THE MISSISSIPPI RIVER LEARNING CENTER

CONCEPTUAL DESIGN REPORT 2023





W Architecture and Landscape Architecture with 4RMULA + 106 Group + Solution Blue + ETM + CPMI



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This report was prepared for: City of St. Paul and the Great River Passage Conservancy

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1.1 Designing The Mississippi River Learning Center

Redevelopment of the River Learning Center site will includes multiple ways to access, experience and to learn about the Mississippi River and its dynamic transform a hidden gem on the Mississippi River into the center of river exploration and learning. As a visible ecology and history. Centered around the River Learning Center building, the project will also foster and welcoming gateway to the Mississippi it will be: connection between the two sides of the Hidden A place to experience land, water, and culture Falls Crosby Farm Regional Park, creating unity and increased opportunities for exploration.

- · Beautiful, safe, welcoming, and accessible to all
- aenerations

The design process focused on four primary considerations to accomplish the above goals for the River Learning Center site. These considerations include the Dakota perspective, the needs of the partners, site conditions, and community needs and desires.

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- A welcoming gateway to the river
- A connected campus bluff to floodplain
- A place for experiencing nature

The site of the River Learning Center will connect the bluff to the floodplain, city to nature, and create an engaging experience along the river. The design

1.1 Designing The Mississippi River Learning Center

1. EXECUTIVE SUMMARY



- Small-scale, light on the land, and forward-thinking
- Regenerative and restorative: planned for future

Situated at the Bdote, the confluence of the Minnesota and Mississippi Rivers and a sacred place to the Dakota, the River Learning Center's site strategy will provide an opportunity to restore lost connections to an area that is part of a larger system including important natural habitats, Dakota cultural areas, and

Based on these considerations and extensive community engagement, four over-arching principles were developed for site strategy and design:

• Multiple opportunities for touching the water

A Welcoming Gateway

The Sam Morgan Trailhead on the bluff will provide a node, a landmark to draw people into the park, and amenities for those using the Sam Morgan Regional Trail, including restrooms, gathering spaces, wayfinding and educational information. Improvements to Shepard Road will allow for greater community access to the site, including a new intersection, entrance, and improved crossings. Offices for park partners will be provided here, minimizing the footprint on the more ecologically sensitive floodplain below.

A Connected River Destination

Spanning the bluff and the floodplain, the River Learning Center's site will consist of buildings and many types of open spaces to foster engagement with the river environment and be welcoming to all. The Canopy Walk connects the Sam Morgan Regional Trail with the floodplain below via an engaging, universally accessible walk through the forest canopy. The heart of the park and the main point of arrival by bus, car. bicycle or on foot is the River Learning Center building. It is elevated above the floodplain elevation on the highest point of the lower campus and sited to capture views of the river. An Education Garden featuring storm water management techniques, native plants, and covered instruction areas, connects the River Learning Center building to parking and provides a welcoming arrival area. Those descending from the Canopy Walk land on the building's second level

Public Green Roof Garden and Overlook. The facility will house classrooms for indoor learning in flexible space to accommodate larger groups, smaller classes, or events. Public restrooms and associated amenities including a small café will be available. Offices for programming partners will also be located within the River Learning Center building.

Multiple Opportunities for Touching the Water

Exploration of the river itself will be enhanced by the creation of a channel connecting the two existing inlets on the site. This channel, approximately two feet deep, creates an island of the former peninsula and an opportunity to replace the degraded habitat and invasive plants of the peninsula with restored forest and wetland habitat. This island becomes a quiet and remote area for contemplation of nature and celebration of Dakota culture.

The Canoe Inlet to the west is a place for human powered craft and instruction for canoeing and kayaking. The Boathouse on the adjacent shore will allow for storage of these boats with a deck space for gathering and learning. The eastern inlet is the Marina, with private slips and space for motorized rentals. The Marina is reorganized to allow for public access along the eastern edge of the inlet terminating in the River Overlook.

Experiencing Nature

Restoring the River Learning Center site will improve the habitat of the central area and connect the east and west sides of Hidden Falls Crosby Farm Regional Park. Trails will be connected and improved to provide access and connection to this special "wilderness" in the city.

Implementation

Development of the River Learning Center site can be implemented in phases. Design will move forward with continued community and Dakota engagement, and construction is currently planned to begin in 2024. A strategic plan are will be developed to construct in a sequence that maintains programming, site function, and access with as little disruption as possible.



2. CONTEXT OVERVIEW

2.1 The Mississippi River Learning Center 2.2 The Existing Site and Experience



2.1 The Mississippi River Learning Center

The Mississippi River Learning Center is a city-led project providing a mixed-use, river-focused campus at the center of the Hidden Falls Crosby Farm Regional Park. Serving as a national gateway to the Mississippi River, and a part of the larger Mississippi National River and Recreation Area, the site of the River Learning Center will combine yearround river learning and outdoor recreation experiences on and along the Mississippi, as proposed by the Great River Passage Master Plan (GRPMP).

Project Goals

- Spark economic development and contribute to the commercial and economic vitality of the river

The Study Area

The study area is 25 acres spanning the bluff along Shepard Road and the floodplain below at the site of the current Watergate Marina. Located in the center of the Hidden Falls Crosby Farm Regional Park, the site's topography has been repeatedly altered for different programmatic uses. Most notably, the two inlets found on the site today were excavated between 1957-1960, resulting in steep slopes around the water's perimeter and making the Mississippi River difficult to access. Today, the area north of the peninsula is elevated above the 100-year floodplain and is currently used as boat storage.

• Build greater awareness of the river and increase access for a more diverse group of users. Create shared experiences that bring people together to enjoy the river landscape

- Promote a culture of care and respect for the environment
- Improve community health and well-being by creating places that are beautiful, safe, welcoming, and accessible to all
- Respect Sacred Dakota Site, the Bdote



The project study area is in the center of the Hidden Falls Crosby Farm Regional Park. This park is known for its remote feeling and "wildness" despite being in the center of the Minneapolis / St. Paul metropolitan area. The park landscape includes a mature floodplain forest with unique dynamic characteristics that change with the seasons and river water levels.

Despite these positive characteristics, the park remains hidden and difficult to access. In part. this is due to the 95-foot elevation change from the urbanized areas on the bluff to the river and floodplain below. The elevation change is a challenge for universal accessibility for pedestrians. Existing vehicular access down Crosby Farm Road is greater than the five percent allowable slope under ADA requirements. In addition, the entry is not well marked, Shepard Road is hard to cross, and existing signage that references the tenant, the Watergate Marina, does not feel inviting to all.

At the river level, the Marina appears as a private enclave within the otherwise public regional park. With the arrival of a new marina tenant there is an opportunity to reengage this area by combining marina operations with new publicly accessible walkways and waterfront access, making it more open and public.

The marina sits on one of two inlets separated by a peninsula. This terrain forms a hill around the edges of the peninsula, up to 35 feet above the water level, making the water difficult to access. The smaller inlet is presently open water, with a sand bank formed at the southwest edge of the peninsula. In an ecology report conducted for the City in 2019, the peninsula

between the two inlets is assessed as "poor" (defined as "not an example of a native plant community or dominated by exotic/invasive species") habitat with many invasive species. The undulating topography of the peninsula includes low areas approaching river water levels. A future wetland delineation will determine if incidental wetlands exist. On either side of the inlets is a floodplain forest assessed as "fair-good" (areas with native plant communities and moderate to little disturbance) in the ecology report. The topography is rolling and the trail connecting Hidden Falls Crosby Farm Regional Park end to end, the "Farm to Falls" trail, sweeps away from the river in the site area, to go around the marina and inlets.

While most of the site is within the 100-year floodplain, a small portion of the 25-acre study area to the north of the peninsula rises above the 100-year floodplain elevation.



Entrance to smaller inlet from the river at low water elevation



Steep slopes along the existing peninsula area are eroding and make river access difficult.





Existing Site Conditions

Floodplain Forest in Hidden Falls Crosby Farm Regional Park

Winter Boat Storage

3. DESIGN PROCESS

3.1 A Balance of Four Considerations 3.2 The Partners 3.3 Dakota Perspective 3.4 Site Regulations 3.5 Community Engagement 3.6 Next Steps

3.1 A Balance of Four Considerations



Design Process

The design process for the River Learning Center site brought together four key considerations for developing the design. The resulting configuration is the balance achieved over the nine month planning process. The four considerations are: The Dakota Landscape, Partners Needs, Site Conditions, and Community Input.

Each of these considerations played a central role in creating and evaluating three initial design alternatives presented to the public. Feedback on these schemes was conducted through public outreach, surveys,



targeted Dakota engagement, and comments from the partners. Ultimately, the feedback received on the three schemes was consolidated and incorporated to develop a single design scheme. The single scheme underwent a further round of public comments and feedback before being refined for the fall celebration on October 6th, 2022.

Further development of the project will be conducted with these four considerations in mind.

3.2 The Partners



The City of Saint Paul and Great River Passage Conservancy (GRPC), in partnership with Wilderness Inquiry, the National Park Service, Mississippi Park Connection, and Your Boat Club, are the organizations working to make this project a reality. The shared vision of this partnership is an activated site along the river and each entity brings a unique perspective to the project. The City of St. Paul is the owner of the site and project manager. Great River Passage Conservancy supports the community's vision for connecting Saint Paul's two greatest assets: Its people and the Mississippi River. As such, for this project GRPC is charged with private fundraising and strategic project development. Wilderness Inquiry is a national organization offering outdoor educational experiences around the country, headquartered in St. Paul. They will provide year-round programming at the site. The National Park Service (NPS) oversees the Mississippi National River and Recreation Area (MNRRA), and is charged to protect, preserve and enhance the nationally significant historical, recreational, scenic,

cultural, natural, economic, and scientific heritage of the waters and land of the Mississippi River Corridor within the Saint Paul- Minneapolis Metropolitan Area. NPS is a proposed tenant for the project. Mississippi Park Connection is MNRRA's philanthropic partner and friends group. In collaboration with the NPS, they run programs, youth outreach, and environmental stewardship programs within the 72-mile MNRRA corridor. Your Boat Club is the current marina operator and offers rental and maintenance services to the public.

The partners will continue to collaborate on new ways to experience the site and the waters of the Mississippi River. City of Saint Paul, National Park Service, Mississippi Park Connection and Wilderness Inquiry will continue to offer year-round programming on the site, and with a new facility they can expand those programs over time. Your Boat Club will operate and maintain the private marina facilities at Watergate Marina as a tenant to the City of St. Paul.



WILDERNESS



*Current Marina Tenant

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3.3 Dakota Perspective

The River Learning Center site, the Minnesota, the Mississippi River, and the regional landscape are Dakota homelands that were forcibly taken and damaged for commercial and recreational purposes. This is not a "park", but a shared community and sacred place that needs care, protection, and respect.

Where rivers come together is a place of power for Dakota people. The future site of the River Learning Center site is located within the sacred area known as Bdote, where the Mississippi and Minnesota rivers meet. Dakota people historically have lived and traveled in these interconnected waterways and still do, and the area remains an important gathering and sacred ceremonial site.

Center site.

The River Learning Center site will provide an opportunity to restore lost connections to a site that is part of a larger system of important natural and Dakota cultural areas.

A thoughtful and authentic approach to community engagement prioritized the Dakota voice in setting guiding design principles and a shared vision for the project. Dakota community members, representatives from regional Native American institutions, cultural historians, and other community and cultural leaders provided insight and guidance in every step of the process.

The River Learning Center site is part of a larger region of highly important traditional and contemporary Dakota cultural sites. This project will create opportunities that enhance the overall identity of the region and support coordinated cultural revival efforts of other Indigenous institutions. Thoughtful place-making strategies and culturally respectful building design that reflect Dakota values will honor the many Dakota voices that have provided insight into the planning of the River Learning



The study area is located within the homelands of the Dakota peoples



The study area is located at Bdote, the scared point of creation for the Dakota people. This map by Full Circle Indigenous Planning was used at community meetings to help educate the public about the importance of this sacred site to the Dakota People.

CULTURAL OVERLOOK



respectfully.

Indigenous-led programming diagram developed by Full Circle Indigneous Planning detailing the appropriate uses and activity zones within the project study area.

waterways at Bdote and beyond. It is acceptable to build along the river and to engage the waters edge, IF it is done minimally and programmed activities are conducted

3.4 Site Regulations

A riverfront project in a dynamic floodplain landscape is subject to many regulations to protect the unique character of the place, ensure safety for visitors, and protect the riverine ecology.

In the bottom diagram, a significant portion of the site, shown in gradients of blue is within the FEMA established 100 and 500-year floodplains. Using excavated soil from the inlet creation in the 1950's, a portion of the site was elevated above the floodplain elevation, shown in red.

In addition to the floodplain, the Mississippi River Critical Corridor Area (MRCCA) provides coordinated land planning and regulations for the Mississippi River. This location involves three regulatory zones: River Towns and Crossings (RTC), River Open Space (ROS), and River Neighborhood (RN). Each of these zones has different height, bluff, and river setback requirements.

Buildable area is further restricted by existing right-ofways for Shepard Road and Crosby Farm Road and city zoning requirements. The resulting buildable area when all of these constraints are applied is shown on the following page.

Site Regulations, amongst other technical considerations were regularly reviewed by the Technical Advisory Committee. Technical Advisory Committee (TAC) members include Capitol Region Watershed District (CRWD), Minnesota Department of Natural Resources (DNR), United States Army Corps of Engineers (USACE), Saint Paul Public Works, Saint Paul Department of Planning and Economic Development, Saint Paul Parks and Recreation, NPS, US Forest Service, and the Science Museum of Minnesota.



MRCCA regulatory zones located within the study area



Existing Topography. The red area is elevated out of the 100-year floodplain elevation





3.5 Community Engagement

Community engagement efforts featured both open calls for feedback, including public surveys and public meetings, and targeted outreach for local, historically excluded communities. Complete surveys and meeting summaries appear in the appendix, but the key takeaways below summarize the core findings across the three public surveys, four community meetings, four Community Advisory Committee Meetings, focus groups, and targeted local outreach in surrounding communities and neighborhoods.

Presentation materials were reviewed and commented on by the Community Advisory Committee (CAC). CAC members are involved with Highland District Council. Ford Road Federation. Prairie Island Indian Community, Nibi Walks, CommonBond, Sibley Manor Apartments, Capitol Region Watershed District Wilderness Inquiry, YMCA mobile camps, and several Saint Paul and Minneapolis residents and park users.

Key Takeaways across **Community Engagement Efforts**

Preferred activities in the landscape included walking and strolling (91%), wetland and river access (73%), and exploring (71%).

- Site development should keep the space as natural as possible.
- Go beyond sustainability, be regenerative and restorative.
- Site development should ensure that the Indigenous meaning in this space, both past and present, is respected and protected.
- Community members are interested in using this space for hiking, walking, birding, and enjoying time with family members in a guiet and peaceful setting.
- All people need to feel welcomed in this space and



Conversations at Community Meeting #4

feel welcomed to engage in programming in the area, including BIPOC community members and people with disabilities. The accessible canopy walk appealed to 70% of those surveyed.

- Ensure Native people share the opportunities created by this project: cultural, economic, and access.
- Partners and stakeholders need appropriate spaces for new and continued programs featuring the Mississippi River and surrounding natural areas.
- The community has concerns about year-round maintenance, the floodplain, environmental compliance, and accessibility throughout the year, but they are hopeful that what the design team has presented will address these concerns.









These slides and infographics shown at public community meetings were used to inform the community what the design team heard, and how it informed the design team's work throughout the project. *Numbers for newsletters and social media are part of information campaigns about the project and do not necessarily correlate to direct project input.



IMAGINING THE RIVER 4. LEARNING CENTER

4.1 A Connected River Campus
4.2 Campus Building Program
4.3 The Bluff
4.4 The Floodplain
4.5 Touching the Water
4.6 Connecting to Nature - Connecting the Park

4.1 A Connected River Campus

The River Learning Center site will connect the Bluff and Floodplain site areas in a unified, engaging experience of the river. It will provide multiple ways for people to access, experience, and learn about the Mississippi River and its dynamic ecology. Centered around the River Learning Center building, it will also foster connection between the two sides of the Hidden Falls Crosby Farm Regional Park, creating increased opportunities for exploration. Connections to the neighborhood will be improved on the Bluff, through a trailhead on the Sam Morgan Regional Trail and improved crosswalks along Shepard Road. A Canopy Walk will provide universal access from the bluff to the river floodplain connecting the Sam Morgan Regional Trail with the "Falls to Farm" Trail below.





To promote exploration of the river, the River Learning Center site will include four buildings: The Sam Morgan Trailhead, the River Learning Center building, the Boathouse, and the Marina Office and Service Building. A fifth major element is the Canopy Walk.

1. The Sam Morgan Trailhead

The Sam Morgan Trailhead on the bluff will provide an orientation to the site with views over the Bdote and resting space on the Sam Morgan Regional Trail with public restrooms, wayfinding and partner office space.

2. The River Learning Center

The River Learning Center building is the heart of the park with flexible space for classrooms and events. Public restrooms and a potential kitchenette/cafe will be available on the ground floor. A separate entrance for school groups will be from the Education Garden. The main entrance will face the river and the Falls to Farm trail, the main connective path of the park.

The second floor roof will be a public garden connected to the Canopy Walk, overlooking the river. Office space for programming partners as well as storage for classrooms and outdoor activities will also be in the River Learning Center building.

3. The Boathouse

The Boathouse is a storage facility for human powered craft, including canoes and kayaks which

will be available for educational use by the public through the project partner programming and canoe rentals. A deck will overlook the smaller inlet and river beyond and provide space for gathering and learning. There will also be access to the river for launching the craft as well as access for vehicles to drop off supplies.

4. The Marina Facilities

The Marina will have a repair and maintenance building as well as a rentals and office space. These two uses can be adjacent to each other or in one building. The repair shop has need for higher ceilings and the office space should be elevated out of the floodplain.

5. The Canopy Walk

The Canopy Walk provides universal access from the bluff to the floodplain. It links the Sam Morgan Trail to the "Falls to Farm" trail allowing for the unification of the city and park trail systems for all pedestrians and bikers. .



4.3 **The Bluff:** A Welcoming Gateway

A major goal of the project is to make the River Learning Center site a welcoming space for everyone. The current entrance into the site does not read as a place for everyone nor does it make the park feel accessible. Without having views into the site from Shepard Road, the only indicator is signage for a marina entrance without any indication of the park. The lack of signage and dangerous crossing make accessibility a challenge for pedestrians and bikers coming to the park from surrounding neighborhoods.

The new gateway to the park will be via a new proposed signalized intersection between Davern Street and Gannon Road. This new entrance will allow vehicular access both east down Crosby Road to the River Learning Center building and Floodplain and west to the Sam Morgan Trailhead on the bluff. Further study and deign will be necessary to ensure the Canopy Walk does not impede Primary Conservation Areas (PCA) or Public River Corridor Views (PRCV). More detailed information concerning traffic reconfigurations and alternative studies is in the Technical Appendix.

Access to the Sam Morgan Trailhead will be via one-way Crosby Road, exiting to Gannon Road. Parallel parking will remain for visitors and new parking for staff will be created. The ground floor of the Trailhead is proposed as a public plaza with accessible public restrooms, bike racks, and water fountains. Educational and wayfinding signage for the trail and the park will inform visitors about opportunities and programming in the park. The building will be situated to preserve the existing large oaks on the site, and to nestle into the topography, creating a two-story building on the narrowed Crosby Road, but the appearance of a one-story building from Shepard Road. The building will be designed meet all City of Saint Paul sustainability requirements and will provide a visible landmark for the park.



View from Shepard Rd of Sam Morgan Trailhead and one-way Crosby Farm Road.



Existing Signage at Park Entry

Existing Entry at Gannon Rd.







Sam Morgan Trailhead View at elevation +819 View from Canopy Walk at River Learning Center Public Green Roof View at elevation +749

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4.4 The Floodplain:

A park to explore in all seasons

The River Learning Center building will be situated at the heart of the park and will be a welcoming place for all. The facility is universally accessible either by car or accessible pathway. The experience of slowly descending by foot or bicycle on the Canopy Walk into the floodplain will allow the noises and distractions of the city to recede and prepare visitors for the tempo of the river. The extension of the Sam Morgan Regional Trail to the floodplain will help minimize car trips to this ecologically sensitive area of the park.

If arriving by car or bus down Crosby Farm Road, there is a new parking area for 50 cars, and a bus drop off for school trips; both are centrally located by the River Learning Center. Walkways lead from the parking through an Education Garden that highlights native plants and stormwater management techniques. There are also covered areas for outdoor classes or large group gatherings. The school entrance to the River Learning Center is from this end of the building.

Pathways also lead from the parking to the relocated "Farm to Falls" trail, the main pathway connecting the entire regional park. This pathway will go to the main entrance of the River Learning Center, facing the river. The Canopy Walk also leads people here. A gathering space under the trees makes an outdoor vestibule to the River Learning Center building.



Existing trail through site

From there, smaller pathways go down to the river or to the boathouse where people can access the Canoe Inlet.

The River Learning Center building is elevated above the 100 and 500-year floodplain elevations. The proposed location is sited to offer a wonderful view out over the riverfront and its activity. The building will include classrooms for various indoor programs in flexible space that can house a small class or larger groups, as well as public restrooms. Outdoor classrooms will be integrated into the landscape. Offices for City of St. Paul operations and programing staff and Mississippi Park Connection will also be provided, as well as flexible space for other partners.



Existing floodplain entry from Crosby Farm Road

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Plan of The Floodplain





Looking east towards the front entrance of the River Learning Center building from Farm to Falls Trail View at elevation +722

The River Learning Center building covered outdoor classroom, education garden, and school bus entrance with views opened to the bluff View at elevation +724



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4.5 **Touching the Water**



Experiencing and learning about the river or "touching the water" is one of the main goals of the Mississippi River Learning Center project. Currently the water is difficult to access, with steep slopes of up to 35 feet in height. The campus plan redesigns the waterfront to provide multiple opportunities to experience and access the water – with human powered craft at the Canoe Inlet, with motorized craft at the Marina, by wading along or exploring the newly excavated channel and wetlands, and through quiet ceremonial space for the Dakota on the island. All of these changes improve the ecology of the area and were designed with the guidance of a hydrologist. To date the hydrologic modeling run on the proposed design shows no adverse effects to existing river conditions, including no increased flooding upstream. More information on the modeling run and the results of these models is available in the hydrology chapter of the Technical Appendix.

70% of survey respondents thought "touching the water" was important at this site

The Marina

The existing marina size will be maintained but is proposed to be reorganized to allow for more public access. The buildings will be relocated to the eastern edge of the inlet, opening the area at the base of Crosby Farm Road for the Education Garden. Removing the Marina buildings from their present location also allows for views through the site, connecting the bluffs and the river.

The Marina will be organized along a new pedestrian Public Marina Promenade at the east edge of the inlet. Boat access will be through gates connecting to each private pier. The Public Marina Promenade will be flanked by storm water management bioswales to treat the water flowing off the adjacent parking area. New parking along this edge will be shared by the public and boat owners. At the end of the Promenade is the River Overlook, accessible to the public. This destination will be a wonderful place to look out over the river, providing views of the Bdote and Pike Island beyond. The existing boat ramp will remain.

