



QUARRY HILL
PARK & NATURE CENTER
MASTER PLAN
6/30/2015



PROJECT PURPOSE AND GOALS

In 2014, Quarry Hill Park and Nature Center applied for and was identified by the Greater Minnesota Parks and Trails Commission as a Minnesota Park of Regional Significance under the classification “Natural Resource-based Regional Park”. Over 90 applications representing 80 counties across Greater Minnesota were submitted during the Commission’s inaugural application process for regional designation. QHP&NC was recognized early on as an already existing and emerging high-quality regional park, scoring highly among the recognized parks, trails and recreation features.

As a result of this designation, QHP&NC initiated a master planning process in the spring of 2015. The purpose of this master plan is to guide the development of a long-range vision for the park and nature center. Goals of the plan include an authentic, collaborative process between community partners, stakeholders, and implementing agencies to define regional needs related to growth, sustainability, and impact. It is also imperative that the master plan honor the long-term legacy of QHP&NC to offer the very best in natural science education and recreational opportunities for Southeast Minnesota regional visitors.

IMPLEMENTING AGENCY

The City of Rochester’s Park and Recreation Department is the lead agency for the implementation of this master plan. The development of this document was a joint effort between the City of Rochester Park and Recreation Department, The Friends of Quarry Hill Nature Center, and valuable input from community stakeholder groups.

The Friends of Quarry Hill Nature Center will be instrumental to successful implementation of the plan. Over the 40-year partnership between the City of Rochester and the Friends of Quarry Hill Nature Center, this non-profit organization has invested nearly \$2 million to park, nature and programming developments within Quarry Hill Park. In addition to improvements, the staffing of the nature center and coordination of nearly 500 yearly volunteers is supported by the Friends group.

FUNDING

Funding for this master plan was provided by Friends of Quarry Hill Nature Center and City of Rochester Park and Recreation.

Acknowledgement

QHP&NC extends appreciation to stakeholder groups that participated in the development of this master plan. These groups are instrumental in the plan’s ongoing implementation and success:

- Rochester Active Sports Club
- Rochester Public Schools
- Zumbro Valley Audubon Society
- Minnesota Department of Natural Resources
- Friends of Quarry Hill Members
- University of Minnesota Extension
- Minnesota Master Naturalist
- United Way of Olmsted County
- Friends of Quarry Hill Nature Center Staff & Board

Quarry Hill Park and Nature Center
Master Plan prepared by:





CONTENTS

FORWARD	I
INTRODUCTION	5
PARK HISTORY	9
SITE INFORMATION	15
PARK RESOURCES	19
AUDIENCES	31
REGIONAL CONTEXT	37
TRENDS	45
PUBLIC VALUES AND PERCEPTIONS	51
DEVELOPMENT RECOMMENDATIONS	57
NATURAL RESOURCE RECCOMENDATIONS	75
IMPLEMENTATION PLAN	80
APPENDIX AND REFERENCES	







INTRODUCTION



OVERVIEW

Minutes away from busy downtown Rochester, Minnesota, Quarry Hill Park and Nature Center (QHP&NC) is a gateway to the natural world. With 329 acres of prime southeastern Minnesota landscape, the park features diverse wild communities including deciduous forest, prairie, oak savanna, creek, pond, sandstone caves, and a fossil quarry, as well as a variety of recreational trails. Throughout the seasons, the park is a destination for hiking, biking, picnicking, bird watching, fishing, fossil hunting, skiing/snowshoeing, summer camps, and natural science programs for all ages.

Often referred to as the "jewel" of the Rochester Park system, Quarry Hill Park is home to one of the largest nature centers in the state of Minnesota. Quarry Hill Nature Center is open 361 days a year with free admission. The Nature Center's Exploration Hall features interactive displays, hands-on touch tables, an indoor observation beehive, a children's reading area and natural science library, a 1,700-gallon native fish aquarium, and live animal displays featuring 35 Minnesota species of birds, reptiles, amphibians, and invertebrates. Adjacent to the Nature Center Exploration Hall is a bird observatory room, a great spot to observe federally-licensed bird banding operations. The Nature Center also provides rental equipment to park visitors such as binoculars, GPS, skis, snowshoes, and self-guided nature exploration backpacks.

Together, QHP&NC promotes hands-on natural science education, healthy active lifestyles, and a life-long appreciation of nature. Yet as the City of Rochester grows in population and welcomes new immigrant groups to the area, QHP&NC must plan for the future to continue its success as a regional destination for outdoor recreation and as a critical educational resource for the community.



GUIDING PRINCIPLES

CORE VALUES

- Experience**
 QHP&NC provides experiences in nature that engage the senses, foster discovery, ignite learning and inspire action.
- Science Education**
 QHP&NC delivers innovative natural science education using the park and Nature Center's resources and the methods of science to bring lessons to life through immersive inquiry-based learning for all ages.
- Life-long Learning**
 QHP&NC aims to instill meaningful connections to the natural world which drive a lifetime of curiosity.
- Inclusivity and Diversity**
 QHP&NC aims to instill meaningful connections to the natural world which drive a lifetime of curiosity.
- Sustainability**
 QHP&NC invests in smart choices which support the long-term health, stability, and sustainability of the park and nature center's natural, historical, and educational resources.
- Community**
 QHP&NC holds a sense of responsibility to the community that supports our work to communicate, collaborate, and implement practices which provide quality experiences for all.
- Partnerships**
 QHP&NC collaborates to build strong partnerships which support and strengthen our impact.

The following core values and vision statement were developed as a part of stakeholder and public input sessions hosted at QHP&NC. They are the principles which guided the development of this master plan.

VISION STATEMENT

Our vision is to be a catalyst for a culture of smarter, healthier, and happier citizens inspired by and deeply connected with the natural world.

MISSION STATEMENT



Opening eyes and minds through natural science discovery



**Rochester
Parks & Recreation**

Providing traditional, innovative, and affordable quality services (activities, programs, and facilities) for Rochester's citizens and visitors

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PARK HISTORY

A LEGACY OF ENVIRONMENTAL EDUCATION

1870s

The State Hospital bought the property.

1880s

Reservoir near the first quarry was built. The first quarry was used through the 1880s.

1882

The cave was carved to serve as a cellar for the storage of many vegetables grown on the State Hospital farm. A crew of six men from the State Hospital dug the series of caves out of St. Peter sandstone.

1886

Cemetery was used by the Rochester State Hospital. The people buried in the cemetery were patients at the State Hospital. The 2,019 gravesites are carefully platted and the location of each individual grave meticulously recorded.

1965

The City of Rochester purchases state hospital land from the state of MN for \$21,200. This 212 acres becomes Quarry Hill Park.

1966

Rochester Public School teachers begin holding classes in Quarry Hill Park.

1972

Ground broken for nature center. Quarry Hill Nature Center is dedicated in May 1973 with Harry Buck as the founding director.

1978

Pond is excavated

Since its establishment, Quarry Hill Park and Nature Center represents a collective community effort. In the 1960s, local citizens and Rochester Public School science teachers recognized a need for an environmental education site. Working with the City of Rochester, a 212-acre parcel of land was purchased from the State of Minnesota in 1965. The land was formerly used by the Rochester State Hospital, which was in operation since the 1870s. Historical remnants in this acreage include a cemetery, former limestone quarry, sandstone caves, stone reservoir, and many more ruins.

The new park land, named Quarry Hill, was rich in resources and located within 15 minutes by bus from any school in the district—an important requirement for use as an outdoor study area. Seven years later, Quarry Hill Nature Center was built with funds and labor donated by area residents and businesses. It opened in 1973 as a cooperative effort between the Rochester Park Department and the Rochester Public School District, integrating outdoor site visits at the park with science curriculum. The non-profit, the Friends of Quarry Hill Nature Center, was also formed to support Nature Center operations and educational programming.

Over the years, QHP&NC grew both in structural capacity and educational services provided to the community. A major addition to the existing nature center was completed in September 1990, effectively tripling the main floor area and enabling the center to meet the increasing needs of its visitors. In September 1999, a second major addition added another classroom, multi-purpose room, and bird observation room. Since 1999, smaller building additions and renovations, new programs, exhibits, outside trail work, and habitat restoration further solidified QHP&NC's place as a premier outdoor environmental education resource and asset for the Southeast Minnesota region.



Nature Center under construction (1972)



Quarry Hill Park historic aerial

FOUNDATIONAL PARTNERSHIPS

Quarry Hill Park and Nature Center represents a collaborative effort between the City of Rochester, The Friends of Quarry Hill Nature Center, and Rochester Public Schools. In addition to these foundational partnerships, there are many other organizations which contribute to mission and success of QHP&NC. Together, these organizations have helped establish QHP&NC as a local treasure with a tremendous legacy, and have supported the growth toward becoming a regional resource to residents and visitors to Southeast Minnesota.

The Friends of Quarry Hill Nature Center

The Friends of Quarry Hill is a non-profit which provides environmental and natural science education programming, a public nature Exploration Hall, and recreation resources for visitors of all ages and abilities. The Friends of Quarry Hill Nature Center provide financial support for the majority of staffing and programming at the Nature Center. Since the beginning of the nearly 50-year partnership with the City of Rochester Park & Recreation Department, the Friends of Quarry Hill has contributed nearly \$2 million to QHP&NC in capital improvements.

Rochester Public Schools

Science teachers in the late 1960s built the foundation for QHP&NC's long-term community impact. Teachers today, just as their predecessors, see tremendous value and educational impact of bringing classroom science concepts to life in the greatest laboratory of all—the great outdoors. Working with the Friends of Quarry Hill staff, Rochester Public Schools Office of Curriculum and Instruction ensures curriculum classes are aligned to Minnesota State Science standards and provide unique opportunities for students to immerse in engaging, hands-on, inquiry-based lessons. Rochester Public Schools provide partial staffing of licensed science teachers and professional educators to provide science enrichment courses for each K-8 student in the district twice a year.

- 1985** — The Friends of Quarry Hill Nature Center Incorporated is officially organized.
- 1986** — Greg Munson begins tenure as the second Quarry Hill Nature Center Director after Harry Buck retires.
- 1990** — The Nature Center classrooms addition is dedicated and the first Fall Harvest Festival is held.
- 1992** — 58 acres is added to the park.
- 1996** — The Oak Savanna Restoration Project begins. Collaborative project with the Minnesota DNR
- 1998** — The City of Rochester again purchases additional park acreage. 20 acres of land is purchased from Harold Payne for \$214,000 along the East side of the park.
- 1999** — Second building addition is dedicated at the 10th Annual Fall Harvest Festival and the one-millionth visitor walks through the doors of the Nature Center. Jody Henning is recognized as Quarry Hill Nature Center's one-millionth visitor.
- 2001** — 24 acres of park land is purchased bringing the total acreage to 312 acres.
- 2002** — Friends of Quarry Hill build a new pond bridge with a \$21,000 Block Grant.
- 2003** — The first annual Creatures of the Night event is held. This nature-themed Halloween event was well received by the community and launched a yearly tradition.
- 2003** — The Friends of Quarry Hill expand public programs to offer environmental education to the community.

2005

"Opening eyes and minds through natural science discovery" is the new mission statement is adopted by the Friends of Quarry Hill.

2006

The "Windows to the Woods" renovation in the Exploration Hall is unveiled. Quarry Hill exhibits Stan, a 40 foot Tyrannosaurus Rex Skeleton. 20,000 people visit.

2007

A partnership with the University of Minnesota, RPU, & the Digital Technology Center builds an addition on to building. Rochester State Hospital Recognition Group, along with Advocating Change together, begins marking 500 headstones in cemetery.

2009

Demonstration Butterfly Garden is completed.

2010

Pond Renovation - In cooperation with the City of Rochester and a Storm Water project, the Quarry Hill pond is drained, dredged, expanded & re-lined with clay. State Legacy dollars provided major funds for this improvement.

