A photograph of a forest path with yellow autumn foliage and large rocks. The path is narrow and dirt-covered, winding through a dense forest. The trees have vibrant yellow and green leaves, suggesting late autumn. Large, dark rocks are scattered along the path and on either side. The overall scene is peaceful and scenic.

**HE MNI CAN
BARN BLUFF
PARK MASTER PLAN**

RED WING, MINNESOTA

JUNE 2016



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**THIS PLAN WAS ADOPTED BY THE RED WING CITY COUNCIL
ON JUNE 27TH, 2016.**



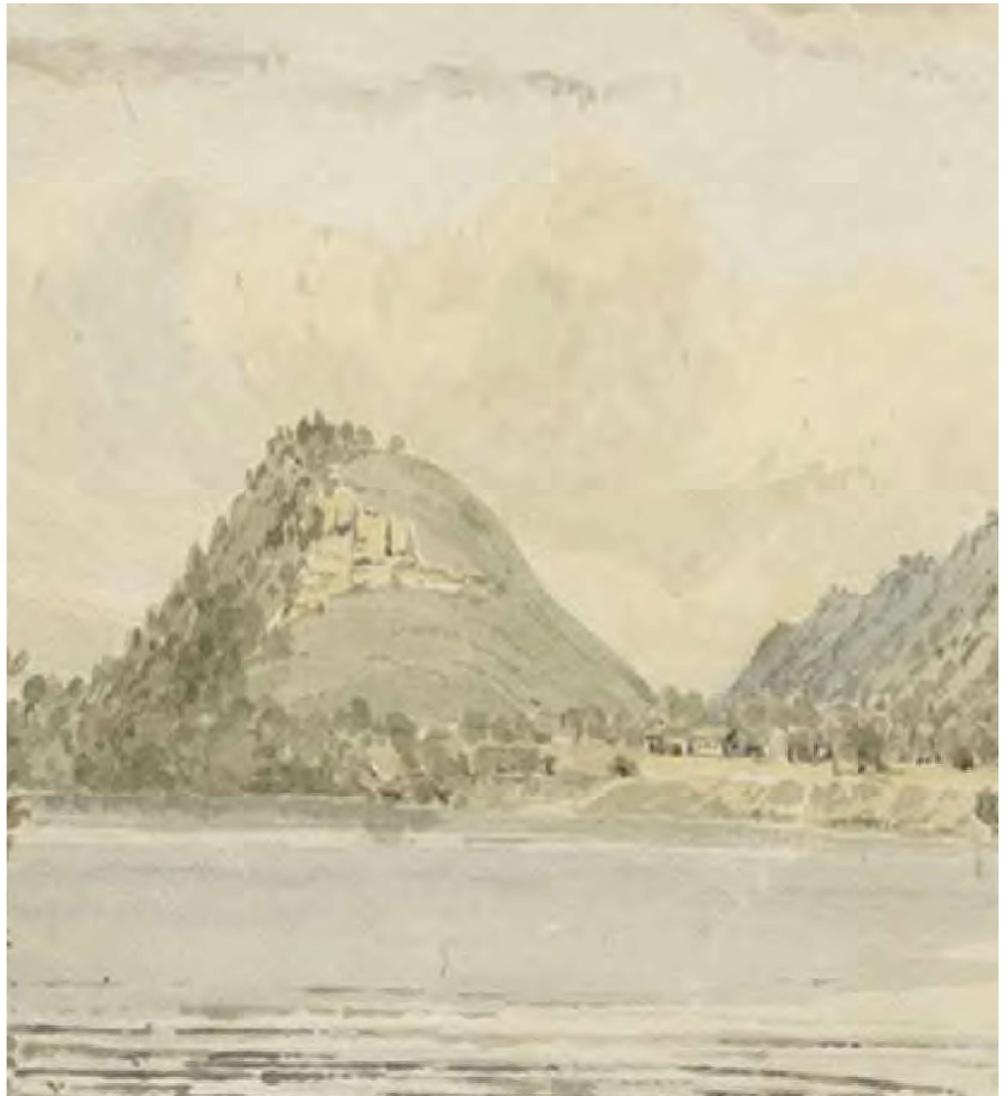
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Red Wing's Dakota Legacy & the Naming of the Master Plan

Before European settlement, the land we now call Red Wing was settled by generations of Native Americans, most recently the Mdewakanton Dakota, who called the place He Mni Can, or “Hill, Water, Wood,” for the attributes that made it an ideal camping grounds. Other spellings of the name include Hemminnicha, Hhamnecha, Khemincha, and Rhemincha. He Mni Can encompassed Barn Bluff, which is one of the most spiritual places in the world to the Dakota, a central piece of their creation story. Native Americans have a much longer relationship with this sacred place than its modern inhabitants, but their reverence for and relationship to the bluff has not been reflected in recent history. In an effort to present a more egalitarian history, this Master Plan uses the Dakota name interchangeably with the English name (or rather, its French name, as Barn Bluff is a translation of Mont La Grange, the name given to the bluff by French explorers, who thought it looked like a large barn from the Mississippi River.) Check out the [Cultural Landscape Report](#) for more information on its history.



Barn Bluff and Red Wing's Village by Seth Eastman



01. INTRODUCTION AND PARK PLANNING CONTEXT

Significance of this Plan

Barn Bluff is a powerful and iconic landscape. To the Dakota people, He Mni Can (Hill, Water, Wood) is one of the most sacred places in the world. To western culture, Barn Bluff holds generations of memories and is key to the identity of Red Wing and those who inhabit it. Humans are drawn to the bluff, and while its form has been challenged by curiosity and exploits, its essence and its inspiration remains intact.

The creation of a plan to guide the next generation's stewardship of He Mni Can demands as much understanding, creativity, and wisdom as we can muster. Terms like resilient, restorative, respectful, and engaging come to mind as foundations for an approach to master planning this remarkable landscape.

This plan has been prepared to unite the many aspirations that people have for the park and communicate a common vision for its future. To begin, the plan addresses the bluff with both monikers, He Mni Can and Barn Bluff, to recognize the multi-cultural history and significance of this place in the local community and beyond. The plan then guides future investments in capital improvements, park operations, and programming that will take years to fully achieve.

With a long timeframe for implementation, it can be easy to lose sight of the ways that small improvements build on each other to achieve a broader goal. This plan's vision statement and guiding principles are of particular importance in combatting the fade of time. These statements embody the values fundamental to the community's vision, and if carefully considered, can align future endeavors with the master plan, preserving the park's integrity well into the future.



Construction of Webster's Way, a winding staircase from downtown Red Wing to the western peak of Barn Bluff



Miners on Barn Bluff

Timeline of He Mni Can / Barn Bluff's History

500,000,000 Years Ago -

The Cambrian Sandstone that makes up the base of the bluff begins to form while covered by prehistoric seas.



FIGURE 10. Native American Excavations at the Red Wing Bluff. Modified by Bennett and Gendron, 1983.

1,000 Years Ago -

The area around Red Wing was used by Native American people, creating villages and earthworks, including mounds on top of Barn Bluff.

1766 -

Jonathan Carver reaches Lake Pepin and describes climbing a hill and looking out over the river from what sounds like Barn Bluff, but cannot be confirmed.



Other Early Visitors:

- 1817 & 1823 Stephen Long
- 1819 Colonel Leavenworth
- 1820 Stephen Kearny
- 1820 Henry Schoolcraft

1806 -

After visiting the Red Wing band of Native Americans, Zebulon Pike climbs Barn Bluff, providing the earliest confirmed recorded description of the bluff.

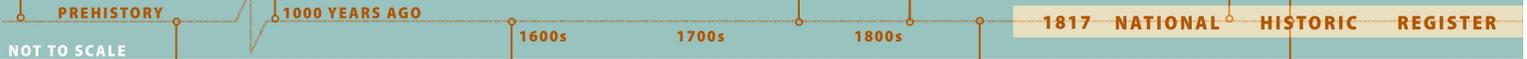


1853 -

The City of Red Wing is platted and becomes the Goodhue County seat. The area becomes renowned for its wheat and milling.



FIGURE 13. Red Wing and Barn Bluff circled on the General Land Office Survey Map, 1858.



12,000-10,000 Years Ago -

Glacial River Warren carves the Mississippi River channel, occasionally changing course, including to the south of Barn Bluff. The harder Dolomite stone at the top of the bluff kept the bluff intact as the land around it was eroded away, making Barn Bluff into an island in the river valley.



FIGURE 8. GENERALIZED CROSS-SECTION OF BARN BLUFF, VIEW TO THE SOUTH (OJAKANGAS 2009)

1600s -

French explorers and traders establish posts along the Mississippi River, including at Prairie Island and at Lake Pepin. The French name for the Bluff "Mont La Grange" translates to Barn Bluff, named for the shape of the bluff and its resemblance to a barn.

Early 1800s -

A Mdewakanton Dakota village known as He Mni Can or "hill, water, wood" sits at the bottom of the bluff. The leader is called Khupahu (wing) Sha (red).

The bluff is used as a lookout, place of safety during war, and a spot where warriors went to offer sacrifices before battle.

The village grew to a population of 300 with approximately 22 lodges near what is now Main Street.



FIGURE 14. Barn Bluff (left) and Red Wing's Village in 1847. (BarnBluffHistoricalSociety)

1853 -

The Dakota were removed from Red Wing to a reservation in the Minnesota River Valley after the Treaty with the Sioux of 1851



FIGURE 15. BARN BLUFF ON A PLAT OF RED WING, 1874



FIGURE 16. BARN BLUFF BEFORE AND AFTER RAILROAD CONSTRUCTION VIEW TO SOUTHEAST (TOP: C. 1870, BOTTOM: 1900) (TOP AND BOTTOM: MINNESOTA HISTORICAL SOCIETY)

Late 1870s -

Railroads come to Red Wing, including one that runs between the Mississippi River and Barn Bluff, requiring the cutting back of the bluff.



FIGURE 23. THE WEST FACE OF BARN BLUFF BEFORE AND AFTER THE CONSTRUCTION OF WEBSTER'S WAY (TOP: C. 1870, BOTTOM 1891)

1889 -

C.C. Webster develops a trail up the west side of the bluff, which is later improved by the Red Wing Civic League.

1906 -

The Milwaukee Railroad signs a lease to blast stone from the bluff to build more railroad. Destruction of the bluff, disruption from the blasting, and accidents spur a public outcry to stop blasting at the bluff by 1908.



1929 -

The Citizen's Memorial Stairway is completed by the local Kiwanis Club. The stairway started at the end of Main Street and rose 472 steps to the top of the bluff.



FIGURE 25. THE CITIZEN'S MEMORIAL STAIRWAY



1975 -

Formal rock climbing at Barn Bluff begins (see link below for story):

<http://www.mountainproject.com/v/barn-bluff-red-wing/105812663>



1975-76 -

Citizens Memorial Stairs are salvaged and relocated to the new park entrance on the east side of the bluff.

2014 -
Friends of the Bluff construct a new west overlook.



HISTORICAL

PERIOD

OF

SIGNIFICANCE

1938

2000s TODAY!

Late 1850s -

Phineas Fish operates the first Lime kiln at Barn Bluff



FIGURE 20. G. A. CAMPBELL'S 1883 KILN AND LIME WORKS (WOODRUFF & GRANT PHOTOGRAPHIC SOCIETY)

Late 1850s to 1860s -

Visitors, including Henry David Thoreau visit Barn Bluff through steamboat tours.



1870s-1908 -

Advances in the Lime kilning process lead to major expansion of the quarrying of Barn Bluff



FIGURE 21. QUARRIES ON THE EAST END OF BARN BLUFF, C. 1895, VIEW TO NORTHWEST (MINNESOTA HISTORICAL SOCIETY)



FIGURE 22. RAPID BLUFF CLIMBING, 1907

1910 -

Barn Bluff is turned into a City Park, with help from philanthropic members of the community donating money to purchase the land.

1950s-1960 -

Highway 61 and the Hwy 63 bridge across the Mississippi are built, necessitating the removal of the Citizens Memorial Stairway. The west end of the bluff is blasted to accommodate the new bridge and highway.



FIGURE 18. AERIAL VIEW OF BARN BLUFF, 1960, VIEW TO EAST (MINNESOTA HISTORICAL SOCIETY)

1982 -

The Kiwanis raise funds and construct the Central Kiwanis Stairway.



1990 -

Barn Bluff is listed on the National Register of Historic Places.





The Prairie Trail leads to beautiful vistas over the Mississippi River Valley.



Steep rock faces remain from past quarrying operations.

Purpose of the Park Master Plan

Studying the history of He Mni Can (Barn Bluff) reveals the many ways it has provided for generations of local inhabitants. The purpose of the He Mni Can/ Barn Bluff Park Master Plan is to preserve the significance of the landscape through good stewardship. This master plan provides a long-term vision for improvements to the park's amenities, habitats, and trails, and to guide the addition of desired facilities. The document also includes a foundation for the vision, demonstrating study of the park's existing conditions, assessment of community needs in relation to park use, and proposals for specific improvement projects. This plan is envisioned as a 20+ year plan, with implementation in three general timeframes: Short-term (up to 3 years), Mid-term (3-8 years), and Long-term (8 or more years). Study of conditions and development of a new park master plan will be needed again in 20 years to evaluate and respond to the needs of the park at that time.

The Master Plan for He Mni Can / Barn Bluff Park:

- » Offers strategic guidance for future park development.
 - » Identifies design direction, necessary amenities, and facility improvements.
 - » Develops implementation strategies, phasing, operations, and maintenance.
 - » Meets eligibility requirements for Legacy Parks and Trails funding, and opens up additional opportunities for future funding sources and partnerships.
-

Greater Minnesota Regional Parks & Trails Commission

The Greater Minnesota Regional Parks and Trails Commission (GMRPTC) was established in 2013 to carry out system planning and provide recommendations to the legislature for grants funded by the Legacy Parks and Trails Fund. Applications for Legacy funding are provided only to parks and trails outside of the seven-county metropolitan area that are designated by the GMRPTC as “regionally significant.” There are two steps to the designation process: 1) ranking of the park for potential as a “regionally significant park,” and 2) completion of a park master plan that guides improvement and management for the park.

In August 2015, He Mni Can / Barn Bluff Park received a “High” ranking in relation to regional park designation in the “Special Feature” category by the GMRPTC. The ranking received completed the first step in the process to designate the park as a regionally significant park in Greater Minnesota. Completion of this park master plan is intended to fulfill the second step, and the application for designation will be made by the city.

A Special Feature park is defined by the GMRPTC as a park that focuses on one or two unique natural, cultural, or historic features and supports outdoor recreation. The criteria for designation in this class of regional park are as follows:

CRITERIA #1

Provides a special high-quality outdoor recreation experience

CRITERIA #2

Provides a natural and scenic setting offering a compelling sense of place

CRITERIA #3

Well-located to serve a regional need and/or tourist destination

CRITERIA #4

Fills a gap in recreational opportunity within the region

This master plan seeks to demonstrate how He Mni Can / Barn Bluff Park meets these four criteria as a Special Feature Regional Park in Greater Minnesota and fulfills the requirements for designation in order to establish eligibility for Legacy funding.





Hikers in the park's west quarry

Other City Plans and Initiatives for the Park

The Barn Bluff Park Master Plan is intended to work in conjunction with other documents influencing stewardship and management of the park. Other governing agencies and non-profit groups work in partnership with the city to facilitate improvements to and programming at Barn Bluff. The city also has other planning initiatives that relate to future park development or provide connections to and from the park. The following documents have been used in the process of developing this master plan and will continue to influence the future of Barn Bluff Park. These documents can be referenced at the city planning department, or their [website](#).

- » [Habitat Management Plan for Red Wing City Parks: Barn Bluff](#)
- » [Barn Bluff Cultural Landscape Report](#)
- » [G.A. Carlson Lime Kiln Restoration Plan](#)
- » [Red Wing Riverfront Redevelopment Plan](#)
- » [Red Wing Bicycle and Pedestrian Master Plan](#)
- » [Barn Bluff Landscape Guidelines](#)

In addition to the city initiatives, other groups utilize the park for existing programming or may have interest in future use of the park, including:

- » Prairie Island Indian Community
- » The Red Wing Environmental Learning Center
- » Audubon Minnesota
- » Friends of the Bluff
- » Minnesota Climbing Association
- » Goodhue County Historical Society
- » Red Wing Heritage Preservation Commission
- » Live Healthy Red Wing
- » Red Wing Kiwanis Club Chapters
- » Red Wing YMCA
- » Red Wing Community Recreation



02. SITE CONDITIONS AND ANALYSIS OF NEEDS

Site Location and Context

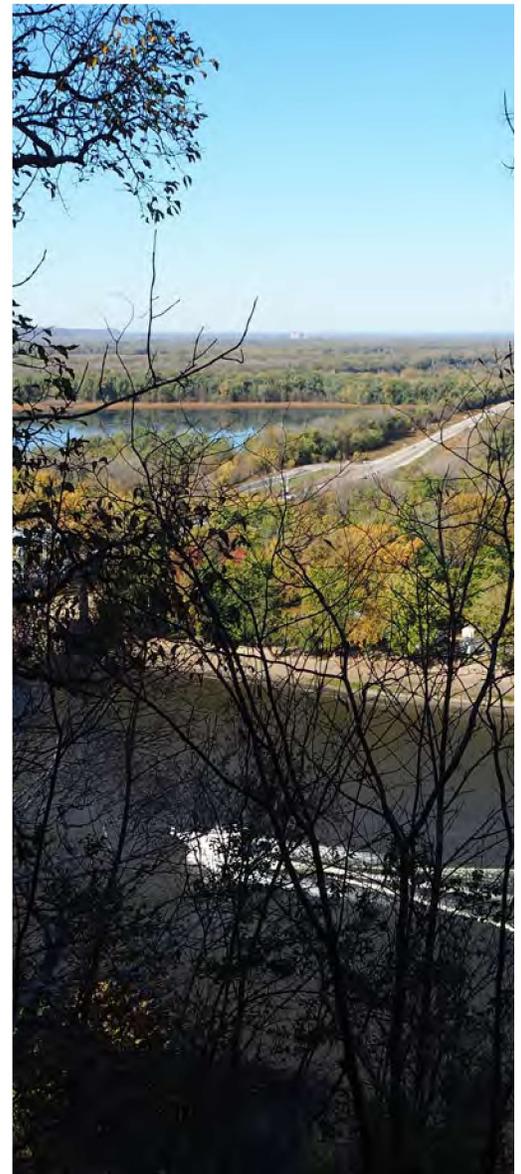
In northeast Red Wing, He Mni Can | Barn Bluff Park comprises 58 acres adjacent to the Mississippi River. The park is surrounded by urban uses and natural features that restrict expansion and limit accessibility to the park. The bluff's west and south sides are bounded by highways. Highway 61 runs along its southern border, and the only public access by road to the park is via an underpass of this highway. Highway 63's Eisenhower Bridge crosses the Mississippi River on Barn Bluff's west side, and will be rebuilt between 2017-2020 in a new alignment slightly west of the existing bridge. The land separating the future bridge from the bluff will remain MnDOT right-of-way. See page 9 for a visual history of this bridge crossing.

Xcel Energy owns the property immediately east of the park for operation of a power-generating incineration plant. An agreement with the City allows Xcel to utilize the water reservoir and part of the pump house within the park for plant operations.

The north side of the park is bounded by an existing active rail line, an adjacent service road, and the main channel of the Mississippi River. A waste water treatment plant abuts the river east of the Highway 63 bridge and is the terminus for the service road on the park's northern border. The Izaak Walton League's club house and property is also located along this northern boundary.

Because of its height and position within Red Wing, He Mni Can can be seen from many locations throughout the area. The view from the Mississippi River proves to be one of the most striking perspectives. It is also highly visible from nearby Sorin's Bluff, on top of which, Memorial Park offers great views across the city, to the bluff and Mississippi River Valley beyond.

He Mni Can / Barn Bluff Park is also part of a series of riverfront city parks in Red Wing, including Levee Park and Bay Point Park to the west and Colvill Park to the east. Each of these parks contribute different offerings to park users and relationship to the river. The Red Wing Bicycle and Pedestrian Master Plan (2011) and Riverfront Redevelopment Plan (2005) both identify a future recreation trail linking these four riverside parks, part of which is implemented.



View of the Mississippi River valley to the north



FIGURE 2.1 BARN BLUFF REGIONAL LOCATION

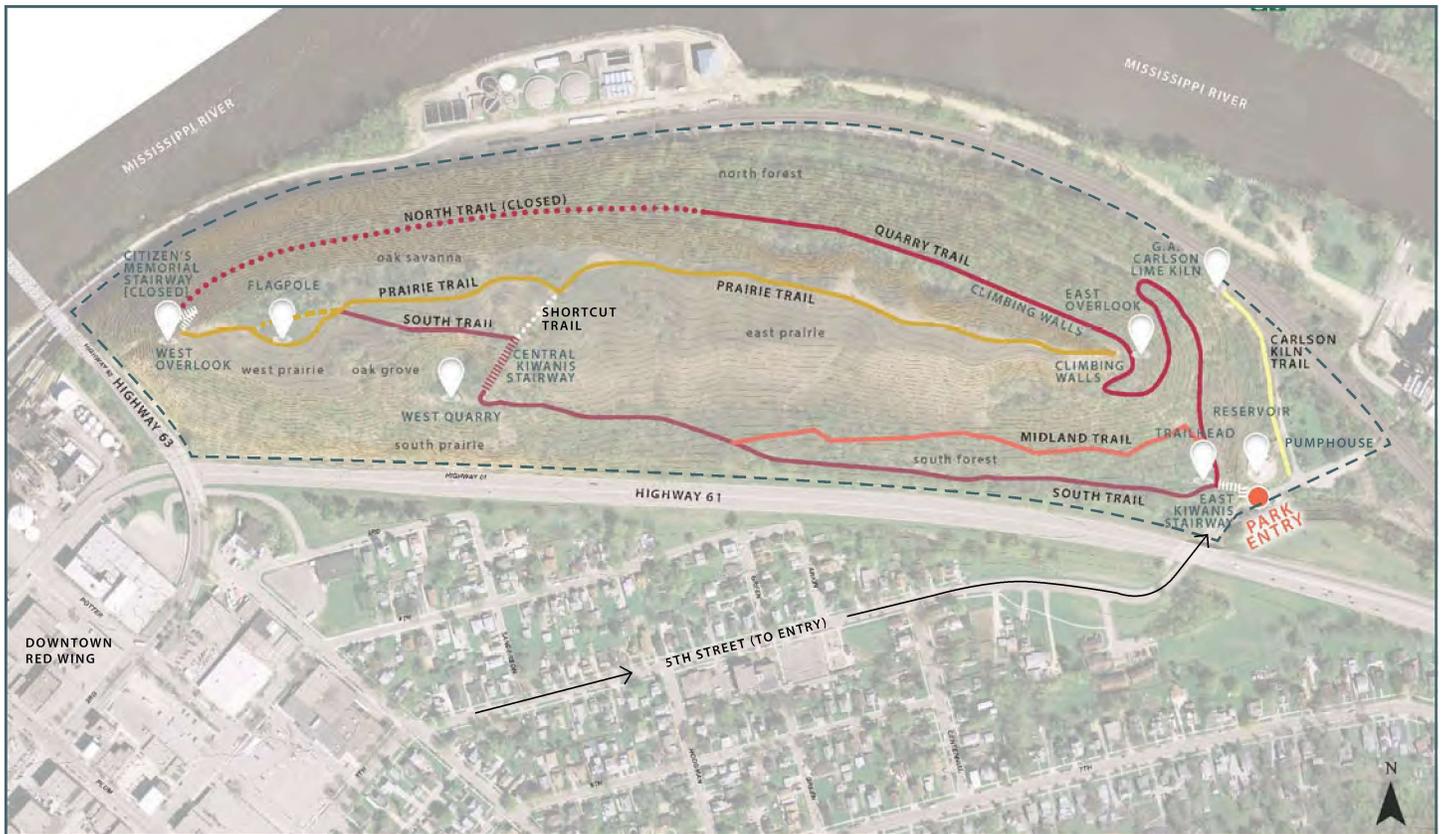


FIGURE 2.2 BARN BLUFF SITE MAP AND EXISTING CONDITIONS

Existing Conditions

He Mni Can / Barn Bluff Park is not only an icon for the community and a landmark of significant natural and cultural history, it is a popular destination for modern day recreation, environmental education, and retreat. Visitors' love of Barn Bluff is evident in its heavily-used trails and overlooks, and revealed by the many dozens of haphazardly parked cars at its base on good-weather days. People's dedicated use of the park has started to degrade the quality of Barn Bluff's trails and habitats. This master plan addresses how best to improve the park to accommodate the volume of visitors it sees and maximize their experience, while minimizing negative impacts.

