CROSBY FARM PARK PLAN PROPOSAL

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Design Proposal
(Social and Economic Elements)
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Crosby Farm regional Park is an extremely significant ecological asset for the city of St. Paul. While our primary development goal is to preserve and enhance the existing strength of this asset we also have secondary social and economic goals for your consideration. In order to have a successfully sustainable riverfront development it is necessary to address this design proposal and transform it into a multifunctional riverfront. Our Primary Social and Economic goals are listed as follows:

- **Social Goals**
  - Further develop Fishing Docks, with Informational signage illustrating native species and provide scenic view sheds
  - Provide three major access points to the site along Shepard Road
• Implement bike lane and “green street” strategies to South Davern Street, South Homer Street and Elway Street.
• Develop Shepard road into a "Green Street" to help vanish major barriers like the commercial wall of development that is blocking access to the surrounding community. In effect making it more pedestrian friendly
• Expand Picnic Tables and BBQ grills in the open space, expanding the gathering space.
• Larger scale connectivity through signage in the highland neighborhood and on 35E/ 62E. (Also implementation of Metro transit bus route partnership)
• Develop a partnership with local and regional park boards, having Crosby Farm host neighborhood events and community programs
• Develop an expansive dock that celebrates Upper Lake and Crosby Lake.

• Economic Goals
  • Seasonal Restaurant Development in the Marina (expanding to a broader audience)
  • Boat/Kayak Rental for seasonal water activities (move from private to public, providing public water access)
  • Picnic Shelter Reservation
  • Reasonable Food and Refreshment Vendor (near the Picnic Pavilion)
  • Ecological Educational Center about the sites native species and wildlife and ecological land preservation. (West of Watergate Marina)

Beginning with our social sustainability goals, we decided it would be beneficial to further develop the dock area in Upper Lake and Crosby Lake. After the damage the last flood caused it seemed like it was a necessary issue to address. To the left is an image of the current dock in place in Upper Lake. The floodwater got so high this year it was severely damaged. Out proposal illustrates a new dock design that embraces Crosby’s lakes and the scenic beauty of the site. (See figure 3). These would provide expansive fishing docks and would be floating on the surface of the water to avoid further flood damage. This dock
system would also provide a great scenic route for students touring our ecological education center along with expanding the scenic trail system that is currently in place.

Our second goal was to provide three major access points to Crosby Farm Regional Park. When we visited the site we realized that there is a severe access problem and only two major access points on either end of the park. Sheppard Road acts as a county road for the city of St. Paul; this does not make for a pedestrian friendly environment. If we transform Sheppard road into a “green street” by planting trees and creating pedestrian friendly crosswalks we can help link Crosby farm to the surrounding community and highland neighborhood.

After solving the pedestrian issues of Sheppard road it is necessary to address larger scale connectivity to the surrounding community. In link with the Great River Park Master Plan we should implement bike lanes and parkway strategies to help better integrate the Highland Park neighborhood and the greater St. Paul region. There are three major streets that we think should undergo development, South Davern Street, South Homer Street and Elway Street. Implementing these green street strategies will further help people come down to our riverfront development. (See figure 5).

Our next goal is to expand the current gathering space present in the Crosby Farm regional park. We want to enhance these social spaces by provided more picnic tables, barbeque grills and an expanded seating area for our park’s visitors.
We also wanted to implement some sort of small-scale food vendor, vending machines, to help provide some food while our residents are habiting the site. (See figure 2). Providing a major gathering space for Crosby Farm is an important asset that we want to preserve. We believe this large open space, adjacent to the current park pavilion, has great potential for hosting neighborhood events, fairs and independent community programs. This dock area also provides an ideal gathering point for our students visiting the Ecological education center.

Our next objective was to increase signage in the surrounding highland community, along with road signs on 35E/62E. This will help put Crosby farm on the regional scale map. Providing this signage will help bring more people from the surrounding community, broadening our target audience. Developing a partnership with Metro Transit is will also help increase larger scale to the site. If Crosby Farm was treated as a destination point in Metro Transits eyes, this would help change the image of the park in the public’s eye as well. Creating a sense of place, as St. Paul’s front yard. Transforming Crosby farm into a destination point is going to take more than signage and green streets, we feel that this would be a good opportunity to develop a partnership with local and regional park boards. We would like these park boards to help expand and broaden our target audience, while increasing the public awareness of the amenities offered by our site. We want to develop a sense of place, through events, fairs, and community gathering events we can help integrate this park into the urban fabric of the Highland Community.
Our next goal addresses the waterfront at Lake Crosby and Upper Lake. We want to implement a floating dock system that can withstand flooding. This dock system would be apart of the trail system and would provide scenic view sheds of the surrounding habitat and native wildlife. It would also be where we would take our students from the ecological education center to collect specimens, test water quality and observe the great outdoors! (See Figure 3)

In order to have a fully developed multifunctional design proposal it is necessary to address economic factors that affect the site. When developing our proposal we felt it would be beneficial to have a seasonal restaurant in the Watergate Marina. This would help attract people to the Marina and Crosby Farm Regional Park. We are using Sea Salt restaurant at Minnehaha Falls as a precedent. We felt like it was important to provide an amenity to both broaden the audience of the area and to keep people at the park longer. Letting them discover the richness of the native wildlife, vegetation, discover our social amenities and take in the richness of this ecological asset.

In order to fully utilize the Watergate Marina we need to transform the space from a private amenity to a public amenity. The current condition of the site does not allow access to families, students, or members of the community. We need to bring people to the water and we cannot do that if the public is blocked off from this huge social and economic amenity. Similar to the Great River Park Master Plan, we think we should offer boat and kayak rental along this Marina, giving
people a reason to come down to the water and stay there. This will both help broaden our audience and transform Crosby Farm into a valuable social amenity for the Highland Park Neighborhood. Providing recreation on the riverfront is a must, we need to offer something that is fun all age groups and different demographics. (See Figure 5 and 6).

