

FERTILE SAND HILLS MASTER PLAN

A PLANNING FRAMEWORK FOR THE FERTILE SAND HILLS



CITY OF FERTILE

SEPTEMBER 2019

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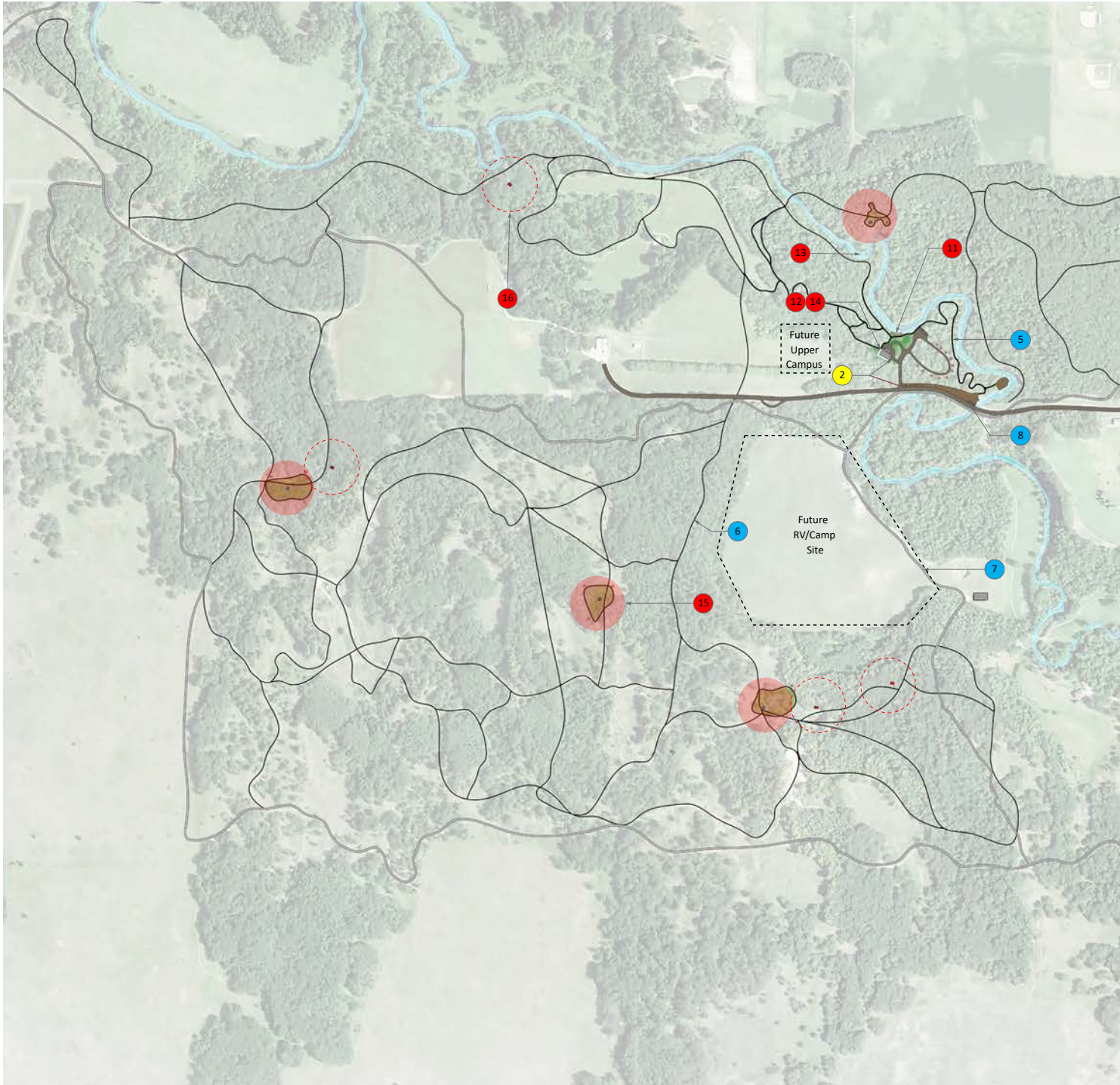
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Master Plan Project List

*** projects not indicated on the map are spread throughout the entire Fertile Sand Hills Property***

Upper Campus Site and the RV/Camp Site are both recommended but require more detailed design

Signage

- 1 - Wayfinding
- 2 - AELC Campus Signage
- 3 - Interpretative Signage 1
- 4 - Interpretative Signage 2

Accessibility

- 5 - River Trail Outdoor Recreational Access Route
- 6 - Sand Hills Outdoor Recreational Access Route
- 7 - Improved Van Access along Perimeter
- 8 - Accessible River Access
- 9 - Information Plan
- 10 - Motorized Vehicle Access Policy

Facility and Grounds Improvements

- 11 - The Deck
- 12 - Existing Visitor Center Phase 1
- 13 - The Bridge
- 14 - Existing Visitor Center Phase 2
- 15 - Remote Support Buildings
- 16 - Camper Cabins
- 17 - Property Maintenance

Maintenance and Management

- 18 - Sand Dune Management Plan
- 19 - Prairie Management Plan
- 20 - Sand Hill River Management Plan
- 21 - Buckthorn Management Plan
- 22 - Bike Area Restoration Plan
- 23 - Regulations Enforcement Policy

Executive Summary

The Fertile Sands Hills are an amazing recreational asset. Located at the convergence of several native plant communities including oak savanna, dry sand prairie, sand dunes, aspen forest, and a riverine corridor the sand hills provides its visitors the opportunity to move between several unique habitats while enjoying the 640 Arce recreational area. Use of this public amenity is intended for everyone as it offers a range to recreational and educational opportunities for both individuals and families.

This plan sets out a framework for transforming the Fertile Sand Hills into a world-class park system. The plan carefully balances the Agassiz Environmental Learning Center's (AELC) mission to foster a greater awareness of the interrelationships between humans and nature with the City of Fertile's continued commitment to conserve this landscape for long-time recreational use by local, regional, and global communities.

Once executed, the Fertile Sand Hills will boast two new fully accessible trail loops - making its unique ecological convergence available to a greater range of users. Remote support Pavilions, allowing students and adults coming to the Sand Hills for both education and recreation alike to safely venture further out into the property which will allow for new kinds of teaching and greater comfort when recreating. In addition to increase tent camping opportunities, camper cabins will also be strategically located through the property in its most scenic places. The existing learning center building will be updated, making it fully accessible as well as improving its architecture to make it more functional across the seasons. Elements on the property that need maintenance will be restored to improve the overall user experience.

Through these improvements, the Fertile Sand Hills will offer users a more valued experience that will allow the it to better generate revenue through its programming and amenities and thus helping it to support its increased capital and maintenance costs. In additional to strategically guiding the operations and physical improvements of the property, this master plan allows the Fertile Sand Hills to move closer to achieving the designation as a park of regional significance. This designation will allow the City of Fertile to apply for Park & Trail Legacy Funding that will help support the capital improvements and necessary ecological maintenance necessary for the Fertile Sand Hills to be a sustainable recreational asset for local and regional communities for generations to come.



Pasque Flowers

PART 1 - INTRODUCTION

The Fertile Sand Hills Recreation Area (FSH) is home to the Agassiz Environmental Learning Center (AELC), and is located immediately southwest of the city of Fertile, in south central Polk County. The City of Fertile and the AELC seek to preserve this scientifically significant area and offer educational opportunities. The 640-acre property hosts over 12 miles of hiking, horseback riding, snowmobiling, snowshoeing, and cross-country ski trails, a campground, an observation deck overlooking the Sand Hill River. The AELC, provides restroom facilities and a multipurpose space for environmental education and community events. The City of Fertile acquired the FSH In 1976, as part of the U.S. Bicentennial Celebration. In 1985, a grant established the formation of the AELC and the recreation area's primary trail system and in 1991 the AELC was incorporated as a Non-Profit.

The Fertile Sand Hills are a unique convergence of native plant communities including oak savanna, dry sand prairie, sand dunes, aspen forest, and a riverine corridor. The City of Fertile and the Agassiz ELC are looking to extend this local asset to the greater Minnesota community by enhancing its physical infrastructure and education recreation programming to attract expanded regional and state visitors. In the fall of 2017, the City of Fertile partnered with the University of Minnesota's Northwest Regional Sustainable Development Partnerships and Minnesota Design Center to develop a master plan to assess the

assets of the Fertile area and develop planning guidelines for the FSH that build on local resources and help meet the broader needs of the community.

Designation

A primary goal of this master plan is to help the Fertile Sand Hills achieve designation as a park of regional significance. Further, this master plan provides a working document that can append to future Park & Trail Legacy Funding applications as well as to prioritize development projects and marketing strategies that will help make the Fertile Sand Hills financially sustainable.

The Greater Minnesota Regional Parks and Trails Strategic Plan outlines specific criteria that parks pursuing a regional significance distinction in Greater Minnesota must meet:

*The Greater Minnesota Regional Parks and Trails Strategic Plan outlines specific criteria that parks pursuing a regional significance distinction in Greater Minnesota must meet: **Natural resource-based settings and range of activities offered:** The park should provide a natural setting and offer outdoor recreation facilities and activities that are primarily natural resource-base.*

The FSH offer a unique diversity of ecosystems including: oak savanna, dry sand prairie, sand dunes, poplar forest, and a riverine corridor. Visitors to the Fertile Sand Hills can make use



of over 12 miles of hiking, horseback riding, snowshoeing and cross-country ski trails, a campground, an observation deck overlooking the Sand Hill River, and the Agassiz Environmental Learning Center (AELC), which provides restroom facilities and a multipurpose space for environmental education and community events. Attracting more than the average outdoor enthusiast, the FSH hold tremendous potential to expand natural recreation experiences and environmental educational programs from students to regional, state-wide and international visitors.

Regional Use: Evidence that the park serves at least a regional clientele; other related factors may include evidence that the facility currently or potentially may draw tourists and generate economic impact from outside the local area.

The FSH are open to use which it broadens through several partnerships that bring together neighboring communities through environmental programming, recreational opportunities and early childhood educational programs facilitated by the AELC with the Fertile-Beltrami School district.

Some of the existing projects with other partnerships include:

- University of Minnesota Crookston -- Limnology class uses Sand Hill River as outdoor lab and Ecosystem Restoration class has taken on

several service projects restoring open sand areas.

- Sand Hill Watershed District implemented fish passage project in partnership with West Polk Soil and Water Conservation District, (make reference to Lessard Sams and/or other funding/partners (Enbridge) involved)
- MN DNR and The Nature Conservancy assist with prescribed burns and prairie restoration
- Fertile Conservation Club hosts 3D Archery Events bringing in archers from xxx miles. (might note distance that archers come from for 3D Archery Shoots)
- MN Conservation Corps completed river tree snagging to facilitate safe river access for paddling and fishing.

Additionally, parks pursuing a regional significance distinction in Greater Minnesota must also meet at least one of the following:

Size: The park should be significant in size; in southern Minnesota, a park of 100 acres is significant, and in northern Minnesota, the acreage is generally larger

The 640-acre property is located immediately southwest of the City of Fertile, in south central Polk County. The City of Fertile acquired the Fertile Sand Hills In 1976, as part of the U.S. Bicentennial Celebration. In 1989, grant support helped establish the formation of the AELC and the recreation area's primary trail system and in



1991 the AELC was incorporated as a Non-Profit. The 640 acre Fertile Sand Hills meet the size requirement, and are augmented by nearby and adjacent properties. The Nature Conservancy manages the Agassiz Dunes Scientific and Natural Area (SNA), a similar but smaller preserve approx one mile south of the Fertile Sand Hills with land between these two units also protected through enrollment in the Prairie Bank program and an additional DNR SNA tract. The Minnesota Natural Heritage Program surveyed the Fertile Sandhills in 1987 and 1988, noting "A preserve will protect the most significant dune area in northwestern Minnesota. The Natural Heritage Program considers the Fertile Sandhills to be one of the highest protection priorities in the state."

Special features: *Unique or unusual landscape features, historically or culturally significant sites, or parks containing characteristics of regional or statewide significance.*

The Fertile Sand Hills feature a diverse group of rare plant communities present at this unique intersection of prairie, oak savannah and aspen parklands, allowing people to traverse through the Sand Hills and learn about Minnesota biomes. For example, the Northern Dry Savannah community is rare in Minnesota, and much of it occurs in the FSH.

Extensive erosion occurred when glacial meltwaters flowed between glacial lakes Climax and



Sand Hill River



Native Prairie



Oak Aspen Woods



Sand Dunes



Aspen Forest



Bur Oak Savanna

Koochiching, flowing on the south edge of the retreating glacier--outletting both to Lake Superior and River Warren and leaving the largest sand deposits on the Minnesota side of the Red River Basin at the Sand Hill River delta. Westerly winds created the area's rare sand dunes after glacial Lake Agassiz began to drain into Hudson Bay. While one-third of Minnesota used to be covered by prairie, the combination of plants now found within the Fertile Sand Hills are no longer available anywhere else.

The beach ridges of glacial Lake Agassiz are concentrated in the Fertile area with the Upper Herman beach ridge coinciding with the historic Pembina oxcart trail which crosses the Sand Hill River just east of the Fertile Sand Hills. Also on the eastern edge of the Fertile Sand Hills and western edge of the City of Fertile rich clay deposits were discovered which led to formation of the Fertile Brick and Tile Company in 1897, a robust brickyard which operated until 1960--producing 3 million bricks in a 5-6 month season at peak production. Many buildings in Fertile and the region are made of brick from the Fertile Brick and Tile Company.

Scarcity of recreational resources: *The park provides public natural resource-based recreational opportunities that are not otherwise available within a reasonable distance.*

The Fertile Sand Hills are uniquely positioned to

become the first park of regional significance in Polk County. Currently there is not a State Park within 60+ miles of Fertile. The area is generally lacking amenities such as ski trails, hiking, and other public outdoor recreation opportunities.

The Fertile Sand Hills not only meet the minimum number of requirements for designation, but all of the requirements.

PART 2 - PROPOSER AND IMPLEMENTING AGENCIES

Beginning in the fall of 2017, the City of Fertile and the Agassiz Environmental Learning Center (AELC) worked on a project with the Minnesota Design Center (MDC) at the University of Minnesota to conduct a comprehensive asset assessment of the surrounding Fertile area to help inform the development of a master plan for the Fertile Sand Hills. To better understand how the City of Fertile and the AELC's goals and strategies could act as a catalyst for recreation, environmental education, and economic development in the region, the MDC team broadened their scope to see beyond the Fertile city limits.

Funding for the work was made available through the Northwest Minnesota Foundation, the Northwest Regional Sustainable Development Partnership, and the University of Minnesota's Center for Urban and Regional Affairs. The MDC, an interdisciplinary research center housed within the University of Minnesota's College of Design, worked with City of Fertile officials and AELC members to reach out to the community for help in identifying regional and local assets that could be translated into recreation, education, and economic development opportunities. The mission of the MDC is to work with communities to find innovative design solutions for both physical systems such as infrastructure and open space as well as non-physical systems such as public health or service delivery that can help our region seize the opportunities that lie in the social, technological, environmental, and eco-

nomic disruptions of our time.

The Fertile Sand Hills (FSH) recreation area has been both the subject and backdrop for a range of environmental and educational initiatives hosted by a variety of local, regional, and state agencies that include: Fertile Beltrami School District, West Polk County Soil and Water Conservation District, The Nature Conservancy, Statewide Health Improvement Partnership (SHIP), Polk County 4-H club, Fertile Early Childhood Initiative, Polk County Public Health, UMN Crookston, and others.

The City of Fertile owns and maintains the Fertile Sand Hills as well as staff on a part-time to volunteer basis many members of the community in order to keep the AELC open and accessible. The organizations listed above have, over the years, made use of the FSH to further environmental awareness and restoration efforts such as controlled burns, prairie restoration, river stabilization and tree snagging, and fish passage restoration, all of which would not have been possible without the support and engagement of local, regional, state, and federal agencies as well as private sector partners.

Public health and early education initiatives have also been key to promoting wellness, environmental awareness, healthy lifestyle, and a work-life balance for both adults and young ones. Besides hosting social events on-site, public

health agencies and the local school district have vested interest in promoting and implementing nature-based play programming for users to interact directly with nature whilst learning about the ecology and environment within the FSH.

The FSH are uniquely positioned to provide more than recreation to Fertile and the broader community. Increasing awareness about the benefits, amenities, and overall experience at the FSH will not only attract a wider audience, but also attain better exposure to statewide initiatives that could be undertaken at this site. The combination of an ecologically diverse landscape, a dedicated undertaking in environmental protection and restoration, and a vested interest by the local and broader community are key to maintaining the FSH unique and hidden gem for visitors.



PART 3 - SETTING AND REGIONAL CONTEXT

Context - Overview

Location

The Fertile Sand Hills are located in the north-west Minnesota, just west of Fertile in south-central Polk County. The Northwest region of Minnesota is also home to Kittson, Roseau, Lake of the Woods, Marshall, Pennington, Red Lake, Clearwater, Beltrami, Norman, Mahnommen, Clay, and Wilkin counties. Home to over 200,000 Minnesotans, this region is known for its agricultural production, manufacturing, and healthcare sectors as well as a diversity of outdoor recreation and tourism offerings.

Cultural History

The first people in the Red River Valley were ancestors of the American Indians, whose presence dates back 10,000 years. This estimate is based on findings at several archaeological sites with either radiocarbon dates, or diagnostic artifacts known from other parts of the continent to date to that time period, known to archaeologists as the Paleoindian. Before the 1700s, various American Indian Tribes inhabited today's Polk County, and records before this time are scarce and incomplete¹. The first identified tribes to inhabit the region were the Cree. The Ojibwe (also called Chippewa) also had a presence in the region given the close relations and lineage among the tribes. In the mid 1700s, the Sioux and the

Ojibwe struggled over the possession of the wild rice waters, a struggle that eventually forced the Sioux southwest across the Minnesota River.

