Glamping space. Glamping is, "outdoor camping with amenities and comforts (such as beds, electricity, and access to indoor plumbing) not usually used when camping."[7] This would hopefully encourage more users at the site.

This location is the site for the second proposed trailhead. Afton Landing is south of Highway 51 and 5 miles from West of Wagoner. This space is currently relatively under utilized, but could benefit from a re-haul.

Image from Google Maps of Afton Landing.

This is an aerial view of the site currently. As you can see there is a lot of open space that is underutilized. The site currently consist of a boat ramp, some bathrooms, and RV parking. I believe it is currently used as a fishing spot for many users.

Afton Landing Trailhead

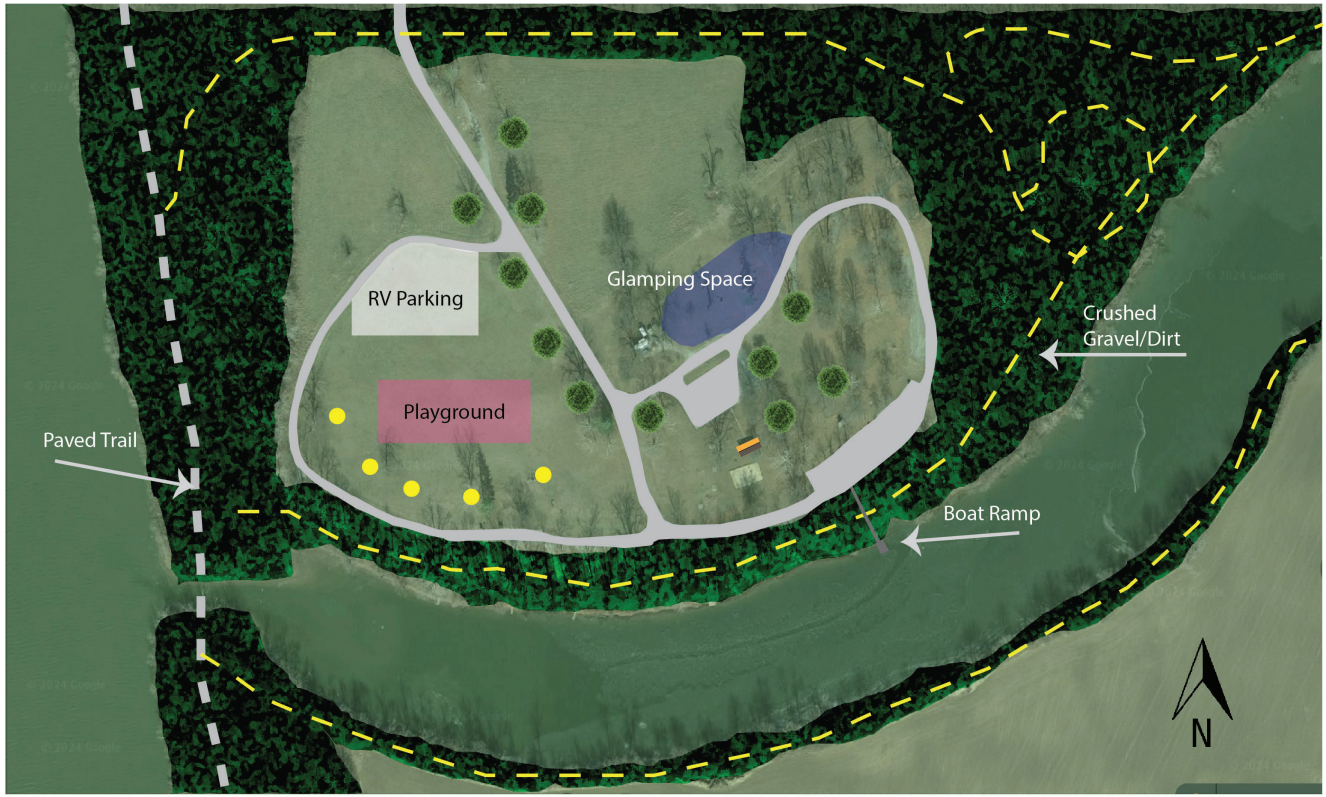


Figure 30

Above is the proposed site plan of the Afton Landing trailhead. The boat ramp would remain. But additions include the updated playgrounds, paved trails along the Verdigris River, and a gravel/dirt trail system around the trailhead. The goal much like the other trailhead is to provide a space for people to come and enjoy their time without having to hike the entire trail.