Allowing the public to reserve the Picnic Pavilion allows the park board to help measure our rate of success in the park. This also provides economic support to help fund the maintenance of the park. We also thought it would be a good idea to provide some sort of small scale food amenity, such as vending machines or a small scale food vendor. Amenities like this will help serve human needs, this needs cannot be ignored when designing a public space.

In order to further engage the surrounding community we decided to implement an ecological education center, this both brings economic support to the park and serves as a social amenity. The Education center would be located west of the Water Gate Marina on stable ground. This center would teach students about ecological land preservation, the role flooding plays on native ecosystems, the native wildlife vegetation, invasive species, floodplain restoration, water quality and the role students can play to help restore these ecosystems. Developing a Partnership with the University of Minnesota would help support our educational efforts, environmental science and land preservation. This center would provide larger scale interest from the greater metropolitan region and serve as a great public amenity to the surrounding community.
Our Proposal for Crosby farm Regional Park provides a large gathering space, an expansive dock development, an ecological education center, a public Marina, a seasonal restaurant, improved human need amenities, improved signage, improved access points, and experimental ecosystem strategies. This proposal provides the Highland Park Neighborhood with an amazing social, economic and environmental amenity.

The Great River Park Master Plan effort is supported by our proposal through these benefits. Their goal was to make the river, more natural, more urban and more connected. Our “green street” linkages make the park more connected to the surrounding community. Our environmental proposal makes the site more natural, and goes beyond that. It aims to restore the site to its pre-settlement conditions. We made the site more urban by encouraging economic and social development. Such as the Watergate Marina boat rental, seasonal restaurant and ecological education center. We aimed to both bring down the urban fabric of the city to the site while pulling the natural amenities to the urban fabric. Melding these two realms together creates a more connected and integrated public amenity for the city of St. Paul.

The benefits of this proposal include:

- Improved natural linkages to the surrounding community
- Improved access along Shepard road to the Crosby Farm
- Restoring Crosby Farm’s ecosystem to pre-settlement conditions
- Provides a social, economic and environmental amenity for the surrounding community
- Native Wildlife and vegetation habitats are sustained in this proposal
- Raised awareness of environmental issues through the ecological education center
- Provides a great social amenity for outdoor water recreation
- Improved Fishing docks, (less expensive to maintain docks that can withstand flooding)
- Transforms Crosby Farm into a destination point in the greater St. Paul River valley
- Seasonal restaurant provides a great social and economic amenity

See Diagrams Below
Expand the Gathering Space

Celebrate Crosby Lakes

Expasive Fishing and Observatory Floating Docks
Crosby Farm Regional Park is a local treasure valued for its natural aesthetics and abundant wildlife. A 2011 public survey by voiceplaces.com voted Crosby farm the “best place to get lost”. Group member’s personal communication with park users while on site confirmed this view (May 1, 2011). An audience intercept study performed by the Cincinnatus team on the St. Anthony Falls area of the GRP found that most visitors valued scenic views and nature as the most important riverfront attributes (Power of the Falls 2009). In its current state the park is one of the most ecologically sound areas within the metropolitan river corridor. Given that the possible sustainable land uses of such a floodplain area are limited, we want to strengthen the value of this park as passive open space for outdoor recreation and natural immersion. Our primary development goal is to preserve and enhance the existing strength in ecological value. Capitalizing on this abstract value is the best type of development given current conditions and the area’s unique qualities amidst the Great River Park. Our site plan will reach this goal by conducting an active ecological design experiment in floodplain restoration on site and
simultaneously managing invasive plant species in the park. These design elements are integrated into our secondary social and economic goals for park development. While this specific kind of experimental ecological design has no known precedents because of its close tie to localized hydrologic conditions, it is well founded in modern water resource sciences. This section of the design proposal for Crosby Farm Regional Park will describe the ethics behind the ecological design actions, the major ecological concepts that guide these design actions, the logic behind design specifics, and a realistic scientific framework for judging success.

Eco-centric ethics are a guiding principle in this design proposal. Albert Einstein once said:

“We can’t solve problems by using the same kind of thinking we used when we created them”

Ecocentrism is an age-old concept conserved by many religions and indigenous cultures around the world, but it has been largely overshadowed by anthropocentric ethics in modern history. This ethical viewpoint treats the entire ecological system (at any scale, local to global) as the center of all altruistic decision-making. By this ethic, all individual parts of an ecosystem are not as valuable as the entire system together, because the natural interactions between each part are the key to healthy ecological function. Consequently, healthy ecological function is inherently good for anthropocentric interests because humans are a part of the global ecosystem and rely on it for survival. While modern society has drifted from this direct connection to nature because of our technological advances; the societal “green revolution” has come full circle in recognizing the abstract value of sustainable resource management in a crowded world.
In light of shortsighted natural resource management and ecosystem degradation that was propagated during the industrial revolution, we must think with eco-centric ethics if we are to solve the ecological problems created by humans. In the case of Crosby Farm Regional Park, this ideology comes into play in the way we plan our angle of attack in restorative ecological design components.