Settlement

Early settlers in the northwest region of Minnesota include people of French and Scandinavian descent.² In 1858, the number of settlers in the Minnesota region had made it possible to enter the Union as a state. With little to no settlement in the upper northwestern area of the state, the 1862 Homestead Act became key in shifting settling patterns in the state. The Homestead Act provided settlers with an allowable 160 acres of land free provided they build a home, improve and live on that land for five years. Additional incentives could lead to increased acreage for settlers. The ongoing land struggles between the Sioux and Ojibwe eventually left the latter victorious over the region in 1863. The following year, a treaty was signed between the Chippewa and the US Government opening the land for settlement.³ The City of Fertile was platted on May 25, 1887 under direction of Andrew Gilken, which originally included 19 blocks with 239 lots and a public park. There are records of first settlers in the area dating back to 1879, when John S. LaDue and his family arrived from Fertile, Iowa, giving the area its name.⁴

Land Use

Today, the region offers a wide variety of outdoor recreation activities including: forests and lakes, paved trails for biking, hiking, golfing, bird-watching in a variety of habitats, fishing charter trips, lake and river fishing. Other cultural events that add tremendous value and diversity to the region include music festivals, theater performances, and heritage festivals. Lastly, winter activities are crucial to the versatility of the region and include snowmobiling, ice fishing, skiing and more. Agricultural land use drives the majority of the economy in Polk County. The Polk County Agricultural Profile, published in 2013 by the Minnesota Department of Agriculture, showed the county leading in crop production, soybeans, spring wheat, sugarbeets, dry edible beans, and barley.⁵

The Watershed

The Sand Hill River is a tributary to the Red River of the North. Polk County is situated within the Red River of the North Basin Watershed, host to unique lake/river basin soils remnants of Glacial Lake Agassiz. These fertile lake deposits provide rich, productive soils for agriculture in Polk County. Four major watersheds are predominant within the jurisdictional boundaries of Polk County including: Red River of the North-Grand Marais Creek, Red Lake River, Red River of the

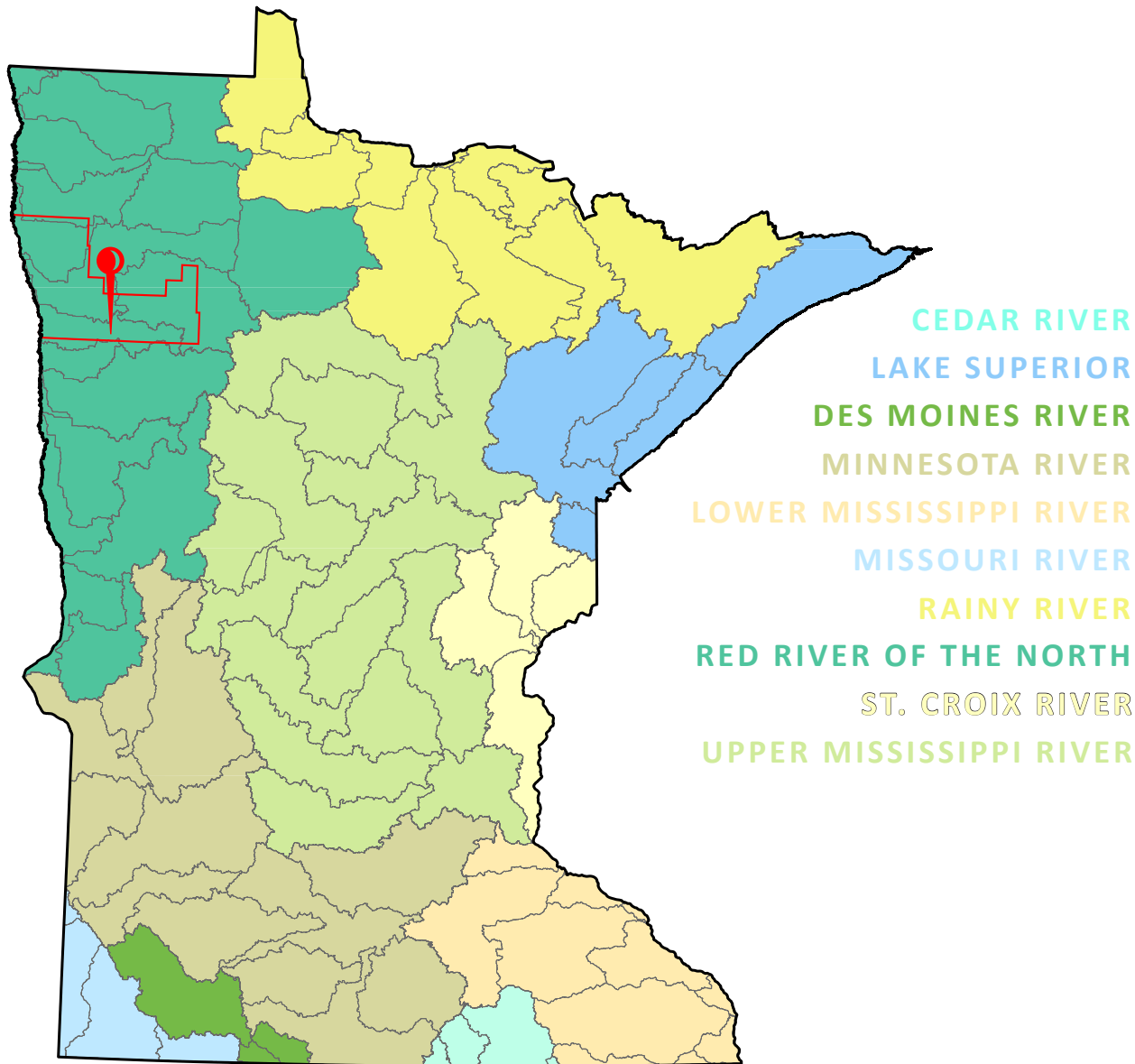
1 Holcombe, R.I. Maj. "History and Biography of Polk County Minnesota" <http://umclibrary.crk.umn.edu/digitalprojects/polk2/HistoryBiographyPolkCnty.pdf>

2 Ibid.

3 "An Early History of Fertile." Robert Heckman. <http://www.cityoffertile.org/PDF/History/An%20Early%20History%20of%20Fertile.pdf>

4 Ibid.

5 "Polk County Agricultural Profile". Minnesota Department of Agriculture. 2013. <http://www.mda.state.mn.us/food/business/agmktg-research/~media/Files/food/business/countyprofiles/econrpt-polk.ashx>



Minnesota watersheds diagram

North-Sand Hill River and the Clearwater River Watersheds. Three other major watersheds have small acreage within the county including: Wild Rice, Snake, and Marsh Watersheds. The City of Fertile is part of the Red River of the North-Sand Hill River Watershed. With the only exception of Kittleson Creek, the Sand Hill River is predominantly unbranched as it crosses the land. Most of this land is low relief and used in agricultural production.⁶

Climate

Fertile lies within the USDA’s zone 3b hardiness zone, the coldest of all the USDA garden zones in the United States. This zone has the shortest growing window, with a last frost date of approximately May 15th and first frost date of September 15th⁷. Average temperature lows dip to approximately 0°F in January and crest up around 80°F in July and August.⁸

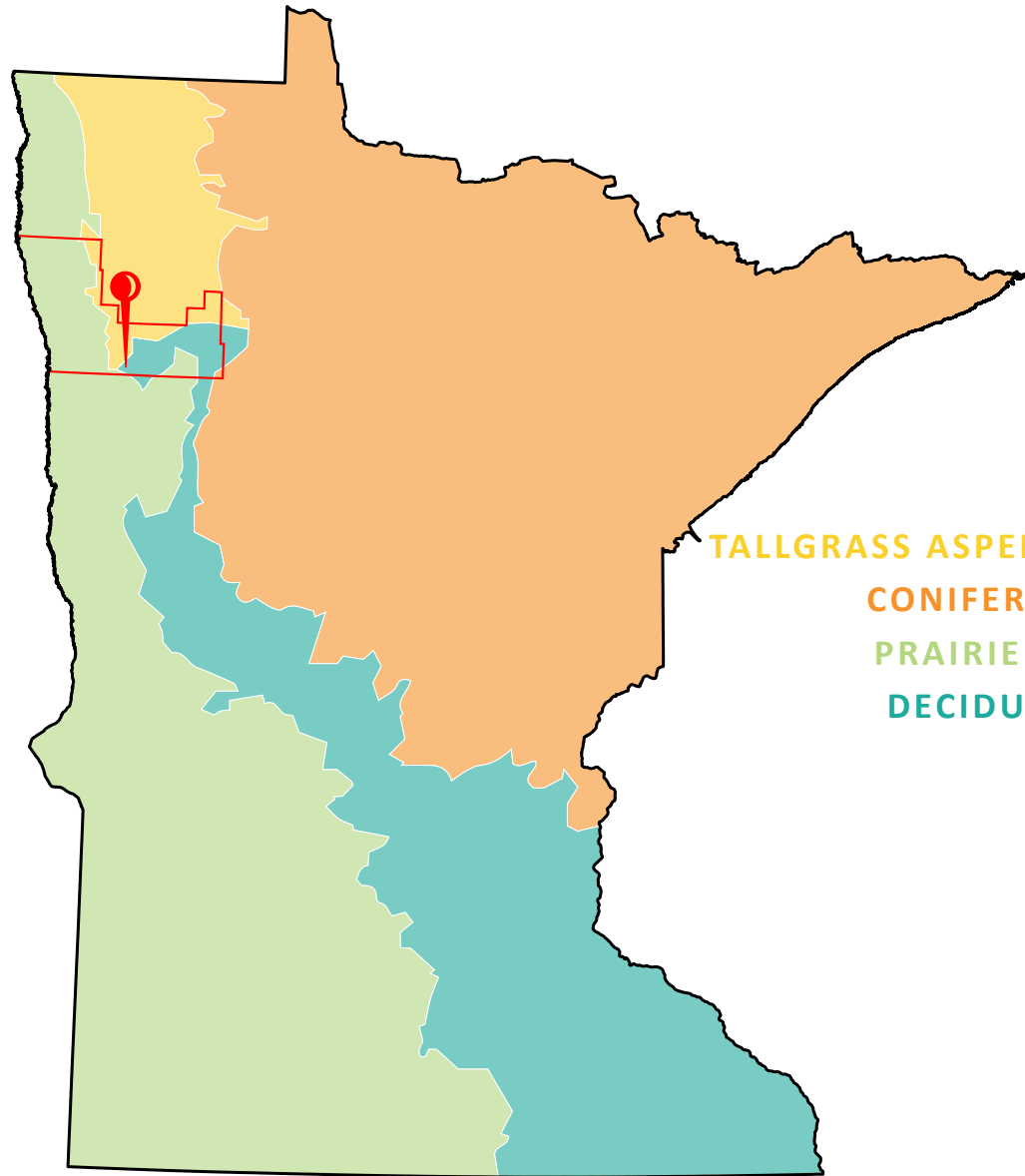
Glacial Lake Agassiz

Dating back to the ice age, the climate was colder and glacial ice covered a large portion of North America. During the most recent glaciation period, the Wisconsin Glaciation, portions of glacial ice were pushed across Minnesota’s landscape. When these glaciers melted, about 12,000 years ago, the meltwater that was trapped and accu-

6 “Polk County Local Water Plan”. West Polk Soil and Water Conservation District. http://westpolkswcd.com/uploads/3/5/5/7/3557851/waterplan_final_version.pdf

7 “USDA Plant Hardiness Zone map”/ USDA Agricultural Research Service. <http://planthardiness.ars.usda.gov/PHZMWeb/>

8 Data provided by energy design tool Climate Consultant.



TALLGRASS ASPEN PARKLAND
CONIFEROUS FOREST
PRAIRIE GRASSLAND
DECIDUOUS FOREST

Minnesota biomes diagram

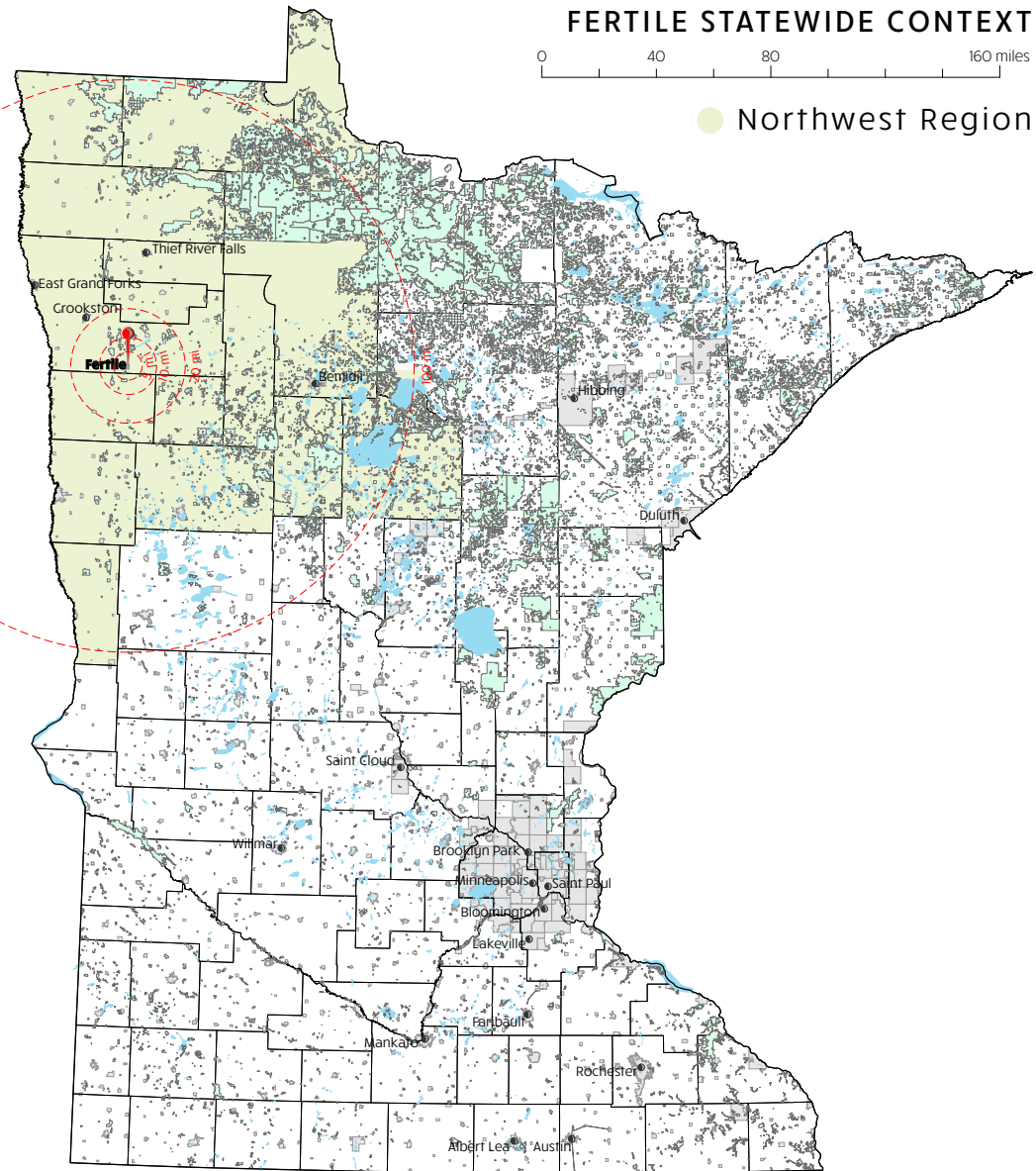
mulated created Lake Agassiz. While the lake drained in many directions, it helped shape the Minnesota River Valley, later creating an outlet river draining south, Glacial River Warren. The last change in drainage occurred 8,500 years ago when it shifted to the Hudson Bay⁹.

Minnesota Biomes

The northwest region of Minnesota is a diverse landscape, shaped by climatic events at the withdrawal of the last ice age and is home today to a variety of unique plant communities at the intersection of three major biomes. Remnants of aspen parkland, maple and basswood forests, and tallgrass prairie are the makeup of the region's landscape today.

Context - Regional Setting

With a population of just under 32,000, Polk County is recognized as an agriculturally-based county producing spring wheat, dry beans, and sugar beets. The county is home to a range of industries and institutions. In 2014, the University of Minnesota Extension published findings of an economic analysis of the Northwest region of Minnesota and looked at industry outputs, employment and wages, and interdependencies. Among their key findings were three primary industries driving the economy: agriculture, manu-



Statewide context diagram.

9 "Minnesota River Valley Formation". Minnesota River Basin Data Center. <http://mrbdc.mnsu.edu/minnesota-river-valley-formation>

facturing, and wholesale trade.¹⁰ Major industries in Polk County include two American Crystal Sugar Company processing plants. Top employers in Polk County include RiverView Health, New Flyer of America, UMN Crookston Campus, Crookston Public schools, and the city of Crookston.¹¹

Major post-secondary educational institutions include the University of Minnesota-Crookston and Northland Community Technical College (East Grand Forks) campuses. Other K-12 schools in Polk County include Climax-Shelly, Crookston, East Grand Forks, Fertile-Beltrami, Fisher, Foston, Win-E-Mac, Riverside Christian School, and Sacred Heart.

Polk County has a unique history with the watershed it manages leading governments to creating two Soil and Water Conservation Districts (SWCD). “SWCDs are local units of government that manage and direct natural resource management programs at the local level. Districts work in both urban and rural settings, with landowners and with other units of government, to carry out a program for the conservation, use, and development of soil, water, and related resources.”