The only existing feature of this trailhead is the boat ramp. Everything else would be additions.

Glamping Site

Figure 31

Upon consulting with HOMMA Camp company[8], they emphasized their users' preference for a natural setting while having convenient access to essential amenities. This location, within reach of Wagoner's grocery stores, aligns perfectly with their needs. Additionally, they value having electricity in their tents for powering air conditioners. The proposed dedicated glamping space not only fulfills these requirements but also provides an ideal spot for individuals seeking a brief nature getaway with a touch of comfort.

Bridges

During the project, the concept of bridges underwent a significant transformation. Initially, the focus was on minimizing the number of bridges through rerouting. However, upon careful deliberation, it became evident that strategically selecting bridge locations was more practical. There are a total of 10 proposed bridge locations, each varying in length, with the longest spanning 380 feet across. Depending on the bridge's length, the type would vary among three proposed options: pontoon bridge, steel truss bridge, or suspension bridge.

Bridge Number	Length
1	100ft
2	180ft
3	130ft
4	200ft
5	150ft
6	140ft
7	160ft
8	100ft
9	160ft
10	375ft

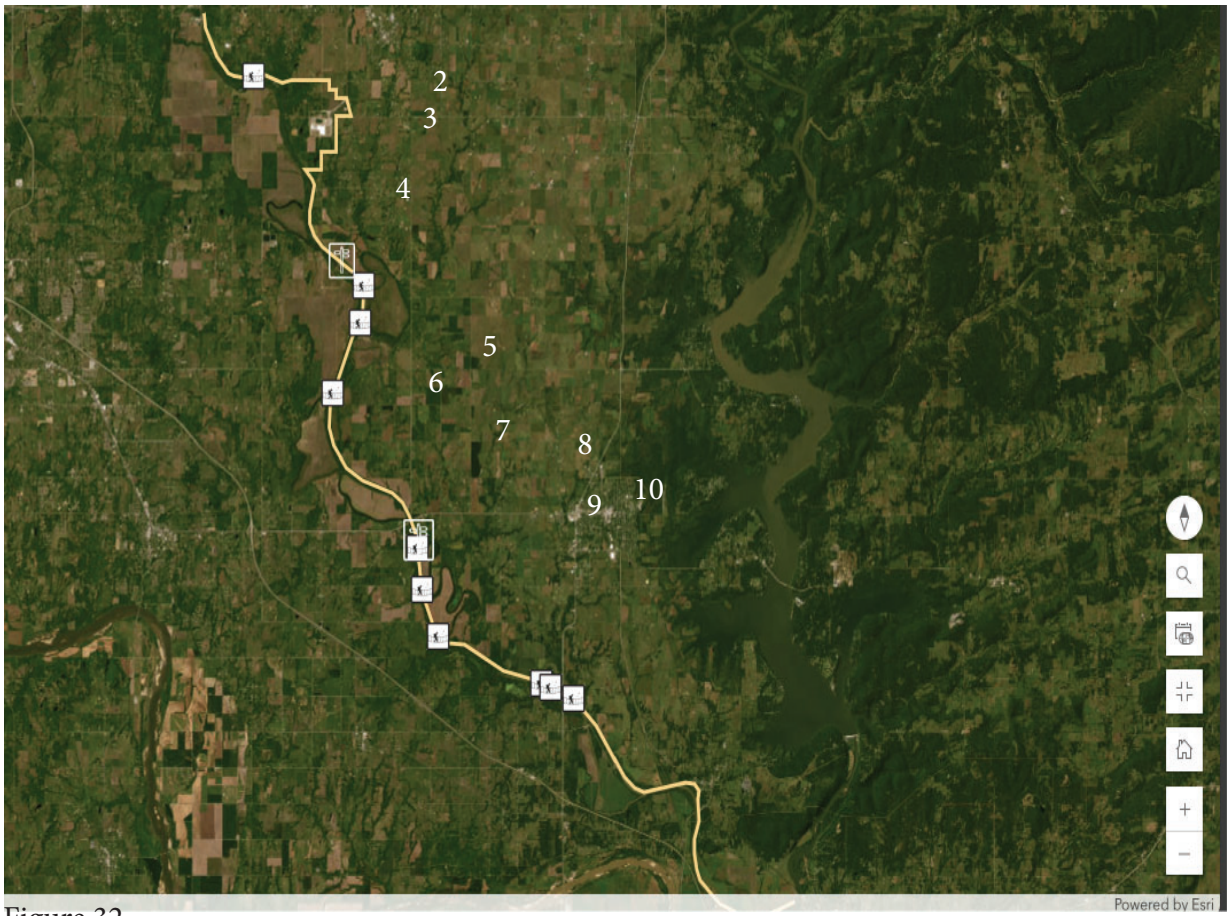


Figure 32

Metal Truss Bridge Example
Location: Any length over 200ft

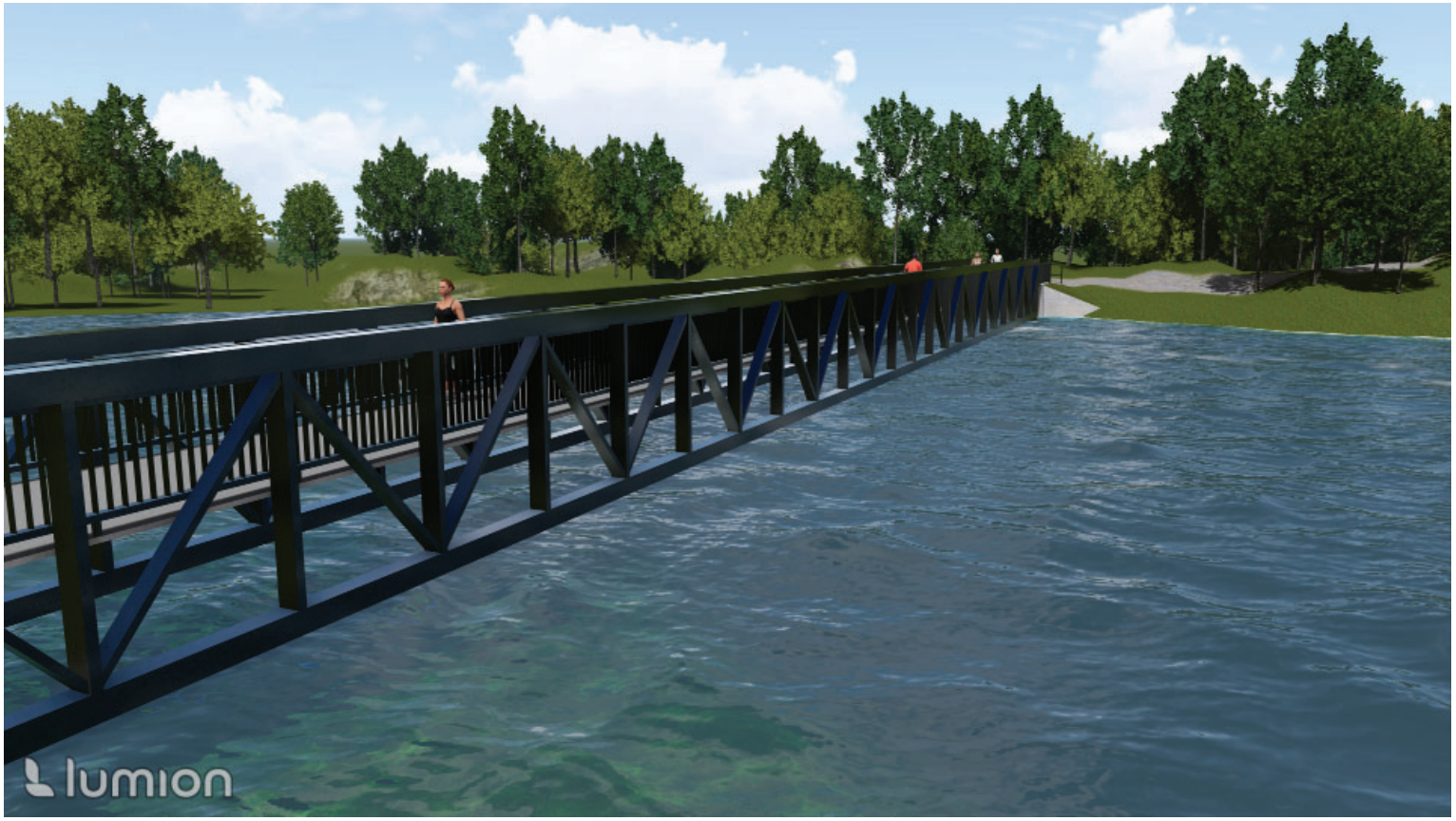


Figure 33

Presented is a steel truss bridge spanning approximately 200 feet, strategically positioned along the trail for universal accessibility. The span of these bridges could be shortened by placing piers in the water where possible. The design approach prioritizes longevity and value, ensuring that the infrastructure endures and justifies the investment.

