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Trails Visioning Design Report



Red Oak Community Trail
Summer, 2021



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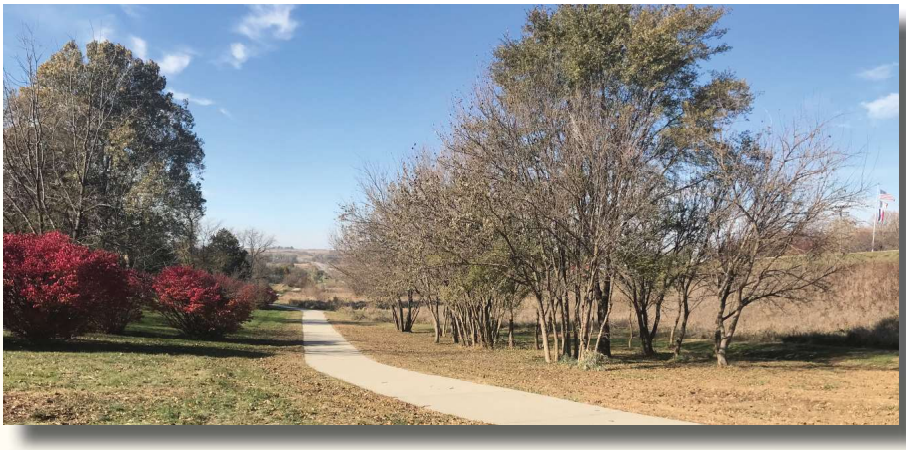
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Trails Visioning

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Trees Forever

Since 1989, Trees Forever has been helping individuals and communities improve and sustain the places where we live, work and play. We engage our network of thousands of community volunteers to help plant and care for trees, prairies and other native plants. We empower passionate advocates for the environment, educate community and government leaders, collaborate to build partnerships and greater capacity in communities, and promote sound environmental stewardship and science. In all that we do, Trees Forever is planting a better tomorrow.

Trails Visioning

Trails Visioning is a program that provides an opportunity for Iowa communities and trail groups to access professional landscape planning and design assistance. Through a series of planning meetings, a local volunteer committee works with a Trees Forever facilitator and a professional landscape designer to identify potential projects along a trail and to create images of what finished projects might look like. Similar volunteer *Trails Visioning* committees across the state have been successful in taking community projects from this conceptual stage to complete project plantings. This program is made possible by funding from the Federal Highway Administration, the Iowa Department of Transportation and the Living Roadway Trust Fund.



Introduction

The purpose of this report is to provide the *Trails Visioning* committee a commentary on the design concepts shown on the boards created. Each design concept is discussed in detail with the intent that the commentary will be useful when visiting with the public to broaden support. The report can also be used when discussing the feasibility of each concept as it moves from design development toward implementation.