Canoe Inlet

The Canoe Inlet to the west is a protected area which will allow human powered watercraft to enter the water in a safe way, before heading out onto the river itself. It will be served by a Boathouse with a deck for group gathering. The Boathouse will store non-motorized boats and is accessible to pedestrians as well as service vehicles. The Canoe Inlet will remain almost as it is today, except for regrading of the north shore slopes to allow for improved pedestrian and boat access.



Plan of Marina with shared public uses



Canoe Inlet with mixed use





1924 Map showing smaller islands at the Bdote.

The Channel and The Island

In order to make the river safely accessible, a new twofoot-deep channel will be excavated across the existing peninsula, connecting the two existing water inlets. The channel will be a place that allows for "touching the water" for better understanding the dynamic river environment. Creating this channel also makes an island of the end of the existing peninsula. This recalls the historic island landforms created at the Bdote prior to man-made inlets.

The peninsula will be regraded for easy access to the water, replacing the current 35-foot-high cliffs that were made as a part of the inlet construction. The island ecology will be restored, removing existing invasive plants and establishing native plants. The island is proposed to be accessible by bridge and by a weir. The weir will disappear in the normal spring flood and will act as a datum to measure the varying river water levels.

The Island becomes an area for quiet contemplation and celebration of Dakota culture, with an informal gathering area overlooking the main river channel.

Hydrology studies on the proposed grading will continue to be updated as the project progresses. Current projections are for no change in the flooding to upriver upland areas.

> Summer view of the Channel from the island View taken from elevation +694





View of the Channel during the spring melt View at elevation +701 Winter view of the Channel at average water level View at elevation +701

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4.6 Connecting to Nature—Connecting the Park



Floodplain Boardwalk between existing Crosby Farm Pavilion and Marina View taken from elevation +708



The Crosby Farm Hidden Falls Regional Park is a beloved refuge in the Minneapolis/St. Paul region. The dynamic river floodplain historically created a series of islands before the inlets were excavated. It also creates a unique forest type that withstands regular inundation. The existing floodplain forest in the regional park are an important habitat for animals and birds, considering the study area's location along the Mississippi flyway. While the floodplain forest in both Crosby Farm and Hidden Falls are healthy and robust, the area between them (the project's study area) is overgrown with invasive species. Improving the ecological quality of the

Due to the former construction and current marina operations the ecology in the study area is severely disturbed.

overall regional park by replanting the peninsula and area surrounding the River Learning Center building with native species is a goal of the project. Around the River Learning Center, restored forest will connect the floodplain forests on either side which can be enjoyed via the relocated "Falls to Farm" trail. Over 90% of respondents to the surveys said the most wanted activity is to walk and stroll in nature. Creating a continuous forest ecology throughout the regional park is an important design imperative in responding to the community's hopes for the River Learning Center site. The connected path and Canopy Walk will make that experience possible.



The Dakota engagement suggests a regnerative and restorative framework with a diversity of habitats for the River Learning Center site. The island will recall historic island forms and edge habitats. Surrounding the River Learning Center building are meadows, bioswales, floodplain forests, and an Education Garden. All of these places contribute to an environment of learning about riverine ecology, while restoring habitat that has been overtaken by invasive species or disturbed by humans within the study area. MRCCA and local permits will be required for exiting and proposed vegetation to be removed and established. Analysis and planning will include further consultation with the Natural Heritage Information Systems (NHIS) to insure no impact to rare or protects species and follow applicable guidelines for vegetation removal and habitat protection.

exotic/invasive species or invasion of exotic species disturbance but nearly intact species diversity native species

View from the Canopy Walk

View taken from elevation +775



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"I'm looking to experience the same natural floodplain that has been there for years." -Public Survey 2 Feedback

In the diagrams to the right, zones designated "Poor", "Fair", and "Good" are taken from the 2019 Master Plan for Hidden Falls-Crosby Farm Regional Park. The definitions are as follows: Poor: Not an example of a native plant community or dominated by

- Fair: Areas of native plant communities with high past disturbance
- Good: Areas of native plant communities with moderate
- Restored: Areas cleared of invasive species and/or planted with



Existing habitat qualifications from the 2019 Master Plan for Hidden Falls-Crosby Farm Regional Park



Proposed habitat restoration of formerly "poor" area around the River Learning Center building and the peninsula

5.1 Next Steps 5.2 Cost Estimate 5.3 Phasing and Costs

NE

5.1 Next Steps

Next Steps:

The completion of the schematic design phase Topographic and Bathymetric surveys will need to for the Mississippi River Learning Center marks a be conducted to ensure an accurate understanding significant milestone in creating a vision and plan for of the topography both above and below the water the project and connecting the entirety of the Hidden line. Both the topographic and bathymetric survey are Falls Crosby Farm Regional Park. As the design important in determining the extent of grading needed progresses beyond the schematic phase, site-studies to construct the channel and ensure that Canoe Inlet is become less generalized and the criteria used to operational year-round for the programming partners assess their feasibility/appropriateness becomes of the Mississippi River Learning Center. A detailed more specific. While each area of study as met the survey is also important for precisely locating the Base Flood Elevation (BFE) and Design Flood Elevation appropriate degree of scrutiny through the schematic phase, further scrutiny may necessitate alterations to (DFE), above which buildings can be safely built above components of the finished construction of the project the floodplain elevation. Topographic site surveys are Before further work can begin, site data needs to needed for precise grading of the site to determine universally accessible slopes, and saving important be collected to allow for more detailed design. This information is required in order to save important trees, trees. to not disturb rare or endangered species, and to ensure site alterations will not have any adverse effects Utilities on the environment. This data includes topographic, Many of the programmatic needs developed through tree, bathymetric and wetland surveys, and geotechnical borings. Other studies will be necessary the schematic design process will require new utility for approvals, like alternative scenarios for the Canopy connections. Existing connections are currently Walk and the Channel, or for the environmental on the bluff. A preliminary plan for new Sanitary Sewer and Water Main is included in the technical assessment worksheet (EAW), including studies about key animal habitats. More hydrologic modeling appendix, but will need further study throughout the will be needed as the design is refined. Continued design process. Both new utility connections have coordination with Public Works on the design of been included in the cost estimate. An allowance Shepard Road and the intersections proposed will for expanded communications and electrical utilities be necessary as well as negotiation on the ROW has been included in the cost estimate, but will location and setback on the bluff. Building permits need further study throughout the design process. meeting requirements of the St. Paul Sustainability Detailed information about utilities can be found in the Building Policy, MRCCA, and zoning will be required. A Technical Appendix. complete list of permits is listed in Appendix 6.6.

Surveys

Stormwater Management

Preventing harmful run-off into the river is a key consideration when designing near the Mississippi River. Proper management of stormwater can help improve the quality and quantity of water entering the river, provide places for robust planting, and opportunities to learn about the role of rainwater in river ecology. Green roofs, planted bioswales, and water storage for reuse are all incorporated into the design of the Mississippi River Learning Center. Stormwater analysis on the final schematic design scheme shows that an appropriate area has been dedicated to stormwater collection, filtration, and storage. Continued study of stormwater management will need to be undertaken throughout the design process for completion of the Capital Region Watershed District (CRWD) application. CRWD permits and a complete analysis of the stormwater management on the site can be found in the technical appendix.

Hydrology

A thorough understanding of the hydrology of the site is important to ensure that any topographic changes made on this site meet all DNR rules and regulations. At this preliminary phase, the design does not increase flood elevations upstream. HEC-RAS modeling done on the preliminary design did not show any increase in flood elevations upstream. Alterations of grade elevations that worsen the impacts of flood events upstream are not permissible. Further modeling will need to be conducted as the

design progresses. The fluctuations in the river water levels and gualities of the floodplain region are an opportunity for visitors to learn from the river itself. Knowledge of the region and the site's hydrology will continue to inform the design of the study area's waterfront. More detailed information concerning hydrologic studies conducted as part of the schematic design process are located in the Technical Appendix.

Traffic studies

Access to the study area, both by pedestrians and by cars from Shepard Road is difficult. The entrance at Gannon Road currently has a traffic signal, while the other entrance has a stop sign from Crosby Farm Road. With increased vehicular traffic resulting from the Mississippi River Learning improvements, the entrances will have increased demand and traffic. The Schematic Design proposes three major alterations to the configuration of Crosby Farm Road and to the entrances and exits to the site.

1. Create a new signalized entrance and crosswalk west of the currently non-signalized entrance. This will become the park entrance.

2. Narrow Crosby Farm Road between Gannon Road and the new signalized entrance and make it a westbound one-way road with traffic-calming pedestrianfriendly features.

3. Strengthen existing pedestrian crosswalks at Davern Street and Gannon Road intersections.

Additional information about the proposed traffic alterations can be found in the Technical Appendix.

Permittina

System online application.

Preliminary conversations with City of St. Paul Public Works Department and the Minnesota Department of Natural Resources were part of the schematic design process but more detailed studies will be required as the design process continues. Additional information about the required permits and permitting process can be found in the Technical Appendix.

Cultural Resources Report

A Cultural Resources Report was conducted in Timeline March of 2022 to determine any cultural impacts and regulations that would need to be adhered to The anticipated timeline at the completion of the concerning the Mississippi River Learning Center study schematic design phase is shown on the following area. The report found that if any federal funding or page. The timeline shows an estimated project permitting is anticipated then the project would need completion date and opening in 2026. This timeline is to comply with Section 106 of the National Historic subject to change. Preservation Act of 1966. The review process would be led by the lead federal agency in consultation with the State Historic Preservation Office (SHPO), Tribes, City, and others. The study area's proximity to Fort Snelling requires compliance with Minnesota Historic Sites Act.

The study area is a complex site with overlapping ecological, recreational, and cultural value. As such, there are many permits that will be necessary to safeguard these overlapping concerns and ensure an ecologically, recreationally, and culturally robust design. Many of these permits are concerned with the waters of the Mississippi River and can be conducted through the Minnesota DNR's Permits and Reporting

The City of Saint Paul would lead consultation with SHPO. To determine if Archaeological surveys are necessary, Office of the State Archeologist (OSA) and SHPO will need to be consulted.

MRCCA

The Mississippi River Corridor Critical Area (MRCCA) is a state, regional, and local government program aimed at coordinated land planning along the Mississippi River. MRCCA was designated a state critical area in 1976 to protect its natural, cultural and scenic resources. These resources are protected through development standards administered through local government land use plans and zoning ordinances. The proposed scheme meets MRCCA regulations and City of St. Paul zoning regulations have been adhered to, and when those were in conflict, the more restrictive of the two have been followed. Continued adherence to the MRCCA regulations will be required throughout all phases of the project.

5.2 Cost Estimate



Cost Estimate Assumptions

Estimate Objective Unit costs included herein are reflective of current costs with no This estimate is intended to be used as a tool for decision making and escalation included. A labor and material escalation factor based on the funding strategy as the project progresses. It is prepared using industry above mentioned schedule is included on the cost summary page. contacts, experience, and a professional consultant. This estimate is intended to reflect an amount close to what would be the low bid of the Quantity Take-Off project with respect to the present level of design and documentation Wherever possible, this estimate has been based upon the actual measurement of work items. For remaining items, allowances were along with consideration given to the current market conditions. used in conjunction with references from other projects of similar size

Project Delivery Method

this project. Items which may have an impact on the estimated construction cost include, but are not limited to: modifications to the scope of work Bid Conditions: Items Excluded From This Estimate included in this estimate, unforeseen sub-surface soil conditions, Items which are not in the detail of this report include, but are not limited restrictive technical specifications or excessive contract conditions, to: Operation and maintenance costs, Marina slips, Marina or Cove Inlet construction period other than defined in this report, Any specified item dredging, provisions for liquidated or actual damages, and overtime or of equipment, material or product that cannot be obtained from at least shift work. three different sources.

Design and Construction Contingency

included. **Escalation**

A construction cost estimate is a first step when considering how to move ahead with a plan. The following cost estimate represents the single scheme presented to the public on October 6th, 2022. A plan for phasing, fundraising, and programming will be determined by the partners over the next six months.

A standard design-bid-build project delivery method is anticipated for

A design contingency between 10-15% was included in the unit costs In the "Non-Building Costs", a construction contingency of 5-7% was

Assumed Construction Schedule

START Mar 2024 **MIDPOINT** Jan 2025 FINISH Nov 2025 DURATION 20 Months

Items Affecting The Cost Estimate

Additional Assumptions/Clarifications

- Elevated canopy walk includes foundations, structure, walkway surfaces, railings and lighting.
- Reshaping the Marina and Canoe Inlet is based on approximately 40,000 cubic yards.
- Potential rock excavation may be required for new utilities.

DESCRIPTION	QUANTITY	UNIT PRICE	TOTAL AMOUNT	DESCRIPTION	QUANTITY	UNIT PRICE	TOTAL AMOUNT
SITE DEVELOPMENT				BUILDINGS			
New Crosswalk & Traffic Light	1 LS	500,000.00	500,000	River Learning Center Building (2-Story)	10,400 GSF	800.00	8,320,000
Bluff Overlook	1 LS	400,000.00	400,000	Add For Habitat Roof Terrace	3,400 GSF	200.00	680,00
Bluff Landscape Allowance	19,385 SF	7.50	145,400	Sam Morgan Trailhead w/Green Roof (2-Story)			
Improved Davern Crosswalk	1 LS	200,000.00	200,000	Partially Underground/Façade on 2 Sides)	13,870 GSF	750.00	10,402,200
Improved Gannon Crosswalk	1 LS	200,000.00	200,000	Elevated Canopy Walk - 12' Wide	1,300 LF	5,000.00	6,500,00
Reduce Crosby Farm Rd from 35' to 20' Wide	1,100 LF	750.00	825,000	Marina Service Building	4,800 GSF	375.00	1,800,00
				Marina Office/Rental Building	1,500 GSF	450.00	675,00
SUBTOTAL			\$2,270,400	Boathouse	3,000 GSF	275.00	825,00
	40.004.05		175 500	Utility Connections \$1,950,000	-		
New Hoadways	43,231 SF	11.00	475,500	(Assume all utilities will likely require some rock excavation)			
Regrade & Relocate Farm to Falls Trail - 15' Wide	1,477 LF	250.00	369,300	Water Allowance	1 I S	450.000.00	450.00
New Trails - 8' Wide	2,060 LF	65.00	133,900	Sanitary & Lift Allowance	115	600 000 00	600.00
Floodplain Boardwalk - 15' Wide	152 LF	900.00	136,800	Storm Sewer Allowance	115	250,000,00	250.00
Staff & Visitor Parking	140 EA	4,250.00	595,000		115	400,000,00	400.00
Marina Promenade	639 LF	700.00	447,300		1 LS		400,00
Biver Overleek	0,373 SF	15.00	95,600	Communications Service Allowance	1 L3	250,000.00	250,00
Netorfront Landssaning Allowance	1 LS	400,000.00	400,000				
Floweted Channel Creesing	177,450 SF	6 500 00	200,200	TOTAL BUILDINGS			\$31,152,20
Island Habitat Postoration	230 LF	0,500.00	206 200				
Boathouse Deck	1 800 SF	40.00	290,200				
	1,000 51	150,000,00	150,000				¢20 705 20
Shared Pedestrian & Service Path	246 L E	235.00	57 800	TOTAL CONSTRUCTION COST - SEPTEMBER 2022			\$39,705,20
Bioswale Landscape	26 477 SF	200.00	66,200				
Education Landscape Allowance	52 930 SE	2.00	105 900	LABOR & MATERIAL ESCALATION TO			
Regrading Area	19 717 SY	8.50	167 600	MIDPOINT OF CONSTRUCTION – JANUARY 2025 (22.5%	»)	_	\$8,933,70
Art Allowance	1 LS	500,000.00	500,000	TOTAL CONSTRUCTION COST			\$48,638,90
SUBTOTAL			\$5,830,300				
RIVER CHANNEL				NON-BUILDING COSTS			
Improvements to Marina & Canoe Cove Inlet				Professional Design & Consultant Fees, FF&E,			
Including Establishing Connecting Channel	1 LS	452,000.00	452,000	Survey, Administrative Costs, Permits, SAC/WAC			
(Assume winter construction period for earthwork, potential rock ex	cavation)			Charges, Testing & Inspections, Commissioning			
(Excludes hazardous materials remediation)		_		and Construction Contingency	1 LS	-	\$16,557,00
TOTAL RIVER CHANNEL			\$452,000	TOTAL PROJECT COST		\$	65,195,90

- Bluff landscape and waterfront landscape allowances include earthwork, plantings and final grading.
- Parking lot costs include pavement, curbs, signage, storm water management and lighting.
- Marina Promenade includes aesthetically upgraded pavement.
- Based on extrapolated data from past projects, allowances have been provided for project areas where limited design information is available.

Cost Estimate

Predesign cost Management Report for the Mississippi River Learning Center prepared by Cost, Planning & Management International, Inc. (CPMI)

CPMI has no control over market conditions, wage rates, or any contractor's method of determining prices or quantities. Therefore, CPMI cannot and does not guarantee this estimate will not vary from the actual bid.

The following units are used in the cost estimate: LS = Lump Sum LF = Linear Feet SF = Square Feet GSF = Gross Square Feet SY = Square YardsEA = Each

5.3 Phasing and Costs

Potential Project Breakdown

For purposes of project and construction phasing, The River Learning Center site can be broken into four distinct areas of work:

1. The Sam Morgan Trailhead and site improvements. 2. Relocation of Marina buildings and creation of public access and related improvements along the east edge of the Marina.

3. Regrading of the peninsula to make the channel and island and associated boathouse and pathways. 4. Creation of the River Learning Center building and Canopy Walk and associated new parking and roadways.

Sequence

The four distinct areas of work can be developed in multiple ways. Work on the Bluff (area 1) is relatively independent of work in the Floodplain. In the Floodplain, relocation of the Marina (area 2) and regrading the peninsula (area 3) need to occur before the building the River Learning Center (area 4). Sequence of phasing and construction will be dependent on funding and phasing strategy.

Cost Estimate

A Schematic design cost estimate for the entire project has been completed. For phased implementation and funding strategies, the cost estimate has been diagrammed according to a potential breakdown of implementation. The adjacent potential project areas have been broken out from the preceding overall cost estimate done by Cost, Planning & Management International, Inc. (CPMI). The following phasing breakdown is **not** a representation of the complete cost estimate and should not serve as a stand in for the full cost estimate in the previous section. The phasing diagrams are intended as a tool for fundraising and planning for future construction phases of the Mississippi River Learning Center. While broken down by specific elements or projects (i.e. "Canopy Walk" or "Other Site Grading") it does not include some project-wide costs listed in the full cost estimate, such as wayfinding and signage, art, or utilities. It also does not include Non-Building Costs identified in the cost estimate.





Sam Morgan Trailhead and Site improvements:

The proposed design includes the new entrance to both the River Learning Center site below and Sam Morgan Trailhead on the bluff. Further discussions with City of St. Paul Public Works and County officials about this new intersection and the design of Shepard Road are necessary as design continues. It includes narrowing Crosby Farm Road to a one-way road heading from the new entrance to Gannon Road exit and associated new landscaping and signage. It also includes the 13,870 SF Trailhead building.

Conceptual estimated costs for this project include:

Bluff Building and Landscape + Traffic

Sam Morgan Trailhead	\$ 10,402,200.00
Reduce Crosby Farm Road	\$ 825,000.00
Bluff Landscape Allowance	\$ 145,400.00
Bluff Plaza	\$ 250,000.00
New Crosswalk + Traffic Light	\$ 500,000.00
Improve Davern Crosswalk	\$ 200,000.00
Improve Gannon Crosswalk	\$ 200,000.00
SUBTOTAL	\$12,522,600.00

Labor and Material Escalation to Midpoint of Construction 22.50% TOTAL

\$ 2.817.600.00 \$15,340,200.00



Relocation of Marina:

The proposed design would include the construction of new Marina buildings, a new pedestrian promenade, and bioswales adjacent to a shared parking area. Gated access and marina docks are not included in this estimate.

Conceptual estimated costs for this project include:

Public Marina Landscape + Buildings

Labor and Material Escalation to

Midpoint of Construction 22.50%

TOTAL

\$ 136,800.00
\$ 447,300.00
\$ 301,851.00
\$ 340,000.00
\$ 95,600.00
\$ 400,000.00
\$ 1,800,000.00
\$ 675,000.00
\$ 4,196,551.00

\$ 944.224.00 \$ 5,140,775.00



Regrading of Peninsula and Boathouse

oped.

Channel + Wa Grade Channe Other Site Gra Boathouse Island Habitat **Elevated Chan** Waterfront Lan Canoe Launch Shared Pedest Boathouse De **SUBTOTAL**

Labor and Mat Midpoint of Co TOTAL

The proposed design provides the regrading of the peninsula to create better water access, including the new channel and island. A new pedestrian bridge to the island and new pathways are set into a restored floodplain landscape. Where native trees are present they will be maintained to create a diverse habitat. A new boathouse and exterior deck area and water access will also be devel-

Conceptual estimated costs for this project include:

stor Accord		
		River Learning Center
	\$ 452,000.00	River Learning Center B
ding	\$ 167,600.00	Habitable Roof Terrace
	\$ 825,000.00	Canopy Walk
Restoration	\$ 296,200.00	New Roadway
nel Crossing	\$ 1,495,000.00	Regrade + Relocate Fa
dscape Allowance	\$ 266,200.00	Staff + Visitor Parking
l	\$ 150,000.00	Utility Connections
trian + Service Path	\$ 57,800.00	New Trails
ck	\$ 72,000.00	Bioswales
	\$ 3,751,800.00	Education Landscape A
	4	SUBTOTAL
erial Escalation to		
postruction 22 50%		Labor and Material Esc
131 UCION 22.30 /0	\$ 884,155.00	Midpoint of Construction
	\$ 4,595,955.00	TOTAL



River Learning Center, Canopy Walk and Associated Site Improvements

The proposed design includes the 10,400 sf River Learning Center and the Canopy Walk with access from the Bluff and the Sam Morgan Regional Trail to its garden rooftop, and continuing into the park. If also includes the Education Garden with bioswales and other storm water management. Visitor parking as well as new bus drop off and roadways are also included. Relocation of the "Farm to Falls Trail" is also included with associated landscape improvements.

Conceptual estimated costs for the project include:

)	River Learning Center Building (2-Story)	\$8,320,000.00
)	Habitable Roof Terrace	\$ 680,000.00
)	Canopy Walk	\$ 6,500,000.00
)	New Roadway	\$ 173,690.00
)	Regrade + Relocate Farm to Falls Trail	\$ 369,300.00
)	Staff + Visitor Parking	\$ 255,000.00
)	Utility Connections	\$ 1,950,000.00
)	New Trails	\$ 133,800.00
)	Bioswales	\$ 66,200.00
)	Education Landscape Allowance	\$ 105,900.00
"	SUBTOTAL	\$ 18,553,890.00
	Labor and Material Escalation to	
)	Midpoint of Construction 22,50%	\$ 4.174.625.00

\$ 22,728,515.00

TECHNICAL 6. APPENDIX

6.1 Utilities 6.2 Stormwater Management 6.3 Hydrology **6.4 Traffic Studies 6.5 Building Programming 6.6** Permitting **6.7 Cultural Resources Report 6.8 MRCCA Guidelines**

6.1 Utilities

The site plan on page 63 shows a proposed utility layout for the Mississippi River Learning site. Howeve there are some challenges to be aware of for the sewer alignments in negotiating the bluffs.

