

Southwood Nature Preserve  
City of North Saint Paul, Minnesota  
Recommendations for Enhancing the Visitor Experience  
Through Sustainability Education



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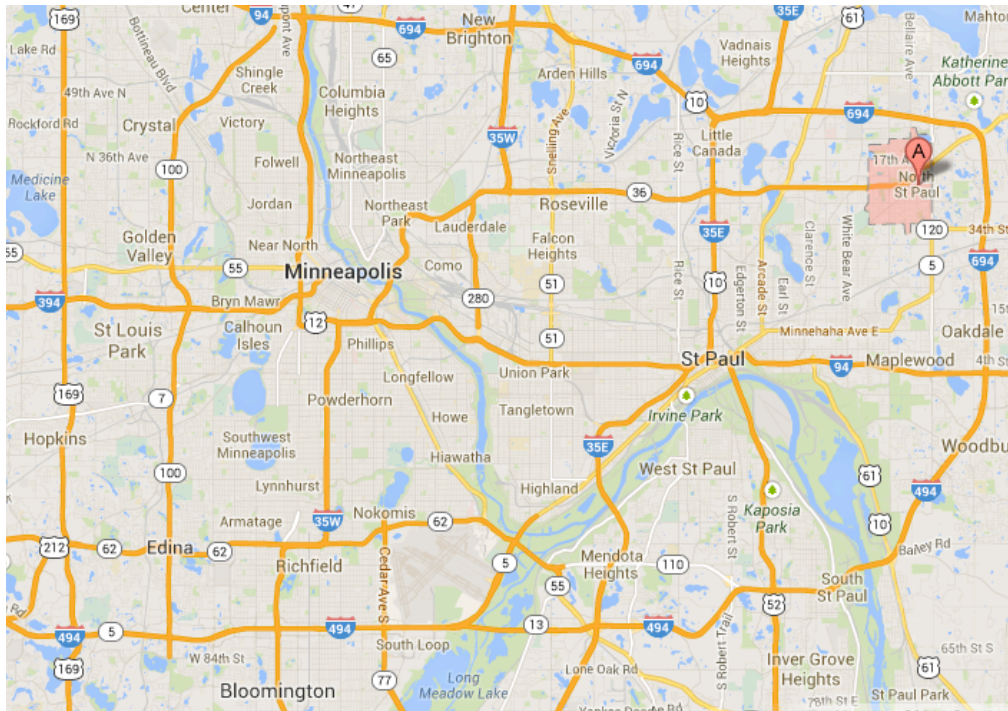
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## Introduction

The Resilient Communities Project (RCP) is a Minnesota initiative, created by the Sustainability Faculty Network at the University of Minnesota. Mirrored from University of Oregon's Sustainable City Year Program, RCP was established to directly respond to the "growing need to find sustainability solutions to pressing issues" that various communities face (Schively-Slotterback & Greco, 2013). After a competitive request process, RCP chooses one Minnesota community (whether a city, county, common transportation corridor or watershed) to work with for one year. In partnership, RCP provides "matchmaking" opportunities for graduate and professional courses at the University of Minnesota to provide meaningful experience in addressing and advancing local sustainability issues (Schively-Slotterback & Greco, 2013). Students and faculty of graduate courses, then, are expected to complete the project as part of regular coursework. Their final presentations are to produce sustainable solutions that will be delivered and implemented to benefit the community (Greco, 2013).

The 2013-2014 RCP partner is North Saint Paul, located northeast of the Minneapolis-Saint Paul metro area, as seen in Figure 1. A small suburb of 3.1 square miles, North Saint Paul's population is about 11,000. Residents of the city positively remark on its small-town feel and proximity to urban development. Having 125 years worth of history, North Saint Paul is deeply rooted in values of community and simplicity, but also embraces an ever-progressing future.



*Figure 1.* Metro area of Minneapolis-Saint Paul Minnesota. North Saint Paul is marked in red. Image adapted from Google Maps™.

As a partner of this year's Resilient Communities Project, North Saint Paul has addressed the needs in various sustainability issues in projects such as:

- Live/work housing
- Living streets and capital improvements
- Green energy initiative
- Neighborhood identities
- Fiber optic network development
- Community identity and branding
- Downtown revitalization strategies
- Civic engagement and communication
- Environmental education
- Redevelopment-ready community
- Public art and public history
- Master redevelopment plan
- Silver Lake trail connection
- Community gardens and local food
- Staff development and retention
- Development of underutilized parcels
- Aging in place
- Energy conservation initiative
- Emerald Ash Borer Management Plan

- Bulk Waste Pick-Up Program Evaluation
- Documenting the RCP-North Saint Paul Partnership
- Stormwater Management (Greco, 2013)

These projects are currently matched to current graduate and professional courses. At present, eleven University of Minnesota colleges and schools, plus two University of Minnesota Duluth graduate courses, are working on North Saint Paul projects. In total, RCP connects hundreds of students and faculty from a range of disciplines in order to reach all aspects of sustainability such as environmental health, social equality, and economics; and all aspects of sustainability efforts, including analysis, planning, design, implementation, education, and evaluation (Schively-Slotterback & Greco, 2013). Such expertise includes the following departments:

- Housing Studies
- Civil Engineering
- Law School
- Communication Studies
- Graphic Design
- Marketing
- Gerontology
- Journalism
- Architecture
- Organizational Leadership, Policy, and Development
- Urban and Regional Planning
- Public Policy
- Environmental Education (UMD)
- Design
- Environmental Science, Policy, and Management
- Forestry
- Public Health
- Human Resources and Industrial Relations
- Environmental and Outdoor Education (UMD)
- Social Work (Greco, 2013)