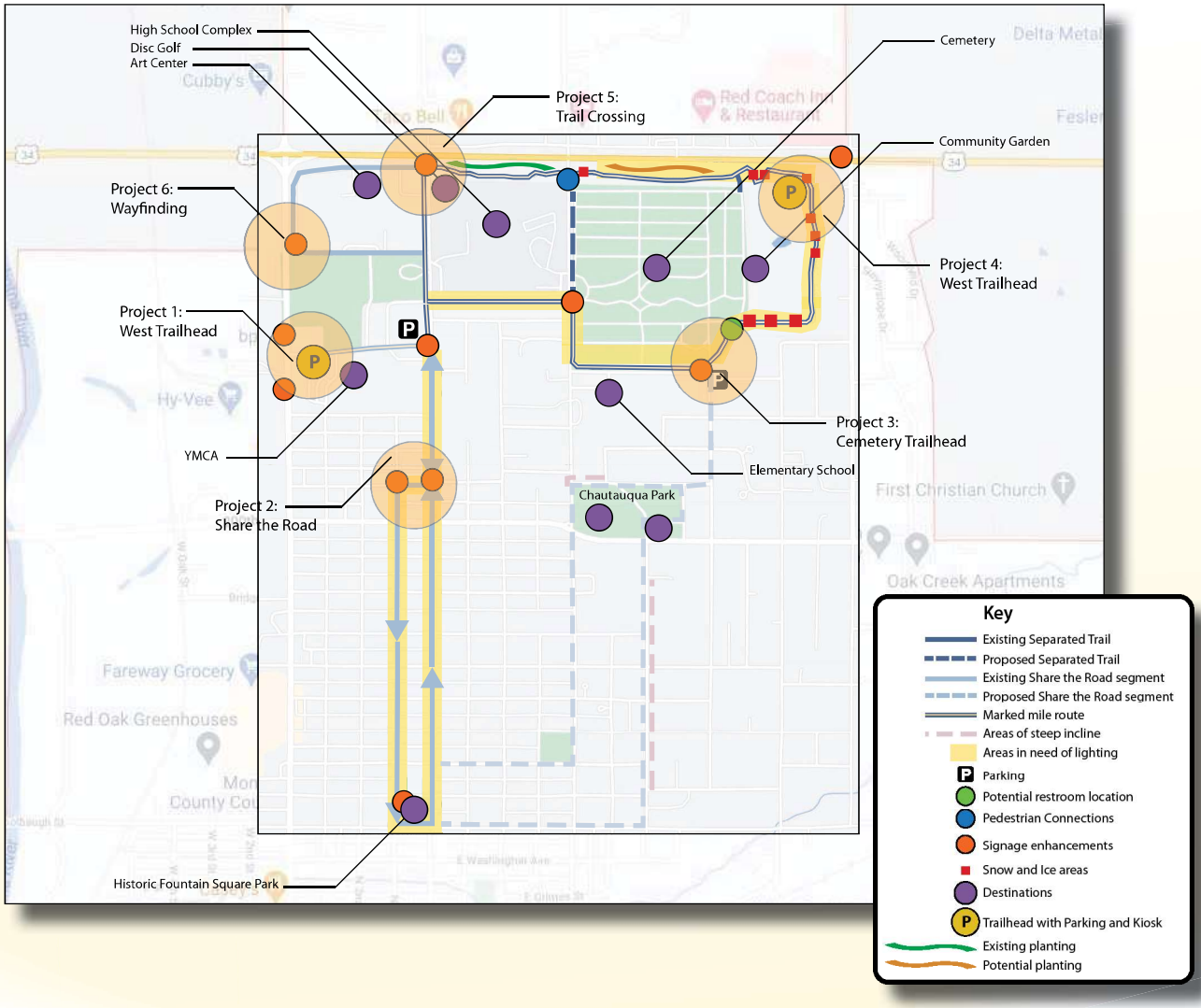
Goals

The concepts were developed with the following goals in mind:

- Develop a unified system of amenities that accommodate trail user needs and unite trail destinations.
- Create a signage system promoting trail recognition, use and safety.
- Develop enhancement concepts for trailheads.
- Explore methods for enhancing trail visibly and safety on Share-the-Road segments.



Red Oak Community Trail





Trails Visioning

Trail Conditions Overall

Through Trees Forever's *Trails Visioning* program, the Red Oak Trail Committee, community members and organizations worked with a Trees Forever facilitator and landscape design specialist to develop conceptual designs for the existing trail system. Located within the community of Red Oak, the trail system connects a series of parks, community spaces, businesses and tourist attractions.

The current system includes 1.75 miles of dedicated trails and includes separated trail segments and share-the-road segments. The trail connects to a variety of community destinations including the schools, YMCA, Fairgrounds, Red Oak City Pool, Community Gardens and Red Oak Cemetery. Two formal trailheads exist, one on either side of the community and trail access points are spread throughout the community. Preliminary expansion plans for the trail system have been developed for natural areas west of the community and into the downtown and historic districts.

The community entered the *Trails Visioning* program seeking enhancements for trail lighting, landscape improvements, signage and wayfinding system, and safety improvements. The following is a summary of the conversations had regarding each concept area and resources available for funding.

Trail Improvement Goals

The Red Oak Trails Committee recognizes and values the benefits provided to the community by the trail system. The community has participated in a series of planning activities in the past and has a successful record of project implementation. The community has turned its focus to the trail system as the next primary area of focus. The system provides community members and visitors of all ages an alternative mode of transportation, as well as immense recreation opportunities. In an effort to enhance the existing trail environment, a coordinated and thoughtful process of enhancement planning will lead to a more cohesive, user-friendly end product. Better defined trailheads, user comfort amenities, addressing safety concerns, developing useful signage and creating a vegetation management strategy are ways in which the current trail system can continue to expand and improve, providing benefits beyond the trail landscape. Proper planning, installation and management of amenities will help emphasize trail priorities and promote benefits to trail users, adjacent neighborhoods and the local environment.

The group of individuals serving as the *Trails Visioning* committee represented various aspects of trail users and interested groups. The Red Oak Trail Committee is a volunteer group that has partnered with the City of Red Oak to assist with trail enhancement planning, fundraising and trail promotion. The group represents trail users of various ages, interests and professional backgrounds including business owners, active adults, retired persons, working professionals, young families, city government, runners, walkers, and bicyclists. Together, the group worked through a series of meetings to gather information, identify current site conditions, and identify challenges- all culminating in a prioritized set of projects.

Signage Overview

Signage Overview

Three signage family concepts have been presented through this project. These options are meant to provide the trail committee with options so that once a system is determined; it incorporates elements that are exactly what the community wants and needs. These concepts were all inspired by existing pieces of the community and are designed to coordinate with the community signage system, creating a cohesive community aesthetic while maintaining a distinct trail signage system. The committee is free to take pieces of each of these concepts and incorporate them into a design that is most desirable for them and the trail community.

Trail Entryway Signage

Entryway signage helps alert trail users and those within the community of trail accessibility. The target audience for entryway signage is people traveling in a vehicle. Located at trailheads and access points, entryway signage announces primary access and information locations along the trail. Often the first piece of the signage system experienced by trail users, entryway signs set the design standard for the remainder of the system. Trail users are introduced to signage design, which enables them to easily identify other pieces of the system as the trail is explored.