The City of Red Wing acquired He Mni Can / Barn Bluff for a city park in 1910 and has since managed and maintained it. The park also benefits from long time partnerships with other government agencies and non-profit groups that provide support with maintenance needs, such as trail clearing, habitat management, and facilitation of recreational programming.

There are currently six official park trails that allow visitors passage through the park: the North, South, Midland, Quarry, Kiln, and Prairie Trails. Most of these trails traverse steep inclines in several locations, and some trail routes impact known cultural resources. Others pose danger from falls and other hazards, including the North Trail which was closed to visitors in 2014. Despite (or perhaps, in some cases, because of) these circumstances, the trail system invites adventure, allowing visitors to walk the routes of early explorers, tread pre-historic footpaths, and discover old quarry roads that weave their way through changing native landscapes, offering views that stretch across the Mississippi River Valley. The trail system is really the only way visitors are provided access throughout the park and directly influences how the park is experienced.

Currently, there is only one way to get to He Mni Can / Barn Bluff Park, which is by road (E 5th Street), and visitors usually reach the park by car. Parking is accommodated along unmarked gravel shoulders on E 5th Street. On busy days visitors park along E 5th Street to the north, along an adjacent and in the residential neighborhood to the south. Access to the park's trail system requires climbing a long set of stairs to a landing that has a kiosk with park maps and information. Two trails lead out from the landing—The South Trail takes off to the west, and the Quarry Trail leads up to the north and to additional trail junctions.

Due to the nature of the steep landscape at He Mni Can / Barn Bluff Park, recreation is generally limited to trail-oriented activities, including walking/hiking, trail running, and birding. It is also a very popular destination for rock climbers. Limestone quarrying at the turn of the 20th century left steep rock faces on the east side of the park that offer some of the best rock climbing in Minnesota. Today, there are over 100 rock climbing routes traversed by climbers during the spring, summer, and fall seasons. Another popular activity is photography. The west and east overlooks offer unsurpassed vistas of the City of Red Wing and across the Mississippi River. Amateur and professional photographers alike enjoy capturing the outstanding scenery.

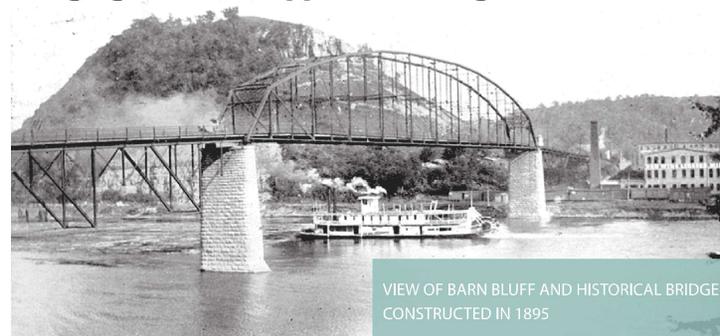


Historic quarrying activity (top) created rock faces perfect for sport climbing (bottom).



Trails provide passage through scenic and pristine blufftop prairie.

Bridging the Mississippi in Red Wing



VIEW OF BARN BLUFF AND HISTORICAL BRIDGE
CONSTRUCTED IN 1895



CURRENT EISENHOWER (HWY 63) BRIDGE
BETWEEN RED WING AND WISCONSIN

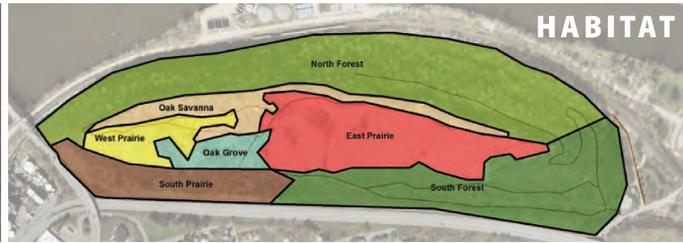
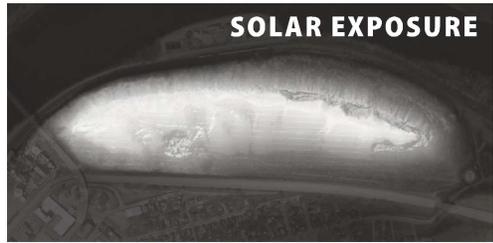


RENDERING OF FUTURE HWY 63 BRIDGE
BETWEEN RED WING AND WISCONSIN
2017-2020 CONSTRUCTION

UNFOLD TO SEE THE
SITE ANALYSIS FOR
HE MNI CAN | BARN
BLUFF PARK



FIGURE 2.3 SITE ANALYSIS MAP



Site Analysis

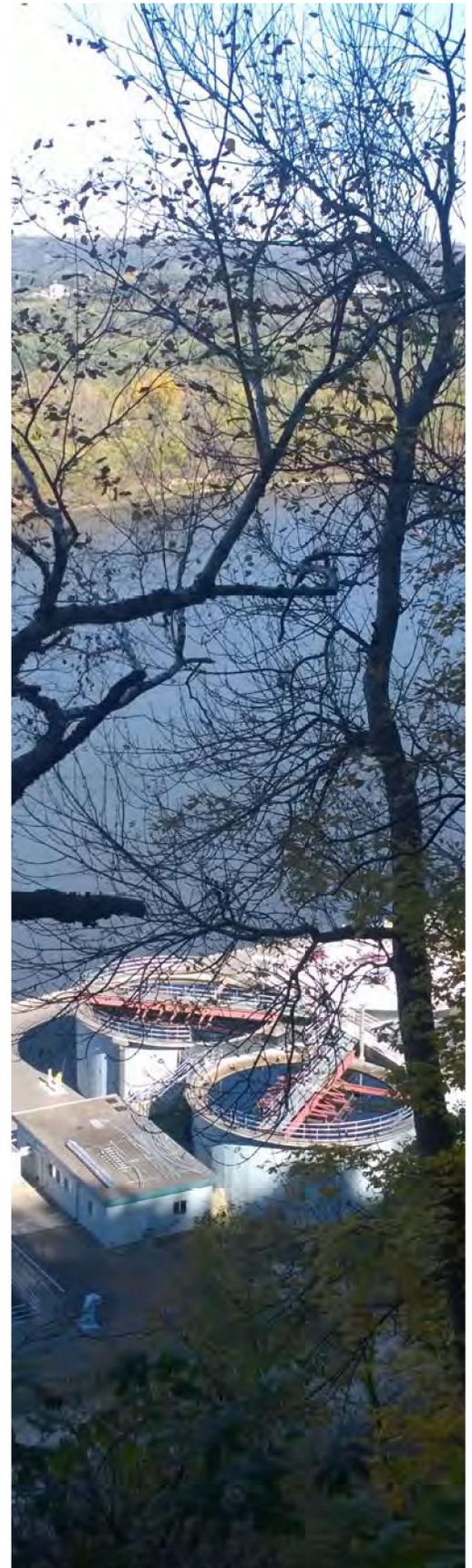
The context of He Mni Can / Barn Bluff poses access restrictions as well as visual, audible, and even odorous impacts. Park improvements will seek to limit these issues as much as possible, while maintaining safety from road and rail conflicts. Routing trails up and away from noisy highways, screening gathering areas from industrial views, and locating use areas away from the rail line are a few examples of how this master plan mitigates impacts to enhance the park experience. Physical features, issues, barriers, and constraints are illustrated in Figure 2.3. Site Analysis Map.

The trails are the only way park visitors can access and experience the park. Therefore, a thorough inventory of the trail system was necessary to understand the level and cost of improvements needed to establish durable and safe trails throughout the park. User input about trails is found in Figure 2.5. More detail about the inventory and related trail improvement recommendations is found in Chapters 3 and 4.

Historical and Cultural Analysis

Prior to the start of the master plan, the City of Red Wing and with Two Pines Resource Group completed a [Cultural Landscape Report](#) that reviews the history of Barn Bluff. The full 270-page document can be obtained from the city planning department. The Cultural Landscape Report (2015) includes a detailed description of the historic features and character of the park, and outlines strategies for protecting and maintaining its resources of historic and cultural significance. The master plan process relied heavily on the historic information included within this document. Proposed park improvements and recommendations within this master plan support the goals of the Cultural Landscape Report.

An important aspect to acknowledge from the cultural analysis is the lack of Dakota information or presence currently existing at the park. The Cultural Landscape Report highlights the historic and present day significance of Dakota culture at He Mni Can. Recommendations to enhance visitors' awareness of the park's cultural significance is included throughout the proposed park improvements.



View of the waste water treatment plant on the Mississippi River from the North Trail

WHAT WE HEARD



Public Participation and Community Values

Understanding the needs of park users from both the local area and the broader region is an essential part of the master planning process. Public input provided through online surveys, stakeholder meetings, and two public open houses offered vital insights into the park's needs. Graphics on the following pages summarize feedback from the engagement efforts.

Survey results revealed the types of visitors using Barn Bluff. Half of the park's typical visitors are from the local area, within 12 miles of the park, but a quarter of visitors travel more than 50 miles to come to the park. This information reinforces Barn Bluff's importance to regional recreation. The park is visited year-round, with winter being the only season that does not see "high" demand. Most people visit with two or three other people.

Community input confirmed that the most popular recreational trends and activities for the park include walking, hiking, and rock climbing. Desires for additional programming, including interest in rock climbing instruction, outdoor education, trail runs, and fitness classes complement the existing trail and climbing uses. Additional programming suggestions included interpretive walks, storytelling, photography, and art courses.

A prevailing theme among the public input received was to keep Barn Bluff Park as natural as possible; feedback emphasized that park improvements use a light touch and preserve the wild feel of the landscape. Visitors value the park's native plant communities, wildlife habitat, and geological features. Promoting stewardship, restoration, and maintenance of the park's natural resources is therefore an overarching goal of this master plan.

Public participation also highlighted existing amenities that need the most attention. These include steep and eroded segments of trail, wayfinding within the park, and visitor information. Survey respondents also suggested that availability of parking and trash receptacles should be improved. In addition, visitors want access to amenities that are not currently available at the park; restrooms and drinking water top the list of desired new amenities.



The two open houses attracted many participants who offered feedback on desired amenities, programming, park concepts, and project goals/recommendations.



SURVEY SUMMARY

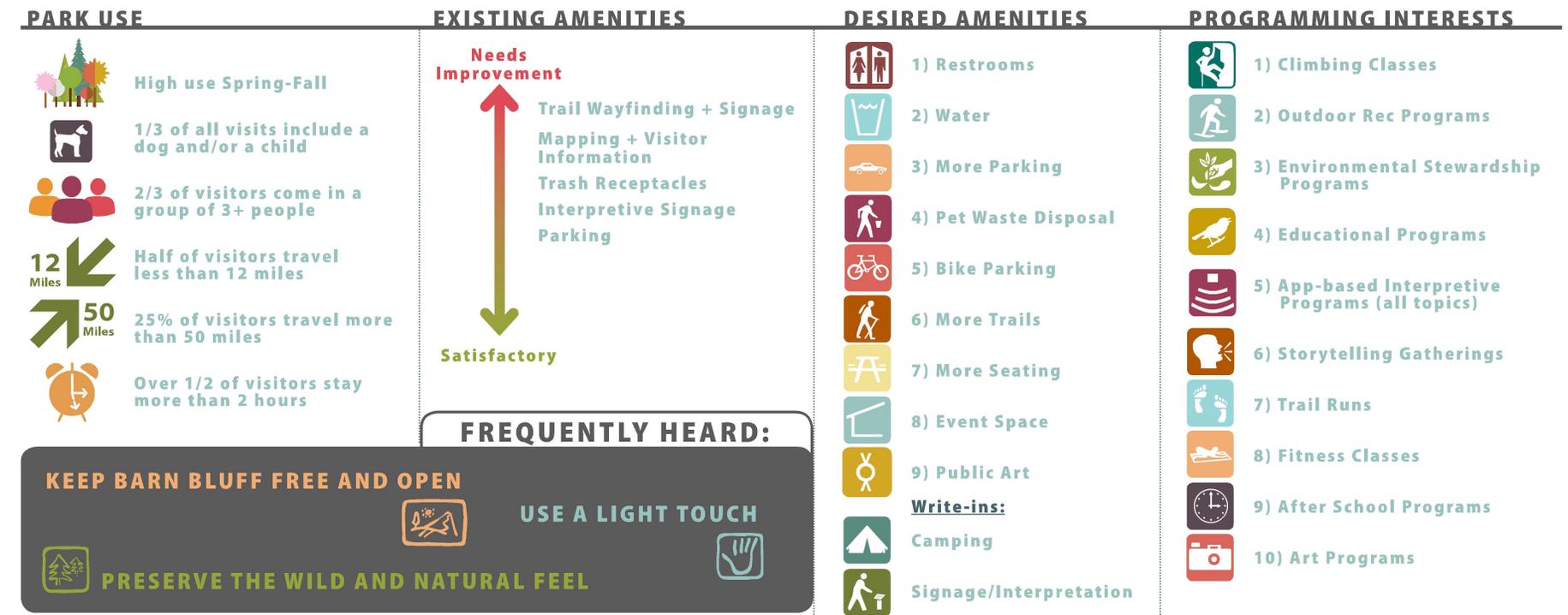


FIGURE 2.4 SURVEY SUMMARY



FIGURE 2.5 OPEN HOUSE FEEDBACK SUMMARY

Issues & Opportunities

The analysis and engagement process resulted in identification of primary issues to address and opportunities for improvements at the park. Figure 2.5 summarizes many of the issues and opportunities that directly influenced the vision for the park, and are reflected in the recommendations of this master plan.

PRIMARY ISSUES

1. Respect for the bluff as a sacred place and sensitive habitat

Since the first people settled the area, He Mni Can has served as an important cultural and historical landmark. Drawing visitors to it for centuries, Barn Bluff has offered both prospect and refuge, a retreat for spiritual exploration, a source of raw materials, the promise of jobs and industry, and even a place to live. Today, its status as a park also provides recreational opportunities, wildlife habitat, and exposure to high quality natural and cultural resources. However, over-use and a lack of respect for the landscape has taken a toll on the quality of Barn Bluff's trails, the health of its natural communities, and the integrity of its historic features.

2. Eroding and difficult trail system

Walking trails are the only way to access destinations within the park. Due to the extreme slopes present on the bluff, trails erode easily from water drainage and heavy foot traffic. Severe erosion is present in multiple locations along most of the trails within the park, making trails more difficult to traverse and damaging the surrounding native habitats.

3. Safety and navigation in the park

Safety within the park is of vital concern. Two fatalities in the last two years have necessitated closure of the park's North Trail, and the addition of new warning and danger signs throughout the park. The bluff geology poses natural fall hazards due to steep inclines and extreme drop-offs. An organized trail system with clear wayfinding and mapping that identifies the risks associated with access to certain locations will promote better safety within the park.

4. Lack of parking and park amenities

Across from the existing entry stairs, E 5th Street's gravel shoulder currently serves as Barn Bluff's parking area. The area is not large enough to accommodate the demand for parking on a typical weekend day. The congestion from the many vehicles and disorganized parking creates a hazard for pedestrians and bicyclists, posing potential conflicts.

Park visitors also complain about the lack of bathrooms, trail signage, trash receptacles, and drinking water. Other desired programming and amenities can be seen in Figure 2.4.



Safety on the bluff is a main priority, especially on the North Trail (currently closed)



Visitors navigate the steep north trail

PRIMARY OPPORTUNITIES

1. Cultural and historical interpretation

Collaboration with the Prairie Island Indian Community and the Goodhue County Historic Society can help to improve awareness of He Mni Can's significance. Interpretive panels along the reservoir paired with park information and interpretation at an entry plaza visitor center will help to educate park visitors. Improvements to the Kiln will highlight the bluff's quarrying history. Most interpretation will be done off of the bluff at its base in order to minimize impacts on the bluff itself and to respect the bluff as sacred.

2. Sustainable trail system improvements

Due to Barn Bluff's rugged terrain, the trail system is the primary way visitors experience the park. Trail repair combined with improvements to the base course, alignment, and drainage patterns of certain trails will address many of the issues existing now at the park and make the trail network more resilient.

3. Park safety improvements

Improvements to the series of overlooks on the east side of the bluff will focus on preventing falls and reckless behavior, including rock throwing. Restoration of the Carlson Lime Kiln will remove the dangers associated with its degrading structure. The addition of a hand hold and additional signage along the North Trail will help visitors to safely navigate the trail.

4. Park entry improvements

Potential park entry improvements include reorganizing access into the park, improving Barn Bluff's connection to its surroundings, and providing much needed park amenities, such as restrooms, bike parking, interpretation, and drinking water.

Improvements to the base of the bluff will create a coherent entry experience, where now there is none. Coordination with MnDOT will facilitate better use of the Hwy 61 overpass as a gateway and arrival feature, and partnership with Xcel will allow land surrounding the park entry to be used for occasional overflow visitor parking.



03. PARK MASTER PLAN

Vision and Guiding Principles

Public and stakeholder input influenced development of the vision for the master plan and for the future of He Mni Can/ Barn Bluff Park:

“He Mni Can (Barn Bluff) will stand as an honored landscape sacred to the Dakota, respected by all, where our wise stewardship will perpetuate its natural and cultural integrity.”

THE VISION IS SUPPORTED BY FOUR GUIDING PRINCIPLES:

Heal

Orchestrate careful efforts to restore, stabilize, and amend landscape impacts that have proven damaging or unsafe.

Sustain

Design, operate, and manage the park to incorporate resilient, low-impact solutions that will hold up to visitor use without breaking down or negatively affecting the natural or cultural resources of He Mni Can / Barn Bluff.

Educate

Imbue the visitor experience with learning opportunities, and offer cues that lead to a greater respect for the landscape and support a leave-no-trace ethic.

Honor

Realize that our stewardship for this place is a great responsibility and any interventions must reflect the sacred legacy of He Mni Can.

Master Plan Framework

The following goals for the park master plan establish a framework that organizes plan recommendations and improvements for the park, and ensures that they support the overall park vision. The goals were derived directly from the issues and opportunities identified in the analysis and input processes and were further refined by the guiding principles of the master plan. Implementing the recommendations associated with each of the goals will work to achieve the vision and intentions of this plan for He Mni Can / Barn Bluff Park.

Goals & Recommendations:

- 1. Keep the park as natural as possible, using a “light touch” and sensitive design for any park improvements.**
 - A. Limit proposed improvements on the bluff to existing park destinations, including the West Overlook, East Overlook, and the Carlson Lime Kiln. Ensure that improvements are designed to limit visual impacts and blend with the natural landscape, utilizing local, native materials to the greatest extent possible.
 - B. Any new park facilities and amenities should be located at the base of bluff at the park entry location (See Goal 5.)
- 2. Remove existing features that compromise the integrity of He Mni Can’s natural and cultural resources. Restore and protect the landscape wherever possible.**
 - A. Complete a Phase I Archaeological study of the park to determine sensitive cultural resources in areas identified for potential improvements, trail re-alignments, or new trail locations.
 - B. Consider relocating the existing flagpole away from existing sensitive cultural resources.
 - C. Conduct a series of public meetings to establish a consistent policy regarding painting of the bluff.
 - D. Realign trails that conflict with known cultural resources, making efforts to camouflage and restore undesired routes to prevent further use.
- 3. Re-establish safety and durability of the trail system and reopen a loop route through the park.**
 - A. Implement a phased approach to trail improvements based on the trail plans included within this master plan.
 - B. Add safety measures to the North Trail and reconstruct the connection to the West Overlook in order to reopen the trail to park users.
 - C. Restore all historic Kiwanis steps to a safe and durable condition.
- 4. Increase general safety for visitors throughout the park with better navigation and hazard awareness.**
 - A. Develop a new set of trail maps that reflect changes to the trail system and locate maps at identified park information locations.
 - B. Create a signage and wayfinding plan with a hierarchy of wayfinding and identification within the park. Utilize a consistent design character for all signage. Ensure signage and wayfinding is low-profile and constructed of resilient, nonreflective materials that are resistant to fire and vandalism.
 - C. Implement design interventions, visual cues, and/or signage in locations that may be hazardous or pose fall hazards to make visitors immediately aware of potential danger.
 - D. State clear and consistent rules about keeping on official trails when travelling within the park.

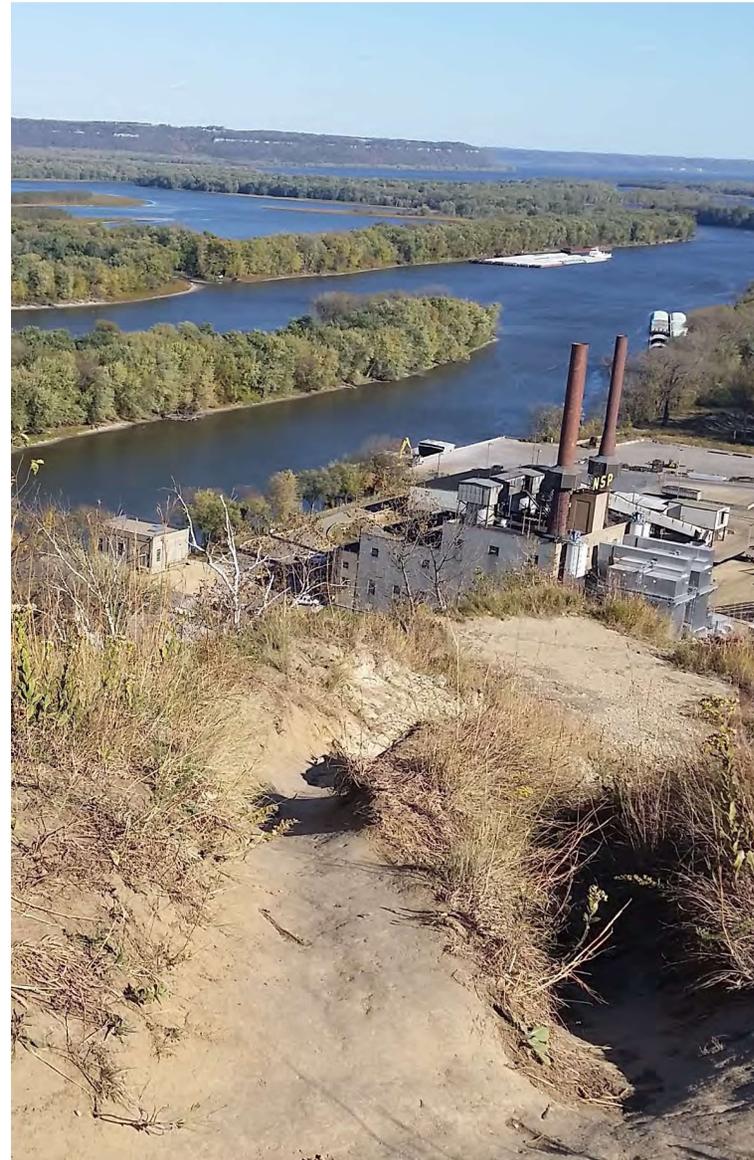
5. **Improve visibility and convenience by establishing a prominent park entry where amenities, facilities, and park information can all be located.**
 - A. Establish the E 5th Street Corridor between downtown Red Wing and the park as a special street with clear visible signage for the park.
 - B. Enhance the Highway 61 overpass as a gateway feature to mark arrival at the park. Coordinate improvements with scheduled construction on Hwy 61.
 - C. Implement phased improvements of park amenities and features based on proposed projects, park improvement areas, and priorities outlined in the implementation section of this master plan.
 - D. Link the park entry to future regional trails that will connect with other riverfront and bluff top parks nearby. Position He Mni Can/ Barn Bluff's entry plaza as a trailhead for the proposed Riverfront Regional Trail.
 - E. Work with Xcel to consolidate/eliminate unnecessary utility poles on and around the base of the bluff.

6. **Enhance opportunities for education and programming at the park.**
 - A. Partner with the Prairie Island Indian Community to increase visitor awareness of He Mni Can's significance in Dakota culture.
 - B. Develop a Rock Climbing Master Plan for the park in collaboration with the Minnesota Climbers Association, the Red Wing Environmental Learning Center, and Friends of the Bluff. Management of rock climbing activity will be implemented with a memorandum of agreement (MOA) and facilitated by members of the climbing community and volunteers, within parameters outlined in the agreed MOA. Identify additional opportunities for climbing events and promotion of He Mni Can / Barn Bluff as a climbing destination in the region.
 - C. Continue partnerships with the USFWS, DNR, Conservation Corps, Friends of the Bluffs, and Audubon Minnesota to manage natural resources and wildlife habitat according to the park's current Habitat Management Plan.
 - D. Work with nonprofit groups to increase offerings of park programming related to recreation, outdoor education, cultural history, geology, and art/photography. Some partnering groups include: Friends of the Bluff, Kiwanis Club, Audubon Minnesota, the YMCA, Red Wing Community Recreation, the Anderson Center, Red Wing Environmental Learning Center, Goodhue County Historic Society, and the Red Wing Historic Preservation Commission.