The existing marina building's water demand is supplied by a well located between the building's driveway entrance and Crosby Farm Road. However, it is assumed that this well will not meet the demands Sanitary Sewer of the proposed River Learning Center building The existing marina building is connected to a septic and Marina, and it is also assumed that due to the drain field that is found west of the current building proximity to the floodplain the well may not meet along the south side of Crosby Farm Road. If a septic current regulations for potable water. Therefore, it drain option is not feasible due to size limitations or is determined that the city water main will have to its proximity to the floodplain, the routing would be be brought down Crosby Farm Road to the lower reversed and would require installing a sanitary force building. The upper building will also need new main to pump the sanitary waste westward and up water service as well. The preferred option for the bluff along Crosby Farm Road to the interceptor connecting both buildings would be to connect from near Shepard Road and Davern Road. Historically the water main at the intersection of Gannon Road there was a 108" sanitary sewer tunnel that runs along and Shepard Road and route the water main along the Davern Road ROW that discharged directly into Crosby Farm Road to reach both buildings. This will the Mississippi River but has since been abandoned require a larger quantity of pipes but is more feasible and routed to Met Council's treatment facilities. The than the second option. The second option for the proposed sanitary force main would need to connect watermain alignments is to connect to the watermain to the sanitary main near Davern Road. at the intersection of Davern Road and Shepard Road and drop the main approximately 80 feet down the bluff to reach the lower building. This drop would

Water Main



likely follow the existing storm main drop at the same intersection that connects to an 8' x 6' sewer tunnel below the bluff. In either case, the Sam Morgan Trailhead would still require a connection to the city water main at Gannon Road and Shepard Road.

Storm Sewer

There is no existing site stormwater management for the current Marina. Crosby Farm Road has a series of curb inlets and a main line that runs from the Shepard Road and Crosby Farm Road intersection to just west of the existing Marina, then discharges directly into the Marina bay. There is a large storm tunnel west of the site that serves as the discharge for the stormwater collected above the bluff in Davern Road. Near the location of the upper building there are curb inlets that discharge from Crosby Farm Road down the side of the bluff through daylighted pipes near the bottom of the steep slopes. The building site on the bluff will not need to change any storm infrastructure in Crosby Farm Road. Roof drains will be collected into rain gardens and managed in green areas, and the

anticipated impervious coverage is not expected to change significantly. The River Learning Center site will incorporate a variety of stormwater best management practices (BMPs) that will be connected with overflow drainpipes that can all be connected to the existing storm outlet from Crosby Farm Road. The stormwater BMPs will be designed to meet the treatment requirements of the regulatory bodies and will be designed to limit the discharge so that little to no modifications to the existing 21" storm outlet pipe will be necessary. The Marina parking lot will incorporate stormwater treatment planters that are connected in series to collect and filter the storm runoff before discharging into the bay as well.

Please refer to the Utility Schematic Layout for the sewer alignments and approximate quantities.





City of St Paul Parks and Recreation is planning on constructing the improvements shown on the BMP Schematic Layout plans on page 68-69. However, they would like to incorporate some stormwater management features that are innovative, highly visible and provide educational benefits for the City of St. Paul and the neighboring residents.

The following stormwater management and educational features are included in the project:

 Stormwater Biofiltration Planters – precast planters along the length of the Marina parking area that will provide a barrier edge between parking and pedestrian surfaces as well as landscaping and beautification along the long stretch of parking pavement. These planters would be ground level with barrier curb to protect the public from tripping/driving into the planters but would also have surface weeps to allow runoff from the adjacent surfaces to enter. The planters would be precast structures with approximately 36" of planting media above draintile that connect each planter in series. Stormwater runoff would enter from the adjacent surfaces, filter through the planting media and

discharge through the draintile at the bottom of the planters. This provides volume retention, rate control and water quality improvements to the runoff from the parking surfaces.

- Rain garden Biofiltration Areas the rain gardens will include landscaping plantings like native shrubs and grasses over a 30" planting media section to assist with the filtration and stormwater quantity reduction. The rain gardens which will be completely visible to the public are proposed in the following areas:
 - ~ Near the building entrance drop off
 - ~ Within the parking lot islands and around the parking lot border
 - ~ Along the south wall of the building

The rain gardens with native plantings are a very simple solution and easily replicated on numerous similar residential and small commercial projects, located throughout the watershed.

Educational signage can be placed in the rain gardens to provide a learning experience. There are numerous public visitors at this facility, which would be the perfect target audience and be well served by this educational opportunity.

Existing Conditions

The site does not have any stormwater BMP's within the boundaries of Crosby Farm Road and the existing Marina property. Runoff from the site goes through the Marina property directly into the river inlets. There is approximately 5 acres of impervious coverage within the estimated drainage boundary around the proposed work for this project.

Proposed Development

The proposed site does not plan to alter Crosby Farm Road in any way. Project improvements at the river's edge will redevelop the existing Marina to include the new proposed River Learning Center, a new Marina operation building, parking for both buildings and regrading the peninsula banks to provide public access to the water with human powered boat launches, a shallow channel, and pedestrian bridge access to the reshaped island. The proposed earthwork will not add fill material into the floodway, and the proposed impervious area of these

Refer to the attached BMP Schematic Lavout for BMP locations and Plan details on page 68-69.

improvements will be reduced to 4.4 acres.

Runoff Rate Control

The project is exempt from the City of St. Paul's stormwater management requirements since there will be no connection to public storm sewer. The discharges of the proposed BMPs will be mitigated and controlled before being routed to the river.

Refer to the following images for a Schematic Site Lavout. Table 1. Cite Areas

Table 1: Site Areas				
Ground Cover	Existing Area (ac)	Proposed Area (ac)		
Pavement	0.37	3.16		
Gravel	4.54	0.00		
Building	<u>0.16</u>	<u>1.27</u>		
Total Impervious Area	5.07	4.43		
Mown Lawns	4.80	16.73		
Wooded Area/River Bank	<u>37.16</u>	<u>25.22</u>		
Total Pervious Area	41.96	41.95		
River Area within Limits of Work	10.89	11.54		
Total Site Area	57.92	57.92		
Net Impervious Area		-0.63		

Compliance with the City of St. Paul and the watershed's rate control will be modeled and accounted for once site-specific data is made available to the design team. The calculations for site areas and BMP volumes are based off of city maps and Lidar data and represents a conservative estimate of values at this point in the schematic design phase.

Water Quality Volume Control

The proposed BMP's will also provide volume reduction. With the small amount of area available for stormwater management, the goal was to provide volume control for 1.1 inches over the total impervious area captured onsite:

Water Quality Volume (cf) = (impervious area) x 1.1in (1ft/12 in) = 4.43 ac x 1.1 in x (43,560 sf/1ac) x (1ft/12in) = 17,707 cf

Stage storage tables are provided in the attached HydroCAD report.

Pollutants and sedimentation will be controlled from leaving the project area by installing the planters and rain gardens and decreasing the amount of impervious area.

Table 5 Water Quality Volume Results

HydroCAD Pond Node No.	Proposed BMP	Location	Storage Provided (cf)
1P	Stormwater Biofiltration Planter	Marina Parking Lot Edge	297 (per planter x 7 planters)
2Р	Stormwater Biofiltration Planter	Marina Pedestrian Walkway	629 (per planter x 5 planters)
R1	Rain Garden	Building Parking Island	1,388
R2	Rain Garden	Building Drop off	914
R3	Rain Garden	Building South Face	287
R4	Rain Garden	Building South Face	6,660
R5	Rain Garden	East edge of parking lot	7,541
R6	Rain Garden	Building South Face	2,774
Total Storage Provided			24,788



Preliminary Conceptual Stormwater Flow and Storage Diagram



BMP Schematic Layout Plan



RLC Drainage_Sch Prepared by Solution HydroCAD® 10.00-26 s/n

Area CN Description (acres)

0.000

	River Learning Center		River Learning Center
nmatic		RLC Drainage Schmatic	Ū.
Blue, Inc.	Printed 12/6/2022	Prepared by Solution Blue, Inc.	Printed 12/6/2022
n 02082 © 2020 HydroCAD Software Solutions LLC	Page 2	HydroCAD® 10.00-26 s/n 02082 © 2020 HydroCAD Software Solutions LLC	Page 3

Area Listing (selected nodes)

(subcatchment-numbers)

0 TOTAL AREA

Soil Listing (selected nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.000	HSG C	
0.000	HSG D	
0.000	Other	
0.000		TOTAL AREA
River Learning Center

Subcatchment

Numbers

RLC Drainage_Schmatic	
Prepared by Solution Blue, Inc.	Printed 12/6/2022
HydroCAD® 10.00-26 s/n 02082 © 2020 HydroCAD Software Solutions LLC	Page 4

Ground Covers (selected nodes)

Other

(acres)

0.000

Total Ground

0.000 TOTAL

AREA

(acres) Cover

River Learning Center Type II 24-hr 100-yr STP Rainfall=5.90" RLC Drainage_Schmatic Printed 12/6/2022 Prepared by Solution Blue, Inc. HydroCAD® 10.00-26 s/n 02082 © 2020 HydroCAD Software Solutions LLC Page 5

Summary for Pond 1P: Stormwater Planters - parking average size

[43] Hint: Has no inflow (Outflow=Zero)

Volume	Invert	Avail.S	Storage	Storage Descri	ption	
#1	0.00'		951 cf	Planter Box (F	Prismatic)Listed b	pelow (Recalc)
	-				0 0	
Elevatio	on Sui	t.Area V	olds	Inc.Store	Cum.Store	
(tee	et)	(sq-ft)	(%)	(cubic-feet)	(cubic-feet)	
0.0	00	406	0.0	0	0	
0.0)1	406	40.0	2	2	
3.3	33	406	40.0	539	541	
3.3	34	406 1	00.0	4	545	
4.3	34	406 1	00.0	406	951	
Device	Routing	Inve	rt Outl	et Devices		
#1	Primary	0.00	D' 12.0	" Round Outle	t Pipe	
			L= 2	0.0' CPP, squa	are edge headwall	, Ke= 0.500
			Inlet	/ Outlet Invert=	0.00'/-0.20' S=	0.0100 '/' Cc= 0.900
			n= 0	.010 PVC, smo	oth interior, Flow	Area= 0.79 sf
#2	Device 1	1.83	3' 8.0"	Horiz. Overflow	v Pipe C= 0.600	
			Limi	ted to weir flow a	at low heads	
#3	Device 1	3.83	3' 15.0	" Horiz. Nylopla	ast Grate C= 0.6	600
			Limi	ted to weir flow a	at low heads	
#4	Secondary	4.33	3' 0.5'	long x 5.0' brea	adth Top of Plan	ter
	,		Hea	d (feet) 0.20 0.4	40 0.60 0.80 1.0	0 1.20 1.40 1.60 1.80 2.00
			2.50	3.00 3.50 4.0	0 4.50 5.00 5.50)
			Coe	f (English) 234	2 50 2 70 2 68	268 266 265 265 265
			2.65	2.67 2.66 2.6	8 2.70 2.74 2.79	2.88
#5	Discarded	0.00	D' 0.80	0 in/hr Exfiltrat	ion over Surface	area
		0.00				

Discarded OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' (Free Discharge) 5=Exfiltration (Passes 0.00 cfs of 0.01 cfs potential flow)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' (Free Discharge) 1=Outlet Pipe (Controls 0.00 cfs) 2=Overflow Pipe (Controls 0.00 cfs) 3=Nyloplast Grate (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' (Free Discharge)







HSG-A

(acres)

0.000

HSG-B

(acres)

0.000

HSG-C

(acres)

0.000

HSG-D

(acres)

0.000

		River Learn	ing Center
hmatic	Type II 24-nr	100-yr STP Rain	ntall=5.90"
n Blue, Inc.		Printed	12/6/2022
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		River Learn	ing Center
RLC Drainage_Schmatic	Type II 24-hr	100-yr STP Rain	fall=5.90"
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Pond 1P: Stormwater Planters - parking average size

Stage-Area-Storage for Pond 1P: Stormwater Planters - parking average size

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
0.00	406	0	2.60	406	422
0.05	406	8	2.65	406	430
0.10	406	16	2.70	406	438
0.15	406	24	2.75	406	447
0.20	406	32	2.80	406	455
0.25	406	41	2.85	406	463
0.30	406	49	2.90	406	471
0.35	406	57	2.95	406	479
0.40	406	65	3.00	406	487
0.45	406	73	3.05	406	495
0.50	406	81	3.10	406	503
0.55	400	97	3 20	400	520
0.65	406	106	3 25	406	528
0.00	406	114	3 30	406	536
0.75	406	122	3.35	406	549
0.80	406	130	3.40	406	569
0.85	406	138	3.45	406	590
0.90	406	146	3.50	406	610
0.95	406	154	3.55	406	630
1.00	406	162	3.60	406	650
1.05	406	171	3.65	406	671
1.10	406	179	3.70	406	691
1.15	406	187	3.75	406	711
1.20	406	195	3.80	406	752
1.25	400	203	3.00	400	732
1.35	406	219	3 95	406	793
1.00	406	227	4 00	406	813
1.45	406	235	4.05	406	833
1.50	406	244	4.10	406	853
1.55	406	252	4.15	406	874
1.60	406	260	4.20	406	894
1.65	406	268	4.25	406	914
1.70	406	276	4.30	406	935
1.75	406	284			
1.80	406	292			
1.85	406	300			
1.90	400	309			
2.00	400	325			
2.00	406	333			
2.00	406	341			
2.15	406	349			
2.20	406	357			
2.25	406	365			
2.30	406	374			
2.35	406	382			
2.40	406	390			
2.45	406	398			
2.50	406	406			
2.55	400	414			

RLC Drainage Schmatic	Type II 24-hr	River Learning Center 100-yr STP Rainfall=5.90"
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Summary for Pond 2P: Stormwater Planters - dock walk average size

[43] Hint: Has no inflow (Outflow=Zero)

Volume	Inve	ert Ava	il.Stora	age Storage Des	scription
#1	0.0	0'	2,01	2 cf Planter Box	(Prismatic)Listed below (Recalc)
Elevatio (fee	on et)	Surf.Area	Void	s Inc.Store	e Cum.Store
0.0)0)1	859	0.0	0 0	
3.3	33	859 859	40.0	0 1,141	5 5 1 1,144 0 1,152
3.3 4.3	84 84	859	100.0	0 9 0 859	9 2,012
Device	Routing	In	vert	Outlet Devices	
#1	Primary	C	0.00'	12.0" Round Out L= 20.0' CPP, sq Inlet / Outlet Invert n= 0.010 PVC, sm	tlet Pipe quare edge headwall, Ke= 0.500 rt= 0.00' /-0.20' S= 0.0100 '/' Cc= 0.900 mooth interior. Flow Area= 0.79 sf
#2	Device 1	1	.83'	8.0" Horiz. Overfl Limited to weir flow	ilow Pipe C= 0.600 w at low heads
#3	Device 1	3	8.83'	15.0" Horiz. Nylop Limited to weir flow	plast Grate C= 0.600 w at low heads
#4	Seconda	ry 4	.33'	0.5' long x 5.0' b Head (feet) 0.20 2.50 3.00 3.50 4 Coef. (English) 2.3 2.65 2.67 2.66 2	Operadth Top of Planter 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 4.00 4.50 5.00 5.50 5.42 5.20 2.68 2.66 2.65
#5	Discarde	d C	.00'	0.800 in/hr Exfiltr	ration over Surface area

Discarded OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' (Free Discharge) **5=Exfiltration** (Passes 0.00 cfs of 0.02 cfs potential flow)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' (Free Discharge)

2=Overflow Pipe (Controls 0.00 cfs) 3=Nyloplast Grate (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' (Free Discharge)

RLC Drainage_Schmatic	Type II 24-hr
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 $0.00 \, cfs$

Pond 2P: Stormwater Planters - dock walk average size

Peak Elev=0.00'

Storage=0 cf

Hydrograph

0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 Time (hours)

River Learning Center 100-yr STP Rainfall=5.90" Printed 12/6/2022 Page 9

Discarded

Primary Secondary

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Elevation
(feet)
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.40
0.55
0.60
0.65
0.70
0.75
0.80
0.85
0.90
0.95
1.00
1.05
1.10
1.15
1.20
1.20
1.35
1.40
1.45
1.50
1.55
1.60
1.65
1.70
1.75
1.80
1.85
1.90
1.95
2.00
2.00
2.15
2.20
2.25
2.30
2.35
2.40
2.45
2.50
2.55

		River Learn	ing Center
age Schmatic	Type II 24-hr	100-yr STP Rair	nfall=5.90"
/ Solution Blue, Inc.		Printed	12/6/2022
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River Learning Center
 RLC Drainage_Schmatic
 Type II 2

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 Type II 24-hr 100-yr STP Rainfall=5.90" Printed 12/6/2022 Page 11

Stage-Area-Storage for Pond 2P: Stormwater Planters - dock walk average size

.

Surface	Storage	Elevation	Surface	Storage
(sq-ft)	(cubic-feet)	(feet)	(sq-ft)	(cubic-feet)
859	0	2.60	859	893
859	17	2.65	859	911
859	34	2 70	859	928
859	52	2 75	859	945
859	60	2.0	859	962
859	86	2.00	859	070
850	103	2.00	850	006
850	100	2.50	850	1 014
009	120	2.55	000	1,014
009	157	3.00	009	1,031
009	100	3.05	009	1,040
009	172	3.10	009	1,000
009	109	3.15	009	1,002
859	206	3.20	859	1,100
859	223	3.25	859	1,117
859	241	3.30	859	1,134
859	258	3.35	859	1,101
859	275	3.40	859	1,204
859	292	3.45	859	1,247
859	309	3.50	859	1,290
859	326	3.55	859	1,333
859	344	3.60	859	1,376
859	361	3.65	859	1,419
859	378	3.70	859	1,462
859	395	3.75	859	1,505
859	412	3.80	859	1,548
859	430	3.85	859	1,591
859	447	3.90	859	1,634
859	464	3.95	859	1,677
859	481	4.00	859	1,720
859	498	4.05	859	1,763
859	515	4.10	859	1,806
859	533	4.15	859	1,849
859	550	4.20	859	1,892
859	567	4.25	859	1,934
859	584	4.30	859	1,977
859	601			
859	618			
859	636			
859	653			
859	670			
859	687			
859	704			
859	722			
859	739			
859	756			
859	773			
859	790			
850	807			
850	825			
850	8/2			
009	04Z 850			
009	009			
009	0/0			

Summary for Pond R1: Bioretention Section - Bldg Parking Island

[43] Hint: Has no inflow (Outflow=Zero)

Volume	Invert	Ava	il.Sto	rage	Storage Descrip	otion	
#1	0.00'		1,51	9 cf	Rain Garden (I	Prismatic)Listed	below (Recalc)
Elevatio (fee	on Si et)	urf.Area (sq-ft)	Voic (%	ls 6)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	
0.0	00	540	0	.0	0		
0.0)1	540	40	.0	2	2	
2.5	50	540	40	.0	538	540	
2.5	51	540	100	.0	5	545	
3.5	51	1,407	100	.0	974	1,519	
Device	Routing	In	vert	Outl	et Devices		
#1	Primary	C	0.00'	12.0	" Round Outlet	Pipe	
				L= 2	0.0' CPP, squa	re edge headwa	ll, Ke= 0.500
				Inlet	/ Outlet Invert= (0.00'/-0.20' S=	: 0.0100 '/' Cc= 0.900
#2	Dovice 1		2 00'	15 0	"Horiz Nylopla	on interior, Flow	Area= 0.79 Si
#2	Device		5.00	l imi	ted to weir flow a	t low heads	500
#3	Secondarv	3	3.50'	5.0'	lona x 10.0' bre	adth Top of Sic	ppe
	,			Hea	d (feet) 0.20 0.4	0 0.60 0.80 1.	00 1.20 1.40 1.60
				Coe	f. (English) 2.49	2.56 2.70 2.69	2.68 2.69 2.67 2.64
#4	Discarded	C	0.00'	0.80	0 in/hr Exfiltrati	on over Surface	e area

Discarded OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' (Free Discharge) **4=Exfiltration** (Passes 0.00 cfs of 0.01 cfs potential flow)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' (Free Discharge) 1=Outlet Pipe (Controls 0.00 cfs) 2=Nyloplast Grate (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' (Free Discharge) -3=Top of Slope (Controls 0.00 cfs)

		River Learning Center
RLC Drainage_Schmatic	Type II 24-hr	100-yr STP Rainfall=5.90"
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	River Learning Center
RLC Drainage_Schmatic	Type II 24-hr 100-yr STP Rainfall=5.90"
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Pond R1: Bioretention Section - Bldg Parking Island



Stage-Area-Storage for Pond R1: Bioretention Section - Bldg Parking Island

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	
0.00	540	0	2.60	618	598	
0.05	540	11	2.65	661	629	
0.10	540	22	2.70	705	664	
0.15	540	32	2.75	748	700	
0.20	540	43	2.00	791	730	
0.25	540	54	2.00	878	822	
0.35	540	76	2.95	921	867	
0.40	540	86	3.00	965	914	
0.45	540	97	3.05	1.008	963	
0.50	540	108	3.10	1,052	1,015	
0.55	540	119	3.15	1,095	1,069	
0.60	540	130	3.20	1,138	1,124	
0.65	540	140	3.25	1,182	1,182	
0.70	540	151	3.30	1,225	1,243	
0.75	540	162	3.35	1,268	1,305	
0.80	540	1/3	3.40	1,312	1,369	
0.85	540	184	3.45	1,300	1,430	
0.90	540	194	3.50	1,390	1,505	
1.00	540	200				
1.00	540	210				
1 10	540	238				
1.15	540	248				
1.20	540	259				
1.25	540	270				
1.30	540	281				
1.35	540	292				
1.40	540	302				
1.45	540	313				
1.50	540	324				
1.55	540	335				
1.60	540	340				
1.05	540	300				
1.70	540	378				
1.70	540	389				
1.85	540	400				
1.90	540	410				
1.95	540	421				
2.00	540	432				
2.05	540	443				
2.10	540	454				
2.15	540	464				
2.20	540	4/5				
2.20	540	480				
∠.30 2.35	540 540	497 508				
2.33	540	518				
2.40	540	529				
2.50	540	540				
2.55	575	568				

RLC Draina Prepared by HydroCAD® 10

[43] Hint: Has no inflow (Outflow=Zero)

Volume #1 Elevation (feet) 0.00 0.01 2.50 2.51 3.51

Device Rou #1 Prin

#2 Devi

#3 Sec

#4 Discarded

		River Learn	ing Center
age_Schmatic	Type II 24-hr	100-yr STP Rair	nfall=5.90'
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Summary for Pond R2: Bioretention Section - Bldg N Dropoff Loop

Invert	Ava	il.Stora	age Storage Desc	ription		
0.00'		2,06	1 cf Rain Garden	(Prismatic)Listed	below (Recalc)	
				. ,	. ,	
Sı	urf.Area	Voids	s Inc.Store	Cum.Store		
	(sq-ft)	(%) (cubic-feet)	(cubic-feet)		
	878	0.0) 0	0		
	878	40.0) 4	4		
	878	40.0) 874	878		
	878	100.0) 9	887		
	1,471	100.0) 1,175	2,061		
iting	In	vert	Outlet Devices			
nary	0	.00'	12.0" Round Outle	et Pipe		
			L= 20.0' CPP, squ	are edge headwal	l, Ke= 0.500	
			Inlet / Outlet Invert=	= 0.00' / -0.20' S=	0.0100 '/' Cc= 0.900	
			n= 0.010 PVC, smo	ooth interior, Flow	Area= 0.79 sf	
rice 1	3	.00'	15.0" Horiz. Nylop	last Grate C= 0.6	500	
			Limited to weir flow	at low heads		
ondary	3	.50'	5.0' long x 10.0' b	readth Top of Slo	pe	
			Head (feet) 0.20 0	.40 0.60 0.80 1.	00 1.20 1.40 1.60	
			Coef. (English) 2.4	9 2.56 2.70 2.69	2.68 2.69 2.67 2.64	
carded	0	.00'	0.800 in/hr Exfiltra	tion over Surface	area	