Relatively large in scale, entryway signage needs to be visible and legible to vehicular traffic. Text should be simple, bold and communicate only necessary information, such as trail name and location within the community. Each proposed entryway signage concept for the Red Oak Trail system references the trail name, with concept one demonstrating a reference to the specific trailhead name, and the third incorporating amenity symbols. By including the trailhead name, it is easier for trail users unfamiliar with the system to identify their exact location. In addition, it customizes the signs and promotes community pride. The use of universally recognized amenity symbols provides vehicular traffic information about the resources available at the given trailhead. Awareness of the available services recruits potential trail users. This trailhead sign also promotes safety by reducing unintended vehicular traffic at a trailhead and alerts drivers of pedestrians.

Trail Information Signage

Trail information kiosks provide the trail users with basic information about trail conditions at trailheads, key destinations and the beginning of trail segments. Typically, information on kiosks, at minimum, provides a system map with a "You are Here" locator, rules and regulations for the trail system, trail distances, trail accessible destinations, and trail accessibility details. The specifics of the information found at each kiosk should be determined through an analysis of the site and needs of the trail users at each specific location. While informational signage is viewed from a standing location, information on a sign should be kept simple and short so that trail users of nearly all ages can access the information. A fourth grade reading level is a good guide for signage text.

Construction of the information kiosk should respond to the need to update information. Some manufacturers have developed systems that allow maps to be encased in a weatherproof structure that allows for easy replacement. Another option for information updating relies on weatherproof stickers that some manufacturers produce. These are especially useful as amenities, such as restrooms, shelters, picnic areas, etc., are added to the system. These features will help to insure information is kept up-to-date with minimum cost to the community and maximum usefulness to trail users.

Information on these panels varies depending on the location and information necessary to provide trail users. When located at a trailhead, a map of the trail system with a "You are Here" indicator should be included, as well as information regarding trail rules and regulations, destinations or "Ride Right" types of information. Each of the proposed systems are able to grow with the needs of the community and trail. Multiple panels can be placed side by side when it is desirable to provide trail user with more information while guaranteeing that trail users are aware of all the information available. Where landscape allows, additional panels can be added to the back side of the system or an additional unit can be installed. While planning implementation, the committee should estimate the number of signs that will eventually be installed on a site to plan adequately for sign spacing and phasing if necessary.

Trail Wayfinding Signage

Wayfinding signs are proposed for locations where trail users have a choice between routes or the route is questionable. The intent of a wayfinding signage system is to help trail users navigate the trail system and provide information regarding their location within the system and proximity to amenities. A well-designed and implemented system will help trail users identify the resources and attractions located adjacent to the corridor and to make educated decisions on their routes.

Wayfinding signage is intended to be used by trail users while navigating the trail system. Walkers, runners and bicyclists will be reading the information while in motion, therefore sign design should respond accordingly. A solid background color or a very simple, subtle pattern with highly contrasting text will promote ease of readability and use. Simplicity reinforces the information being communicated, so illustrations should be kept to a minimum. Text on wayfinding signs is meant to inform users how to use the trail; therefore, font should be simple and legible from a distance. In addition to the text, standard internationally recognized symbols may be used to further communicate information. Wayfinding signs should be located at semi-regular intervals, at areas of potential conflict, and where the trail splits. As the trail system expands and reaches outside of the community or as the committee desires, wayfinding signage may include distance markers. Distance markers help promote safe trail use by providing users a way to track the distance they have traveled, knowing they need to return they are able to judge their fitness level and schedule so as to safely return to the trailhead.

Signage Overview

A clear wayfinding system promotes safety by allowing users to anticipate the need to stop, slow down, or make a turn, as well as to communicate their intent to other trail users to reduce conflict. It also functions to encourage visits to local and regional attractions, helping to elevate the user experience. A series of information signs have been developed for the growing system to accommodate a variety of situations in which information would enhance the trail experience.

Signage Concepts

Inspired by the community entryway sign, the three concepts proposed for the trail all incorporate different elements of the community entryway sign. The entryway sign is a modern, angular design that uses industrial materials and manufacturing techniques. Each concept pulls from this sign in form, materials, or color. This helps create a unified aesthetic throughout the community's transportation system, both on the road and through the trail system. This strengthens the usefulness of the system, reinforcing recognition as a source of information and helps promote safe use.

Materials and colors proposed for use in the entryway sign mirror those used in the entryway sign or were inspired by the nature of the trail segment. Neutral colors are used in most of the signage options to coordinate with the bronze color of the community entryway sign and to offer expansion options as the trail system expands. A combination of powder coated steel and untreated steel are recommended as the materials used in the signage systems. It is a durable material and reflects the industrial aesthetic of the overall signage system.

Trail Signage



Concept One

An angular design was inspired by the community entryway signs, rectangular on three sides, angled on one. Incorporated into the trail signage is a silhouette of a tree, also inspired by the community entryway signs. System color was selected to complement the style of the system as a multidimensional system. The base of the all signs is a light brown with a darker brown framing the maps, illustrations, and text boxes. A dark brown is used for primary text and support posts. Simple bollards are proposed that incorporate the angular shape of the signage family and the tree symbol.