2011

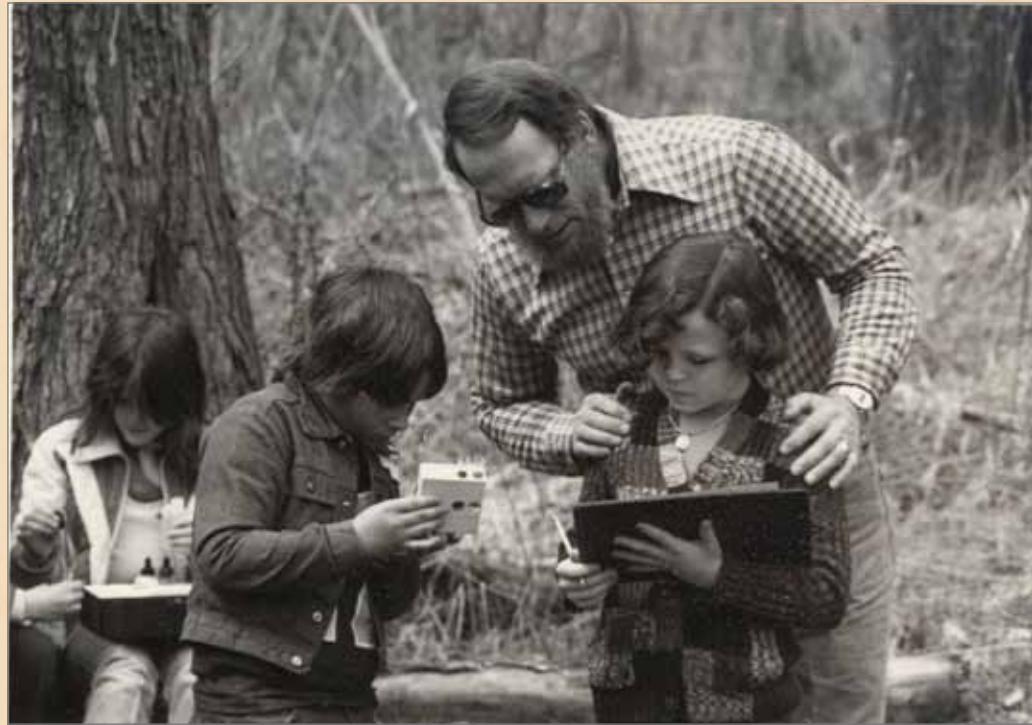
Pamela Meyer is named fourth Director of Quarry Hill Nature Center.

2013

A demonstration hummingbird garden is installed.

2014

Rochester Active Sports Club completes an expansion of the Nordic ski trails.



Students testing stream pH along Silver Creek with founding Director Harry Buck, early 1970s.

Additional Key Partnerships

- Mayo Clinic
- Think Bank
- Minnesota DNR
- National Eagle Center
- Zumbro Valley Audobon Society
- Rochester Art Center
- Rochester Public Library
- Boys & Girls Club of Rochester
- PossAbilities of SE Minnesota
- Local Boy & Girl Scout clubs
- MN Master Naturalist
- MN Master Gardeners
- Minnesota Conservation Corps
- Service Organizations: Kiwanis, Rotary and Lions Clubs
- United Way of Olmsted County
- IBM
- Rochester Area Foundation



Fossil quarry 1970s



© Olive Juice Studios

Fossil find, 2013



Natural touch table items remain popular with visitors today.



Students in the Exploration Hall, 1970s





SITE INFORMATION

SITE INFORMATION

QHP&NC is situated on the eastern edge of the city of Rochester in Southeast Minnesota. The park shares boundaries with residential neighborhoods to the north and west, county land and facilities to the south, and DNR Wildlife Management Area to the east. The park's diverse natural landscape including pond, stream, prairie, oak savanna, limestone quarry, and deciduous forest offers 329 acres of wilderness adjacent to the city. QHP&NC is accessible via paved biking trails in the Rochester Trail System, as well as the Rochester City Bus Line.





Aerial map of Quarry Hill Park, 2015





PARK RESOURCES

PARK LAND

Quarry Hill Park is rich with natural resources and historic remnants from our human past. The varied habitats, including deciduous forest, restored oak savanna, creek, pond, and prairie provide an ever changing landscape filled with the sights and sounds of nature. Visitors enjoy recreational activities and educational opportunities during all four seasons of the year.

TRAIL SYSTEMS

The 329 acres of QHP&NC offers more than eight miles of trails. Visitors can enjoy a variety of recreational opportunities on paved, grassy, and rugged terrain.

Family Trails



Connecting the three parking lot areas at QHP&NC, family trails provide a smooth surface for easy mobility. Family trails are used by walkers, runners, bicyclists, skiers, and roller blade users. The trails are black-topped and relatively flat.

Quarry Ruin Trails



Points of interest on the Quarry Ruins Trails include the quarry, a large sandstone cave formerly used as food storage, the State Hospital cemetery, and two overlooks of downtown Rochester. Informational signs about the history of the grounds are located along these trails. The trails are hilly and rocky with uneven surfaces, and can get slippery in wet weather.

Pond Trails



Sit by the pond and listen to the frogs or cross the bridge to explore the island. The trail is short but packed with sights and sounds of life. Trails are partially paved with the remainder being grassy and flat.

Savanna Trails



Beginning in 1997, a section of the park was reclaimed as an oak savanna and seeded with native prairie plants. During the summer months the savanna blooms with flowers and grasses, attracting birds and butterflies. Bluebirds can be seen here near the bird houses. At the top of the hill a bench allows for a rest while viewing downtown Rochester. Trails in the oak savanna are relatively flat and grass covered, while trails leading to the oak savanna are hilly.

Woodland Trails



Park visitors can look for mosses, fungi, and wildflowers blooming early in the spring along these shady trails. At the south end of East Hill is a remnant "goat prairie" with a view of the area south of the park

Sports Trails



These wide grass and dirt-covered trails pass through woods and meadows as they wander up and around East Hill, great for a pleasant walk or a long hike. During the winter these trails are reserved and groomed for cross-country skiing. Sports Trails at QHP&NC are relatively flat with some rolling terrain.

Stream Trails



Paralleling the family trail, this short path leads hikers along Silver Creek. Butterflies and other insects abound during the summer months. The trail is grassy and flat.

POND

The Harry L. Buck Children's Pond, named for the founding director of the Nature Center, was dug in 1978, shortly after the building was complete. The location chosen for the pond was originally used as agricultural land and was an ideal place to install a pond. The pond provides wildlife habitat and created an educational study area in a convenient place for students and visitors. Year round the pond provides opportunities for wildlife observation, water studies by students and ample recreation opportunities. Stocked by the DNR, the pond is an ideal setting for the novice or experienced fisherman. In 2010, after degradation of the plastic liner caused the pond levels to drop by two feet, State Clean Water, Land and Legacy funds along with private donations helped to renovate and enlarge the pond. Now at three acres, the pond again provides a healthy habitat for wildlife and recreational opportunities for thousands of students and visitors every year.



Picnic pavilion adjacent to the pond

DEMONSTRATION GARDENS

Demonstration Gardens in the park provide visitors with opportunities to observe wildlife, but also learn practices that can be used to attract and provide healthy habitats for wildlife. The butterfly and hummingbird gardens provide the novice and expert nature observer wonderful opportunities to observe local wildlife. A rain garden adjacent to the building provides visitors information about engineering landscapes to help with water quality while also providing wildlife habitat.

Completed in 2009, the butterfly garden can be found just a short distance from the main nature center building along a paved path. It was designed by Jeff Feece of Sargent's Landscaping Design and Garden Center and is available for free during park hours. Some of the plants include buttonbush, big bluestem, serviceberry, red milkweed, blue vervain, prairie smoke, prairie coreopsis, and meadow blazingstar.



Butterfly garden

HISTORICAL FEATURES

In addition to natural history, QHP&NC has a rich cultural history as the grounds were previously occupied by the Rochester State Hospital from the 1870s until 1965. Historical remnants in the park include a cemetery, former limestone quarry, man-made sandstone caves, stone reservoir, and many more ruins.



Fossil cephalopod

CAVE

Man-made caves on the QHP&NC property were originally used for food storage by Rochester State Hospital. Excavated in 1882 in St. Peter Sandstone, which underlies the limestone, the caves now provide an opportunity for visitors to “walk into” a rock layer.



Cave at Quarry Hill Park

QUARRY

High on a bluff is a bed of Platteville limestone quarried by the Rochester State Hospital residents from 1885 to 1950. Many of the structures used by the hospital were constructed from this limestone, and their remains can still be seen throughout the park. These buildings include a soap house, fireplace, cap shack, reservoir and more. The quarry operation was also a source of revenue for the hospital, as stone and crushed rock were sold to the community and can be seen today in downtown Rochester buildings.

Among the limestone layers, fossil remains from Ordovician sea creatures can be found. This fossil bed provides a rich landscape for teaching about the unique geology of the area as well as history of life before humans. Fossil hunting is a popular draw for park visitors from the region and hundreds of students visit the park each year for Rocks and Geology science lessons.



A view along upper quarry ridge

ROCK CRUSHER AND LOADING AREA

In 1900, the State of Minnesota appropriated \$800 to buy a rock crusher to assist with the State Hospital quarry operation. This enabled the quarry to provide crushed rock that was used as a gravel substitute for improving roads. In subsequent years a second rock crusher was added to meet demand, and a pulverizer was added to supply local farmers with limestone dust to amend soils. The crushing operation ended in 1950 and by 1955, many of the buildings, crusher, and pulverizer were removed from the site. Today you can still see old stone pilings which once supported these structures on the hillside adjacent to the quarry. The area at the bottom of this hillside you will see a limestone wall where crushed rock was loaded. This wall provides an excellent opportunity for rock climbing programs.



© Olive Juice Studios

Students rappelling after climbing the rock wall, a remnant of the rock crushing operation.

CEMETERY

A 2 ½ acre cemetery exists on the west side of the park. This cemetery was used as the resting place for approximately 2,000 State Hospital residents who died while residing at the Rochester State Hospital. Originally, the graves were marked with wooden signs that no longer existed when the City of Rochester purchased the land. In 1999, volunteers and Friends of Quarry Hill Nature Center created a database from hospital cemetery ledgers, listing burial dates and plat locations of the Rochester State Hospital residents buried within the cemetery. Subsequently, a group called the "Rochester State Hospital Cemetery Recognition Group" formed and collaborated with "Remembering with Dignity" to advocate for restoring the cemetery grounds and marking the graves. The State Legislature allocated funds in 2007, which allowed the first 500 graves to be marked. Additional graves will be marked and yearly recognition ceremonies are held in the cemetery.



Rochester State Hospital Cemetery

RECREATIONAL AREAS

In addition to extensive trail systems, families visiting QHP&NC have free access to playgrounds, turf, picnic shelters, tennis courts, and baseball fields throughout the year.



Ice fishing



Baseball field and tennis court



Canoeing



Nordic ski team

NATURE CENTER

Owned by the City of Rochester and operated in partnership with the Friends of Quarry Hill Nature Center, the 14,164 sq. ft. Nature Center is a hub for visitor information, indoor activities, and a gateway to all the park resources. Featured is the multi-sensory, discovery-based Exploration Hall, a key attraction for visitors of all ages to QHP&NC.

EXPLORATION HALL

QHP&NC's Exploration Hall features a multisensory, discovery-based approach to nature education with hands-on touch tables and learning stations designed to pique curiosity. At 2,278 sq. ft., Exploration Hall is home to over 35 species of live animals, birds, and fish, offering up-close opportunities for observing natural behavior. Popular visitor activities include finding the queen bee in the indoor bee hive, or feeding minnows to the fish in the 1,700-gallon fish aquarium.



INDOOR HIVE

For more than 20 years, QHP&NC's indoor bee hive has provided guests with an up-close look at the internal operations of a real working honeybee colony. Throughout the year, visitors can observe the queen laying eggs or watch the pollen harvest and the drone's demise. The observation hive is maintained by professional beekeepers. Educational programs about honeybees and their important role in the natural world are popular with visitors.



BIRD STUDY

Seeds, suet, and sweet nectar attract native Minnesota birds such as black-capped chickadees and downy woodpeckers to the bird study observation area at the nature center. Seven pairs of binoculars allow visitors to sit inside and observe outdoor activity without disturbing wildlife at the trees or feeders, which are also wired for sound. Inside the room, 30 mounted songbirds, 20 nests, and 20 eggs are on display.

In addition to the observation area, permitted banding began in the early 1970s and continues today at QHP&NC. Every year the network of banders in the United States and Canada attach bands to nearly one million new birds. Most years, 500 to 1,000 of those birds are caught and banded at Quarry Hill. When banded birds are recaptured or found again, more is learned about life spans, movement, and population trends. A banding data base is maintained by the United States Geological Service and available to researchers. Currently, the database contains more than 70 million entries.



FACILITY

In addition to Exploration Hall, the 14,164 sq. ft. nature center facility includes a natural science research library, children's reading area, and a bird observation room. Additional spaces include four classrooms, a photography lab, conference room, two kitchens, office space, staff workroom, and storage space. Classrooms act as multi-use spaces and are rented for events and business meetings, used by partnering organizations for monthly meetings and programming, and special exhibits.