Figure 34

Above is the White River Suspension bridge[9]. This is located along lake superior and is a good example of the suspension bridge that would be placed along the trail. The suspension bridge would be reserved for a singular location on the trail. This bridge could span across the widest span, or stop halfway and have a second suspension bridge across.

Figure 35

A floating bridge[10], also known as a pontoon bridge, presents itself as a cost-effective alternative for the trail project, applicable to multiple locations. Its adaptive nature allows it to rise with water levels, ensuring functionality even when water levels recede, as it can rest on the ground. This solution is deemed practical and serves as a valuable testing ground to assess the necessity of larger investments in specific areas. These could be placed at any water crossing along the trail, and as said earlier would be a good starting point for each crossing.

Design Standards

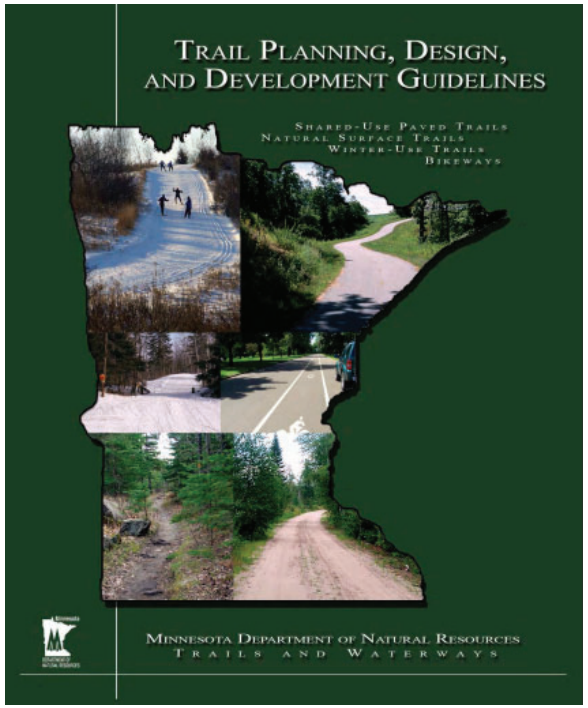
Overview

The design standards section of the project is a pivotal component, despite its brevity, due to its profound impact on the project's realization. This segment assumes a critical role in bringing the project to life, emphasizing good standards for development. Considering this would be such a long project, it is important to stay consistent with development.

Within this section, various key topics are addressed, including the creation of a comprehensive wayfinding guide, considerations for future additions to trailheads, and selection of appropriate materials. The overarching objective of this portion is to cultivate a sense of uniformity and continuity along the trail, ensuring that users can effortlessly identify their location on the Jean Pierre Chouteau Trail (JPCT).

The wayfinding guide serves as a navigational blueprint, created to facilitate seamless traversal of the trail. It encompasses a strategic deployment of signage, directional indicators, and informative displays, strategically positioned to enhance user experience and ease of navigation.

A careful approach is needed in selecting materials used throughout the project. This approach consisted of individual research, as well as testing different material on other trails. Emphasis is placed on durability, sustainability, and accessibility. This is very important to allow for easy maintenance of the trail. Each portion of this chapter was decided upon with sustainability in mind. Since maintenance issues is what hurt the trail originally, ensuring that everything would be easy to maintain was imperative.



These guidelines were loosely followed for suggestions to the trail. [11]