7. **Enable visitors to easily become stewards of the bluff.**
 - A. Add signage and park information that raises awareness of the sacred cultural significance of the bluff, and the sensitive and rare qualities of the native bluff landscape.
 - B. Establish and sign for a "leave no trace" ethic at the park.
 - C. Add restroom facilities and trash / recycling receptacles at the bluff base to limit visitors from littering the park.



Natural surface trails in the north forest



The master plan proposes improvements to and restoration of the East Overlook, which is currently highly eroded

UNFOLD TO SEE THE
HE MNI CAN | BARN
BLUFF PARK MASTER
PLAN

FIGURE 3.1 ILLUSTRATIVE PARK MASTER PLAN



He Mni Can Barn Bluff Park Master Plan

Features of the Master Plan

The illustrative master plan (Figure 3.1) envisions the future of He Mni Can/ Barn Bluff Park based on the recommendations and improvements proposed for the park. Key features in this master plan are listed here and described in more detail on the following pages.

Natural Habitat Management

Zones of natural habitat are managed to maintain healthy native plant communities. Restoration and management of park habitat will be guided by the city's **Habitat Management Plan** for Barn Bluff. The diverse habitats to be maintained, as noted in the plan drawing, include:

- » North Forest - Mature maple-basswood forest extending along the north side of the bluff.
- » South Forest - Located on the south side and extending around the east side of the bluff, with a mix of deciduous tree species.
- » South Prairie - Native prairie with some encroachment of woody species in need of management
- » West & East Prairie - High-quality bluff top prairie divided by the Oak Grove and threatened by woody invasives.
- » Oak Grove - Former oak savanna now with additional species, including walnut and cottonwood.
- » Oak Savanna - Pristine remnant of native oak savanna located along the bluff ridge line.

Trail Network

The park-wide trail network provides a loop experience featuring sublime views, access to cultural and historic features, and connections to regional trails. All trails will undergo improvements to increase safety and durability. See page 27 for planned trail improvements.

Regional Trail Connections

New regional trail connections will link Barn Bluff with other city parks along the (proposed) Riverfront Regional Trail, which is partially complete along the north side of the park. Additional connections will be installed south from the park, though the East End neighborhood and to Memorial Park on Sorin's Bluff.

Link to Downtown

E 5th Street becomes a special corridor linking the park with downtown Red Wing via more visible wayfinding signage. A new gateway feature at the Highway 61 overpass marks a clear sense of arrival and entry to the park.

Cultural & Natural Resource Restoration / Protection

The City will address painting on the bluff by encouraging the public to participate in a series of meetings to fully understand the issues and establish new policies to regulate the activity. In addition, the City will investigate relocation of the flagpole that is potentially impacting a cultural site. Other cultural resources throughout the park have experienced damage due to trail locations and foot traffic. Trail improvements including realignment, restoration and camouflage of undesired paths, and the addition of educational and interpretive signage will work to achieve better protection of the sensitive resources at He Mni Can.

PARK IMPROVEMENT AREAS

More specific features of the master plan can be organized within four locations identified as park improvement areas. Each of these areas is described in greater detail on the following pages.

- 1 **Park Entry** - A reconfigured park entry provides an improved arrival experience, amenities for park visitors, and new entry trail into the park.
- 2 **East Overlook** - The overlook will be stabilized and restored to improve visitor safety and trail durability.
- 3 **West Overlook** - A realigned trail connection between the West Overlook and the Prairie Trail will provide a buffer and protect cultural resources in addition to decreasing erosion and improving ease of access. Restoration of the Citizen's Memorial Stairway will restore the loop experience connecting the West Overlook and North Trail.
- 4 **G.A. Carlson Lime Kiln + Plaza** - An improved trail will provide an ADA accessible path to the base of the kiln where an enhanced plaza featuring opportunities for historic interpretation is proposed.

Envisioning the Park Entry Improvement Area



WOODLAND TRAIL JUNCTION



5TH STREET ENTRY GATEWAY IMPROVEMENTS



INTERPRETIVE PANELS ALONG WATER STORAGE TANK

UNFOLD TO SEE THE PARK ENTRY IMPROVEMENT AREA PLAN

FIGURE 3.2. PARK ENTRY IMPROVEMENT AREA PLAN



Park Entry Improvement Area

The park's entry suffers from a lack of organization and clarity. Access to the park along residential E 5th Street is confusing to new visitors. The Highway 61 overpass forms a threshold between the residential neighborhood and the park but is further visual barrier. The addition of more visible wayfinding signage along E 5th Street from downtown would help guide visitors to the park. This, partnered with some minor aesthetic changes to the Hwy 61 overpass, would transform the bleak barrier into a welcoming entry gateway, providing an unmistakable entree into He Mni Can / Barn Bluff Park.

The plan for the new park entry organizes parking by providing a lot with 20 vehicle spaces—enough to accommodate typical use. On busy weekends, overflow parking is available on E 5th Street to the north and south. A partnership with Xcel Energy could also facilitate occasional use of their property east of the paved surface lot for temporary overflow parking.

A portion of E 5th Street is proposed to be resurfaced with traffic calming pavement and crosswalks to promote safe passage between parking and the park's new entry plaza adjacent to the existing Kiln Trail and Pump House. Visitors are treated to a striking view of the bluff's highest point when they cross the street from the parking lot toward the park. Prairie plantings on both sides of E 5th Street bring a bit of the blufftop landscape to the base. The future Riverfront Regional Trail travels past the parking lot, and utilizes Barn Bluff's plaza as a trailhead.

The new park entry incorporates an interpretive walk along the base of the bluff between the existing Kiwanis Stairs and the new plaza, with interpretive panels along the reservoir as a key feature. The plaza functions as a central amenity, providing water, waste receptacles, bike parking, and a repurposed and expanded Pump House with restrooms, visitor information, and interpretation. Before permanent restrooms are constructed, screened porta potties will be installed to serve visitors. The adjacent lawn offers room to gather. Design of the entry plaza achieves one of the goals of the master plan to ensure that the majority of park improvements occur off the bluff. The plaza provides everything a visitor should need to prepare for a trip within the park, so that once begun, the experience is kept as natural as possible, uninterrupted by excessive human interventions.

The entry plaza leads to a new park trail that takes a more gradual, immersive approach to entering the park and offers a foil to the abrupt ascent of the existing Kiwanis Stairs. Visitors can take a climbing causeway or an ADA accessible ramp to a new memorial space with a focus on He Mni Can's significance to the Dakota. Vegetation along the new trail is of poor quality, and restoration work should be completed in conjunction with the trail's construction. A woodland trail junction unites both entry trails with the Midland and Quarry Trails. Here, the understory is cleared to form a circle, but trees remain within the space. Stones mark the circular edge and double as seating. Wayfinding directs visitors to choose from the Quarry Trail, the Midland Trail, or the South Trail.

The existing Kiwanis Stairway should be maintained and repaired as needed, but the upper landing requires some intervention. The concrete slab should be removed in lieu of a circular, natural surface landing. Vegetation surrounding the landing should be maintained to form a threshold where prairie meets forest. The information kiosk at the upper landing is relocated to the base of the stairs.

PRECEDENTS



Bike parking



Expansion of pump house



Interpretation and visitor information



Parking



Evaluate flag pole relocation and realign Prairie Trail to prevent continued erosion of steep path

West Overlook Improvement Area

Barn Bluff’s West Overlook is relatively new and in good shape; however, the portion of the Prairie Trail leading down to it is steep and eroding, creating unsafe conditions. Additionally, the trail travels through sensitive cultural resources, which challenges the integrity of this sacred place. In order to provide the proper buffer around cultural resources, the City should work with the Tribal Preservation Officer with the Prairie Island Indian Community and the American Legion Commander to evaluate the potential to relocate the flag pole to another location on the bluff and to reroute the Prairie Trail farther south. The new alignment helps to traverse the steep grades better than the existing path; at roughly 8%, the new route is an easier hike, and will prevent further erosion of the blufftop. A set of steps completes the new trail’s connection to the existing West Overlook. The existing network of trails that is being bypassed should be permanently closed and restored to prairie. Until established, trail camouflage techniques should be employed in conjunction with educational efforts to inform people why the trail has been rerouted and why visitors should respect the old trail’s closure. Refer to the March 2015 [Barn Bluff Landscape Guidelines](#) document for further information.

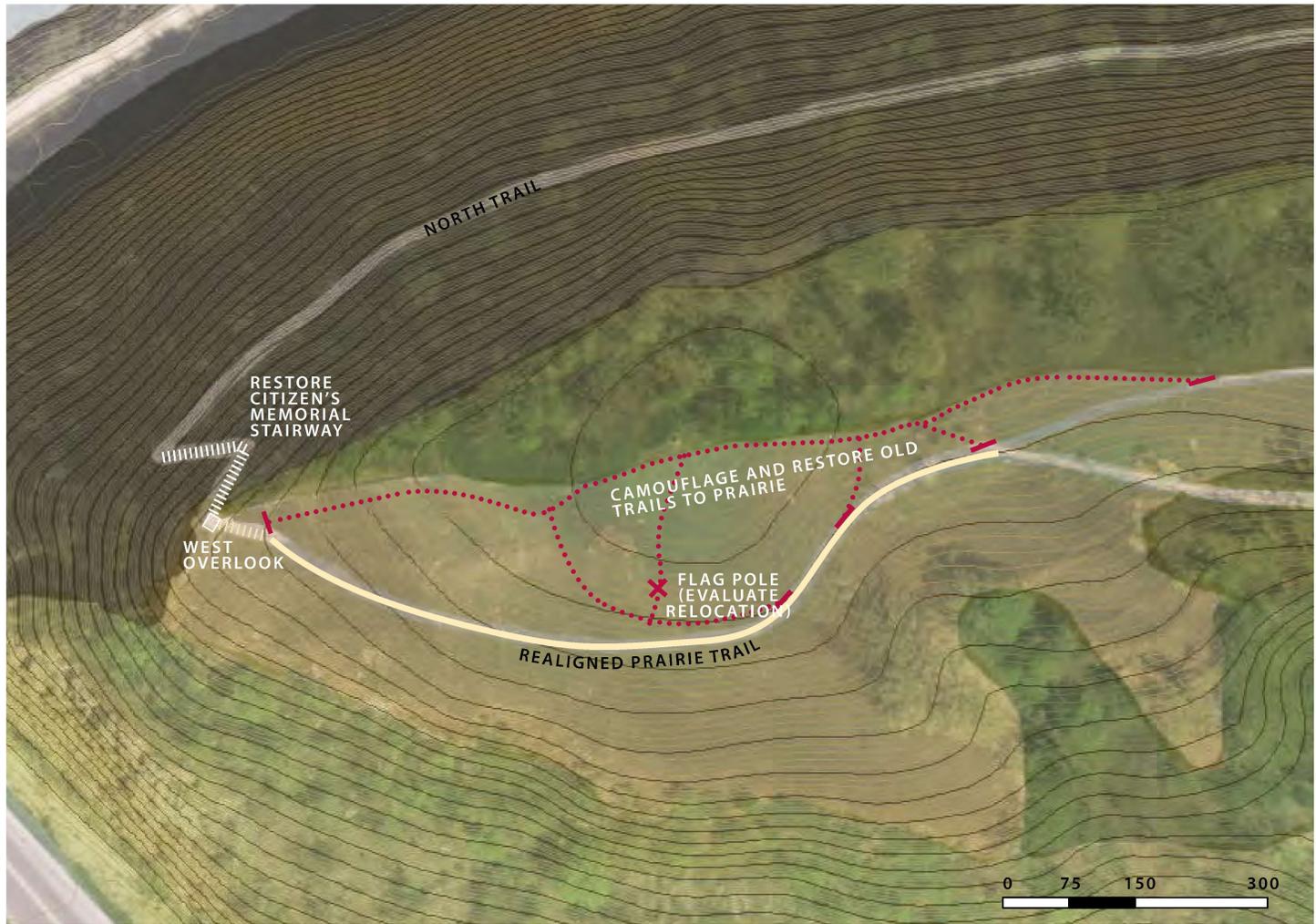


FIGURE 3.3 WEST OVERLOOK IMPROVEMENT AREA PLAN



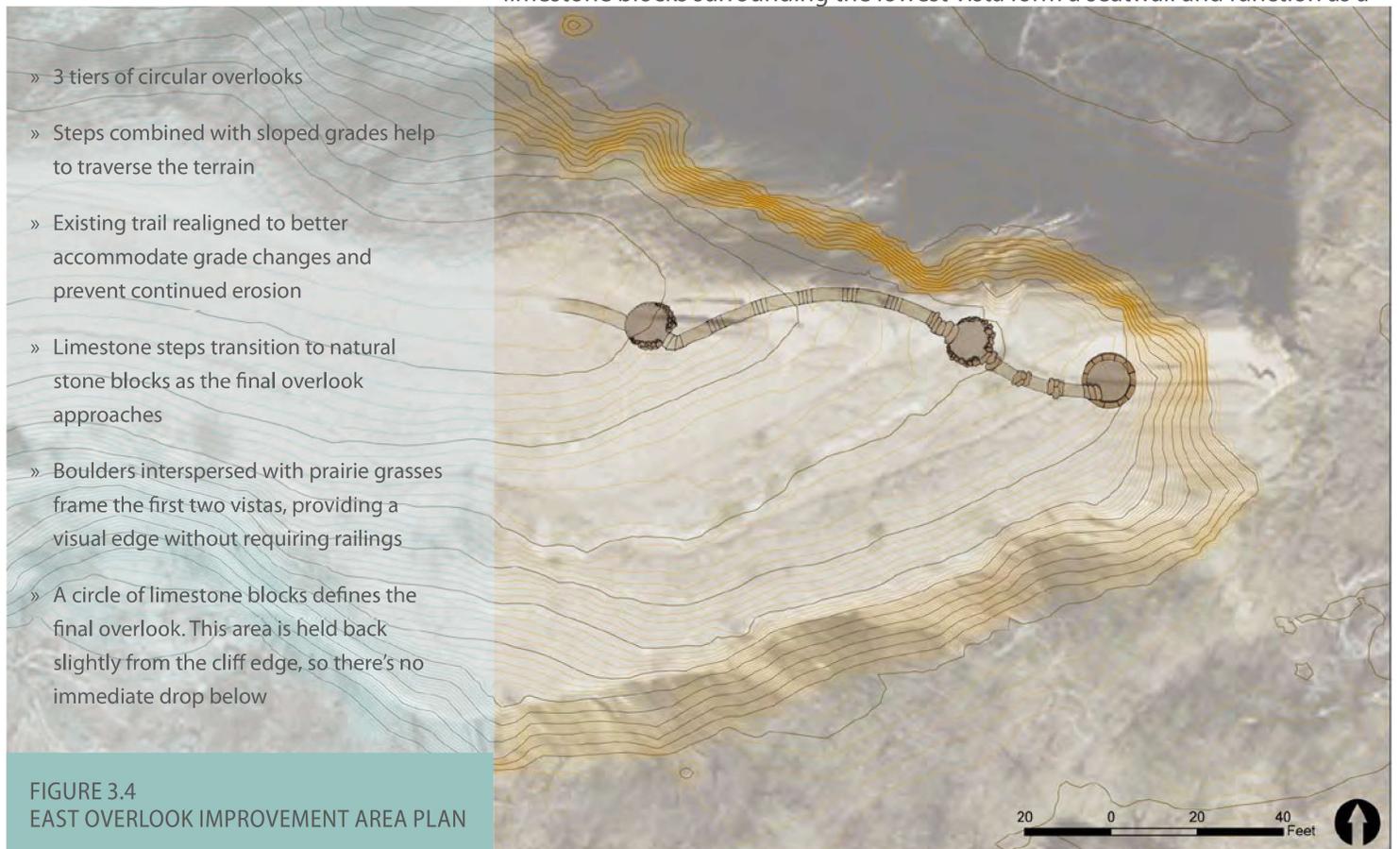
Reconfiguring the trail alignment leading down to the east overlook is essential to reducing erosion and improving user safety

East Overlook Improvement Area

Located on the eastern terminus of the Prairie Trail, the East Overlook has a primal draw. Views from Barn Bluff's highest point stretch out for miles in all directions, and the sheer cliff and steep slopes that border the Overlook lend a thrill to the experience. The safety concerns inherent with this type of landscape are an obvious issue, as are erosion and accessibility.

While the East Overlook begins at the peak of Barn Bluff, the most sought after vista is actually about 30 feet lower, on the very edge of the eastern rock face. Visitors clamber over eroded soils and exposed, crumbling bedrock to reach this final overlook, worsening the trail's condition over time. Loosened rocks are tempting to toss over the edge, presenting dangerous conditions for climbers on the Quarry Trail below. These problems can be remedied through subtle realignments of the trail's descent, and the experience can be enhanced through careful orchestration of stopping points and views.

The East Overlook Improvement Area Plan reconfigures the trail alignment using a combination of sloped grades and steps to focus traffic, reduce erosion, and provide a more controlled descent to the final overlook. Existing users tend to stop to take in views at three distinct points, a concept preserved in the plan through a series of small, circular overlooks formed by rocks and vegetation. As visitors make their way down to the final overlook, the path becomes more rugged and natural, with limestone steps transitioning to limestone blocks. The limestone blocks surrounding the lowest vista form a seatwall and function as a





Mill Ruins Park in Minneapolis uses a similar aluminum grate platform on this sensitive site

hard edge to establish a zone of safety, beyond which exploration is discouraged.

G.A. Carlson Lime Kiln + Plaza Improvement Area

The City of Red Wing has received a grant from the Minnesota Historical Society for the repair and preservation of the G.A. Carlson Lime Kiln. Presently, there is an informal space set below the face of the Kiln where visitors can view its facade. Fencing has been installed around the structure to prevent people from climbing remnant lime piles to get a closer look. In order to offer visitors a better view of the Kiln without risking damage to the City's future investment in the structure, the master plan recommends constructing Carlson Kiln Plaza; this low-impact platform creates a formal space for interpretation and a proper place to admire this important vestige of Barn Bluff's working history.

The Plaza's semi-transparent aluminum grate surface allows visitors to see through to the base of the Kiln below. The platform is set at the same elevation as the Kiln's historic Lime House (demolished), and features built-in displays to showcase interpretive items. Programming of the space could be a collaboration with Goodhue County Historical Society, or other interested organizations, with



FIGURE 3.5 ENVISIONING CARLSON KILN PLAZA

Trail Improvements Plan

TRAIL INVENTORY

A comprehensive inventory of all named trails was conducted as part of the master plan site analysis. The inventory identified existing conditions along all trails within the park and categorized the types and severity of issues proposed improvements need to address. These issues include:

- » **Safety:** Steep slopes and drop-offs adjacent to trails contribute to fall hazards, and uneven treads pose serious tripping hazards.
- » **Erosion:** Poorly designed trails cause erosion damage that is difficult to restore.
- » **Visual Impacts:** Eroding trails pose unsightly negative impacts.
- » **Cultural Resource Impacts:** There are known locations where trails impact sensitive historic cultural resources.
- » **System Gaps:** When desire lines of travel are not formalized as trails, or when paths to desired locations are not clearly marked, visitors often make their own way, creating “volunteer trails” over time.

The inventory conducted is graphically summarized in Figure 3.6 which shows trails segments with moderate and severe erosion. These trails can be difficult to navigate due to uneven surfaces. Combined with steep grades, the trails in red pose the greatest risk to visitors and degradation to the landscape. Analysis indicated 1,190 feet of severely eroded trail, and nearly 4,000 feet of moderately eroded trail. Reconstruction or rehabilitation of these segments will be needed to correct these impacts.

The inventory also identified three known locations where trails conflict or impact historic cultural resources—an issue only remedied through trail realignment.

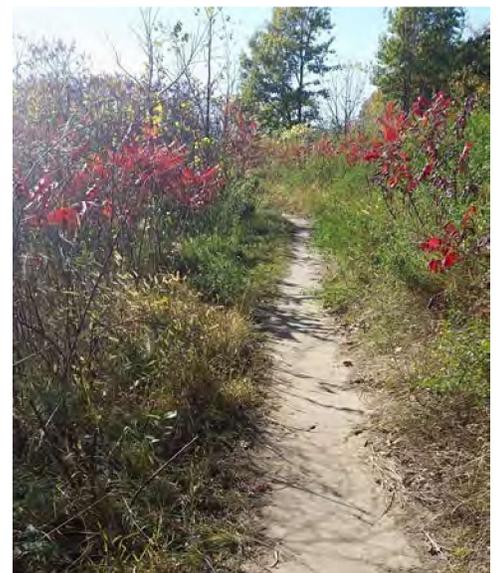
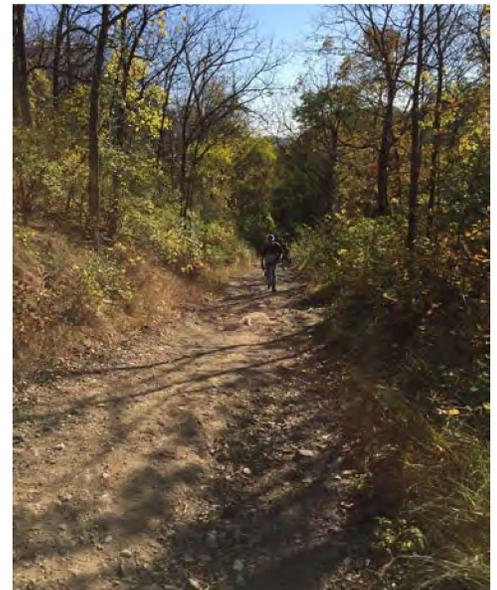
Finally, some trails have immediate fall hazards in several locations. The North Trail specifically, suffers from fall hazards along most of its length. Some remediation may be possible; however, alerting users to the presence of hazards and providing information about safe and responsible trail use will be the first strategy to prevent injuries.

TRAIL ISSUES AND IMPROVEMENT NEEDS

Several criteria are considered in the design and improvement of the trails:

Key Design Criteria

- » **Restorative:** Trail interventions should not cause harm to the site’s habitats; and should facilitate respectful use of the landscape.
- » **Historic:** Trails should complement historic conditions and design should strive to reflect historic character.
- » **Functional:** Trail interventions must be durable (50+ years with timely minor maintenance), and effective.
- » **Reasonable:** Implementation effort and cost must be worth the gain.
- » **Aesthetic:** Trails must not contribute to negative visual impacts.



The condition of Barn Bluff’s trail system is varied



The trail width was inadequate along this portion of the South Trail, resulting in a second trail forming alongside the first. Panning along the first trail is severe in spots.

SUSTAINABLE DESIGN STANDARDS

To be durable, trail improvements must also follow several standards for sustainable design. Trails are most often unsustainable because of improper design and deferred maintenance. Excessive erosion, primarily from drainage issues, and to a lesser extent from foot traffic, is the most damaging aspect of unsustainable trails. Sustainable trail development focuses on preventing erosion through thoughtful management of water and the use of durable materials and construction methods.

A Sustainable Trail:

- *is stable with little to no erosion*
- *has a compacted and/or rocky tread with limited soil displacement from foot traffic*
- *has a constant outslope to the extent reasonably possible*
- *has sufficient drainage outlets that limit erosion*
- *has little to no pan (compacted middle area of trail)*

Design Standards to Follow

The following publications are the best known resources for local implementation of sustainable trail design.

- » Trail Planning, Design, and Development Guidelines, Minnesota Department of Natural Resources, Trails and Waterways, copyright 2006 State of Minnesota. Primary author Jeff Schoenbauer.
- » Trail Solutions: IMBA's Guide to Building Sweet Singletrack. By the International Mountain Bicycling Association, 2004.
 - *While specific to mountain bike trails, the trail building fundamentals and techniques found here are often transferable to the design of other trails.*

Trail Width

Rules of thumb to apply for trails are:

- » 18 - 30" for single walker
- » 36 -48" for side by side.
- » 60-72" for staggered with single user room to pass
- » 84 – 96" for staggered with two hikers room to pass

(Standards from Trail Planning, Design, and Development Guidelines, MN DNR, 2006, page 6.2)

Failure to make the trail wide enough will result in users widening it over time, which can lead to erosion and negatively impact natural resources. Trails at Barn Bluff should vary in width to respond to traffic volume and natural features.