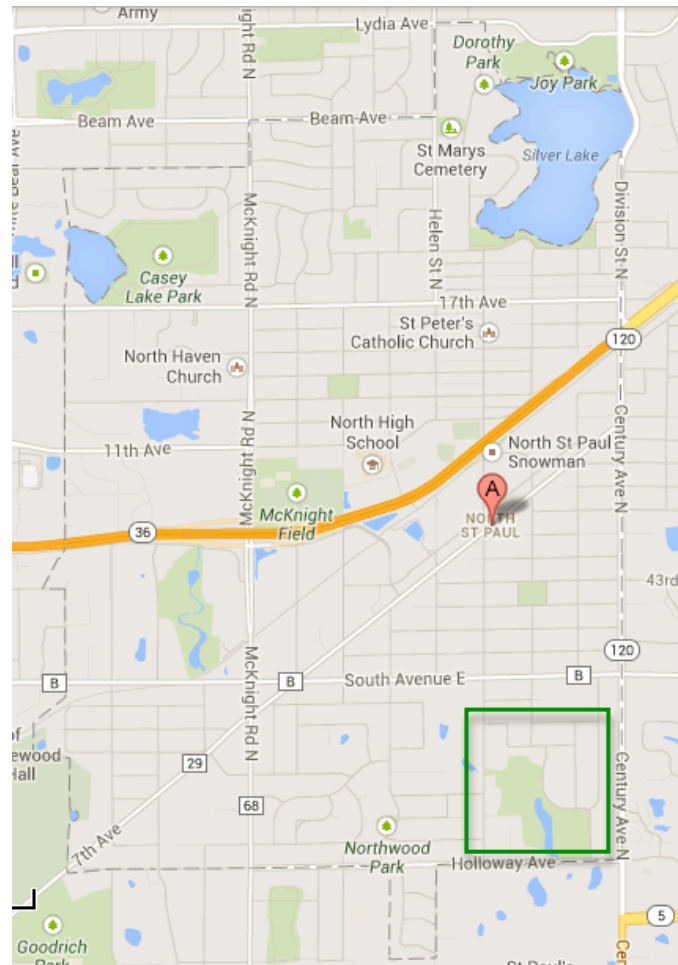
### Environmental Education Initiative

As members of the Sustainability Issues Investigation course through the University of Minnesota Duluth Master of Environmental Education Program, we are addressing and advancing North Saint Paul's Environmental Education initiative. Today, urban residents are increasingly "detached from, and lack opportunities to meaningfully interact with, their natural environment" (List of NSP Projects, 2013). Containing a variety of green spaces, the city contains various recreational opportunities for visitors, but lacks a long-range management plan to optimize progress and community involvement within the parks.

### Southwood Nature Preserve

Though one of many green spaces in North Saint Paul, the Southwood Nature Preserve (SNP) was chosen by RCP to analyze and evaluate its current use and methods of engaging visitors with the park's minimal education programming and interpretive signage. Located in the southeastern corner of North Saint Paul, as seen in Figure 2, the SNP provides a public, natural attraction for local community members. A 29-acre nature preserve, Southwood contains a large wetland, a restored oak savannah, a 1.5-mile trail system, and a historic homestead. As a managed site of the City's Parks and Recreation Commission, the preserve has been under various restoration projects, enlists several volunteers, and hosts infrequent education opportunities for nearby schools. As a natural learning area, two nearby schools, Cowern Elementary and Maplewood Middle School access the park as an outdoor classroom (Andersen et al., 2013).





*Figure 2.* Map of North Saint Paul, Minnesota. The Southwood Nature Preserve is marked with the green box. Image adapted from Google Maps™.

Having a natural area in an urban setting creates an important outlet for residents and demonstrates the value of preserving natural ecosystems of the area. Although a site for local community members to visit and enjoy, the SNP lacks a sustainable, long-term management plan that continues to improve and expand the park's resources and potential to enhance the visitor experience (Resilient Communities Project, 2014).

### **Purpose**

Since fall 2013, the SNP has been a topic of interest among the City's representatives including the SNP Task Force, City Council members, members of the Park and Recreation Commission, Watershed District members, Environmental Advisory Commission members, and

graduate students and faculty of the University of Minnesota Duluth. Together, all members listed goals, objectives, and outcomes for the SNP based on the City's needs and interest and designed a management plan that encompassed areas of administration, environmental restoration and education, guest hospitality, and program initiation including:

- Monitoring visiting usage of the SNP
- Incorporating the nearby, unprotected Holloway Marsh from urban development
- Eradicating invasive species
- Improving interpretive visuals for passive environmental education
- Increasing recreation opportunities
- Building a parking lot
- Erecting a shelter (Andersen et. al, 2013)

The primary goal of this long-range management plan is to provide the City of North Saint Paul with guidance and direction for implementing management goals for Southwood Nature Preserve to polish and expand educational opportunities that revolve around the current issues of invasive species, water quality, and recreational use.

The Southwood Nature Preserve is a beautiful, usable space for guests of all ages, but lacks the infrastructure and personnel to support its potential for addressing environmental concerns through education (Andersen et. al, 2013). For this course, we focused on the goals of the Resilient Communities Project and North Saint Paul to build opportunities for the Southwood Nature Preserve's future in environmental education initiatives. The purpose of this project was to investigate and recommend the best means of education that lead toward a sustainable management of the Southwood Nature Preserve. We identified the primary educational needs of the SNP. Our intent as part of UMD's Environmental Education 5325 course was to create an

environmental education plan to help motivate community members of North Saint Paul to utilize the SNP for educational and recreational purposes.

We hope to provide natural, learning opportunities for the community that surrounds it and empower them to take an active role to enjoy, learn, and preserve this natural area in a sustainable manner. By providing environmental education at the Southwood Nature Preserve, the community has the opportunity to actively engage in healthy lifestyles while enjoying nature, and potentially recognize the importance of the surrounding environment.

### **Questions to Guide Data Collection**

Listed below are questions to help guide and investigate issues and solutions to help bring more visitors and education about what can be offered and taught at the Southwood Nature Preserve.

1. What are the sustainability issues at the Southwood Nature Preserve? (E.g., effects of invasive species to the Southwood Nature Preserve and its ecosystem)
2. Which forms of non-formal education are most effective in enhancing the visitor experience?
3. What education plans have been used successfully by other parks and nature centers?
4. What interpretive information should be displayed on park signs? (E.g., native and invasive plant species located in the preserve, wildlife, etc.)
5. How can we empower and engage the community of North Saint Paul toward care and appropriate use of the SNP?

### **Specialized Questions**

The goals we set were thoughtfully considered to not only be achievable, but measurable and within the scope of the course. We presented a tangible product that provides Southwood

with interpretive signage along the trail system. Specialized questions for long-term management planning coincide with RCP’s mission of sustainability and community resilience.