Layout of entryway signs, large map kiosks, bollards and singular amenity indicator signs should remain the same throughout the system. Information sign layout should be customized to suit the collection of information and graphics being incorporated into the sign system.

Responding to conversations with the committee and their expressed interested in expanding the system in a variety of ways, three themes were offered that could be incorporated as the system expands. The overall size, shape and look of the signage family remains constant while a few details evolve which will help indicate that the trail is part of the overall Red Oak trail system but a new segment has been entered. For the system proposed along the East Nishnabotna River to the west of the community, blue replaces the red coloration and the tree symbol is replaced with a dragonfly symbol. As the system expands south into more naturalized areas, a green color could be used and a native flower or grass could be adopted as the symbol.



Signage Concepts

Concept Two

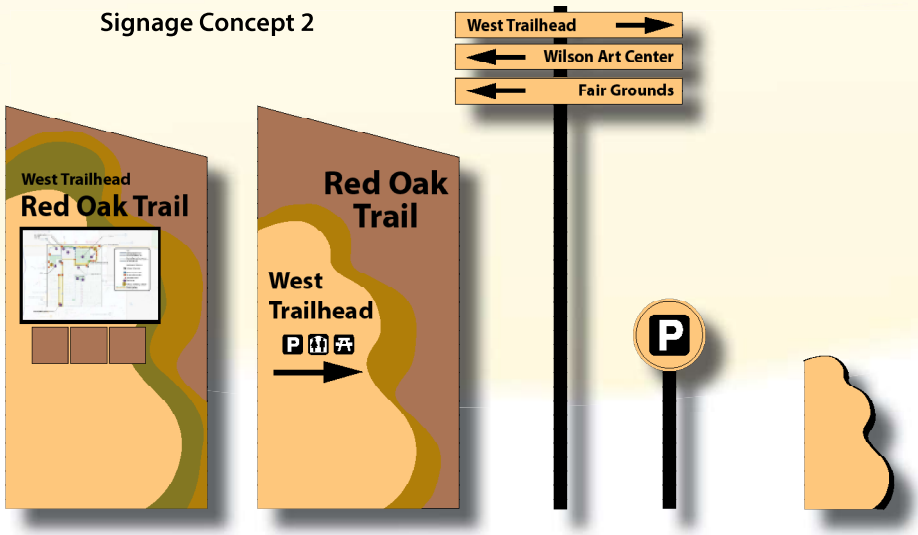
The second proposed signage concepts also attempt to reflect the shape of the community entryway signs. Applied to this basic shape is an overlay of a more organic shapes inspired by the river and the smooth angles of the trail route.

Signage concept two maintains the same recommendations as concept one for slightly modified design style as the trail system expands into different areas of the community. The most noticeable evolution of the system would be in color theme. Color choices for the signage system can be varied as the system expands. An example of these color themes would be browns and tans used for the community-based system, blue hues used for the trail that expands towards the river and green hues on signage that reaches south to more naturalized areas of the trail.

Concept Three

The third signage concepts was inspired by the community name and applies a more literal approach using the silhouette of a red oak tree, use wood grain textures and a color pallet limited to browns and tans. The committee determined that this design was suitable for the more natural areas but would not prefer to use it throughout the entire system.

Signage Concept 2





Signage Concept 3

Trail Signage

Materials and Construction

Solid construction techniques and quality materials used for landscape enhancements are strongly recommended because they can reduce long-term maintenance, withstand weathering and aging, and create a unified, consistent trail environment. It is important to select a pallet of materials from which to choose and a standard of construction quality for the entire scope of the trail enhancement projects in order to maintain consistency and cohesiveness of design, especially as segments are phased in over time.

Signage Materials

Prior to implementing a signage plan, the committee will need to determine which design will be used throughout the entire system. The designs presented through the *Trails Visioning* process are conceptual and can be modified according to the preferences of the committee and community. Once a design has been selected, materials for construction should be researched and selected based on the unique needs of the design, the management plan and community preference. Consistent use of a high-quality material should be the goal, thus allowing for a consistent aesthetic, a universal maintenance plan, and longevity of signage.

Trailhead Overview

A trailhead serves as a point of access to the trail. As with any system, trailheads will vary in scale and significance depending on the available space, community size, resources available, and user needs per site. The *Trails Visioning* committee expressed an interest in enhancing existing access locations to become official trailhead locations and enhancing existing trailheads. Regardless of the scale of the trailhead, minimum recommended amenities include entryway signage, separated parking, defined and pedestrian specific trail access, and informational signage. Additional amenities that help elevate the user experience include restroom facilities, a shelter house, water access, bike racks, bike tool stations, seating opportunities and well-maintained vegetation enhancements.

Throughout the *Trails Visioning* process, two trailheads were considered for enhancements. Parking and trail access is available at each of the identified trailheads.

West Trailhead

The primary trailhead located on the west side of the community between the YMCA and Montgomery County Fairgrounds. The existing site has a newly constructed kiosk with three panels of information. This trailhead is the most significant point along the trail system to date as it is used as the starting location for trail system mile markers and is in the most publicly oriented area of the trail considering the adjacent building uses and road accesses.