COMMUNITY SEVERE WEATHER SHELTER

In December 2014, the U.S. Department of Homeland Security's Federal Emergency Management Agency (FEMA) released \$327,054 in Hazard Mitigation Grant Program funds to the City of Rochester for the construction of a severe weather shelter room at the Nature Center. The City of Rochester is located in Zone IV of the NOAA statistics wind map and the frequency of severe storms is highly likely, making it extremely important to have adequate shelter during severe weather. The safe room will be an addition to the existing Nature Center and will accommodate 250 people. Occupying 1,260 sq. ft., the safe room will be compliant with all FEMA-361 and American Disabilities Act (ADA) requirements and operate as a multi-use, flexible space to support programming needs. Ground-breaking begins September 2015.

STAFFING AND VOLUNTEERS

Quarry Hill Nature Center is staffed 361 days per year by eight full-time staff, four part-time staff, 16 summer camp seasonal staff, and one seasonal park staff member. This team staffs the center, delivers year-round educational programming, and maintains the park and facilities. The Rochester Public School district supports four part-time staff, while the Friends of Quarry Hill Nature Center employ the balance of the staff.

Volunteers from all segments of the community including businesses, organizations, students, and individuals contribute over 3,300 hours per year. These volunteers include approximately 300 high school and college students earning credit or community service hours, and more than 80 adults assisting in program delivery and park maintenance. Many adult volunteers are certified Master Naturalists and Master Gardeners. QHP&NC also benefits from volunteer hours contributed by retired teachers and Audubon Society members.



EDUCATIONAL PROGRAMMING

Staffed by licensed science teachers and naturalists, QHP&NC programs are based on cutting-edge education trends and grounded in hands-on discovery. Educators at Quarry Hill believe that hands-on, inquiry-based activities develop critical thinking, exploration, and investigative skills as well as respect for the natural world. Programs are accessible to all ages and include school-based, private groups, and programs for the general public.

Accolades

- **2011** Exceptional Partnering in Education
United Way of Olmsted County
- **2012** Exceptional Results in Education
United Way of Olmsted County
- **2014** Best Regional Summer Camp – Runner up
Post Bulletin's Reader's Choice



TRAVELING EXHIBITS

Every-other year the Nature Center hosts a large educational fossil exhibit during the month of March. These special exhibits began in 2006 when Quarry Hill Nature Center hosted Stan, the second largest and most complete skeleton of a Tyrannosaurus rex. The Stan exhibit was immensely successful with a record attendance of 18,989 visitors for the month, launching a bi-yearly tradition for the Nature Center. The exhibits which feature iconic fossils help draw in new visitors, raise funds to support the Nature Center through minimal admission and increase positive public awareness for QHP&NC throughout the region. These exhibits have become regionally known and anticipated. Exhibit attendance averages 17,000 for the month. Families do not have to travel far for a memorable and affordable experience.

- 2006 Stan the Tyrannosaurus rex
- 2008 Creatures of the Deep
- 2010 Ice Age: An Exhibit of Mammoth Proportions
- 2012 Twilight of the Triceratops
- 2014 Hatching the Past: Dinosaur Eggs & Babies

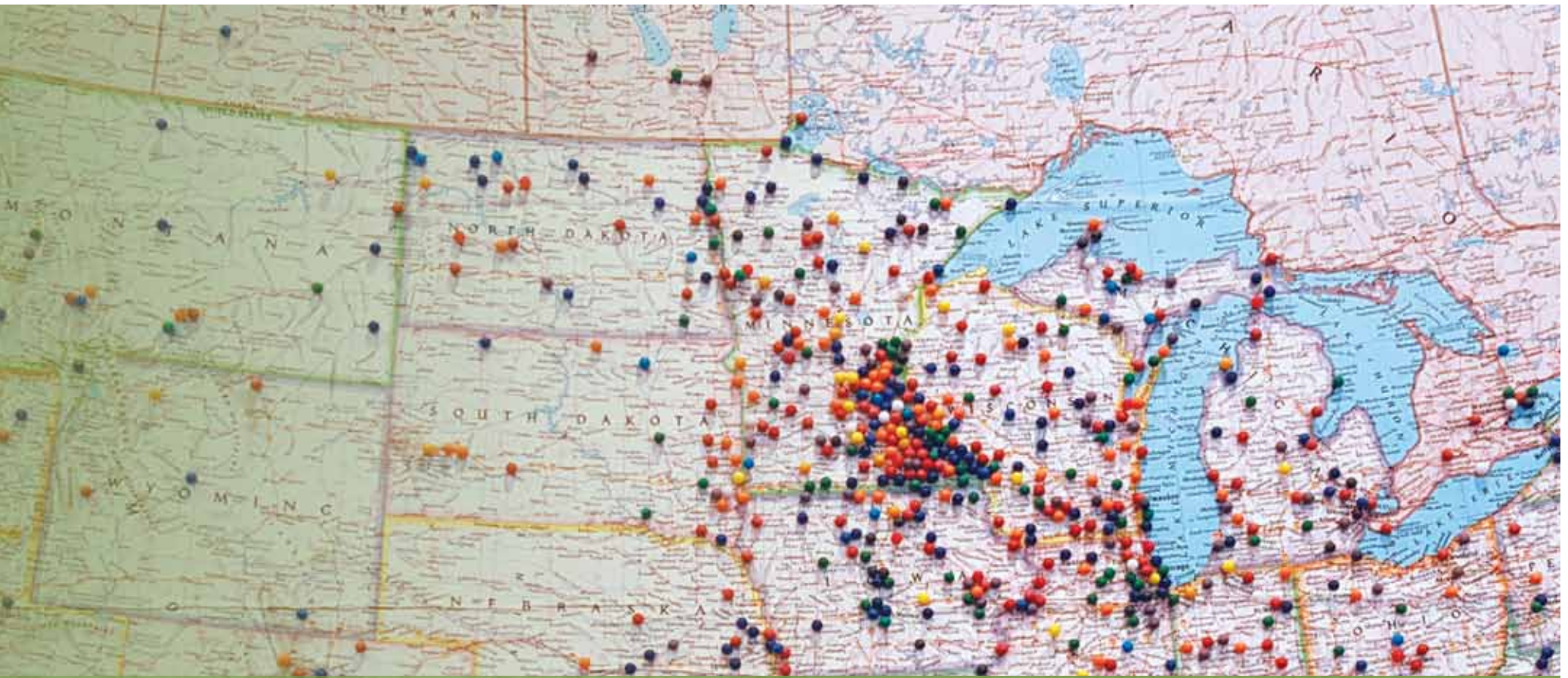
EQUIPMENT RENTALS

QHP&NC provides an assortment of equipment and supplies to enhance the park experience. Rental options include binoculars, Global Positioning Systems (GPS), skis, snowshoes, and guided nature exploration backpacks. GPS units are pre-programmed with coordinates for four caches maintained by QHP&NC staff, and also include easy-to-follow instructions and a park map for exploration in the spring to fall seasons. A large fleet of snowshoes, skis, poles, and boots are available for visitors of all ages and sizes to suit up and hit more than 8 miles of groomed ski trails as weather permits. Themed exploration backpacks are designed for visitors of all ages, filled with interactive ideas, tools, maps, games, and more.



Ice Age Exhibit featuring woolly mammoth and a giant ground sloth, 2010.





AUDIENCES



OUR VISITORS

Not all visitors are created equal. To better serve their communities, nature centers must address and plan for the learning needs of visitors that represent varying ages, backgrounds, abilities, and comfort levels in nature. As a regional provider of programming and amenities, QHP&NC attracts over 100,000 visits per year, from local school groups to international families. These visitors can be categorized in key audience groups. Planning for these key groups will be vital to the success and relevance of QHP&NC in the future.

CHILDREN AND TEENS

Educators at QHP&NC believe early exposure to the outdoors is critical to a child's health, well-being, and development. The teaching staff at the nature center creates programs that engage a child's inquisitive nature and guide them to use their budding senses to look, wonder, and ask questions. The early years are an important time to encourage children's natural inquiry and connection with the world around them.

Because of this core philosophy, outdoor programming for youth has always been the emphasis at Quarry Hill. Over 90 percent of programming at QHP&NC is for young audiences, which includes hands-on, exploratory science classes for all K-8 youth enrolled in Rochester ISD 535 classes, out-of-district school classes, Summer Nature Camp, birthday programs, pre-school classes, after school programs, teen programs, and youth organizations. The summer nature camp is one of the largest-run nature day camps in the upper Midwest, serving 2,400 children over a nine-week period.



FAMILIES

Studies suggest that if entire families learn, play, and enjoy nature together, they feel more connected to their community and often live healthier lifestyles. Maintaining and building upon current family programming at QHP&NC is important to provide families in Rochester and the surrounding region with opportunities to learn, explore, and broaden connections to nature.

The Nature Center offers a variety of opportunities for families at Quarry Hill. As the popularity of these programs increases and as the population of Rochester grows, so do the requests for additional affordable family programs. Below is a small sample of recent family programs offered at QHP&NC:

- Sundays at Quarry Hill: Bird Banding, Cave Tours, Naturalist Hikes and Live Animal Presentations
- Full Moon Hikes and Candlelit Ski
- Parent/Child Programs
- Free Earth Day Families Active in Nature (Fan)Fare (Partnering With Dnr, National Eagle Center, Audubon, City of Rochester and Mn Extension)
- Creatures of the Night Halloween Event
- Wild About Reading (Partnering With the United Way & Imagination Library)
- Rochester Winter Fest
- Annual Fall Festival Weekend Event
- Bi-Yearly Large Fossil Exhibits Drawing Approximately 15,000-20,000 Regional Visitors Per Exhibit
- Camp Grand

ADULTS

QHP&NC has also made a conscious effort to increase the number of adult programs offered to a growing and aging Rochester community. The response to these adult programs has been tremendous and is helping the nature center to further their mission of “opening eyes & minds through natural science discovery” for learners of all ages. Adult programming has included:

- Free Monthly Audubon Programs
- Free Weekly Bird Watching Hikes Lead by the Local Audubon Chapter
- Learn to Ski, Candle Light Skiing, and Ladies Only Ski Trips
- Valentine Ski and Snowshoe
- Backyard Chicken Ranching
- Introduction to Beekeeping
- Prairie & Pie Education Series on Minnesota Prairies
- Wild Caving
- Hayden Prairie Picnic
- Butterfly Gardening
- Minnesota Master Naturalist Courses
- Traveling Naturalist Presentations to Senior Living Communities and Care Facilities.



Zumbro Valley Audubon bird hike



Banding Saw-whet owls



Regional Visitors

WHERE DO VISITORS COME FROM?

Mayo Clinic, a large nonprofit medical practice, is one of the city's premiere drivers of economic development. With the Destination Medical Community (DMC) initiative, Mayo Clinic alone will add another 25,000 to 30,000 Minnesota jobs over the next 20 years. The clinic draws patients and their families from all over the country and abroad for medical attention. As a result, nearly 2.75 million people visit Rochester each year.

QHP&NC' visitation records demonstrate that many regional and international visitors to the clinic visit the park and nature center. Whether a retreat between appointments or an experience while a family member seeks extended care, Quarry Hill offers health and healing benefits to these families—as well as permanent residents of Rochester.



National Visitors



RESEARCH PLAN FOR VISITOR COUNTS

Current Approach

Methodology currently used at QHP&NC to collect visitor information reflects the goals, recommendations, and requirements as outlined in The Protocol for Visitor Counts and Site Intercept Surveys – Section 6 of the Greater MN Regional Parks and Trails Strategic Plan. QHP&NC has historically collected visitor information to better understand audiences and demographics, visitation trends over time and season, as well as opportunities to better serve park users and program participants. Current methods of collecting visitor information include:

- Program registration/attendance (records ages and residence; less frequently gender, ethnicity)
- Program participant evaluation forms
- Manual hand-held clicker-counts at the Nature Center building entrance
- Event attendance counts
- Equipment rentals
- Building rentals
- Visitor log and maps
- Website and social media analytics

Areas for Improvement

At the present time, visitors entering the Nature Center are manually counted using a handheld clicker. To automate collection of this information and study visitation by time of day, QHP&NC will implement an automated electronic counter on the Nature Center's front doors. For visitation to the park, excluding the Nature Center, QHP&NC will install an Eco-Counter (or equivalent) which can be mobile or in fixed locations, to better track pedestrians and bicycles at specific park locations.

QHP&NC does not conduct site intercept surveys as outlined in Section 6 of the Greater MN Regional Parks and Trails Strategic Plan; however, with the Nature Center staffing combined with strong volunteer core, this method of survey is well within QHP&NC capacity.