Design Standards

Trail Design

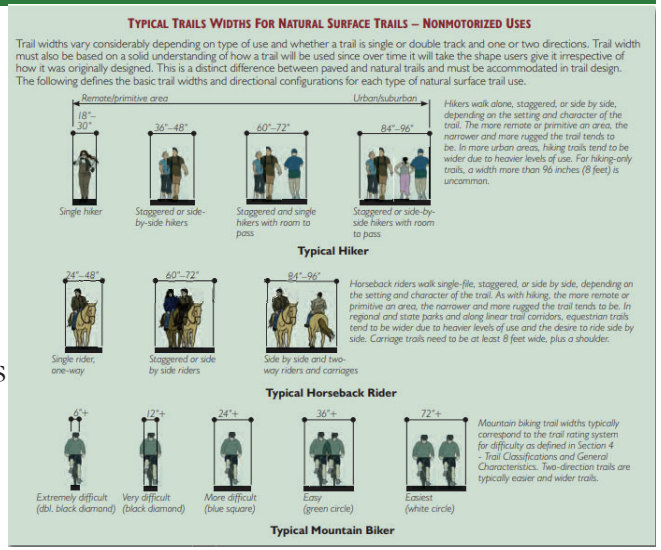
The trail design section of the project consisted of three categories: trail width, trail material, and location of the trail. Trail width refers to the width of the trail, which depended on the material used. This segues into the next category, trail material, which plays a vital role. If the project were to propose paving the entire trail, many municipalities might not see that as feasible. Therefore, when choosing materials, maintenance was important. It was crucial to choose an easy-to-maintain material for the vast majority of the trail. The location of the trail encompasses where the trail widens and where materials change. This decision was based on the surrounding environment of each trail section.

Trail Width

The width of the trail varies due to: locations and materials. The thought process regarding width relied heavily on the users. It was important to ensure that portions that might attract more users were wide enough to accommodate those users. We did not want a more rugged section of the trail to be a 10' wide paved trail, as that does not seem like a good investment. The goal was to make the rugged sections feel like you are on an adventure, and the heavily trafficked areas feel like a city park.

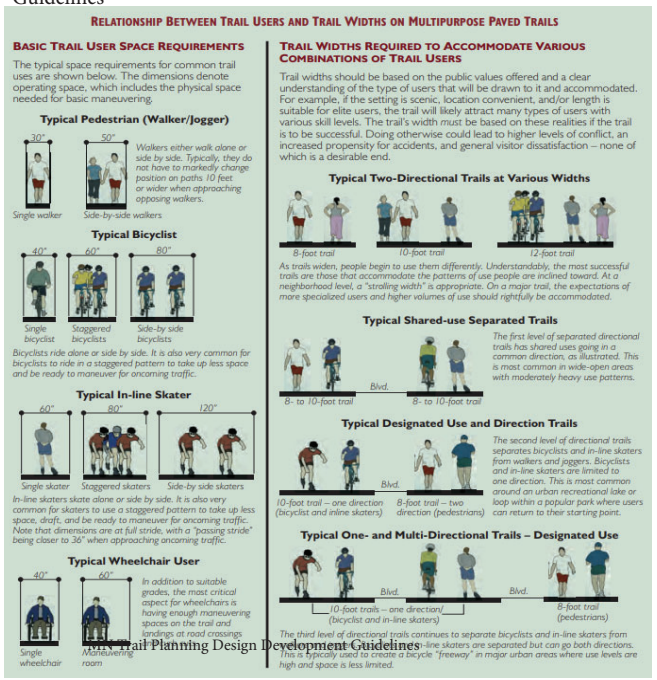
There are three widths scattered along the trail: 36" to 48" wide trails, 40" to 80" wide trails, and 10' wide trails. Each of these widths contains a unique material as well.

These widths follow the Design and Development Guidelines of the Minnesota Department of Natural Resources. Following the tables from the guide allowed myself to make an educated decision on the width of the trail.



MN Trail Planning Design Development Guidelines [12]

Figure 36



MN Trail Planning Design Development Guidelines

Figure 37

Each type of material along the trail was decided based on the user type. So, if the goal was to make the trail more accessible, it was important for us to use a paved surface so that all users could enjoy the trail. Following the theme of the project, we ensured that the trails were sustainable and reasonably easy to maintain.

There are three different types of materials proposed. The first is the traditional dirt path. These paths would be 36" to 48" wide and located in the more rugged portions of the trail. This is the most common material.
Next is the crushed gravel/multi-use material they would be 40" - 80" wide. This would be a mix of crushed gravel and hard-packed dirt. The hard dirt would be used for the mountain bike trail, and the gravel for hikers. These paths would vary between 40" and 80" wide and be placed in areas near trailheads, but also along the trail as a transition to the dirt paths.

The last material type is pavement. They would be 10' wide. These trails would be placed at both trailheads. The goal with these is to create accessible trails for many user types. Additionally, these trails could be accompanied by lights of some kind for the safety aspect of the trail.

Location

The locations of the trail material was important as we wanted to ensure each trail material and width was consistent, and made sense to the users. The map to the right shows what materials will be placed where along the trail. You can see that the area between the two trailheads is higher quality than the dirt path.