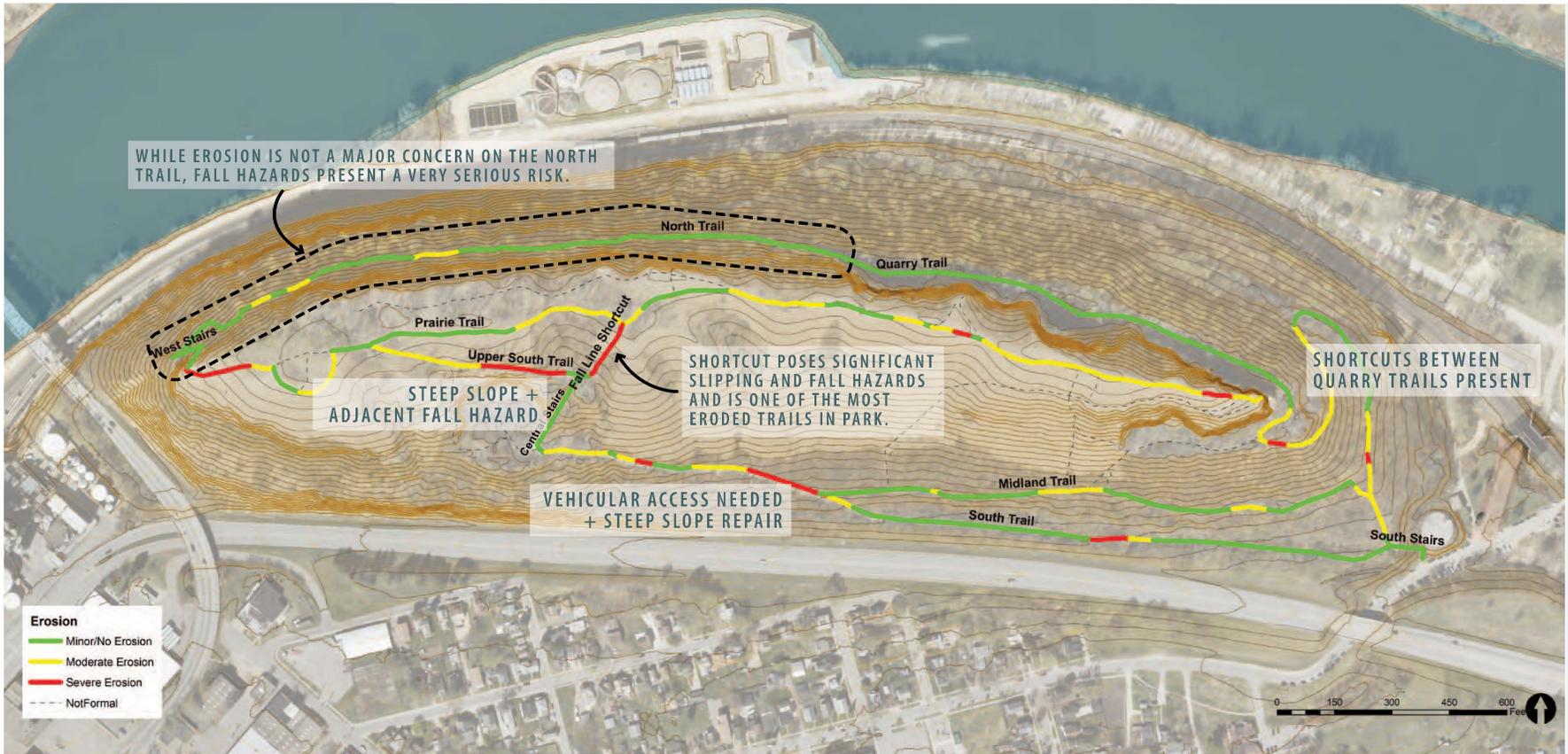


FIGURE 3.6 TRAILS ANALYSIS SUMMARY GRAPHIC

UNFOLD TO SEE THE TRAILS, CIRCULATION & ACCESS PLAN FOR HE MNI CAN / BARN BLUFF PARK

SUMMARY OF TECHNICAL ANALYSIS:

- 3 known trail conflicts with cultural resources
- 1,190 feet of severely eroded trail
- 3,924 feet of moderately eroded trail
- Significant site specific safety hazards related to drop offs immediately adjacent to trails

SUMMARY OF PREDOMINATE TRAIL ISSUES:

- **Safety:** steep slopes contributing to falling, drop offs adjacent to trails, serious tripping hazards on trail tread, similar
- **Erosion:** Most often from poorly designed trails, causing ecological damage that is very difficult to restore and is visually offensive
- **Visual Impact:** Negative impact
- **Cultural Resource Impact:** Some resource is negatively impacted
- **System Gap:** What users are looking for isn't officially provided – hence development of volunteer trails

TYPES OF DESIGN RESPONSES:

- **Trail Development** – new trails to fill a gap or solve a problem related to safety, erosion, visual, cultural impacts
- **Trail Improvement** – may involve a range of solutions including addition of steps, debanking, widening, narrowing, and adding safety improvements (walls, handrails, similar)
- **Trail Realignment** – for safety, to avoid/reduce visual and cultural impacts, create a sustainable trail
- **Trail Closure and Restoration** – for a significant reason
- **User Responsibility** – Add signage detailing why it's important to stay on the trails

DESIGN CONSIDERATIONS:

- New elements should be compatible with historic materials, features, size, and proportion.
- Sensitivity to significant cultural resources and use is required.

FIGURE 3.7 TRAILS, CIRCULATION, & ACCESS PLAN



Trail Design at the Park

STANDARDS PARTICULARLY APPLICABLE TO HE MNI CAN / BARN BLUFF PARK TRAILS INCLUDE:

- » **Alignment in regards to slope:** Design the alignment with respect to existing topography such that trail grade does not exceed standards, otherwise water management issues compound rapidly and an unsatisfactory trail will develop.
- » **Full bench cuts for new trail:** This is often ignored, resulting in trails with one half of the tread made from fill material cut from the other half of the trail. Unless the fill is rocky and contains the right mix of sizes, it will excessively compact and erode, resulting in a failed trail.
- » **Tread hardening:** Use the right combination of native and if necessary, imported materials to ensure compaction and stability.
- » **Proper trail width:** A trail can have a varied width to respond to obstacles and add interest. Fortunately, most of the named trails on Barn Bluff have naturally evolved to an appropriate width to accommodate traffic volumes and adjacent topography.
 - *An exception to the generally appropriate existing trail widths are small lengths of the North Trail. Here the tread can be less than 18" and widening to 18" may be necessary.*

FEATURES OF THE TRAILS, CIRCULATION & ACCESS PLAN

Figure 3.7 illustrates the overall improvements to He Mni Can/ Barn Bluff Park's trails, circulation, and access. Outside of the new park entry, there is not much need for new trails. The Kiln Overlook Trail Spur follows an existing quarry road and offers access to the top of the Carlson Kiln, where interpretation on the Kiln's role in the historical quarrying and lime creation process can be explored. The new Park Entry Trail offers access up the bluff directly from the new Entry Plaza, via a climbing causeway, and also offers an ADA option to a proposed Dakota Memorial. A woodland trail junction where the Quarry, Entry, Midland, and South Trails meet offers a great on-bluff gathering place and orientation point for the journey. Other new paths include an interpretive walk along the cistern's proposed interpretive panels between the East Kiwanis Stairs and the new Entry Plaza. Safe crossings of E 5th Street are facilitated by crosswalks and traffic calming pavement.

Access to the Park is improved by the addition of more visible signage along E 5th Street from downtown, a formal gateway at the Hwy 61 overpass, and additional parking, both on-street and off. A neighborhood connector trail and the future Riverfront Regional Trail will both facilitate access for non-motorized users.

Existing trail routes that are badly eroded or pose danger to cultural resources are realigned in order to remedy issues (Prairie Trail Bypass, Prairie Trail descent to the East Overlook, and the Prairie Trail near the West Overlook). The decommissioned paths replaced by the realigned trails need special attention. It is imperative that adequate resources be dedicated to the restoration of these areas to their designated habitat. Educational signage, trail camouflage techniques, access barriers, and vegetative restoration all must be utilized to prevent these areas from being returned to trails.

The Carlson Kiln Trail is realigned to follow a historical quarry road, a route which distances the user from the railroad tracks, and connects to an ADA path to the future Dakota Memorial and Entry Trail. Most other existing trails require minor maintenance with some sections of more intensive repair. A portion of the South Trail must be converted to handle vehicular traffic in order to support future construction and maintenance activities farther up the bluff. With minor base improvements to the North Trail, the addition of a cable hand-hold, edging, and improved educational/trail conditions signage, the trail loop at He Mni Can/ Barn Bluff will be able to be reopened.

In order to implement the features of the Trails, Circulation, and Access Plan, further engineering and design must be done on the steep portions of the South Trail, the East Overlook, and the Kiwanis Steps. Most other trail maintenance and improvements can be done in the field.



Imported Stone Stairs



Engineered Slope

Trail Design Tool Kit

The following 'tools' are the strategies and techniques to be used for trail improvement work. These recommendations are derived from a detailed analysis of the existing trails, in context of the vision and guiding principles for the park, and a comprehensive understanding of sustainable trail design and remediation.

DESIGN SOLUTIONS FOR STEEP GRADES

Steep Grade Management (Steps)

Steps provide an erosion free way to negotiate steep grades where there is no other viable option. Considering the natural and historic character of He Mni Can / Barn Bluff, limestone steps, of a color and character similar to the indigenous stone, are recommended. It is necessary to use a hard limestone that is durable, resistant to flaking, and can be expected to last 50+ years. A 7" riser is recommended to ascend slopes more quickly than risers of lesser height and reduce the overall number of steps.

Use only where no other viable option to negotiate the slope and nearly eliminate erosion is possible.

Types of steps to consider:

- » Imported Stone
 - Stone must have excellent durability and match closely to the native limestone found on the bluff (the local limestone, however, is too fragile for long term use as steps).
- » Salvaged Stone Steps
 - These may be collected from onsite or nearby locations with similar native stone material for unique small applications.

Examples of locations in need of steps:

- » Prairie Trail Bypass: Just above the Central Kiwanis Steps, the trail goes through a heavily eroding ravine where water is channelized. Alternatives to steps are extremely problematic.
- » Quarry Trail Shortcuts: Where users are interested in ascending the bluff faster than the circuitous trail route allows, they tend to create shortcut trails up the hill. Steps in one location will sustainably provide this shortcut option.

Engineered Hardened Trails for Steep Grades with Vehicle Use

(South Trail only)

About 950' of the South Trail spans grades from 9% up to 19% and is severely eroded. Vehicles (for maintenance and construction) must be able to drive on the surface. An engineered approach was developed with the intent to build this section of trail to near road-like standards, including base preparation and effective water management (ditches, pipes, ponding). Hardened surfacing should accommodate occasional heavy equipment use, be hiker friendly, and appear visually and historically acceptable.

DESIGN SOLUTIONS FOR SAFETY ISSUES

Many variables affect trail safety, including: weather; trail design and condition; a user's age, experience, ability, or behavior; available light and visibility; and cover of the trail surface by snow, ice, or leaf litter. A significant safety issue exists when:

- » A minor error in judgment or a moment of inattention could result in serious injury or worse.
- » The user is likely to encounter trip hazards, very steep slopes, loose rocks on trail, or other features that increase the likelihood of a slip or fall. Many of the volunteer trails fit this description.
- » The user is unaware of hidden, inconspicuous hazards (example: possible sink holes above the Carlson Kiln).
- » Locations are prone to hazardous circumstances, such as rocks falling onto climbers or trail users below.

Safety – Adjacent Fall Hazard

Nearly vertical to vertical drop offs exist along the edge of some trails and bluff locations, creating a serious safety concern. This is especially true for much of the 1,700' length of the North Trail. Tools to address this include:

» Eyebolt/cable Handhold

Install eyebolts on posts or into bedrock along the uphill side of adjacent fall hazards. String a coated cable (3/8" diameter or greater) through the eyebolts to serve as a handhold. This solution is used on trails with similar hazards elsewhere in the country. The eyebolt design mimics the existing eyebolts embedded into the quarry walls used for rock climbing.

Even with the addition of a handrail or handholds, the North Trail should remain closed when ice and/or snow covered.

» Other Adjacent Fall Hazard Tools

- *Trail Realignment:* Where a length of trail could be rerouted to reduce the hazard.
- *Signage:* Use warning signs to educate trail users on proper safety etiquette.
- *Visual Cues:* Log or stone borders can be used to signal the edge. Larger stone blocks can be placed to denote a barrier and provide a resting place.

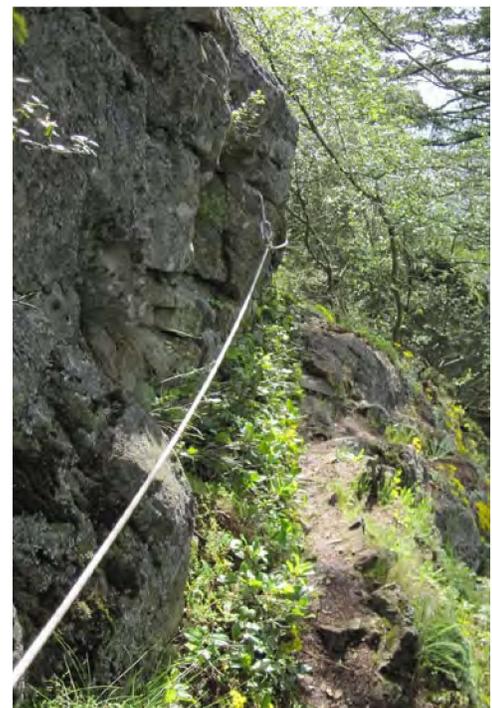
Safety – Tread Related

Poor tread conditions can contribute to tripping and falling. A tread-related safety issue exists where:

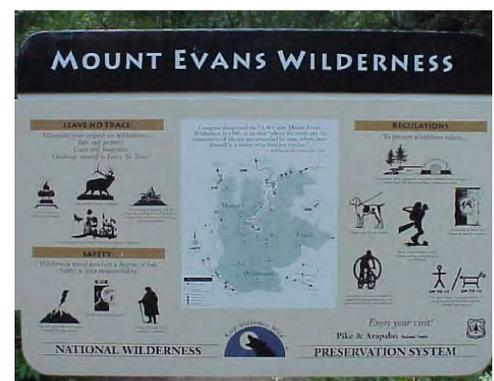
- » Protruding objects like rocks and tree roots present a tripping hazard.
- » Slippery conditions from mud, ice, snow, or wet leaf litter are found.
- » Erosion has created deeply entrenched ruts that can twist ankles.
- » Loose rocks or gravel acts like ball bearings, creating slipping hazards.



Pinned log border to signal edge



Cable Handhold



Hazard Signage



East Kiwanis Stairs at Park Entry



Central Kiwanis Stairs



Kiwanis Stairs at North Trail

Trail Tread Related Tools

Ensure that the trail meets sustainable design standards; sustainable design greatly increases safety.

- » Tread Rehabilitation – See Design Solutions for Water Management
- » Hazard Removal: Remove rocks, roots, and other protrusions, or route trail around hazards. The removal of protruding rocks on the North Trail, (except where converted to use as stairs), would substantially improve safety.
- » Width: A trail of proper width tends to keep people on the trail, where the environment is designed to be safe

Kiwanis Stairs

The three sets of existing Kiwanis Stairs are all in need of repair:

- » East Stairs (existing entry access): Minor concrete repair to stair treads
- » Central Stairs: Minor concrete repair to stair treads and erosion control along slopes adjacent to stairs
- » North Trail Stairs: These are the most severely compromised. Reconstruction here is essential to reopening a trail loop. A structural evaluation should precede any work done, to determine the extent of the damage. At minimum, concrete repair is required, as well as replacement of missing treads and handrails.

DESIGN SOLUTIONS FOR WATER MANAGEMENT

Erosion, primarily from poorly design trails, is the primary threat to historic character and a substantial threat to ecological conditions on the bluff. Tools to manage water onsite include:

Sustainable Design

- » See summary and resources on page 28
- » It will not be possible to convert all trails to sustainable standards, but the application of certain techniques for much of the trail system is feasible.

Raising Tread Elevation

This reduces the concentration of water to just what falls on the trail. See Outslope.

De-Berming

This removes the outside berm that develops as the trail tread compacts and soil migrates to the edges (pan development).

Outslope

De-berming, along with a constant 2-3% outslope on the trail, is a core sustainable design technique. This prevents water from puddling or concentrating.

Tread Hardening

Hardening the tread through the precise use of stone and fines is a durable

solution to the issue of muddy trails. As example, about 350' of the South Trail is flat, cannot drain well, and becomes very muddy. Users walk on the edges to avoid the mud, which widens the trail, resulting in muddier trail. Hardening the surface is recommended in this situation.

Hardening is accomplished by use of graded rock such that the largest stones become firmly embedded with only the tops exposed, while the spaces between are filled with smaller, compacted materials.

Hardening Approach:

- » Use 1 1/2" crushed limestone, with smaller sizes and fines in between, to raise the trail surface to drain across the top of the outside berm. Do not de-berm as the berm serves to hold the outside edge of the stone in place.
- » To reduce the visually jarring impact of freshly crushed limestone, the surface of the trail can be deliberately muddied by sprinkling soil over the top. However, over time the limestone will weather to a more neutral appearance.

Use of Aggregate

When discussing the Prairie Trail, **the Barn Bluff Cultural Landscape Report** (Two Pines Resource Group, LLC January 2015) does not recommend the use of crushed rock (page 75). It is understood that this is in reference to the 3/4" aggregate rock installed from the flagpole to the West Overlook. The recommendation to use rock for hardening (but NOT 3/4" on the surface), along with staining it with soil, is a much different use.

Water Diversion

Numerous places exist where concentrated water flows must cross the trail. While de-berming and creating outslopes can minimize water concentration, erosion resistant water diversions are necessary. These can be accomplished through armoring the trail with salvaged stone at diversion areas, or creating wooden or earthen berm water bars at specified intervals. At some locations, armoring will need to be done for 10' or more downhill of the trail until an erosion free outlet is possible.

DESIGN SOLUTIONS FOR WALLS

Stone wall remnants are common along the Midland Trail and between East 5th Street and the Carlson Kiln. Walls are effective to:

- » Hold up a short length of trail that needs lateral support
- » Allow a trail to be raised up and over a drainage way
- » Hold back soil/rock on the uphill side of a trail and provide informal seating

Existing Wall Repair:

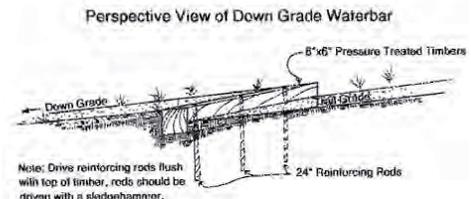
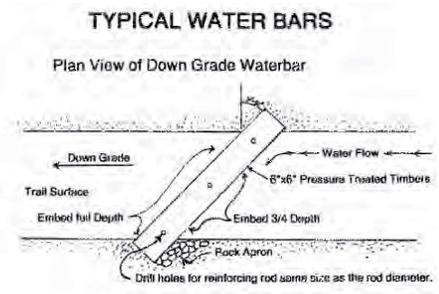
The repair of an existing stone wall could provide a benefit – this may especially be applicable to the walls along the Midland Trail.

New stone walls:

Use stones unobtrusively salvaged from nearby.



Tread Hardening



Wooden Water Bar Construction

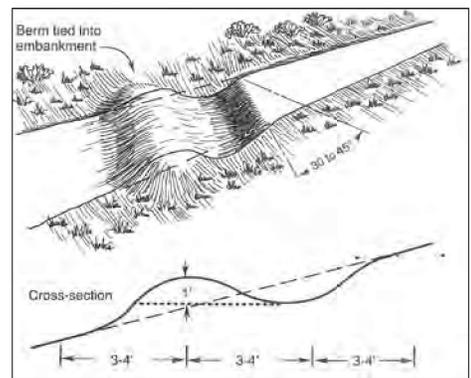


Figure 6. Earth Berm Water Bar Construction. (Re-printed courtesy of the Wisconsin Department of Natural Resources)

Table 3. Water Bar & Cross Drain Spacing Intervals.

Road Grade (percent)	Spacing (feet)
2	250
5	135
10	80
15	60
20	45
30	35

Earthen Berm Water Bar Construction



Informal paths, like this one near the Prairie Trail, expand over time and require attention and enforcement at early stages in order to prevent them from becoming accepted trails.

DECOMMISSIONING OF EXISTING TRAILS

Due to steep slopes, compacted and low fertility soil, and the challenge of keeping users off of restored or sensitive areas, considerable effort will be required to successfully decommission trails. Nearly all of the decommission work required is in a prairie environment. The work involves:

- » Grade Restoration: Use locally salvaged fill. Do not import fill because it could contain the seeds of undesirable species
- » Seeding/Planting: Use only appropriate native species
- » Erosion Control: Essential to success and may include biodegradable erosion control blanket, water bars, or other water diversion techniques
- » Barriers/Signs: Clearly mark off-limits areas until restoration is complete. Inform the public why the restoration was done and why it's important to stay off of it.
- » Education: Building understanding of He Mni Can's cultural significance to the Dakota could help to prevent continued use of decommissioned trails through sensitive areas on top of the bluff.

The *Trail Planning, Design, and Development Guidelines* provide detailed information on decommissioning.

Informal / Volunteer Trail Decommission and Management

Over 5,500 linear feet of un-named, informal trails exist on the Bluff. Some of these are fall line trails with highly visible, severe erosion. Other informal trails, such as those through the oak savannah on the blufftop, have few issues with erosion. These trails exist because they:

- » Traverse a portion of the Bluff not served by named trails
- » Are a shortcut between desirable destinations, such as from the east end of the Prairie Trail to the Midland Trail and then to East 5th Street
- » Offer a challenge/adventure to some users

This Plan recommends a focused effort to reduce/eliminate use of the informal fall line trails – especially the multiple trails from the Prairie Trail down the bluff. Tools to help accomplish this include:

- » Constructing the Prairie Trail Bypass to offer a more convenient and safe shortcut than the existing shortcut trail
- » Education: Communicate the issues that arise when users don't stay on marked trails, and broadcast the risks associated with off-trail exploration
- » Be vigilant in restoration of the fall line trails: users may avoid making new trails if they see that footpaths are restored quickly and clearly marked as off-limits

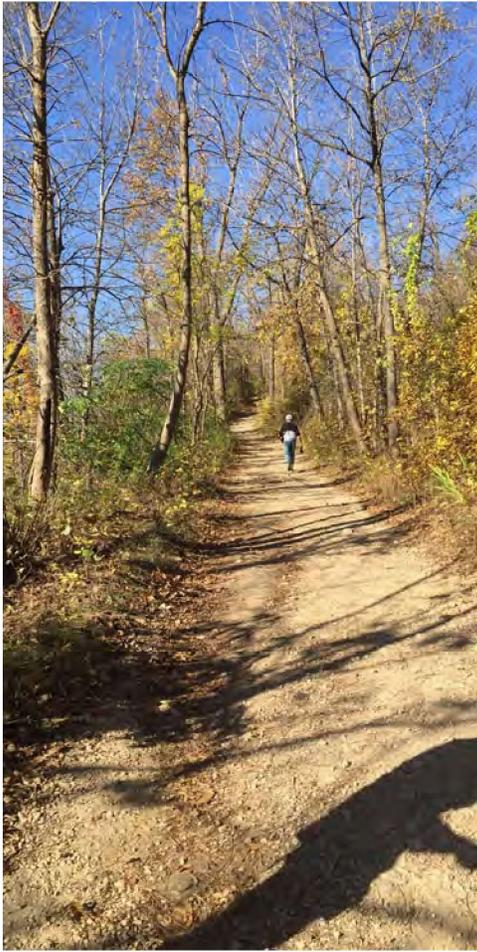
MAINTENANCE

Every reasonable effort has been made in this plan to design for a durable and effective trail system that will minimize erosion. As is the case with most facilities, timely and effective maintenance is required to preserve the investment in improvement. The most effective tasks are de-berming, outslope maintenance, and water diversion.

The timing of performing these tasks is dependent mostly upon use and weather conditions, but a yearly inspection and intervention effort is recommended. In addition to City efforts, Friends of the Bluffs and other local organizations may want to be partners in maintenance. Holding an annual stewardship weekend can be a great way to build community and help to keep the bluff's trails in prime condition.

Regarding management, as is City practice now, the North Trail must be closed when ice/snow conditions exist. Temporary trail closure of any trail for other reasons, such as rock slides, deadfalls, or hazard trees, may be required.





South Trail Improvements

SOUTH TRAIL	Condition	Safety	Signage
	Moderate	Moderate	Good
<ul style="list-style-type: none"> • Grade can be somewhat challenging in spots • Erosion and panning present, sometimes severe • Proximity to dropoffs can feel unsafe in places • Direct and obvious route with adequate signage at connecting trails 			

SOUTH TRAIL

The South Trail stretches 2,855 feet from the top of the entry Kiwanis Stairs, to the central Kiwanis Stairs, and continues west to a junction with the Prairie Trail. The trail inventory identified approximately 1,500 feet of severe erosion. Predominate issues to address with trail improvements include: severe erosion, adjacent fall hazards, vehicular access, and extents of muddy trail. Tools needed to correct these issues will include trail widening in spots, trail hardening, an engineered hardened tread, water diversion, de-berming, and outslope maintenance. Occasional stairs may be required to navigate grades without continued erosion.