The primary ecological problem we face in the metropolitan river corridor is the alteration of natural morphology and thus ecology of the Mississippi river. Biological communities are stressed when environmental changes occur, which is why ecological integrity is often degraded near urbanized watersheds (Varis et al. 2006). Large-scale changes have occurred in the Mississippi river’s channel characteristics and flood cycles due to direct anthropocentric input. In our part of the world, these changes mainly take the form of “working river” channel engineering (lock and dam system and channel dredging) and macroscopic watershed land use change. Realistically these changes are here permanently with our urban and agricultural presence in the landscape, thus we must be realistic in working with them wherever possible. Floodplain ecosystem engineering that works with the current state of the river and is maximized for biological diversity is our guiding goal for the enhancement of the floodplain forest ecosystem in the Crosby Farm Regional Park area. Watershed management of this flavor is becoming the cutting edge all over the globe as ecological understanding collides with the drive to restore the water quality of fresh water systems in harmony with human societal needs. A major lack of data useful in developing this type of water resource management comes in the form of active management plans that test a certain type of treatment (Petts et al. 2006). Our design treatments are justified because the “experiment” will contribute to this lack of
data and build the toolbox used by scientists and managers in combating water resource issues in the future regardless of its local success.

In order to tackle the explanation of our design, a few core ecological principles their connections to local site characteristics must be addressed. First, we must consider the Mississippi river in the context of the River Continuum Concept (Vannote 1980). The Mississippi is a very high order river when it flows through the study area, and thus naturally has certain attributes. These attributes ultimately define the biological community that colonizes the river and its associated habitats. High Order Rivers are characterized by production to respiration ratios less than 1, meaning that there is a lot of decomposition of organic matter from upstream sources. They also typically carry high sediment and nutrient loads and thus are very productive and diverse environments. The flood pulse concept is a pivotal concept, which defines the fact that ecosystem integrity is reliant on natural flood cycles (Junk et al 1989, Figure 1). This concept is related to the ecological process of biological succession. Floodplain ecosystems have evolved to rely on the periodic disturbance of flood events, the specific inputs the disturbances provide to a biological food web, and the way they shape and maintain floodplain habitats. In this way, it can be derived that healthy floodplain forest ecosystems in large river systems such as the Mississippi/Minnesota watershed are dependent upon healthy flood cycles. In our design we take this one step further in defining micro scale design elements that serve to repair the hydrological function of the Crosby lakes as oxbow/braided habitat systems through flood channel routing and integration into existing park features.

It also important to understand that the invasive plant species problem in the park is not a simple one as most may think. The problem is a hybrid effect of irresponsible
introductions of nuisance species and a net habitat change that allows these species to colonize and outcompete native species. This problem cannot be solved by simply pulling up nuisance species, planting native species, and expecting the natives to flourish. Proper floodplain dynamics will be the driving force that allows native species to reclaim lost ground (by restoring habitats that favor natives), because this is the driving force behind the biological diversity of the floodplain forest habitat complex. Our design proposal includes the management recommendations defined by Great River Greening in their Ecological Inventory and Restoration management plan in controlling invasive plants in the Crosby Farm Regional Park (GRG 2005).

The geological history of the Bdote confluence region has created a locally unique environment that has been marked by change throughout its existence. Glacial retreat fed a gigantic river that carved out the immense Minnesota/Mississippi “below” the confluence river valley. After the mass melt subsided, the Mississippi river formed what is now known as St. Anthony Falls and began carving the gorge river region out of the limestone and sandstone bedrock. The river at this time was probably more of a braided channel due to high slope, but as the Minnesota’s sediment loadings created an alluvial dam and more recently as impoundment has stair-stepped the river’s gradient, the channel morphology changed to something more similar to a meandering channel. Numerous floodplain lakes characterize this region of the confluence. They are maintained by the erosive flood stage of the river as it overflows its primary channel banks every spring. This wide floodplain is home to a highly productive and dynamic ecosystem that thrives on the river’s allochthonous input of organic and inorganic materials.
The Crosby farm name comes from the local land use history of this section of floodplain forest. The area was cultivated for decades until it was acquired by the city and set aside as a park in the 1960s (Figure 4 & 5). An amazing natural reclamation has occurred in the last 50 years and now this past land use is hardly noticeable. This speaks to the resiliency of natural communities and their capacity to flourish if we provide them the proper conditions. Most recently, the study area’s floodplain morphology has been altered in two main ways in the interests of providing a marina and building a highway that spans the river bluffs. Watergate marina is a private enterprise that has obviously been raising the elevation around its harbor via fill material from outside areas (Figures 2 & 3). This has probably been done (illegally?) to eliminate erosion damage to the immediate marina facility during flood events, but in consequence has drastically changed the mechanics of flood channel morphology within the study site. It is logical that the placement of the marina was initially chosen because at this location there was a natural pre-existing flood channel, which provided a natural harbor area in times of high water. This depression was slowly modified into what it is today in order to serve economic needs of the marina. The other huge modification of the floodplain comes in the form of Highway 35E crossing the river valley and cutting across the east end of the study site. The engineering of this bridge includes a large artificial peninsula of raised elevation (filled in) that cuts perpendicular across the floodplain (Figure 2). These two features collectively serve to fundamentally alter the flow patterns of water during flood events. This change may seem subtle, but it has removed the maintenance capacity of the river to scour the oxbow lakes by simultaneously “flushing” the floodplain and depositing rich layers of sediment which fuel the primary productivity of the floodplain ecosystem.
Currently, the flood stage channel dynamics resemble more of a tidal flow regime than a riverine throughput. Because of this change, the Crosby lakes will gradually fill in with time through increased deposition and lack of flood stage erosion, and many of the associated wetland habitat complexes will cease to exist and/or continue to be colonized by invasive species. All in all, a natural flood flow pattern will benefit the entire floodplain forest ecosystem far into the future.

In order to fix the problems caused by these anthropogenic changes to the landscape, it is proposed that the natural connectivity and integrity of the floodplain morphology be restored. This will be done by engineering flood channels that connect the marina inlets to the Crosby lake chain and through the 35 land bridge. These flood channels will be seasonal depressions near the marina and multiple large culverts installed in the 35E land bridge that are collectively designed to carry the flood stage water every spring and provide natural floodplain dynamics to the study site reminiscent of a pre-altered state (Figure 6). These channels will be integrated in the development of the park infrastructure and Watergate marina as a multi-functional use facility. Ultimately these design elements should help restore the natural state of habitat and biological diversity in the park because of the reasons outlined above.