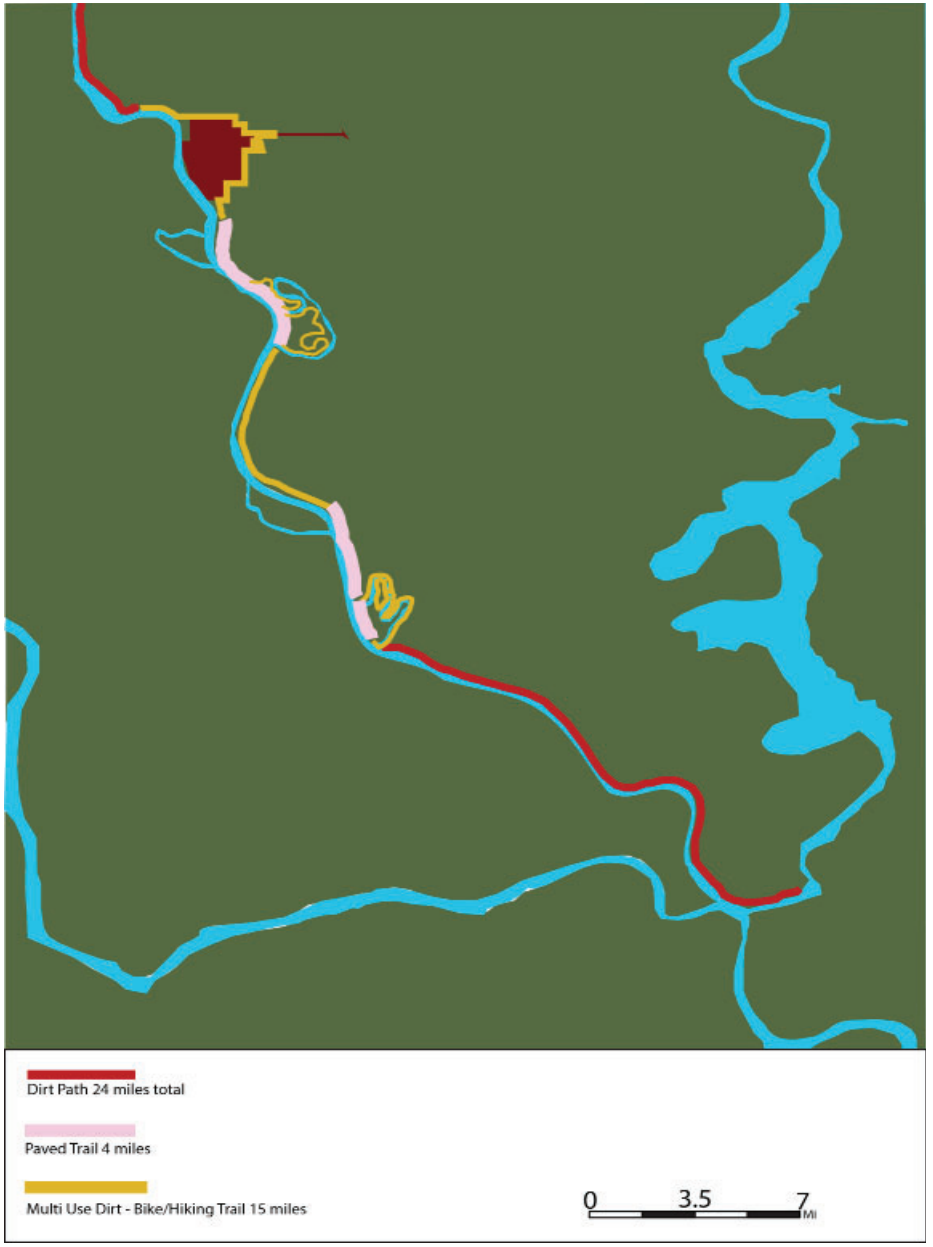


Figure 38

Design Standards

Wayfinding Guide

For the wayfinding guide, the biggest goal was consistency with the signs, and for them to be easier to understand. The guide follows the Rails to Trails conservancy Signage and Surface Markings guide.[13] Each sign to has a defined purpose, and while blending into the natural environment, be noticeable to users along the trail. There will be examples of the mile marker and the wayfinding signs after the description of the signs.

What is Wayfinding

Wayfinding according to Dr. Paul Symonds is, "about how we find our way between places"[1]. Wayfinding is essential in our everyday life, but even more important in places where signs are the only way to orientate yourself.