In efforts to sustain a large scope management plan for the SNP, there must be an organized focus on four major aspects: education, community outreach, recreation, and environment. We believe that these four pieces, when utilized, will offer monumental progress the Southwood Nature Preserve to contribute to the large scope to creating a resilient community in North Saint Paul. Specialized questions divided by small and large scope will guide our data collection, and are shown below in Table 1.

*Table 1.* Specialized questions for short and large scope management plan for the Southwood Nature Preserve.

	Small Scope Questions	Large Scope Questions
Education	<ul style="list-style-type: none"> <li>• Which forms of nonformal education are most effective in passively educating visitors on issues such as water quality/soil erosion and invasive species?</li> <li>• What are the effects of creating a teacher’s guide to visiting the SNP with students?</li> </ul>	<ul style="list-style-type: none"> <li>• What are the benefits of designing and hiring a staff educator position?</li> </ul>
Community Development	<ul style="list-style-type: none"> <li>• What is the public’s perception of the Southwood Nature Preserve?</li> <li>• Do local schools want to use the Southwood Nature Preserve as part of classroom education?</li> </ul>	<ul style="list-style-type: none"> <li>• Is it possible to collaborate resources between the Southwood Nature Preserve and Holloway Marsh?</li> <li>• How can the commissions of North Saint Paul be an active part of the management of the Southwood Nature Preserve?</li> <li>• How can the Southwood Nature Preserve be utilized through social media?</li> <li>• What are the benefits of the SNP for the quality of life for citizens of North Saint Paul?</li> </ul>

<p>Recreation and Leisure</p>	<ul style="list-style-type: none"> <li>• What are areas, additional facilities, and resources can be built within the SNP to enhance visitor use?</li> </ul>	<ul style="list-style-type: none"> <li>• How can recreational opportunities be optimized at the Southwood Nature Preserve?</li> <li>• What are ways to increase recreation at the Southwood Nature Preserve?</li> </ul>
<p>Environment</p>	<ul style="list-style-type: none"> <li>• Will constructing bird feeders affect visitors' frequency and duration spent in the SNP?</li> </ul>	<ul style="list-style-type: none"> <li>• What are the effects of invasive species on the Southwood Nature Preserve and its ecosystem?</li> <li>• What is the current standing of the SNP's water quality?</li> <li>• What are the current pet policies of the SNP's visitors?</li> <li>• What are the environmental implications to the current number of trash and recycling receptacles?</li> </ul>

Case Study Specialized Questions

In order to provide the Southwood Nature Preserve with recommendations for visitor enhancement and long-term resiliency, we also surveyed another public green space as a case study.

1. Has this public green space implemented a long-term education and management plan to its space?
2. What methods does this public green space use to publicize its space to potential visitors?

**Methods of Obtaining Data**

We used a variety of methods and sources to collect the data needed to develop and sustain a long-term educational and management plan for the Southwood Nature Preserve (SNP).

Methods for data collection included: reviewing previous work of SNP and the University of Minnesota Duluth's management plan; evaluating literature reviews of journal articles; examining Hartley Nature Center of Duluth, Minnesota as a case study; and conducting interviews and meetings with the members of the Resilient Communities Project and greater North Saint Paul community.

During this data collection, we reviewed Southwood Nature Preserve: Long Range Management Plan, by UMD students Leah Andersen, Austin Christensen, Erin Denny, Shaun Hansen, Brandon Liddiard, and Adam Maxwell. These students spent the semester of Fall 2013, examining the “mission, vision, significance, and objectives” and developed a long-term management plan from their findings (Andersen et al., 2013). We also evaluated literature reviews of journal articles and introduce a basis for previous undertakings of designing and implementing management plans for green spaces. Hartley Nature Center of Hartley Park, Duluth, was interviewed for a case study. We interviewed staff to review its usage, management plan, and educational opportunities.

By and large, much of our data collection came from our dialogue with the members of the Resilient Communities Project, including the Community Development Intern of City of North Saint Paul, Jon Fure; RCP Program Manager, Mike Greco; UMD Associate Professor of Environmental and Outdoor Education, Dept. of HPER, Ken Gilbertson; and City Council member liaisons for the Park and Recreation Commission and Environmental Advisory Commission. We interviewed and met with many of these members (via phone and email) to gain feedback and direction of our data collection and project execution for the Southwood Nature Preserve.

### Review of Literature

By using the following literature resources, we were able to gather background information about what makes a green space, a current draft of a management plan for building resilient communities through the Southwood Nature Preserve, and studies on how green spaces and parks can improve people's lives. The compilation of these sources gave us a solid background and foundation of information to understanding how to build a management and education plan for North Saint Paul's Southwood Nature Preserve.

- *Resilient Communities Project*—By reading and analyzing this proposed management plan for the Southwood Nature Preserve, we gained a better understanding of needs wanting to be met for the North Saint Paul community in terms of a management and education plan.
- *Green Spaces*—By researching the concept and definition of green spaces, we gained a better understanding as to what they are and what their contribution is to urban environments.
- *Understanding the Contribution Parks and Green Spaces can make to Improving People's Lives*—This report demonstrates the wide range of benefits green spaces provide, whether provided and managed by statutory agencies, local authorities or by community led and managed groups such as community gardens or friends of groups. Many of the benefits provided by green spaces reflect on their importance to community. We used this report as a way to support why enhancing programs at the Southwood Nature Preserve could benefit the community as a whole, recreationally, educationally, and in stewardship for the environment.

Case Study: Hartley Nature Center

By using the following example of Hartley Nature Center, located in Duluth, Minnesota, we gained information about a nature center's presence and relationship with a community.

Hartley Nature Center is an independent, non-profit organization is also a city park and therefore a similar setting that provides education and recreational opportunities for city residents. Located at 3001 Woodland Avenue in Duluth, Minnesota, the park covers 660 acres and serves more than 20,000 visitors a year, over half of them school-aged children.

Hartley's mission statement is to provide opportunities for understanding, appreciation, and stewardship of the natural world. They teach visitors about how nature works, with the hope that once people understand nature, they will enjoy it more and strive to protect it. They encourage appreciation for nature through outdoor recreation, including hiking, fishing, bird watching, snowshoeing, and cross-country skiing. Finally, the park fosters stewardship of nature by recruiting volunteers and interns to help remove invasive species and restore the ecosystem of the park, learning as they go.