Discarded OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' (Free Discharge) **14=Exfiltration** (Passes 0.00 cfs of 0.02 cfs potential flow)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' (Free Discharge) 1=Outlet Pipe (Controls 0.00 cfs) 2=Nyloplast Grate (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' (Free Discharge) -3=Top of Slope (Controls 0.00 cfs)

River Learning Center
 RLC Drainage_Schmatic
 Type II 2

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Pond R2: Bioretention Section - Bldg N Dropoff Loop

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		River Learn	ing Center
RLC Drainage_Schmatic	Type II 24-hr	100-yr STP Rair	nfall=5.90"
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		River Learning Center	
RLC Drainage_Schmatic	Type II 24-hr	100-yr STP Rainfall=5.90"	
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Stage-Area-Storage for Pond R2: Bioretention Section - Bldg N Dropoff Loop

Elevation	Surface	Storage	Elevation	Surface	Storage
(feet)	(sq-ft)	(cubic-feet)	(feet)	(sq-ft)	(cubic-feet)
0.00	878	0	2.60	931	968
0.05	878	18	2.65	961	1,016
0.10	878	35	2.70	991	1,064
0.15	8/8	53	2.75	1,020	1,115
0.20	0/0	70	2.00	1,050	1,100
0.20	878	105	2.00	1,000	1 274
0.35	878	123	2.95	1,139	1.331
0.40	878	140	3.00	1,169	1,388
0.45	878	158	3.05	1,198	1,447
0.50	878	176	3.10	1,228	1,508
0.55	878	193	3.15	1,258	1,570
0.60	878	211	3.20	1,287	1,634
0.65	878	228	3.25	1,317	1,699
0.70	8/8	240	3.30	1,340	1,705
0.75	878	203	3.35	1,370	1,034
0.85	878	299	3 45	1,400	1,903
0.90	878	316	3.50	1.465	2.047
0.95	878	334		,	,-
1.00	878	351			
1.05	878	369			
1.10	878	386			
1.15	8/8	404			
1.20	878	421			
1.30	878	457			
1.35	878	474			
1.40	878	492			
1.45	878	509			
1.50	878	527			
1.55	878	544			
1.60	878	562			
1.05	878	507			
1.70	878	615			
1.80	878	632			
1.85	878	650			
1.90	878	667			
1.95	878	685			
2.00	878	702			
2.05	8/8	720			
2.10	878	755			
2.20	878	773			
2.25	878	790			
2.30	878	808			
2.35	878	825			
2.40	878	843			
2.45	878	860			
2.50	0/0 902	078 922			
2.00	302	522			

Summary for Pond R3: Rain Garden 1 - South Face

[43] Hint: Has no inflow (Outflow=Zero)

Volume	Inve	rt Ava	il Stor	ade	Storage Descript	tion	
#1	0.00	<u>ונ אינ</u> ים	61	4 of	Bain Cardon (B	riamatia) listad	holow (Pocale)
#1	0.00	5	01	4 01	Rain Garden (P	rismatic)Listeu	
Elevatio	on s	Surf.Area	Voic	ls	Inc.Store	Cum.Store	
(fee	et)	(sq-ft)	(%	6)	(cubic-feet)	(cubic-feet)	
0.0	00	137	0	0	0		
0.0	01	137	40	0	1	1	
2.5	50	137	40.	0	136	137	
2.5	51	137	100.	0	1	138	
3.5	51	814	100.	0	476	614	
Device	Routing	Ir	vert	Outl	et Devices		
#1	Primary	().00'	12.0	" Round Outlet	Pipe	
				L= 2	0.0' CPP, square	e edge headwall	, Ke= 0.500
				Inlet	/ Outlet Invert= 0	.00'/-0.20' S=	0.0100 '/' Cc= 0.900
				n= 0	.010 PVC, smoot	th interior, Flow	Area= 0.79 sf
#2	Device 1	3	3.00'	15.0	" Horiz. Nyloplas	st Grate C= 0.6	00
				Limi	ted to weir flow at	low heads	
#3	Secondar	y 3	3.50'	5.0'	long x 10.0' brea	adth Top of Slop	be
				Hea	d (feet) 0.20 0.40	0.60 0.80 1.0	0 1.20 1.40 1.60
				Coe	f. (English) 2.49	2.56 2.70 2.69	2.68 2.69 2.67 2.64
#4	Discarded) t	0.00'	0.80	0 in/hr Exfiltratio	n over Surface	area

Discarded OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' (Free Discharge) **4=Exfiltration** (Passes 0.00 cfs of 0.00 cfs potential flow)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' (Free Discharge) 1=Outlet Pipe (Controls 0.00 cfs) 2=Nyloplast Grate (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' (Free Discharge) -3=Top of Slope (Controls 0.00 cfs)

		River Learning Center
RLC Drainage_Schmatic	Type II 24-hr	100-yr STP Rainfall=5.90"
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		River Learn	ing Cente
RLC Drainage Schmatic	Type II 24-hr	100-yr STP Rair	nfall=5.90
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Pond R3: Rain Garden 1 - South Face



Stage-Area-Storage for Pond R3: Rain Garden 1 - South Face

Elevation	Surface	Storage	Elevation	Surface	Storage
(feet)	(sq-ft)	(cubic-feet)	(feet)	(sq-ft)	(cubic-feet)
0.00	137	0	2.60	198	153
0.05	137	3	2.65	232	164
0.10	137	5	2.70	200	101
0.10	137	11	2.70	333	207
0.25	137	14	2.85	367	224
0.30	137	16	2.90	401	243
0.35	137	19	2.95	435	264
0.40	137	22	3.00	469	287
0.45	137	25	3.05	503	311
0.50	137	27	3.10	536	337
0.55	137	30	3.15	604	305
0.65	137	36	3.25	638	425
0.70	137	38	3.30	672	458
0.75	137	41	3.35	706	492
0.80	137	44	3.40	740	528
0.85	137	47	3.45	773	566
0.90	137	49	3.50	807	606
0.95	137	52			
1.00	137	58			
1.10	137	60			
1.15	137	63			
1.20	137	66			
1.25	137	69			
1.30	137	71			
1.35	137	74			
1.45	137	79			
1.50	137	82			
1.55	137	85			
1.60	137	88			
1.65	137	90			
1.70	137	93			
1.75	137	90			
1.85	137	101			
1.90	137	104			
1.95	137	107			
2.00	137	110			
2.05	137	112			
2.10	137	115			
2.15	137	118			
2.25	137	123			
2.30	137	126			
2.35	137	129			
2.40	137	132			
2.45	137	134			
2.50	137	137			
2.55	104	144			

		River Learn	ing Center
RLC Drainage_Schmatic	Type II 24-hr	100-yr STP Rain	nfall=5.90"
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Summary for Pond R4: Rain Garden 2 - South Face

[43] Hint: Has no inflow (Outflow=Zero)

Volume	Inv	ert Ava	il.Storage	Storage Descrip	otion	
#1	0.	00'	9,431 cf	Rain Garden (P	Prismatic)Listed b	elow (Recalc)
Elevatio	on	Surf.Area	Voids	Inc.Store	Cum.Store	
(fee	et)	(sq-ft)	(%)	(cubic-feet)	(cubic-feet)	
0.0)0	4,320	0.0	0	0	
0.0)1	4,320	40.0	17	17	
2.5	50	4,320	40.0	4,303	4,320	
2.5	51	4,320	100.0	43	4,363	
3.5	51	5,816	100.0	5,068	9,431	
Device	Routing	Ir	vert Out	let Devices		
#1	Primary	().00' 12.0 L= 2	Round Outlet 20.0' CPP, squar	Pipe e edge headwall,	Ke= 0.500

			L= 20.0' CPP, square edge headwall, Ke= 0.500
			Inlet / Outlet Invert= 0.00' / -0.20' S= 0.0100 '/' Cc= 0.900
			n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf
#2	Device 1	3.00'	15.0" Horiz. Nyloplast Grate C= 0.600
			Limited to weir flow at low heads
#3	Secondary	3.50'	5.0' long x 10.0' breadth Top of Slope
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#4	Discarded	0.00'	0.800 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' (Free Discharge) **4=Exfiltration** (Passes 0.00 cfs of 0.08 cfs potential flow)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' (Free Discharge) ↓1=Outlet Pipe (Controls 0.00 cfs) ↓2=Nyloplast Grate (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' (Free Discharge) -3=Top of Slope (Controls 0.00 cfs)

 RLC Drainage_Schmatic
 Type II 2

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River Learning Center Type II 24-hr 100-yr STP Rainfall=5.90" Printed 12/6/2022 Page 21



RLC Draina Prepared by S HydroCAD® 10

Elevation
(feet)
0.00
0.05
0.10
0.15
0.20
0.30
0.35
0.40
0.45
0.50
0.55
0.60
0.65
0.70
0.75
0.85
0.90
0.95
1.00
1.05
1.10
1.15
1.20
1.25
1.30
1.00
1.45
1.50
1.55
1.60
1.65
1.70
1.75
1.80
1.00
1.90
2.00
2.05
2.10
2.15
2.20
2.25
2.30
2.35
∠.40 2.45
2.50
2.55

		River Learning Ce	enter
age_Schmatic	Type II 24-hr	100-yr STP Rainfall=5	.90'
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Stage-Area-Storage for Pond R4: Rain Garden 2 - South Face

Surface	Storage	Elevation	Surface	Storage
(sq-π)	(cubic-teet)	(teet)	<u>(sq-π)</u>	(cubic-reet)
4,320	0	2.60	4,455	4,758
4,320	80	2.05	4,529	4,983
4,320	173	2.70	4,604	5,211
4,320	259	2.75	4,679	5,443
4,320	340	2.00	4,754	5,079
4,320	432	2.00	4,029	5,910
4,320	605	2.50	4,505	6 409
4 320	691	3.00	5 053	6,660
4.320	778	3.05	5,128	6,914
4.320	864	3.10	5.203	7,172
4,320	950	3.15	5,277	7,434
4,320	1,037	3.20	5,352	7,700
4,320	1,123	3.25	5,427	7,970
4,320	1,210	3.30	5,502	8,243
4,320	1,296	3.35	5,577	8,520
4,320	1,382	3.40	5,651	8,800
4,320	1,469	3.45	5,726	9,085
4,320	1,555	3.50	5,801	9,373
4,320	1,042			
4,320	1,720			
4,320	1,014			
4,320	1,987			
4.320	2.074			
4.320	2,160			
4,320	2,246			
4,320	2,333			
4,320	2,419			
4,320	2,506			
4,320	2,592			
4,320	2,678			
4,320	2,765			
4,320	2,851			
4,320	2,930			
4,320	3,024			
4,320	3,110			
4,320	3 283			
4.320	3,370			
4.320	3,456			
4,320	3,542			
4,320	3,629			
4,320	3,715			
4,320	3,802			
4,320	3,888			
4,320	3,974			
4,320	4,061			
4,320	4,147			
4,320	4,234			
4,320	4,320			
7,000	-,557			

		River Learn	ning Center
RLC Drainage Schmatic	Type II 24-hr	100-yr STP Rair	nfall=5.90"
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Summary for Pond R5: Rain Garden 3 - South Face

[43] Hint: Has no inflow (Outflow=Zero)

Volume	Invert	Avai	I.Storag	ge Storage Descr	iption		
#1	0.00'		10,574	cf Rain Garden	(Prismatic)Listed	below (Recalc)	
Elevatio	on Su	urf.Area	Voids	Inc.Store	Cum.Store		
)())()	<u>4 917</u>	0.0	0	0		
0.0)1	4,917	40.0	20	20		
2.5	50	4,917	40.0	4,897	4,917		
2.5	51	4,917	100.0	49	4,966		
3.5	51	6,298	100.0	5,608	10,574		
Device	Routing	In	vert C	Outlet Devices			
#1	Primary	0	.00' 1	2.0" Round Outle	et Pipe		
			L II n	L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 0.00' /-0.20' S= 0.0100 '/ Cc= 0.900 n= 0.010 PVC smooth interior. Flow Area= 0.79 sf			
#2	Device 1	3	.00' 1 L	5.0" Horiz. Nylopl imited to weir flow	ast Grate C= 0.6 at low heads	600	
#3	Secondary	3	.50' 5	5.0' long x 10.0' breadth Top of Slope			
#4	Discarded	0	.00' 0	Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64 0.800 in/hr Exfiltration over Surface area			

Discarded OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' (Free Discharge) **4=Exfiltration** (Passes 0.00 cfs of 0.09 cfs potential flow)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' (Free Discharge) 1=Outlet Pipe (Controls 0.00 cfs) 2=Nyloplast Grate (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' (Free Discharge) -3=Top of Slope (Controls 0.00 cfs)

		River Learning Center
RLC Drainage_Schmatic	Type II 24-hr	100-yr STP Rainfall=5.90"
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	River Learning Center	
RLC Drainage Schmatic	Type II 24-hr 100-yr STP Rainfall=5.90"	
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Pond R5: Rain Garden 3 - South Face



Stage-Area-Storage for Pond R5: Rain Garden 3 - South Face

Elevation (feet)	Surface (sg-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sg-ft)	Storage (cubic-feet)	[43] Hint: Has no inflow (Outflow=Zero)
0.00	4,917	0	2.60	5,041	5,414	
0.05	4,917	98	2.65	5,110	5,668	
0.10	4,917	197	2.70	5,179	5,925	Volume Invert Avail.Storage Storage Description
0.15	4,917	295	2.75	5,248	6,186	#1 0.00' 4,045 cf Rain Garden (Prismatic)Listed below (Recalc)
0.20	4,917	393	2.80	5,317	6,450	
0.25	4,917	492	2.85	5,387	6,718	Elevation Surf.Area Voids Inc.Store Cum.Store
0.30	4,917	590	2.90	5,456	6,989	(feet) (sq-ft) (%) (cubic-feet) (cubic-feet)
0.35	4,917	688	2.95	5,525	7,263	0.00 1.772 0.0 0 0
0.40	4,917	/0/	3.00	5,594	7,041	0.01 1.772 40.0 7 7
0.45	4,917	983	3.05	5,003	8 108	2.50 1,772 40.0 1,765 1,772
0.55	4 917	1 082	3 15	5 801	8,396	2.51 1.772 100.0 18 1.790
0.60	4 917	1 180	3 20	5 870	8 688	3.51 2.739 100.0 2.256 4.045
0.65	4,917	1,278	3.25	5,939	8,983	
0.70	4,917	1,377	3.30	6,008	9,282	Device Routing Invert Outlet Devices
0.75	4,917	1,475	3.35	6,077	9,584	#1 Primary 0.00' 12.0" Round Outlet Pipe
0.80	4,917	1,573	3.40	6,146	9,889	L = 20.0' CPP, square edge headwall. Ke= 0.500
0.85	4,917	1,672	3.45	6,215	10,198	Inlet / Outlet Inverte 0.00' / -0.20' S= 0.0100 '/' Cc= 0.900
0.90	4,917	1,770	3.50	6,284	10,511	n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf
0.95	4,917	1,868				#2 Device 1 3.00' 15.0" Horiz. Nyloplast Grate C= 0.600
1.00	4,917	1,967				Limited to weir flow at low heads
1.05	4,917	2,000				#3 Secondary 3.50' 5.0' long x 10.0' breadth Top of Slope
1.10	4,917	2,103				Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
1.10	4 917	2,202				Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
1.25	4,917	2,459				#4 Discarded 0.00' 0.800 in/hr Exfiltration over Surface area
1.30	4,917	2,557				
1.35	4,917	2,655				Discarded OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' (Free Discharge)
1.40	4,917	2,754				T_4=Exfiltration (Passes 0.00 cfs of 0.03 cfs potential flow)
1.45	4,917	2,852				
1.50	4,917	2,950				Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' (Free Discharge)
1.55	4,917	3,049				└──1=Outlet Pipe (Controls 0.00 cfs)
1.60	4,917	3,147				└──2=Nyloplast Grate(Controls 0.00 cfs)
1.05	4,917	3,245				
1.70	4,917	3,344				Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' (Free Discharge)
1.75	4 917	3 540				□ 3=Top of Slope (Controls 0.00 cfs)
1.85	4,917	3,639				
1.90	4,917	3,737				
1.95	4,917	3,835				
2.00	4,917	3,934				
2.05	4,917	4,032				
2.10	4,917	4,130				
2.15	4,917	4,229				
2.20	4,917	4,327				
2.25	4,917	4,425				
2.30	4,917	4,524				
2.33	4,517	4,022				
2.45	4,917	4,819				
2.50	4,917	4,917				
2.55	4,972	5,164				

		River Learn	ing Center
age_Schmatic	Type II 24-hr	100-yr STP Rair	nfall=5.90'
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Summary for Pond R6: Rain Garden 4 - South Face

 RLC Drainage_Schmatic
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River Learning Center Type II 24-hr 100-yr STP Rainfall=5.90" Printed 12/6/2022 Page 27





6.3 Hydrology



Hydrologic Analysis

The conceptual design phase hydrologic analysis involved the assessment of the primary factors that will impact the River Learning Center site. These include: the water levels created by, and the impacts of, periodic flooding; the review of the existing site conditions and the preliminary assessment of how modifications to the existing topography will impact site hydrology; and an initial review of impacts to river flood elevations upstream of the project potentially created by the changes to the existing topography.

Periodic flooding

A series of flood events were reviewed beginning with the 100-yr flood to determine the minimum elevation occupied structures could be built at. Floodway and flood fringe mapping was reviewed as part of the process. Lesser floods from the 50-yr down to the high water level anticipated to occur annually were reviewed using information contained in the FIS for Ramsey County as well as a review of historic water

level information. For the review of historic information, data from the Robert Street USGS gage was analyzed and translated upstream (increased) due to the impact of water surface slope. Based on this review a preliminary determination of elevation as which to place River Learning Center elements was made.

pical siltation that occurs in the upper basi

Periodic flooding will likely create the deposition of silt and finer material in areas that are inundated by the flood. The deposition of sand is expected to be unlikely except for areas near the main river channel

Site Conditions

A review of site conditions focusing on the marina and the upstream basin was made at both the time of the peak flow for 2022 as well as during a low flow period at normal (low) pool elevation. During the peak flow period water passing down river swirls into the basins. In the case of the upper basin, the flow eddied along the river almost half of the downstream edge at a relatively high velocity before swirling back upstream.





This eddy is likely the cause for the deposition of the sand that has occurred since the basin's creation. A review of historic photos, in conjunction with on-site analysis/recording during the low water assessment that a sizable portion of the depositional zone has become vegetated and appears that it may have largely stabilized or be close to stabilizing. That stated, a flood greater than any that has occurred since the creation of the basins could change the sandbars formation. During the low water inspection it was noted that the upstream most and landward portions of the upper basin consist of a silt bed and the low water shoreline location does not appeared to have changed significantly in those areas since construction.

Impact of Topographic Changes

Using a HEC-RAS model of the river reach provided by the USACE the impacts to potential flood levels created by changes to the topography (which is intended to be no-net fill within the floodplain) was evaluated to verify that the preliminary design changes to the area do not increase flood elevations upstream. Included in the analysis is the preliminary landward channel proposed to be excavated to a depth of approximately two feet below normal/low pool elevation. Additional analysis of the channel, the upstream basin and the marina as well as potential flood impacts will need to be performed as part of final design. Located on the inside of a river bend the riverward bank of the peninsula appears to be relatively stable. Further assessment of the banks stability will be conducted as part of final design.





_	Flow	Stage	Approximate
Date	(cfs)	(feet)	WSEL, NAVD88
7/29/2002	18,100	4.35	688.1*
6/6/2006	16,100	4.10	687.9*
5/18/2010	30,800	6.60	690.4*
10/11/2014	10,100	3.55	687.3*
4/28/2018	68,600	13.20	697.0*
8/12/2021	3,130	3.05	686.8*
*WSEL Estima	ated		







Improving Pedestrian and Vehicular Access from the Bluff to the Floodplain

A major goal, which arose out of community engagement efforts and site analysis, is to strengthen the connection between the local neighborhoods at the bluff level to the Mississippi River landscape below. Improving this connection will require multimodal solutions: pedestrians, drivers, and boaters alike should have welcoming, accessible entrances to the site. Access to the river level of the study area both by pedestrians and by cars remains congested along two existing entrances off Shepard Road onto Crosby Farm Road. For pedestrians, crossing busy, high-speed Shepard Road remains daunting and unsafe, with neither of the existing crosswalks aligning with access to the floodplain below. The entrance at Gannon Road is signalized with a crosswalk, while the other non-signalized vehicular entrance has a stop sign and no crosswalk across Shepard Road. The nearest crosswalk is at Davern Street. With increased vehicular traffic resulting from the Mississippi River Learning Center, these entrances, especially the nonsignalized entrance, will become regularly congested.

To alleviate future congestion and improve pedestrian access from neighboring communities the Schematic Design proposes three major alterations to the

configuration of Crosby Farm Road and the entrances and exits to the site.

1. Create a new signalized entrance and crosswalk west of the currently non-signalized entrance. 2. Narrow Crosby Farm Road between Gannon Road and the new signalized entrance and make it a westbound one-way road. Vehicular access east-bound will remain two-way.

3. Strengthen existing pedestrian crosswalks at Davern Street and Gannon Road.

Converting Crosby Farm Road into a west-bound one-way will reduce the amount of traffic occurring adjacent to the Sam Morgan Trailhead. A raised streetbed will slow traffic that is traveling through the pedestrian-friendly area surrounding the Sam Morgan Trailhead. Reconfiguring the entrance off of Shepard Road will make crossing Crosby Farm Road on the Sam Morgan Regional Trail a safer experience. These alterations have undergone preliminary conversations with City of St. Paul Public Works Department but will need more detailed studies as the design process continues.





Crosby Farm Rd Non-Signalized Entrance Studies

Existing Conditions of non-signalized entrance to the site.

CROSBVE





Entrance Study of one-way, West-bound Crosby Farm Road.



Entrance Study of removing existing entrance.

Crosby Farm Rd. on the Bluff Studies





Bound Rd with 16,000 sqft building.



Crosby Farm Road Bluff Study with Bus Turnaround

Crosby Farm Road Bluff Study one-way West-



Crosby Farm Road Bluff Study with road removed.

Crosby Farm Road Bluff Study one-way West-Bound Rd with 27,000 sqft building.



Crosby Farm Road Bluff Study with maximized parking.

Crosby Farm Road Bluff Study one-way West-Bound Rd with 24,000 sqft building.

Campus Circulation

The campus needs to be welcoming and easily accessible for multiple modes of travel-pedestrian, bicycles, vehicles, and boats. Movement between modes is also facilitated at key locations. The reconfiguration of the entrance on the bluff as described on page 88 is a critical piece of improving the overall campus circulation for pedestrians and vehicles.

Currently, parking is limited to approximately 63 spots on Crosby Farm Road on the bluff, 20 spots at Watergate Marina and 50 public spots in Crosby Farm Regional Park. New parking, both for River Learning Center site visitors and marina residents will increase the number of available spots by 140 spots. All new parking will be accompanied by stormwater planting to minimize runoff and reduce its visual impact within the floodplain. Additional staff parking is located near the River Learning Center building and Sam Morgan Trailhead.