Lastly, this section of the design proposal will address the framework for judging the success of this ecological design experiment. Quantitatively measuring success of such design experiments is the key to water resource scientists and managers learning which tools work in the goal of maximizing ecological integrity of river ecosystems. As mentioned in the precedent section of this design plan, the Minnesota DNR and Minnesota PCA are developing the science of Indices of Biological Integrity as a way to
assess impact on the water resources of Minnesota. The logic behind this science is that you don’t need to know how many (abundance) of each species in an ecosystem to gauge its integrity, but only if it is present or absent. The beauty of this impact assessment system is that the science is the cutting edge in theory, but incredibly simple on the ground. This simple data collection will lend itself well to the integration of volunteer work and educational involvement in the process of IBI monitoring. The Crosby Farm Regional Park will be the site of yearly IBI (index of biological integrity) presence/absence sampling of aquatic and terrestrial communities carried out by hordes of young kids tasked with a mission that really matters: to go out and capture (no need to kill) the living things that call the park home. In this way, the IBI platform can be used in a novel way to watch this single site over time and thus gauge the effectiveness of design actions (treatments). It is important to note that because we lack the ability to have experimental controls in such experiments, we must rely on pre/post treatment observations to make decisions. This introduces the possibility of confounding factors skewing results and conclusions, but nonetheless is the only way to carry out active management in such scenarios.
Figures:

Figure 1.) Flood-pulse concept (Junk et al. 1989).
Figure 2.) Landform (slope and aspect) from GRG 2006 report.
Figure 3.) Soil Type Map from GRG 2006 report.

Figure 4.) 1940 aerial photo of study site.
Figure 5.) 2006 aerial photo of study site.
Figure 6.) Plan overview illustrating flood channel connectivity.
Developing the social asset of Crosby Farm Park is the secondary goal for our project. To developed social asset for the Crosby farm can be done by enhanced social space such as adding more picnic tables, amphitheater, having the education program. Creating the gather space would be one of the best ideas to develop to social asset.

**Adding Picnic tables and BBQ grills in the open spaces.**

There is no picnic table in the Crosby farm park yet. Therefore, it would be good if we can add some picnic tables around the park. So, that there are more gathering space in the park. The neighborhood around the Crosby farm is African American families. Most of the African Americans have big families. Usually, the picnic tables will be able to fit about 4-6 people, so those picnic tables are too small for the neighborhoods in that area. It would be nice if we could locate two picnic tables next to each other or crate a bigger picnic tables. Moreover, it would be great if we can add another activities for
people such as having grills. Also, it will be able to keep people to stay longer at the park as well and it might be able to bring people more into the park as well.

If we add the picnic tables and BBQ grills in the open space of the Crosby farm park, it will improve the social asset because it creates the gather space. Moreover, if we have the bigger picnic tables, it would support the neighborhood needs because they have big families. Furthermore, having grills will make people want to stay a park longer and add another activities for people to come to the park and hang out as well.

**Amphitheater**

Since we want to minimize the damage to existing ecosystem and developed the riverfront area as the social asset. Developing a site Amphitheatre that is integrated in the landscape with hilled seating. Therefore, the amphitheater will not damage the ecosystem.

According to the Quad cities, “the proposed amphitheater is oriented toward the river to maximize the view of the Mississippi, and to maximize views of this icon from the river”(15). Therefore, I think the amphitheater of the Crosby farm should be located in the same way as Quad cities. So, that people can enjoy the view of the river.

The amphitheater will be a great area for social because people from the different ages can come and enjoy seeing the performances. The performance at the amphitheater can be all types of music, dance, theater, opera and comedy. Having the different kinds of performances would be a good idea because people have the different interests. If we have many different kinds of performances, it will be able more open and able to get
people attentions’. Moreover, the size of the amphitheater should be big enough to allowing the large event to occur.

**Greening shepherd Road Pedestrian friendly**

According to Philadelphia there are some area that need to “ make a permanent, safe, public, pedestrian linkage from the city to the river’s edge. Each such link also connects a reinvestment or redevelopment opportunity with the river and the city” (2.31).

The Crosby farm park can use the idea from Philadelphia. For example, creating the pedestrian in Shepherd Road. It would create safer access to the park. Then, it might able to bring more people into the park. However, we can develop the idea to be more welcoming and friendly pedestrian such as having more trees along the road.

**Signage in highland neighborhood and on 35E and 62E**

The Crosby farm park does not have good accesses because there are no signage in around the neighborhood and on the highway 35E and 62 E. In Quid cities show the development of the “strong connection”. To be able to bring people down to the river, then we need to have good connections.

It would be good idea if there is a Crosby farm sign on the exit the 35 W freeway and 62 E. Moreover, it would be nice if there were signs around the neighborhood area as well.

I believe that if there are signs, the signs will create good connection to the park. Also, it will able to bring more people to the park. When people see the sign, sometimes they just want to go stop by the park. I think that adding the signage in highland
neighborhood and on 35E and 62 E would be a good idea to developed the social asset of the Crosby farm park.

**Education programs**

According to Philadelphia, they have the “ecology learning center classes.” The learning center would be a resource center with equipment and research materials so that people can learn about the ecology, history and mythology of rivers all over the world.

(3.46)

Since the Crosby farm is one of the park that have the richness of the ecological. Therefore, it would be good idea if you use the ideas of “ecology learning center” from Philadelphia. There is an education program for the children and people who interested in the ecological and wildlife.