Hartley Nature Center has a more than 26-year history of environmental education, with the first instructors working out of the trunks of their cars in 1987. Today, Hartley Nature Center offers a wide variety of options for education, including preschool, school field trips, homeschool programs, day camps, and even nature-themed parties. They also offer at least eighteen different lesson plans involving natural history and outdoor recreation.

Hartley Nature Center is an ideal resource of information for advice on developing an education and management plan for the Southwood Nature Preserve, as it is a well-known and widely used nature area with a well established nature program and excellent relationships with



the local community, including many schools and colleges such as the University of Minnesota Duluth. We contacted Hartley's education staff and asked the following questions:

1. How does this organization attract visitors?
2. How does this organization educate visitors?
3. What passive education techniques are used?
4. What information is provided on signs?
5. How many words, on average, are on a sign?
6. How many people (staff, volunteers, etc.) operate this organization?
7. How do you conduct outreach to the public?
8. How do you facilitate your relationships with UMD and other organizations?
9. What methods are being used to combat invasive species?
10. What, if anything, should be done differently in implementing education and management programs at a smaller (29-acre) park like the Southwood Nature Preserve?

### **Methods for Creating Resilience for the SNP**

#### Education

As a public preserve, the SNP has limited funding, guiding us to focus on educational methods that are passive. Passive educational methods are those which visitors learn at their own pace and discretion, such as signs. Constructing interpretive signs provides visitors with the choice to engage in the message. To learn more about the best efforts of interpretive signage, we considered the findings of Davis and Thompson's (2011) *Investigating the impact of interpretive signs at neighborhood natural areas*. The study gave us direction to features and topics of interpretive signs that are located along the SNP trail system.

### Community Development

This aspect offers solutions as to how to engage the community of North Saint Paul to take advantage of and protect the Southwood Nature Preserve. Our efforts with the Resilient Communities Project are to sustain a management plan for the SNP and foster resiliency with the surrounding community. Our recommendations for community involvement consider the RCP's definition of "resiliency" and how sustainability in community is an ever-evolving process that includes a variety of community leaders.

### Recreation

Recreation and leisure resources of the Southwood Nature Preserve are great motivators in receiving frequent and repeat users of the park. We have worked to make logical and useful recommendations for the SNP to increase and enhance a variety of recreational and leisure structures and activities. We considered the current seasonal uses of the park, as well as the literature *Enhancing Urban Green Spaces* to optimize a variety of uses for all seasons and all motivations of visitors.

### Environment

The Southwood Nature Preserve, like other green spaces in the Twin Cities, provide valuable habitat for many plants and animals in a progressively developed metropolis. In efforts to sustain the current local ecosystem, many concerns have been voiced about the preserve's decreasing native plant population, the water quality from loose soils and lawn fertilizers, effects from visiting pets, and access to trash and recycling receptacles. Our recommendations for the environmental quality of the SNP will consider local concerns and reflect successful techniques of what has been done in the case study of Hartley Nature Center. We also considered the

literature of *Enhancing Urban Green Spaces*, as to how the SNP can engage and empower neighbors and visitors to consider their environmental impact and act on these values.

## **Review of Literature**

### Resilience

The main focus of this management and education plan is to create and sustain a community that is resilient. In the inner workings of sustainability and resiliency, resiliency is a sustainable community, but also invites change and flexibility as well as personal action and investment.

Resilience is defined by Merriam-Webster dictionary as: “The ability to become strong, healthy, or successful again after something bad happens” and “the ability of something to return to its original shape after it has been pulled, stretched, pressed, bent, etc.” (2014). Resiliency can be applied to the environment, ecosystems, social systems, economic systems, individuals, and in terms of community. According to a Community and Regional Resilience Institute (CARRI) (2013) a resilient community is defined as “The ability of community members to take meaningful, deliberate, collective action to remedy the impact of a problem, including the ability to interpret the environment, intervene, and move on” (CARRI, 2013, p7). Resilience is an inherent and dynamic attribute of the community. This means that it exists throughout the life of the community. Potentially it can either be determined absolutely, or at least changes in a community’s resilience can be detected.

By focusing the theme of the management and education plan of the Southwood Nature Preserve around resiliency, North Saint Paul will be supplied with the tools and methods necessary to foster community engagement and sense of place, and will promote a strong and engaging community, both social and environmental.

### Enhancing Green Spaces

Current research supports the valuable contribution that parks and green spaces have on communities and people. In support of Climate Week UK 2011, the environmental not-for-profit group GreenSpace released the GreenLINK report, Blue Sky Green Space on the necessity of parks and green spaces. This report outlined the many benefits that a diverse range of quality green spaces bring, covering health, community, economic, and environmental value.

Parks and green spaces provide communities with a sense of place and belonging, opportunities for recreation, health and fitness, events that reinforce social cohesion and inclusive society, and offer an escape from the stresses and strains of modern urban living which can feel compounded by the built environment (*Enhancing Urban Green*, 2006, p.6).

Research shows that well managed parks and green spaces promote more community involvement, which leads to better relationships within the community and with local government. Citizens who were more involved with local green spaces took more pride in the area where they live. Acts of improving, renewing or even saving a park can build extraordinary levels in a neighborhood (*Enhancing Urban Green*, 2006, p.8).

Parks and green spaces play an important role in revitalizing and restoring community life. This report suggests that the benefits of green space provide a very cost effective means of promoting health and well-being, as well as a mechanism for increasing community and individual involvement. From volunteering to improving health to environmental and economic value, parks and green spaces are a valuable contribution to society. From so many perspectives, parks and green spaces offer of multitude of benefits. A sense of place and care for environment and community is established through traditions of taking care of the land.

### Interpretive Signage

Implementing interpretive signs for natural areas takes a great deal of design, construction, and of course, budget. As a passive means to educate visitors, whether new or repeat, interpretive signs are an important tool in increasing visitor knowledge; that is, of course, if visitors take the time to stop and read them. This method of voluntary learning allows visitors to inquire information at their own pace, through their own motivated interest. By recognizing the many variables that influence the decision to attend a sign, we can better understand which features of the natural area to highlight, as well as the format and design of a sign to better engage visitors.