Context - Parks and Trails

¹⁰ “Economic Composition of Northwest Minnesota”. University of Minnesota Extension. September 2014. <https://www.extension.umn.edu/community/economic-impact-analysis/reports/docs/2014-Northwest-MN.pdf>

¹¹ “Community Profile: Crookston, MN”. Prairie Business Magazine. January 11, 2010. <http://www.prairiebusinessmagazine.com/news/3962709-community-profile-crookston-mn>

Located southwest of the City of Fertile, the 640-acre Fertile Sand Hills (FSH) is a public recreation area host to a wide range of activities for local residents, the greater Fertile community, and regional/statewide outdoor enthusiasts. Owned by the city the FSH is also home to the Agassiz Environmental Learning Center (AELC), a space dedicated to implement environmental education programs for people of all ages. Established in 1991, the AELC developed programs that feature the diversity of the area which also provide compatible recreation to raise awareness, appreciation, and support for the area—and economic benefits to the community from visitation and increased public use. The purpose of the AELC is to “foster a greater awareness of the interrelationships between humans and nature”. It has served the Fertile area providing environmental programs for adults and students of all ages year-round.

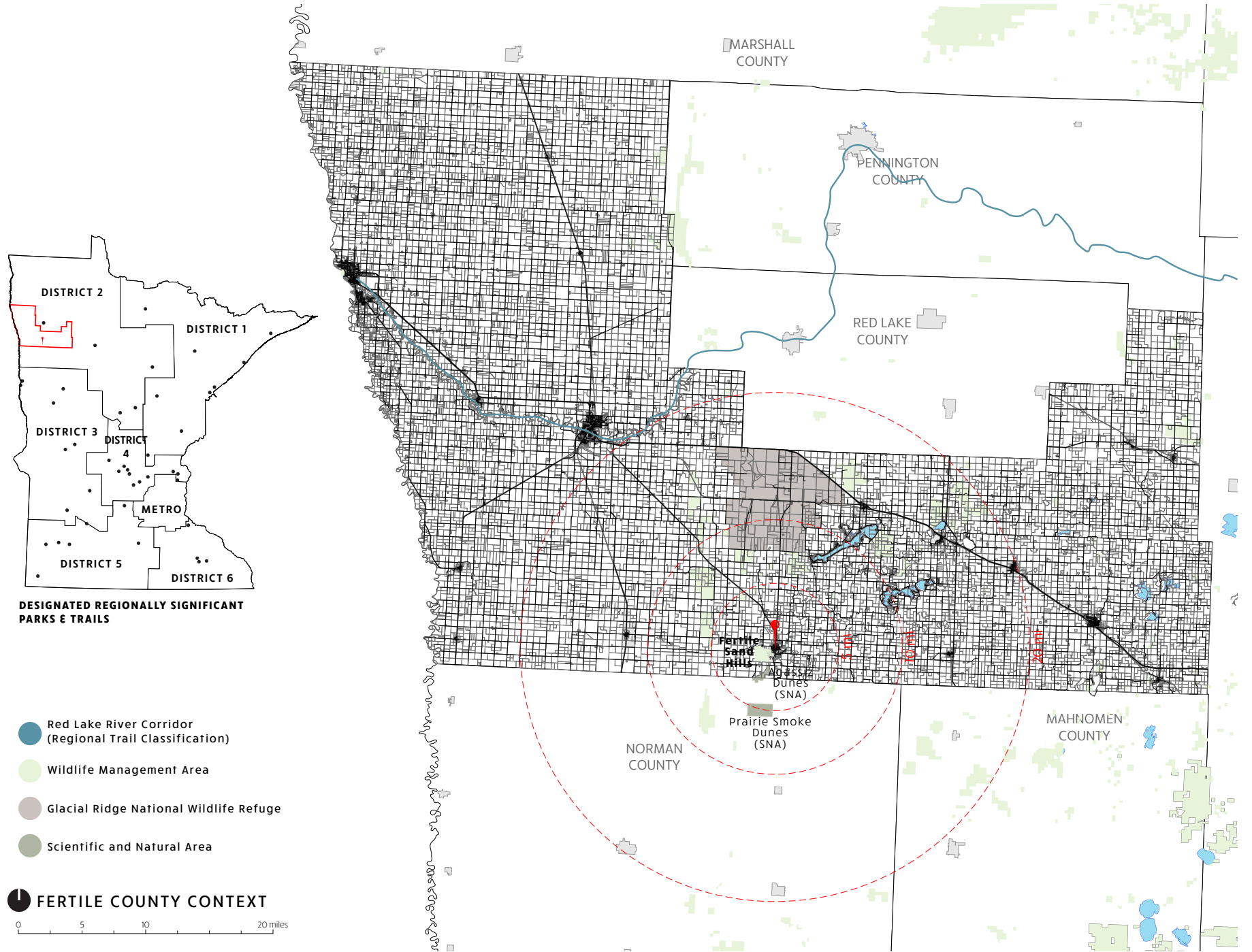
Major recreational parks in Polk County include the Glacial Ridge National Wildlife and Rydell National Wildlife refuges. Other parks and recreational areas within Polk County include Polk County Park, Cross Lake-Tilberg Park, Roadside Park, East Shore, and Agassiz Recreational Trail, and several recreational lakes. Scientific and Natural Areas (SNA) close to Fertile include the Agassiz Dunes SNA and the Prairie Smoke Dunes SNA, where research is conducted on a daily basis. While none of the assets listed above operate as

a designated regional park they help situate the Fertile Sand Hills within a broader network of natural areas that provide residents and visitors with a wealth of natural resources and ample space for outdoor recreation. If collectively engaged, programmed and marketed this regional network could become a state asset that attract a wider range of users.

Today, the FSH site and AELC programs serve students from an 80-mile radius, ranging from elementary to college who come to learn of the prairie, the sand hills, river studies and the unique flora and fauna found at the site. With over 12 miles of trails, the FSH provides opportunities for hiking, bird watching, geo-caching, cross-country skiing, and snowshoeing. With initial assistance by the Minnesota Conservation Corp and ongoing tree clearing by local user, the Sand Hill River through Fertile has become a popular kayaking corridor. An emerging mountain bike trail system is being developed by local users on site between the Sand Hill River and the City of Fertile. Horseback and snowmobile trails also pass through the site, engaging members of the broader Fertile area and region.

Context - City of Fertile

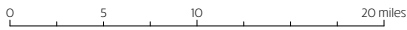
Platted in 1887, the City of Fertile originally included 19 blocks with 239 blocks and a public park. Founded by Andrew Gilken, Fertile’s first settlers in the area date back to 1879 when John



DESIGNATED REGIONALLY SIGNIFICANT PARKS & TRAILS

- Red Lake River Corridor (Regional Trail Classification)
- Wildlife Management Area
- Glacial Ridge National Wildlife Refuge
- Scientific and Natural Area

FERTILE COUNTY CONTEXT



Recreational proximity map.

S. LaDue and his family arrived from Fertile, Iowa, giving the city its name. With fur trading as one of the main trade activities in the late 1880s, Fertile was founded along the Sand Hill River on a beach ridge of Glacial Lake Agassiz, near the Pembina oxcart trade trail. The area is the largest sand dune complex in Minnesota associated with Glacial Lake Agassiz.

In 1976, the City of Fertile acquired the Fertile Sand Hills as part of the U.S. Bicentennial Celebration. The 640 acre site, located less than one mile west of the City of Fertile, has served as a source of wellness, recreation, and environmental education for Fertile and the broader community. The site features a diverse group of ecosystems, allowing locals to traverse through the Sand Hills and learn about Minnesota biomes as they hike. A wilderness sanctuary of its own, the Fertile Sand Hills' biomes include dry sand prairie, dry sand and bur oak savanna, sand dunes, oak/aspen woods, and riverine forests situated along the Sand Hill River.

As of 2016, the population in Fertile was of 842 residents and, according to the U.S. Census Bureau, the city has a land area of 2.13 mi². With over 200 businesses registered, the Fertile community is also very engaged in promoting wellness, environmental education, and community resilience. Among the most active organizations, the University of Minnesota Extension and the Fertile-Beltrami School District have pioneered

efforts and programs engaging residents of all ages. The Fertile 4-H Club and the Fertile Early Childhood Initiative are a few examples of groups developed within these broader organizations.

The Fertile-Beltrami Public School has a K-12 enrollment of 460 students and is key in positioning students within the larger Fertile area by providing environmental education opportunities. Many of the initiatives in place at this time range from after-school programs to technology-based learning experiences. The Early Childhood Initiative is managed and developed through the Fertile-Beltrami School and has as its mission: "Enriching lives of young children birth to five and their families and caregivers through literacy, quality childcare and family support. If we are concerned about the future of our community, we need to make long-term investments in our youngest community members by nurturing them right from the beginning. Our investments pay off in lower crime rates, less need for public assistance, better public schools, and better lives for families. We all benefit when our youngest citizens thrive, growing into adults who can give back to their communities." Some of their completed projects include acquiring funding for the early childhood playground equipment and supporting the construction of a natural play-space. Most recently, the ECI successfully raised funds to build a splash pad at J.D. Mason Park.

Along with the University of Minnesota Crook-



Snapshot of Mill Street



Polk County Fairgrounds



Unoccupied storefronts

ston campus holding courses in the Fertile Sand Hills, the University of Minnesota Extension in Northwest Minnesota is also home to the West Polk County 4-H Club. Originating in 1902, 4-H clubs engaged young adults teaching them about farming, creating a network across states. Today, 4-H clubs explore a wide range of professional fields, but many still relate to farming. In the past decade, opportunities have expanded within the 4-H clubs in Minnesota involving art, music, communications, leadership, career development, home improvement, and computer technology. For over 100 years, Fertile has been the host of the Polk County Fair, one of the region's most popular and longest running county fairs. Featuring activities and exhibits for all ages, the Polk County Fair has an average attendance of 50,000 visitors each year. The Polk County Fair provides 4-H members with the opportunity to highlight their experiences, project exhibits, animal shows, performances, etc.

The Sand Hill River is one of the eight watershed districts of the Red River Watershed Management Board (RRWMB). The RRWMB was created by an act of the Minnesota legislature in 1976 to provide a basin-wide perspective concerning flooding. Historically, the activities of the RRWMB have centered on flood control.

Along with the University of Minnesota Crookston Campus holding courses in the Fertile Sand Hills, the University of Minnesota Extension in Northwest Minnesota is also home to the West

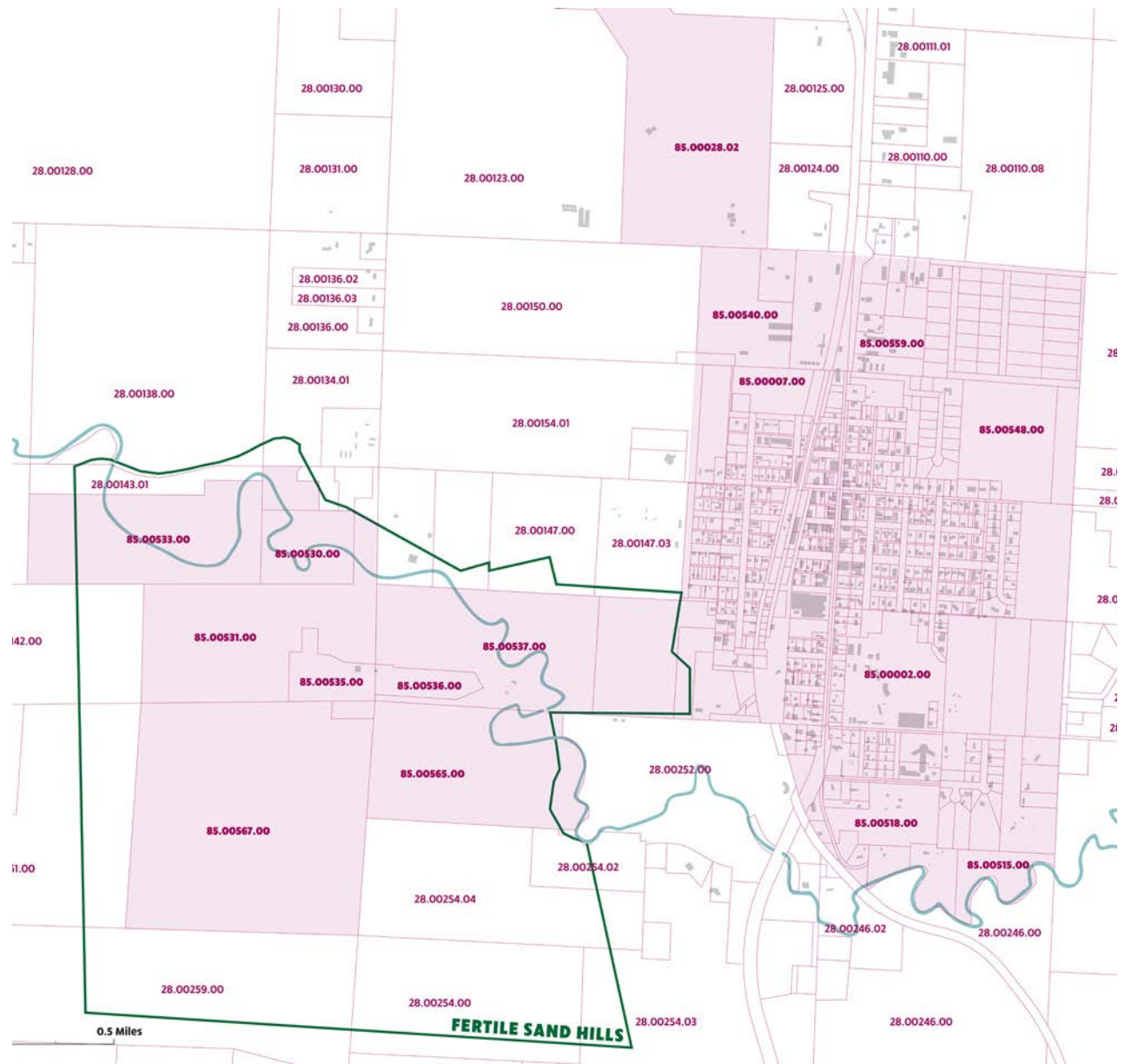
Polk County 4-H Club. Originating in 1902, 4-H clubs engaged young adults teaching them about farming, creating a network across states. Today, 4-H clubs explore a wide range of professional fields, but many still related to farming. In the past decade, opportunities have expanded within the 4-H clubs in Minnesota involving art, music, communications, leadership, career development, home improvement, and computer technology.

For over 100 years, Fertile has been the host of the Polk County Fair, one of the region's most popular and longest running county fairs. Featuring activities and exhibits for all ages, the Polk County Fair has an average attendance of 50,000 visitors each year. The Polk County Fair provides 4-H members with the opportunity to highlight their experiences, project exhibits, animal shows, performances, etc.

The Sand Hill River is one of the eight watershed districts of the Red River Watershed Management Board (RRWMB). The RRWMB was created by an act of the Minnesota legislature in 1976 to provide a basin-wide perspective concerning flooding. Historically, the activities of the RRWMB have centered on flood control.

PART 4 - SITE INFORMATION

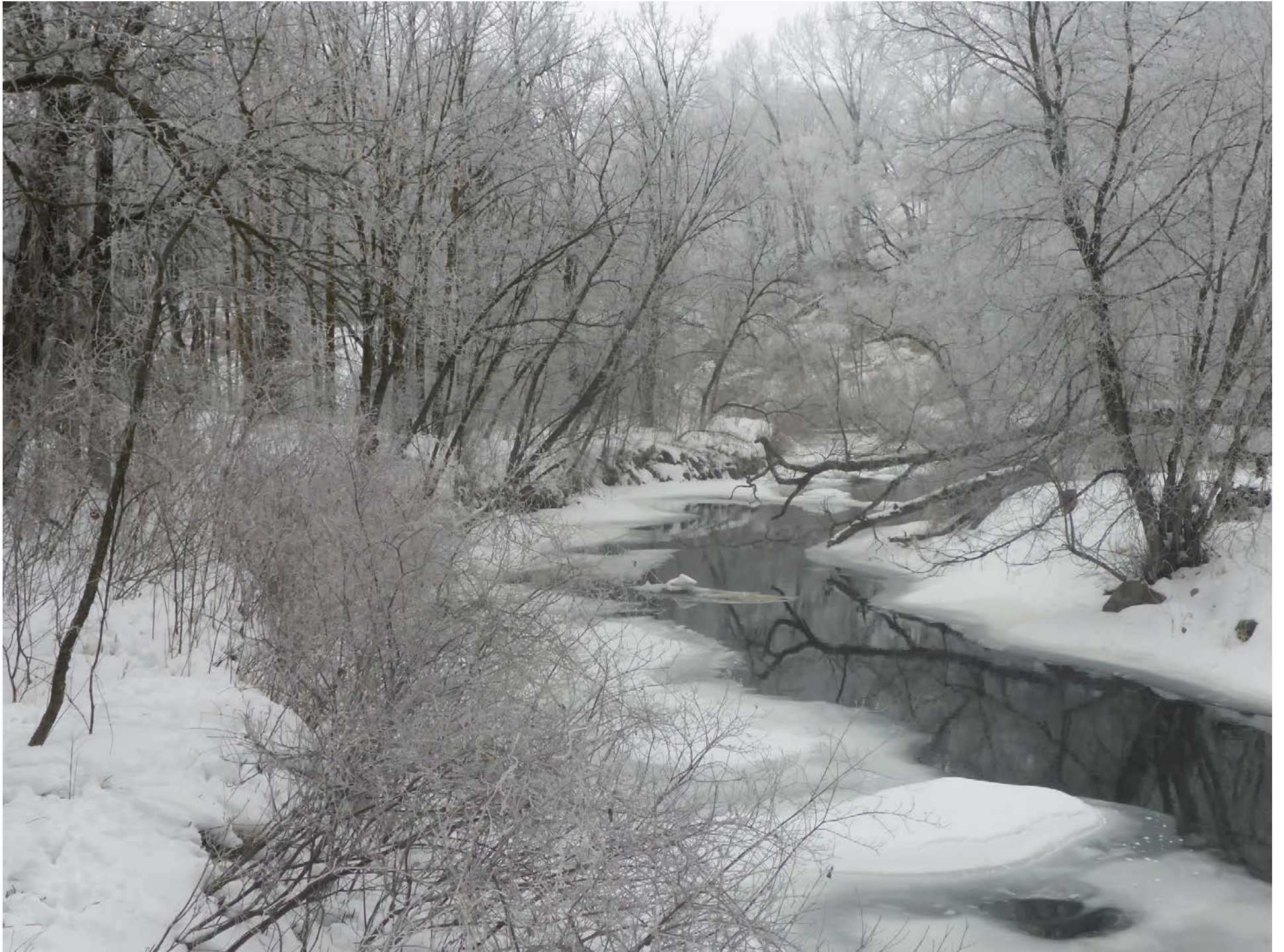
The Fertile Sand Hills a 640 acre natural area managed by the City of Fertile. The City of Fertile purchased a 640 acre tract of land known as the Fertile Sand Hills located just west of the City of Fertile as part of the 1976 U.S. Bicentennial Celebration. It features a unique diversity of ecosystems including oak savanna, dry sand prairie, sand dunes, poplar forest and a riverine corridor. The FSH is located just over one mile west of the city of Fertile and adjacent to the Sandhill River Golf Course. The Sand Hill River crosses the FSH, flowing west from the southeast border with the golf course to the northwest boundary of the City's property. Bordered by private property and farmland, the sand dunes that form part of the FSH is identified by the Nature Conservancy as regionally significant landscape.¹² The Agassiz Dunes Scientific and Natural Area is located just under 3 miles south of the FSH. The Agassiz Dunes was designated a Scientific and Natural Area in 1981, after all the land was acquired into the preserve by the area farmers. Visitors to the site include researchers, faculty, and students, including groups from the UMN Itasca Biological Station. Between the city land and the preserve is 240 acres of private land that the owner has registered with The Nature Conservancy.¹³



Fertile parcel identifications.