The education can be about celebrating the river’s pants and native species, equipped with an outdoor classroom. The education center can be located on the Crosby upper lake area. I believe that people might be interested in the education program if there were a hand on workshop, viewing birds in the park or the ecology tour around the park.

This education program will be good for the children education. Moreover, it will bring children down to the river and be more connected with the river. It would develop the social asset because children will able to come to the education center and learn about the ecological together.

**Access to Crosby lakes and river at marina**
In Quid cities show the development of the “strong connection”. However, Crosby Farm Park does not have good connection. In the Crosby Farm Park, there are no accesses to Crosby lakes and river at marina. It would be nice if we create the access, so that it can bring people down to marina.

If we want to bring people down to Marian, we need to create some activates for them. Usually, people come to Crosby Farm Park for fishing. Therefore I think it would be nice if there is more fishing area in Marina. According to Philadelphia in the public workshop, public feedback and comments, people said that “need to have fishing opportunities. Therefore, I think it would be a good idea to use the comment from the Philadelphia to develop at Crosby farm. Moreover, the Marina has such a beautiful view and landscape. It would be nice if there were some benches or picnic tables that people can enjoy the view. At this point, I believe that having the access to Crosby lakes and river at marina will be developed the social of the park.

The economic of the Crosby farm

According to Quad cities to develop the economic can be done by “attract new visitors and retain area residents with new entertainment, events and recreational activity enhancing local retail, dining and hotel businesses.”43. I believe that to be able to developed the economic of the park can be done by creating the area can be done by hosting events, boat and Kayak rental, and small restaurant.

Hosting event and concerts at the amphitheater

According to Philadelphia, they have the amphitheater that hosting the event for free. However, I think we can develop the idea to be more economical.
The amphitheater can host the event such as concerts, dance, theater, opera and comedy show. The amphitheater will be able to develop the economic because the amphitheater can host many different type of the performance. Moreover, the amphitheater will also improve the social asset because the amphitheater will be a place for people to gather.

**Boat and Kayak rental for seasonal water actives.**

According to the Quad city. “Attracted new victors with the entertainment”. (43). So, we need to create some activities that will attract to people. According to Philadelphia, they said that Kayak rental is another way for people to enjoy the river, so they have the Kayak rental.

So, I think it would be a good idea if we can have the Boat and Kayak rental for seasonal water actives. So, people have more actives to do while they are at the park.

Having the rental for boat and Kayak would be able to develop the economic of the park and also it will able to bring people down to the river because there are more activities for them to do at the park.

**Small restaurant**

According to Sea Salt, they have the small restaurant by the riverfront area. Having the small restaurant would be one of the good ideas to develop the economic and the social asset. Therefore, it would be nice if there were a small restaurant by the riverfront area. The restaurant should have the outside sitting, so that people can enjoy
the beautiful of river and also it will create the social space for them as well. I believe that having the restaurant will able to able to develop the economic and social of the park.
PARTNERS

In the development of Crosby Farm Park, partnerships will be varied and mainly be focused around keeping the park as an environmental asset.

PRIMARY PARTNERS

MN DNR

The Minnesota Department of Natural Resources will be instrumental in the restoration and preservation of environmental assets. They would also be instrumental in creating the fishing docks, as well as creating the signs illustrating native flora and fauna.

University on Minnesota

The University of Minnesota would be heavily involved in the restoration of Crosby lakes as an oxbow/braided habitat system. With their large community of
scientists and students, they could provide an incredible resource for the planning of the restoration, as well as monitoring success. Since this type of restoration has not been attempted yet, this would also provide the University with an important research opportunity.

**National Park Service**

The role of the National Park Service will primarily be to connect the park with the rest of the Mississippi National River and Recreation Area. One way that they could connect the park is through a theme that follows the entire length of the river.

**Minnesota Department of Transportation**

The Minnesota Department of Transportation would be heavily involved in making Shepard road more pedestrian friendly, as well as putting signs on major local thoroughfares to alert people to the site and draw them there.

**Army Corps of Engineers**

As the plan calls for channels to be built to alleviate floodwaters and restore oxbow hydrology to the area, the Army Corps of Engineers will have to be involved in obtaining approval and permits to create these channels, as well as in the construction and maintenance of these channels. They are the most key partner in this project.

**Hyland District Council**

The Hyland District Council will be instrumental in getting the public involved in planning the project. They could provide a forum for the workshops. The Hyland District Council is a neighborhood association for the Hyland Neighborhood
in St. Paul, which is adjacent to Crosby Farm Park.

**St. Paul Parks and Recreation**

The St. Paul Parks and Recreation Department would be responsible for the day-to-day operation of the park, as well as regular maintenance. They could also help organize volunteer activity.

**SECONDARY PARTNERS**

**Nice Ride**

The Nice Ride bike rentals would provide easy access to the park from nearby locations such as Hyland Park. It would also provide potential usage data for Crosby Farm Park, but the validity of the data provided would have to be explored.

**Watergate Marina**

Watergate Marina is adjacent to Crosby Farm Park on the western end, and it provides a unique access point to the area through water traffic. They would be instrumental in creating a way for people using the park to experience the park through the river. This would be an ideal location for rental canoes and kayaks, as much of the boating infrastructure is already there. The Marina would also be a source of usage data, used for determining the success of the redevelopment efforts.

**Local Schools**

Students could be a source of IBI (Index of Biological Integrity) data. As a field trip, students could go out and find as many different species as they can and report back. Framing it as a scavenger hunt could be helpful.

Other partners could include **Metro Transit** in the development of a new bus route that connects Crosby Farm to the surrounding areas, the **Metropolitan Council**.
in the creation of the new Metro Transit route, and local nonprofits such as **Great River Greening**.

**FUNDING**

Funding sources would have to be quite diverse. Potential sources include federal grants, donations/assistance from local nonprofits, and fundraising efforts.