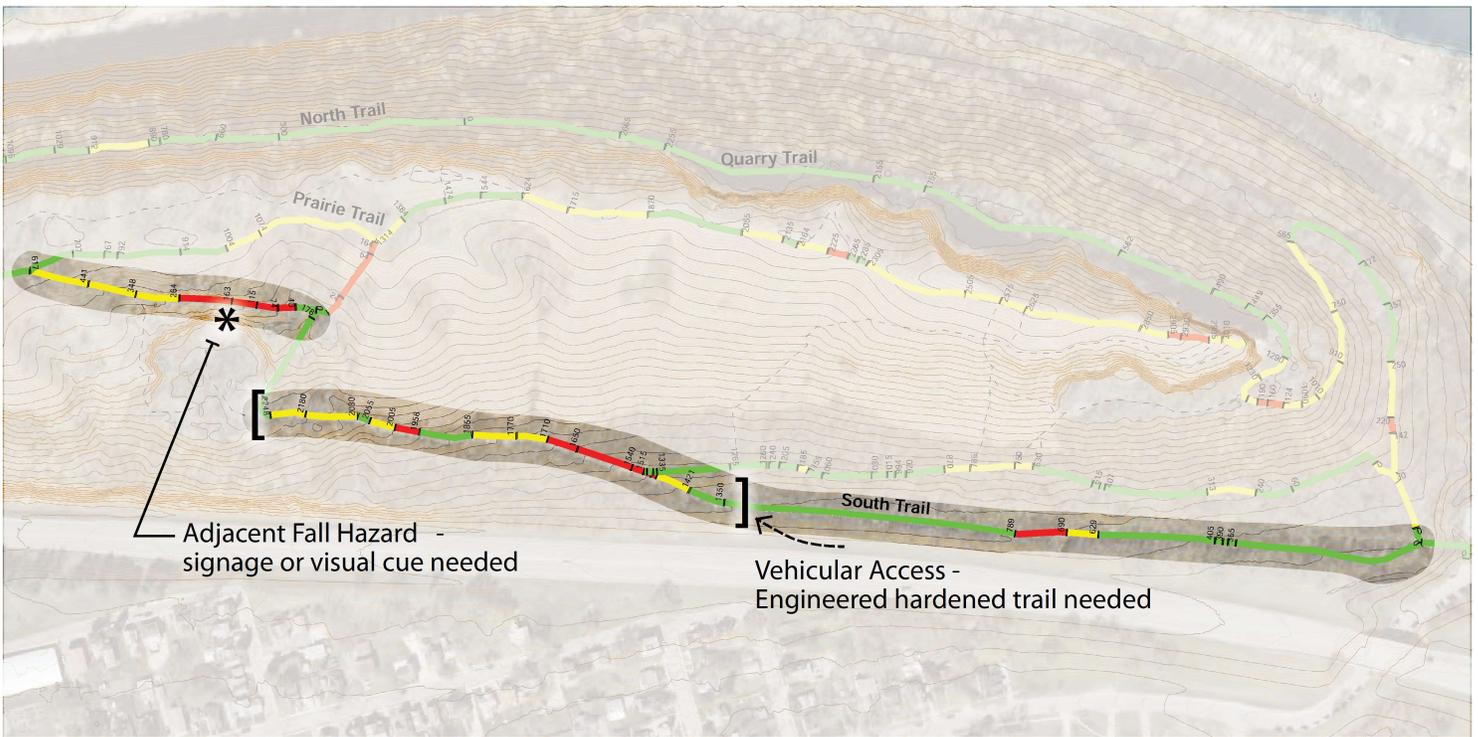


FIGURE 3.8 SOUTH TRAIL

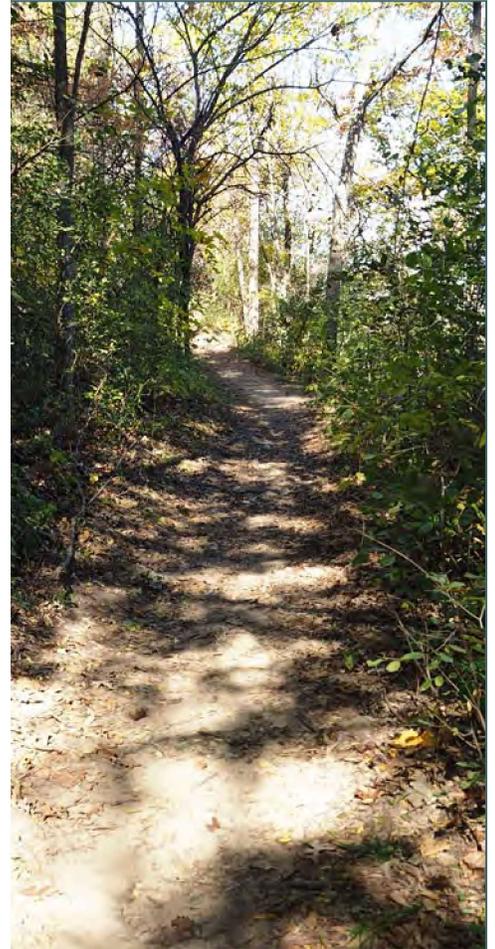


Midland Trail Improvements

MIDLAND TRAIL

Condition	Safety	Signage
Good	Moderate	Poor

- Narrow with some tripping hazards
- Encroaching vegetation- much buckthorn
- Not obvious from mapping/signage
- Identified as an historic trail route



MIDLAND TRAIL

Following a historic pathway taken by quarry workers, the Midland Trail extends 1,500 feet from a junction with the Quarry Trail and the South Trail (soon to be the future Woodland Trail Junction, which will include the new entry trail as well). The trail may need to be realigned where it meets the future Woodland Trail Junction. From a technical perspective, most of the trail is in good, durable condition. Width ranges from 18-24", but does not appear to be too narrow to carry the amount of traffic. Limited improvements, including de-berming/outslope maintenance, are necessary; however, public input highlights the fact the trail is difficult to find or know where it leads. Signage, wayfinding, and updated trail maps will help this situation. Vegetation is encroaching in some areas, which can limit passage. Regular trail maintenance can address this problem.



FIGURE 3.9 MIDLAND TRAIL





Quarry Trail Improvements

QUARRY TRAIL	Condition Okay	Safety Moderate	Signage Okay
<ul style="list-style-type: none"> • Eroding in places. Wooden treads breaking down • Many volunteer trails cut through forest nearby (should be controlled) • Rocks thrown from East overlook pose threat to safety of climbers and people on trail 			

QUARRY TRAIL

The Quarry Trail follows a historic quarry road 1,465 feet from the top of the Kiwanis entry stairs, around the east side of the bluff, past the base of the rock climbing walls, to connect to the North Trail. The trail is in great condition through the north forest, but some erosion exists where the trail navigates grades on the east side of the bluff. The winding nature of the trail has produced some shortcut trails, which are beginning to exacerbate erosion. To remedy this, a set of steps should be introduced in order to focus shortcut traffic and reduce impacts elsewhere along the trail. Tread rehabilitation including trail hardening and water diversion in specific locations will help to prevent the severity of panning and erosion that we see in select spots today.

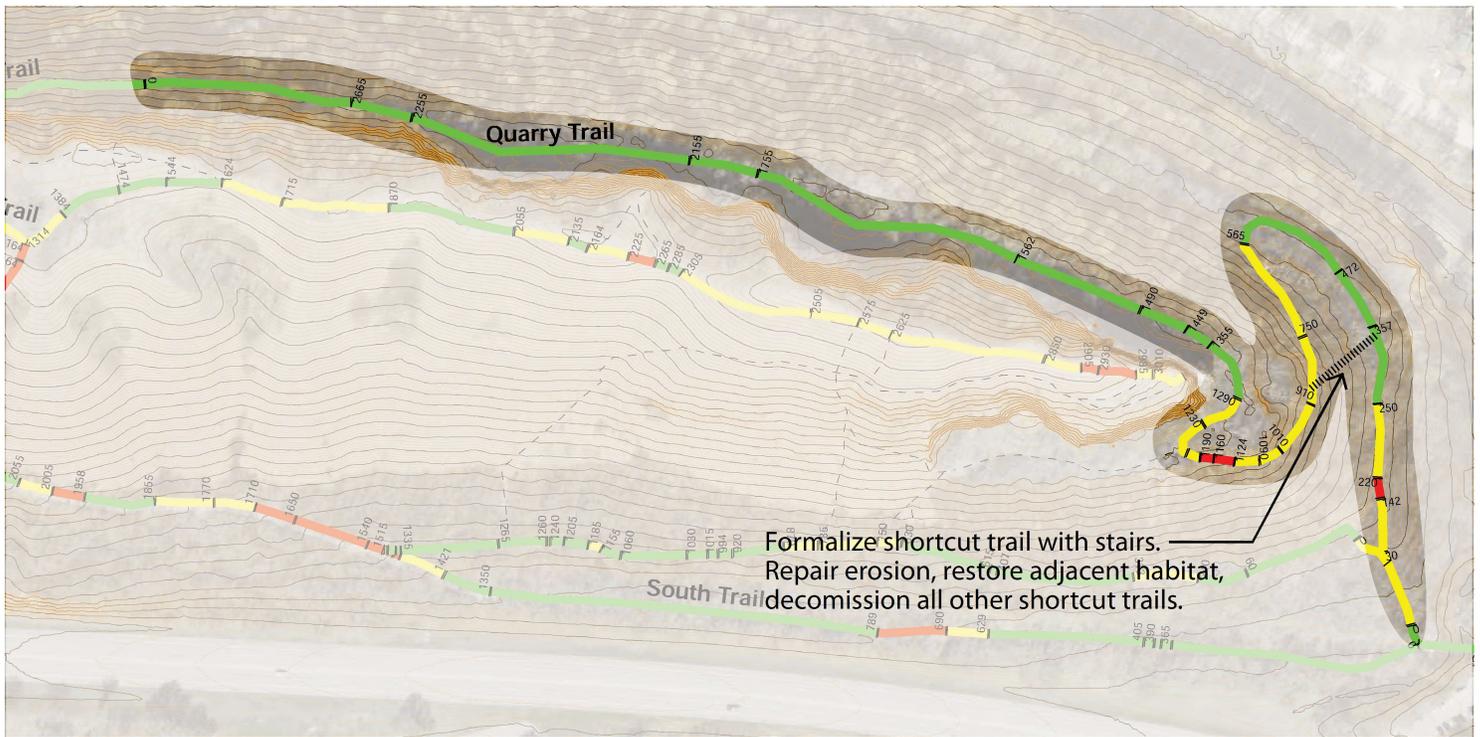


FIGURE 3.10 QUARRY TRAIL

Trail Condition

1823'	Good	852'	Moderate	80'	Poor
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Prairie Trail Improvements

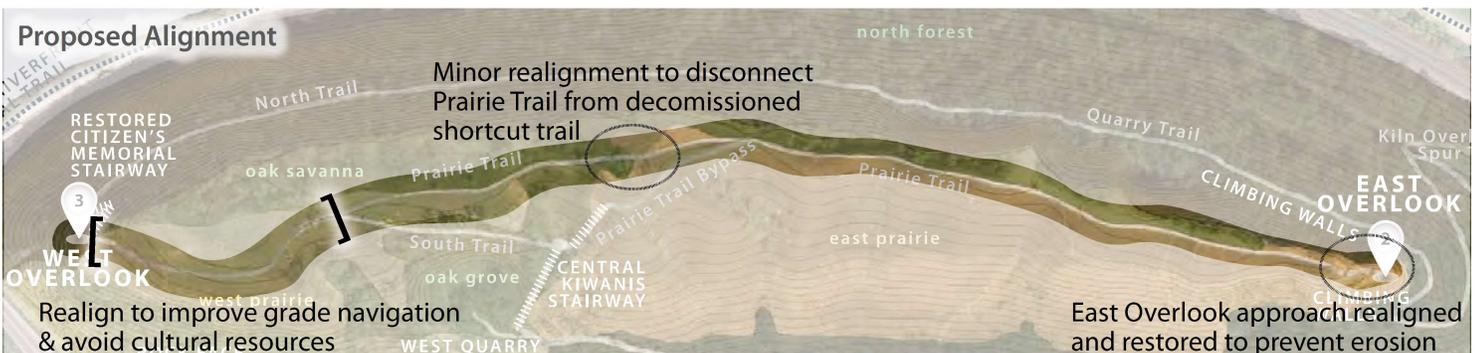
PRAIRIE TRAIL	Condition	Safety	Signage
	Good	Moderate	Good

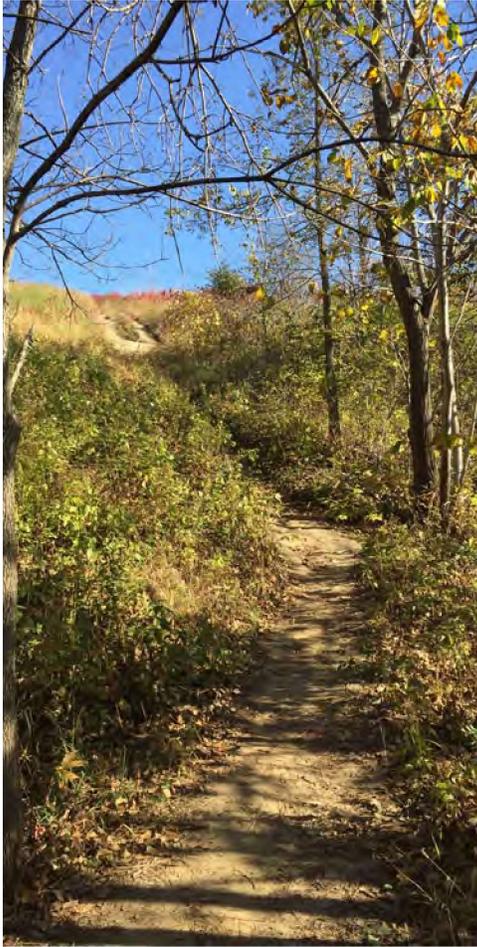
- Very steep on way to West Overlook
- Spectacular views for much of length
- Many areas of the trail have moderate to severe erosion issues
- Certain sections of trail have potential to damage cultural resources
- Significant fall hazards exist at the very east end
- Entire trail identified as a historic route



PRAIRIE TRAIL

Improvements to the Prairie Trail will focus on correcting the extents of severely and moderately eroded trail. The approach to the West Overlook and the descent to the East Overlook are both critical sections of this trail that are difficult to navigate and continue to degrade. Several realignments are proposed in order to remove existing conflicts with sensitive historic/cultural resources, improve safety/ease of access, and to prevent continued erosion. Signage and education about staying on the trail and respecting decommissioned trails and restoration areas will be key to the success of the Prairie Trail's realignment, the protection of blufftop cultural resources, and the safety of visitors.





Prairie Trail Bypass Improvements

PRAIRIE TRAIL BYPASS

Over time, informal use of a path between the Prairie Trail and the Central Kiwanis Stairs has caused an extremely steep- and now severely eroded- bypass trail to form, that unfortunately conflicts with known historic and cultural resources.

To remove this shortcut trail will only take away a connection used by many visitors. However, making this bypass resistant to erosion will require a significant number of stairs. A proposal to realign a portion of the Prairie Trail and connect the bypass at a lower point will keep the number of stairs to the minimum necessary and remove the conflict with sensitive resources.

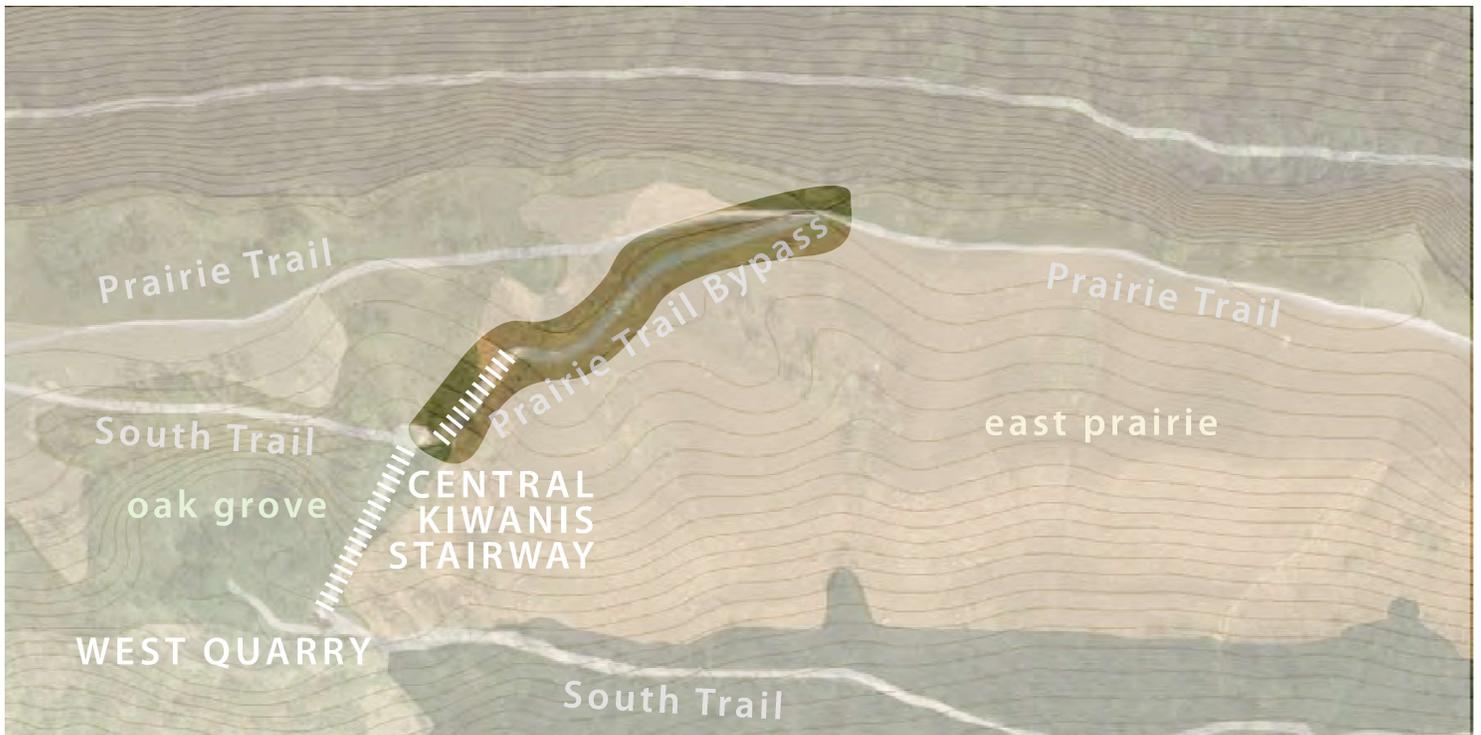
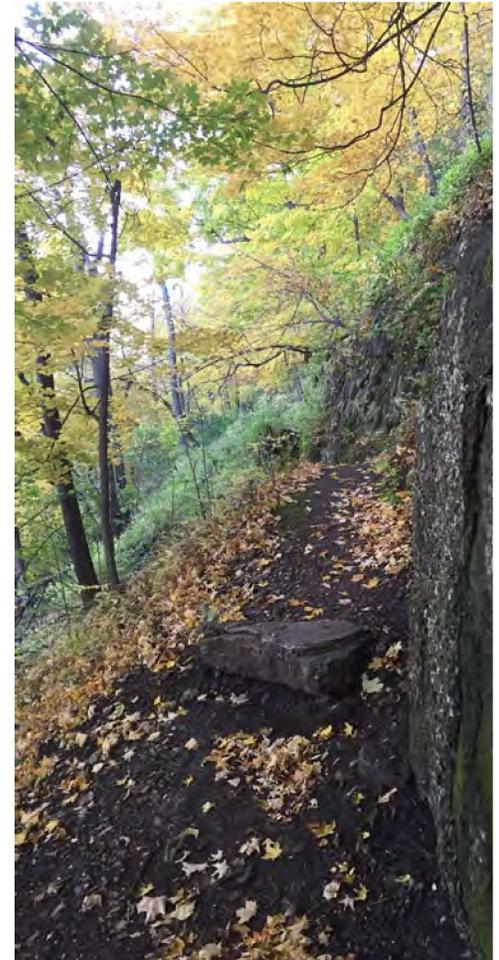


FIGURE 3.12 PRAIRIE TRAIL BYPASS

North Trail Improvements

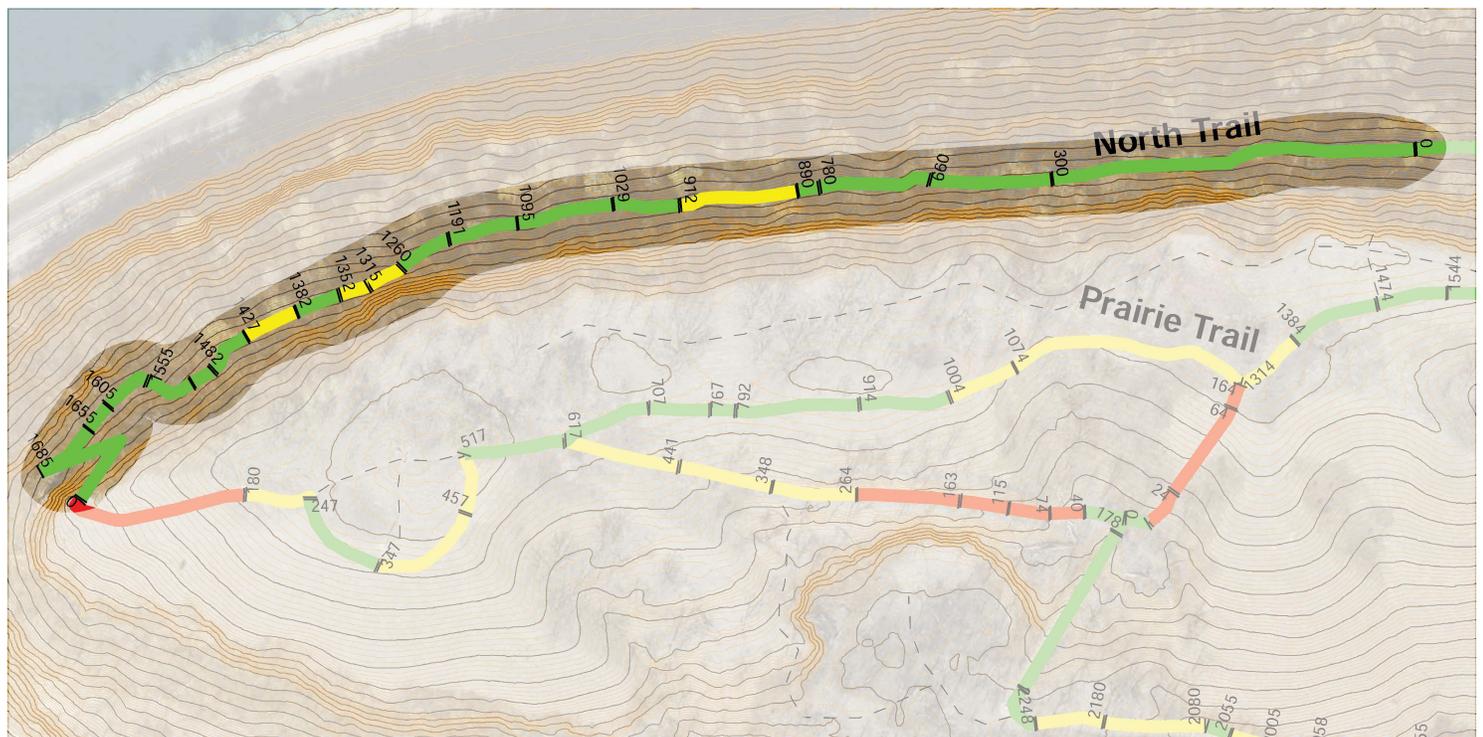
NORTH TRAIL	Condition	Safety	Signage
	Moderate	Unsafe	Okay

- Should be re-opened
- Loop experience missed
- Minor safety improvements desired
- Fall hazards nearly the entire length of trail present serious risk
- Trail not suitable for use in certain conditions, such as ice
- Visitors assume risk but effective safety improvements are needed to reduce City liability



NORTH TRAIL

The North Trail is currently closed due to adjacent fall hazards. Establishing safer navigation is the most important improvement to this trail. The addition of an anchored cable handhold along the uphill edge of the trail will provide a safeguard against falls. This, along with trail widening in strategic locations, and tread improvements where possible, will facilitate better passage. Visual cues signalling the edge will also help visitors to remain safely on the trail. The connection to the West Overlook requires restoration and reconstruction of the Kiwanis Stairs. The North Trail's exposure keeps the trail wetter and icier for longer periods than other sections of trail, and it should be closed when these conditions are present. Signage informing users of trail conditions and risks needs to be clearly posted.