The 95-foot elevation change between the Bluff and the Floodplain is a challenge for universal accessibility for pedestrians. Existing vehicular access down Crosby Farm Road is greater than the five percent slope allowable under the Americans with Disabilities Act (ADA) requirements. The new Canopy Walk provides an accessible link between two trail networks, the Sam Morgan Regional Trail on the bluff and the network of trails woven through Hidden Falls Crosby Farm Park. To further strengthen this new pedestrian connection, the existing trail connecting Crosby and Hidden Falls will be relocated to directly connect the River Learning Center to the existing trail systems.

Access to and from the water are also key improvements of the design. Transient slips at the marina and the public boat launch will connect the park to the waters of the Mississippi for motorized vehicles. A new canoe launch will offer watercraft a place to launch while the new channel provides safe access to the water. Both boat launches will be entrances to and points of departure from the site, connecting the River Learning Center site via the water to St. Paul's many miles of river.



• • • • Existing Shoreline Proposed Shoreline Accessible Waterfront RENTALS BOATHOUSE CANOE LAUNCH MARINA SLIPS CANOE COVE WEIR **EXISTING BOAT LAUNCH**

Watercraft Circulation



6.5 Building Programming



Preliminary Partner Program Flow Diagrams

The River Learning Center schematic design process has five (5) partners: National Park Service, Mississippi Park Connection, Wilderness Inquiry, Great River Passage Conservancy, and Your Boat Club (current tenant), with St. Paul Parks and Recreation as the owner of the site. Early program massing studies on the site generated concern that the site could not accommodate the full scale of Wilderness Inquiry operations, with the desire to minimize building footprints in the floodplain. They remain a key programming partner, but will not be headquartered at the site.

As part of the initial investigation, in February 2022, the Design Team created a guestionnaire for the partners to better understand their spatial needs and requirements. The responses helped the Design Team generate a workbook and spreadsheet for each organization,

categorizing their space needs into four (4) themes: public spaces/sharable spaces, building support, administrative space and storage/other.

In March of 2022, the Design Team met with the partners separately to review and discuss the workbook. Those sessions served to improve and update the information, serving as the basis for initial assumptions about building size/square footage.

One of the most important findings of this process was the considerable need for indoor and outdoor storage space. Another finding was the partners' willingness to share administrative space like conference rooms, bathrooms, classrooms, and shelters, among others to minimize the building footprint on the site. This initial building program is subject to change as the development process continues

Sam Morgan Trailhead

Sam Morgan T

Office space (40 (12 private offi Office support Restroo Small m Break rc Zoom ro Mail rooi Server r GRPC office spa Total Partner off

Sam Morgan T

Public Restroor Stairs and Eleva Mechanical spa Electrical room NPS storage Secure Parking Total support sp

Total Sam Mo

Marina

Marina Offices Offices (3 privation Rental/retail spa Office support Restrooms Total office area

Total work area

Building Program Breakdown

railhead Office Space 0 personsx180sf) ices+28 open office)	9 7200 SF
ms beeting rooms(4) bom boms om oom etc ace (3 offices) fice space	500 SF 800 SF 250 SF 100 SF 120 SF 200 SF 400 SF 9570 SF
Trailhead Support ms ators ace (5 Cars) pace	1000 SF 500 SF 500 SF 300 SF 1000 SF 1000 SF <i>3300 SF</i>
organ Trailhead	<u>13870 SF</u>
ate) ace (servers, printing etc.)	400 SF 400 SF 400 SF 300 SF 1500 SF 4800 SF

6300 SF

Total Marina Space River Learning Center building

River Learning Center (Public)	
Lobby public (w/exhibit space)	600 SF
Student entrance and mudroom	800 SF
Classroom/gathering flexible space	3600 SF
Classroom/small meeting room	300 SF
Kitchenette/Cafe	100 SF
Restrooms	800 SF
Hoteling space	900 SF
Storage	1000 SF
Total public space	8100 SF
River Learning Center (Office and Support)	
Parks Offices	400 SE
Stairs and elevators	500 SF
Mechanical space	500 SF
Electrical room	300 SF
Laundry	100 SF
Circulation	500 SF
Total office and support space	1900 SF
	_
Total River Learning Center Building	<u>10400 SF</u>
Boathouse	
Boat storage and storage	3000 SF
Total Boathouse	3000 SF

Total Building Program

33,570 SF

6.6 Permitting

Anticipated Water Resource Permits & Approvals that may be required

The following table summarizes water resource permits that it is reasonable to anticipate may be required for the final design and construction of the Mississippi River Learning Center:

Unit of Government (permit- ting contact)	Type of Application	pplication Trigger		Current Contact	
U.S. Army Corps of Engineers	Section 404 Wetland Permit	Potential Filling	60 – 120 +	Andrew.R.Meier@usace.army. mil	
	Section 10, Work in Navi- gable Waters	Any work related to working in the river.	60 – 120 +	Andrew.R.Meier@usace.army. mil	
U.S. Army Corps of Engineers	Wetland	Delineate wetland Mitigation if dis- turbed	60 – 120 +	benjamin.g.orne@usace.army. mil	
U.S. Federal Emer- gency Management Agency	Letter of Map Revision Based on Better Data	It is possible the Lidar data may show some areas presently mapped as being in the flood plain above the BFE.	30 -60 +	Website Application: https://hazards.fema. gov/femaportal/on- linelomc/signin	
	Letter of Map Revision Based on Fill	Filling in Flood Plain	30 -60 +	<u>https://www.fema.gov/</u> flood-maps/change- <u>your-flood-zone/lo-</u> <u>ma-lomr-f</u>	

Minnesota Depart Natural Resources

Unit of Govern ting contact)

Minnesota Pollu Agency

rtment of s	Work in Public Waters	Any work related to working in the river.	90 - 120	MPARS Online Application: https://www.dnr.state.mn.us/ mpars/index.html Dan Scollan East Metro Area Hydrologist
	Aquatic Plant Manage- ment (APM) Permit	Removal of aquatic vegetation in Public Waters	150	MPARS Online Application: https:// www.dnr.state.mn.us/mpars/index. html
	Aquatic Transplant Permit	Planting aquatic plants into Public Waters	150	MPARS Online Application: https:// www.dnr.state.mn.us/mpars/index. html
	Water Appropria- tions – Temporary Construction Dewatering	Dewatering (e.g., for utility installation, and other construc- tion)	60 – 90+	MPARS Online Application: https://www.dnr.state. mn.us/mpars/index.html

ment (permit-	Type of Application	Trigger	Estimated Permit Timeframe (after complete submit- tal, typical - con- servative, days)	Current Contact
ution Control	National Pollutant Dis- charge Elimination System/ State Disposal System (NPDES/SDS) Construction Stormwa- ter Permit	grading >1 ac	1	Minnesota Pollution Control Agency online application: https://rsp.pca. state.mn.us/TEMPO_RSP/Orches- trate.do?initiate=true
	Section 401 Water Qual- ity Certification	Federal permit, such as Section 404	75 – 365 (if Indi- vidual permit is required)	MPARS Online Application: https:// www.dnr.state.mn.us/mpars/in- dex.html

Note: Structures include wood or concrete piles.

MNDNR Water Appropriation Permit is required if dewatering volumes that exceed 10,000 gallons per day, or one million gallons per year.

Capital Region Watershed District	Stormwater Management	Any land disturbing greater than 10,000 sqft.	21-50	Forrest Kelley PE Regulatory Division Manager fkelley@capitolregionwd.org	Unit of Governm ting contact)
				CRWD Permit Online: https://www.capitolregionwd.org/ permits/your-permit/	City of St. Paul
	Flood Control	Any alteration or fill of land below the BFE.	21-50	Forrest Kelley PE Regulatory Division Manager fkelley@capitolregionwd.org	
				CRWD Permit Online: https:// www.capitolregionwd.org/ permits/your-permit/	
	Wetland Management	Any activity that may alter the character of a wetland.	21-50	Forrest Kelley PE Regulatory Division Manager fkelley@capitolregionwd.org	
				CRWD Permit Online: https://www.capitolregion- wd.org/permits/your-per- mit/	
	Erosion and Sediment Control	Any land disturbing activity of one acre or greater or within the 100-yr flood plain and greater	21-50	Forrest Kelley PE Regulatory Division Manager fkelley@capitolregionwd.org CRWD Permit Online:	
		than 1,000 square feet, or is adjacent to a public water or wetland and greater than 1,000 square feet.		https://www.capitolregion- wd.org/permits/your-per- mit/	

Note: NPDES/State Disposal System General Construction Stormwater Permit (CSW permit) is only required if one acre or more will be disturbed above the OHWL (including all phases of a project). Areas below the OHWL should follow MNDNR's permit requirements to control sediment during construction.

ent (permit-	Type of Application	Trigger	Estimated Permit Time- frame (after complete submittal, typical - conser- vative, days)
	Shore Land Conditional Use Permit		Department of Planning and Economic Development Zoning Section 1400 City Hall Annex 25 Fourth Street West Saint Paul, MN 55102
	Zoning Permit		Site Plan Review online Portal: https://www.stpaul.gov/de- partments/safety-inspections/ building-and-construction/con- struction-permits-and-inspec- tions/electronic-plan-review/ electronic-plan-review/site
	Demolition Permit		Site Plan Review online Portal: https://www.stpaul.gov/de- partments/safety-inspections/ building-and-construction/con- struction-permits-and-inspec- tions/electronic-plan-review/ electronic-plan-review/site
	Erosion Permit		Site Plan Review online Portal: https://www.stpaul.gov/de- partments/safety-inspections/ building-and-construction/con- struction-permits-and-inspec- tions/electronic-plan-review/ electronic-plan-review/site
	Paving Permit		Site Plan Review online Portal: https://www.stpaul.gov/de- partments/safety-inspections/ building-and-construction/con- struction-permits-and-inspec- tions/electronic-plan-review/ electronic-plan-review/site

City of St. Paul	Grading Permit	Placement, removal, or movement of more than 50 cubic yards (If not included in Gener- al Building Permit)	Site Plan Review online Portal: https://www.stpaul.gov/de- partments/safety-inspections/ building-and-construction/con- struction-permits-and-inspec- tions/electronic-plan-review/ electronic-plan-review/site
	Utility and Sewer Permit		Site Plan Review online Portal: https://www.stpaul.gov/de- partments/safety-inspections/ building-and-construction/con- struction-permits-and-inspec- tions/electronic-plan-review/ electronic-plan-review/site
	Landscaping and Site Improvements Permit		Site Plan Review online Portal: https://www.stpaul.gov/de- partments/safety-inspections/ building-and-construction/con- struction-permits-and-inspec- tions/electronic-plan-review/ electronic-plan-review/site
	Drainage		Site Plan Review online Portal: https://www.stpaul.gov/de- partments/safety-inspections/ building-and-construction/con- struction-permits-and-inspec- tions/electronic-plan-review/ electronic-plan-review/site
	Traffic		Site Plan Review online Portal: https://www.stpaul.gov/de- partments/safety-inspections/ building-and-construction/con- struction-permits-and-inspec- tions/electronic-plan-review/ electronic-plan-review/site
	Building Permit		Email form to Public Works: Public Works Address: City Hall Annex, 25 4th St W, 10th floor Email: jim.brown@ci.stpaul. <u>mn.us</u> AND Email: pw-sewercounter@ ci.stpaul.mn.us

6.7 Cultural Resources Report

This report was concluded in March of 2022. Further community engagement was conducted throughout the design process. For a full report of community engagement efforts see the Community Engagement chapter in the technical appendix.

Introduction

The City of Saint Paul (City) is developing a mixeduse, river-focused space at the Watergate Marina site in Hidden Falls Crosby Farm Regional Park. The new space, preliminarily called The River Learning Center, will include a National Park Service Headquarters and serve as a national gateway to the Mississippi River. The Saint Paul River Learning Center Project (Project) will be located between Shepard Road and the Mississippi riverfront and from Gannon Road to eastern edge of Watergate Marina. A map can be found on page 104.

The Project is part of the Great River Passage Master Plan, which includes 17 miles of the Mississippi River and seeks to encourage all people to experience the river in new and equitable ways. The Project aims to improve the health of the river and stimulate economic development by creating a shared space offering accessible river-oriented experiences and education.

The Project will need to comply with the applicable state (and potentially federal) mandates governing cultural resources, including the Minnesota Historic Sites Act, Minnesota Field Archaeology Act, and Minnesota Private Cemeteries Act. To aid in complying with state laws, an archaeological and architectural history literature review has been prepared.

METHODS

Study Area Archeology

An archaeology study area was developed that likely accounts for all areas of proposed construction activities or other potential ground-disturbing activities associated with construction. The archaeology study area includes the entire Project study area and a 500-foot buffer of the western, northern, and eastern extents of the Project study area. Because the potential ground-disturbing activities are not anticipated to occur on lands across the Mississippi River from the Project area, the 500-foot buffer ends at the Mississippi riverfront. The study area for architectural history includes approximately 232 acres (94 hectares), shown on the map on page 104.

Architectural History

A study area for architectural history was developed that accounts for potential physical, auditory, atmospheric, or visual effects (direct or indirect) to historic properties. The architectural history study area to the west, north, and east of the study area, which is sited in the Highland Park neighborhood of Saint Paul, includes a buffer of 500 feet (152 meters) to account for potential effects. Potential visual effects to the south of the Project area will be dissipated by the natural topography of the bluff on the north shore of the Mississippi River, which slopes down toward the river and obscures the view of the Project study area from Shepard Road above. Therefore, the study area within the Highland Park area is smaller than to the south, where the Project will be more prominent due to the topography of the bluffs and river valley. To the south, an architectural history study area of one-quarter mile (0.4 kilometers) is recommended to account for potential visual effects, which may extend across the Mississippi and Minnesota Rivers. The study area for architectural history includes approximately 264

acres (107 hectares), shown on page 104.

Background Research

In February 2022, staff from 106 Group requested background research from the Minnesota State Historic Preservation Office (SHPO) for information on previously inventoried properties and sites within the recommended study areas.¹ In addition, archaeological site files at the Minnesota Office of the State Archaeologist (OSA) were reviewed.

LITERATURE REVIEW

Archaeology

All SHPO and OSA designated archaeological sites were researched during the literature review. There are no archaeology sites within or immediately adjacent to the archaeology study area.

Two archaeological sites are located south of the archaeology study area across the Mississippi River. Site 21RAe, Pike's Island, is a nineteenth century fur trade post. Site 21HE0099, Historic Fort Snelling, is a National Register of Historic Places (NRHP)-listed nineteenth century United States military fort site, State Historic District, and precontact archaeological site.

Architectural History

Previously NRHP-listed and determined eligible historic districts and properties, as well as previously inventoried but unevaluated properties, located within the architectural history study area are identified in Table 1. The historic district boundaries are also mapped in Figure 1. The study area includes one NRHP-listed Historic District, six NRHP-listed properties, one National Historic Landmark, one State Historic Site, and two properties that were previously inventoried but not evaluated for potential eligibility.

Inventory No.	Property Name	Address	Eligibility	
n/a	Fort Snelling Historic District	n/a	NRHP-Listed	
n/a	Fort Snelling National Historic	n/a	National Historic	
Tira	Landmark	100	Landmark	
n/a	Fort Snelling State Historic Site	Tower Avenue	State Historic Site	
HE-FSR-0081	Building 1 (Commandant's House)	Fort Snelling	NRHP-Listed	
HE-FSR-0082	Building 2 (Officer's Quarters)	Fort Snelling	NRHP-Listed	
HE-FSR-0127	Long Barracks	Fort Snelling	NRHP-Listed	
	Semicircular Battery (Half Moon	Fort Spelling	NRHP_L isted	
	Tower)	1 oft Shelling		
HE-FSR-0144	Northeast Wall	Fort Snelling	NRHP-Listed	
HE-ESR-0145	Southeast Wall (Detail of Officer's	Fort Spelling	NRHP-Listed	
	Latrines)	1 oft oftening		
		1.9 miles southwest of TH 51		
RA-SPC-5941	Bridge 9490	junction (carries Mississippi	Inventoried but not	
114-010-0941		River Boulevard over 7th	evaluated	
		Street West/TH 51)		
RA-SPC-6327	The Manor	2550 7th Street West	Inventoried but not	
			evaluated	

Table 1. Historic Properties and Previously Inventoried Properties within the Architectural History Study Area

Archaeological Assessment

Precontact and Contact Period Sites

There are no previously recorded precontact or contact period archaeology sites in the archaeology study area. Several places of great cultural significance to the region's American Indian tribes are located along the Saint Paul and Minneapolis Mississippi riverfront including Bdote, Oheyawahi (Pilot's Knob), Mni Owe Sni (Coldwater Springs), Wakan Tipi (Carver's Cave), and the maka paha (cemetery) at Indian Mounds Park.

Historical Archaeological Sites

investigated.

Burials

There are no known archaeological burial sites or known archaeological sites that have the potential to contain human remains, funerary objects, or

Although no archaeological sites are located within the study area, precontact archaeological resources have been identified along the riverfront, including from sites within close proximity to the archaeology study area (Site 21HE099, for example). Due to the proximity of precontact archaeological sites as well as areas of great cultural importance to American Indian communities, there is potential for unknown or unrecorded archaeological and cultural resources to exist within the archaeology study area.

There are no previously recorded historical archaeological sites within or immediately adjacent to the archaeology study area. Across the Mississipp riverfront, however, are two historical archaeological sites, Historic Fort Snelling (21HE0099) and Pike's Island fur trade post (21RAe) (Figure 1). Due to the proximity of these two archaeological sites, there are likely to be more that have not yet been identified or

American Indian burial mound features within the archaeology study area. The absence of information does not, however, mean that none are present. Because there has been construction and development in the northern portion of the archaeology study area, it is unlikely that any burials or human remains survived if they once existed in this location. However, if burials were present between the Mississippi bluff and riverfront, those areas may remain intact and unknown.

Tribal/Culturally Significant Sites

This Archaeological and Architectural History Literature Review is based on information provided by the State of Minnesota and historical information of cultural importance specific to American Indian tribes of the region that are located along the Mississippi riverfront. Research was based on information available at the SHPO and the OSA. and insights gained from historical research conducted for prior community outreach projects. Several places of great cultural significance to the region's American Indian tribes are located along Saint Paul's and Minneapolis's Mississippi riverfront near the archaeology study area such as Bdote, Oheyawahi (Pilot's Knob), Mni Owe Sni (Coldwater Springs), Wakan Tipi (Carver's Cave), and the maka paha (cemetery) at Indian Mounds Park. Bdote, the confluence of the Mississippi and Minnesota rivers, is regarded as a cultural origin point for Dakota people. Mni Owe Sni (Coldwater Springs), located in south Minneapolis, is a natural spring that has historically been regarded by many Dakota and surrounding American Indian tribes as a place of cultural and spiritual significance. Wakan Tipi (Carver's Cave) is a ceremonial location, still maintained and utilized by American Indian tribes of the region as a place of great cultural significance. Tribally specific information regarding potential

areas of cultural significance within the vicinity of the proposed area, not found within historical sources. can only be ascertained through conversations with regional American Indian tribes. For any further research into potential areas of cultural significance to tribes, coordination should begin with Tribal Historic Preservation Offices of tribal communities that have ancestral ties to this area.

Regulatory Requirements

Section 106 of the National Historic Preservation Act of 1966, as amended (36 CFR Part 800 et seq.)

Section 106 of the National Historic Preservation Act (Section 106) requires federal agencies to take into account the effects of their undertakings on historic properties (properties listed in or eligible for listing in the NRHP) and afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on such undertakings. A federal undertaking includes projects carried out by or on behalf of a federal agency; those receiving federal financial assistance; and those requiring federal permits, licenses, or approvals. The Section 106 process seeks to accommodate historic preservation concerns with the needs of federal undertakings through consultation among the agency officials and other parties with an interest in the effects of the undertaking on historic properties, including agencies, American Indian tribes, and the general public, commencing at the early stages of project planning. The goal of consultation is to identify historic properties potentially affected by the undertaking, assess its effects, and seek ways to avoid, minimize or mitigate any adverse effects on historic properties.²

Minnesota Historic Sites Act, 1965 (M.S. 138.661 -138.669)

This Act creates a state register of properties

"possessing historical, architectural, archaeological, and aesthetic values" for which adverse effects resulting from state-funded or licensed projects must be mitigated. Historic sites are defined as properties named in this Act or listed in the NRHP. Similar to federal regulations, any undertaking receiving funding or licensing by a state department or agency is covered by this Act (note other political subdivisions are excluded from this clause). If the undertaking affects historic sites, the state department or agency must consult with the SHPO to avoid or mitigate adverse effects.³ As the architectural history study area includes a portion of the Fort Snelling NRHPlisted Historic District and six NRHP-listed properties, this Act will apply to the Project.

Minnesota Field Archaeology Act. 1963 (M.S. 138.31 -138.42

This Act established the OSA and directs the OSA and SHPO to make recommendations for the preservation of archaeological sites endangered by construction or development on all non-federal public lands. The OSA and the Minnesota Historical Society (MNHS) issues licenses, in consultation with the Minnesota Indian Affairs Council (MIAC), for all archaeological investigations on non-federal public land. When a state archaeological site is known or suspected to exist on non-federal public land, the controlling agency must submit development plans to SHPO and OSA for review. The agency or department controlling the public land must submit development plans to SHPO and OSA for review. The controlling agency, in consultation with SHPO and OSA, is responsible for taking actions to preserve such sites and is authorized to use its funds for such activities. There are currently no known archaeological sites within the archaeological study area. However, if a site is identified in an area of proposed construction, the City must consult with OSA and SHPO before construction. If the site is related to American Indian

history or religion. OSA must coordinate with MIAC for review and comment.4

Minnesota Private Cemeteries Act. 1975 (M.S. 307.08)

This Act provides protection for marked and Design Review unmarked human burials and remains older than Tribal Consultation 50 years located outside of platted, recorded, or identified cemeteries, from unauthorized disturbance. Consulting Parties Meetings This statute applies to burials on either public or Preparation of a Memorandum of Agreement private lands and waters. This Act directs OSA to authenticate all burial sites. When human remains or As the architectural history study area includes a burials are American Indian, the OSA and MIAC must portion of the Fort Snelling NRHP-listed Historic attempt to identify their tribal identity. When American District and six NRHP-listed properties, the Project Indian burials are known or suspected to exist on will have to comply with the Minnesota Historic Sites public lands, the political subdivision controlling the Act. To comply with the Act, the City of Saint Paul, as land must submit development plans to the state a subdivision of the State, would lead consultation archaeologist and MIAC for review before advertising with SHPO. The City would prepare an assessment bids.⁵ There are no known burials located within the of effects study to analyze the potential effects of the archaeological study area, therefore compliance Project on any historic properties and districts that with this Act is not expected. However, if burials or are listed in the NRHP or State Register of Historic mound components are identified within the area Places and complete a design review to ensure that of proposed construction in the course of future the proposed Project design is compatible with the investigations, the City is required to comply with this affected historic properties and districts. Act.