**FEDERAL GRANTS**

Federal funding sources are very limited. Most grants are managed through the state Department of Natural Resources.

A federal source could be the Outdoor Recreation-Acquisition, Development and Planning grant. This grant is also a matching grant that provides matching grants for the acquisition and development of outdoor recreation facilities for the general public, to meet current and future needs. The development of basic facilities is favored in this grant.

**STATE GRANTS**

The Minnesota DNR has several grants that the Crosby Farm Park project would be eligible for. These include the Shoreland Habitat Restoration Grant, Clean Vessel Act grants, and Flood Hazard Mitigation grant assistance.

**Shoreland Habitat Restoration Grant**

- Up to $100,000.
- At least a 3:1 (DNR: project partner) match is required.
- Project should not destroy existing, desirable habitat, or native vegetation along the shoreline. No exotic species or nursery-derived cultivars of natives.
Clean Vessel Act Grants

- To encourage the development or improvement of marina sanitation facilities in order to maintain and improve water quality in public waters.
- Public and private marinas may apply.
- Will provide up to 75% of total eligible costs.

Flood Hazard Mitigation Grant Assistance

- To provide technical and financial assistance for conducting flood damage reduction studies and for planning and implementing flood damage reduction measures.
- Maximum of 50% of eligible project costs up to $150,000.

LESSARD-SAMS OUTDOOR HERITAGE COUNCIL

The Lessard-Sams Outdoor Heritage Council was established by the legislature to provide annual funding recommendation to the legislature to the Outdoor Heritage Fund. The Clean Water, Land and Legacy Amendment created the Outdoor Heritage Fund. If funding is approved, it could provide a significant portion of the required funding for the project. Note that the funding requests must ultimately go through the legislature, so it may or may not be successful, depending on the political climate.

PUBLIC INVOLVEMENT

The public will be involved throughout the project, starting with the initial design. Public workshops will be held throughout the planning phase. On the IAP2 spectrum of public participation, this would be the category of “involve.” The public workshops could be held cooperatively with the Hyland District Council.
To reduce costs, some of the building/restoration of the park could be done with volunteer activity. Removal of invasive species is probably the best venue for volunteer activity. Many local parks and nature centers have volunteers remove invasive species such as buckthorn and garlic mustard. One such nature center is the Springbrook Nature Center in Fridley, MN.

Another possible opportunity for volunteer involvement is in the building and maintenance of rustic (non-paved) trails. This is already being done with the Theodore Wirth mountain bike trails through the Minnesota Off-Road Cyclists. Maintenance takes place every Wednesday evening at 5:00. All you have to do is show up.
Crosby Farms is an extremely valuable environmental resource to Saint Paul and the surrounding area. It is currently home to two riverside lakes, Crosby Lake and Upper Lake, which surrounding them have a pronounced wetlands area, which holds an abundant source of plants and wildlife. Our main objective is not only to maintain the park’s current ecological state, but to also restore it to its pre-settlement state.

One of our main plans to restore the park to its more natural state is to do an active survey of the health of the current wetland habitat. The Minnesota Pollution Control Agency (MPCA) has done a great job with this across the state and has been at the forefront with using new, more accurate and efficient methods of capturing and reading this data. The MPCA created and uses a method of measuring the health of wetlands by developing and Index of Biological Integrity (IBI). Native plants and macro invertebrates are very fragile and their survival can be easily disrupted by slight changes in their environment. Data is gathered of plant species that are present within the area,
taking their health into consideration as well. Then with small nets, samples of macro invertebrate populations are taken from the water to assess which species are present and healthy. If plant and animal species are present, then the habitat is considered to be in a healthy state. If otherwise, the area is given a low rating, and hopefully habitat restoration then begins. This newer method developed by the MPCA is favorable over the older counting and estimating populations because it gives more accurate results and is much more efficient. With the old method, samples were taken less often and were based on the numbers of a population, which can cause inaccurate results because if there were only a few of a specie’s population present, they may assume that is unhealthy, when in reality, they could be in great numbers in another area of the habitat. In this method, as long as there is one representative of the species present, the data gatherers know that the species is still in the habitat and surviving. When species are not present, they can see that there is a problem with the environment. This data gathering is much simpler, takes less manpower and, therefore, can be conducted on a more regular basis with less cost. This method would be used to evaluate the health of Crosby Farms’ wetlands habitat not only at the beginning of this project, but throughout the park’s existence. Data gathering can be even more cost effective by having the students and schools that visit the park do a lot of the data gathering. This would make for a less expensive way to get the data, and provide a unique educational opportunity for the students. Overall, the MPCA will be a very useful precedent in the restoration process of Crosby Farms natural wetlands habitat.

Another large part of restoring the habitat to its natural state is in removing the invasive species that are affluent throughout the park. A group that has done a great deal of invasive species management is Great River Greening (GRG), who would not only
make a great partner on this effort, but would also be a great precedent to follow. Instead of only focusing on invasive plant removal, GRG goes the extra step and replaces invasive plants with native. By making this move, they are preventing the invasive species that are pulled from coming back, because the native population is increased, thus leaving less room for the exotic species to grow. With very particular protocols, GRG makes very informed and progressive moves to revitalize the ecosystem of a natural area. Following GRG’s example, Crosby Farms could be restored to native state, and instead of just surviving within an urban landscape, it can thrive. A detailed preliminary assessment and report has already been done on Crosby Farms by GRG, which will make the beginning of this process even easier.