Carlson Kiln Trail Improvements

CARLSON KILN TRAIL	Condition Good	Safety Safe	Signage Poor
<ul style="list-style-type: none"> • Lack of signage and position adjacent to railroad tracks make it less attractive to visitors • Could be made ADA with minor improvements 			

CARLSON KILN TRAIL

The existing trail is essentially separate from the broader park trail system. The benefit of its location is that the flat steady route could easily be made ADA accessible. Vehicles also use it as access to the pump house and railroad right-of-way. The planned realignment of this trail will better incorporate it into the overall trail network and provide a buffer between visitors and rail traffic, which can be quite alarming due to its proximity. The trail is intended to be ADA accessible from the park entry plaza to the base of the G.A. Carlson Lime Kiln. ADA access to the proposed Dakota Memorial via the new Park Entry Trail is also feasible from the Carlson Kiln Trail. The proposed Carlson Kiln Plaza and Kiln Overlook Trail will provide interpretive opportunities to attract more visitors to the soon-to-be restored Kiln than it currently sees. Signage at the park entry plaza and visitor center will contribute to increased usage as well. Habitat restoration adjacent to the realigned trail should be done concurrently with construction.

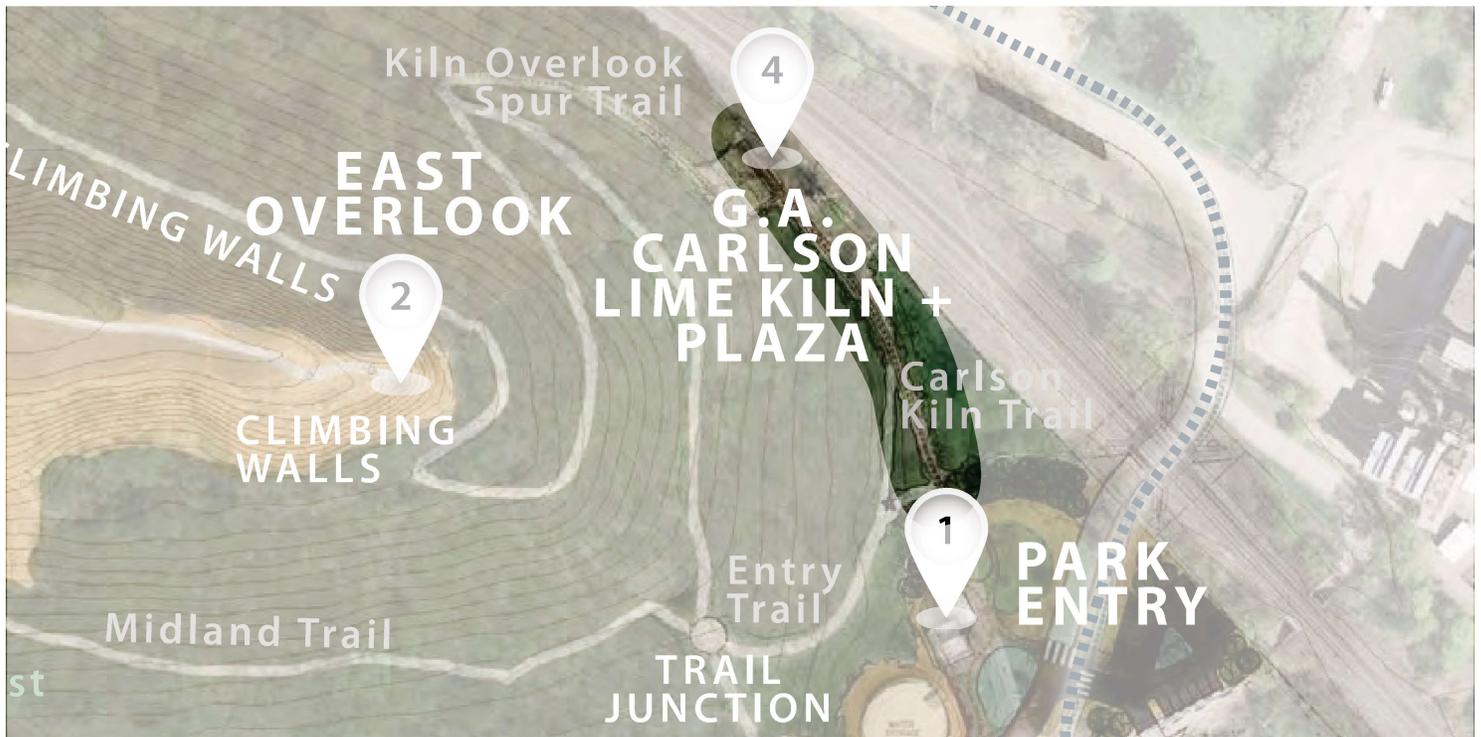


FIGURE 3.14 CARLSON KILN TRAIL

Proposal for New Trails

KILN OVERLOOK TRAIL CONNECTION

A new trail is proposed to link the Quarry Trail with an overlook area behind the top of the restored Carlson Lime Kiln. The trail alignment largely exists now along a historic quarry road, and is occasionally used by park visitors. The intent of the new trail is to provide an additional interpretive opportunity exploring the history of quarrying and lime production at Barn Bluff. This quarry road played a key part in the transportation and loading of limestone into the kiln, and offers a complementary insight to the interpretation of the process seen at the base of the kiln at the proposed Carlson Kiln Plaza. Providing access to the top of the kiln is contingent on preservation of the historic structure's integrity; as such, barriers and signage will be necessary to prevent visitors from climbing on or around the kiln from the overlook.



FIGURE 3.15 KILN OVERLOOK TRAIL



Woodland Trail Junction

PARK ENTRY TRAILS

The new park entry trails will provide direct access up the bluff to visitors using the park entry plaza, restrooms, and visitor center. The gradual climbing causeway (combination of stairs and sloping trail) provides a foil to the existing Kiwanis Staircase on the south side of the park entry. An additional ADA accessible trail connects the Entry Plaza and the Kiln Trail to the proposed Dakota Memorial space. The new entry trails terminate in a wooded trail junction that offers visitors several options for navigating through the park. Habitat restoration adjacent to the new trails should be done concurrently with construction. Buckthorn is a known issue in this area.



FIGURE 3.16 PARK ENTRY TRAILS



04. IMPLEMENTATION, MANAGEMENT, & STEWARDSHIP

Chapter Four addresses the phasing of improvements, financial sources & uses, management & operations, partnerships, promotion, and research.

Phasing

A phasing plan suggests how recommendations for park improvements can be sequenced over time to achieve the design vision described in the master plan. The phasing plan for He Mni Can bundles capital improvements into logical groupings that can be described and constructed as distinct projects. The projects are sequenced based a combination of need, safety, construction logic, community interests, and funding considerations. Four phasing categories are identified for the project including:

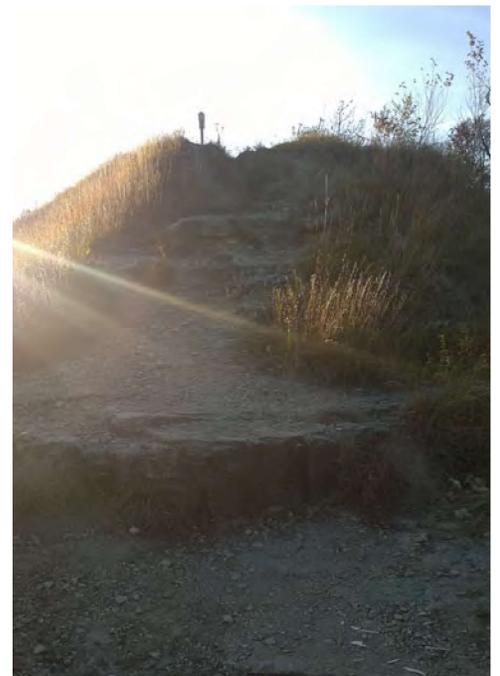
- » Immediate 2016/17: Funding is already in place to address a top-priority safety and stabilization needs.
- » Early Phase 2017/18: Funding is immediately being secured or pursued to address fundamental safety, stewardship, and visitor needs as soon as possible.
- » Mid Phase 2019 – 2021: Projects that enhance visitor experience and are logically sequenced in the middle slot.
- » Later Phase 2022 – 2026: Projects that are higher cost or that access “slower” money to finish out the park’s visitor experience and character

Financial Sources & Uses

Layered on the phasing plan is a financial sources & uses strategy that outlines project budgets and likely funding sources for each project. Project budgets are built by quantifying construction elements and applying hard costs of construction as well as soft costs of contingency, design/engineering, and other expenses. Budgets account for normal inflation (or escalation) based on implementation timing described in the phasing plan. Construction costs are based on experience with recent work in the city and region.



Citizens Memorial Stairway is in need of repair



Current East Overlook Conditions

FIGURE 4.1 PARK PHASING PLAN



Park Improvement Projects Summary Table

Key	Project	Phase(s)	Estimated Cost
A	Carlson Kiln Restoration Project	Immediate	\$319,000
B	Basic Entry and Trail Restoration	Early	\$423,983
B1	Gravel Parking lot	Early	
B2	Gathering Lawn	Early	
B3	Interpretive Plaza	Early	
B4	Woodland Trail Junction and New Entry Trails	Early	
B5	Council ring at East Kiwanis Stairs	Early	
C	Kiwanis Stair Restoration	Early	\$248,820
C1	East Kiwanis Stair Restoration	Early	
C2	Central Kiwanis Stair Rehabilitation	Early	
C3	Citizen's Memorial Stairway Reconstruction	Early	
D	Upper Bluff Trail Rehabilitation	Early	\$807,279
D1	Decommissioned Trails	Early	
D2	South Trail Rehabilitation	Early	
D3	Midland Trail Rehabilitation	Early	
D4	Prairie Trail Bypass Trail Realignment	Early	
D5	East Overlook Reconstruction	Early	
D6	West Overlook modifications	Early	
D7	North Trail Rehabilitation	Early	
D8	Quarry Trail Rehabilitation	Early	
E	Dakota Memorial	Early	\$223,938
F	Carlson Kiln Interpretive Project	Early	\$113,130
F1	Realigned Kiln Trail (ADA)	Early	
F2	Kiln Overlook and Trail Spur with interpretation	Early	
G	Park Entry Completion Project	Mid	\$533,848
G1	Interpretive Panels on Reservoir	Mid	
G2	Entry restoration & stormwater treatment	Mid	
H	Carlson Kiln Plaza	Mid	\$680,394
H1	Plaza Platform and interpretive displays	Mid	
I	Pump House Renovation & Expansion	Later	\$1,561,560
I1	Restrooms	Later	
I2	Visitor Information & Interpretation	Later	
J	5th Street Gateway	Later	\$1,164,664
J1	5th Street Neighborhood Connector Trail	Later	
J2	On-street Parking	Later	
J3	Highway 61 Bridge Gateway	Later	
J4	5th Street Traffic Calming Pavement	Later	
K	Car Park Project	Later	\$500,166
	TOTAL (includes operating + fundraising costs)	ALL	\$7,074,268



The South Trail is used by vehicles for emergency and maintenance access

Likely funding sources have been identified in close collaboration with City leadership. A digital sources & uses spreadsheet has been provided as a working tool for City staff to continually update through the life of the master plan. Three categories of funding sources identified for He Mni Can are the City of Red Wing, Greater Minnesota Parks & Trails Program, and third party sources. Third party sources has numerous subcategories including grants, philanthropy, partner funding or in-kind service, Legacy Arts & History funding, and State and federal appropriation. Figure 4.2 integrates the projects, budgets, phasing, and likely funding sources into an initial financial sources & uses strategy (it will inevitably evolve over time). Detailed project budgets are included in the appendix.

Management and Operations

He Mni Can / Barn Bluff Park is managed by the City of Red Wing which provides local funds through the general park budget to operate and maintain the park. The City facilitates park maintenance and oversees facility operations and occasional programming for recreation and educational events. The City allocates funding for specific items at the park as needs arise.

Non-profit groups and other agencies also facilitate park programs with limited City involvement. Staffing is provided as needed, most frequently through employment of seasonal staff. City of Red Wing emergency response provides public safety and rescue services.

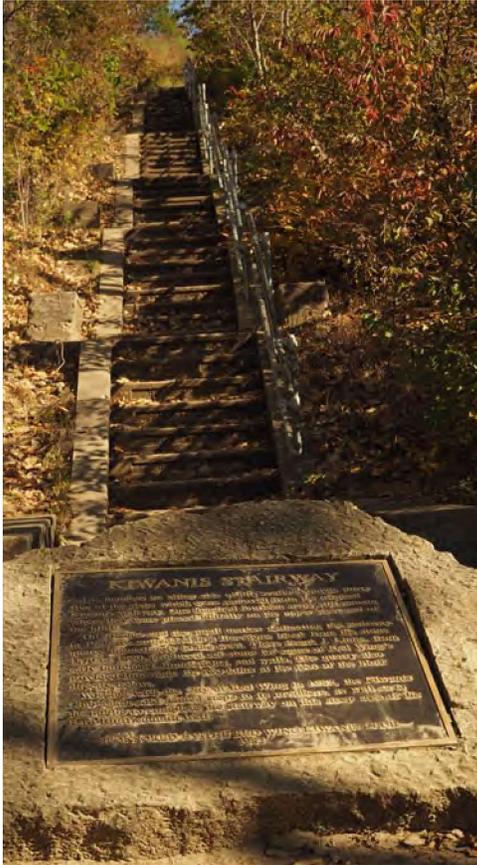
Natural resources management services, including water resources and forestry/ horticulture, are provided by the city and the USFWS. Some natural areas within the park are cooperatively managed by these agencies and volunteer groups. The City, in partnership with the USFWS and Audubon Minnesota, is considering a significant request from the Conservation Partners Legacy Grant to expand conservation management efforts at He Mni Can/ Barn Bluff Park (and Memorial Park, Sorin's Bluff, and the Billings-Thomfohr Conservation Area) in 2017.

Other operational and support services to the park include administrative services, revenue handling and finance, human resources, planning and development, and research.

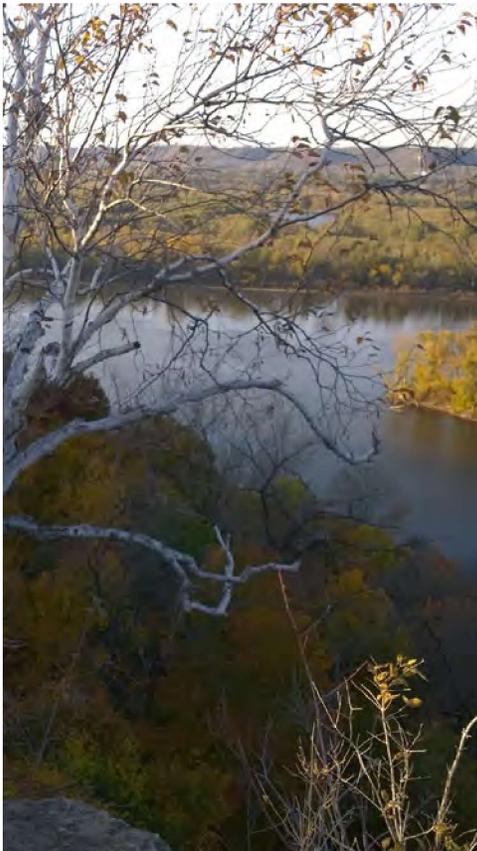
Regulations for the park are enforced by the City; however, there are few stated rules currently posted at the park. Most regulations warn visitors to use caution on all trails. This Plan proposes that comprehensive regulatory signage be posted at the new entry plaza's visitor center and at the kiosk relocated to the base of the east Kiwanis Stairs. Signage should emphasize that visitors stay on marked trails, and that throughout the park they may encounter loose rocks, steep slopes, vertical drops, and are advised to proceed at their own risk. All children are advised to be accompanied by an adult. Signage should also detail up-to-date trail conditions, closures, restoration areas, and any other pertinent information, including park hours.

He Mni Can (Barn Bluff) Master Plan Funding Sources & Uses rev: 6/10/2016 prepared by: Hoisington Koeigler Group / Loam		PROJECT BUDGETS		FUNDING SOURCES (targeted)		
				City of Red Wing	Greater MN Parks & Trails	Third-Party Funding
Item	Amount	Totals				
TOTAL MASTER PLAN BUDGET		\$7,074,268	\$1,066,658	\$2,347,888	\$3,659,722	
IMMEDIATE PHASE BUDGET (2016/2017)		\$319,000	\$60,400	\$0	\$258,600	
Carlson Kiln Restoration Project		\$319,000	\$60,400	\$0	\$258,600	
Hard Costs	\$220,000		\$0	\$0	\$220,000	
Soft Costs	\$99,000		\$60,400	\$0	\$38,600	
EARLY PHASE BUDGET (2017/2018)		\$1,885,897	\$311,096	\$765,783	\$809,019	
Upper Bluff Safe Trails Project		\$807,279	\$111,429	\$292,210	\$403,639	
Hard Costs	\$584,420		\$0	\$292,210	\$292,210	
Soft Costs	\$222,859		\$111,429	\$0	\$111,429	
Park Entry "The Basics" Project		\$423,983	\$0	\$423,983	\$0	
Hard Costs	\$296,491		\$0	\$296,491	\$0	
Soft Costs	\$127,491		\$0	\$127,491	\$0	
Kiwanis Stair Restoration Project		\$248,820	\$74,820	\$49,590	\$124,410	
Hard Costs	\$174,000		\$0	\$49,590	\$124,410	
Soft Costs	\$74,820		\$74,820	\$0	\$0	
Carlson Kiln Interpretive Project		\$113,130	\$56,565	\$0	\$56,565	
Hard Costs	\$79,112		\$22,547	\$0	\$56,565	
Soft Costs	\$34,018		\$34,018	\$0	\$0	
Dakota Memorial Project		\$223,938	\$40,000	\$0	\$183,938	
Hard Costs	\$156,600		\$0	\$0	\$156,600	
Soft Costs	\$67,338		\$40,000	\$0	\$27,338	
Other Costs for this Phase		\$68,748	\$28,281		\$40,466	
Operating Escrow Contribution	\$46,675		\$28,281		\$18,394	
Fundraising Administration	\$22,073				\$22,073	
MID PHASE BUDGET (2019-2021)		\$1,234,701	\$225,053	\$784,648	\$225,000	
Park Entry Completion Project		\$533,848	\$0	\$533,848	\$0	
Hard Costs	\$373,320		\$0	\$373,320	\$0	
Soft Costs	\$160,528		\$0	\$160,528	\$0	
Carlson Kiln Plaza Project		\$680,394	\$204,594	\$250,800	\$225,000	
Hard Costs	\$475,800		\$0	\$250,800	\$225,000	
Soft Costs	\$204,594		\$204,594	\$0	\$0	
Other Costs for this Phase		\$20,459	\$20,459	\$0	\$0	
Operating Escrow Contribution	\$20,459		\$20,459		\$0	
Fundraising Administration	\$0				\$0	
LATER PHASE BUDGET (2022-2026)		\$3,634,669	\$470,108	\$797,458	\$2,367,103	
Car Park Project		\$500,166	\$117,158	\$333,008	\$50,000	
Hard Costs	\$265,850		\$0	\$215,850	\$50,000	
Soft Costs	\$234,316		\$117,158	\$117,158	\$0	
Pump House Renovation Project		\$1,561,560	\$0	\$0	\$1,561,560	
Hard Costs	\$1,092,000		\$0	\$0	\$1,092,000	
Soft Costs	\$469,560		\$0	\$0	\$469,560	
5th Street Gateway Project		\$1,164,664	\$310,214	\$464,450	\$390,000	
Hard Costs	\$814,450		\$0	\$464,450	\$350,000	
Soft Costs	\$350,214		\$310,214	\$0	\$40,000	
Other Costs for this Phase		\$408,280	\$42,737	\$0	\$365,543	
Operating Escrow Contribution	\$208,893		\$42,737		\$166,156	
Fundraising Administration	\$199,387				\$199,387	

FIGURE 4.2 SOURCES & USES SUMMARY



Kiwanis Clubs have been active partners in Barn Bluff's stewardship for many generations.



Mississippi River Valley from the top of Barn Bluff

Partnerships & Funding Opportunities

Improvements and ongoing development of He Mni Can/ Barn Bluff Park will continue to involve partnerships with other agencies and non-profit groups. Projects identified in this master plan will likely be implemented with a variety of funding sources. In addition to the City's general parks budget, the City of Red Wing will actively seek grants, collaborative funding agreements, donations, volunteer projects, and multi-agency involvement where opportunity exists. Implementation will require continued community advocacy and outside money.

This master plan provides guidance for identifying useful allocation of funding sources. Existing opportunities for funding of park improvements and potential volunteer projects include the following organizations and agencies. Additional sources will continue to be sought for ongoing future park needs.

- » Environment and Natural Resources Trust Fund (ENRTF)
- » Conservation Partners Legacy Grant Program
- » Lessard Sams Outdoor Heritage Council
- » Parks & Trails Legacy Grants
- » Conservation Partners Legacy Grant
- » Audubon Minnesota
- » Kiwanis
- » Friends of the Bluff
- » Minnesota Climbers Association
- » Red Wing Environmental Learning Center
- » Conservation Corps
- » US Fish and Wildlife Service
- » MN Ornithology Union
- » MN Climbers Association

Other Promotional Opportunities & Initiatives

PUBLIC HEALTH VALUES

Active living is growing trend not only in Red Wing, but around the country. Locally, there are several established organizations that support residents' efforts for active and healthy living. Live Healthy Red Wing is dedicated to building a community of active, informed, connected citizens that can bring about a healthier place to live. Improvements at He Mni Can/ Barn Bluff Park support the efforts being made by this organization by providing access to recreation in the heart of the city.

Other organizations, including Red Wing YMCA and Red Wing Community Recreation already offer recreation and fitness programs at the park. Ongoing partnerships with the City will only increase the opportunities for fitness and exercise to take place at the park and contribute to greater community health for residents.

ECONOMIC DEVELOPMENT AND TOURISM OPPORTUNITIES

Rock Climbing Destination

Rock climbing has been a popular activity at He Mni Can/ Barn Bluff for at least 35 years, despite little involvement from the City. The bluff is already well known for its challenging routes and fantastic views, and many climbers travel to Red Wing to experience climbing at the bluff. Embracing this sport as a welcome activity at the park will open up opportunities for the City to promote related events and programming, and may spur local economic development for rock climbing tourism.

Community Events

The park entry improvements will allow a greater number of visitors to access the park and enjoy the plaza and trails, making it more accommodating for community events and group activities. The gathering lawn will provide space for organized programs and orientation of groups prior to ascending the bluff.

Historic/Cultural Education

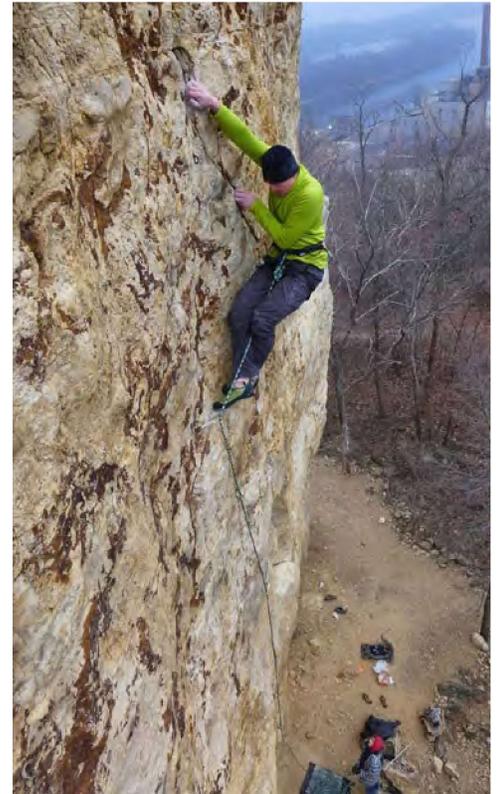
The addition of a visitor's center and new historic/ cultural interpretive features will provide a greater incentive for visitors to travel from a broader area and make the bluff a destination. Partnerships with area historic and cultural organizations will allow their stories and educational efforts to reach a larger audience, including local school groups.