Downtown Rochester reflected in the Zumbro River
©Wikipedia User:Jonathunder





REGIONAL CONTEXT



SURROUNDING AREA PARKS & TRAILS

Additional parks and trails operate in the surrounding areas of Rochester and offer nature-based interpretation and recreational opportunities. However, QHP&NC is at the forefront of these community amenities in providing year-round educational programming staffed by professional teachers and naturalists, as well as a large nature center featuring live animals and interpretive exhibits. A brief description of each park, its primary focus and offerings is provided.



QUARRY HILL PARK

Primary Focus Year-round natural science and environmental educational programs, outdoor recreational activities

Size 329 Acres

Facilities Nature Center, interactive exhibits, 35 species of live animals, demonstration gardens, historic structures, over 8 miles of trails, picnic pavilion, playgrounds, tennis courts, baseball diamonds, 3-acre fishing pond, groomed ski trails, equipment and indoor meeting and event rentals, federally permitted bird banding station

Interpretation Rochester Public Schools satellite site for science staff and curriculum delivery; largest summer nature day camp program in MN

Recreation

- Cross country ski and snowshoeing; rental equipment available
- Hiking
- Bird watching
- Fossil hunting
- Fishing

OXBOW PARK

Primary Focus Natural setting and Minnesota animal species

Size 620 Acres

Facilities Zollman Zoo (over 30 native Minnesota animal species), natural playground, 8 miles of hiking trails, 30 campsites

Interpretation Naturalist-led nature programming

Recreation

- Camping
- Hiking
- Snowshoeing

CHESTER WOODS PARK

Primary Focus Outdoor activities

Size 1,300 acres

Facilities Boat launch, equestrian trails, 112-acre reservoir with sand beach, 52 campsites, 15 miles of primitive trails, seven picnicking areas

Interpretation Naturalist-led nature programming

Recreation

- Camping
- Hiking
- Canoes, kayaks, paddleboards rentals, swimming, fishing
- Cross-country skiing

CASCADE LAKE PARK

Primary Focus Outdoor activities

Size 225 acres

Facilities Created natural areas within the Urban core, amphitheater, 100-acre Cascade Lake with swimming beach and pavilion, planned improvements include varied outdoor activities, paved bike trails, fishing docks and created fishing habitat, shelters

Recreation

- Boating
- Hiking
- Fishing
- Cross-country skiing
- Picknicking

ROOT RIVER PARK

Primary Focus Scenic, 90-foot bluffs along $\frac{3}{4}$ mile of the Root River

Size 125 Acres

Facilities Prairie, 2-mile hiking trail

Interpretation Naturalist-led nature programming

Recreation

- Picknicking
- Fishing

GAMEHAVEN SPORTS AND RECREATION PARK

This new City of Rochester Park recently completed a master plan. The facilities and recreation offerings listed below are the proposed features to be developed.

Primary Focus Year round active sports and recreation

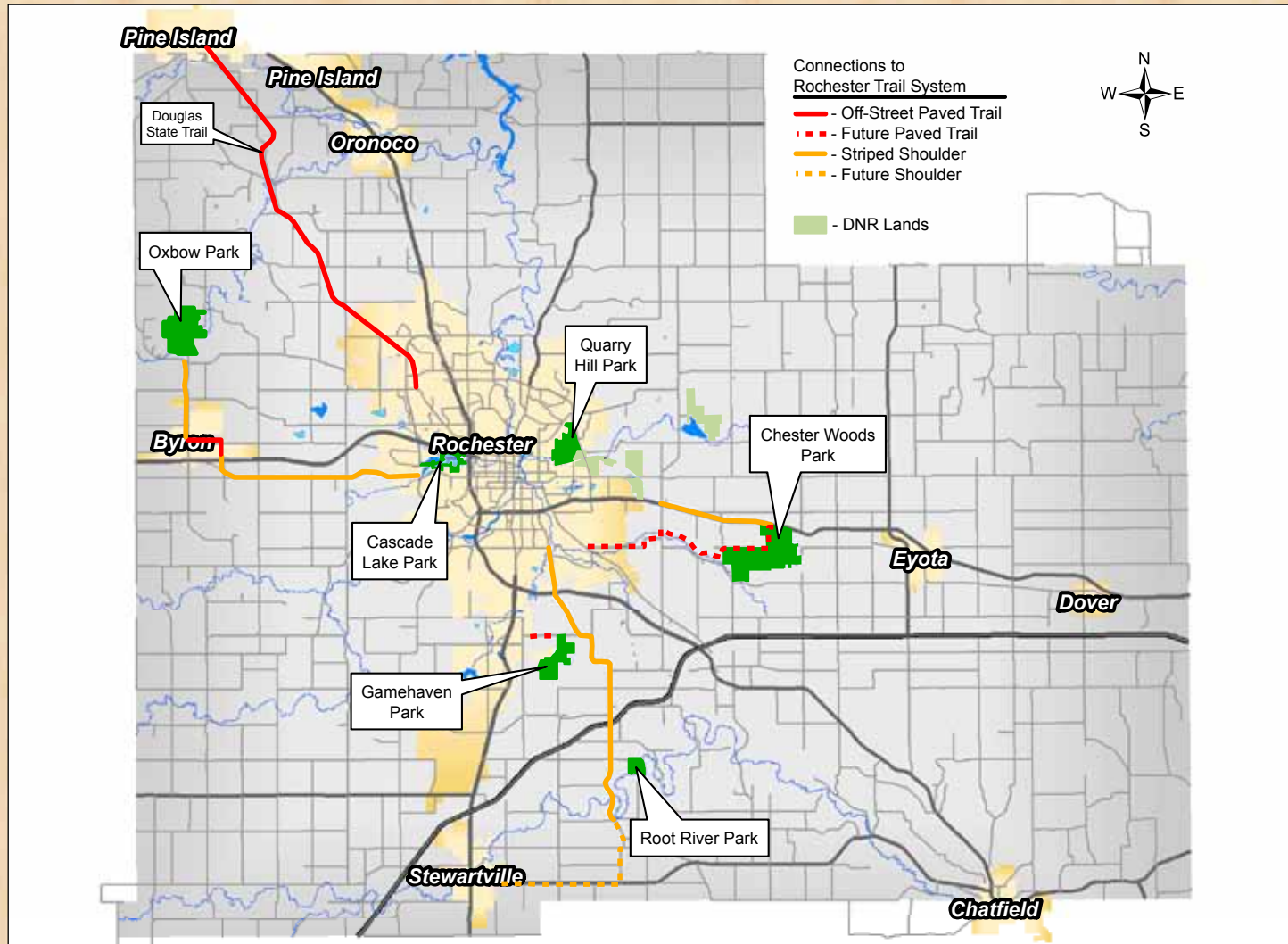
Size 364 Acres

Facilities Paved and natural hiking/walking trails, Nordic ski trails, snowshoe and snowboard rentals, tubing, Terrain park with snowmaking, nature-based kids play area, fishing, pump track

Recreation

- Hiking
- Tubing
- Mountain biking
- Disc golf
- Archery
- Paddle boarding and kayaking

PROXIMITY TO AREA PARKS



PROXIMITY TO STATE PARKS



“THIS FEELS LIKE A GOOD CHALLENGE FOR OUR COMMUNITY. IT WILL BE HARD, BUT NOT INSURMOUNTABLE. IT'S REALISTIC.”

—Stakeholder workshop participant





TRENDS

PLANNING FOR NEW AUDIENCES

As the city of Rochester and Olmsted County continue to experience population growth and forecasts are predicting rapid growth in the coming years, QHP&NC must plan for increased usage. These trends will greatly impact planning considerations for increasing staffing and educational programming; stewardship of natural park resources to preserve the integrity of the parks natural and historical features; and development of additional parking to meet increased visitation and bus traffic. Additionally, the increased visitation of the park by immigrant populations in the late afternoon and evening hours will impact staffing at QHP&NC.

POPULATION AND DEMOGRAPHICS

Rochester, with a population of more than 100,000 people, encompasses nearly 50 square miles and is one of the Minnesota's fastest-growing municipalities. It was recently named second out of 100 Best Places to live in 2015 by Livability.com. Rochester averages 2.7 million visitors per year, largely a result of the Mayo Clinic's medical offerings and services. Rochester is located in Olmsted County, where roughly 60% of the population growth in the past decade is members of racial or ethnic minorities, many of whom are international immigrants. This is reflected in the public school system, where 81 languages—including Arabic, Chinese, Khmer, Spanish, and Somali—are spoken in the homes of Olmsted County K-12 students.



The following population data is taken from the Rochester Area Economic Development, Inc. Data Book. It shows how a diverse economy centered around health care, high technology, and agriculture all contribute to one of the nation’s fastest growing Metropolitan Statistical Areas in the nation.

HISTORICAL AND PROJECTED POPULATION						
Rochester MSA	1990	2000	2010	2015	2025	2040
	163,430	185,570	207,170	219,950	249,960	294,950

Rochester, Minnesota Metropolitan Statistical Area (MSA) is defined as the area consisting of Olmsted, Dodge and Wabasha counties in Southeast Minnesota, anchored by the City of Rochester.

Source: Woods & Poole Economics, 2013

HISTORICAL AND PROJECTED POPULATION GROWTH RATES			
	1990-2010	2010-2020	2010-2040
United States	.96%	1.01%	.95%
Minnesota	1.05%	1.08%	.92%
Rochester	1.19%	1.26%	1.18%

Source: Woods & Poole Economics, 2013

ENVIRONMENTAL EDUCATION

A growing, diverse community increases the need for sound educational resources. The extensive resources both in the park and the nature center provide a science-based learning experience not easily duplicated in the classroom. Yet demand for QHP&NC's K-12 science enrichment programs is currently exceeding capacity, both in staffing and space. While some demand could be contributed to population growth, it is also due to resurgence in the value of the type of educational programming offered by QHP&NC. There is a growing body of research citing the value and importance of integrating the outdoors into classroom concepts.

Many schools have become more restrictive with field trips. However, educational programs at QHP&NC can demonstrate the value to enhancing classroom concepts and address graduation standards with enrichment in an immersive setting.



In addition to Rochester Public Schools, the following participated in outdoor learning experiences at QHP&NC during the 2014 and 2015 school year:

Dover-Eyota Public Schools
 Faribault Public Schools
 Hayfield Public Schools - ISD 203
 Kasson-Mantorville Public School
 La Crescent Schools
 Lanesboro Elementary
 Lewiston Public Schools
 Owatonna Public Schools
 Pine Island ISD 255
 PLAINVIEW-ELGIN-MILLVILLE Schools
 Red Wing Public School
 Southland Elementary School
 St. Charles Elementary
 Stewartville ISD #534
 Triton Public Schools
 Waterville-Elysian-Morristown Public Schools
 Winona Public Schools
 Zumbrota Mazeppa Public Schools



Parochial & Private

Immanuel Lutheran School
 Primrose School
 Resurrection Lutheran
 Rochester Central Lutheran School
 Rochester Montessori
 Rochester Math and Science Academy
 Sacred Heart School
 Schaeffer Academy
 St. Francis of Assisi School
 St. John's Lutheran School
 St. Pius Elementary School

Higher Learning

Rochester Community & Technical College
 St. Mary's University
 Winona State University
 University of Minnesota Rochester

OUTDOOR RECREATION

QHP&NC provides a wide variety of recreational opportunities that may remedy current trends in outdoor recreation—notably a decline in participation of outdoor activities. According to the Minnesota’s State Comprehensive Outdoor Recreation Plan 2014 – 2018:

“Minnesota is not escaping a broad trend—evident since the 1990s—of declining per-capita participation in nature-based outdoor recreation in the United States. This is a national trend that impacts national parks, national trails, state parks, state trails and other outdoor recreational facilities. It includes activities such as hunting, fishing, boating, wildlife watching, and wilderness use (Kelly, 2008). Although the decline in these activities in Minnesota is not as large as the national decline, it is still present. The primary driving factor behind this trend is a decline in involvement among young adults (ages 20–45) and their children. Today’s young adults and youth are not as engaged in traditional nature-based activities as older generations.”

With these trends in mind, QHP&NC can position itself to offer outdoor recreation activities that appeal to a wide variety of audiences, especially families with young children. Renovation and expansion of Nature Center exploration hall exhibits, improved interpretive signage for the park’s natural and historical features, and more free offerings such as adventure backpacks and literacy tote bags will build QHP&NC as a major “gateway” to further exploration outdoors.

HEALTH AND WELL-BEING

Health is an important issue to address in the state of Minnesota. According to the Center for Disease Control, 62.8 percent of Minnesota adults are either overweight or obese and less than half meet recommended levels of physical activity. Prevalence of obesity among children and adolescents in the United States quadrupled among 6 to 11-year-olds and more than tripled among 12 to 19-year-olds between 1971-1974 and 1999-2000.