¹² "Minnesota, Agassiz Dunes Scientific and Natural Area". The Nature Conservancy. <https://www.nature.org/ourinitiatives/regions/northamerica/unitedstates/minnesota/placesweprotect/agassiz-dunes-scientific-and-natural-area.xml>

¹³ Ibid.

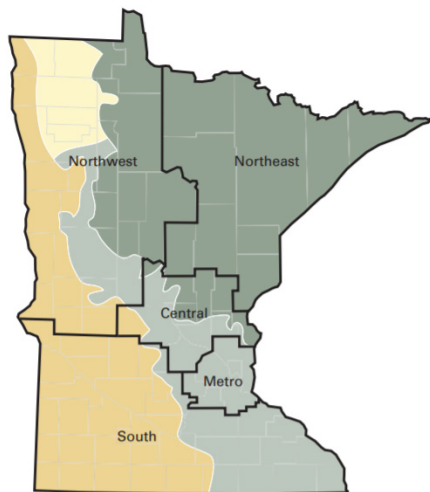


PART 5 - VISION, TRENDS, AND PUBLIC VALUES

Demographic information

In 2009, the population of Northwest Minnesota was approximately 448,000 people (approximately 9% of the total state). The University of Minnesota's Center for Changing Landscapes predicts that by the year 2035 the region's population will have grown by 17%. All of the counties in the region have a greater proportion of older residents (residents 65 years of age or older) and have a smaller proportion of younger residents (residents under 18 years of age) than the state overall. The general proportion of female residents in the region is 50.2 percent (this proportion is consistent across the state).¹⁴

14 "Minnesota's Network of Parks and Trails" University of Minnesota Center for Changing Landscapes. January 2011. https://www.changinglandscapes.umn.edu/sites/changinglandscapes.umn.edu/files/Northwest_Profile_2011.pdf



Regional Profile Map

Recreational trends information

According to a 2004 statewide recreation participation studies, the outdoor recreation activities that Northwest residents most frequently participate in are walking or hiking, picnicking, boating, swimming and driving for pleasure, which parallel statewide participation figures. However, Northwest Region residents are more likely to participate in hunting, all-terrain vehicle driving, and snowmobiling than other residents from across the state. In addition nature observation, visiting nature centers, golfing, and playing outdoor sports also showed relatively high regional and statewide participation (approximately 20% or higher).¹⁵

It is important to offer a wide range of activities for various audiences. Demographic trends and recent engagement throughout Polk County Public Health reveal that providing outdoor recreational opportunities that support aging populations is a critical component of meeting the existing demographic profile of the region. Attracting visitors from Fargo/Moorhead, Grand Forks, Thief River Falls, Crookston and audiences further afield such as the Twin Cities requires providing active outdoor opportunities for younger audiences as well as family oriented amenities for both local and visiting users.

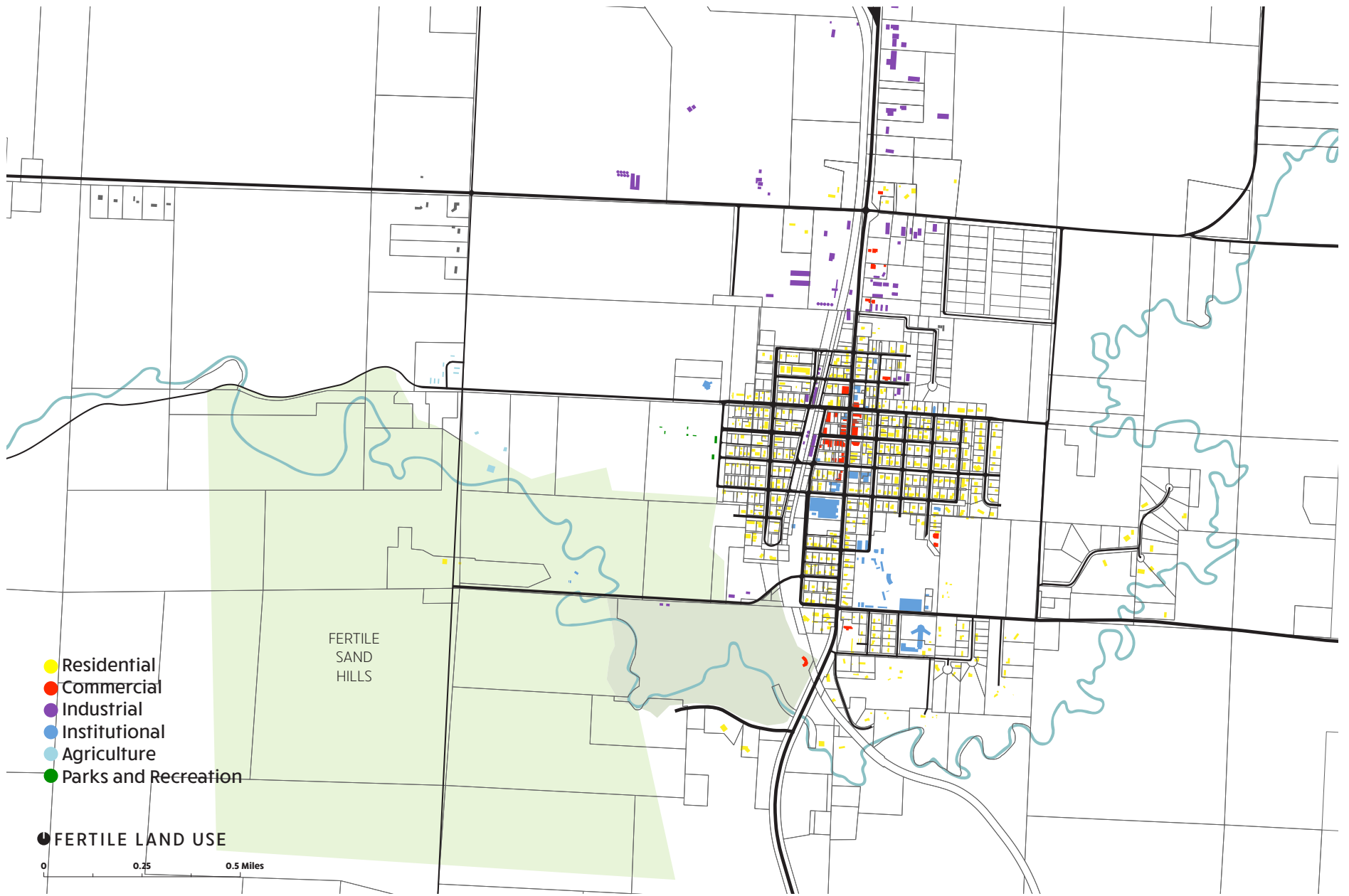
15 Kelly, T. (2005a). 2004 Outdoor recreation participation survey of Minnesotans: Report on findings. Saint Paul, MN: Minnesota Department of Natural Resources, Office of Management and Budget Services.

Public health values

Good health and healthy habits begin in our homes, schools, workplaces, neighborhoods, and communities. We know that taking care of ourselves by eating well and staying active, and not smoking are all critical factors that influence our health. In addition to our personal habits, we also know that our health is in part socially determined. Access to social and economic opportunities; the resources and supports available in our homes, neighborhoods, and communities; the quality of our schooling; the safety of our workplaces; the cleanliness of our water, food, and air; and the nature of our social interactions and relationships are all factors that contribute to the overall health of people and places.¹⁶

The Fertile Sand Hills are an important local and regional public health asset. Public access to safe natural places where people can play, learn, and relax not only directly increases physical activity, but they can also teach us about systems attached to proper nutrition and create social networks that are more supportive of healthy lifestyles. The FSH public trail network and Agassiz Environmental Learning Center already provide many of these opportunities. Improvements identified through this plan are intended to not only increase the kinds and frequency of physical

16 Rudolph, L., Caplan, J., Ben-Moshe, K., & Dillon, L. (2013). Health in All Policies: A Guide for State and Local Governments. Washington, DC and Oakland, CA: American Public Health Association and Public Health Institute.



Fertile land use map.

activities supported by the FSH, but to also make these healthy activities accessible to segments of the community that are often socially excluded. Direct physical improvements include providing an accessible trail loop, improving public bathroom facilities, and adding rest areas along extended trail loops. Direct ecological improvements include increasing critical conservation areas, increasing access to ecologically important zones, and strengthening ecological education. Indirect economic improvements will include increased local spending and visitor purchases, and the development of new full-time staff positions that support healthy living wages.

Additional Public Health efforts will focus on strengthening partnerships within Polk County and creating new regional partnerships that will support more frequent, and diversified use of the FSH.

Economic development/tourism opportunities

The Minnesota Department of Employment and Economic Development identifies that the second largest employment segment in the region is that of health care and social assistance.¹⁷ Given the region's aging demographic profile, and the public health challenges observed due to increasingly sedentary lifestyles, one of the

clearest opportunities to increase visitor use and to identify financial partnerships is to align the physical improvements and programming of the Fertile Sand Hills to improve public health. Ensuring that public and private health providers have accurate information about the amenities, programming, and public health benefits of the FSH is a priority.

Building on the economic opportunity of public health partnerships is the direct and indirect revenue opportunity attached to nature-based tourism. All of the major outdoor recreational activities can be found in the City of Fertile and the Fertile Sand Hills. Of particular note are the fish passage projects recently completed with the Sand Hill River Watershed District that are helping to facilitate the repopulation of game-fish in the Sand Hill River-- as fishing is identified as the leading nature-based tourism activity in the region. River maintenance projects done in collaboration with the Department of Natural Resources to enhance the use of the Sand Hill River for kayaking and other water play activities.

17 "Economic Development Region 1: Northwest, 2017 Regional Profile." DEED Labor Market Information Office. August 1, 2017. https://mn.gov/deed/assets/rp_edr1_2017_tcm1045-216551.pdf



PART 6 - REGIONAL SIGNIFIGANCE STATEMENT

The Fertile Sand Hills recreation area and the Agassiz Environmental Learning Center are a cluster of recreation, education, and ecological assets for the communities of Northwest Minnesota. Located at the convergence of Minnesota's four primary biomes, the region offers remnants of native boreal forest, aspen parkland, maple and basswood forests, and tallgrass prairie. Also within the sand hill area there are rare sand dune formations as well as diverse ravine ecologies supported by the Sand Hill River. Existing hiking, biking, skiing and horseback riding trails provide moderate access to these natural assets with the AELC also offering limited support space for educational programming and equipment rental. This master plan is focused on identifying opportunities to increase accessibility, utilization, and identify physical improvements to increase the collective regional, state, and national use of this Minnesota asset.





Community walk through Death Valley 1

PART 7 - PUBLIC INPUT AND PARTICIPATION

The Fertile Sand Hills master planning process included an extensive community participation component that offered a range of opportunities for community members to contribute ideas and/or address concerns regarding the current and future uses of the property. This process included public outreach through an online blog, the City of Fertile and the Agassiz Environmental Learning Center social media platforms, the local community paper The Fertile Journal, and on the local radio station KROX. The team gathered public input through a series of on-site design workshop/cookouts as well as through an online form that participants could fill out if they were not able to attend the input sessions in person. Below is a detailed summary of the process and its findings.

Summary of findings

Two distinct groups within the community see the value of the Fertile Sand Hills in two very different ways. The first of these groups focuses on a minimal impact conservation agenda and improving trails and buildings to extend current uses and attract more, but similar, users. The second group focused on extending the use of the Sand Hills area to ATV and other motor vehicle users. Depending on the input sessions, more of one group or another would be in attendance but both groups were consistently engaged throughout the public input sessions.

In general, the first group felt that opening the Sand Hills to unrestricted motorized vehicle use

year round would produce a significant risk to the ecosystem as well as diminish the quiet experience that those visiting the FSH currently enjoy. The group of community members advocating for ATV use saw it as an opportunity to generate revenue and to extend access to the Sand Hills for those who are not physically able to engage it unassisted and argued that this revenue is needed to support the extended maintenance and staff to keep the FSH operational.

In order to determine what was legally possible under the conditions of the original purchase agreement between the State and the City of Fertile, the Minnesota Department of Natural Resources was contacted to advise on the environmental impacts on the suggestions and ideas collected through the community input sessions.

Community input and design workshop process and findings

The master plan process was communicated through an online blog, social media, and the local paper. The master plan team developed a strategy to gather general community input along three key topic areas; (1) Trails and Access; (2) Art and Education; and, (3) Public Health. Each of these topics became an area of community focus at one of three design workshop/cookouts. These cookouts were held from 5:00 – 8:00pm on May 30th, June 6th, and June 13th 2018 at the Agassiz Environmental Learning Center building at the FSH. Dinner was provided by the planning committee to encourage community participa-

tion and participants discussed the future of the Sand Hills at the Sand Hills. Each workshop had a planned activity to help guide conversation and generate ideas. Workshop/cook times and topic themes were advertised in the community paper, on the radio and through social media.



Community cookout and design workshop.

Trails and Access Summary – May 30th, 2018

On May 30th, 2018 the Fertile Sand Hills Master Planning team hosted the first of three community engagement cookouts at the Nature Center at the Fertile Sand Hills. Prior to the cookout, the event was advertised in the Fertile Journal for two weeks, posted on both the City of Fertile and the Agassiz Environmental Learning Center's (AELC) Facebook pages, and notices of the event was sent to AELC members. The event was attended by 54 people and focused on gathering community input on the design of Trails, Signage, and Access strategies for the master plan. From 5:00-6:30 pm the team grilled for the community and from 6:30-8:00 pm the discussion and a short design activity were facilitated to get the community thinking about alternative futures for the FSH. Everyone in attendance introduced themselves to the group and stated their primary interests or concerns with future uses of the Fertile Sand Hills. Notes from the meeting, as well design handout and survey documents, were collected to record the community's input.

Key Community Conversation Points:

- Signage is a primary concern. As it stands, current signage is not sufficient for those who do not regularly use the Sand Hills to venture out onto the property without fear of getting lost.
- Numerous people exchanged anecdotes about getting lost at the Sand Hills.
- It was felt in general the better signage would enhance increased use of trails (birders, hikers, bikers, snowmobiles, cross-country skiing, kayaking, etc.), but Interpretive signage was also discussed at length
- Apart from an accessible trail – the idea of adding more trails was not brought up as an option for increasing use. People seemed content with trail quantity – quality drove the discussion.
- Distance markers and color coded “use” restriction signs are needed to control the mode of trail use in specific locations.
- Adding a paved accessible trail loop received unanimous support by those in attendance and is thought to increase access to all types of users, especially those with disabilities, aging populations, and families with young children.
- Some argued that this should be made accessible to golf carts while others argued that this should have no motor use.
- Accessible path should host interpretative signage and be used to support access to educational programs.
- A large portion of those in attendance would like to see usage of the Sand Hills opened to ATVs and side-by-sides.
- This action is contested by those who are concerned with this user group misusing the Sand Hills and damaging its sensitive ecologies.
- It was noted in the opening comments that there is a restriction in the purchase agreement of the land prohibiting motorized use on the property; however, motorized vehicles (snowmobiles) are allowed limited access in the winter.
- It was articulated by many that the Sand Hills need to develop a financial model that can support its maintenance and pay for permanent staff needed to facilitate the extended programming many were recommending.
- Develop RV camping in the prairie
- Camper cabins
- More regular camping

- Equipment rents
- Charge fees on high maintenance uses
- More events like haunted trails
- Extended educational programming
- The conservation of the unique ecologies within the Fertile Sand Hills is critical – additional use of the Sand Hills should minimize the risks to these environmental assets.

Art and Education Summary – June 6th, 2018

On June 6th, 2018 the Fertile Sand Hills Master Planning team hosted the second of three community engagement cookouts at the Nature Center at the Fertile Sand Hills. Prior to the cookout, the event was advertised in the Fertile Journal for two weeks, posted on both the City of Fertile's and the Agassiz Environmental Learning Center's (AELC) Facebook pages, and notices of the event was sent to AELC members. The event was attended by 42 people and focused on gathering community input on Art and Education within the master plan. From 5:00-6:30 pm the team grilled for the community and from 6:30-8:00 there was a discussion centered around a set of questions that got the community thinking about alternative futures for the Fertile Sand Hills. People worked in small groups that formed around a particular "user group" to which they thought about improvements to the Fertile Sand Hills. Notes from the meeting were collected to record the community's input.