Next Steps

If there is any anticipated federal funding or permitting. There are no known burials within the Project area, then the Project would need to comply with Section 106 of the National Historic Preservation Act of 1966 therefore, compliance with the Minnesota Private Cemeteries Act is unlikely to take effect. However, as amended (NRHP). The process would be led by if unknown American Indian burials are discovered the lead federal agency in consultation with the SHPO during the Project undertaking, consultation with OSA Tribes, City, and others. Compliance with Section 106 and MIAC would be required. requires additional cultural resources documentation and may include some or all of the following tasks:

- for listing in the NRHP

Area of Potential Effects Development

 Architectural History Survey (Reconnaissance and Intensive) to determine if any structures are eligible

- Phase I Archaeological Survey (and further archaeological investigations as sites are identified)
- Traditional Cultural Property Study

To comply with the Minnesota Field Archaeology Act, OSA and SHPO would need to be consulted to determine if an archaeological survey is warranted.

Consideration should be given early in the planning process about how best to streamline the many necessary studies and consultation under each law. Close collaboration will aim to avoid duplication of efforts and provide clarity of roles and responsibilities for all parties.

1. For background research regarding known historic properties and previously conducted archaeology and architectural history surveys, we rely primarily on the information on file at SHPO. 106 Group cannot guarantee the accuracy and reliability of the data provided.

2. "National Historic Preservation Act. Section 106." U.S. Department of the Interior, accessed November 19, 2021, https://www.nps.gov/history/tribes/Documents/106.pdf.

3. "2021 Minnesota Statutes," Office of the Revisor of Statues, accessed November 19, 2021, https://www. revisor.mn.gov/statutes/cite/138.661.

4. "2021 Minnesota Statutes," Office of the Revisor of Statues, accessed November 19, 2021, https://www. revisor.mn.gov/statutes/cite/138.31.

5 "2021 Minnesota Statutes," Office of the Revisor of Statues, accessed November 19, 2021, https://www. revisor.mn.gov/statutes/cite/307.08.

6.8 Mississippi River Corridor Critical Area Guidelines

The Mississippi River Corridor Critical Area (MRCCA) is a state, regional, and local government program aimed at coordinated land planning along the Mississippi River. The program aims to protect the entire river ecology, from the waters of the Mississippi to the bluffs it has carved throughout the Minnesotan landscape. Cities and townships designate different zoning ordinances, each with their own specific requirements.

For the purposes of the study area, there are three distinct MRCCA Zones:

1. River Towns and Crossing (RTC), located on the bluff.

2. Rural and Open Space (ROS), consisting of much of the parkland within the study area.

3. River Neighborhood (RN), designating the areas around the two bays and the existing neighborhood.

Each zone has specific height limits, bluff setback requirements, and river setback requirements. These can be seen in the adjacent diagram. The setbacks protect significant portions of the site, leaving a small, concentrated area for building that is outside of the MRCCA setbacks and 100-year floodplain.

The proposed scheme meets all MRCCA regulations and City of St. Paul zoning regulations have been adhered to. When these were in conflict, the more restrictive of the two have been followed. Continued adherence to the MRCCA regulations will be required throughout all phases of the project.





MRCCA Zones within the Study Area



Overall Study Area



Buildable Area for non-water adjacent programs outside of MRCCA setbacks

W ARCHITECTURE AND LANDSCAPE ARCHITECTURE WITH 4RM+ULA +106 GROUP + SOLUTION BLUE + ETM + CPMI 109



Buildable Area for non-water adjacent programs with building locations shown

110 TECHNICAL APPENDIX



Analysis drawing for MRCCA setbacks in the River Neighborhoods zone on existing site section



Analysis drawing for MRCCA setbacks in the River Towns and Crossing zone on existing site section

OPERATIONS 7. AND MAINTENANCE

7.1 Operations and Maintenance Report



7.1 Operations and Maintenance Report

Introduction

The Mississippi River Learning Center is a reimagining of approximately 25 acres of public space out of the total 611 acres of Hidden Falls Crosby Farm Regional Park along the Mississippi River. The park is currently maintained by the City of St. Paul Parks and Recreation. The budget for the park is currently limited and, as use of the park increases with the proposed improvements, new sources of funding and/or alternative operating approaches will need to be identified.

This document is a summary of the initial operations and maintenance analysis for RLC and is based on the single scheme concept design, discussions with the project team, and discussions with the client group. Note that our analysis only includes portions of the site included in the River Learning Center boundary (denoted as a dashed line in the map on page 121) and does not include the remainder of the Hidden Falls - Crosby Farm Regional Park. In addition, infrastructure, the marina service and rental buildings, River Learning Center building, and National Park Service building are excluded from the estimates in this document. Cost estimates are presented for maintenance only, and do not include programming, security, or other operating costs.

<section-header>

Rendered Concept Design Campus Overview



Sam Morgan Trailhead Rendering

Maintenance + Operational Considerations

GENERAL CONSIDERATIONS

Management Approach

- Monitoring is a key component of maintenance work and management of natural areas. Ensure staff have time to collect and analyze data on the natural areas.
- Management of natural areas can be considered more of a "process" than a "project", with different tasks and needs based on the conditions of the natural areas.
- As much as possible, consider ways to incorporate Dakota cultural practices into maintenance work. This may be done through collaboration between the City, other partners. and Dakota organizations.

Storage & Equipment

• In addition to storage for programming, consider some storage on site for maintenance equipment, attic stock, and movable furnishings

Site Access

- Maintenance access to the island may be needed via boat for some tasks as only small equipment can access the island via pathways leading to it
- A boat will be needed for some maintenance work along and in the waterways

Be aware of any weight restrictions and size limitations on equipment need for the roof terrace, which can be accessed via the canopy walk

Snow & Ice Management

- Snow is expected to be cleared from roadways, parking areas, and main pathways. Consider how snow removal methods may need to change with snowfall amounts and site locations.
- ~ Minimal areas of the site will have street access where snow can be pushed to and later collected.
- ~ Areas will need to be established for snow storage on site. Piling on planting areas can damage plantings.
- Consider how snow will be removed from the canopy walk as snow may not be able to be pushed onto the landscape below; frequent clearings at smaller accumulations is recommended
- Some portions of the site may need to be closed if snow and/or ice conditions present safetv hazards
- Snow blades on a bobcat or similar, or push brooms, can remove snow in smaller areas; typical plows can be used on roadways, parking areas, and larger paths.
- Depending on the paving types ultimately

aggregate surfaces).

0+M Cost Considerations

- have long lead times.

used, plow blades may need to be lifted to avoid damage to the surface (e.g., pavers and

 Consider what materials are used for de-icers due to the adjacency of the river: eco-friendly deicers are recommended

~ Consider avoiding the use of salt or other de-icers on the canopy walk so they do not negatively affect the plantings below: however, it should be acknowledged that the canopy surface will freeze faster than other paving areas as it is exposed to air above and below the surface.

• Any custom or proprietary elements can be more costly and/or more difficult to replace and may

• We recommend incorporating attic stock of specialized components or those that may require more frequent replacement (lumen boards, wood slats, unique colored pavers. proprietary screws, etc.) into the construction budget. Where this attic stock will be stored will need to be considered.

 High use of the site can accelerate wear-and-tear and lead to earlier repairs and replacements.

HARDSCAPE CONSIDERATIONS

- Ensure pavement has sufficient subbase/ construction to support desired vehicle weight.
- Pathways close to the water may require annual silt removal and post-flood inspection, cleaning, and repairs from annual spring floods. Ensure these paths can be accessed by cleanup vehicles if needed.
- Consider what chemicals are used in maintenance work, such as what chemical cleaners are used when power washing: use of eco-friendly, biodegradable cleaners are recommended as much as possible due to the adjacency of the river
- Attic stock is recommended for any specialty pavers, pavement additives, etc.

PLANTING CONSIDERATIONS

- As a planting palette is developed and as planting areas need to be replanted, consider how the built structures on the site may create microclimates that will affect local planting conditions.
- Establishing plants will require a higher level of care than established plants. Consider incorporating planting maintenance requirements (and not solely a guarantee period) into

construction specifications if the future management entity/entities will not have the capacity to adequately care for plants during establishment.

- Landscape areas immediately adjacent to paths. gathering spaces, buildings, etc. will need greater levels of care than interior landscape areas due to their higher visibility and impacts from use.
- As much as possible, maintenance should be performed when landscapes are dry to avoid overly compacting and damaging wet soils.
- Bioswale plantings may require annual or more regular silt removal to be most effective.
- Maintenance and management efforts should prioritize newly planted areas and restored landscapes over the degraded existing planting conditions on the bluff.
- ~ Local partnerships may offer support to restore landscapes along the bluff, but the management entity/entities should bear in mind that restoration efforts are longer processes and not short-term projects.
- Horticultural staff or skilled volunteers would be most suitable for maintaining planting beds.
- Natural resource staff would be most suitable for maintaining the bluff and floodplain landscapes. as well as the restored island habitat.

SITE FEATURE CONSIDERATIONS

Refuse Receptacles

 Emptying frequencies should be adjusted based on location and frequency of use. More frequent collections may be needed during and after events, and during peak use.

Furnishings

 If any movable furnishing items are used. consider that a percentage will need annual replacement due to theft, vandalism, and wear and tear. Winter storage locations will also need to be considered.

Lighting

Ensure any lighting located in flood-prone and flood-risk areas is flood-proof to minimize future capital repairs and replacements.

Marina & Canoe Launch

- More extensive cleaning and repairs may be needed following intense flood events (compared to expected annual floods).
- Ensure marina access is secured: secure access is currently proposed via gates at each pier gangway.
- Regular dredging will be needed approximately every 10 to 15 years based on past trends.

PROGRAMMING IMPACTS

- impacts:
- elements.

• While a robust event schedule with numerous large events is not anticipated for the site, any size of special events and daily programming can both bring visitors to the site and have significant

~ Planting areas may be damaged by eventgoers cutting through them or if path widths are not wide enough to accommodate the level of quests.

Special events also have the potential to damage furnishings, overwhelm trash receptacles, require temporary restrooms and/or trash receptacles, and dirty and degrade hardscape areas. Inspect, clean, and if needed repair pedestrian areas promptly after special events in order to prevent undue deterioration of site amenities.

• Ensure events are properly managed, i.e., coordinate set-up, take-down, and access routes, etc. to avoid unnecessary damage to site

 Additional maintenance (mainly cleanup) will likely be required after busy programming days.

HYDROLOGICAL CONSIDERATIONS

Note that this section is based on information provided by Solution Blue.

- The Marina will need regular maintenance. including dredging, similar to its current maintenance
- No changes in dredging practices for Canoe Inlet is expected at this stage in the design process
- A diagram noting expected siltation and water flow is shown below.
- For information concerning expected siltation and water flow refer to the diagram on page 85.

Maintenance Estimates

MAINTENANCE ASSUMPTIONS

The maintenance estimates are based on the following assumptions:

- Our analysis only includes portions of the site included in the River Learning Center site boundary (denoted as a dashed line in The map on page 121) and does not include the remainder of the Hidden Falls Crosby Farm Regional Park
- Infrastructure, the marina service and rental buildings, River Learning Center building, and Sam Morgan Trailhead are excluded from the estimates in this document
- Quantities are based on the Cost Estimate based on the final schematic design, with updated planting quantities based on comments from the City and collaboration between W and ETM
- Some planting quantities extend beyond ~ the project boundary to account for higher levels of use in surrounding areas but do not encompass the entirety of Hidden Falls Crosby Farm Regional Park (see the map on page 121)
- Portions of the site will be maintained at higher than current levels to reflect the anticipated increase in usage and protect the capital investment of the project
- ~ The estimates assume a lower standard of care in the bluff landscapes, assuming they remain similar to their current condition

- ~ In the future, portions of the bluff landscape may be maintained at a higher level if restored and as resources allow
- Visitors will be present in all seasons, with the areatest use in the summer and least use in the winter
- Dredging will be needed every 10 to 15 years for the marina area but no dredging was included in Canoe Inlet, consistent with current practices
- The proposed design will have a neutral hydraulic impact on the floodplain
- Some silt removal and minor flooding cleanup will be required annually due to annual spring floods
- Portions of the marina will continue to be managed and maintained by Your Boat Club or other future operator of the marina
- Hours are separated into "routine" and "nonroutine" hours.
 - ~ Routine hours are those tasks that must be performed every year, such as litter removal and plant care.
 - ~ Non-routine hours are those tasks that may not be needed each year and that can vary greatly year to year based on weather. vandalism, wear-and-tear, and age of planting.
- As overall management of the site is still to be determined, maintenance cost estimates are

- included

presented as a high-level range:

~ Total hours are presented as a range based on the routine and non-routine hours

~ Hours are assigned to 3 categories of staff based on the type of maintenance being performed – Park Laborers (general maintenance work); Natural Resource and Forestry Staff: and Trades Staff - with each category of staff having a different hourly rate

 Most of the site will accumulate enough snow to require clearing approximately 28 times per year

~ Snow will be removed from all main pathways

~ Snow will be left on secondary pathways, with paths groomed for recreational use

 Hour and cost estimates relating to programming, administration, or security were not included

 Hours and costs relating to capital repairs and replacements were not included

Costs related to equipment purchases were not

METHODOLOGY

For the purpose of our estimates, ETM defined three broad categories of proposed landscape areas and site features: hardscapes; softscapes; and site features and amenities. Each category was then sub-divided into specific landscape and feature types (e.g., primary paths, display gardens, bluff plantings, etc.). The characteristics and maintenance needs of each type provided the basis for defining annual maintenance tasks and estimating the annual hours needed for maintenance of that specific landscape or feature. The tasks and hours for each landscape type are included at the end of the report for reference. The hours for each type were totaled to arrive at the estimated annual hours needed for maintenance of the site.

A diagram showing the location of the various softscape landscape types is included in the adjacent map

To arrive at the estimated annual budget, the annual hours were assigned to different staff types based on skill and type of work, and then multiplied by hourly staff rates. Also included are allowances for other annual maintenance expenses, such as materials and supplies, equipment and vehicle maintenance, plant replacement, and utilities.



Planting Landscape Types Locations on Site

River Learning Center - Estimated Annual Maintenance Hours - Single Scheme Concept Design

Land

ARDSCAPES

Trails (Primary Trails (Seconda Trails (Channe Plazas & Gathe Boardwalk & D Elevated Pathy Parking & Roa SOFTSCAPES Display Landso Manicured Lar Bluff Landscap Bluff Landscap Floodplain Lan Spring Melt Bioswales FURNISHINGS Trash Recepta Furnishinas Lighting Signage Overlooks Boathouse Canoe Launch Canoe Inlet Marina Art Installation

Fotal Annua

Restrooms

Total Annual Ma

STANDARDS OF CARE

The standards of care for maintenance of any public space directly affect the annual maintenance budget and also influence perceptions of safety and use. For example, a maintenance plan in which all tasks are carried out at or above recommended best maintenance practices may create a pristine landscape but may ultimately prove to be unsustainable due to cost. Alternatively, a maintenance plan in which tasks and repairs are carried out at minimal levels may reduce annual budgets, but will likely result in high capital costs required for replacement or repairs that could have been prevented with regular care. Low standards of care can also create an unsafe environment for users.

The maintenance budget is also influenced by intensity of use – areas of higher use typically require greater maintenance. However, use is also affected by the level of maintenance: a well-maintained space will attract visitors, whereas a poorly maintained site discourages visitors and often invites misuse and vandalism. Given this relationship between use and the standards of care, it is important to develop a maintenance plan that balances fiscal considerations with maintenance needs in order to provide a sustainable, high-quality visitor experience.

The standards of care used for the maintenance estimates will be refined for future iterations of this report based on feedback from the client and partners.

ESTIMATED ANNUAL MAINTENANCE HOURS

Based on the above assumptions and standards of care, approximately 8,600 hours may be needed for annual maintenance work for the River Learning Center site. Of these hours, approximately 7,600 are "routine hours" and will be needed on a consistent annual basis; approximately 1,000 hours are "nonroutine" and will vary from year to year based on weather, vandalism, wear-and-tear, and plant age. A summary of the hours is shown in the tables below. The full list of tasks used to estimate the hours are included in the appendix.

		Per Unit Annual Hours		Site	Total Annual Hours			
Iscape Type	Unit	Routine Hours	Non-Routine Hrs	Total Hours	Quantity	Routine Hours	Non-Routine Hrs	Total Hours
y)	10 000 sf	106	3	109	4.6	489	14	503
, arv)	10.000 sf	32	3	35	0.2	8	1	9
l)	10.000 sf	27	10	37	0.2	6	2	8
ering Areas	10.000 sf	132	4	136	0.4	53	2	55
Decking	10,000 sf	160	12	172	0.4	65	5	70
vavs	10,000 sf	321	7	328	1.6	501	11	512
dways	10,000 sf	47	4	51	8.5	397	34	431
capes	1 acre	391	30	421	0.3	105	8	113
idscapes	1 acre	283	35	318	5.6	1595	197	1,792
es (Non-Restored)	1 acre	29	0	29	13.2	388	0	388
bes (Restored)	1 acre	68	20	88	0.0	0	0	0
dscapes	1 acre	129	24	153	13.9	1792	334	2,126
	1 acre	127	20	147	4.8	612	96	708
	10,000 sf	59	29	88	2.3	138	68	206
& AMENITIES								
cles	1 receptacle	23	2	25	10	227	20	247
	site	75	15	90	-	75	15	90
	site	30	15	45	-	30	15	45
	site	40	20	60	-	40	20	60
	site	38	18	56	-	38	18	56
	site	88	10	98	-	88	10	98
	site	19	14	33	-	19	14	33
	site	17	8	25	-	17	8	25
	site	42	35	77	-	42	35	77
S	1 piece	26	20	46	2	52	40	92
	1 set	843	36	879	1	843	36	879
Maintenance Hours (r	Aaintenance Hours (non-restored bluff)					7,620	1,003	8,623
aintenance Hours (restr	ored bluff)					8 123	1 267	9 390
						0,120		0,000

Estimated Annual Maintenance Hours for River Learning Center site

ESTIMATED STAFFING NEEDS

To estimate the number of staff that may be needed to support the River Learning Center site at the standards presented in this document, ETM first calculated the number of hours one full-time employee would be able to devote to maintenance of the site per year. This number is known as a maintenance full-time equivalent, or FTE. The maintenance FTE takes into account vacation, holidays, sick time, and mobilization/"nonproductive" working time. Non-productive working time includes gathering tools and materials, drive times, clean-up, breaks, and meetings. The process and assumptions in calculating the maintenance FTE are shown in the accompanying figure. Note that this calculation is for a standard employee; longertenured staff may have more holiday and PTO, and therefore less available working hours.

The estimated hours for maintenance were assigned to the different categories of staff based on the breakdown of work:

- Park Laborers perform general maintenance work, such as litter removal, cleaning, snow removal, and horticultural care
- Natural Resource and Forestry staff perform tasks related to natural areas (including the bluff and waterfront areas) and trees
- Trades staff perform skilled maintenance work

Hours were divided by the number of hours available for maintenance for each type of staff to arrive at an estimated number of FTEs.

River Learning Center - Estimated Hours per Maintenance FTE

Category	Hours per FTE	Assumption
Base FTE	2080	Assumes 260 work days, 8 hours per day
Holidays & PTO	(120)	Assumes 3 weeks
Allocated "Non-Working" Time	(130)	Lunches and breaks, 0.5 hours per day
Mobilization Time	(130)	Gathering materials, clean-up, travel around site, 0.5 hours per day
Admin. Tasks	(100)	Meetings, training, grants, etc.
Full Time Equivalent	1600	Annual Hours Available for Maintenance Work

Calculation of Working Hours Per Typical Maintenance FTE

River Learning Center - Estimated Maintenance Staffing Needs

		Routine			Non-Routine		
Staff Type	Annual	Hours per	Estimated	Annual	Hours per	Estimated	Total FTEs
	Hours	FTE	FTEs	Hours	FTE	FTEs	
Park Laborers	5227	1600	3.27	280	1600	0.17	3.44
Natural Resource / Forestry Staff	2157	1600	1.35	476	1600	0.30	1.65
Trades Staff	236	1600	0.15	247	1600	0.15	0.30

*Assumes bluff landscape is not restored and is maintained at a lower level of care

		Routine			Non-Routine		
Staff Type	Annual Hours	Hours per FTE	Estimated FTEs	Annual Hours	Hours per FTE	Estimated FTEs	Total FTEs
Park Laborers	5364	1600	3.35	280	1600	0.17	3.53
Natural Resource / Forestry Staff	2523	1600	1.58	739	1600	0.46	2.04
Trades Staff	236	1600	0.15	247	1600	0.15	0.30

*Assumes bluff landscape is restored and is maintained at a higher level of care

Estimated FTEs Required for Annual Maintenance

BUDGET

Based on the above assumptions and hours, estimated maintenance budgets were developed for the concept design. Approximately \$580,000 to \$720,000 is estimated to be needed annually for maintenance work, with the low range representing only routine maintenance and the high range also including non-routine maintenance.

consideration.

In addition to the annual maintenance costs, the City of Saint Paul may need to purchase new equipment and vehicles for new staff caring for the River Learning Center site. Any new staff will need support facilities and equipment that will need to be planned and accounted for.

ESTIMATED ANNUAL MAINTENANCE

A summary of the costs for the single scheme is shown in the table on page 126, with the adjacent table noting several non-annual recurring maintenance expenses that should also be taken into

Potential Non-Annual Recurring Expenses	
Full Mulch Replacement (if used in planting beds)	Done every 2 - 3 years or as needed as the mulch degrades
Dredging	Every 10 to 15 years or as needed
Flood Cleanup & Repairs	Significant, non-annual floods
Special Event Maintenance	Extra cleanup, repairs, etc. associated with special events

Potential Non-Recurring Maintenance Expenses for the River Learning Center

River Learning Center - Estimated Annual Maintenance Costs - Single Scheme Concept Design

Routine Costs					
Item	FTEs	\$/Hr	Fringe	Cost*	Comments
Personnel Costs					
Park Laborers	3.27	\$25	\$17	\$286,501	General upkeep, including cleaning, snow removal, and some horticulture care
Natural Resource / Forestry Staff	1.35	\$38	\$28	\$185,787	Ecological and forestry work
Trades Staff	0.15	\$80	\$55	\$41,516	Specialized maintenance tasks involving electrical, carpentry, etc.
Maintenance Expenses					
Materials & Supplies				\$30,000	Small tools, equipment (hoses, brooms, paint, etc.), parts, lighting, trash bags, sand, aggregate, mulch, fertilizer, toiletries, etc. (Allowance)
Structural Maintenance & Repairs				\$4,000	For elevated pathway
Equipment & Vehicle Maintenance & Repla	cement			\$6,000	Utility vehicles, power washers, trimmers, backpack blowers, small equipment etc. (Allowance)
Equipment & Vehicle Fuel & Repair				\$4,500	Parts, repair and fuel (Allowance)
Equipment Rentals				\$3,500	Rental of trucks, hi-boy, scissor lift, etc. (Allowance)
Plant Replacement				\$8,000	Replacement for diseased or dead plants; includes seed
Flood Clean-up & Repairs				\$5,000	For annual floods; in addition to staff time included in personnel costs
Utilities				\$10,000	Placeholder; estimated allowance; may include WiFi
Non-Boutine Costs					
Item	FTFs	\$/Hr	Fringe	Cost	Comments
Personnel Costs		<i>•</i> /			
Park Laborers	0.17	\$25	\$17	\$15,338	General upkeep, including cleaning, snow removal, and some horticulture care
Natural Resource / Forestry Staff	0.30	\$38	\$28	\$40,958	Ecological and forestry work
Trades Staff	0.15	\$80	\$55	\$43,601	Specialized maintenance tasks involving electrical, carpentry, etc.
Maintenance Expenses					
Materials & Supplies				\$5,000	Small tools, equipment (hoses, brooms, paint, etc.), parts, lighting, trash bags, sand, aggregate, mulch, fertilizer, etc. (Allowance)
Structural Maintenance & Repairs				\$3,000	For elevated pathway
Equipment & Vehicle Maintenance & Repla	cement			\$4,000	Utility vehicles, power washers, trimmers, backpack blowers, small equipment etc. (Allowance)
Equipment & Vehicle Fuel & Repair				\$2,500	Parts, repair and fuel (Allowance)
Equipment Rentals				\$2,000	Rental of trucks, hi-boy, scissor lift, etc. (Allowance)
Plant Replacement				\$3,000	Replacement for diseased or dead plants; includes seed
Flood Clean-up & Repairs				\$12,000	For annual floods; in addition to staff time included in personnel costs
Utilities				\$4,000	Placeholder; estimated allowance; may include WiFi
Base Estimated Annual Maintenance Costs				\$584,805	2022 USD; "Routine Costs" only
Total Estimated Annual Mainte <u>nance Cos</u>	ts			\$720,200	2022 USD; "Routine" + "Non-Routine" Costs

*Assumes 1 FTE is paid for 2088 hours.