These statistics point to the importance of QHP&NC in helping regional visitors become more active. Offering safe and scenic settings for aerobic and conditioning sports, such as Nordic skiing, snowshoeing, trail running, and bike riding, QHP&NC can help be part of the active solution to these trends. In recent years QHP&NC staff has partnered with health organizations such as Olmsted County Public Health and the Mayo Clinic to provide opportunities and programming designed to engage families in healthy outdoor recreation activities. Examples include bike rodeos, as well as introductions to geo-caching, letter boxing, cross-country skiing, and snowshoeing.



Senior center outing to the Park.

on

a winter night hike

with my nephew

we watched an owl

Insecting,

fishing, and

canoeing for

1st time in my

life here at

picking up from summer
camp a very non-outdoor
kid who said, "That
was FUN!"

+ smores

hundreds of
happy high school
nordic

when my kid said
after playing in nature
at all "my favorite thing
in the world is my family
my second favorite thing
is special nature places.

PUBLIC VALUES AND PERCEPTIONS

GETTING THE COMMUNITY INVOLVED

Input from the Rochester community and regional visitors play a tremendous role in shaping the future and vision of QHP&NC. This aspect of the master planning process increases the ability of QHP&NC to strengthen local partnerships, carry out its vision, and address immediate and future needs of its community.



Stakeholders discuss and leave feedback on possible opportunities for QHP&NC.

STAKEHOLDER MAPPING

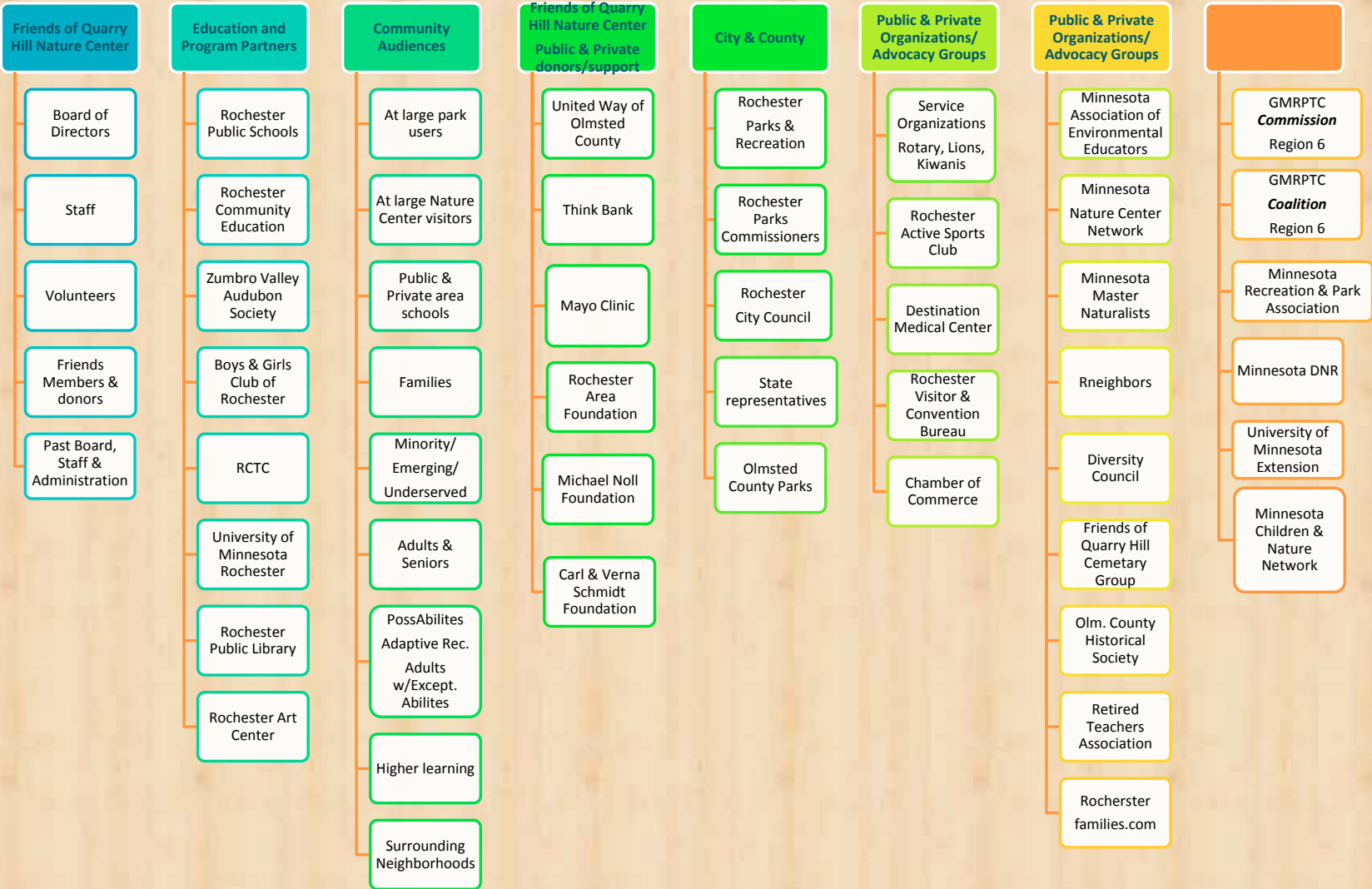
Many of the park features existing today are the physical expression of community involvement and partnerships. Since 1985, the Friends of Quarry Hill Nature Center has taken initiative to act as stewards for QHP&NC. Through the dedication of many individuals and local groups volunteering time, money, and effort, there has been a strong community presence supporting QHP&NC. Partnering organizations active in the park include Minnesota Master Naturalists, Zumbro Valley Audubon Society, Rochester Active Sports Club, and Minnesota Master Gardeners. These groups help to inform operations and decision making. Additional stakeholder resources are citywide planning initiatives over the past several years, including the About You Survey, Destination Medical Center Community Planning, Transportation Plan Update and the Comprehensive Plan for Rochester.

To continue the spirit of community involvement, the master planning process gathered input from key stakeholder groups involved at QHP&NC as well as a broader public audience.

Quarry Hill Nature Center

Master Plan

Stakeholder Groups



PUBLIC ENGAGEMENT PROCESS

During April and May 2015, three facilitated staff, stakeholder, and public open house workshops were hosted at Quarry Hill Nature Center to develop a vision statement, assess opportunities and challenges, and to review proposed recommendations. Strong attendance and participation in these sessions—which included small and large group discussions and post-it note feedback—communicated strong community ownership and investment in QHP&NC. This public input directly impacted the development of the vision statement and affirm recommendations put forth by this master plan.



ANALYSIS OF COMMUNITY FEEDBACK

Key themes or overarching ideas arose from the three input sessions. These themes include:

- Quarry Hill Park is rich with natural resources. Restoration, preservation, and conservation of these resources is vital to the long-term health and use of the park for quality education and recreation purposes.
- QHP&NC provides quality environmental and natural science education in a unique setting. Physical facilities to support innovative practices are vital.
- The human history of the park is an integral part of the QHP&NC community story. Preservation and interpretation of these elements is valued.
- Sustainable practices are the basis for long-term health of the park and organization.

Additionally, the workshops completed a SWOT Analysis (Strength, Opportunities, Weaknesses, and Threats) to help focus the planning process and utilize resources available for QHP&NC. Results of the analysis are identified in the chart to the right.

One activity at the public meetings included describing Quarry Hill Park and Nature Center in one word. Here are a few contributions:

Rochester Fun! Magical
Goldmine
Healing Inspiring
Rejuvenating

SWOT Analysis Chart

Strengths	Weaknesses	Opportunities	Threats
Strong sense of place and community	Condition of facilities and interpretive elements	Updated and innovative educational space to support quality programs	Maintenance and integration of technology in exhibits
Inclusivity	Threats to natural resources including invasive species and overuse	Improved accessibility and parking	School district budget cuts
Quality natural science education	Degradation of historic features	Preservation and interpretation of historic structures	Growing disconnect and disinterest in natural world
Diversity of natural resources	Reaching capacity of facilities and staff	Comprehensive natural resource management plan	New invasive species
Staff		Updated facilities to increase and diversify visitation	
Partnerships		Increased funding to draw additional skilled staff	
		Development of volunteer support	

Input gathered from these facilitated staff and stakeholder workshops helped develop and refine a vision statement, which is included in the introduction of this master plan. Additionally, stakeholders and the public were invited to comment on a set of proposed recommendations for QHP&NC. A series of large posters introduced each recommendation with room for post-it note feedback. The eight recommendations included:

- Revitalization of Nature Center’s Exploration Hall
- Development of New Educational Programming Space: Prairie House
- Creation of a Natural Playscape
- Beekeeper’s Mentoring Apiary
- Interpretive Minnesota Geology Indoor Bouldering Wall
- Historical Trail and Interpretive Signage
- Invasive Species Management
- Restoration of Characteristic Regional Landscapes
- Trail Maintenance

Both the stakeholder and open house participants were strongly supportive of these recommendations. The participants connected the importance of natural resource management to the longevity of the park, and emphasized the quality of education provided at QHP&NC. An area of concern for participants was the recommendation for a natural playground. Although not seen as entirely negative, comments trended toward nurturing a culture of understanding among visitors that natural features of the park should be the primary adventure, rather than building a playground to supplement these natural discoveries.





DEVELOPMENT RECOMMENDATIONS

EDUCATION AND RECREATION

The following recommendations provide a comprehensive approach and guide work toward achieving the vision of Quarry Hill Park and Nature Center.

REVITALIZATION OF EXPLORATION HALL

Exploration Hall at Quarry Hill Nature Center is one of the park's most popular attractions. The Exploration Hall serves as a gateway for further exploration and recreation in the park. However, the well-loved yet aging facility is no longer serving the needs of park staff and a growing base of diverse audiences. Outdated interpretation cannot successfully convey the story of QHP&NC and Southeast Minnesota habitats. The need for fresh, relevant content sparked plans for renovation and revitalization of exhibits in Exploration Hall. As Rochester grows in population as well as diversity, QHP&NC strives to be a welcoming, inclusive community resource that connects all visitors to the natural world. It is in this spirit that QHP&NC strives to take nature-based education at Exploration Hall to new heights.



Project Objectives

- Update the nature center to reflect the growth, community profile and positioning of QHP&NC
- Strengthen connections between visitors' park and nature center experiences
- Focus content and experiences in the nature center to reflect the specific unique natural world surrounding
- Create interactive experiences that have a wide variety of tactile, visual, and auditory elements
- Create exhibits that facilitate informal and exploratory learning, appeal to general audiences, and meet the needs of K-5 educational programs
- Tell the story and maintain the legacy of QHP&NC

Desired Outcomes:

- Interactive design will reflect the uniqueness of Quarry Hill
- Increased visitation numbers to QHP&NC
- Exhibits develop a compelling, informative, unique, and meaningful visitor experience, with the intent of giving visitors the knowledge tools needed to get outside and explore the park and greater Southeastern Minnesota region.