Interpretive Signs

An interpretive sign tells a story or relays information to the trail user. These would be used to tell the history of the trail, and its importance to the surrounding communities. It could also be used to let the user know what kind of poisonous plants or animals to watch out for along the trail. These would be placed near campgrounds, and be scattered near the trail as well.

LACKAWANNA RIVER HERITAGE TRAIL | PHOTO BY ANTHONY LE

Figure 40

Wayfinding Signs

The wayfinding signs are exactly as they sounds. These will be used to help the users understand where they are at and where they need to go. These will be placed at trailheads, and campgrounds. They will have a larger map with an identifier showing where the user is, and a list of the nearest amenities along the trail. These will be more grand than the other signs, and stick out a bit more along the trail.

GENESEE RIVERWAY TRAIL | PHOTO BY ELI GRIFFEN

Figure 39

1 Dr Paul Symonds., Dr Paul Symonds has a PhD in Wayfinding from Cardiff Metropolitan University in the UK. Paul works with the signage industry. "What Is Wayfinding? Definition and Explanation of Wayfinding as a Term." Wayfinding & Navigation Expert, May 14, 2023. https://www.travelwayfinding.com/what-is-wayfinding/.

Donor Recognition

These are a way to encourage maintenance along the trail and take some responsibility of the USACE. This would allow for groups such as boy scouts groups to sponsor a portion of the trail or campground that could be named for them. The goal is to create a since of ownership amongst the users. This could in turn create a community that wants their trail or campground to be clean.

Figure 41

Mile Markers

Mile Markers would be used every mile. These would let the users know what mile of the trail they are at. Unlike normal mile markers they will have a map of their portion of the trail to give hikers an idea how far they are from the nearest campground. These are placed along the trail, and would stick out a bit from the nature to ensure users can see them.

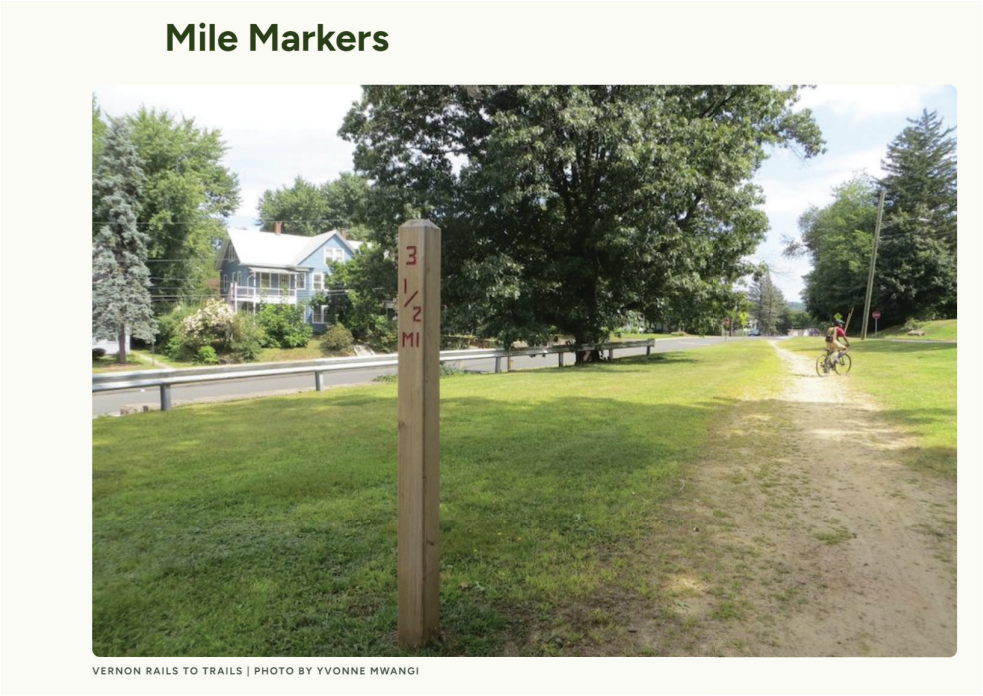


Figure 42

Design Standards - Wayfinding Sign Example

Figure 43

Here is an example of a way finding sign. A brief description of the trail, followed by the trailhead that you are at. It list the number of miles you would have to hike to get to the nearest campground, as well as the bridges you may encounter along the way. These are used to help the user understand where to go, but also to intrigue them to go farther.

Design Standards - Mile Marker Example

Figure 44

Here is an example of a mile marker. These will be placed at campsites, and along trails and feature a smaller map to ensure users are heading in the right direction. While small, these may just be the most important piece of signage along the trail.