Infrastructure, the marina service and rental budgets, River Learning Center building, and Sam Morgan Trailhead building are excluded from the estimates.

Estimated Annual Maintenance Budget for the River Learning Center

In addition to St. Paul Parks and Recreation, other organizations currently play a role in operations and management of the existing area. Many of these organizations, as well as future tenants of the site, have the potential to be involved in future management and operations. Two tables - one showing the existing roles and responsibilities, and one showing potential future roles and responsibilities - are shown on the following pages.

Key partners and their anticipated roles at the time of this document are as follows:

- and fundraising

Roles and Responsibilities

Management - the day-to-day deployment of people, materials, and equipment – determines how well or how poorly parks and public spaces are maintained, and ultimately, how successful they will be over the long-term. Focused management is essential to ensuring that operations, maintenance, and programming efforts are coordinated and properly directed for the River Learning Center.

City of St. Paul – land manager and project manager

• Great River Passage Conservancy – private fundraising and strategic project development

 National Park Service – potential tenant, current and future on-site programming provider

 Mississippi Park Connection – potential tenant, current and future on-site programming provider

- Wilderness Inquiry current and future on-site programming provider
- Your Boat Club marina tenant

It is critical that roles and responsibilities are defined prior to the completion of construction to ensure the Mississippi River Learning Center project and its capital investment is adequately cared for and can be a long-term asset for the community. It is also important that those involved in management and operations ideally feel a sense of pride and ownership of the site.

Existing Roles & Responsibilities for the River Learning Center

	City of St	. Paul				Partners & Tenants	5		
	Parks and Recreation	Other	Great River Passage Conservancy	Your Boat Club / Marina Operator	National Park Service	Wilderness Inquiry	Mississippi Park Connection	Capitol Region Watershed District	Notes
Management	Oversees the site								
Landscape Maintenance - Groundskeeping	Snow removal from parking lot, mowing grass, sweeping, maintaining trail buffer			All groundskeeping within marina gate					
Landscape Maintenance - Natural Resources	Limited								
Marina Maintenance	maintenance; tree maintenance			Marina elements maintenance					Who is responsible for dredging is not currently determined
Flooding	Assists with flood prep and cleanup			Works with City for flood prep & cleanup					
Permitting	Processes permits								
Security /	Parks security	City Police		Private security for marina					
Programming	May provide some programs	Department		May provide	Offers on site programming	Offers on site programming	Offers on site programming		
Volunteer Coordination	Help coordinate				Provides volunteer coordination	Provides volunteer coordination	Provides volunteer coordination		
Communications & Marketing			May advertise / promote some events		Provide communications and marketing	Provide communications and marketing	Provide communications and marketing		
Funding - Capital			May help fundraise				Fundraising		
Funding - Operations	Included in larger parks and recreation budget			Fund their own ops / maintenance					
Revenue	Minimal directly from site			From rental slips, etc.					

Note: Roles and Responsibilities are not final. This chart is intended as a guiding document for discussion and not as finalized positions.

Existing Roles and Responsibilities for the River Learning Center Site

Managem Building

Maintenanc Landscape Maintenance

Groundskeepi Landscape

Maintenance

Natural Resou Marina

Maintenand

Floodin

Permitting Security / Enforcemen

Programmi

Volunteer Coordinatio

Communicatio Marketing

Funding - Cap

Funding Operations

Revenue

Note: Roles and Responsibilities are not final. This chart is intended as a guiding document for discussion and not as finalized positions.

Potential Roles & Responsibilities for the River Learning Center

	City of S	St. Paul			I	Partners & Tenants	;			
	Parks and Recreation	Other	Great River Passage Conservancy	Your Boat Club / Marina Operator	National Park Service	Wilderness Inquiry	Mississippi Park Connection	Capitol Region Watershed District	Others TBD	Notes
t	Oversees and coordinates all management efforts									New or existing non- profit could also oversee
					Contributes if		Contributes if		Contributes if	
e				Groundskeeping	tenant		tenant		tenant	
e - ng	May lead or assist			within marina gate					May assist	
- ces	May lead or assist				May assist			May assist with water & shoreline	May assist	
e	Coordinates dredging			Marina elements						Dredging is specified in future MOUs
	Leads prep & cleanup			Works with City for prep & cleanup	Works with City for prep & cleanup	May assist		May assist	May assist	
	Processes permits									
t	Parks security staff, CCTV	City Police Department		Private security	Building security				May assist	
g				May provide	Offer own programming and coordinate	Offer own programming and coordinate	Offer own programming and coordinate	May contribute	May provide if tenant	Various other groups may be involved in programming (i.e., Indigenous groups, Melanin in Motion, etc.)
n	Coordinate with NPS				Oversees	Coordinates with NPS	Coordinates with NPS		Coordinates with NPS	
ıs &			May advertise / promote some events		Advertise / promote own & others events	Advertise / promote own & others events	Advertise / promote own & others events		May assist	
tal			May help fundraise					May contribute	As applicable	
	As part of larger parks & rec budget			Fund their own ops / maintenance	Contribute	May contribute	Contribute	May contribute	As applicable	
	Minimal directly from site			From rental slips, etc.		Programs, donations, etc.	Programs, donations, etc.	Donations, etc.	As applicable	

Potential Roles and Responsibilities for the River Learning Center Site

Appendix: Task Hour Sheets

Below is a summary of the methodology behind determining the necessary task hours to annually maintain the proposed features of the River Learning Center site. The standards of care in the task hour tables have been developed to reflect the anticipated level of service for the River Learning Center as well as the climate and anticipated usage of the site. The frequencies represent an average to be performed over the course of the year. Actual maintenance will ultimately be based on usage, weather, season, and available resources.

To aid in cost estimates, tasks were assigned to three different levels of staff. PL is Park Laborers. NRF is Natural Resource and Forestry staff, and TR is Trades staff.

The task hour charts on the following pages include the following terms and abbreviations:

TASK – The specific maintenance task

QTY – The estimated quantity over which a task is performed (Many of the tasks are estimated as a percentage of the total quantity.)

UNIT – A unit is a commonly accepted unit of measurement for each landscape type and its associated tasks. The unit abbreviations used throughout this project include:

> ACRE - 43,560 Square Feet MSF - 1,000 Square Feet CSF - 100 Square Feet CLF - 100 Linear Feet XSF - 10 Square Feet XLF - 10 LF

Each or EA - 1 of a particular item Allow – Allowance of time for a particular task

UNIT (MIN) – Time standard necessary to complete 1 UNIT of a task in minutes (These time standards are based on the "Park Maintenance Standards" published by the National Recreation and Park Association (NRPA) and adjusted for the project's location and management goals.)

ONCE (MIN) – The quantity of the task multiplied by the time standard and shown in minutes

ONCE (HOURS) - The time in minutes converted into hours

ANNUAL FREQUENCY – Number of times the task is performed annually

TOTAL HOURS – The annual frequency multiplied by the time in hours for performing the task once

QTY X UNIT = ONCE (MIN) \rightarrow ONCE (HOURS) X ANNUAL FREQUENCY = TOTAL HOURS/UNIT/ YEAR

As an example of how to read the task hours, the sample line item below is for mowing turf (open area). The task's units are 1,000 sf (msf). The quantity for each time the task is performed is 28,000 square feet (28 x 1,000 sf), which is approximately 65% of an acre (see comments). It is estimated that doing this task once for 1,000 sf would be three minutes, so doing the task once for 28,000 sf would take 84 minutes (or approximately 1.4 hours). If the task would be done 28 times per year, it would require about 39 hours per year.

TASK	QTY	UNIT	UNIT (min)	ONCE (min)	ONCE (hours)	ANNUAL FREQ.	TOTAL HOURS	COMMENTS
Now turf (open area)	28	msf	3	84	1.4	28	39	65% of an acre with ride-on mower; 1x/week during growing season

TASK

HARDSCAPES

Trails (Primary) Routine Tasks Litter removal Blow debris

Power washing

Debris removal f Graffiti removal

Snow/ice remova plow

Snow/ice removal

Spread de-icer Non-Routine Tas

Flood prep and cl

Paving repair Trails (Secondar

Routine Tasks Litter removal Blow debris

Power washing

Debris removal f Graffiti removal

Spread de-icer

Snow manageme

Trail grooming Non-Routine Task

Flood prep and cle

Paving repair

	ΟΤΥ		UNIT	ONCE	ONCE	ANNUAL	TOTAL	COMMENTS		Staffing	
	QII	UNIT	(min)	(min)	(hours)	FREQ.	HOURS	COMMENTS	PL	NRF	TR
							109	Hours per 10,000 sf	104	0	5
							106	Hours per 10,000 sf	104	0	2
	0.5	msf	3	2	0	260	7	5% of an area, 5x per week	7		
	1	msf	6	6	0	104	10	10% of area, average 2x per week with hand or backpack blower	10		
	2	msf	30	60	1	4	4	20% of area; clean stained/dirty areas with power washer using a fan-tipped nozzle	4		
om drain inlets		allow					2	Done every two weeks to remove debris and sediment	2		
		allow					2	Includes both gum & graffiti removal			2
l by small snow	8	msf	10	80	1	28	37	Paved surfaces accessible by blower; assumes 80% of paved areas	37		
l by hand	1	msf	80	80	1	28	37	Paved surfaces not accessible by blower; assumes 10% of paved areas	37		
	2	msf	5	10	0	36	6	Paved surfaces as needed, using a calcium chloride de-icer	6		
s							3	Hours per 10,000 sf	1	0	3
ean-up		allow					1	Trail closures as needed, post-flood inspection, cleaning, and repairs	0.5		0.5
		allow					2	Repair pavement markings, cracks, spalling, settling, etc.			2
)							35	Hours per 10,000 sf	31	0	4
							32	Hours per 10,000 sf	31	0	1
	0.5	msf	3	2	0	260	7	5% of an area, 5x per week	7		
	1	msf	6	6	0	104	10	10% of area, average 2x per week with hand or backpack blower	10		
	2	msf	30	60	1	4	4	20% of area; clean stained/dirty areas with power washer using a fan-tipped nozzle	4		
om drain inlets		allow					1	Done every two weeks to remove debris and sediment	1		
		allow					1	Includes both gum and graffiti removal			1
	2	msf	5	10	0	36	6	Paved surfaces as needed	6		
nt		allow					0	Assumes secondary trails receive no snow management	0		
		allow					3	Grooming of snow-covered trails for recreation	3		
s							3	Hours per 10,000 sf	1	0	3
ean-up		allow					1	Trail closures as needed, post-flood inspection, cleaning, and repairs	0.5		0.5
		allow					2	Repair pavement markings, cracks, spalling, settling, etc.			2

TASK	ΟΤΥ	LINIT	UNIT	ONCE	ONCE	ANNUAL	TOTAL	COMMENTS	Staffing		
TASK	QII	ONIT	(min)	(min)	(hours)	FREQ.	HOURS	COMMENTS	PL	NRF	TR
Trails (Channel)							37	Hours per 10,000 sf	30	0	7
*assumes two weeks of temporary	closures ai	nnually due t	to flooding								
Routine Tasks		,	, ,				27	Hours per 10,000 sf	26	0	1
Litter removal	1	msf	3	2	0	240	6	5% of an area, 5x per week	6		
Blow debris	1	msf	6	6	0	100	10	10% of area, 2x per week with hand or backpack blower	10		
								20% of area; clean stained/dirty areas with power washer using a			
Power washing	2	msf	30	60	1	4	4	fan-tipped nozzle; avoid using harsh chemicals by water, and use	4		
								only biodegradable cleaners when necessary			
Graffiti removal		allow					1	Includes both gum and graffiti removal			1
Spread de-icer	2	msf	5	10	0	34	6	Paved surfaces as needed	6		
Snow management		allow					0	Assumes no snow management	0		
Non-Routine Tasks							10	Hours per 10,000 sf	4	0	6
Flood prep and clean-up		allow					6	Trail closures as needed, post-flood inspection, cleaning, and repairs	4		2
Paving repair		allow					4	Repair cracks, spalling, settling, etc.			4
Plazas & Gathering Areas							136	Hours per 10,000 sf	131	0	6
Routine Tasks							132	Hours per 10,000 sf	130	0	2
Litter removal	1	msf	3	3	0	260	13	10% of an area, 5x per week	13		
Blow debris	1	msf	6	6	0	156	16	10% of area, 3x per week with hand or backpack blower	16		
								20% of area; clean stained/dirty areas with power washer using a			
Power washing	2	msf	30	60	1	6	6	fan-tipped nozzle; avoid using harsh chemicals by water, and use	6		
								only biodegradable cleaners when necessary			
Debris removal from drain inlets		allow					2	Done every two weeks to remove debris and sediment	2		
Graffiti removal		allow					2	Includes both gum & graffiti removal			2
Snow/ice removal by small snow	٩	msf	12	108	2	28	50	Paved surfaces accessible by blower: assumes 90% of paved areas	50		
plow or snow blower	5	11131	12	100	2	20	50				
Snow/ice removal by hand	1	msf	80	80	1	28	37	Paved surfaces not accessible by blower; assumes 10% of paved areas	37		
Spread de-icer	2	msf	5	10	0	36	6	Paved surfaces as needed	6		
Non-Routine Tasks							4	Hours per 10,000 sf	1	0	4
Flood prep and clean-up		allow					1	Closures as needed, post-flood inspection, cleaning, and repairs	0.5		0.5
Paving repair		allow					3	Repair pavement markings, cracks, spalling, settling, etc.			3

TASK

Boardwalk & Dec

*assumes two we Routine Tasks

Litter removal Blow debris

Power washing

Graffiti removal Spread de-icer Snow/ice removal

Non-Routine Tasks Flood prep and cle

Structural mainter

Paving repair

Elevated Pathwa

Routine Tasks Litter removal Clean paved surface

Power washing

Vegetation manage

Wood sealing

Railing cleaning & i Graffiti removal

Snow/ice removal

Spread de-icer Non-Routine Tasks

Railing maintenan

Structural mainter

Surface maintenar

	OTV		UNIT	ONCE	ONCE	ANNUAL	TOTAL	L COMMENTS		Staffing	
	QIT	UNIT	(min)	(min)	(hours)	FREQ.	HOURS	COMINIENTS	PL	NRF	TR
king							172	Hours per 10,000 sf	162	0	10
eks of tempora	ry closures ar	nually due t	o flooding								
							160	Hours per 10,000 sf	159	0	1
	1	msf	4	2	0	240	8	5% of an area, 5x per week; litter may be trapped in grating	8		
	1	msf	8	8	0	100	13	10% of area, 2x per week sweeping or with hand or backpack blower	13		
	2	msf	30	60	1	6	6	20% of area; clean stained/dirty areas with power washer using a fan-tipped nozzle; avoid using harsh chemicals by water, and use only biodegradable cleaners when necessary	6		
		allow					1	Includes both gum and graffiti removal			1
	2	msf	5	10	0	36	6	As needed; environmentally friendly de-icer is recommended	6		
I	9	msf	30	270	5	28	126	Surfaces accessible by snow blower or push broom; 90% of area	126		
rs -							12	Hours per 10,000 sf	3	0	9
ean-up		allow					5	Closures as needed, post-flood inspection, cleaning, and repairs	3		2
nance		allow					1	Annual or bi-annual inspection of structural elements; maintain as needed			1
		allow					6	Replace decking members, tighten connections, repair cracks, settling, etc.			6
ys							328	Hours per 10,000 sf	320	0	8
							321	Hours per 10,000 sf	319	0	2
	1	msf	4	4	0	260	17	5% of an area, 5x per week; includes litter trapped in railings	17		
ice	1	msf	8	8	0	156	21	10% of area, 3x per week with hand or backpack blower	21		
	2	msf	30	60	1	6	6	20% of area; clean stained/dirty areas with power washer using biodegradable cleaners due to adjacent landscape	6		
gement		allow					5	Pruning, debris removal, etc. to ensure safety, clear passage, and minimal disturbance to plantings	5		
	0	msf	100	0	0	1	0	Assume surface is not wood, or if surface is wood, that oiling is not performed due to potential impacts on the adjacent landscape	0		
inspection		allow					12	Inspect with litter removal; clean handrail weekly	12		
		allow					2	Includes both gum and graffiti removal			2
l by hand	9	msf	60	540	9	28	252	Assumes 90% of elevated walk using push broom or similar, with additional time for snow to be collected	252		
	2	msf	5	10	0	36	6	As needed; environmentally friendly de-icer is recommended	6		
s							7	Hours per 10,000 sf	1	0	6
nce & repair		allow					2	Replace panels, tighten connections, etc.	1		1
nance		allow					1	Regular inspections; major structural work assumed as capital projects			1
nce & repair		allow					4	Repair and maintain decking surface			4
-											

TASK	OTV	LINIT	UNIT	ONCE	ONCE	ANNUAL	TOTAL	COMMENTS	Staffin		
TASK	QII	UNIT	(min)	(min)	(hours)	(hours) FREQ.		COMMENTS	PL	NRF	TR
Parking & Roadways							51	Hours per 10.000 sf	45	0	6
Routine Tasks							47	Hours per 10,000 sf	45	0	2
Litter removal	1	msf	3	3	0	208	10	5% of an area, 4x per week	10		
Clean paved surface - street sweeper	10	msf	3	30	1	3	2	100% of area, done every 4 months with street sweeper	2		
Power washing	1	msf	30	30	1	12	6	10% monthly; spot cleaning clean stained/dirty areas	6		
Graffiti removal		allow					2	Includes both gum and graffiti removal			2
Snow/ice removal by plow	9	msf	5	45	1	28	21	Paved surfaces accessible by plow; assumes 90% of paved areas	21		
Spread de-icer	2	msf	5	10	0	36	6	Paved surfaces as needed	6		
Non-Routine Tasks							4	Hours per 10,000 sf	1	0	4
Flood prep and clean-up		allow					1	As needed, post-flood inspection, cleaning, and repairs	0.5		0.5
Repaint markings		allow					1	Touch-up and/or repaint crossway markings			1
Paving repair		allow					2	Repair cracks, spalling, settling, etc.			2

TASK

SOFTSCAPES

Display Landscap Routine Tasks Litter removal

Seasonal prep

Planting areas ma

Spot watering Leaf removal Pest control Plant replacement

Irrigation mainten

Non-Routine Task

Establishment tas

Park Landscapes

Routine Tasks

Litter removal Leaf removal

Mow turf (open a

Mow (walking) & t

Top dress soil and

Soil Test/Evaluation Turf fertilization Weed control

Seasonal renovation

Temporary fencin

Tree and understo

Irrigation mainten

Non-Routine Task

Establishment tas

	OTV		UNIT	ONCE	ONCE	ANNUAL	TOTAL	COMMENTS		Staffing	
	QIY	UNIT	(min)	(min)	(hours)	FREQ.	HOURS	COMMENTS	PL	NRF	TR
es							421	Hours per Acre	401	0	20
							391	Hours per Acre	371	0	20
	2.0	msf	5	10	0	150	25	5% of planting areas, 3x/week	25		
	22	msf	120	2640	44	2	88	Spring clean-up and winter prep	88		
								30% of planting areas, once every two weeks, April-October;			
aintenance	13	msf	60	780	13	15	195	weeding, deadheading, trimming, minor cutbacks, pruning,	195		
								inspection for invasive species, fertilizing, etc.			
	4	mst	30	120	2	6	12	10% of planting areas, as needed to supplement irrigation	12		
	13	mst	15	195	3	3	10	30% of planting areas	10		
	9	mst	30	270	5	3	14	20% of planting areas	14		
it	4	mst	60	240	4	2	8	10% of planting areas, spring or fall, includes temporary fencing	8		
								Monitor to ensure adequate coverage and functionality; check for			
nance		allow					40	damage; repair & replace above-grade components as needed;	20		20
								repair & clean out system; winterization & spring startup			
ks							30	Hours per Acre	30	0	0
								Tacks for the first 4 years of establishment, including spot			
sks		allow					30	watering temporary fencing plant replacement and weed control	30		
								watering, temporary jeneing, plant replacement, and weed control		-	
							318	Hours per Acre	296	0	22
					-		283	Hours per Acre	261	0	22
	2	mst	4	8	0	150	20	5% of planting areas, 3x/week	20		
	13	msf	15	195	3	3	10	30% of planting areas in fall	10		
area)	30	msf	3	90	2	38	57	70% of an acre with ride-on mower; 1x/week during growing	57		
								30% of turf area with small mower and lawn edges with string			
trim	13	msf	9	117	2	36	70	trimmer	70		
d/or mulch	22	msf	30	660	11	1	11	50% of turf area	11		
on		allow					2	Done prior to fertilization			2
	22	msf	10	220	4	2	7	50% of area	7		
	4	msf	15	60	1	7	7	10% of turf, 1x/month during growing season	7		
ion	33	msf	45	1485	25	1	25	May include dethatching, aerating, and seeding	25		
ıg		allow					4	For areas undergoing resting or renovation	4		
ory plant care		allow					30	Inspections, pruning, weeding, mulching, etc.	30		
								Monitor to oncure adoquato coverage and functionality, shark for			
nance		allow					40	damage: renair & renlace above grade components as peoded:	20		20
nunce		anow					40	renair & clean out system: winterization & spring startup	20		20
								repair & dearrout system, winterzation & spring startup			
(S							35	Hours per Acre	35	0	0
sks		allow					35	i asks for establishment, including spot watering, temporary	35	0	
								jencing, overseeding or resodding, and weed control			