Key Community Conversation Points:

- People engage (play, learn, use) nature differently today than they used to. Today's social norms do not extend opportunities for unstructured engagement with nature, particularly for children. As a result, a lot of people (at multiple ages and demographics) simply do not have the skills needed to engage nature (this is an opportunity).
- Key to enhancing education is to develop funding strategies for both human assets (i.e. full time staff and part-time volunteers) as well as physical improvements and ecological maintenance.
- There are two broad kinds of educational programming: on-site and outreach.
- On-site teaching is based on day programming that is run out of the AELC with short hikes to outdoor learning spaces. Transporting students to the site in the first place is a major expense and barrier for many schools.
- Existing building needs improvement
- The main meeting/teaching space needs to be separate from the public space.
- Bathroom facilities
- Parking and Bus turn around
- Deck needs to be fixed
- Bigger and safer Fire Pit
- Extended educational buildings could both extend existing day programming into different parts of the Sand Hills as well as extend it to overnight programming.
- New buildings and/or educational sites could be built "from nature" – didactic and in support of education.
- Sited to integrate w/ nature.
- Improvements need to be flexible (portable/adaptable)
- Shade/picnic pavilions, winter camping (10x10-15x15), learning kiosks, benches, etc.
- There need to be opportunities for unstructured exploration. People learn and explore in different ways, some people watch (indirect) some people need to touch (direct). Quiet reflective learning is also very important.
- Provide signage that describes what is happening – nature is a great teaching tool if you could communicate what is going on.
- Increase accessibility – Hard-surfaced low impact trails, get the van back out, electric golf carts, etc.

- Increase access to the river
- Learn from active management of the Sand Hills
- Prairie burns, sand dune restoration, river clearing / fish ladders, trail grooming
- Camping is a great opportunity to learn about nature
- There could be more summer camping near the AELC, no hotel in Fertile.
- Programming ideas
- Youth
- Reach kids at a younger age
- Art + science (entomology and astronomy)
- Teach gateway activities that encourage other outdoor activities
- Making programming more attractive for parents / co-programming?
- Young Adult
- Basic skills training like survival, archery, fishing, trapping, etc.
- Specialist skills training like cold weather survival, settler skills.
- Shelter/bridge building
- Community service opportunities
- Artist in Residence
- Develop a program to teach regional crafts (North House Folk School).
- Having a rotating artist in resident would keep people coming back and generate sustained revenue.
- Engage older generations to get back into nature
- Sharing experiences and telling stories
- Teaching skills to youths
- Academic Institutions
- Research/land management collaborations
- Research/writing residencies

Public Health Summary – June 13th, 2018

On June 13th, 2018 the Fertile Sand Hills Master Planning team hosted the final of three community engagement cookouts at the Nature Center at the Fertile Sand Hills. Prior to the cookout, the event was advertised in the Fertile Journal for two weeks, posted on both the City of Fertile's and the Agassiz Environmental Learning Center's (AELC) Facebook pages, and notices of the event was sent to AELC members. The event was attended by 20 people and focused on gathering community input on the role the Fertile Sand Hills could play in Public Health within the master plan. From 5:00-6:30 pm the team grilled for the community and from 6:30-8:00 there was a discussion centered around a set of scenarios that got the community thinking about alternative futures for the Fertile Sand Hills. People worked in small groups centered around each scenario and then thought about how the Fertile Sand Hills could positively affect their situation. Notes from the meeting were collected to record the community's input. (see appendix for questions)

Key Community Conversation Points:

- Nature plays a key role in our health. This is true for our physical health by affording us opportunities to be active, to spend time outside in the fresh air, and to eat healthy foods. This is also true for our mental health by affording quiet reflective space and wonderfully complex views to admire and contemplate. For both our physical and mental health, no single environment or activity for everyone and thus everyone should have the opportunity to define their own relationship to nature.
- For the Fertile Sand Hills to be a true public health asset to its community it needs to sustain a wide range of adaptable use patterns that do not diminish the experience of others to simultaneous use the land. It is also critical that the Sand Hills not be used in ways that increase the risk of future generations from not being able to take advantage of this public health asset.
- Multiple use options and activities
- Everyone is different and enjoys using nature in different ways. The more activities available the better.
- That said, without improved access and signage increasing the kinds of use at the Sand Hills will only add more confusion and conflict.
- These activities need to be age and skill level appropriate – ideally multiple kinds of experiences for each use.
- Family friendly activities
- Cooking and Eating together
- Having picnic pavilions and places for people to cook and eat together helps with mental health because it brings families together.
- These facilities should be fully accessible
- More camping
- Also a great family activity
- Different levels of ruggedness
- Increase accessibility – Hard-surfaced low impact trails, golf carts, river access, etc.
- Signage and Information
- Better signage on trails (distance, difficulty, educational, wayfinding, etc.)
- Better information about the Fertile Sand Hills online (website, social media)
- People need to know what they can do at the FSH and if it matches their need, not knowing is a turn-off.

- Mental health opportunities
- Many health conversations focus on physical activity, but mental health is just as important.
- Quiet reflective places to hike, enjoy a view, etc. are critical.
- Working together – do not default to zero-sum thinking
- Every group has an ideal context that they would like to operate within, if we do not work together there will be winners and losers – we can work creatively together to compromise and avoid people completely losing out.
 - Integrate Technology
 - Today people are increasingly dependent on technology. We can leverage more interactive technological experiences to get young generations exposed to nature.
 - We can synch digital information to physical signage to minimize signage costs and to create more easily updatable interpretative experiences.
 - Align or partner with other interests to be co-supportive
 - Farmers markets, seasonal craft/art fairs, corporate outings, etc.
 - People already travel to these activities and having the added benefit of being in a beautiful setting would only help them while simultaneously exposing a lot of new users to the FSH.

Scenario Example

One of the scenario teams developed a venture idea based on using ATVs and/or golf carts to get senior citizens out of nursing homes and into the Sand Hills. The concept was based on a ride-sharing concept and leveraged required high-school volunteer hours with the desire of nursing home occupants to access the Fertile Sand Hills. This has the added cultural benefit of putting two different generations into direct communication with each other to share values and knowledge. The large group attached English and Science coursework idea to this experience so that the knowledge exchanged through these interactions would be recorded in some way. This an example where differing community positions converged in a limited way to meet the public health needs of the broader community through a creative programming and usage design at the Fertile Sand Hills.

Areas of Conflict

The Primary area of conflict centered around the proposed new use of ATVs at the Fertile Sand Hills. It was stated that under the original purchase terms no motor vehicles were allowed on the property but the documentation of this was ambiguous. The MN DNR was brought into consult on the environmental impact of the produced new uses and physical improvements.

It was agreed upon that the FSH would follow the MN DNR guidelines for OTHER POWER-DRIVEN MOTORIZED VEHICLES (OPDMV) within the Fertile Sand Hills to ensure that accessibility is maximized with minimal negative impact critical natural resources. Proposed policy is outlined design section.

Conclusions

Over the course of the three community input sessions several key concerns and ideas were settled on.

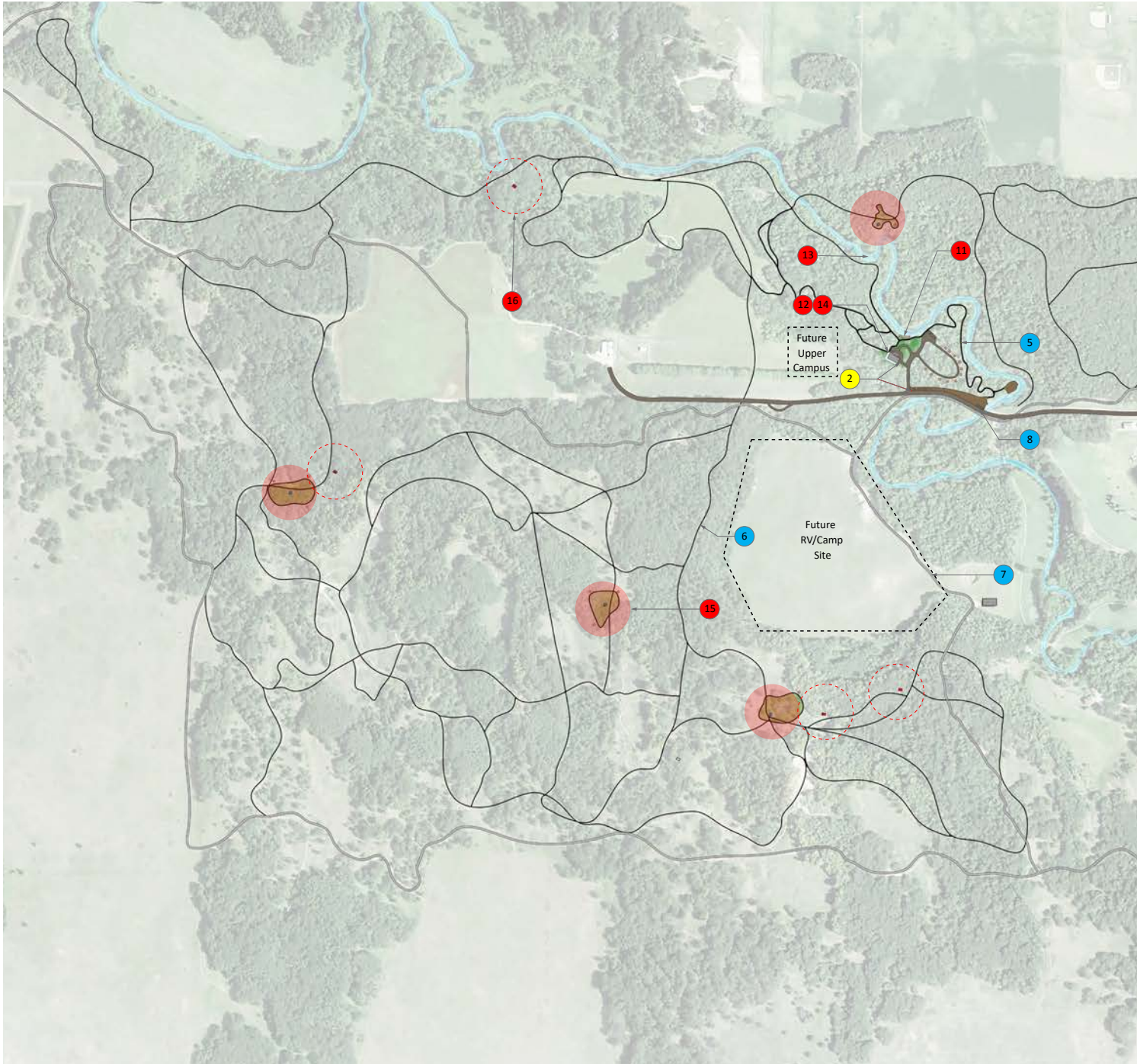
Signage

The most consistent concern by community members centered around signage. It was felt that the Sand Hills are an amazing resource on their own and that the single most useful improvement would be to redesign the way finding and interpretative signage systems. As it stands, current signage is not sufficient for those who do not regularly use the Sand Hills to venture out onto the property without fear of getting lost. It was also felt that in general the better signage would result in increased use of trails (birders, hikers, bikers, snow mobiles, cross-country skiing, kayaking, etc.), and that Interpretive signage would help those who use the trails better understand the uniqueness of the Sand Hills. Information to be included on the trail should include key distances, times of travel, Key plan maps identifying “you are here”, type of use allowed on travel, difficulty of trail, trail name, and key interpretative information.

Accessible Trail Loop

Adding a hard surfaced accessible trail loop came up at each session and was thought to increase access to the Sand Hills to all types of users, especially those with disabilities, aging popula-

tions, and families with young children. Since this trail will be fully accessible, it should have interpretative signage and connect to key educational program areas.



Master Plan Project List

*** projects not indicated on the map are spread throughout the entire Fertile Sand Hills Property***

Upper Campus Site and the RV/Camp Site are both recommended but require more detailed design

Signage

- 1 - Wayfinding
- 2 - AELC Campus Signage
- 3 - Interpretative Signage 1
- 4 - Interpretative Signage 2

Accessibility

- 5 - River Trail Outdoor Recreational Access Route
- 6 - Sand Hills Outdoor Recreational Access Route
- 7 - Improved Van Access along Perimeter
- 8 - Accessible River Access
- 9 - Information Plan
- 10 - Motorized Vehicle Access Policy

Facility and Grounds Improvements

- 11 - The Deck
- 12 - Existing Visitor Center Phase 1
- 13 - The Bridge
- 14 - Existing Visitor Center Phase 2
- 15 - Remote Support Buildings
- 16 - Camper Cabins
- 17 - Property Maintenance

Maintenance and Management

- 18 - Sand Dune Management Plan
- 19 - Prairie Management Plan
- 20 - Sand Hill River Management Plan
- 21 - Buckthorn Management Plan
- 22 - Bike Area Restoration Plan
- 23 - Regulations Enforcement Policy

PART 8 - DESIGN

Planning Statement

The design of the Master Plan for the Fertile Sand Hills focuses on increasing access to this unique ecological and recreational resource and providing improvements that connect all users to this environment. The design sets out to develop a vision that will help transform the Fertile Sand Hills strategically into a world-class park system. The plan carefully balances the Agassiz Environmental Learning Center’s mission to foster a greater awareness of the interrelationships between humans and nature with the City of Fertile’s continued commitment to conserve this landscape for long-time recreational use by local, regional, and global communities.

Regionally, the Fertile Sand Hills is a key connective landscape that helps link a network of prairie, oak savanna, dry sand prairie, and natural sand dune protected areas together including the Glacial Ridge National Wildlife Refuge, the Rydell National Wildlife Refuge, the Agassiz Dunes SNA properties, and the Prairie Smoke Dunes SNA. This plan seeks to leverage both the ecological value of the Fertile Sand Hills to these other protected landscapes as well as the collective value that this network of preserved prairie/dune places provides as a regional amenity to attract an extended group of users to the Fertile Sand Hills.

Through input from community workshops and ongoing planning conversations with regional land managers, county and state officials, and accessibility experts, the Master Plan has established a set of priority areas to focus on and lays out a set of near, mid, and long-term improvement projects to help guide the City of Fertile in reaching its goals. These priority areas include signage, accessibility, facility and grounds improvements, and ecological restoration and maintenance.

Plan Organization and Implementation

The design is organized into three sections. Section one is the most detailed and contains the largest number of projects. It organizes all of the near-term, small-scaled improvements that were identified and prioritized through the community engagement sessions to ensure safe use and increased access the FSH. Section two proposes a long-term transition of the Agassiz Environmental Learning Center campus away from its current location adjacent to the Sand Hill River toward an upper campus located on the ridge west of its current location. Section three proposes the long-term development of the open prairie area south of Summit Ave toward an RV and tent camping facility. This development will support the increased use of the FSH and to help generate revenue to support the increased maintenance costs of the property once the improvements from Sections 1 and 2 have been

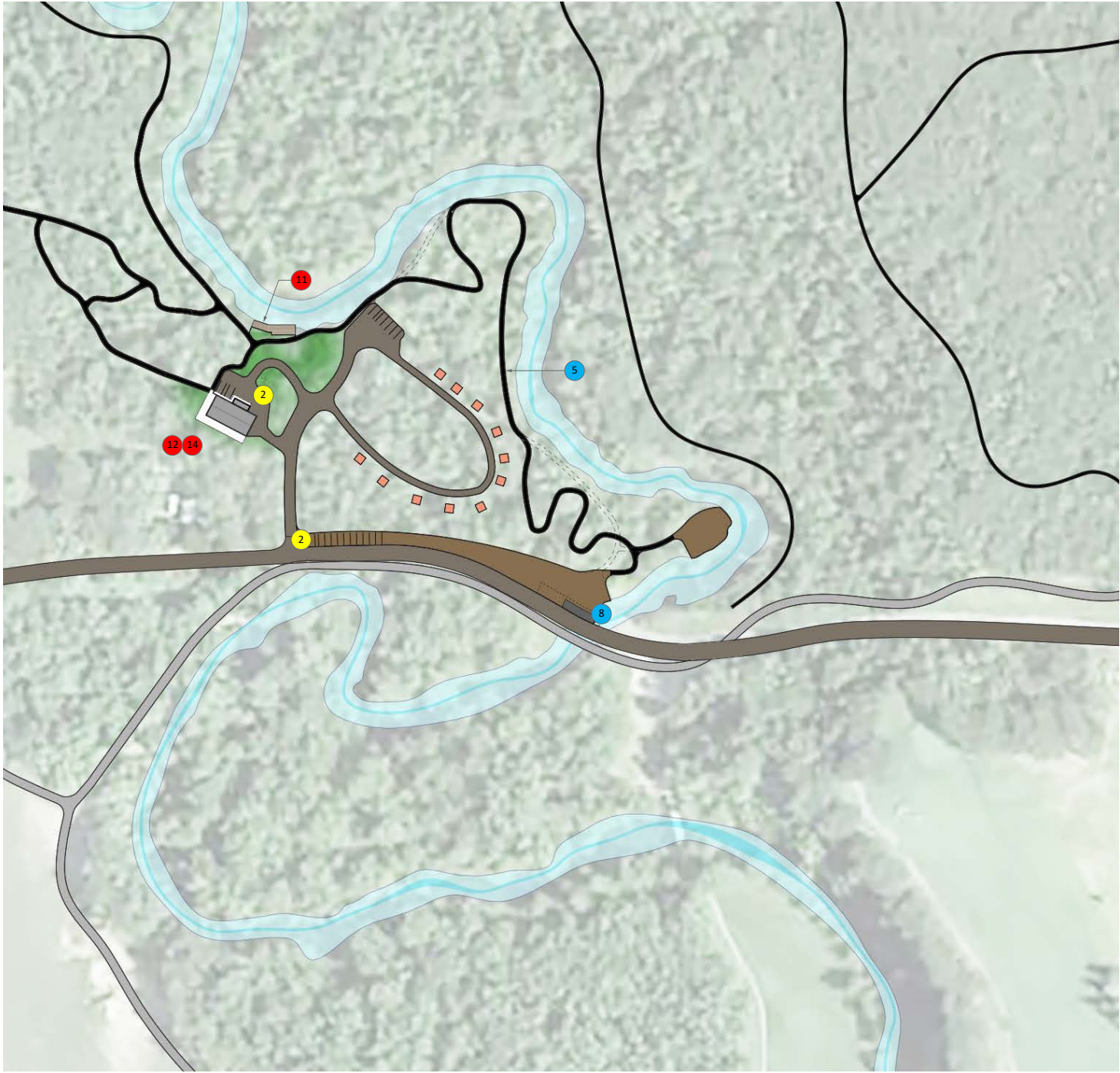
implemented. Section 2 & 3 provide only design outlines and general locations of improvements and are intended to be further development in the future with additional funding and in response to the implementation of Section 1.