Davis and Thompson (2011) conducted a qualitative study on how visitors to neighborhood natural areas of Fort Collins, Colorado interact with and use interpretive signage. The city itself contains over 40 natural areas, of which are visited by 3.7 million visitors each year, 95% of whom are repeat visitors. The impressive retention rate gives an interesting complexity to this study, as repeat visitors may no longer read the signs due to their perception of knowledge gained from previous visits (Davis & Thompson, 2011). To better understand visitor interaction with interpretive signage, their methods included 475 qualitative observations of visitor use, 46 interviews with visitors, and 46 tests of knowledge gained from reading interpretive signs.

Over a five-month period, 475 visitors were observed and recorded based on age group, activity, time attended to signs, and their level of interaction with signs. Forty-six interviews were conducted to gauge visitor's frequency of visit, use of interpretive signs, and favorite features of signs. After the interview, visitors were asked to recall or explain information that is located on various signs with multiple choice, true or false, or short answer questions.

The results showed that 26% of visitors observed, stopped, and attended at least one sign for 31-37 seconds, and 74% did not attend any interpretive signs. Motivation to read interpretive signs varied greatly, though some signs had a higher likelihood of being read because they were located at the top of ridges, near turns, or by benches—locations that facilitated pace change and an inviting learning experience. Other motivators included the topic of interpretive sign as well as particular information that would answer questions about the surrounding environment. Davis and Thompson also stated that many of repeat visitors are engaged in exercise. Whether biking or running, the faster pace, as well as a lack of learning motivation are directly linked to avoidance to interpretive signs.

In terms of favorability, interviewees spoke most positively of signs that included unique features such as an image of underground prairie dog tunnels and those that included observational information of the surrounding environment. Audio buttons, scent cans, and flip signs were attractive features with their three-dimensional features along with signs with images and description of wildlife.

Overall, the findings demonstrated that repeat visitors attend interpretive signs differently than first-time visitors. In the same vein, certain features were recognized to be more favorable to repeat visitors. Many factors play into the success of an interpretive sign—the primary factor being the visitor's motivation to engage. Signage features, then, must adhere to and compliment the diversity of motivations. Sign design could consider features that accommodate faster paces, perhaps with less and larger text; locations for natural resting points; and topic variety depending on location, local wildlife, and natural history. With effective and intentional design, interpretive signs will instill environmental knowledge, and engage visitors to contribute to their communities and societies as a whole (Davis & Thompson, 2011).

## Data Collection

### Case Study

For our case study, we interviewed Hartley Nature Center's Executive Director Tom O'Rourke, and Assistant Education Program Director Sharon Krause. Director of Operations Brett Amundson provided additional input.

#### *Attracting visitors and conducting public outreach*

Hartley Nature Center is open to the general public at no cost. To bring in visitors, they utilize some print publications, namely rack cards, which are distributed at sites such the rest stop on Highway 35 entering Duluth, the Duluth Chamber of Commerce, and some restaurants, where they have maximum visibility to people visiting the city. For some of their larger events, Hartley will publish ads in local newspapers for some of their larger events, and post flyers and posters around town. They send out direct mail ads to local schools: postcards informing children about summer camps and how to sign up for them, and camp brochures to teachers and school lobbies. In summer they send out newsletters with a menu of course offerings that teachers can choose from to utilize in the coming school year.

Hartley also communicates its services electronically, sending e-mails to schools to be forwarded to students and teachers. They have a Website (HartleyNatureCenter.org), a Facebook page, and a membership base of supporters to whom they regularly send newsletters and e-mails. Local television reporter Dave Anderson, a local television reporter, regularly features Hartley Nature Center in his program, *Nature Matters*; Krause states that he comes to the center with his camera crew every few months to film a story.

*Educating visitors*

The majority of Hartley Nature Center's audience (about 90%, according to O'Rourke) are in the age range between preschool and third grade. From September to May, most of Hartley's programs consist of field trips for area schools, which can be half or full day.

Krause states that the vast majority of Hartley Nature Center's education is done close to the building, as most of the students that come to the park during the school year are too young to tolerate long hikes. Older groups and summer camps tend to travel further into the park, but even then they do not typically use the full 660 acres of Hartley Park.

Hartley Nature Center has partnerships with other organizations such as the Izaak Walton League and Trout Unlimited, whose staff presents adult education programs at Hartley, as their organizations lack building space. So although the Hartley Nature Center building closes to the public at 5 p.m., these organizations will hold evening programs there. Tom O'Rourke calls it a win-win situation, as it provides a way for the nature center to serve an adult audience without being staff-intensive.

*Passive Education*

According to O'Rourke, one shortcoming of Hartley Park is that the trail system has very little signage, both directional and educational. This is largely because Hartley Nature Center is not in charge of Hartley Park; they only lease a few acres around their building. The rest of the park belongs to the city of Duluth, who is responsible for plowing Hartley's driveways, grooming the ski trails, and emptying the waste bins. Though Hartley Nature Center works with the city to manage the park, they must also go through them for funding.

There are kiosks throughout Hartley displaying maps of the park, and a few boxes containing brochures and trail maps, but most of Hartley Nature Center's passive education takes



place within the building. The exhibit hall features a number of live animals, including turtles, snakes, and crayfish, accompanied by signs of basic information on the species. In addition, there are mounts of native animals such as the pine marten, and exhibits on geology, astronomy, and the history of the park. Outside the center there is a butterfly garden and dragonfly pond, with signage discussing the provision of native habitat for these insects. Photographs are prominently featured on these signs, particularly those of the butterfly garden. O'Rourke suggests that passive education at the center could be improved upon by adding signs talking about the natural history of the park, invasive species such as buckthorn, and other management issues.

#### *Staff and volunteers*

Hartley Nature Center is operated by five full-time staff, plus a supervisor and bookkeeper who work part-time, and a number of interns; usually 3–5 during the school year and 6–8 in the summer. They also have a list of about 15 on-call teachers (usually former interns or people who've been associated with Hartley in the past) who can be contacted on short notice in the summer to teach one or two classes if Hartley is understaffed at the time.