The overall goal of the proposed enhancements is to better define the trailhead and create more visual connectivity to the entire trail system. The proposed enhancements include incorporating the overall trail system signage into the existing kiosk for continuity. The timing of the new signage is proposed as needed. The committee expressed that the current signage is relatively new,



Trailheads

functions well and there is little desire to invest resources in replacement at this time.

In addition to signage updates, modifications to the parking area are proposed. The current parking area is loosely defined and trail access is indicated with a singular "Trailhead" sign. The proposed enhancements eliminate the sign and the adjacent planting area to be replaced with a paving surface that stands out from the adjacent asphalt roads and parking area. The illustration indicates a colored concrete in the color scheme of the signage. At the top of the parking areas is a walkway that provides access to a paved gathering space adjacent to the kiosks. Separating the parking area from the walkway is a series of bollards that are in the same style used throughout the trail system and branded with the Red Oak symbol. Chosen material for the bollards should be a sturdy material that will deter vehicle interactions and resist weathering. Metal is desirable.

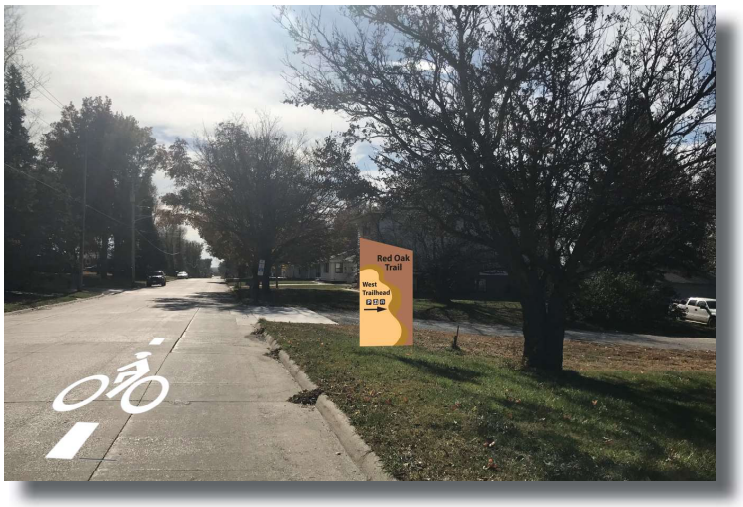
Adjacent to the parking area, at the intersection of the two park roads is a trailhead entryway sign. This is a large-scale sign is a visual cue to vehicular drivers of the trailhead and what amenities exist, including parking spaces.

The site has existing mature and growing trees. It is encouraged that these trees are maintained and as space allows, more are planted. Trees provide shade that creates a more comfortable environment for trail users, especially in the warm months of summer.
The designate trail system is a part of the connector road to the north. Indicating this as the trail way can encourage increased ridership and promote safety for all roadway users. The proposed design incorporates a green line to indicate a bike facility is present. Green surface paint has been universally adopted as a bike facility color and offers a variety of benefits:

- Promotes the multi-modal nature of the corridor
- Increases awareness of and visibility of bicyclists
- Increases bicyclist comfort and promotes ridership
- Helps reduce bicycle-motorist conflicts.

East Trailhead

The newest trailhead developed in the Red Oak Trail system in located on the east side of the community, accessible from Eastern Avenue. Abundant parking is available and information kiosks have been recently installed. Additional amenities available at the site include trash receptacles and pet waste stations. The site offers an abundance of potential for development as it is adjacent to a large open space. The property will continue to be maintained as a hay field for the for seeable future.



Trailhead Overview

Desired enhancements at the site include better signage indicating the presence of the site and lighting improvements. Illustrations demonstrate the addition of entryway signage at the intersection of the access road and Eastern Avenue. The sign corresponds with the rest of the proposed signage system reinforcing the look and usefulness of the trail signage system. The entryway sign indicates the name of the trailhead, available amenities and the name of the overall trail system. These three features promote the trail as accessible and inviting, especially to first time trail users or community visitors.

North of the Eastern Avenue Trailhead vehicular access is an access point for the trail. The trail system ends at this point but the Trails Visioning Committee has expressed a desire to have the road incorporated into the overall system. Share the road markings are the easiest way and least expensive way to expand the system. Surface markings and map updates would indicate the trail expansion.

Cemetery Trailhead

The cemetery is a large parcel of land in the center of the trail system and a favorite walking location for many residents. The large shade trees, minimal traffic, rolling hills and quite nature of the space add nice variety to the system. It also provides access to the community garden and is accessible on all four sides. The trail route is designated as the road on the southern perimeter of the cemetery but the committee admitted that community members enjoy using the entire area for walking.

The committee expressed a desire to have minimal lighting incorporated into the cemetery for safety and comfort, noting it can be quite dark due to the tree cover and expanse. It is recommended that the lighting fixtures utilized are within the same family as the rest of the trail system for consistency. It is also recommended that the scale of the lighting be at the pedestrian scale to maintain the intimate feel of the cemetery.