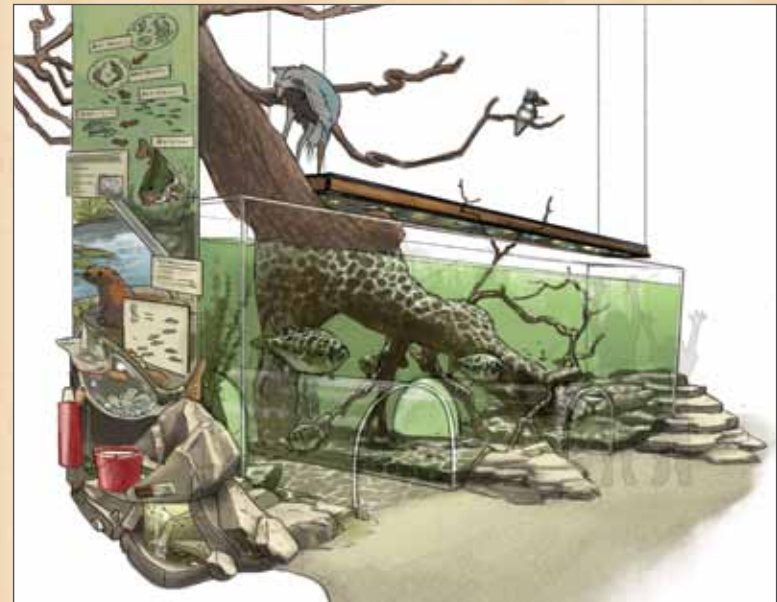
Turtle touch area



Investigation station



Observational bee hive

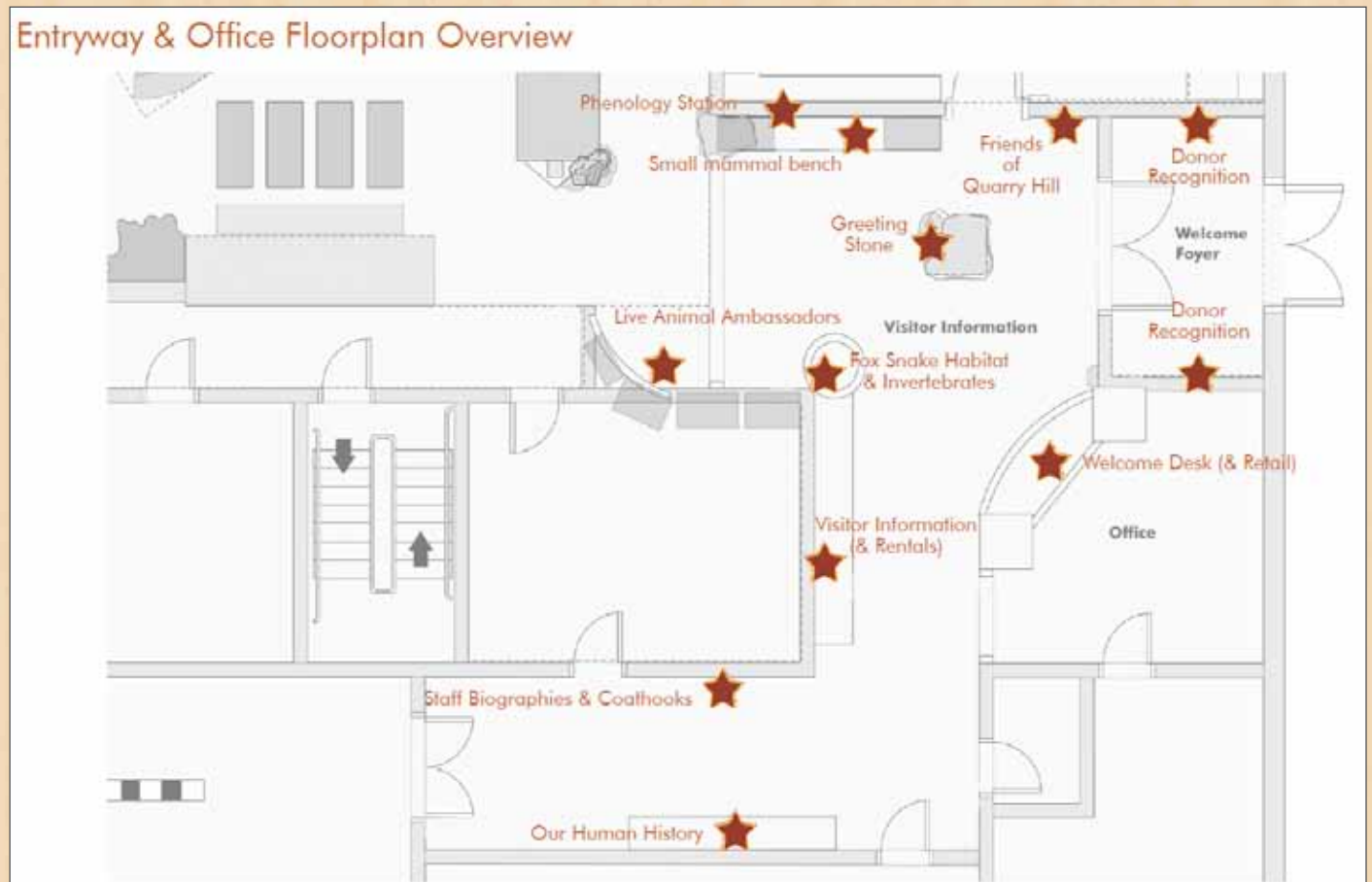


Aquarium with feeding station

ENTRY WAY

Educators, activities, and experiences at the Nature Center provide the gateway to a lifetime to scientific and natural history discovery, and the front entryway provides an important first impression that reinforces these ideas.

Key features in this area help to orient and welcome visitors, peak curiosity through live animal features and interpretive elements, tell the story of QHP&NC and set the tone for visitor's experiences.





Phenology wall



Entrance view

EXPLORATION HALL

Throughout the Nature Center, visitors are encouraged to use their senses: to touch, look, and listen. In the main Exploration Hall, visitors are provided with a central Investigation Station that grounds the room and encourages interaction and promotes science inquiry. Visitors may embark on several subtle scavenger hunt activities within replicated natural environments which house the 35 species of live animals. Whether it is crawling under the large aquarium or feeding the fish, playing I-Spy for creature clues on the life-size bur oak tree, searching out the queen bee in the new observation hive, or interacting with a crayfish or salamander in the touch pool—exciting exploration fills this space from top to bottom.

Wherever possible, visitors are reminded to go out and see “this” in the park—with park maps integrated with graphic panels that point out where each piece of content can be observed outside. The Nature Center becomes a space that invites visitors to spend more time and see something new every visit, with many hidden details and information everywhere. The Exploration Hall provides tools for visitors to explore and inform themselves while also supplying more interpretive tools for its informative staff.





Aquarium



Exploration Hall

CHILDREN'S LIBRARY AREA

The new Children's Nature Library will be a multipurpose space that allows children the freedom to play, relax and read a book, gather as a class, or explore individually. The space will house the Nature Center's popular children's book collection, which features fiction and non-fiction books on natural science concepts. Pebble pillows and "mossy" carpets cover seating areas and the walls are covered with artful tree silhouettes. A crawl-through space under the loft incorporates an amphibian tank for wood frogs, and the roots and cork "dirt bank" provide numerous opportunities for children to scout out interpretive clues and critters.



CITIZEN SCIENCE AREA

Opposite the Children's Nature Library will be another multipurpose space that includes a collection of reference books, field guides, and other books specific to the region. These books, along with the children's literature, may be checked out for use in the park or at home. QHP&NC is involved in many citizen science projects. This new area will also feature information regarding current citizen projects, including the tools, datasets, and specimens necessary for people to participate on their own and in their community.

BIRD STUDY

Many visitors come to Quarry Hill for the opportunity to observe birds and the bird study room provides a comfortable front row seat to watch the many species of Minnesota birds that visit the park. The renovations proposed to the bird study room will make this experience that much more educational, interactive, and engaging.

A few examples of the exhibits to be featured in this space include:

- Bird observation techniques and species identification information (in multiple formats)
- Collections showcase of common Minnesota birds (taxidermy, songbirds, eggs, nests)
- Tagging, tracking and monitoring interpretation (including Nature Center tagging data presentation and live-feed LED nest monitor)
- Highlight Federal Bird Banding program and participation
- Outdoor binocular seek-and-spot activity
- Bird song and bird weight interactive station

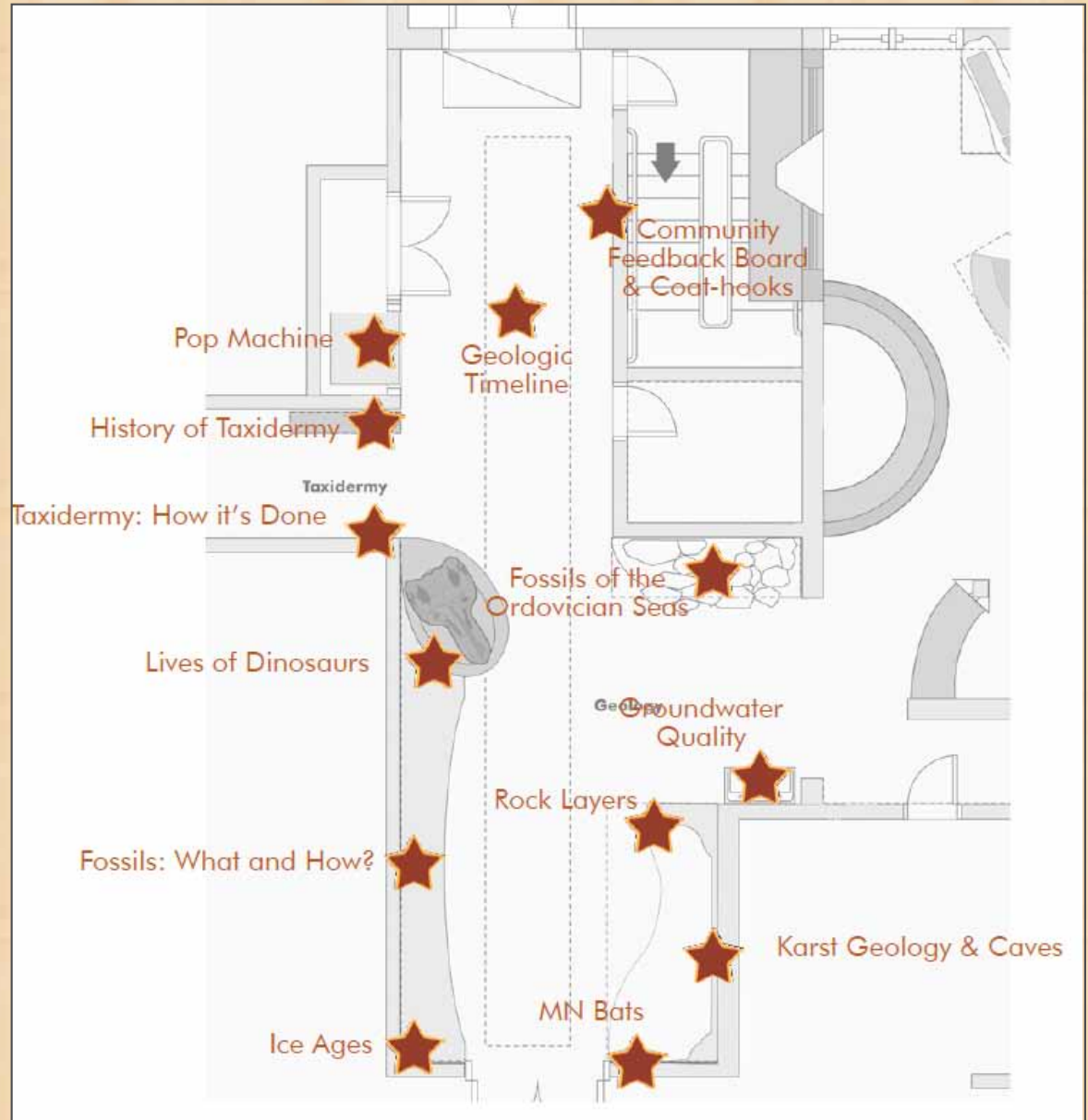


GEOLOGY AREA

The new Geology Area will highlight the unique geological history that is the Nature Center's namesake, as well as allow for the displays of some of the signature rock features of the park and of Southeast Minnesota.

A few examples of the exhibits to be featured in this space include:

- Simulated cave environment with various infographics, interactions and illustrations that tell all about the Karst geology and its relation to ground water and the formation of natural caves
- Replicated Platteville limestone hill and fossil conglomerate with rail-mounted magnifying lens tiny fossil hunt interactive
- Mural of Ordovician seas
- Geologic timeline along floor
- What is a fossil and how are they formed interactive
- Ice Age fossils: Clues to our past interactive





Fossil trail wall



Karst cave exhibit

PRAIRIE HOUSE

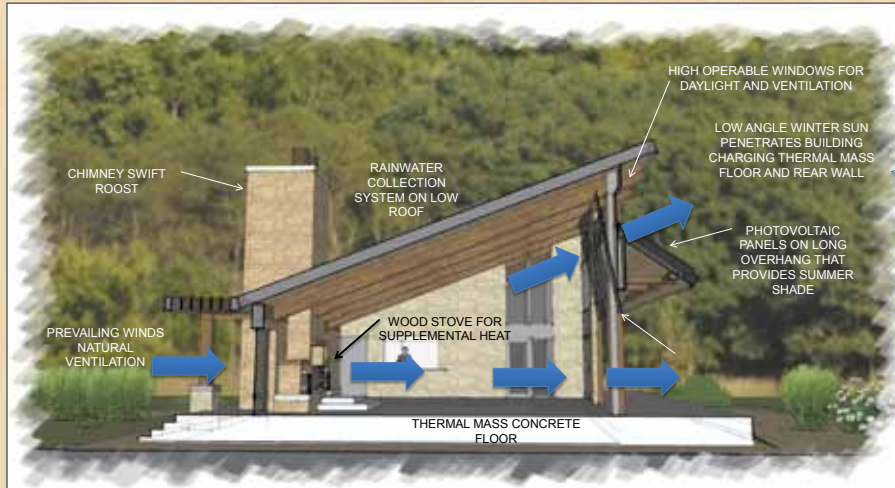
Construction of a satellite space annexed a short distance north of the main nature center building has been proposed to meet the need of additional programming space and opportunities for new educational programs. The site was chosen for its magnificent natural beauty in the prairie habitat, as is located far enough away from the main building to provide a sense of “getting away” from urban settings. Traveling to the site will be an integral part of the intended experience of being immersed in a natural, serene setting. The space will allow for an interior capacity of 75 people plus support spaces, as well as outdoor gathering spaces.