Part 8.1 - Design Plan Section 1

Design Section 1 - Implementation and Budget Schedule

Project	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Signage											
Wayfinding	\$15,000	\$15,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000
AELC Campus Signage		\$25,000	\$25,000	\$25,000	\$25,000	\$500	\$500	\$500	\$500	\$500	\$500
Interpretative Signage 1	\$2,000	\$2,000									
Interpretative Signage 2	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000
Accessibility											
River Trail Outdoor Recreational Access Route		\$10,000	\$10,000								
Sand Hills Outdoor Recreational Access Route			\$5,000	\$5,000							
Improved Van Access along Perimeter				\$15,000	\$15,000						
Accessible River Access				\$15,000	\$15,000						
Information Plan	\$2,000	\$2,000									
Motorized Vehicle Access Policy											
Facility and Grounds Improvements											
The Deck	\$25,000	\$25,000									
Existing Visitor Center Phase 1	\$3,000										
The Bridge	\$25,000	\$25,000									
Existing Visitor Center Phase 2			\$25,000	\$25,000							
Remote Support Buildings		\$10,000	\$15,000	\$15,000	\$15,000	\$15,000					
Camper Cabins			\$50,000	\$50,000	\$50,000						
Property Maintenance	\$2,000	\$2,000	\$3,000	\$3,000	\$3,000	\$5,000	\$5,000	\$5,000	\$7,000	\$7,000	\$7,000
Maintenance and Management											
Sand Dune Management Plan	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000
Prairie Management Plan	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000
Sand Hill River Management Plan	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000
Buckthorn Management Plan	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000
Bike Area Restoration Plan	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000
Regulations Enforcement Policy	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000
Annual Totals	\$85,000	\$127,000	\$145,000	\$165,000	\$135,000	\$32,500	\$17,500	\$17,500	\$19,500	\$19,500	\$19,500
											\$783,000

Plan Implementation, Budget, and Maintenance Chart



Physical Masterplan - Enlargemnt at Agassiz Environmental Learning Center

Master Plan Project List

*** projects not indicated on the map are spread throughout the entire Fertile Sand Hills Property***

Upper Campus Site and the RV/Camp Site are both recommended but require more detailed design

Signage

- 1 - Wayfinding
- 2 - AELC Campus Signage
- 3 - Interpretative Signage 1
- 4 - Interpretative Signage 2

Accessibility

- 5 - River Trail Outdoor Recreational Access Route
- 6 - Sand Hills Outdoor Recreational Access Route
- 7 - Improved Van Access along Perimeter
- 8 - Accessible River Access
- 9 - Information Plan
- 10 - Motorized Vehicle Access Policy

Facility and Grounds Improvements

- 11 - The Deck
- 12 - Existing Visitor Center Phase 1
- 13 - The Bridge
- 14 - Existing Visitor Center Phase 2
- 15 - Remote Support Buildings
- 16 - Camper Cabins
- 17 - Property Maintenance

Maintenance and Management

- 18 - Sand Dune Management Plan
- 19 - Prairie Management Plan
- 20 - Sand Hill River Management Plan
- 21 - Buckthorn Management Plan
- 22 - Bike Area Restoration Plan
- 23 - Regulations Enforcement Policy

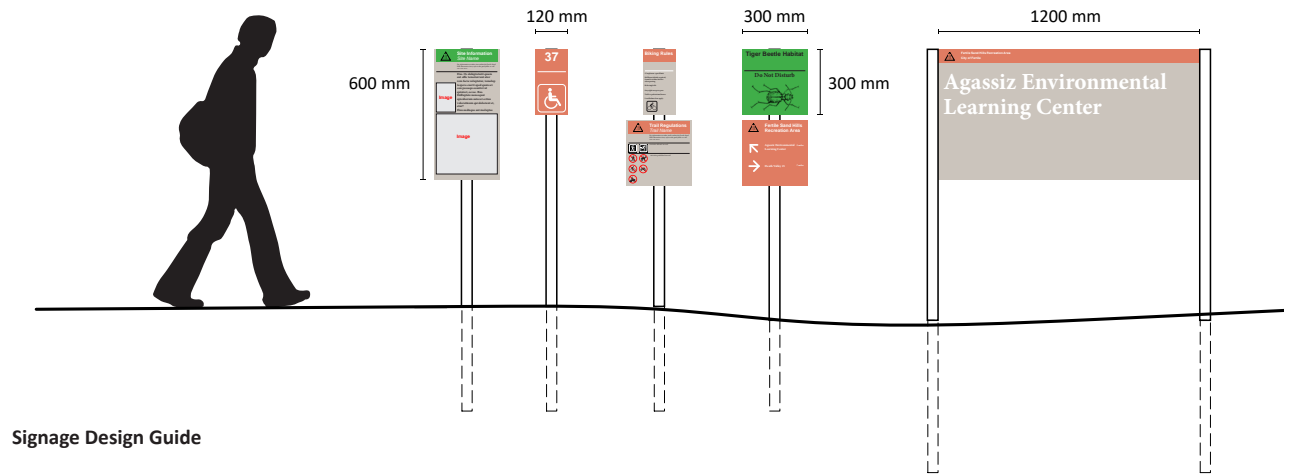


Planning team walking the property with accessibility specialist Corey Birkholz

Signage and Accessibility Projects

Given the unique beauty of this landscape, the community, planning team, and our accessibility consultant identified that improving communication and wayfinding is the highest priority improvement for the master plan. It speaks volumes of the property that improving the ways people learn about it and then better understand where and how to use it, eclipses any kind of natural or physical improvement to the property. The key challenge to this issue is also the Sand Hills' greatest asset - its unique terrain and distinctive biomes. This landscape makes it easy for users to get lost and because so many of the ecological interactions that people find throughout the property are rare and spark curiosity in the user, wayfinding information needs to be carefully placed and different kinds of information strategically deployed. Design Section 1 of this plan establishes 4 near-term signage projects:

1. Wayfinding
2. AELC Campus Signage
3. Interpretative Signage 1
4. Interpretative Signage 2



Signage Design Guide

Sign Project 1 - Wayfinding

Timeframe: 1-2 years

Budget: \$30,000 (\$1,000 annual upkeep there after)

Many existing users expressed difficulty in navigating the property and suggested that they would use the property more often if there was not the concern of getting lost. Others

expressed that they would use the trail system more if they understood more about the characteristics and difficulty of the existing trail system. This plan provides guidelines for an affordable wayfinding system that can be implemented immediately and continuously enhanced over time. The system uses the National Park Services UniGuide standards to determine user icons, fonts, signage layouts, and sign sizes (the UniGuide standard is attached as an appendix and should

be referenced for detailed sign design and construction). The wayfinding system contains the following sign types:

The way-finding system contains the following sign types:

1. Trailhead
2. Trail Regulations
3. Key Plans/Map
4. Informational Signs
5. Posted Trail Use Signs
6. Distance/Time Markers

Key information contained with these signs includes:

- a) Trail distances and time of travel
- b) Trail slopes
- c) Critical accessibility information
- d) Trail difficulty rating
- e) Maps – key plans
- f) Key attractions/Sand Hills natural history info
- g) User regulations and rules
- h) Trail use restrictions



Signage Project 2 - AELC Campus Signage

Timeframe: 2-5 years

Budget: **\$10,000** (\$500 annual upkeep there after)

Beyond the immediate priority of improving the overall quality of the Fertile Sand Hills wayfinding system, the team identified improving the signage at the Agassiz Environmental Learning Center campus as an additional near-term signage project. Improving the AELC signage will focus on communicating accessible parking and trail access, AELC facility rules, restrictions, payment



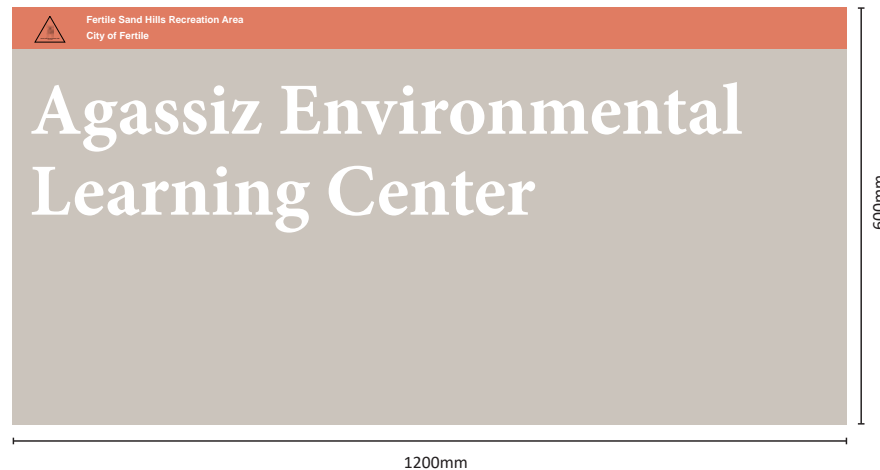
Above: Campus Signing Location

procedures, Fertile Sand Hills trail system, and will generally help to organize the grounds and provide guidance to users.

This campus signage package includes the following kinds of signs:

1. General Parking – (near road, turnaround, and camping sites)
2. Accessible Parking (adjacent to existing building, with directional info at the road)
3. User regulations and rules
4. Maps – key plans
5. Critical accessibility information

In addition to general signage, the plan also recommends that three large welcome signs be provided; one for the Fertile Sand Hills Recreation Area, one for the Agassiz Environmental Learning Center, and one for the Visitor Center. These three signs should be consistent in their design and should reinforce to visitors the mission, the regulations and rules of use, payment information, and the geography of the property. As new buildings and other physical improvements are implemented, similar signage should be included within their project scopes to further reinforce consistent messaging and branding.



Campus Signage Design Guide

Signage Project 3 - Interpretive Signage

Timeframe: 1-10 years
Budget: \$54,000

Interpretative Signage

Since much of the allure of the Fertile Sand Hills is the diversity and rarity of its biomes, there is both an opportunity and need to develop an extensive and ongoing interpretative signage program for the property. Unlike the previous two projects (wayfinding and campus signage) that, within the time horizon of this plan, are one-time investments with long-term maintenance requirements, this plan recommends that the interpretative signage program be approached

as a continuous improvement and budgeted for annual implementation.

Prior to developing any interpretative signage, the AELC Board, working closely with its director of education and other key partners, should develop an interpretative signage plan that specifies and prioritizes key places, biomes, animals, plants, habitats, etc. that require interpretative signage. This plan should be reviewed and updated regularly so that signage responds to dynamic conditions of the landscape and public trends that would attract more users.

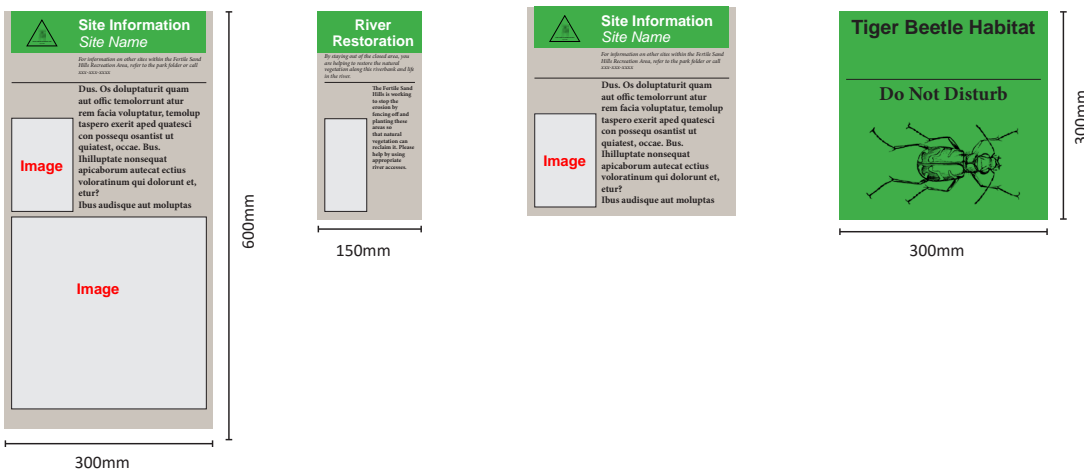
Community Interpretive Signage

This plan recommends that AELC develop stra-

tegic relationships with education, recreation, and accessibility partners to help fund this effort and to develop signage content. Both the Fertile Beltrami Schools and the University of Minnesota-Crookston Campus are local institutions that would benefit directly from this signage. The ongoing signage program can leverage both service and research approaches to meet the needs of its partners.

Since these signs will incorporate student and/or community participation in their design, fabrication, and installation, and will provide a different function than the signage outlined in Signage Projects 1+2, the designs should have a unique and flexible aesthetic character. However, as with other signage installed at the Fertile Sand Hills, the design of all signage should reference the National Park System UniGuide standard for layout and sizing to ensure legibility, accessibility, and durability.

This plan recommends that approximately three interpretative sign packages be produced each year and that no less than \$2,000 be allocated to educational programming, design, and fabrication and installation of each signage package. Long-term financial planning for this effort will ensure design quality, durability and that the community is engaged in this project year to year.



Interpretive Signage Design Guide

Accessibility Projects

Throughout the planning process, all of those who participated prioritized increasing access to the Fertile Sand Hills to a more diverse group of users. Access to quality outdoor experiences means different things to different user groups, and while increased access was universally agreed upon, the nature of this access was not. The recommendations for increasing access to the Fertile Sand Hills carefully considers State and Federal accessibility regulations and guidelines, the nature of the City of Fertile's purchase agreement for the property, the ideas and recommended improvements put forth by the community, and the mission of the Agassiz Environmental Learning Center. This plan proposes an incremental strategy for improving access, identifying several 1-2 year projects that can be funded and completed independent of one another and establishes a set of policies for landscape, building, and user access that can guide the ongoing improvement of the Fertile Sand Hills.

Accessibility Projects

1. Outdoor Recreation Access Routes (ORAR)
2. Improved Van Access along Perimeter
3. Accessible River Access
4. Information Plan
5. Other Power-Driven Motored Vehicle Access Policy



Existing Trails

Accessible Trails

The Fertile Sand Hills currently have over 10 miles of public trails, but not none that are fully accessible. Throughout the community workshops, participants identified that an existing trail should be made fully accessible. Working with the Options Interstate Resource Center, the planning team walked the property and identified two existing trails for improvement (report from Options attached as an appendix). For these trails to be made accessible, the following improvements need to be made:

1. Trail slope in the direction of travel shall be between 5-8% grade (10% grade for a max 30',

- 12% grade for a max 10')
2. Trail cross slopes shall be a max 2 %.
3. Improve surfaces to have a firm and stable surface year round (cement, asphalt, hard packed dirt, and hard packed aggregate).

The two routes selected (and shown on the following page) where chosen based on their anticipated ease of improvement and their connectivity to the widest array of natural assets.

Accessibility Project 1 - River Trail Outdoor Recreational Access Route

Timeframe: 2-5 years

Budget: \$20,000

The first proposed accessible route is located on the north side of Summit Ave. The route meanders along the Sand Hill River, through the existing campgrounds, out onto Summit Ave., back through the Nature Center grounds, and then loops west to the prairie restoration area before returning back to the visitor center. The route provides accessible connections from the visitor center and its (proposed) accessible parking spaces to the river deck, campgrounds, (proposed) accessible river access launch, and the prairie. The slope along the existing trail varies between 0-17%. Trail improvements will follow existing natural site contours rerouting the existing trail to meet grading requirements.

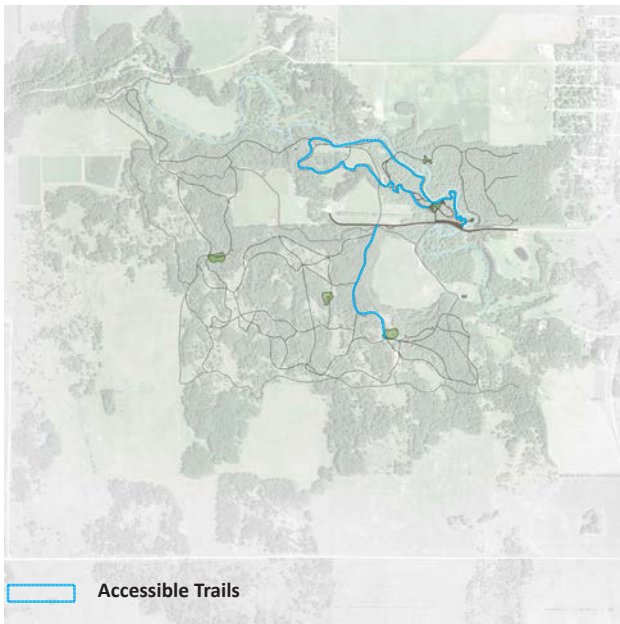
Surface improvements will have to be applied along the trail, as its rerouting will run on top of organic soils.

Accessibility Project 2 - Sand Hills Outdoor Recreational Access Route

Timeframe: 2-5 years

Budget: \$10,000

The second proposed accessible route is located on the south side of Summit Ave., connecting the existing Sand Hills trailhead to Death Valley 1. The accessible route will follow the existing trail along the ridge overlooking the prairie blow, meandering through the Oak Savanna out to the Death Valley 1 and then circling back along the same route. Specialized beach wheelchairs and wheelchair matting will need to be used at Death Valley 1 to get individuals into the dunes. Trail improvements will follow existing natural site contours rerouting the existing trail to meet grading requirements. Surface improvements will have to be applied along the trail, as its rerouting will run on top of organic soils.