Access to the cemetery can be gained through two entries on the west, and one access point on the north, east and southern side each. In the far northwest corner of the cemetery, there was a pedestrian access point that is currently closed. Noting the trail runs parallel but not in the cemetery to the north, the committee would like to explore installing a connection to the cemetery from the current trail through the currently closed gate for easier pedestrian access.







Trailhead Overview

The southern access point provides a nice opportunity to create a small trailhead centered on the system to complement the existing trailheads on the east and west. The committee expressed a desire to have parking spaces available as well as trail information and amenities. The proposed area is located on the outside of the cemetery adjacent to the existing trail. At this location, there is limited space available but preliminary study of the area indicates that it would be able to accommodate a few parking spaces including an ADA compliant space. The parking would be off street and a short distance from the existing trail, a sidewalk would connect the two spaces. The trailhead would expand an existing seating area to incorporate trailhead signage, information kiosks and bollards that reinforce the trailhead. Between the two spaces, parking and trailhead, shortgrass prairie species are proposed. This type of planting brings habitat into a community while maintaining visibility and user comfort as shorter species.

As the committee reviewed proposals, additional options were discussed and further exploration is desired. On street parking was noted as an option to make use of the existing paving area and as a way to offer more parking to trail users. If this option is implemented, sidewalk access should be installed in the right of way to provide access to the trailhead that is separate from the vehicular traffic on the road. Additionally, use of property across the road was discussed. This areas is appealing as it offers more space for parking and would help create a connection between the school property and the trail system. Safe crossing of the street is the primary concern with the location of this trailhead. The committee is going to contact the school administration and continue the conversation about the potential of this trailhead area.

Within the cemetery wayfinding signage should be installed to better define the designated trail route and help users navigate the space. A green dashed line could also be used in the cemetery as a share-the-road indicator. As an alternative, decorative bollards could be installed at intervals to signal the trail route. The unique nature and slower traffic speeds of the cemetery compared to the rest of the trail system provides an opportunity to implement more decorative elements along the trail route. Similar enhancements should be incorporated into the west and north access points as well to orient trail users to trail system route as it merges with the cemetery roads.



Share-the-Road Segment

The committee expressed a desire to strengthening the existing connection to the downtown. Currently, the trail shares the road along 3rd and 4th Street south to Coolbaugh Street. The trail is marked with standard traffic control bike route guide signs on each block. The Trails Visioning committee indicated that they would like this connection to be stronger and safer and considered a bike lane option. The road is too narrow for a designated bike lane without loosing on street parking. This was determined as undesirable. The proposed design utilizes colored bike facilities to enhance the visibility. A single, dashed stripe along the length of the trail route will highlight the potential presence of trail users to vehicular traffic. The additional notation of the trail route enhances trail user comfort and accessibility by quickly and clearly identifying the trail route freeing the trail users up to focus on the potential presence of vehicular traffic and traffic regulations. Finally, clearly denoted trail route helps increase ridership by bringing awareness and ease of access to people not currently familiar with the route, both local and non-local riders.

The committee expressed a strong desire to expand the Share-the-Road portion of the trail system and collaborated to identify a recommended route. The proposed route incorporates more of the historic districts and parks in the community. The discussed route extends from the current loop around Historic Fountain Square Park east along Coolbaugh Street to Boundary Street, then north to loop around Chautauqua Park and return south on north 8th Street until being westbound on Reed Street. Initially, this new route would be denoted using the same tools as the current route, a combination of standard traffic control signs and surface treatment indications.

At regular intervals no more than alternating blocks, a helmeted bicyclist symbol should be incorporated on the surface of the pavement to reinforce the potential presence of pedestrians and cyclists. Wayfinding signage should be incorporated along the route to reference community destinations accessible by way of the trail system.

Share-the-Road

Additional illustrated examples of Share-the-Road enhancements can be found along Commerce Drive approaching Alix Street. This intersection helps connect an extended loop of the trail back towards the 4th Street section. This connection is currently unidentified. Enhancements include signage indicating the eastern direction of the route and destinations accessible in this direction. User safety is enhanced



Share-the-Road Segment

by sharing information and encouraging trail traffic to avoid N Broadway Street, a heavily traveled vehicular corridor without separated trails or Share-the-Road designation. In addition, a green dashed line will continue to indicate the potential presence of bicyclists.



Share-the-Road

Lighting

The committee expressed a desire to have lighting along the trail. The committee expressed an interest in the lighting to be solar powered. Research indicates that solar powered light technology is still developing and is not yet recommended for commercial applications. The community will need to determine the style of lighting to use but the following are factors to consider in making a decision. While solar power technology is still being developed, LED lights are recommended for their ability to consume less energy and remain lower in heat. Fixture height and spacing will need to be determined and will influence the level of lighting achieved. Generally, a spacing of two and a half times the height of the pole will provide comfortable lighting conditions. Closer spacing will create a brighter environment while farther spacing between fixtures will achieve lower levels of visibility. No matter the style of fixture selected, it is recommended that the size of the structure reflect the pedestrian nature of the trail and be smaller in size. Two lighting manufactures that offer high quality products in a variety of styles are Sternberg Lighting and Philips Lumec. One feature of particular interest is the tool-less design Lumec offers as a way to ease maintenance. It is also sealed well as a way to reduce insects' litter inside the fixtures.