Our last main objective, and possibly our largest design change to the park is creating a flood bypass channel, reconnecting Upper Lake and Crosby Lake to the Mississippi River during the flood season. Both of these lakes were created from the flooding of the Mississippi River. The river would flow into the flood plain and create secondary channels along the main river channel. Over time, with sediment being pushed in and the site being settled, the natural geological structure that allowed for this secondary channel has been filled in. This causes major ecological problems for the wetlands, because instead of water having a constant flow through during the winter flood, the floodwaters move in more like a tide. This deposits excess sediment and negatively impacts the landscape and fragile wetlands habitat. By restoring this area’s natural flood flow; the ecology of the area should begin to fix itself. A great example of where this is being implemented is in Napa, California. They are planning to create a Park for their River Parkway Master Plan, in which it serves this exact purpose. This
flood bypass channel will assist in times of flood by creating a secondary flow for the river, preventing the water from building up and moving up further onto the flood plain. During the summer and fall months the park will be completely usable and open to the public. It will be sitting just above normal river levels so to be completely dry during this time of year. During the winter flood months however, it will allow water to pass through because it will be at a lower elevation than the surrounding “flood plain” and the river will create this second channel from it. We would like to create this, but on a smaller scale for Crosby Farms. Also, ours will be slightly different considering the flow will be moving through a wetlands area, which gives it a different purpose to serve. Our flood by pass will help with flood prevention within the park, but more importantly will recreate the flow that was once going through the lake, revitalizing its sediment and filtering the water through. Similarly to the Napa flood bypass, the bypass coming through Crosby Farms will only be active during times of flood. During the summer, there will simply be depressions within the park that the public can observe, seeing where the natural flow of the river is during the flood. This will also make for an historical and educational tool.

A precedent that cannot be ignored when dealing with such a strictly environmentally based plan of action is Portland River Concept. Everything with this river plan starts and ends with the river’s ecology in mind. Portland makes great strides in this plan to actively restore fish and wildlife habitats (Portland 16). Portland is mainly obtaining this goal by restoring and preventing further destruction of vital areas of the river shoreline. We are taking control of this in part with our habitat and species evaluations using IBI. Our invasive species control methods are also taking great action towards this goal of a healthy river shore and habitat. By allowing the river to bypass
through the lakes again, is the most important to the shore restoration, however. By not allowing the flood to move into the park like a tide, and restoring it to its former flow, we are preventing the deposits of unnatural amounts of sediment along the shoreline, disrupting the ecology of the wetlands habitat. The physical moves we are making are not necessarily the same as Portland’s, but our end goal in conservation matches directly.

The plans we have revitalize Crosby Farms on a social level are greatly represented as precedents in Saint Paul’s own National Great River Park Master Plan (GRP). One of our larger social goals is to construct an educational center to the west of the current private boat marina. This will not only give the current patrons of the park education on the site’s natural and cultural history, but also will bring in classes of students from the surrounding schools to have a more hands-on learning experience. The educational center that the GRP has proposed will also serve as indoor accommodations for a general meeting place. Also following the example of the GRP, we will be improving the social areas such as the current pavilion by adding more seating and picnic areas for the public to enjoy. We can use the GRP plan as precedent to create a more pleasant journey to Crosby Farms as well, by creating a green boulevard on Shepard Road. The GRP plans to make the road more pedestrian friendly by creating crosswalks and green areas alongside and down the middle of Shepard Road. Another way in which we will connect this more to the surrounding neighborhood with using the GRP as precedent is adding more signage along the bike paths leading to Crosby Farms. This will increase awareness of the park and will in turn make it a more viable social destination. We were also planning on using Heron County Park in Illinois as a precedent for our floating walkways; connecting Upper Lake and Crosby Lake through the wetlands. Heron
County Park’s walkway is wooden and floats on Lake Vermillion. It is handicap accessible and creates a great social destination for park patrons by improving the scenic views and providing more fishing opportunities.

We also have projects planned for bringing economic aspects to Crosby Farms. The National Great River Park Master Plan (GRP) provides many good precedents for this, including our plan to implement canoe, kayak and boat rentals from the secondary, currently unused, water inlet on the upstream side of the park. This is a very simple, but effective idea that the GRP has come up with and is very fitting for the park itself. By renting out small rowboats, canoes and kayaks, the park will attract visitors along with revenues to help fund the larger ecological plans for the future of the park. This will also create a very easy way in which to measure the success of the park by keeping data of how many and often rentals are being issued. Another way in that the park can be economically viable is the possibility of adding a seasonal waterfront restaurant, using the Sea Salt Eatery in Minnehaha Park as a precedent. They successfully operate a seasonal restaurant within a park, which could bring economic value to Crosby Farms. This would help support local business and create a destination for the public to head to. This restaurant would be on the water, allowing boats to drive right up to it, tie off and then eat.

Overall, the main precedents the Crosby Farms team should be looking at are the Minnesota Pollution Control Agency for habitat assessment, Great River Greening for habitat restoration and exotic species control, the City of Napa’s flood bypass plan, the Portland River Concept for inspiration of environmental protection, and the National Great River Park Master Plan for the many needed social aspects of the park.
When designing a site it is vital to have certain goals to accomplish but beyond that it is important to have standards or parameters set so that you can tell if the design was a success. These standards also let the client know what you are shooting for and allow them to tell if you are on the same page. In order for these standards to be measured, one also needs to research what the current situation is. This way, it can be seen clearly whether or not there was any change at all and if that change went the direction that was desired.
Crosby Park’s situation is unique and in need of a dramatic change. The recent flooding of the Mississippi River has left the park in terrible condition. Some of the paths that were there in the fall have washed away and large amount of debris has been left all over the park. Our design plans to correct the situation by creating a creek through the park to redirect the path of the floodwaters to their natural path. This will allow the water to flow and act as it did before manmade infrastructures altered the park.