Research Initiatives

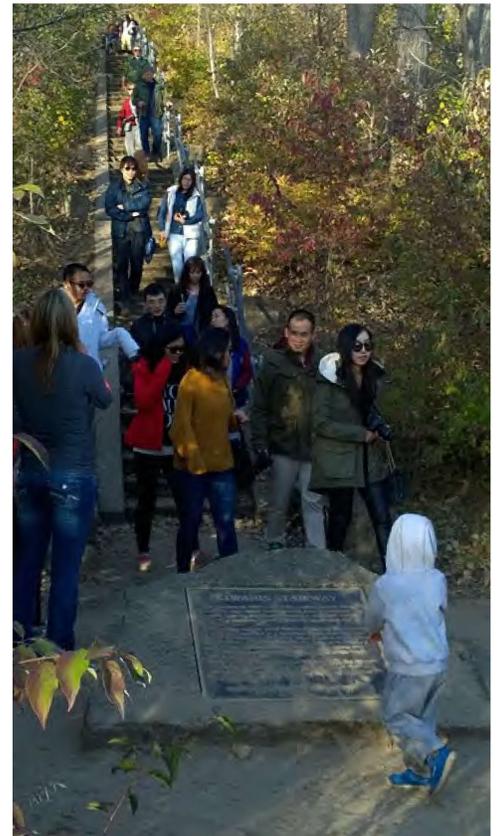
Currently, there are no research efforts underway outside of the analysis undertaken for development of this master plan. However, the City of Red Wing will participate in research initiatives requested by the GMRPTC as these are developed and implemented over time. Such initiatives may address visitation counts, visitor profiles, and recreation trends and demands. Information gathered may inform further development of the regional park system in Greater Minnesota.

Conclusion

He Mni Can/ Barn Bluff is a landmark for the City of Red Wing and an icon of natural, cultural, and historic significance. With proper stewardship, it will continue to stand as an important cultural landscape for future generations. This document outlines the approach and continued care required to restore and protect Barn Bluff's integrity. The master plan will serve as a guide to future generations as they take on the responsibility of caring for and celebrating He Mni Can.



Sport climbing of the bluff's quarry walls has been a popular activity since the 1970s



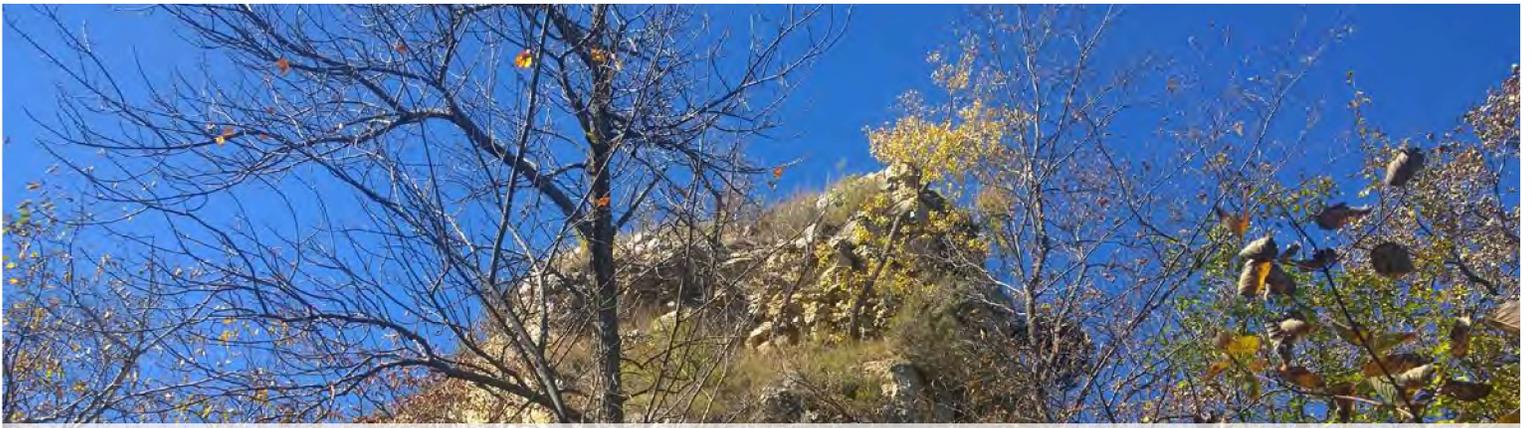
Generations of people have journeyed to the top of He Mni Can. With good stewardship, we can ensure that future generations will enjoy the same experience.



REFERENCED DOCUMENTS

The following documents provided essential background information in the development of this master plan and will continue to influence ongoing management, programming, and other initiatives at Barn Bluff Park. These documents are available at the City of Red Wing Planning Department.

- » *Habitat Management Plan for City of Red Wing Parks: Barn Bluff, USFWS, 2014*
- » *Barn Bluff Cultural Landscape Report, Two Pines Resources, January 2015*
- » *Historic Structure Report for the G.A. Carlson Lime Kiln, MacDonald & Mack, January 2015*
- » *Barn Bluff Landscape Guidelines, Damon Farber, March 2015*



APPENDIX

- A. GMRPTC Regional Designation Letter, August 2015
- B. Meetings summaries of early public and stakeholder participation
- C. Project Cost Estimates

APPENDIX A.

GMRPTC REGIONAL DESIGNATION LETTER, AUGUST 2015



Greater Minnesota Regional Parks and Trails Commission

www.legacy.leg.mn/gmrptc

gmrptcommission@gmail.com

August 5, 2015

Re: Application for Designation as a Regionally Significant Park or Trail: Barn Bluff Park

At-Large Member

Anita Rasmussen
Sartell

District 1

Keith Nelson
Eveleth

LuAnn Wilcox
Finlayson

District 2

Rita Albrecht
Bemidji

Bryan Pike
Brainerd

District 3

Mike Hulett
Moorhead

Al Liefkort
Alexandria

District 4

Marc Mattice
Eden Valley

Barry Wendorf
Zimmerman

District 5

Rick Anderson
Balaton

Tom Schmitz
New Ulm

District 6

O. William Bruins
Rochester

Thomas Ryan
Byron

Dear Brian Peterson:

Thank you for submitting your application for the 2015 statewide Regional designation application process. The objective of the Greater Minnesota Regional Parks and Trails Commission is to identify facilities that, when complete, will create a comprehensive network of Regional outdoor recreation opportunities for people that enhance and compliment the DNR State Park and Trail system in Greater Minnesota.

The Commission's Evaluation Team (ETeam) reviewed 85 applications in this round of requests for Regional designation. It is the role of the ETeam to help the Commission objectively identify those facilities that meet the high standards for quality established by the Commission. All applications received a Step 1 ranking evaluation, resulting in either a "High," "Medium," or "Low" rank. Applications that ranked "High" become eligible for Step 2 scoring evaluation upon completion of a qualified Master Plan.

Your application has been reviewed and given a "High" ranking in this application cycle. This facility was identified as having a high quality application and potential for designation as a Regional park or trail. However, we cannot conduct a complete Step 2 Scoring evaluation until a qualified Master Plan is submitted. Once a Master Plan is submitted, the ETeam will score the application. If you wish to be considered for funding in the recommendations that will be submitted to the legislature in January 2016, please have your Master Plan submitted to us by September 1. The Commission will continue to accept Master Plans and score high ranking applications as those Master Plans are received.

The ETeam did provide the following comments to help you understand their evaluation: Should be evaluated as a Special Feature park - develop plans around the feature.

The Commission wants to be clear: projects that received a "High" ranking have strong potential to become a part of the Regional system, provided the information in the Master Plan compares well to the criteria in our Strategic Plan. Should you have questions, please visit our website at www.GMRPTCommission.org, or contact one of the two Commissioners that represent your District.

Sincerely,

Donald "Al" Liefkort, Chair
GMRP&T Commission



APPENDIX B.

PUBLIC PARTICIPATION MEETING SUMMARIES: CLIMBING STAKEHOLDER MEETING



Barn Bluff Park Master Plan Stakeholder Input Meetings

Climbing

October 28, 2015

3:00 p.m. – 4:00 p.m.

HKGi Office, Minneapolis

Attendees:

Brian Peterson, City of Red Wing Planning

Shawn Blaney, City of Red Wing Public Works

Steve Kohn, City of Red Wing Planning

Bruce Blair, Project Manager

Bruce Chamberlain, LOAM

Jennifer Cater, HKGi

Kevin Clarke, HKGi

Jeff Engel, MCA

James Loveridge, MCA

Lacy Shelby, MCA

Laura Wildenborg, RW ELC

SUMMARY

Introductions

Review why the city is conducting a park master plan and where we are at in the beginning of the process. Purpose of the meeting is to gain input about context, knowledge, activities and sensitivities related to park use and planning for the future.

Discussion Items

Meeting purpose:

- Barn Bluff has an established and mature climbing presence since 1970s
- Climbing at Barn Bluff has generally functioned as a don't ask/don't tell activity
- City interested in understanding how best to embrace the use as a park activity, limit liability, and understand best management practices to support the sport

Growing trends of rock climbing in the state:

- Other regional climbing destinations in Winona area (John Latch State Park) – growing activity and establishing more routes
- Other Minnesota climbing destinations: Sandstone (Robinson Park and Banning State Park), Interstate/Taylor's Falls, Duluth, Tettegouche/North Shore, Crane Lake
- Robinson Park, city park in Sandstone – underwent similar process to formally support climbing
- Climbing Management Plan adopted by Sandstone in 2007 – Jeff and James helped develop it

APPENDIX B.

PUBLIC PARTICIPATION MEETING SUMMARIES: CLIMBING STAKEHOLDER MEETING

Barn Bluff Stakeholder Input Meeting – Historic & Cultural Resources
Page 2 of 2

- Robinson Park now a supported destination for climbing and ice climbing; managed by climbers

Climbing specifics at Barn Bluff:

- Once supported and advertised more, climbing will help increase tourism to Red Wing
- Growing regional (potentially national) destination between Red Wing and Winona
- Barn Bluff climbing is mostly all lead-style climbing using ropes and anchors
- Never accessing the top of the bluff
- Fixed anchors system: now use glue-in anchors for protecting lead climbing; long-lasting and low-impact; can be painted for camouflaging into rock face
- Currently a fair amount of old hardware that needs replacing – has been managed by climbing community

Facilities to support climbing at Barn Bluff:

- Restrooms at base near parking (open seasonally, locked at night)
- More parking
- Wayfinding/ park signage
- Open pavilion(s) near climbing areas for inclement weather
- Picnic tables / benches near climbing areas
- Posted info and rules/restrictions at climbing locations; updated current info by QR code
- Clean up/ stewardship days (facilitated by or partnered with climbers)

Also consider...

- Permit fee or registration?
- Seasonal tent camping opportunities / walk-in sites
- Ice climbing

Next Steps/Resources

Jeff Engel:

Advertise park user survey and public workshop through MCA website and social media

Consultant team:

Incorporate input into concept development and master plan

APPENDIX B.

PUBLIC PARTICIPATION MEETING SUMMARIES: NATURAL RESOURCES STAKEHOLDER MEETING



Barn Bluff Park Master Plan

Stakeholder Input Meetings – November 2015

Natural Resources

November 4, 2015

1:00 p.m. – 2:00 p.m.

Red Wing Public Library, Red Wing

Attendees:

Brian Peterson, City of Red Wing Planning

Bruce Blair, Project Manager

Shawn Blaney, City of Red Wing Public Works

Pat Ramaker, City of Red Wing Public Works

Bruce Chamberlain, LOAM

Jennifer Cater, HKGi

Sarah Evenson, HKGi

Tim Connolly, USFWS

Dustin Looman, Conservation Corps

Doug Ekstrom, Conservation Corps

Kit Elstad-Haveles, DNR

Tim Schlagenhaft, Audubon Society

SUMMARY

Introductions

Review why the city is conducting a park master plan and where we are at in the beginning of the process. Purpose of the meeting is to gain input about context, knowledge, activities and sensitives related to park use and planning for the future.

Discussion Items

Priorities:

- Maintain habitat diversity and quality
 - There's not a lot of prairie bird (ground nesting) diversity, but the river corridor is a national flyway
 - Red-headed woodpecker present
 - The west prairie is about 4 acres and could be expanded
 - The east prairie is 33 acres
 - Site is 73 acres total
 - Third Tier bullet
- Ongoing habitat management
 - Youth conservation corps are pulling sweet clover (to break biennial cycle)
 - Focus on drainage-ways on the east prairie to keep woodies contained
 - Burns needed at 3-5 year intervals with woody removal in between
 - Citizen intervention often impedes scheduled maintenance (fires too soon)

APPENDIX B.

PUBLIC PARTICIPATION MEETING SUMMARIES: NATURAL RESOURCES STAKEHOLDER MEETING

- Brush/tree removal in the fall, piled, then burned in winter
 - Restore and buffer high quality habitat areas to prevent woody encroachment along edges, then work out from there
 - Oak savanna is a high priority for maintenance
 - Removal of ash, walnut
- Limit future trails and reduce existing trails if not needed
 - Education is needed
 - People need to understand why they should stay on existing trails
 - Prairie management could be a topic for interpretive signage
 - Global significance of the prairie and savanna ecosystems should also be signage topics
 - Add boot cleaners and an educational kiosk with pictures of the invasives whose spread we are working to prevent and a schedule of upcoming maintenance activities so people understand what's going on in the park (look at Memorial Park's signage for an example.)

Potential Future Management:

- Goats
 - Fence mending is a safety issue
 - Would likely need to be used for 3+ years
 - Expense is an issue
 - Should be used either first, to clear low, young growth before manual cutting+treating of larger specimens; or after larger specimens have been cleared to continue to deplete the seedbank before the saplings can reproduce.
 - Could also burn and use goats afterwards to manage seedlings
 - Burning buckthorn is difficult on shady or wet sites
- Expansion of prairie areas to the south (removal of encroaching forest)
 - Would need lane closures along Hwy 61 to account for falling rocks
 - Ideally, burns would happen in 3 distinct segments over 3 years so as to leave enough habitat for animals displaced by each burn
 - Burns would only take 1 day/year and could be done at Barn Bluff, Sorins Bluff, and the other bluff in Red Wing in the same day in order to fit this O&M task into the city's broader O&M needs efficiently (this is important)

Potential Programming:

- Interest in birding walks

Next Steps/Resources

- Audubon Winter Meeting in January. Will discuss the 2016 work plan
- Talk to Jaime Edwards with the DNR about habitat management techniques (she's a specialist)
- Look into A.P. Anderson Park- they used goats for management
- Look into Andersen Center for buckthorn removal/ management example



**Barn Bluff Park Master Plan
Stakeholder Input Meetings – November 2015**

Historic & Cultural Resources

November 4, 2015

4:00 p.m. – 5:00 p.m.

Red Wing Public Library, Red Wing

Attendees:

Brian Peterson, City of Red Wing Planning

Bruce Blair, Project Manager

Shawn Blaney, City of Red Wing Public Works

Pat Ramaker, City of Red Wing Public Works

Bruce Chamberlain, LOAM

Jennifer Cater, HKGi

Sarah Evenson, HKGi

Ruth Nerhaugen, Heritage Preservation Comm.

Ryan Howell, Prairie Island Indian Community

Afton Esson, Goodhue County Historical Society

James Clinton, Goodhue County Historical Society

SUMMARY

Introductions

Review why the city is conducting a park master plan and where we are at in the beginning of the process. Purpose of the meeting is to gain input about context, knowledge, activities and sensitives related to park use and planning for the future.

Discussion Items

Goodhue County Historical Society:

- Facilitating guided hikes with Environmental Learning Center this past summer/fall. Focus on lime kilns and lime production.
- Not much information on Dakota history 900-1300AD; lacking native community history
- Historic era of significance for national register does not include Dakota relationship
- Interest in learning more about and doing more with Dakota history to complete the story of the bluff
- Interest in outdoor programming with historic interpretation
- Vandalism of historic structures is a problem

APPENDIX B.

PUBLIC PARTICIPATION MEETING SUMMARIES: HISTORIC/CULTURAL RESOURCES STAKEHOLDER MEETING

Barn Bluff Stakeholder Input Meeting – Historic & Cultural Resources
Page 2 of 2

Prairie Island Indian Community:

- Dakota name for bluff is He-Mni Can = wood water hill; linked to sacred oral history
- Bluff is extremely sacred to Dakota people – most are not allowed to go there
- Dakota buried dead using kapahas – sky-exposed scaffold burials
- European impacts and construction are all considered desecrations by Dakota people
- Only acceptable approach to bluff is to not go there; restoration
- Interpretation of Dakota stories (i.e., signage) is not supported if located at the bluff; telling the stories from a non-Dakota perspective is insulting
- Possible to identify the bluff as sacred Dakota ground
- Limit areas of construction to be outside of bluff
- Possible to tell stories of Dakota off-site; maybe through historical society?
- Flagpole is a negative message to Dakota; would like to see if removed, or at least flown with Dakota flag as well
- "Development" in park, if done, should be as natural and low-impact as possible
- Support trash removal and cleanups and promotion of stewardship
- Limit areas of access; parking should be located away from bluff with ped access only
- Wisconsin Ice Age trail is successful example of trail development sensitive to native communities
- Consider honoring Dakota cultural history with park or trail closures at special times of year – November is National American Indian Heritage Month; March is heritage preservation month



**Barn Bluff Park Master Plan
Stakeholder Input Meetings – November 2015**

Local Non-Profit Organizations

November 4, 2015

2:30 p.m. – 3:30 p.m.

Red Wing Public Library, Red Wing

Attendees:

Brian Peterson, City of Red Wing Planning

Bruce Blair, Project Manager

Shawn Blaney, City of Red Wing Public Works

Pat Ramaker, City of Red Wing Public Works

Jay Owens, City Engineer

Bruce Chamberlain, LOAM

Jennifer Cater, HKGi

Sarah Evenson, HKGi

Paul Karlen, Kiwanis Club

Johnny Ostberg, Friends of the Bluff

Jason Jech, Environmental Learning Center

Laura Wildenborg, Environmental Learning Center

Leanne Knott, Friends of the Bluff

Sue Dopkins, Kiwanis Club

Dave Borgen, Red Wing Community Recreation

David Anderson, Friends of the Bluff

Michelle Leise, Live Healthy Red Wing

SUMMARY

Introductions

Review why the city is conducting a park master plan and where we are at in the beginning of the process. Purpose of the meeting is to gain input about context, knowledge, activities and partnerships related to park use and planning for the future.

Discussion Items

Priorities:

- Reopen the North Trail (Friends of the Bluffs)
- Keep the bluff wild- as natural as possible (but safe)
 - Immersiveness is key to the Barn Bluff experience
- Keep the bluff maintained over time (good condition)
- Ice climbing (could be an attraction)- Environmental Learning Center
- Would like to promote bluff use by locals not typically involved
 - Need conversations with the east side neighborhoods
 - Entryway improvements are important
 - Verbal promotion and marketing via social media

APPENDIX B.

PUBLIC PARTICIPATION MEETING SUMMARIES: LOCAL NON-PROFIT ORGANIZATION STAKEHOLDER MEETING

- Accessibility improvements, at least partially (like along Kiln Trail) would help attract others
- Loop trail opportunity needs to be pursued (ideal for group hikes)
- Improve trail network and access as a whole
- A picnic/orientation area at the bottom of the bluff
 - Could this also happen in the space left by bridge removal at the bottom of the bluff's west face?
- Improved entry experience
 - Need water/bathrooms
 - Xcel is using reservoir for untreated process water
 - Could the space be retrofitted and shared?
 - Educational/promotional opportunity for Xcel
 - Reuse of building is desired versus building new
 - Has water hookup but not sanitary sewer
 - Need bike parking
 - Need Parking; expansion possible in area to the northeast of the bluff – could lease land under power lines from Xcel
 - Signs are present, but the residential feel dissuades people from knowing they're on the right track
- Keep the bluff available to unstructured uses- accessible, open to all , and free
- Could there be a path from Colville Park to Barn Bluff? Or to Baypoint?

What They Do:

- Friends of the Bluffs
 - Works with the City, US Fish + Wildlife Service, and DNR to restore the bluff
 - Coordinate volunteer efforts and have the potential to lead fundraising
 - Maintain trails (sumac clearing & mgmt. of wild parsnip)
 - Helped to build the new overlook
 - Have an active social media network- could be used to get the word out/ educate
- Noontime Kiwanis/ Dawnbreakers Kiwanis/ Golden K Kiwanis
 - Organized fundraising to move the Kiwanis stairways.
 - Pay for occasional stair maintenance
 - Have a focus on youth- could get grants for youth-focused programming
- Environmental Learning Center
 - Has been teaching climbing for over 40 years
 - Do geocaching sometimes
 - Built water bars along the quarry trail
 - Organize service projects (mostly trail maintenance related)
 - Lead some hikes
 - Geology education

Concerns:

- Safety on the bluff – even on the south side...
 - You assume the risk

APPENDIX B.

PUBLIC PARTICIPATION MEETING SUMMARIES: LOCAL NON-PROFIT ORGANIZATION STAKEHOLDER MEETING

- Well-signed trails are important
- Not many people want railings
- Balance of safety and natural landscape
- Barn Bluff's "Billboard" (graffiti)
 - Gets a mixed response
 - Some see it as a tradition; part of the culture (good or bad)
 - Others see it as disrespectful
- Miss the past ease of access from downtown
 - Visitors have to know about the bluff, figure out how to get there, find parking, and be familiar with the trail network
 - "It's not that it's not clear- it's just not *easy*."
- Blocking trails has not been successful in the past.
 - Need trail signage that shows actual trails and tells you reasons why you need to stay on them
 - Need to promote learned respectful behaviors that will become culturally enforced over time
 - Need volunteer trails blocked immediately after someone re-opens them (a notification/reporting system would help)
- Increase accessibility for more people
 - Incorporate east neighborhood
 - Bluff feels separate from community compared to Memorial Park

Potential Programming:

- Themed hikes like the "Walk with Thoreau" at the Anderson Center
 - History especially
 - Environmental Learning Center says they would do more
- Self-guided tours via app, mobile site, or QR code
 - Stopping points like plaques on limestone aren't always used
 - Should include the dynamite storage spot
- Camping? Maybe in partnership with Izaak Walton League
- Art classes on the bluff/ Displayed/featured local art/ Places to post photography

Other groups that can get involved:

- Live Healthy Red Wing
- The YMCA (sometimes leads hikes); 3rd-5th graders with mixed success
- Izaak Walton League – Red Wing Chapter
- Goodhue County Historical Society
- Audubon
- Anderson Center ("Walk with Thoreau")



**Barn Bluff Park Master Plan
Public Workshop – November 2015**

Public Workshop #1

November 4, 2015

6:30 p.m. – 8:30 p.m.

Red Wing Public Library, Red Wing

SUMMARY OF INPUT

How do you feel connected/disconnected to Barn Bluff?

- **Disconnected:**

Participants' feelings about disconnection with the bluff relate to the difficulty and lack of safety on trails, the lack of a loop route through the park, and lack of parking. A sense of a welcoming entry also limits connection by making the park difficult to find or navigate through.

- North trail / lack of a loop and missing out on experience / Because the North Trail is closed (3)
- Painting on bluff face / Graffiti -1958 (2)
- Lack of parking (2)
- Signage - not visually pleasing / hard to find (2)
- Hard to find park entry – better signage, describe at memorial park
- Scared (ability wise – no prior experience)
- Unknown safety – bad reputation/history
- Trail difficulty
- No direct access from riverboat/waterfront – need for organized transportation
- Signage needed and should be at the bottom too
- Overcrowded – feel more connected when fewer people are there
- Through lack of facilities
- Physical limitations to access
- Highway is a disconnect
- Flag pole
- Construction atmosphere on top
- Invasive plants

APPENDIX B.

PUBLIC PARTICIPATION MEETING SUMMARIES: PUBLIC WORKSHOP MEETING COMMENTS

- Trail erosion
- Power lines
- NSP/Xcel steam plant
- Trail head needs work
- History explanation (2)
- Interpretation center
- Traffic control
- Smells are a disconnect, takes you out of the experience

- **Connected:**

Participants feel connected to the park through their visits and traditions. Many came as children and have spent time with family there; others visit repeatedly to climb the bluff, experience the natural areas through the seasons, and take in the views. Outside of the park, participants feel connected to the bluff as a landmark and icon of the city – that the bluff makes this "Red Wing". Some participants noted the bluff as a sacred and religious place.

- Like improvements at Memorial Park
- "The Crack" scramble trail (from quarry on south side to prairie trail near east overlook):
A challenge, but do-able for youth (good introduction to climbing)
- Interpretation – education – views and history geology
- Southern exposure
- Less use 10yrs ago, more activity since advertising on rec sites
- Love natural character
- Looking at it / Looking out from it
- Climbing – A place to do what you love
- Religious and sacred place
- Place of family memories / Childhood-Life connection – would come to Red Wing to climb Barn Bluff (2)
- Seasonally different experiences
- Visual connection
- Can walk to it
- To prairie
- As a natural area
- The view / multiple views from the bluff and of the bluff
- Painting on face
- Wooded quarry natural area
- Solitude
- Historic stairs
- Natural beauty
- Easily accessible
- Iconic
- Makes Red Wing 'Red Wing'

APPENDIX B.