Throughout the system, a variety of lighting fixtures may be used depending on the need and type of space (i.e. vehicular parking at trailheads, bollard lighting in the cemetery, overhead pedestrian lighting on trail segments and near kiosks, etc.). The community should select a family of fixtures within the same style family.

Plant Selection and Maintenance

It is strongly recommended that the *Trails Visioning* Committee commit to using a diverse mix of native plant material in the Red Oak Trail landscape. Planting a diverse mix of species should be prioritized with developing a planting plan. The more diverse the plant species mix, the more environmental benefits the landscape will provide; from providing habitat needs of more wildlife species, to improved water quality benefits and relief from weather such as wind or warming sun.



Example of a trail landscaped with native vegetation.

Native plant materials offer a wide variety of attributes not found in non-native species. Native species are better adapted to the extreme weather patterns of Iowa including cold winters, hot dry summers and cool wet springs. This adaptability allows for greater survival and overall success of an ecosystem and reduces the need for maintenance during non-typical weather patterns.

It is difficult to develop an all-inclusive list of desirable tree species for the Red Oak Trail System as site conditions vary throughout the landscape, and aesthetic and environmental goals are diverse. It is recommended that the *Trails Visioning* committee seek knowledgeable individuals to assist with the development of an establishment and maintenance plan including plant selection.

Varieties of resources are available and can be consulted if questions arise. A few of these resources are listed below.

Trees Forever
Living Roadway Trust Fund (LRTF)
Iowa State University Extension and Outreach
Iowa Department of Natural Resources (DNR)

Plant Materials

Trail Landscape Enhancements

Trail enhancements go beyond the installation of hardscape features; the use of plant material throughout the trail system provides trail users, the community and the environment a variety of benefits. A well-planned, established and maintained planting can help create a trail environment that encourages use, enhance comfort, minimize maintenance, and provides environmental benefits to the community. The *Trails Visioning* committee has a wide variety of plant materials available for use along a trail. It is suggested that prior to installing any enhancement, the committee invest time into assessing the existing landscape, identifying needs and desires, and planning for installation, establishment and maintenance.

The proposed designs include mimicking a variety of ecosystem types. These were inspired by the historical ecosystems of western Iowa. Historically, Iowa was a mosaic of ecosystems. From dry prairies to wetlands, from shortgrass dominant prairies to vast woodlands, the diversity of ecosystems was influenced by topography, rainfall quantities, fire patterns, grazing animals, soil structure and more. These influences helped define the plant composition of the ecosystem. In spite of the large influence human activities have had on the Iowa landscape, the qualities that defined native ecosystems can be used to help inform the planning process of native plantings today.

Red Oak is in an area known as the Southern Iowa Drift Plain. This landform region is the largest in Iowa and is more commonly known for its ability to support the native tallgrass prairie ecosystem. Time and natural forces have shaped this landscape into a series of rolling hills with well-defined water systems. Trees and larger plant materials were able to be supported along the water corridors and floodplains. Upland sites shed water more quickly and are more exposed to weather pattern which results in predominantly prairie ecosystems. Both trees and native prairie plants are proposed for use in the Red Oak Trails Visioning project. This variety of plant material and landscape can be used as a teaching tool to demonstrate the historic landscape that once encompassed the community of Red Oak.

Grasses and Forb

Often referred to as prairie, native grasses and wildflowers are species predominantly derived from the open landscape that once dominated Iowa. This landscape was vast and varied which produced an abundance of plant species to select from when implementing a native planting into a community. Prior to planting, it is recommended that a proper site analysis be conducted to help inform plant species selection, site preparation needs, development of an establishment plan and development of a maintenance plan.

Although located within a semi-urban environment, the planting will be a smaller version of an ecosystem and as such will be growing, evolving and living pieces of infrastructure. All plant material incorporated into the community will require some level of long-term maintenance activity to achieve a desirable result and maintain a healthy ecosystem. As people settled the landscape, our activities big and small made a lasting impact on how the environment functions. As such, it is critical to participate

Plant Materials



Partridge Pea
Chamaecrista fasciculata



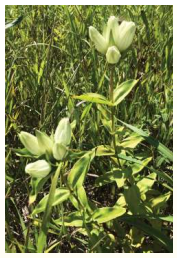
Black eyed susan
Rudbeckia hirta



Wild bergemont
Monarda fistulosa



Butterfly milkweed
Asclepias tuberosa



Cream gentian
Gentiana alba



Large-flowered Beardtongue
Penstemon grandiflorus



Foxglove beardtongue
Penstemon digitalis



Purple prairie clover
Dalea purpurea



Stiff Goldenrod
Solidago ridgda



Wild white indigo
Baptisia alba



Rattlesnake master
Eryngium yuccifolium



Golden alexander
Zizia aurea



Purple coneflower
Echinacea purpurea



Pale purple coneflower
Echinacea pallida



Canada rye
Elymus canadens



Big bluestem
Andropogon gerardii



June grass
Koeleria macrantha



Little bluestem
Schizachyrium scoparium



Indian grass
Sorghastrum nutans



Prairie dropseed
Sporobolus heterolepis



Sedges
Carex spp.

in maintenance activities to keep community green spaces from being compromised. Tools such as invasive species removal, fire when and where appropriate, planting/seeding of native species promote diversity and a thriving ecosystem.