In order to determine if this alteration was a success we decided that we will count the number of species that are present at the park. To do this we will use the DNR’s new system for counting species that exist at a site. This new system is that instead of counting how many animals there are of each species, for example five squirrels, they determine if a species is just present, for example if they see one squirrel then that species is present. It does not matter how many of each species is there, they only decide if a species is at the area. For our design we need to measure how many species there are currently at Crosby Park by observation, gathering information and analyzing it. If we see an increase in the number of species present, even if it is as little as just one species or if it is by a large number or species, then our design was successful. On the other hand, if the number of species that are present decreases then our design was not successful in this aspect. Furthermore, if the number of species present stays the same then we can determine that our design was still a success, since our design did not hinder the species survival. The gathering of information needs to be taken over a period of time not just one day, so that the information will be as precise as it can be. Taking this into consideration, after the design is implemented the counting of species should be checked for several months and even years to determine that this alteration and design actually
Another standard for determining the success of our design is seeing how our economic aspect changed from its current state to its state after the implementation of the design. In our design we plan on putting bike rentals in the park to allow visitors to enjoy the environment richness of Crosby Park. Through observation we will see how many people currently ride their bikes at the park and just like the species count this observation will be over a period not just one day. After the design takes place, observation will happen again over a period of time to see if the number of bikers in the park increased at all. The same factors that were used for the species count will be used here as well. That is if the number increases it was successful but if the number decreases then it was not. However, if the number stays the same it will not be a success since we would not have done anything to make people want to use bikes around the park. We would have failed at making the park appealing to bike riders.

Besides observing and counting the number of bike riders in the park, we will see how much money is present in the bike rental stations at the end of each day and see if people are really using them. This will be done over a number of weeks and the number of bikers each day will be combined to get a total number of bikers each week. To see if the implementation of bike rentals was a success, the number of bikers each week will need to increase. We hope to see that the number of bikers each week goes up, even if it is just by a little bit at a time. The goal is to get a steady number of people using the bike rentals and ideally that the number would go up eventually. This will be good for the social and economic aspect and holds great potential for future success.

The pavilion that is currently at Crosby Park is in good condition but there is not a
sufficient amount of sitting space available for people to use it. The pavilion now can be rented out for a group of about 50 people but we propose to expand the pavilion and offer more seating so that more people can enjoy and use this structure. Along with the expansion of the seating space we propose to install BBQ grills in the open space this will allow them to have something to do will there. To measure if these grills were a successful addition to the space we will observe and count how many people use these grills. If the number goes above the 50 people that can be there now then it was. If it does not go beyond the 50 people then the space we just added was a waste and therefore not a success. Like the other observations and counting this will be done over a period of time.

The space next to the pavilion is nice and open and this is where the community events are proposed to be held. To see if people are using it we will observe and count how many people are at each event. Through this counting we can see if the event is something that appeals to the community or not. If there are over 50 people at each event then it will be a success; to go even further we would like to see an increase in the number of people that attend over time. We hope to get the surrounding neighborhood involve so having public surveys will help give us a better idea of how things are going.

To see if the signage that we implemented along 35E and 62E helped people become more aware of Crosby Park we will have public surveys that ask how they learned about the park. These surveys will not only be asked to residents of the surrounding neighborhoods but also to those farther away. The surveys will be done in waves to see how far away from Crosby Park we can get before people do not know very much or nothing at all about Crosby Park and its location. The diagram below gives an idea of this process:
Crosby Park

The number of “circles” will depend on the amount of awareness that exists in each wave. To make sure the signage is placed correctly we will drive along as if we were visitors looking for Crosby Park. If we can successfully locate the park then the placement was done correctly.

To see that the partnership with Metro Transit is working we will see that people are actually using the buses to get to and from the park. To do this we will ask Metro Transit to allow us to see their logs of how many people rode this bus line each day or each week. If people are at least using the bus line that goes through Crosby Park then they are seeing the park and becoming aware that it exists there and is available for them to utilize. To take the logs a step further we will see how many people are getting off and those who are getting on at the stop located at Crosby Park. The number at first will be quite small, around 10 or 15, since it will take time for people to become aware of the existing bus line and even the park’s existence. However, over time we would like to see the number increase to over 30 people a day.
We want to have an educational center and provide a place for school groups to visit. This will allow easy access to a place that can supply a sufficient amount of information about the environment. To do this we will make it known to the surrounding school districts that this sort of teaching tool is available to them and then we will see how many school groups show up to take advantage of this. Hopefully the kids that go to the park with their school would want to return to the park with their family and friends. From the diagram it can be seen that there are several school districts around Crosby Park. Our main focus will be on the districts that are right around the park and we will see what percent of these utilize this park, our goal is at least 50%. Along with the educational aspect we plan to make the marina into a public space and to measure this success would be by observing how many people use it.

Since the flooding is such an issue for this site we plan to have floating docks that can hold up during the flooding. To determine if these were a success, we will have to
wait until the next flood and just see if they are there and still intact after the flood 
recedes. If they are destroyed in the flood then it was a failure and not implemented very well. We also hope that the amount of silt and substance that is left over from the flood decreases. To see if people use these floating docks we will observe how many people are on them.

To recap, we plan to do mostly observing and counting of the number of people that are using the park and its individual amenities. We also plan to see how the new infrastructures stand up against the floods that occur over time. We also plan to see how the number of species responds to the changes that are being made to the site.

All the individual observations and data gathering of the number of people that use the separate amenities of the park will then be composed together to determine the amount of people that are using Crosby Park as a whole. To know whether or not this is an increase in the number of people, data will need to be taken of its current state. We hope to double the amount of people that are using the park as of now.

For all of the observations, they will need to be done before the design is put into place for a period of time and also after the redesign. These observations should be frequent right after the design is implemented and then there should be check-ins for years after to make sure this design is still thriving. This will confirm that our proposed design was the correct way to approach the situation and the right way to go. And ultimately that this was a success.