These signs are made of metal and wood. They will be anchored into the ground with concrete to ensure they are stable.

Design Standards

Future Trailhead Improvements

After a short time, it may become necessary for the trailhead to feature some more permanent structures. The idea of a s structure that could be rotated between different vendors could be beneficial for hosting events.

The design process with this structure was to create a small but functional space. It was important to ensure that the there is not a need for it to be occupied all the time. It would more than likely be utilized during high traffic days. If placed near a community, that community could sponsor a local business to host their operations there for a weekend.

Another option would be a weekend hiking store. This would only feature small needs, and maybe some bike repair options.

Figure 45

The trailheads would be ADA accessible, and the portions of trails near these trailheads could be accessible for all users.

The goal for the trailhead as popularity continues is to encourage fishing, birding, and historical markers to encourage all users to utilize these points.

These would also have lighting that would be solar powered lights. These would be the same lights located in the campgrounds, and in some portions of the trail as well.

Conclusion

The project has a long way to go to reach completion. There are key subjects to work on as the project gains more interest. These are included but not limited to Phasing, Kick off events, maintenance, and establishing funding sources.

Next Steps

The next steps for the project would be to get the word out about the trail. Unfortunately during the timing of this project I was not able to host a public engagement event. With that I was able to discuss with potential users at the Tulsa Farmers Market, and they did seem interested. This event could consist of some surveys or a visual preference board. These two would be able to help establish what users would be using the trail and what would be most important to those users. This could help establish phasing for the project as well.

Phasing

While the original trail was 60 total miles, spanning from the Port of Catoosa to Fort Gibson, much of my subject area for the project was the portion south of Highway 412 to for Gibson.

Phase 1 of the construction should be the USACE Trailhead and the trails that surround it. Since there is already a well established trail in Fort Gibson, by establishing the USACE trailhead, it may gain interest in connecting those trails in the future. This would also be used by the citizens of Inola, since they currently do not have a nature trail. With the current development of the bathrooms here, this made the most logical sense.

Phase 2 would be the dirt trail from the USACE trailhead to the Afton Landing Trailhead. Much like Phase 1, the primary goal with this is to create a space for users to go and park to use a portion of the trail. Now with this trailhead, there could be an appeal to hike north to the other trailhead, and back. During this phase it would be important for the campgrounds and the bridges to began construction as well.

Phase 3 would be the final phase and it would consist of constructing the bridges and the trails between the Afton Landing Campground and Fort Gibson.

Kick Off Events

Kicking the trail phase 1 off could consist of a trail run from the USACE Trailhead. Even in the current state users could utilize this trail with caution. This would get users to the trail, and generate excitement for the phases to come. The next event could consist of trail

running event starting at the USACE Trailhead going south and back to the trailhead. This would open up this portion of the trail, and show users what they can now utilize.

Funding

The funding for the trail can come from a couple different sources. First would be the Wagoner County Lodging tax. They are in the works of getting this implemented, and a portion of the funds would go towards the Jean Pierre Chouteau Trail. Inola, Fort Gibson, Rogers County, The Cherokee Nation, or The Muscogee Creek Nation should also adopt something similar to help fund the trail and keep up with maintaining the trail.

Maintenance Plan

The goal with a maintenance plan would be to take some of the burden away from the USACE. This could be done in a couple different ways. One of those options could be to hire employees who help keep the trail in good condition. This would require funding from Wagoner County, Rogers County, Muscogee Creek, or Cherokee Nation to pay these employees. If each entity helped fund these positions it could be a possibility.

Another option would be to have each municipality that is close to the trail be responsible for their portion. This could be with county as well. The logic behind this lies in the fact that users of this trail could visit the nearby municipality. This could generate tourism for each of the towns.

Last option would be to dedicate portions of the trail to different groups such as a boys scouts group, hiking club, etc,. This with the help from USACE could keep the trail in a decent state. That being said this option could end very poorly if these volunteer organizations became inactive.

Closing

In order for the trail to function and last, it is imperative that Funding and a maintenance plan is in place before any of the phases began. Without these two, the trail would fall into the same situation as previously.

As these are figured out, it would establish a lasting connection with the parties involved, and allow for them to collaborate on the project. This collaboration is also very important to the trail.

Overall, the trail is packed full of potential for Northeast Oklahoma and with the right direction could one day become a staple in the state.

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