Incorporating low-growing grasses and forbs into the trail landscape will serve a variety of needs including:

- Stormwater absorption that promotes a reduction in soil erosion, water pooling and flooding, and a cleaner water supply for rivers and streams
- Serving as a living snow fence, catching snow rather than letting it drift across the trail or roadways
- Providing vital pollinator habitat
- Providing an ever-evolving aesthetic along the trail throughout the seasons and years

Plant Materials

Trees

Where space allows and it is appropriate, trees are an important piece of community infrastructure and appearance. Trails often provide excellent opportunities to incorporate large species of trees that add value to the community as a whole. The Manning Community Trail System has a number of opportunities to incorporate trees into the adjacent green space; the benefits of which will be enjoyed by trail users and community members.

Examples of native tree species



Bur oak
Quercus macrocarpa



White oak
Quercus alba



Tulip tree
Liriodendron tulipifera



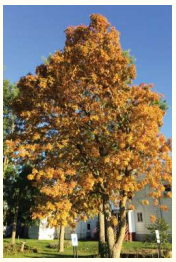
Hickory
Carya ssp.



Black Cherry
Prunus serotina



Ironwood
Ostrya virginiana



Ohio Buckeye
Aesculus glabra



Eastern redbud
Cercis canadensis



Hackberry
Celtis occidentalis



Kentucky coffeetree
Gymnoclaudus dioicus



Sycamore
Platanus occidentalis



Catalpa
Catalpa speciosa



Swamp White Oak
Quercus bicolor



Eastern white pine
Prinus Strobus

Trees and green spaces are essential to our well-being. A well-established, well-maintained community forest helps encourage trail use and outdoor physical activity, restore mental, emotional and spiritual well-being, and create a space for community members to commune and build relationships. Additionally, trees provide shade that helps reduce energy needs, intercepts and infiltrates stormwater, cleans our air, provides habitat for a variety of wildlife throughout the year, and keeps trail users out of direct sunlight.

Where existing infrastructure and site conditions allow, it is most desirable to select tree species that will reach a large mature size. As tree species are being selected, site conditions should be considered including soil conditions, overhead infrastructure that may interfere with the canopy, and existing diversity of the urban forest should all be taken into consideration. Some tree species are well adapted

to a wide range of sites while others are more intolerant of specific site conditions. An analysis of site conditions will help inform species selection by eliminating species that are intolerant or less likely to thrive at a certain site. Species that reach a large mature size are recommended as a way to maximize visual impact and environmental benefits. Each site should be analyzed for overhead structures that would interfere with canopy growth as the tree matures. Powerlines are especially concerning and when present, large trees should be located out of range or a smaller tree species should be selected for use on the site.

Once site conditions have been analyzed and a variety of tree species have been identified as being acceptable choices for the site, an analysis of overall community tree inventory should be conducted. An inventory of Red Oak's urban forest has been completed by the Iowa Department of Natural Resources (DNR). The results indicate that the trees within the public spaces of Red Oak consist of 19 percent apple (crab) tree species and 15% percent ash species. Nineteen percent is considered a moderately high population of a single species and is cause for concern. The risk of losing a large portion of the urban forest increases when the composition of that forest is dominated by a single species. Learning from past experiences, losing large plantings of elm to Dutch Elm Disease and the ongoing loss of ash trees to Emerald Ash Borer have resulted in a recommendation that communities have no more than 10 percent of any one species within the forest. It is recommended that the community plant tree species that are currently not overly represented in the urban forest. With this best practice advice, it is proposed that the community of Red Oak and the Red Oak Trails Visioning Committee proceed with caution when planting crabapple and no longer plant ash tree species.

An urban forest that contains a variety of species is better positioned to withstand a devastating infestation. In the case of an infestation, trees will be lost but a diverse urban forest is better positioned to maintain the overall canopy and recover quickly. In addition to the environmental benefits associated with a healthy urban forest, planting to prevent potential devastation is a management strategy that will help minimize financial, emotional and visual impact.

Implementation Information

Implementation Resources

Iowa Department of Transportation Iowa Bikes Home Page
http://www.iowadot.gov/iowabikes

Iowa Department of Transportation Trail Funding
http://www.iowadot.gov/iowabikes/Iowa-Trails/Trails-funding

Rails to Trails Conservancy
www.railstotrails.org

American Trails
www.americantrails.org

Trees Forever Downloadable Publications and Guides
www.treesforever.org/Publications

Trees Forever Fund Your Project Homepage
www.treesforever.secure.force.com/fund

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