Above: Proposed Trail Improvement Areas
Opposite Page: Accessible Trail Design Guidelines



- Water Trail (kayak, canoe, tube)**
- 1) River defined
 - 2) Landing access points
 - 3) Obstacle Clearing required

- Trail type 1 (Generally accessible)**
- 1) Soil stabilize surface (class 2 agg., asphalt, conc)
 - 2) Path Width: 4' - 6'
 - 3) Path Grade: Typ. running slop no greater than 1:20 (5%); and a cross slope no greater than 1:50 (2%)
 - 4) Maximum running slopes:
 - 1:12 (8.3 %) for 200' w/ resting intervals
 - 1:10 (10 %) for 30' w/ resting intervals
 - 1:8 (12.5 %) for 10' w/ resting intervals

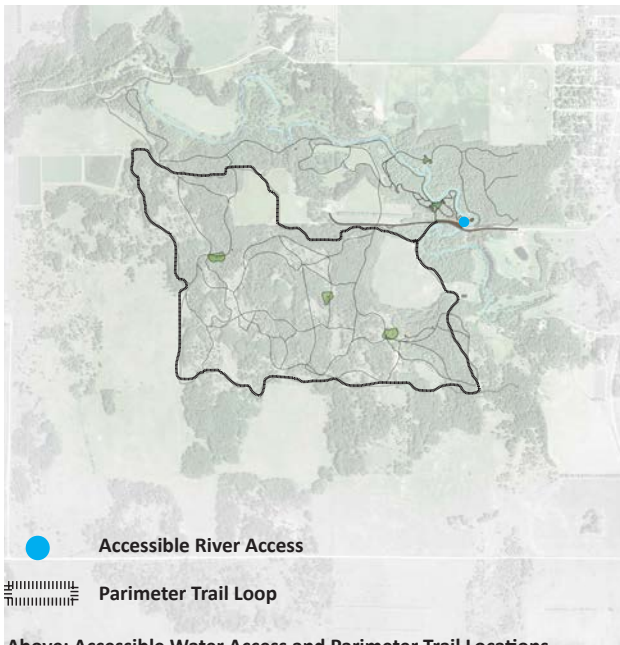
- Trail type 2 (defined by specific user groups)**
- 1) Minimal Landscape Modifications
 - 2) Path Width: 2' - 6'
 - 3) Possible soil stabilized surface (class 2 agg.)
 - 4) User defined route and trail characteristics

Accessibility Project 3 - Accessible Van Access Along Parimeter Trail

Timeframe: 4-5 years

Budget: \$30,000

Since the City of Fertile maintains a vehicle accessible perimeter trail through the Sand Hills for fire department access and snowmobile use, this plan recommends discretely amending this trail near key natural features with accessible pull-off areas to improve van accessibility for the educational programs of the AELC.



The pull-off areas should meet the following accessibility standards:

1. Minimum 16' wide
2. Firm stable surface (hard packed dirt or hard packed aggregate)
3. 2% slope

Accessibility Project 4 - Accessible River Access

Timeframe: 4-5 years

Budget: \$30,000

One of the most important natural assets to the area is the Sand Hill River, which currently cuts through property and once helped form the Fertile Sand Hills. The growing local and regional interest in river recreation is an opportunity to attract more users. Several recent river clearing and restoration projects have made stretches of the river near the Fertile Sand Hills ideal for water recreation and the AELC maintains a fleet of kayaks that it rents to visitors. The AELC also uses the river in its educational program to teach about invertebrates and riverine systems.

Improved access to the river will improve both AELC's educational programming and well as increase recreational use of the Sand Hill River. Working with Options and the West Polk County Soil and Water Conservation District office it was

established that proposing an accessible water access on the west side of Sand Hill river on the north side of Summit Ave would be the most visible. Locating the access here would conveniently connect it to accessible parking and to the (proposed) River Trail Outdoor Recreational Access Route.



Accessible water access example.

Accessibility Project 5 - Motorized Vehicle Access Policy

Timeframe: 1 year

Budget: \$0

At public information sessions and workshops it was expressed by the community that there was a desire for people with limited abilities to have better to access the Fertile Sands Hills and that this could be aided by motor-driven mobility

devices (ATVs). Publicly opening the Fertile Sand Hills Recreation Area to ATVs and other personal recreational vehicles would present a significant change of use to the property and is not aligned with the city’s original purchase agreement with the federal government. Thus, this plan does not recommend open public ATV use on the Fertile Sand Hills. However, this plan does recommend that City of Fertile adopt regulations consistent with the MN Department of Natural Resources Commissioner’s Order on “Compliance with Federal Americans with Disabilities Act” dated December 27, 2017 which establishes guidelines for granting permission to persons with disabilities to operate motor-driven mobility devices on lands where such devices would otherwise be restricted.

Given the sensitivity of the natural features and biomes present within the Fertile Sand Hills, this policy should restrict access to the “Perimeter Trail” loop, which already allows limited vehicle access for emergency personnel. The type of motor-driven mobility devices should also be restricted to type-1 ATVs and electric golf carts. The policy should explicitly state permitting requirements, safety regulations, noise restrictions, and enforcement protocols.

The policy should also provide regulations and protocols for reviewing applications for special-use permits to use motor-driven mobility devices for maintenance, AELC programming, City

programming, and special events programming by the City of Fertile, the AELC, and other groups.

Facilities and Grounds Improvement Projects

In order to increase use, improve the AELC’s educational mission, and diversify the Fertile Sand Hills recreational experience, there are several physical improvements to the property that need to be undertaken. This plan identifies a set of discrete projects that address immediate safety concerns,

near-term accessibility goals, and a long-term vision for creating a facility that meets the educational needs of the AELC while also providing a world-class visitor experience.

Facilities and Grounds Improvement Projects:

1. The Deck
2. The Bridge
3. Existing Building Phase 1
4. Existing Building Phase 2
5. Remote Support Buildings
6. Camper Cabins



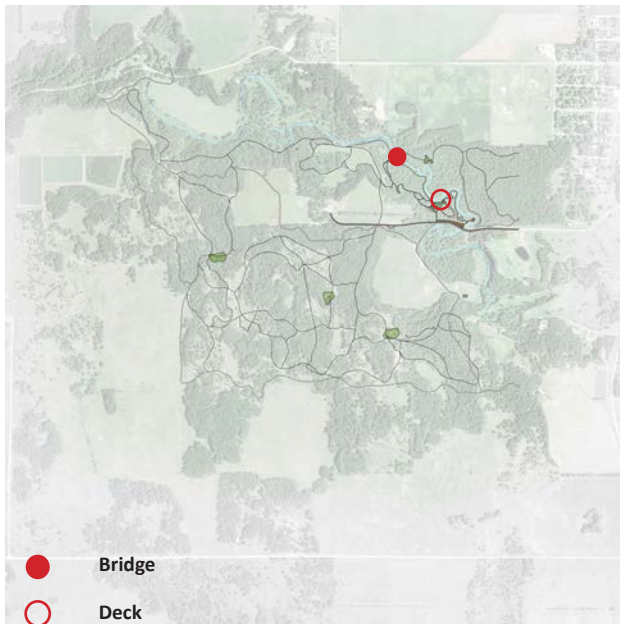
Canoes at the AELC building

Facilities and Grounds Project 1 - The Deck

Timeframe: 1-2 years

Budget: \$50,000

The deck over the Sand Hill River is a unique and exciting vantage point to view the river. However, improving this amenity is a near-term priority due to safety and accessibility concerns. Strategically this improvement will need to occur prior to the River Trail ORAR (Accessibility Project 2.1) because the equipment needed to stabilize and reconstruct the deck will disturb any trail surface improvements



Deck and Bridge Locations

made prior. Once improved, the deck will provide a safe and accessible outdoor classroom, a shaded picnic area, and scenic river overlook.

Deck Improvements should include:

1. Stabilized structure – the current deck is shifting out over the river. The structure needs to be pulled back to square (if possible) and stabilized with bracing and/or other structural improvements.
2. Driveway removal – the existing drive that loops around near the deck should be removed and increased vegetative buffer and proposed ORAR should be constructed.
3. Extend and improve vegetative buffer surrounding the deck to minimize runoff.
4. Existing ramp is too steep and will need to be reconfigured to meet ADA requirements (maximum slope 1:12). The top of the ramp should end at the western edge of the deck platform (this is nearer to the ground and will in turn reduce the overall ramp length). This reconfiguring will connect the deck to the existing visitor center and fire pit area freeing up the area in front deck;
5. Stairs on the deck should be constructed as a design element that provides seating and rest areas. This will transform the area in front of the deck into a stage that can be taught from.
6. Install new ADA compliant guardrails and decking throughout.
7. Remove existing vertical poles from deck corners lowering the overall profile of the deck and simplifying its aesthetics.

8. Construct covered canopy (3-400 ft²) to provide formal outdoor teaching space on deck.
9. Post “No River Access” sign at deck limiting pedestrian movement down to the river and reducing shore erosion at the deck location – direct those wanting river access to (proposed) accessible river access near Summit Ave.

Facilities and Grounds Project 2 - The Bridge

Timeframe: 1-2 years

Budget: \$50,000

Improving the bridge that crosses over the Sand Hill River northwest of the Visitor Center is a near-term priority due to safety and accessibility concerns.

Bridge improvements should include:

1. Structural Inspection
2. Repaint bridge
3. Replace boards on bridge surface (Max distance between boards ½”)
4. Install code compliant guards (34-36” tall, spacing between rails max 4”)
5. Improve threshold transition between bridge surface and shoreline (current threshold is approx. 4”, should be between 1/2” - ¼”)

If the structure inspection reveals the bridge is beyond repair, remove and replace bridge.

Facilities and Grounds Project 3 - Visitor Center Phase 1

Timeframe: 1 year

Budget: \$3,000

The existing Visitor Center can be made more accessible by implementing several minor improvements.

The following improvements should be made as soon as possible:

1. Improve entry thresholds with walk-off mats to decrease threshold clearances (current threshold is 1-½", should be between ½" - ¼")



Location of existing visitor center

2. Replace rounded door knobs with lever handles
3. Post two accessible park spaces and one accessible shared isle at the existing front entry for the visitor center (total area required 24'-18, with firm stable surfaces and signage). Retain a 12' set back from existing building for (proposed) entry improvements.
4. Post accessible parking space sign on Summit Ave and provide directional signage to the spaces near the building.

Facilities and Grounds Project 4 - Visitor Center Phase 2

Timeframe: 1 year

Budget: \$48,600

It was identified in planning meetings that improving the main entry to the existing Visitor Center would greatly improve the building's functionality. As currently configured, the existing entry does not have a vestibule and opening the exterior door in the winter causes excessive heat loss making the main room of the building uncomfortable for its users. There is an opportunity to create a cold weather entry near the existing front door and incorporate into this entrance feature an interim front desk area to also help with visitor check-in, payment, and information distribution.

Entry should include:

1. Entry vestibule – approximately 200 ft2 with two separate exterior doors to separate the

2. Check-in counter with locked pay box.
3. Visitor information station.
 - User regulations and rules
 - Maps – key plans
 - Critical accessibility information
4. Lockable storage space for equipment rental.

Facilities and Grounds Project 5 - Remote Support Structures

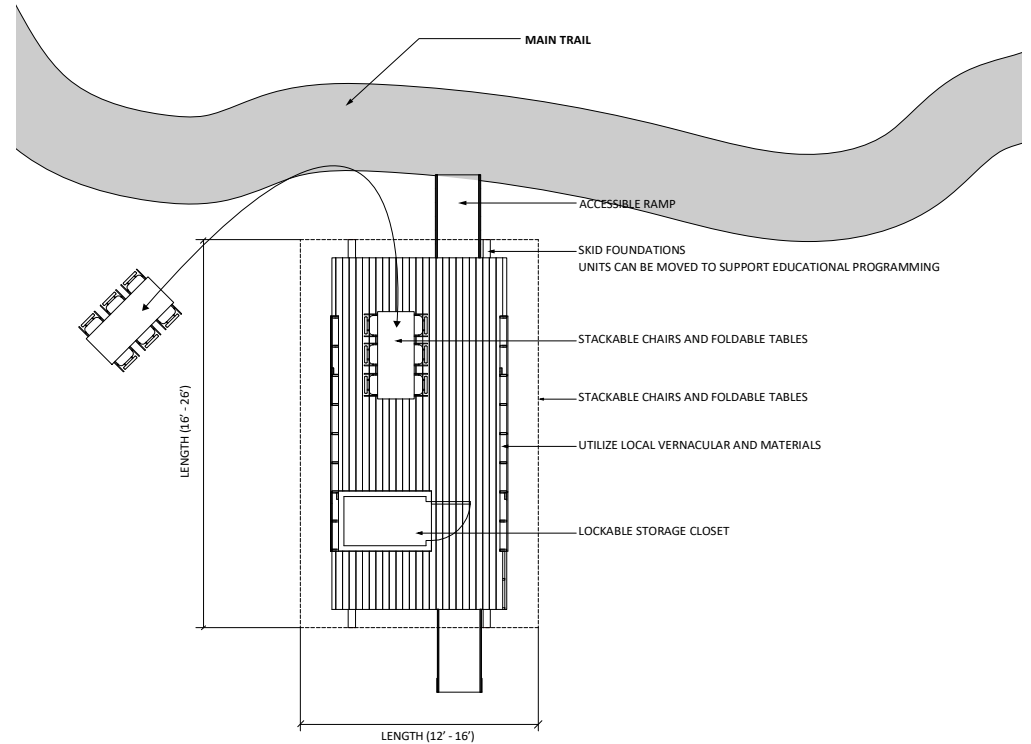
Timeframe: 3-10 years

Budget: \$100,000

At community workshops it was expressed that a series of small shelters spread across the property would help support recreation and educational programming and would allow more people to venture deeper into the Fertile Sand Hills safely and comfortably. Given the sensitivity and dynamic nature of the landscape however, permanent structures would produce too much of an impact and would not be flexible enough to support the educational



Locations of proposed remote support structures



Remote support structure design guide

programming of the AELC.

This plan proposes developing 4-5 small portable structures that could be strategically throughout the Sand Hills to provide rest areas, outdoor classrooms, and camper cabins. The small portable buildings should be aesthetically simple, filled with natural light, and should connect conceptually with the material palette of Fertile Sand Hills region.

Placement of these structures should be along longer trail routes and/or the landscape that offer unique teaching opportunities. The structures should be moved, at a minimum, annually to prevent them from becoming permanent and to provide new user experiences.



Rendering of remote support structure

Facilities and Grounds Project 6 - Camper Cabins

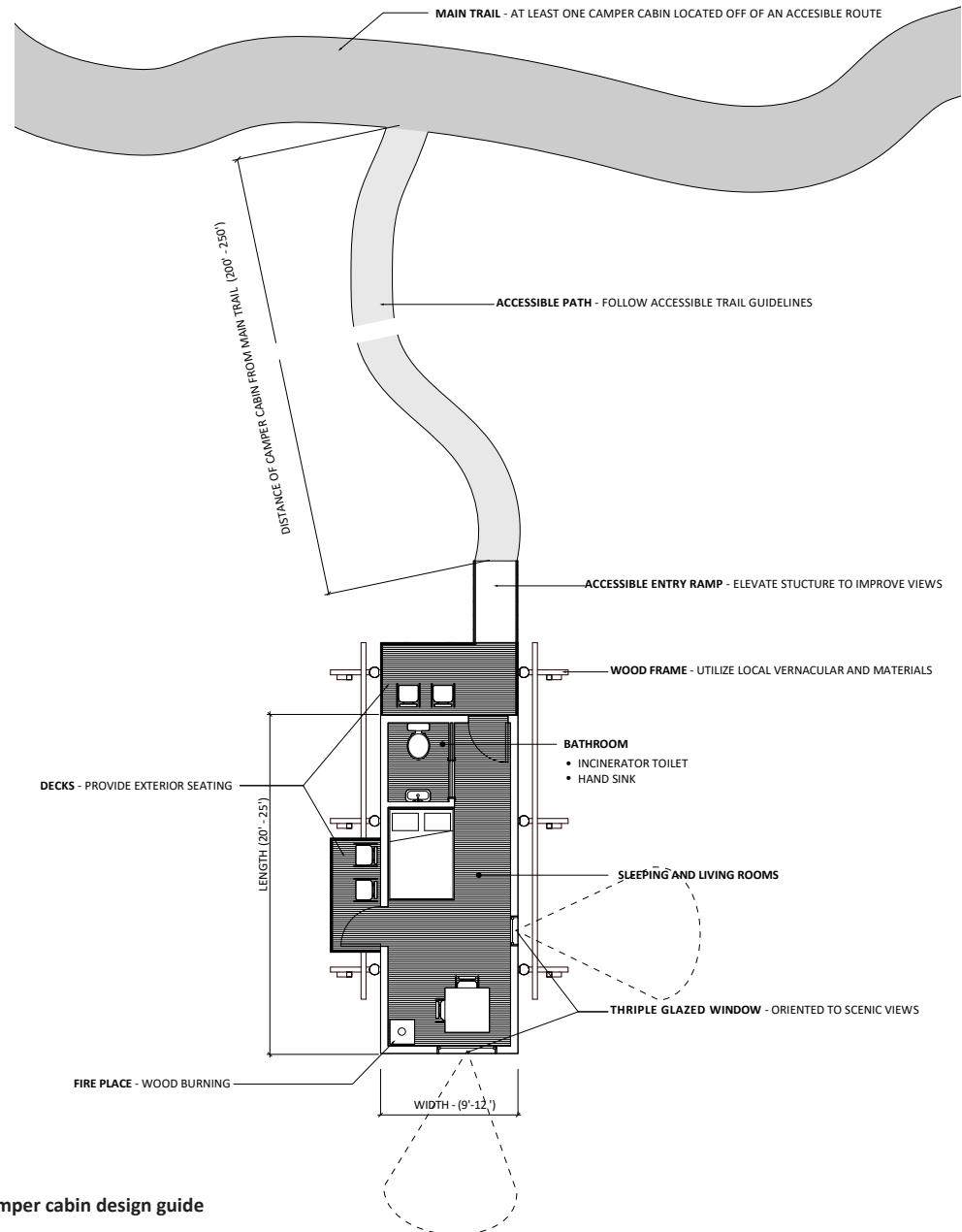
Timeframe: 3-10 years

Budget: \$150,000

At community workshops it was also expressed that a series of small permanent camper cabins spread across the property would help generate revenue for the FSH as well as diversify the kinds of camping/lodging available in Fertile and the area.