Design goals for this space, known as the Prairie House, include complementing the natural landscape, welcoming visitors, and immersing visitors in the natural surroundings of the prairie habitat. The space will be beautiful, warm, casual and comfortable. Central to the experience of the space will be the views and a design that successfully weave together indoor and outdoor spaces.

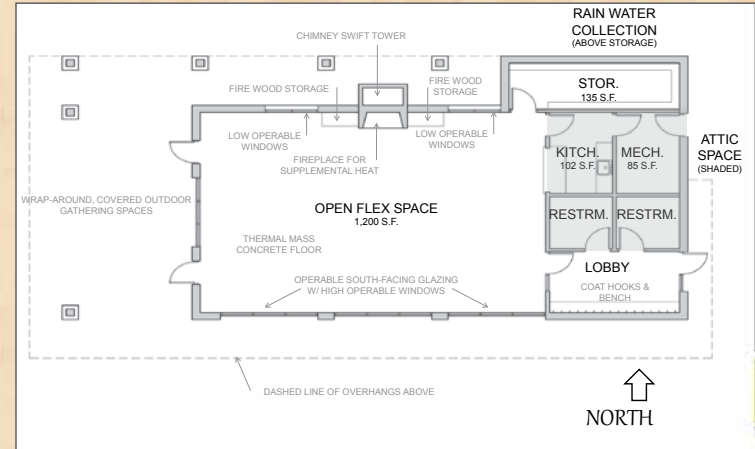
Minimal impact on the local landscape, green practices such as composting toilets, water reclamation, and solar electrical generation are integral to the design. Additional requirements include:

- Construction method will accommodate use in all seasons
- Passive solar heating with supplemental wood burning
- Air conditioning will be natural ventilation
- Construction materials should withstand the elements and provide for security
- Outdoor gathering space that is tied to the design of the building





Sustainable features of the building



Future site of proposed Prairie House

NATURAL PLAYSCAPE

A mounting body of research, including journalist Richard Louv, describe the importance of getting kids back out in nature for their mental and physical well-being. This is driving many parks and nature centers to rethink the traditional playground and incorporate more natural playscapes as a tool to encourage families and kids to get outdoors and engage with nature. Logs, stick forts, boulders, sand, and water provide opportunities for creative, open-ended play that sparks the imagination. Natural playspaces are places where kids can climb, get dirty, and discover hidden “nature” treasures.



"[Natural playscapes] provide opportunities for children to engage in physical play — climbing through hollow logs, clambering over boulders, hopping across 'stump jumps.' Children learn best by performing a physical activity rather than just listening or watching. Exercise the imagination as well with features like mud pie kitchens, dinosaur digs, and 'secret' paths to hidden nooks. Imagination thrives in young children and we need to create opportunities for kids to experience challenges firsthand."
--The Izaak Walton League of America

BOULDERING WALL

With the proposal of the severe weather shelter addition (anticipated construction September 2015), the Nature Center has the opportunity to use an interior wall for the creation of an interpretive bouldering wall. This natural wall façade will not only provide large scale interpretive tools to teach the geology of Southeast Minnesota bluffs, but also include a large motor activity to engage youth in the physical and problem solving activity of bouldering.



INTERPRETIVE SIGNAGE

QHP&NC has a variety of stories to connect visitors to the park's natural and cultural history. Interpretive signage along recreation trails and key habitat areas will help enrich visitor experience. Additional layers of interpretation, such as identification of native Minnesota flora and fauna or invasive species, can target multiple age groups and experience levels from early childhood learners to amateur naturalists. Visual communication in these panels can also help reach audience groups who may speak languages other than English. Master plan recommendations also include increased way-finding signage, which will help welcome visitors, provide directions to facilities, and spark curiosity about recreational opportunities and adventures in the park.

**“THE IMPACT OF THESE IDEAS
SEEMS EQUITABLE TO THE EFFORT
REQUIRED TO GET IT DONE.”**

–Stakeholder workshop participant



HONEYBEE APIARY AND BEEKEEPER MENTORSHIP PROGRAM

Public interest in urban beekeeping and hobby beekeeping is on the rise in Minnesota, perhaps due to the local food movement and a greater awareness of the importance of honeybees as pollinators. This interest is reflected in the demand for introductory bee keeping classes and advanced bee keeping classes currently held at QHP&NC. Current participants in these workshops represent 13 cities and 9 counties across Southern Minnesota.

Breaking into the art and science of bee keeping has never been more challenging. Overall declining bee health and limited access to experienced bee keepers for mentorships are just a few of the obstacles aspiring beekeepers face. The proposed mentorship program is designed to be comprehensive, hands-on, and practical education program that guides new beekeepers toward successfully keeping bees while building a network of support. Classes span an entire season of beekeeping, where mentees will be encouraged to participate in all aspects of beekeeping throughout the year from early spring inspections to over-wintering preparation at season's end.

QHP&NC does not currently keep bees on site. An additional benefit of an onsite apiary is the bees can be used support the success of an expanded indoor observation honey bee hive proposed in the Exploration Hall revitalization plan.

Project Goals

- To mentor new beekeepers in keeping honeybees while utilizing best practices for urban beekeepers
- Create a community of support and continuing education among local beekeepers
- Expose and educate the public to working honeybee hives and beekeeping culture
- Promote the importance of pollinators such as honey bees
- Develop an interdependent hive system to support and sustain our new indoor observation honeybee hive





Concept for new expanded observational bee hive





NATURAL RESOURCE RECOMMENDATIONS

STEWARDS OF THE LAND

The educational resources provided by QHP&NC makes it imperative to preserve its unique site characteristics as teaching tools, in addition to preservation efforts for wildlife and community benefit. It is equally important to enhance the native areas of the park as well to provide longer term sustainability. Both management of invasive species and habitat restoration will need to be performed in the park to achieve this goal. Volunteers, contractual services, park staff, and Quarry Hill staff will play a role in success for vegetation management and enhancement.

INVENTORY OF NATURAL RESOURCES

In January 2006, The Friends of Quarry Hill Park initiated the citizen science project "BioBlitz 365" to inventory the wealth of diversity of life found in Quarry Hill Park. A BioBlitz offers the opportunity for visitors to experience the value of biodiversity in local parks. This biological survey was conducted over the course of an entire year and involved QHP&NC staff, students, families, DNR staff, scientist, teachers and other volunteers. Fifteen team coordinators were chosen and their plans for surveying their particular taxonomic area began. These coordinators hosted dozens of opportunities for the public to participate by attempting to locate and identify birds, dragonflies, damselflies, butterflies, moths, reptiles, mammals, mushrooms, trees, and wildflowers at Quarry Hill Park. Hundreds of participants contributed to the first year wildlife inventory total of 526 species.

Birds - 97	Arachnids - 4
Mammals - 16	Amphibians - 6
Beetles - 8	Reptiles - 6
Dragonflies and damselflies - 16	Fish - 13
Butterflies - 31	Trees - 34
Moths - 18	Fungi - 14
Bees, wasps, etc. - 7	Prairie grasses and forbs - 104
Other insects - 18	Lichens and horsetails - 4
Aquatic invertebrates - 39	Woodland wildflowers - 51
Centipedes and millipedes - 4	Rusts, molds, slime molds -4
Mollusks and crustaceans - 9	Algae and protozoas - 23

**Nature Center staff, volunteers, and visitors
continue to add to a species inventory of the park.**

INVASIVE SPECIES MANAGEMENT

Invasive species control is very challenging in larger natural park settings such as Quarry Hill Park. In recent years, volunteers have worked to identify and map invasive species in order to track the concentration and prevalence of invasive plants. These volunteers have also helped to treat small areas of infestations in the park. Controlled burns are already utilized at the Quarry Hill Park to manage some of the park's vegetation. These spring and fall burns are performed in select locations to assist in the management of invasive species and to promote native plant growth. A more detailed plan for managing invasive species—with a primary focus on buckthorn, wild parsnip, and garlic mustard—will need to be developed by the City of Rochester's Forestry Division.



Invasive wild parsnip



Invasive garlic mustard



Oak savanna controlled burn at Quarry Hill Park



Invasive buckthorn





IMPLEMENTATION PLAN

PLAN OF ACTION

GENERAL SUSTAINABILITY

Physical

The implementation of the various elements at QHP&NC will be based on solid best management practices derived from national information and modified for location conditions by professional park and design staff. New structures will be designed to utilize—as much as possible—sustainable building practices such as passive and active solar power, rainwater harvesting, high efficiency lighting, and sustainable building materials. Park enhancements such as trail development or play spaces will be implemented to minimize erosion and to take advantage of local conditions. Design of these physical improvements will need to consider long-term maintenance requirements to support the facilities.

Operations and Maintenance

The maintenance operation of QHP&NC is the responsibility of the Rochester Parks and Recreation Department. Since the property also serves multiple uses including storm water management, fishing pond, and hiking trails, the Rochester Public Works Department, Department of Natural Resources (DNR) and the Rochester Active Sports Club will be participating in ongoing maintenance of their respective components. However, existing staffing and volunteer network must increase to match the needs of QHP&NC. Due to the growth of the park infrastructure and amenities, staff anticipate seeking funding locally, as well as state and regional grants, to support programming and maintenance at Quarry Hill.

Ecology

The Rochester Parks and Recreation Department and the City of Rochester are committed to the long term sustainability for QHP&NC. Key ecological components such as the pond, storm water facilities, and unique habitats in various location of the park are all very important components to the City of Rochester. Partnerships noted herein for park improvements, trails, invasive species control, and increased visitation can be adequately managed to minimize negative impact on the environment. Best management practices utilized by the City and its various partners will continue to benefit the natural environment. This commitment, along with DNR's participation in maintaining recreational fishing, will also help the success of ecologic sustainability for QHP&NC.

Programming

QHP&NC programming is delivered by licensed science teachers and professional naturalists who are employed by the Friends of Quarry Hill Nature Center. This non-profit supports the vast majority of the Nature Center's program, office, and facilities staff. Financial support for these positions is generated from program fees, Friends of Quarry Hill members, philanthropic gifts, and grants from local corporations, foundations, and businesses.

Rochester Public Schools shares in the partial financial support of four teachers while the Friends of Quarry Hill supports the balance to create a full-time position. The district also provides partial office administration reimbursement, supports building technology, and allocates a small program supply budget. These resources are part of the partnership between the Nature Center and the Friends of Quarry Hill, who in exchange provide science enrichment classes to each K-8 student in the district two times a year.

The City of Rochester provides partial reimbursement to the Friends of Quarry Hill for the Nature Center's facility manager. The City also employs a seasonal staff member to assist with park maintenance during the summer.

There are a number of volunteer organizations which support programming in QHP&NC as well. The Zumbro Valley Audubon Society hosts free monthly speaker series at the Nature Center as well as weekly bird watching hikes in the park. The Rochester Active Sports Club assists with cross-country ski clinics in addition to their trail grooming maintenance during the winter. Staff from the Boys & Girls Club of Rochester assists Friends of Quarry Hill staff with afterschool teen programming in the park once a week. In addition to these mentioned organizations, there is a large group of individual volunteers which assist with program delivery. Many of these volunteers are Master Naturalists, Master Gardeners, and retired teachers. While the program revenues and donations to the Friends of Quarry Hill sustain current programming at the Nature Center, the regional trend toward a growing and diversifying population will stress these resources. Increases in weekend visitation to the Nature Center and greater evening park traffic, combined with increased requests for school programming and outreach, will demand additional resources. Further partnerships with area organizations, as well as increased financial support, will need to be sought in order to offer the same high quality programming the Nature Center is regionally known for.

FUNDING SOURCES

Since funding will likely drive the implementation strategy for QHP&NC, it is important to understand the potential funding sources that may be available.

City Capital Improvement Program

This funding source is an annual appropriation of varying amounts to support the capital investment in park improvements. Unfortunately, this is not a large amount of money and it is also divided among competing park priorities and city-wide initiatives in Rochester.

City Operations Funding

The City of Rochester funds its ongoing yearly maintenance activities of park facilities through annual appropriations. Historically, funding has been provided to maintain infrastructure and provide the service needed. QHP&NC anticipates this funding will continue and increase proportionally to support the growing park system.