PUBLIC PARTICIPATION MEETING SUMMARIES: PUBLIC WORKSHOP MEETING COMMENTS

- Through rock climbing
- Through love of native plants/prairie

What are the Top 3 activities do you enjoy at the park?

The top activities noted most by participants included the following: sport climbing, photography, hiking, bird watching, and appreciation of the natural communities.

- Sport climbing (4)
- Photography (4)
- Hiking (3)
- Bird watching (3)
- Appreciation of natural communities (wild flowers) (3)
- Picnic / social gathering (2)
- Overlooks
- Nature watching
- Day dreaming
- Socializing
- Sharing with visitors
- Hiking with pets
- Urban solitude
- Snow shoeing
- Sightseeing
- Geocaching
- Fireworks
- Exercise
- Appreciation of historic features
- Watching climbers

What features or amenities currently support these activities or are needed to better support them?

A strong theme carried through many of the comments and suggested making sure the bluff is better managed to leave it as natural as possible, and encourage stewardship that follows the ethos of "leave no trace". Comments related to developments and improvements centered mainly on the need for a trailhead with related facilities, such as more parking, signage, restrooms or porta-potties. Other comments discuss developing sustainable trails that are better managed for durability, safety, and health of the surrounding natural landscape. Some participants noted the desire for more educational opportunities either at the park or about the park from other locations or through various forms of technology.

- Trailhead with water and sanitation (restrooms that are bio-degradable?) services – with lighting and security (at bottom-street level) (4)
- More and better parking (2)
- More signage
- Porta-potty - near parking
- Better / consistent signage (especially at base), not necessarily more
- Educational opportunities: Signage at entry detailing significance to Dakota Nation, Intrusions detailed why low impact is important, What the landscape was, and why it needs respect

APPENDIX B.

PUBLIC PARTICIPATION MEETING SUMMARIES: PUBLIC WORKSHOP MEETING COMMENTS

- Remove flagpole or fly both flags
- No more bush-whacking trails, better management
- Pipe and cable rail on North Trail to prevent falls
- Steps, railings, resting places and benches
- Signage: Pet waste, invasive species, cultural significance
- Improved trail maintenance
- Trash receptacles or 'bring-it-in / bring it out' policy that is promoted
- Brushes for shoes to prevent invasive species spread
- Change public perception for the bluff – i.e. safety of path, appropriate footwear
- Online space to share photos from local photographers
- Sustainable trails
- Concern for respecting native peoples
- Concern about too much development – losing natural beauty
- Concern about too much signage
- Interpretation at Carlson Kiln – maybe have a paved accessible trail to kiln only
- An app instead of signs
- Fully looped trail system
- Improved railing with stairs
- Interpretive signage about history, geology, eagles/wildlife, etc.
 - Must be well integrated (not obtrusive)
 - Some opposition to this exists, want to preserve natural state
- Sign at east overlook 'No rock throwing, climbers below'
- Barn Bluff smartphone app – do this in place of visible signage, enable clips that present info on smartphones as you pass various spots – this preserves natural state while offering visitors info
- Signs in other locations such as Bay Point Ark, Levee Park, Memorial Park, etc. with info about it and directing people to it
- Trash receptacles – near parking
- 'Take pictures only' signage
- Educational opportunities – on site and broader programming
- Added features that do not detract from natural character
- Expansion of oak savanna and prairie

General Comments:

General comments received echo the idea of keeping the park as a natural setting for people to enjoy in a manner that does not impact its natural and historic significance.

- The key to any Barn Bluff development is to determine if the City wishes to 'preserve' the Barn Bluff into its most natural state or wishes to make it a more friendly destination for more people. To develop the bluff so more people can use it will mean putting manmade amenities

APPENDIX B.

PUBLIC PARTICIPATION MEETING SUMMARIES: PUBLIC WORKSHOP MEETING COMMENTS

on the bluff itself, something some people may not want. There should be signage that says the hikers should leave the bluff as they came to it.

- Should be a promotional campaign with flyers available to people in downtown regarding the bluff.
- Leave only footprints / take only photographs: low-impact interaction should be enforced.
- I keep being asked, by 'Twin Cities people', when that north trail will be fixed. There is an 88yr old woman from the Twin Cities who says she hikes that trail every year.
- Preserve the natural areas
- I am very concerned about keeping the bluff as natural as possible including the actual trails
- If barn bluff is to be a destination, then the entire community must be involved so promotional materials are available along with off-site signage (Bay Point Park) because the view is more than 'on the bluff'. Memorial Park is another site
- Please- less impact here than on the project at Sorins Bluff, there should be a way to have more thoughtful signage and trail maintenance
- After becoming more informed, it weighs heavily on the heart to see Barn Bluff remain in as natural as setting as possible thereby honoring the natural history and spiritual aspects surrounding the Dakota People and their heritage.
- Making 'Memorial Park' and 'Barn Bluff' two different identities
 - Memorial Park – Family oriented and very accessible
 - Barn Bluff – A sacred place to learn, grow, honor and respect
- Get rid of and find a way to prevent/suppress graffiti issue
- Needs better parking and restroom facilities

APPENDIX B.

PUBLIC PARTICIPATION MEETING SUMMARIES: OPEN HOUSE MEETING COMMENTS



Barn Bluff Park Master Plan Open House Workshop – January 2016

Open House

January 28th, 2016

5:30 p.m. – 8:00 p.m.

Red Wing Public Library, Red Wing

SUMMARY OF INPUT

Concept Feedback: Feature Preferences

CONCEPT FEEDBACK	Concept 1		Concept 2		Preferred Concept
	Like	Dislike	Like	Dislike	
Entry	3		8	1	2
Parking	2	1	10		2
Restrooms	4	1	7	2	2
Lawn/Picnic area	1	1	9	2	2
Interpretation	3	1	3	1	tie
Bike Connections	2	1	5	1	2
Roof of water storage tank	7		2	3	1
Trail junctions	7	2	2	1	1
Additional Trails	4	1	5	3	tie
Totals	33	8	51	14	

- Like the added parking
- Like the wall with the historical photos/interpretive displays
- Riverfront Trail will be a great connection
- Like how Concept 2 puts distance/buffer between rails and Kiln Trail/Park Entry Trail
- If no distance or buffer, put sign up indicating active tracks

APPENDIX B.

PUBLIC PARTICIPATION MEETING SUMMARIES: OPEN HOUSE MEETING COMMENTS

Barn Bluff Gateway Feedback:

What can make the approach to the park more appealing?

- Like the multi-use trail connection (2)
- Black/gold signage like that used elsewhere around Red Wing should be present before the bridge overpass
- Need locking parking for bikes

Carlson Kiln Plaza Feedback:

- Like the idea of a viewing plaza
- Prairie restoration is important
- Like the development of the kiln per the concept drawings
- Love to see the kiln restored and attractive for tourists
- Signs explaining the kiln's use and construction would be great
- Stairs from the kiln to the proposed upper kiln or quarry trail would be beneficial

East Overlook Concepts Feedback:

- Concept 1
 - Very nice / Like this idea/ yes (6)
 - I enjoy the current path and grade change
 - Natural look is better (2)
 - No steps, please
 - Not sure I like the stone walls (maybe)
 - A very low wall at the east end [is okay] (2)
 - Natural stone stairs are good
 - Check out the park overlooking Alma, WI- great precedent
 - Would like to have a railing
- Concept 2
 - The Prairie Trail lower loop is a good idea- prevents the current trail from being one long dead end
 - I love not having steps- it is easier to hike a hill than to climb steps
 - Keep path natural- no flagstones (4)
 - Prefer no steps- keep the path and grades as is. Too much development in this concept- intrusive
 - I think people will be tempted to deface tall rocks

Native Elements Feedback:

- It's important to have Native American input and participation in feature construction
- Like the trail marking cairns shown

APPENDIX B.

PUBLIC PARTICIPATION MEETING SUMMARIES: OPEN HOUSE MEETING COMMENTS

General Comments:

- Encourage lots of vegetation diversity
- Encourage pollinators
- Would love signage on the geology of Barn Bluff, its historical significance, and Native American use of the bluff/river. Addition of this interpretation would encourage me to bring my friends and family to visit and recommend it to others
- Use social media to help attract people
- The “this is not an approved trail” signs there currently catch the light and can be seen from across town (remove/replace- like the cairn trail marker idea)
- Remove flag and flagpole
- Reopen north trail
- Put something in place to prevent/discourage painters from graffiti-ing rock face
- The casual paths that lead off the bluff-top trail to the north and northeast should be masked and restored with vegetation so as not to entice an out-of-towner to walk/run on them (more safety measures needed to formalize path network). Or create an overlook there.

APPENDIX C.

PROJECT COST ESTIMATES: SOURCES AND USES TABLE

He Mni Can (Barn Bluff) Master Plan Funding Sources & Uses <small>rev: 6/10/2016 prepared by: Hoisington Koegler Group / Loam</small>		PROJECT BUDGETS		FUNDING SOURCES (targeted)		
				City of Red Wing	Greater MN Parks & Trails	Third-Party Funding
Item	Amount	Totals				
TOTAL MASTER PLAN BUDGET		\$7,074,268	\$1,066,658	\$2,347,888	\$3,659,722	
IMMEDIATE PHASE BUDGET (2016/2017)		\$319,000	\$60,400	\$0	\$258,600	
Carlson Kiln Restoration Project		\$319,000	\$60,400	\$0	\$258,600	
Hard Costs	\$220,000		\$0	\$0	\$220,000	
Soft Costs	\$99,000		\$60,400	\$0	\$38,600	
EARLY PHASE BUDGET (2017/2018)		\$1,885,897	\$311,096	\$765,783	\$809,019	
Upper Bluff Safe Trails Project		\$807,279	\$111,429	\$292,210	\$403,639	
Hard Costs	\$584,420		\$0	\$292,210	\$292,210	
Soft Costs	\$222,859		\$111,429	\$0	\$111,429	
Park Entry "The Basics" Project		\$423,983	\$0	\$423,983	\$0	
Hard Costs	\$296,491		\$0	\$296,491	\$0	
Soft Costs	\$127,491		\$0	\$127,491	\$0	
Kiwanis Stair Restoration Project		\$248,820	\$74,820	\$49,590	\$124,410	
Hard Costs	\$174,000		\$0	\$49,590	\$124,410	
Soft Costs	\$74,820		\$74,820	\$0	\$0	
Carlson Kiln Interpretive Project		\$113,130	\$56,565	\$0	\$56,565	
Hard Costs	\$79,112		\$22,547	\$0	\$56,565	
Soft Costs	\$34,018		\$34,018	\$0	\$0	
Dakota Memorial Project		\$223,938	\$40,000	\$0	\$183,938	
Hard Costs	\$156,600		\$0	\$0	\$156,600	
Soft Costs	\$67,338		\$40,000	\$0	\$27,338	
Other Costs for this Phase		\$68,748	\$28,281		\$40,466	
Operating Escrow Contribution	\$46,675		\$28,281		\$18,394	
Fundraising Administration	\$22,073				\$22,073	
MID PHASE BUDGET (2019-2021)		\$1,234,701	\$225,053	\$784,648	\$225,000	
Park Entry Completion Project		\$533,848	\$0	\$533,848	\$0	
Hard Costs	\$373,320		\$0	\$373,320	\$0	
Soft Costs	\$160,528		\$0	\$160,528	\$0	
Carlson Kiln Plaza Project		\$680,394	\$204,594	\$250,800	\$225,000	
Hard Costs	\$475,800		\$0	\$250,800	\$225,000	
Soft Costs	\$204,594		\$204,594	\$0	\$0	
Other Costs for this Phase		\$20,459	\$20,459	\$0	\$0	
Operating Escrow Contribution	\$20,459		\$20,459		\$0	
Fundraising Administration	\$0				\$0	
LATER PHASE BUDGET (2022-2026)		\$3,634,669	\$470,108	\$797,458	\$2,367,103	
Car Park Project		\$500,166	\$117,158	\$333,008	\$50,000	
Hard Costs	\$265,850		\$0	\$215,850	\$50,000	
Soft Costs	\$234,316		\$117,158	\$117,158	\$0	
Pump House Renovation Project		\$1,561,560	\$0	\$0	\$1,561,560	
Hard Costs	\$1,092,000		\$0	\$0	\$1,092,000	
Soft Costs	\$469,560		\$0	\$0	\$469,560	
5th Street Gateway Project		\$1,164,664	\$310,214	\$464,450	\$390,000	
Hard Costs	\$814,450		\$0	\$464,450	\$350,000	
Soft Costs	\$350,214		\$310,214	\$0	\$40,000	
Other Costs for this Phase		\$408,280	\$42,737	\$0	\$365,543	
Operating Escrow Contribution	\$208,893		\$42,737		\$166,156	
Fundraising Administration	\$199,387				\$199,387	

APPENDIX C.

PROJECT COST ESTIMATES

He Mni Can (Barn Bluff) Estimated Budgets: Park Entry Projects

rev: 6/10/2016

prepared by: Hoisington Koegler Group / Loam

	Quantity	Unit	Price/ Unit	Cost Estimate
Park Entry "The Basics" Project - Early Phase				
Hard Costs				
Demolition/Removals/Electrical Line Relocation	1	LS	\$60,000	\$60,000
Site Grading	1	LS	\$20,000	\$20,000
Gravel Parking Lot	20	STALLS	\$400	\$8,000
New Entry Trail: Climbing Causeway	300	LF	\$50	\$15,000
New Entry Trail: Accessible Route	445	LF	\$40	\$17,800
Interpretive Plaza (Pump House to Kiwanis Stairs)	8,750	SF	\$6	\$52,500
Woodland Trail Junction	1	LS	\$20,000	\$20,000
Council ring at East Kiwanis Stairs	1	LS	\$15,000	\$15,000
Park Entry Kiosk	1	LS	\$25,000	\$25,000
Biff Enclosure	1	LS	\$15,000	\$15,000
Gathering Lawn	608	SY	\$12	\$7,296
<i>Mobilization</i>	<i>10%</i>			<i>\$25,560</i>
<i>Escalation (6% early, 12% mid, 20% later phase)</i>	<i>6%</i>			<i>\$15,336</i>
Hard Cost Subtotal				\$296,491
Soft Costs				
<i>Construction Contingency</i>	<i>25%</i>			<i>\$74,123</i>
<i>Design/Engineering/Administration</i>	<i>18%</i>			<i>\$53,368</i>
Soft Cost Subtotal				\$127,491
Project Budget				\$423,983

Dakota Memorial Project - Early Phase

Hard Costs				
Dakota Memorial Artwork	1	LS	\$120,000	\$120,000
Surrounding Site Work	1	LS	\$15,000	\$15,000
<i>Mobilization</i>	<i>10%</i>			<i>\$13,500</i>
<i>Escalation (6% early, 12% mid, 20% later phase)</i>	<i>6%</i>			<i>\$8,100</i>
Hard Cost Subtotal				\$156,600
Soft Costs				
<i>Construction Contingency</i>	<i>25%</i>			<i>\$39,150</i>
<i>Design/Engineering/Administration</i>	<i>18%</i>			<i>\$28,188</i>
Soft Cost Subtotal				\$67,338
Project Budget				\$223,938

APPENDIX C.

PROJECT COST ESTIMATES

	Quantity	Unit	Price/ Unit	Cost Estimate
Park Entry Completion Project - Mid Phase				
Hard Costs				
General Interpretive Features	1	LS	\$20,000	\$20,000
Interpretive Panels on Reservoir Wall	1	LS	\$50,000	\$50,000
Wayfinding/ Signage	1	LS	\$40,000	\$40,000
Site Furnishings	1	LS	\$20,000	\$20,000
Lighting / Electrical	1	LS	\$80,000	\$80,000
Rainwater Garden	3,000	SF	\$12	\$36,000
Landscaping	1	LS	\$60,000	\$60,000
<i>Mobilization</i>	<i>10%</i>			<i>\$30,600</i>
<i>Escalation (6% early, 12% mid, 20% later phase)</i>	<i>12%</i>			<i>\$36,720</i>
Hard Cost Subtotal				\$373,320
Soft Costs				
<i>Construction Contingency</i>	<i>25%</i>			<i>\$93,330</i>
<i>Design/Engineering/Administration</i>	<i>18%</i>			<i>\$67,198</i>
Soft Cost Subtotal				\$160,528
Project Budget				\$533,848
Car Park Project - Later Phase				
Hard Costs				
Paved parking lot w/stormwater infrastructure	20	STALLS	\$4,000	\$80,000
Grass overflow parking on Xcel property	19,500	SF	\$3	\$58,500
Lighting / Electrical	1	LS	\$20,000	\$20,000
Rainwater Garden	3,000	SF	\$12	\$36,000
Landscaping	1	LS	\$10,000	\$10,000
<i>Mobilization</i>	<i>10%</i>			<i>\$20,450</i>
<i>Escalation (6% early, 12% mid, 20% later phase)</i>	<i>20%</i>			<i>\$40,900</i>
Hard Cost Subtotal				\$265,850
Soft Costs				
<i>Soil Correction Contingency</i>	<i>60,000</i>	<i>SF</i>	<i>\$2</i>	<i>\$120,000</i>
<i>Construction Contingency</i>	<i>25%</i>			<i>\$66,463</i>
<i>Design/Engineering/Administration</i>	<i>18%</i>			<i>\$47,853</i>
Soft Cost Subtotal				\$234,316
Project Budget				\$500,166

APPENDIX C.
PROJECT COST ESTIMATES

	Quantity	Unit	Price/ Unit	Cost Estimate
Pump House Renovation Project - Later Phase				
Hard Costs				
Utilities	1	LS	\$50,000	\$50,000
Building Renovation/Addition	1	LS	\$600,000	\$600,000
Security, Lighting, Communications, Electrical	1	LS	\$120,000	\$120,000
Associated Site Work	1	LS	\$40,000	\$40,000
Fixtures & Furnishings	1	LS	\$30,000	\$30,000
<i>Mobilization</i>	<i>10%</i>			<i>\$84,000</i>
<i>Escalation (6% early, 12% mid, 20% later phase)</i>	<i>20%</i>			<i>\$168,000</i>
Hard Cost Subtotal				\$1,092,000
Soft Costs				
<i>Construction Contingency</i>	<i>25%</i>			<i>\$273,000</i>
<i>Design/Engineering/Administration</i>	<i>18%</i>			<i>\$196,560</i>
Soft Cost Subtotal				\$469,560
Project Budget				\$1,561,560
5th Street Gateway Project - Later Phase				
5th Street Trail (neighborhood to regional trail)	1,230	LF	\$50	\$61,500
On-street Diagonal Parking (18 spaces on 5th St.)	18	each	\$2,500	\$45,000
5th Street Special Pavement (pavers)	9,000	SF	\$30	\$270,000
Gateway Features at Highway 61 Bridge	1	LS	\$120,000	\$120,000
Lighting / Electrical	1	LS	\$80,000	\$80,000
Landscaping/Stormwater	1	LS	\$50,000	\$50,000
<i>Mobilization</i>	<i>10%</i>			<i>\$62,650</i>
<i>Escalation (6% early, 12% mid, 20% later phase)</i>	<i>20%</i>			<i>\$125,300</i>
Hard Cost Subtotal				\$814,450
Soft Costs				
<i>Construction Contingency</i>	<i>25%</i>			<i>\$203,613</i>
<i>Design/Engineering/Administration</i>	<i>18%</i>			<i>\$146,601</i>
Soft Cost Subtotal				\$350,214
Project Budget				\$1,164,664

APPENDIX C.

PROJECT COST ESTIMATES

He Mni Can (Barn Bluff) Estimated Budgets: Trail/Overlook Projects

rev: 6/10/2016

prepared by: Hoisington Koegler Group / Loam

Project	Quantity	Unit	Price/ Unit	Cost Estimate
Upper Bluff Safe Trails Project - Early Phase				
Hard Costs (costs assume conservation corp approach)				
South Trail Rehabilitation	1	LS	\$106,000	\$106,000
Midland Trail Rehabilitation	1	LS	\$6,000	\$6,000
Rogue Trail Decommissioning	1	LS	\$6,000	\$6,000
Prairie Bypass Trail Realignment	1	LS	\$28,000	\$28,000
Prairie Trail Realignment and West Overlook Modifications	1	LS	\$25,000	\$25,000
Citizen's Memorial Stairway Minimal Rehabilitation	1	LS	\$5,000	\$5,000
North Trail Rehabilitation	1	LS	\$20,000	\$20,000
Quarry Trail Rehabilitation	1	LS	\$65,000	\$65,000
East Overlook Reconstruction	1	LS	\$50,000	\$50,000
<i>Mobilization</i>	5%			\$15,550
<i>Escalation (6% early, 12% mid, 20% later phase)</i>	6%			\$18,660
<i>Upcharge to Convetionally Bid the Project</i>	100%			\$345,210
Hard Cost Subtotal				\$584,420
Soft Costs				
<i>Construction Contingency</i>	25%			\$146,105
<i>Archeological Survey</i>	1	LS	\$30,000	\$30,000
<i>Design/Engineering/Administration</i>	8%			\$46,754
Soft Cost Subtotal				\$222,859
Project Budget				\$807,279

Kiwanis Stair Restoration Project - Early Phase

Hard Costs				
Citizen's Memorial Stairway Reconstruction	1	LS	\$100,000	\$100,000
East Kiwanis Stair Restoration	1	LS	\$30,000	\$30,000
Central Kiwanis Stairs Rehabilitation	1	LS	\$20,000	\$20,000
<i>Mobilization</i>	10%			\$15,000
<i>Escalation (6% early, 12% mid, 20% later phase)</i>	6%			\$9,000
Hard Cost Subtotal				\$174,000
Soft Costs				
<i>Construction Contingency</i>	25%			\$43,500
<i>Design/Engineering/Administration</i>	18%			\$31,320
Soft Cost Subtotal				\$74,820
Project Budget				\$248,820

APPENDIX C.

PROJECT COST ESTIMATES

He Mni Can (Barn Bluff) Estimated Budgets: Carlson Kiln Projects

rev: 6/10/2016

prepared by: Hoisington Koegler Group / Loam

	Quantity	Unit	Price/ Unit	Cost Estimate
Carlson Kiln Restoration Project - Immediate Phase				
Hard Costs				
Kiln Structural Stabilization & Restoration	1	LS	\$200,000	\$200,000
<i>Mobilization</i>	10%			\$20,000
<i>Escalation (6% early, 12% mid, 20% later phase)</i>	0%			\$0
Hard Cost Subtotal				\$220,000
Soft Costs				
<i>Construction Contingency</i>	20%			\$44,000
<i>Design/Engineering/Administration</i>	25%			\$55,000
Soft Cost Subtotal				\$99,000
Project Budget				\$319,000

Carlson Kiln Interpretive Project - Early Phase

Hard Costs				
ADA Access Trail (park entry to kiln base)	500	LF	\$40	\$20,000
Kiln Overlook (top of kiln)	1	LS	\$30,000	\$30,000
Kiln Overlook Trail Spur	330	LF	\$40	\$13,200
Overlook Interpretive Displays	1	LS	\$5,000	\$5,000
<i>Mobilization</i>	10%			\$6,820
<i>Escalation (6% early, 12% mid, 20% later phase)</i>	6%			\$4,092
Hard Cost Subtotal				\$79,112
Soft Costs				
<i>Construction Contingency</i>	25%			\$19,778
<i>Design/Engineering/Administration</i>	18%			\$14,240
Soft Cost Subtotal				\$34,018
Project Budget				\$113,130

Carlson Kiln Plaza Project - Mid Phase

Hard Costs				
Elevated Platform (at kiln base)	1	LS	\$120,000	\$120,000
Plaza Interpretive Displays	1	LS	\$20,000	\$20,000
Site Furnishings	1	LS	\$10,000	\$10,000
Security, Lighting, Communications, Electrical	1	LS	\$200,000	\$200,000
Landscape Enhancements	1	LS	\$40,000	\$40,000
<i>Mobilization</i>	10%			\$39,000
<i>Escalation (6% early, 12% mid, 20% later phase)</i>	12%			\$46,800
Hard Cost Subtotal				\$475,800
Soft Costs				
<i>Construction Contingency</i>	25%			\$118,950
<i>Design/Engineering/Administration</i>	18%			\$85,644
Soft Cost Subtotal				\$204,594
Project Budget				\$680,394



LOAM, Inc.



**THE MNI CAN
BARN BLUFF
PARK MASTER PLAN
JUNE 2016**