Locations of proposed camper cabins



Camper cabin design guide

The camper cabins should provide a modest level of accommodation including toilet, water, heat and power for those who rent them. The structures should be compact in their design to minimize both up front costs as well as to minimize their impact on the landscape. Select structures should be accessible to all users and should be accessible from the accessible routes outlined above with access paths to them following the guidelines for accessible trails and utilizing ramped entries.

Designs for the camper cabins should be varied to provide unique lodging experiences to incentivize repeat use. In order to capture the most expensive view the structure should be elevated off the ground and sited to frame key landscape oriented views. The structures should utilize local materials and local vernacular patterns and should share a “design” language with other structures developed at the FSH.



Rendering of camper cabin

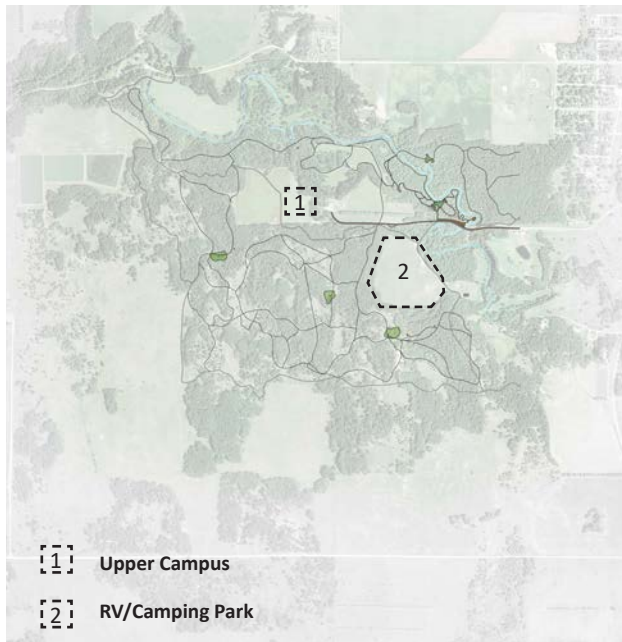
Part 8.2 - Design Plan Sections 2 & 3

Sections 2 & 3 to be further developed in the further responding to the implementation of Section 1 of the plan.

Section 2 - Upper Campus Transition

Given that existing the building is located within the floodplain, extensive funding should not be placed into the existing building as it does not meet accessibility standards, was not designed for these functions, and is sustainably located.

As the Fertile Sand Hill's becomes better known



and its use increases, additional building assets will be needed to facilitate the educational mission of the AELC and the recreational use of the property. This plan proposes constructing a new educational building, similar in size to the existing Visitor Center (approximately 2000-2500 ft²), to enhance the teaching capacity of the AELC and then to designate the existing building solely for administration and visitor center use. This building will be separate from the existing Visitor Center and will be designed to support nature-based teaching. Programmatically, it will provide a large open teaching space that can be converted into two smaller teaching spaces, two fully accessible bathrooms, office space for two full-time teaching faculty, and storage for teaching equipment and props. The building should be aesthetically simple, filled with natural light, and it should connect conceptually with the material palette of Fertile Sand Hills region.

Classroom building should include:

1. 1500ft² of nature connected teaching space.
2. 250ft² for two faculty offices.
3. 200ft² for storage space.
4. 300ft² for bathrooms.
5. 250ft² for elevators and lobby

In addition to the teaching assets of the new classroom facility, the Fertile Sandhills should update its visitor center experience. A second building, approximately 3000 ft²) should

be designed and newly constructed as a second phase to the new classroom building. This building should house a visitor center program as well as administrative spaces for Fertile Sand Hill Staff. Like phase 1, the building should be aesthetically simple, filled with natural light, and it should connect conceptually with the material palette of Fertile Sand Hills region.

The Visitor Center Building should include:

6. 1500ft² of nature center and gallery space
7. 750ft² for administrative offices
8. 200ft² for storage space.
9. 300ft² for bathrooms.
10. 250ft² for Elevators and Lobby

Section 3 - Prairie RV and Tent Camping

At community workshops it was also expressed that there was a general lack of lodging amenities in the area and that developing the portions of the management prairie south of Summit Ave, into an RV and tent camping facility would help generate revenue for the FSH as well as diversify the kinds of camping/lodging available in Fertile and the area.

The facility should provide at maximum 30 RV lots approximately 50' by 100' with pull through access. Power and water infrastructure should be run to all RV lots. In addition a picnic and bathroom facility should be built to support the

camping program and also double as a storm shelter for those camping.

In addition to RV camping, 30 tent camping sites should be developing on the fringe of the prairie to support those interested in that form of camping. A second bathroom/storm shelter facility should be constructed to support these campers. Like other building developed at the FSH, the structures should be compact in their design to minimize both up front costs as well as to minimize their impact on the landscape. All structures should fully accessible to all users. Designs for support buildings should utilize local materials and local vernacular patterns and should share a “design” language with other structures developed at the FSH.



Right - Management burn of prairie/suggested location of future RV/camping park.



Civilian Conservation Corp group clearing snags in the Sand Hill River

PART 9 - MANAGEMENT, OPERATIONS & ECOLOGICAL RESTORATION

In order to preserve its ecosystems the Fertile Sand Hills requires a great deal of landscape management and infrastructural maintenance. With over 10 miles of seasonal trails and an educational facility on site, there are substantial amounts of building, trail, and signage upkeep needed to ensure that the Fertile Sand Hills and the AELC are safe and operational.

The Fertile Sand Hills is rich in ecological diversity that intertwines three of the four Minnesota biomes all within its site limits: tallgrass aspen parkland, deciduous forest, and prairie grassland. Most environmental restoration and management processes at the Fertile Sand Hills consist of long-term projects that span several years. Trail maintenance and grooming vary by use and by season. Building facility and site maintenance are incremental with seasonal, annual and long-term projects. This plan identifies three different maintenance regimes: ecological restoration and management, trail and site maintenance, and facilities and infrastructure maintenance.



Right - City of Fertile Fire Department conducting a management burn

Sand Dune Management Plan

Timeframe: Long-Term

Budget: \$1,000 annually

Two sites at the FSH are designated open-sand areas – remnants of the sand dunes created thousands of years ago when Lake Agassiz drained into Hudson Bay – where extensive maintenance is needed to keep areas clear and clean of invasive species that could disrupt the habitat. Clearing Creeping Juniper from the open sand areas is an ongoing management project. In addition, felling trees (grooves of aspens or other large trees) in the path of prevailing winds helps improve the wind circulation and sand movement in the dunes.



Above - Wendell Johnson spraying for invasive species
Right - Fertile High School students maintaining open sand dune habitat.



Prairie Management Plan

Timeframe: Long-Term

Budget: \$1,000 annually

Prairie ecosystems are a focal point of the educational programming offered by the AELC and an important regional environmental asset. Unique to its ecology, prairie restoration relies on controlled burns to counter invasive plant species and to reseed grasslands that are endangered.

At the Fertile Sand Hills, maintaining the properties of prairies through prescribed burns has been an ongoing management effort since 2004 when areas of the grasslands were still covered with Bromus and Quack grass. The MN DNR and The Nature Conservancy are key partners to the FSH to assist with surveys, records, site mapping, and address the conditions under which prairie burns can take place.



Above - Wendell Johnson inspecting prairie planting
Right - City of Fertile Fire Department conducting a management burn



Sand Hill River Management Plan

Timeframe: Long-Term

Budget: \$1,000 annually

Throughout the 1950s, the Sand Hill River was subject to various changes to slow the flow of water, reduce erosion and flooding. Four concrete structures were installed to mitigate such issues, but did not have the anticipated results. Instead, over time, several environmental issues arose including preventing fish from accessing a prime spawning habitat in the beach ridge area.

The Sand Hill River Watershed District released a report revealing the origin of this and other environmental concerns along the Sand Hill watershed. It was stipulated that conditions in the watershed were posing a threat to aquatic wildlife as free passage throughout was interrupted by the concrete structures. Funding for the restoration of this habitat was made available from Minnesota's Clean Water, Land and Legacy Amendment, Minnesota Board of Water Soil Resources' Clean Water Fund, Sand Hill River Watershed District (SHRWD), and the Enbridge Eco-footprint Grant. The City of Fertile helped with carrying out this project, which encompassed the installation of rock riffles bordered with riprap that successfully replaced the concrete structures. The riffles were install at a slope that fa-

cilitated the passage for fish to make their way to spawning and rearing habitat. *improved the river for kayaking and paddling. In addition to fish habitat restoration, snag clearing efforts has also*



Right - Kayak on the Sand Hill River

Trail and Site Maintenance

The City of Fertile and volunteers provide current trail maintenance for the Fertile Sand Hills. As use of the property increases, funding should be secured to hire a full-time maintenance employee to maintain the property. This staff member would mow, groom, and remove debris trails; support long-term ecological restoration and maintenance projects; support setup for educational programming and special events; maintain campsites; and provide regular maintenance to building facilities and site features.

Within this general trail and site maintenance plan, specific plans should be developed for:

Bike Area Restoration Plan

The Fertile Sand Hills needs to address the safety and erosion issues with mountain biking trails north of Summit Ave. Trail design guidelines and a review process needs to be developed to control the unplanned development of the mountain biking trails on the Fertile Sand Hills.

Regulations Enforcement Policy

The FSH will work with the City of Fertile and Polk County to develop clear regulations and an enforcement policy for the Fertile Sand Hills.

Right - Cross Country ski grooming



Agassiz Environmental Learning Center Committees

To help facilitate the development of detailed management and operational planning the AELC has established several committees through its executive board to spearhead these efforts. These committees include:

Education/Programs/Special Events

This work group will be involved with oversight of education programs offered by the AELC including environmental education, recreation, wellness, community programs and special events. The AELC Education Program Director will serve as the Chairperson of this group.

Activity areas for consideration:

- On-site programs—schools primary audience including after school programs
- Off-site programs—library presentations, other...
- Community Programs
- Interpretive signage and materials
- Wellness
- Special Events (Earth Day/Pasque; Summerfest; 3D Archery Shoot; Haunted Trails; River of Dreams, etc.)
- Volunteer recruitment and management

Site Management

This work group will assess the status of the natural resource base and site conditions to determine needed improvements to fulfill the purpose

of the AELC and safely meet the needs of site users for both education programs and recreation opportunities. Special emphasis will be placed on maintaining and improving the unique ecological features of the site and working with the various user groups to minimize potential incompatible uses.

Activity areas for consideration:

- Ecosystem Restoration: dune opening/juniper removal/prescribed burn schedule
- Prairie Restoration: establishment and ongoing maintenance
- Trail System Development and Maintenance; signage/wayfinding
- Property boundary issues: She Devil area; River Trail; Strem field crossing
- Assessment of handicap accessibility including hard-surfaced trail option(s)
- Campground and amenities: current and future layout; picnic tables; fire rings; bathroom access; ...
- Kayak: tree snagging/beaver dam control/accesses
- Buckthorn control
- Aspen mgmnt (prescribed burns, blowdown response...)

Finance/Fundraising

This work group will review AELC financial needs and assist in development of options for generating revenues to support operations of the AELC including facility development and maintenance, program delivery, and recreational services. This

includes but is not limited to memberships, donations, endowments, capital campaigns, grants, program fees, gift shop, and other possible revenue streams.

Activity areas for consideration:

- Membership/Donations/Endowments
- Grants
- Program fees
- Gift shop
- Haunted Trails
- Building Capital Campaigns

Recreation/Wellness

This work group will identify the recreation/wellness opportunities possible by use of the Fertile Sand Hills area and AELC programs, including users from the local area and beyond. Input from trail user groups will inform decisions for sustainable site management and avoidance of conflicts between user groups.

Activity areas for consideration:

- Trails: delineation for different uses and needs of each user group
- Trailhead development; parking (including river trail accesses/parking)
- Signage: directional and interpretive; use of QR codes
- Signage of distances and estimated time to encourage people to hike/snowshoe/ski/paddle trails
- Develop separate trails for winter hiking/snow-

- shoeing vs skiing to avoid conflict
- Mountain bike trail—status for ongoing maintenance; liability; trash issues
- Kayaking: rentals, maintenance of kayaks/equipment, river trail snagging, river access development
- Work with PE programs in schools and summer recreation to encourage use of site for physical activity
- Develop/promote “Fertile Fit” program with Sand Hills as option to meet fitness challenges in program
- Partner with walking and running groups to use site for events; e.g. Red River Valley Outdoors, <https://www.meetup.com/Red-River-Valley-Outdoors/events/>.

Marketing

This work group will assess opportunities to present the AELC/Fertile Sand Hills in a positive way to the Fertile community and a broader regional and multi-state audience. This may include, but not limited to, audience identification, site attractions, marketing materials, social media, etc.

Activity areas for consideration:

- Identify audiences and best options for reaching various audiences
- Identify ways to improve attractiveness of site and its marketing materials including art features
- Regular article/photo in Fertile Journal
- Web presence
- Social media presence: Facebook, Instagram,

- Snapchat, Twitter, hashtags, blog
- QR codes
- Video productions
- Print materials for distribution
- Polk County Fair presence
- Gift shop (membership perks)

Youth Engagement (also consideration of Elderly Engagement)

This work group will explore opportunities for youth to be involved in planning, implementation, marketing, and use of programs and activities at the AELC/Fertile Sand Hills.

Activity areas for consideration:

- School involvement in after school programs; early childhood development; ...
- Assist with site management: buckthorn control; pollinator garden; nesting boxes; signage...
- Assist with communications/marketing: website; social media; video productions; oral histories ...
- Integration of nature based education into school curriculum

Operations Planning

The key day-to-day processes that the center will perform after completion of master plan phases are described below.

The organization plans to continue offering a quality volunteer experience and using trained docents for a variety of tasks. In addition the organization has a long standing partnership with Job Council and em-

ployes one to two part time individuals throughout the year. Teen group volunteers and College Dream participants are also part of the volunteer staffing.

- Exhibit Development: Exhibits are an on-going process of evaluation, maintenance and innovation. Some exhibits are maintained by groups of volunteers and others by part time staff.
- Sales: Trained Volunteer Docents and some Part time Staff greet customers, accept fees, sell gift items, and also assist with tours.
- Hours: The center will be open 7 days a week during most of the year, 10 am to 5 pm.
- Marketing: Marketing is maintained by the executive staff.
- Finance: The executive staff, under over sight from the board, maintains records, creates financial planning, makes day-to-day decisions and oversees a bookkeeper.
- Administration: Executive staffing maintains administrative duties as described in the organizational chart.
- Property maintenance: A property manager maintains trimming, lawn clipping and plant care as well as minor repairs and construction. This individual may be an on-site shared work volunteer or paid staff.
- Programs: A Programs Coordinator will maintain program outreach and activities.
- Development: Currently part of the executive duties, a Development Coordinator will eventually be hired to seek grants and do other activities including Donor Relations

Staffing Plan

Year 1-3

- 1-2 staff
- o ¾ time education staff
- o Part time/as needed maintenance staff

Staffing concerns: as construction begins an additional staff member will be needed to help with continued programming set up and tear down as this will become more difficult if the building is not available. Temporary structures, such as tents, may be necessary to facilitate programming. In this year begin to set up a more extensive volunteer network and create an intern program to assist with programming.

Year 4-6

- 2-3 staff
- o ¾- full time education staff
- o Part time maintenance and grounds staff
- o Part time visitor center employee

Staffing concerns: Accessibility and visitor center projects will be completed in this timeline.

Year 7-9

- 3-4 staff
- Full Time: Educator, grounds/site maintenance
- Part Time visitor center attendant
- Seasonal educator

Staffing Considerations: All buildings and classrooms to be finished by this time,

so maintenance and program needs will be greater.

Year 10-12

- 4 - 5 staff
- Full Time: 1 Educator, 1 grounds/site maintenance, 1 janitorial/building maintenance
- maintenance
- Part Time: Visitor center - this employee's hours may adjust as the
- seasonal needs fluctuate
- Seasonal: 1 educator, additional grounds/site maintenance as needed
- Other positions to consider: executive director

Revenue and Economic Development

Achievement of our strategic priorities will not be possible without the human and financial resources to execute them. Our mission is dependent upon the right staff, infrastructure, systems and investments to protect, preserve and enhance AELC. Through this planning process, we are not only identifying goals and strategies but also assessing the financial resources needed to the success of the strategic and master plans.

Existing and Potential Sources of Revenue

Education

School/group field trips

Library programs

Outreach programs

Naturalist Training Program

Nature preschool

Bird banding courses

Summer day camps

Teacher CEC courses

Nursing home programs

Community programs

Family, adult learners, ECFE style programs, etc .

Regular walking tours

Events

Haunted trails

Adult retreats

Adults only nights - alcohol served

Farmers market 1x a week

Music in the park series

Equipment Rentals

Cross country skis

Snow shoes

Tents/camping equipment

GPS units

Kayaks

Explorer packs for kids

binoculars

Facility Rentals

primitive camping

RV Camping

Business meeting rentals

Picnic event

Animal Ambassadors at your event or party

Corporate events

Holiday parties

Banquets

Cocktail receptions

Weddings

Different packages depending on couple's needs.

Birthday parties

Usage Fees

Snowmobile pass

Horses

Hiking

Other

Entry fee to special structures - some of the destinations for discovery

Memberships

Contributions

Economic Growth Recommendations

Install self-serve payment gate system

Develop a marketing committee with dedicated members - phase 1 priority

Restructure docent/volunteer support system

Develop an advertising and marketing budget

This plan was prepared by Jacob Mans, AIA and the Minnesota Design Center at the University of Minnesota.

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