Grants

Grants provide an opportunity to solicit funding for specific park improvement projects. Potential sources for grant funding include legacy funding, DNR, SHIP funding, transportation funding, National Recreation and Park Association, Rochester Area Foundation, service organizations, private foundations, corporations and businesses.

Fundraising and Donations

While fundraising and donations represent a small percentage of the overall funding for a project, it is an important segment. These funds are generally provided by those passionate about programming and implementation of activities and improvements at QHP&NC. These stakeholders often help drive others to participate and support the park.

Implementation matrix

RECOMMENDATIONS	2015 ESTIMATES	NOTES
Phase 1 Recommendations		
Revitalization of Nature Center Exploration Hall: Exhibit renovations and additional interpretive space & exhibits	\$1,500,000.00	Preliminary designs for exhibits are complete. Project is currently in design development with next steps being fabrication and installation . A high priority and high impact project that can be implemented by in phases as funding is secured.
Construction of an educational building annex in the prairie	\$500,000.00	Preliminary design is complete for this building.
Weekend & Evening Educational Programming	\$30,000.00	
Interior Bouldering & Geology Interpretive wall	\$40,000.00	
Invasive species management	\$30,000.00	
Phase 1 Recommendations Total	\$2,100,000.00	
Phase 2 Recommendations		
Trail Development and Interpretive signs & informational kiosk	\$56,000.00	
Parking lot restoration and expansion	\$200,000.00	Current lot capacity is 82 cars which is no longer adequate for visitation. School bus visitation also decreases parking capacity.
Honeybee Apiary & Mentorship Program	\$21,000.00	
Invasive Species Management	\$20,000.00	
Restoration of Natural Spaces	\$45,000.00	
Phase 2 Recommendations Total	\$342,000.00	
Phase 3 Recommendations		
Natural Play Area Development	\$60,000.00	
Restoration of Natural Spaces	\$30,000.00	
Invasive Species Management	\$20,000.00	
Phase 3 Recommendations Total	\$110,000.00	
TOTAL ESTIMATED COSTS FOR ALL PHASES	\$2,552,000.00	



APPENDIX AND REFERENCES

WELCOME



Minutes away from busy downtown Rochester is a welcome retreat for anyone who loves nature.

At Quarry Hill Nature Center, delight and wonder await. Students of all ages expand their knowledge of natural science. Families and friends enjoy outdoor recreation and the perfect venue for learning together. Long-time area residents and visitors to the city find an ever-changing environment that varies season by season and showcases the beauty of the region.

Quarry Hill Park is free and open to the public year-round. The nature center is also free and open all but four days of the year. Trained, knowledgeable staff welcome visitors and share their insights into everything that makes southeast Minnesota unique to the state and Upper Midwest.

Visit any time. Get involved by volunteering or becoming a friend of Quarry Hill. Quarry Hill Nature Center is a nonprofit organization and appreciates all donations.

Learn more at qhnc.org

And most of all, learn by doing – walking, hiking, biking, bird watching, attending a class and much more.



Quarry Hill Nature Center
Always a new discovery

HOURS

Nature Center

Mon – Sat **Sun & Holidays**
9am – 5pm 12pm – 5pm

Summer Weekdays **Closed**
(June 1st – August 31st) Dec 24, 25, July 4,
8:30am – 4:30pm & Thanksgiving Day

Park and Trails
Dawn til dusk

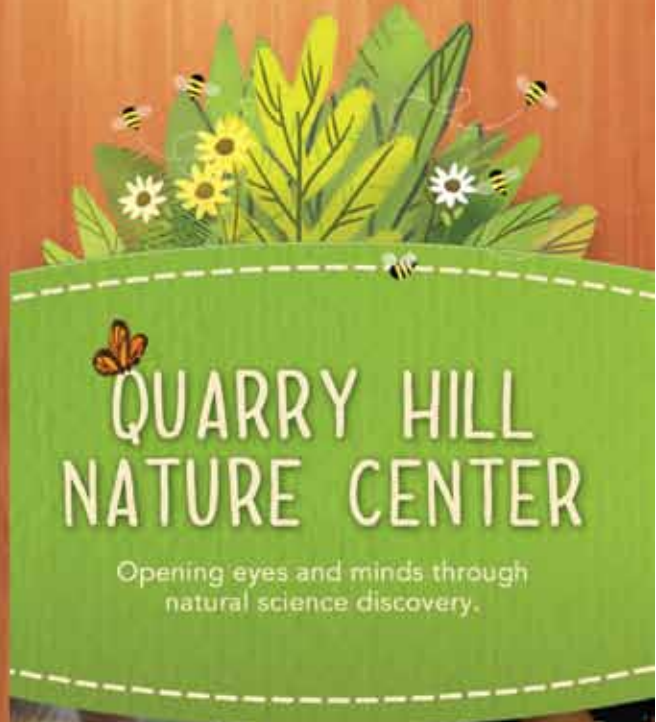
FREE ADMISSION DIRECTIONS

**701 Silver Creek Road NE,
Rochester MN 55906**

Take County Road 22 (East Circle Drive) to Silver Creek Road NE. Look for our sign. Also accessible via paved biking trails in the Rochester Trail System.



507-328-3950
www.QHNC.org
quarryhill@qhnc.org



QUARRY HILL NATURE CENTER

Learning and discovery in 320-acre Quarry Hill Park.

Nature Center

- Live Animals – Minnesota native reptiles, amphibians and birds
- Indoor observation beehive
- 1,700 gallon native fish aquarium
- Life-size T-Rex skull model
- Hands-on exhibits in self-guided Exploration Hall
- Bird watching room
- Seasonal ski & snowshoe rental
- Classroom and event space



Quarry Hill Nature Center offers hands-on natural science programs that encourage exploration, investigation and respect for nature. Programs include science enrichment for schools, classes for preschoolers through adults, group programs, summer nature camps, birthday parties and outdoor recreation opportunities.

Quarry Hill Nature Center is a nonprofit, member supported organization.

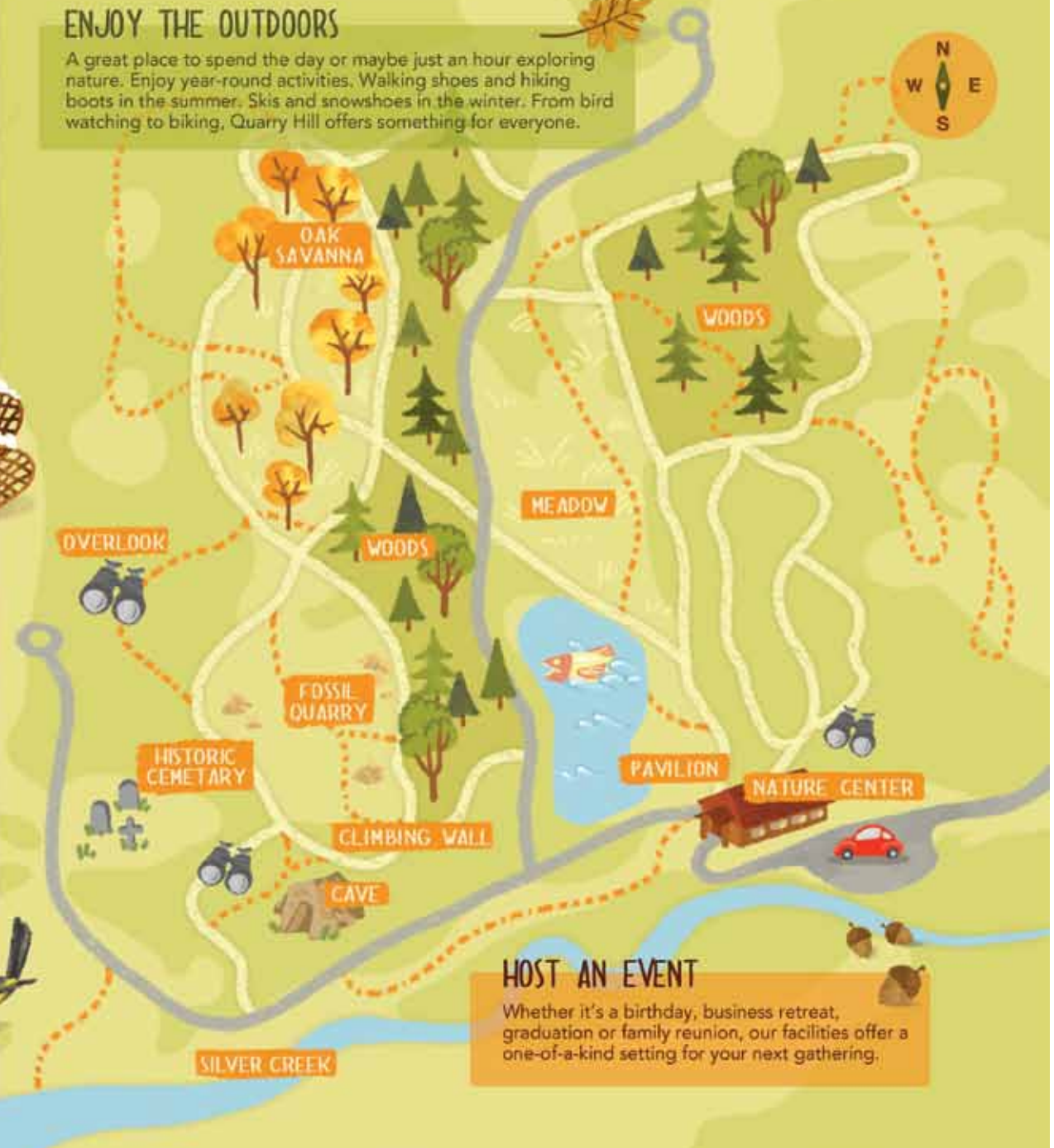
Quarry Hill Park

- 6+ miles of paved & dirt hiking trails
- Pond with fishing dock
- Butterfly and Hummingbird Gardens
- Sandstone cave, built in 1882
- Fossil bed in historic limestone quarry
- Easy and more challenging geocaches



ENJOY THE OUTDOORS

A great place to spend the day or maybe just an hour exploring nature. Enjoy year-round activities. Walking shoes and hiking boots in the summer. Skis and snowshoes in the winter. From bird watching to biking, Quarry Hill offers something for everyone.



HOST AN EVENT

Whether it's a birthday, business retreat, graduation or family reunion, our facilities offer a one-of-a-kind setting for your next gathering.

Help shape our future

Quarry Hill Park and Nature Center is gathering information from community members in Rochester and surrounding areas. The questions below will be used at a staff workshop in early May to develop a vision for the planning process. Your feedback is important to help assess challenges and opportunities for the site.

What is your dream, big or small, for the park and nature center?

Describe a major strength or asset of the organization.

What would you like to see change about the park or nature center?

Describe a major problem or issue that needs to be resolved.

What would a successful Quarry Hill Park and Nature Center look like to you?

Resolution

Pursuant to the presentation at the Park Board on June 2, 2015 and May 5th, 2015 the Board of Park Commissioners reviewed the documentation associated with the Master Plan for Quarry Hill Park and Nature Center. This Master Plan outlines the existing and proposed future use of the property, the potential funding amounts needed and potential sources of revenue.

Be it resolved that City of Rochester Board of Park Commissioners has reviewed and approved the Master Plan for Quarry Hill Park and Nature Center. This resolution also authorizes the Mayor, City Clerk and Director of Park and Recreation to execute the necessary documentation associated with solicitation of grants and funding for the project.

I certify that the above resolution was adopted by the Board of Park Commissioners of City of Rochester on 2nd Day of June, 2015.

SIGNED:

Jay W. Adams
(Signature)

WITNESSETH:

[Signature]
(Signature)

Rochester Park Board President
(Title)

Director of Parks + Recreation
(Title)

06/02/2015
(Date)

06/02/2015
(Date)

Resource Citations:

Wheeler, Phil. "The Future Is Gaining on Us." *Demographics and Census Data Olmsted County*. Rochester-Olmsted Planning Department, 3 Dec. 2013. [online]. 15 May 2015.
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"Rochester Minnesota Community Economic Overview." *Rochester, Minnesota Community*. RAEDI: Rochester Area Economic Development Inc. [online]. 19 May 2015.
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"Rochester (city) QuickFacts from the US Census Bureau." *United States Census Bureau*. United States Census Bureau. [online]. 19 May 2015.
<<http://quickfacts.census.gov/qfd/states/27/2754880.html>>.

"Minnesota State Comprehensive Outdoor Recreation 2014-2018." *Minnesota Department of Natural Resources*. Minnesota Department of Natural Resources. [online]. 17 May 2015.
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<<http://wwwdev.cdc.gov/brfss/brfssprevalence/>>.