Krause estimates that Hartley has dozens of volunteers, with varying degrees of involvement. Among them are high school students who help with winter and summer camps, members and former staff who come in to help with large events or stewardship projects, and even people who come to the center one day a week to work at the desk for a few hours. There are also groups who do one-time only volunteer work: sometimes the College of St. Scholastica or the Boy Scouts will bring a large group of volunteers to remove invasive plants such as buckthorn.

*Facilitating relationships with other organizations*

Krause says that when forging new relationships with schools and other organizations, the aforementioned advertising methods are very useful. They also sometimes make direct calls, letting schools know about Hartley Nature Center, what their rates are, what programs are available, and other such information. She also put forth the idea of contacting a school and sending a person there to talk to the administrators, the school board, or a parent support group. This representative could give a presentation, meet with people to discuss options, or take a survey to find out what the school or group is looking for in terms of environmental education.

The University of Minnesota Duluth (UMD) is one organization that has an excellent relationship with Hartley Nature Center. The college has an outdoor program, an environmental education program, and an early childhood education program, all of which Hartley partners with to varying degrees. Hartley staff members present to UMD classes on occasion; for example, when UMD's environmental and outdoor education program is teaching a risk management class, the instructor might invite someone from Hartley to come in and discuss their risk management protocol, and what their policies and procedures look like. Meanwhile, UMD students often come to Hartley for internships or research opportunities.

Because Hartley Nature Center is so popular with young children, it is of particular interest to UMD's early childhood department. Students of early childhood education facilitate games for kids who come to the nature center on a specific day, including an annual Halloween event. In light of Hartley's plan to open a nature-based preschool in the fall of 2014, they have collaborated on grants with people at UMD who research early childhood environmental education.

*Methods to combat invasive species*

Most of the people who work to combat invasive species infestations at Hartley Park are stewardship interns and volunteers. When Hartley Nature Center hears from a large volunteer group that wants to come and do something on behalf of the park, they will work with them on invasive species. They have one group of interns and volunteers working with their educational program, who have done public workshops on invasive species. Another set works on stewardship. Their biggest project involves manually cutting up and pulling out buckthorn. They are also trying to remove a Japanese knotweed patch, and are working with the USDA to monitor gypsy moths and emerald ash borers. (According to Amundson, they have the beginnings of a moth infestation on the southeast side of the park.)

The city of Duluth has a volunteer coordinator who has tried to coordinate specific efforts aimed at invasive species. As part of the master plan that's being developed for the park, there's a resource management component that makes recommendations in terms of invasive species and restoration. It's likely that there will be a more concerted effort in the future to get some relatively large funding to undertake comprehensive and impactful attempts at invasive removal.

*Environmental impacts of park visitors*

Krause states that Hartley's biggest concern with park visitors is dogs. People love to walk their dogs in the park, but many of them don't keep them on a leash. If there's a field trip or education program going on, a dog bounding ahead of its owner on a trail can easily scare the children. There are also people who don't pick up after their dogs, which becomes a particular problem when the snow melts in spring, exposing all the dog manure that has been accumulating throughout the winter, much of it on or next to the trails. Not only is it aesthetically unpleasant to eyes and nostrils alike, and makes hiking "like walking through a minefield," but there is the

concern of how these masses of fecal matter will impact the soil and water. There are signs at park entrances requesting that people keep their dogs leashed and pick up after them, and staff members try to encourage those messages by telling visitors “thanks for leashing your dog” and “thanks for picking up,” but these rules are not enforced.

A second issue is hikers and bikers not staying on their trails (or, in the bikers’ case, the correct trails). A lot of people who live in the neighborhoods around Hartley have created their own spur trails into the park, and because of the lack of signage along trails, it’s common (as often as once a week in the summer) for Hartley Nature Center to get a phone call from a visitor lost out in the park as a result of accidentally taking one of these spur trails. Creating all of these extra trails also degrades the environment.

Some aspects of Duluth’s master plan for Hartley also threaten to cause problems. There is a strong contingent of mountain bikers who want to put in more mountain bike trails, many of which would intersect with hiking trails, which could potentially be a hazard.

Another part of the city plan—which intends to make Hartley a regional park that will get more funding from legacy funds—calls for a four-mile paved trail through the park, including over a boggy area. The argument is that if you want to increase usage of the park, you have to make it more accessible to people. However, the staff at Hartley Nature Center wonder whether Hartley’s appeal as a natural green space will be reduced if the trails are paved, and if it is really worth the environmental impact.

#### *Implementing education and management programs in a smaller park*

Krause says that most of Hartley Nature Center’s education programs could be done within a park the size of SNP because they cater to the younger kids, who find longer hikes too tiring. O’Rourke states that one advantage of a smaller park is that it’s easier to get rid of

invasive species. In a large park like Hartley, it's so difficult to exterminate invasive species that they focus more on finding places that don't have invasives and preventing them getting in. He suggested finding a way to do the restoration work but also have an educational component so that we can teach other people about how they can identify the invasive species in question and understand why it's significant.

The trail system is very important. Planning out the trails so they are not eroding, or impacting animal habitat too badly; for instance, not having a trail going through the middle of the habitat of an animal that wouldn't want to cross that trail. When designing trails, consider that people will be going off the trails. "You have to balance the desire to educate with preserving what you've got," says Krause. It boils down to a case-by-case basis of how sensitive an area is. What it could handle in terms of foot traffic? Are dogs going to be a problem? Can you enforce leash laws? You have to think about how you're going to set it up, but also about what it's going to take to maintain those things in the future.

#### *Additional models*

O'Rourke says that a place like Hartley is "a pretty good example" of a partnership between a government agency and a nonprofit organization. He thinks that it has allowed the park to benefit; the nature center has done a lot of things that the city government was not in a position to do financially, and there have been times when the city has brought resources to bear that the nature center hasn't been able to. But there are lots of different models out there. He knows of lots of groups that can help earn money and raise awareness on behalf of these projects in a way that a city entity could not.

According to Krause, when you think about use of the land and maintaining it for a long time, one person you might want to look up is a landscape architect. Not necessarily someone

who is in environmental education or government, but someone who knows how to design facilities or trails that will be easy to maintain, be durable and have a permeable surface.

Regarding the pond, she suggested contacting Trout Unlimited, who talk a lot about stewardship, and visiting the Website of Duluth Stream Corps, an organization that advises landowners on how to preserve riparian areas and streams that go through their property. Their project apparently finished in summer 2013, but their site is still up, and if it's still possible to contact them, they may be able to help find someone who could help with SNP. (O'Rourke, T., Krause, S., personal communication, February 26, 2014.)

### Interviews

We conducted in-person interviews with Jon Fure, Mike Greco, and North Saint Paul Commission Members. These interviews helped us to assess what expectations they have for the Southwood Nature Preserve.

### **Small Scope Recommendations for the Southwood Nature Preserve**

As we combine and collaborate our findings, we have come up with several recommendations for establishing resilience for the Southwood Nature Preserve. As our focus is environmental education, we incorporated more passive educational methods for visitors to engage. These small scope recommendations include:

- *Constructing a permanent and professional informational kiosk*
- *Constructing viewable interpretive signage at resting places*
- *Providing guide booklets for classrooms*

### *Constructing a permanent and professional informational kiosk*

Supplying a structured educational kiosk allows visitors to approach at their discretion. This unstaffed kiosk will provide informational brochures about the preserve: a map, its uses, hours, and upcoming events, if any. By providing factual resources, visitors are more likely to learn more about the SNP and perhaps more likely to take this information with them to share, especially those that include a QR code for smart phones. This kiosk will also include a guest sign-in book for visitors to not only document their attendance, but also offer comments, questions, and recommendations to be viewed by SNP representatives.

### *Constructing interpretive signage at resting places*

Along the SNP's 1.5-mile trail loops, visitors will come upon a variety of landscapes, whether prairie, forest, or pond. Interpretive signs are a tried and true educational method for engaging passersby in the local flora and fauna, as well as any environmental concerns. As mentioned in Anderson et al. (2013) review of the SNP, the current interpretive signs appear weathered or are overgrown by plants, making them difficult to decipher which plants a sign is identifying. We highly recommend issuing a new design of interpretive signs that identify a variety of native or invasive plants and animals; recount the history of the SNP, whether geologic, cultural, or land use; pose questions that allow personal reflection on community and environmental values; and address local environmental issues of invasive species, soil erosion, and water quality.

### *Providing guide booklets for visiting classrooms*

We also recommend that the SNP market its own educational booklet for local schools to use in guided, instructional field trips to the SNP. These guides will follow the SNP trail systems

and have age-appropriate information and an example activities at designated areas. Areas will be at various overlooks so students can gauge the variety of habitats in just 4 acres.

### **Small Scope Evaluations**

- Increase of first-time visitors by 25% in every season.
- Increases of repeat visitors.
- Increased usage from visiting schools.
- Increased community use determined from guest book. Changes and additions to the park originate from guests' comments.
- Conduct a new visitor use survey to determine changes in types and numbers of current visitor patterns.

### **Recommendations for Creating Resilience for the Southwood Nature**

Resilience does not happen overnight. Once these small scope recommendations are met and implemented, we hope that the directors of the Southwood Nature Preserve continue to evaluate and address the park's current status and its future capabilities in order to evolve with and sustain community resiliency. In the larger scope, we also recommend that the SNP expand its efforts in the four major aspects of education, community outreach, recreation, and environment. When considered as pieces of a whole, the Southwood Nature Preserve shows promise in community development and resiliency.

#### Education

- *Create nonformal education events*—Whether volunteer naturalists, formal teachers, or members of Southwood Task Force, there is great potential to begin hosting organized



educational events at the SNP. For visitors of all ages, classes can encompass a variety of topics including a hike to view different habitats, identifying invasive species and their effects, wetland ecology in the pond, birding, and many more.

- *Create a technology application for iPads or other interactive, educational tablets*—More schools are increasing their technological uses in both indoor and outdoor classrooms. This added tool will help bridge students to discoveries outdoors and their familiarity with technology.
- *Hire staff*—By obtaining personnel, the SNP could expand its educational efforts and increase nonformal teaching opportunities. We recommend that the SNP create a position that uses the created educational topics as listed above and lead frequent and ongoing courses that attract a variety of community members of all ages.

### Community Development

The following solutions support the method of reaching out to the community and finding ways to create a bridge between those who live in the area to use the SNP for recreational, educational, and to gain environmental awareness.

- *Expand schools' use of the SNP*—Currently two schools, Maplewood Middle School and Cowern Elementary School, use the SNP for environmental educational programs; however there has been no money since 2007 to support these programs. Expanding and supporting these programs could allow students, teachers, and all those affiliated with the school to be made aware of the SNP. By having the school actively engaged and learning at the SNP it would create more use, value, and awareness in the community and allow students to learn in a natural and local environment. This experience could allow students

and others involved to experience a sense of place and ownership of the SNP and have the ability to be a presence in the community.

- *Incorporate other park districts*— Reaching out to other park districts to gain support, ideas, and collaboration could help with publicity and usage of the SNP. An example would be the Three Rivers Park District, whose mission is to “promote environmental stewardship through recreation and education in a natural resources-based park system”. They will be a positive source of information as to how to formulate and implement programs and promote usage of a natural area. Another suggestion would be that the city of NSP contract a naturalist from the Three Rivers park system to conduct environmental education until someone through the city can be hired.

Another Park and Recreation department to work with would be Ramsey County. Holloway Marsh is a 38-acre cattail marsh located to the south of the Southwood Nature Preserve. It is contiguous with the SNP, but belongs to the city of Maplewood and is managed by the Ramsey County Parks and Recreation Department. This site could possibly be used as a tool of collaboration with the SNP through joint programming, providing opportunities for people to explore the environment in both Maplewood and North Saint Paul since the two green spaces are contiguous. North Saint Paul could work with the city of Maplewood to incorporate the Holloway Marsh in its programs. Ensuring the protection of Holloway Marsh and increasing its use will increase the quality of the experience for visitors to the SNP by creating a larger contiguous green space. By offering programs in Holloway Marsh, the SNP would increase its diversity and thus be able to offer a wider variety of environmental education programs. The Minnesota Master

Naturalists could use this resource to work with schoolteachers and further develop curricula, including wetland ecology.

- *Partner with the U of M Naturalist Program*—The University of Minnesota has a Master Naturalist program that has a history of providing education opportunities to Cowern and Maplewood Middle School. As part of this program, these members need to volunteer hours of service, and in the past some members have installed the minimal sign system that is in place at the SNP. By increasing and supporting this relationship, perhaps more education opportunities could be offered in schools and at the SNP.
- *Neighbor Outreach*—Visitors to the SNP number about 30 people per day, with about 25 of those people visiting multiple times a week. It would be a great goal to increase the use of the SNP by those who live nearby and for them to gain a sense of ownership of the SNP.
- *Work with North Saint Paul Commissions*—North Saint Paul has two city commissions that could help the use of the SNP. These commissions are panels of volunteers that apply to participate. Each Commission, Parks and Recreation and Environmental, has about 6 members each. These commissions can be a powerful tool to use and collaborate ideas with since they are community members and citizens of North Saint Paul. The city takes into consideration ideas of the commission and could help bring funding, support, and awareness to the SNP.
- *Create an online presence*—Currently the Southwood Nature Preserve does not have an online presence, meaning no Website, Facebook page, or any modern way for people to really discover what the SNP has to offer. By creating social media outlets for the SNP, people in the community could be more aware of the goings-on of the SNP. If the SNP

were able to hire a contract naturalist, events could be advertised and accessible online for more people to learn about. Updates about conditions of the SNP, school interactions, and programming could all be aspects to be publicized both through social media and through a Website service.

- *Create measurable objectives of the SNP in context to the North Saint Paul Parks and Recreation Department*—Currently there is no mission statement by the North Saint Paul Parks and Recreation Department, though its nearby metro area Saint Paul’s Parks and Recreation Department’s mission statement is “to help make Saint Paul the most livable city in America, Saint Paul Parks and Recreation will facilitate the creation of active lifestyles, vibrant places, and a vital environment.” By identifying measurable objectives that highlight the benefits of the SNP (e.g., reduced invasive species, increased visitor use, and the SNP managed as a natural green space with an increase in native wildlife) and the importance of green space toward the quality of urban life, the city of North Saint Paul and SNP employees will be able to see if they are meeting their goals. Having measurable objectives also allows employees to keep on track and get things done more efficiently.

### Recreation

- *Construct multi-use leisure structures*—In aiming to construct not only useful, but meaningful leisure spaces, we recommend the Southwood Nature Preserve construct more benches, gazebos, and picnic areas. In the hustle and bustle of the city, the Southwood Nature Preserve offers a quiet place to find peace in nature. Benches would allow a spot for restful reflection. Picnic areas would be a nice gathering space for local

schools and families. As for the gazebos, they would offer a nice area for observation as well as a spot to stage local entertainment.

- *Assess seasonal recreation and trail maintenance*—There is currently a 1.5-mile long woodchip trail that runs through the nature preserve that serves as a nice walking trail. Come snowfall during the winter months, visitor walking access is disrupted, with uneven compacted snow trails. As far as winter recreation is concerned, we recommend separate cross-country ski trails to be created and groomed, though strictly for winter use (and perhaps with minimum snow depth requirement).

### Environment

- *Evaluate the presence and disturbance of invasive species*—This concern has many options, from full eradication to unresponsiveness. Either option comes at a cost: of money for research or removal or of environmental degradation. As a public preserve, costs are limited as to what the SNP can do. For now, we recommend that the invasive species continue to be a source of education for identification, potential causes, and spreading prevention.
- *Evaluate the water quality*—The SNP lies in the Mississippi Watershed, one of the most polluted rivers in the country. It is probable that the SNP's water contains pollutants of high-level nitrogen and phosphorous compounds. As a valuable green space, we recommend the water quality at the SNP be monitored and documented.
- *Implement and address pet policy*—As a public domain, the SNP thrives on its visitors from near and far immersing themselves in nature, but suffers as a common space for its variety of users. Andersen et al. (2013) mentions that the preserve suffers from left-behind pet feces. In order for the preserve to become a more popular space for visitors,

there needs to be a higher presence of signs to remind pet owners to not only keep their pets on leashes, but also to pick up after them. Perhaps each sign should be accompanied by a trash receptacle and disposable bag dispenser.

- *Provide more trash and recycling receptacles*—In the same vein as above, it is important for the SNP to have frequent and accessible trash and recycling receptacles so the preserve can avoid being unappealing to visitors. At every intersection of the trail system, we recommend that there be accessible, maintained receptacles.
- *Construct feeders for wildlife*—In endeavoring to attract visitors, it is important for the SNP to offer unique outdoor experiences. Implementing feeders that are visible from overlooks or benches will positively increase visitors' connection to the natural world. We recommend that these feeders be hung from trees or sides of buildings to attract birds. Bat houses (ideally pole-mounted) are another possibility.

### **Large Scope Evaluations**

#### Education

- Implement evening or weekend educational hikes at Southwood; perhaps 2 per month.
- Hire staff to facilitate and lead weekend education programming.

#### Community Development

- Increase to 4 schools that use SNP as outdoor classroom.
- Create community partnerships with 2 or more natural areas and the Parks and Recreation Department.
- Create 3 volunteer educator positions for University of Minnesota Master Naturalists to fill.

- Create and network with a Facebook presence. The Southwood Nature Preserve Facebook Page will have 50 “likes” by three months after launch, and have a biweekly update of images, events, or facts.
- Increase park use across the seasons by 25%.
- Create a measurable mission statement in concurrence with the Parks and Recreation Department.

### Recreation

- Construct 5 benches with strategic placement at natural resting points for visitors.
- Construct 1 gazebo that overlooks the pond, opposite to the viewing deck. Offer local art, music, and educational opportunities that are centered around this structure.

### Environment

- Treat 50% of areas affected by invasive species annually.
- Implement monthly water quality monitoring to be exhibited on designated interpretive signs.
- Review guest book and determine there is little to no commentary about presence of litter and pet droppings.
- Visitor commentary of “birding” as main motivation of visit in guest book.

## **Summary**

In summary, we are thrilled to have developed both short and long-term recommendations for the Southwood Nature Preserve. In order to create resiliency, both the project and the community involved must continually adapt and respond to changing goals. We see that the first step in beginning to build a resilient community is laying a foundation of

education. This lies with implementing informative visuals for visitors to access and seek information about their nearby natural area. By improving educational systems within the SNP, visitors will access the park more often, learn about the nearby natural green space, and ultimately become empowered to participate in the preserve's offerings together in community.



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