ТАЅК	QTY	UNIT	UNIT (min)	ONCE (min)	ONCE (hours)	ANNUAL FREQ.	TOTAL HOURS	COMMENTS	PL	Staffing NRF	TR
Bluff Landscapes (Non-Restored)							29	Hours per Acre	10	19	0
Routine Tasks							29	Hours per Acre	10	19	0
Monitoring and inspection							6			6.0	
Remove litter	4	msf	6	24	0	26	10	10% of area; every other week, focusing primarily on edges	10		
								Large tree litter removal, removal of fallen branches; some fallen			
Selected debris removal		allow					2	debris may remain for ecological value, but all near pathways or a		2	
								safety hazard will be removed			
Tree maintenance		allow					1	Minimal; only if needed		1.0	
Natural resource management		allow					4	Weeding, cleaning, trimming, pruning, invasive species removal, understory maintenance, etc.		4	
Edge maintenance		allow					3	Increased maintenance on trails and visitor interfaces to improve visitor experience, remove poison ivy, and reduce edge effect		3	
Erosion control		allow					2	As needed		2	
Plant replacement & seeding		allow					1	As determined by monitoring		1	
Non-Routine Tasks							0	Hours per Acre	0	0	0
Establishment tasks		allow					0	Not performed	0	0	0
Bluff Landscapes (Restored)							88	Hours per Acre	21	67	0
Routine Tasks							68	Hours per Acre	21	47	0
Monitoring and inspection							6			6	
Remove litter	4	msf	6	24	0	52	21	10% of area; weekly, focusing primarily on edges	21		
								Large tree litter removal, removal of fallen branches; some fallen			
Selected debris removal		allow					2	debris may remain for ecological value, but all near pathways or a		2	
								safety hazard will be removed			
Tree maintenance	5	each	45	225	4	1	4	Assume maintenance for 2-5 trees per year; includes pruning, clearing, and pest control		4	
Natural resource management		allow					24	Weeding, cleaning, trimming, pruning, invasive species removal, tree and understory maintenance, etc.		24	
Edge maintenance		allow					5	Increased maintenance on trails and visitor interfaces to improve visitor experience, remove poison ivy, and reduce edge effect		5	
Erosion control		allow					4	As needed		4	
Plant replacement & seeding		allow					2	As determined by monitoring		2	
Non-Routine Tasks							20	Hours per Acre	0	20	0
Establishment tasks		allow					20	Additional tasks including more frequent weed & invasives control, mulching, fertilizing and spot watering		20	

TASK

Floodplain Landsc **may flood annud

Routine Tasks Monitoring and ins Remove litter

Selected debris ren

Natural resource m

Edge maintenance

Erosion control Plant replacement Post-flood inspecti cleaning Non-Routine Tasks

Establishment Task

Spring Melt

**will be underwat Routine Tasks

Monitoring and ins

Remove litter

Litter removal by b

Selected debris ren

Natural resource n

Erosion control

Plant replacement

Post-flood cleaning

Non-Routine Tasks

Establishment Task

	QTY	UNIT	UNIT (min)	ONCE (min)	ONCE (hours)	ANNUAL FREQ.	TOTAL HOURS	COMMENTS	PL	Staffing NRF	TR
capes							153	Hours per Acre	33	120	0
ally following the	sprina sna	w melt hut v	vill not remo	ain underwa	ter for long	periods of tim	e				
, jono mig the					ic. joi iong		129	Hours per Acre	33	96	0
spection							6			6	-
-1	4	msf	6	24	0	49	20	10% of area: 1x per week	20	-	
	-		-		-			Removal of large debris; some fallen debris may remain for			
emoval		allow					4	ecological value, but all near pathways or a safety hazard will be removed		4	
management		allow					20	Weeding, cleaning, trimming, pruning, invasive species removal,		20	
								tree and understory maintenance, etc.			
e		allow					5	visitor experience, remove poison ivy, and reduce edge effect		5	
		allow					6	As needed		6	
t & seeding		allow					2	As determined by monitoring		2	
tion and	33	msf	120	3960	66	1	66	75% of area; assume once annually after spring floods; includes silt removal	13	53	
s							24	Hours per Acre	0	24	0
sks		allow					24	Additional tasks required during establishment, including more frequent weed & invasives control, inspection, erosion control,		24	
								planting, spot watering, temporary fencing, etc.			
							147	Hours per Acre	25	122	0
ater for 2-3 month	hs annually	following th	e spring sno	w melt							
							127	Hours per Acre	25	102	0
spection							4			4	
	2	msf	6	12	0	42	8	5% of area; 1x per week (by hand and with skimmer where needed)	8		
boat	2	msf	30	60	1	5	5	5% of area (shoreline areas); every two months with skimmer net from boat		5	
moval		allow					4	Removal of large debris; some fallen debris may remain for ecological value, but all near pathways or a safety hazard will be removed		4	
management		allow					15	Weeding, cleaning, trimming, pruning, invasive species removal, understory maintenance, etc.		15	
		allow					5	As needed		5	
t & seeding		allow					3	As determined by monitoring		3	
Ig	33	msf	150	4950	83	1	83	75% of area; assume once annually after spring flood waters receed; includes silt removal	17	66	
s							20	Hours per Acre	0	20	0
sks		allow					20	Additional tasks required during establishment, including more frequent weed & invasives control, inspection, erosion control, planting, spot watering, temporary fencing, etc.		20	

TASK	OTV		UNIT	ONCE (min)	ONCE (hours)	ANNUAL	TOTAL	COMMENTS	Staffing		
TASK	QIT	UNIT	(min)			FREQ.	HOURS	COMINIENTS	PL	NRF	TR
Bioswales							88	Hours per 10,000 sf	26	53	9
Routine Tasks							59	Hours per 10,000 sf	21	34	4
Remove litter	1	msf	6	6	0	104	10	10% of area; 2x per week (by hand and with skimmer)	10		
Outfall inspection and debris removal		allow					2	Done every two weeks			2
Debris removal & sediment control		allow					3	Inspection during other maintenance tasks; removal of large debris and built-up sediment as needed		3	
Horticultural pest monitoring & control		allow					1	Monitoring with other maintenance tasks, control as needed	0.3	0.7	
Seasonal maintenance	2	msf	120	240	4	2	8	20% of area, includes cutbacks, cleanup and removal	2	6	
Planting maintenance	2	msf	60	120	2	12	24	20% of area, monthly; monitoring, minor erosion control, invasive control and removal, cutbacks, etc.	5	19	
Plant replacement	1	msf	60	60	1	1	1	10% of area, spring or fall		1	
Post-flood cleaning		allow					10	Allowance; includes both plantings and outfall	4.0	4	2
Non-Routine Tasks							29	Hours per 10,000 sf	5	19	5
Outfall repair & maintenance		allow					5	As needed			5
Establishment Tasks		allow					24	Additional tasks required during establishment, including more frequent weed & invasives control, inspection, erosion control, planting, spot watering, temporary fencing, etc.	5	19	

TASK

FURNISHING & A

Trash Receptacle

Routine Tasks Empty trash can -Empty trash can -Empty trash can -Clean trash can Rodent and pest Non-Routine Task

Basic maintenance Furnishings

Routine Tasks

Clean and inspect Collect and reloca Graffiti removal

Non-Routine Task Repair & mainten

Lighting

Routine Tasks

Clean and inspect

Graffiti removal Non-Routine Tasks Repair & mainten

Signage

Routine Tasks Clean and inspect Graffiti removal Non-Routine Tasks

Repair & mainten

	QTY	UNIT	UNIT (min)	ONCE (min)	ONCE (hours)	ANNUAL FREQ.	TOTAL HOURS	COMMENTS		Staffing NRF	TR
MENITIES											
S							25	Hours per Receptacle	23	0	2
							23	Hours per Receptacle	22	0	1
Peak	1	each	5	5	0	144	12	6x/week for 24 weeks	12		
Shoulder	1	each	5	5	0	48	4	4x/week for 12 weeks	4		
Off-season	1	each	5	5	0	32	3	2x/Week for 16 weeks	3		
	1	each	10	10	0	12	2	1x/Month on average	2		
control		allow					2	2x/Month	1.4		0.6
s							2	Hours per Receptacle	1	0	1
e		allow					2	Replace can liners/lid, resecure cans, etc.	1		1
							90	Annual Hours	78	0	12
							75	Annual Hours	75	0	0
:		allow					50	Assume 20% weekly	50		
ate		allow					15	Movable furnishing only	15		
		allow					10	As needed	10		
s							15	Annual Hours	3	0	12
ance		allow					15	Includes material repair/replacement, tightening mechanical	3		12
							45	connections, vanaalism repair, paint touch-up, etc.	22	0	12
							20		20	0	0
		allow					30	4x/year; inspect for proper function and potential damage such as	24	0	0
-		allow					24	moisture under lens caps; clean as needed	24		
		allow					6	As needed	6		
s							15	Annual Hours	3	0	12
ance		allow					15	As needed; may include lumen board replacement	3		12
							60	Annual Hours	44	0	16
							40	Annual Hours	40	0	0
:		allow					30	20% weekly	30		
		allow					10	As needed	10		
s							20	Annual Hours	4	0	16
ance		allow					20	As needed; may include tightening connections, repainting, or replacement	4		16

TASK	ΟΤΥ	LINIT	UNIT	ONCE	ONCE	ANNUAL	TOTAL	COMMENTS	Staffing		
TASK	QII	UNIT	(min)	(min)	(hours)	FREQ.	HOURS	COMMENTS	PL	NRF	TR
											10
Overlooks							56	Annual Hours	38	U	18
Routine Tasks							38	Annual Hours	34	0	4
Surface maintenance							10	Litter removal, cleaning / power washing, etc.	10		
Railing care and maintenance		allow					8	Regular cleaning & inspections, removal of trapped debris, etc.	8		
Amenity care & maintenance		allow					6	In addition to furnishing hours	6		
Snow management		allow					10	Clearing surface for minor accumulations; assume left covered for large accumulations	10		
Graffiti removal		allow					4	As needed			4
Non-Routine Tasks							18	Annual Hours	4	0	14
Structural maintenance		allow					2	Regular inspections; major structural work assumed as capital projects			2
Repair & maintenance		allow					16	As needed; may include surface, railing, amenities, etc.	4		12
Boathouse							98	Annual Hours	82	0	16
Routine Tasks							88	Annual Hours	80	0	8
Clean and inspect interior		allow					48	Thorough cleaning quarterly, spot cleaning every one to two weeks; minor maintenance as needed	48		
Spot clean exterior		allow					16	Spot clean 1x per week or as needed	16		
Exterior major cleaning		allow					8	Twice annual cleaning / power washing	8		
Annual flood prep and clean-up		allow					16	Post-flood inspection, cleaning, and repairs for smaller annual floods	8		8
Non-Routine Tasks							10	Annual Hours	2	0	8
Maintenance and repair		allow					10	As needed	2		8
Canoe Launch							33	Annual Hours	21	0	12
Routine Tasks							19	Annual Hours	16	0	3
								Done weekly, 40 weeks per year; assume minimal use in			
Clean and inspect	1	each	20	20	0	40	13	winter/spring; may include litter removal, scrubbing, or power washing	13		
Snow management		allow					0	Assume closed in snow conditions	0		
Annual flood prep and clean-up		allow					6	Post-flood inspection, cleaning, and repairs for smaller annual floods	3		3
Non-Routine Tasks							14	Annual Hours	5	0	9
Maintenance and repair							6	As needed	2		4
Flood prep and clean-up		allow					8	Post-flood inspection, cleaning, and repairs for larger, infrequent floods	3		5

TASK

Flood prep and c

Marina

TASK	ΟΤΥ	LINIT	UNIT	ONCE	ONCE	ANNUAL	TOTAL	COMMENTS	Staffing		
TASK	- QIT		(min)	(min)	(hours)	FREQ.	HOURS		PL	NRF	TR
Canoe Inlet							25	Annual Hours	16	0	9
Routine Tasks							17	Annual Hours	14	0	3
Litter and debris removal		allow					6	Removal of litter from waters surface (via boat or skimmer net); removal of debris as needed	6		-
Mosquito and pest control		allow					3	As needed	2		1
Signage care		allow					5	Regular inspection, cleaning, and repairs for any signage associated with the cove	5		
Annual flood prep and clean-up		allow					3	Post-flood inspection, debris removal for smaller annual floods	1		2
Non-Routine Tasks							8	Annual Hours	2	0	6
De-silting							0	Not expected to be performed	0		0
Flood prep and clean-up		allow					8	Post-flood inspection, cleaning, and repairs for larger, infrequent floods	2		6.4
Marina							77	Annual Hours	41	0	36
Routine Tasks							42	Annual Hours	28	0	14
Clean and inspect		allow					0	Assumed operator responsibility	0		
Marina amenity upkeep		allow					0	Assumed operator responsibility	0		
Septic tank care		allow					6	Testing and maintenance by City; pumping out by operator (pump out not included in hours)			6
Snow management		allow					20	Operator in conjunction with City	20		
Annual flood prep and clean-up		allow					16	Post-flood inspection, cleaning, and repairs for smaller annual floods	8		8
Non-Routine Tasks							35	Annual Hours	13	0	22
Maintenance and repair							15	Operator in conjunction with City	5		10
Flood prep and clean-up		allow					20	Post-flood inspection, cleaning, and repairs for larger, infrequent floods	8		12
Art Installations							46	Hours per Installation	21	0	25
Routine Tasks							26	Hours per Installation	21	0	5
Clean & inspect		allow					20	Visual inspection weekly, cleaning as needed; cleaning may include litter, debris, and graffiti removal	15		5
Snow management		allow					6	Protecting art element from snow or clearing element of snow if desired by artist	6		
Non-Routine Tasks							20	Hours per Installation	0	0	20
Repair & maintenance		allow					20	As needed; may require a specialist			20

TASK	ΟΤΥ	UNIT	UNIT	ONCE	ONCE (hours)	ANNUAL	TOTAL	COMMENTS	Staffing		
TASK	QII		(min)	(min)		FREQ.	HOURS	COMMENTS	PL	NRF	TR
Restrooms							879	Hours per Facility	832	0	47
Routine Tasks							843	Hours per Facility	825	0	18
								Assumes year-round operation; 2x daily cleaning from May - Oct.			
Clean & restock	2	each	45	90	1.5	546	819	(26 weeks) and 1x daily cleaning from Oct Apr. (26 weeks);	819		
								includes interior cleaning, trash removal, and restocking toiletries			
								Assumes average 2 hours of maintenance/repair per month;			
Restroom maintenance		allow					24	Includes material replacement, amenity repairs and replacement,	6		18
								etc.			
Non-Routine Tasks							36	Hours per Facility	7	0	29
Major maintananca & rangir		allow					26	Assumes additional 3 hours of maintenance & repair per month	7		20
wajor maintenance & repair							30	when restrooms are at a later stage in their life cycle	/	29	29
8.1 Neighboring Communities

COMMUNITY 8. ENGAGEMENT APPENDIX

8.1 Neighboring Communities **8.2 Community Engagement Overview** 8.3 Public Survey 1 8.4 Public Survey 2

The River Learning Center site is located in the Highland Park, one of the seventeen neighborhood district councils in Saint Paul.

the area.

According to the Census of 2020, the total population of the neighborhood was 25,111 habitants. The same source provided a Census Block within five miles of the project, showing that 66% of the population was White Alone, 12% was Black or African American and 10% was Hispanic or Latino.

Within one-mile, the Census Block showed that 59% of the population was White Alone, 25% was Black and/or African American and 7% was Hispanic or Latino.

River Learning Center 2020 Census Block Groups within One-Mile



River Learning Center 2020 Census Block Groups within Five-Miles



Highland Park is the home of Ethiopian, Eritrean, West African, Jewish, Latino and Asian communities, Churches, schools, restaurants, etc, and shows the diversity of the neighborhood well known in the Twin Cities. Although there are a number of diverse communities in the neighborhoods surrounding the 25-acre study area, there is less racial and ethnic diversity in comparison to other neighborhoods in

There are a number of different languages spoken throughout the community and as such, signage and wayfinding should be available in multiple languages in order t o be legible for neighboring communities

8.2 Community Engagement Overview

Engagement Team

- Lead: W Architecture & Landscape Architecture
- Support:
 - 106 Group
 - \circ 4RM+ULA
 - Citv of Saint Paul
- Indigenous Engagement Lead: Sam Olbekson, Full Circle Indigenous Planning + Design

Committee Meetings

The committees include partners, technical advisors, and community advisors.

Partners include Great River Passage Conservancy (GRPC), National Park Service (NPS), Mississippi Park Connection (MPC), Wilderness Inquiry, Saint Paul Parks and Recreation, and Your Boat Club.

Technical Advisory Committee (TAC) members include Capitol Region Watershed District, Minnesota Department of Natural Resources (DNR), United States Army Corps of Engineers (USACE), Saint Paul Public Works, Saint Paul Department of Planning and Economic Development, Saint Paul Parks and Recreation, NPS, US Forest Service, and the Minnesota Science Museum.

Community Advisory Committee (CAC) members include Highland District Council, Ford Road Federation, Prairie Island Indian Community, Nibi Walkers, CommonBond, Disability Hub of MN, Sibley Manor Apartments, US Forest Service, Capitol Region Watershed District, Wilderness Inquiry, YMCA mobile camps, and several Saint Paul residents and park users.

Partner Committee

Meeting 1

This meeting was held February 15, 2022, at the Kellogg Square Party Room. This meeting included meet-and-greets and discussions about the goals of the project from both a visitor and employee perspective. Site issues and opportunities were discussed.

Meeting 2

In May 2022, small Partner Committee meetings were held virtually with the project design team. On May 9, NPS and Mississippi Park Connection; on May 11, Saint Paul Parks and Recreation staff and Your Boat Club; and on May 12, Wilderness Inquiry. At these meetings, a general overview of the upcoming project schedule and project progress was shared. The preliminary three alternative schemes were presented. National Parks Service expressed concern over one alternative meeting the MRCCA height restrictions. The scheme was subsequently adjusted with the help of the Technical Committee to meet MRCAA Regulations.

Meeting 3

The next Partner Committee meeting was held virtually on June 6, 2022. This meeting highlighted the project partners followed by a presentation about the Dakota meaning of this place. Responses from Survey 2 were shared and a detailed overview of the revised three alternative schemes were presented.

Partners were provided opportunities to ask questions Committee on design progress and comment on the and discuss the three schemes. presentation materials.

Meeting 4

Meeting 5

The Technical Advisory Committee met again virtually An additional Partner Committee meeting took place on May 11, 2022. This meeting aimed to review the virtually on July 12, 2022. The partners were updated building program and introduce the committee to the on the new square footage totals after Wilderness design alternatives. Several organizations provided Inquiry decided not to have their headquarters on site. specific feedback following this meeting. The DNR representative stated they had concerns about Meeting 6 significant filling and excavation activity below the The next Partner Committee meeting took place ordinary high-water level of public waters. They also noted concerns about the sustainability of creating virtually on July 25, 2022. This meeting was scheduled an island in this area. Other concerns included to take place in advance of Community Meeting 3, to the possible height of a structure on the bluff and get feedback from the Partner Committee on the single floodplain management of the site. Recommendations design scheme. for future studies and environmental assessments Meeting 7 were made. Capitol Region Watershed District shared high-level feedback noting the lack of stormwater The next Partner Committee meeting took place management planning in the schematic designs along with concerns about frequent flooding in the project scheduled to take place in advance of Community area.

virtually on September 19, 2022. This meeting was Meeting 4, to get feedback from the Partner

Another Partner Committee meeting was held virtually on June 27, 2022. The purpose of this meeting was to review project goals. First, the design team presented possible visitor pathways when visiting the site. These included a visiting family, an elementary school trip, a high school trip, boat owners, marina neighborhood resident, and a local dog walker. The design team highlighted project goals which were refined to reflect feedback received. This included keeping buses and trucks as far away from the river as possible and ensuring the needs and priorities of the Indigenous community take priority. Other goals shared with partners included creating a more visible and welcoming entrance, creating safe pedestrian crossing, strengthening connection to the Sam Morgan Trail, providing public spaces to access the waterfront, and improving the ecology conditions.

Meeting 8

The next Partner Committee meeting took place virtually on October 3, 2022. This meeting was a preview of the material presented at the public meetina.

Technical Advisory Committee

Meeting

The first Technical Advisory Committee meeting took place on February 16, 2022, on site at the Two Rivers Overlook and Watergate Marina. Discussions about both site issues and opportunities took place while touring the project area. Topics included access, parking, public transit, site disturbance, sewer outlets, floodplain, and environmental concerns.

Meeting 2

Generally, the Technical Advisory Committee organizations advised on issues that needed to be considered as the project moved forward concerning environmental regulations for both water and land. Priorities included consideration of the floodplain. careful planning around native habitats, and ensuring compliance with regulations for building on the bluff.

Meeting 3

The Technical Advisory Committee held a meeting virtually on July 11, 2022. This meeting was scheduled to take place in advance of Community Meeting 3, in order to get feedback from the Technical Advisory Committee on the single design scheme.

Meeting 4

The Technical Advisory Committee held their final meeting on October 4, 2022.

Community Advisory Committee

Meeting 1

The first Community Advisory Committee (CAC) meeting took place on site and included tours of the Two Rivers Overlook and Watergate Marina area on February 15, 2022. Conversations focused on CAC representatives' questions, priorities, and concerns about the project. A major topic of concern was creating a space where BIPOC communities feel welcome. Accessibility was also discussed, specifically access via trails, transit access, access strategies for individuals with disabilities, and concerns about Shepard Road.

Meeting 2

The second CAC meeting took place virtually on April 12, 2022. This meeting updated the committee regarding what to expect over the next few months.

Much of the discussion revolved around community engagement thus far including approaches being used.

Meeting 3

The third CAC meeting was held virtually on June 7, 2022. At this meeting, the design team presented three alternative design schemes. The presentation was followed by a short question-and-answer session, and then the design team posed a question about what aspects of the design met, or did not meet, community values.

Responses included a desire to see specific ways that previous community feedback had been incorporated into the design schemes. Conversations occurred about balancing community desires and organizational needs of partners who will be River Learning Center tenants.

Meeting 4

The final CAC meeting took place virtually on August 5, 2022. The goal of this meeting was to share the single scheme with CAC members to solicit their feedback in preparation for the next community meeting.

CAC members shared valuable feedback including the appreciation of the entry concept at the bluff as an expression of something "specific and unique to this place" in order to "change how people connect with this place on the river." CAC members expressed that they felt like the design team had listened to feedback and adapted the design concepts, including acknowledging the historical significance of the area to create an inclusive environment.

Additional feedback stated that underrepresented groups needed to be represented and have a voice

as the project progresses, including consideration for accessibility in compliance with the Americans with Disabilities Act (ADA). Several committee members expressed concern about flooding in the area. The project team acknowledged this, and stated discussions and studies are continuing to be developed. Some comments referenced future design stages including questions about materials, programming, and building space access.

Surveys

Digital surveys were used during the early project stages. Each survey had a different intended audience though they gathered similar types of data. Links to the online surveys were posted on the project website. The goal of these surveys was to learn what the community wants and needs in this space. The third survey gathered community feedback on the three schemes presented.

Survey 1

Target Audience: committee members and stakeholders. Survey 1 was used to determine what the River Learning Center site means to committee members, what they would like to see in this space, and to identify other communities that should be engaged throughout the project. Overall, 22 committee members participated and most responded that they would like the River Learning Center site to provide the community with access to the Mississippi River through recreational equipment and gear rental alongside flexible spaces for programming. Transportation and access to the site were highlighted as a concern and a deterrent from visiting the area. Respondents also mentioned the importance of evaluating a feeling of safety among BIPOC community members visiting this space in the future.

Survey 2

Target Audience: general public and community members.

Survey 2 was a public survey with 543 respondents. The survey was offered in English, Spanish, Somali, Hmong, and Karen. All responses came through the English survey. Results showed that of those who took they survey, more than 80% had been to the site area previously, and they live less than ten miles away. More than half of survey respondents live within five miles of the site. The most commonly used words to describe the Mississippi River were: beautiful, powerful, peaceful, and nature.

When shown photos of possible activities at the river, most respondents preferred to find ways to touch the water or go canoeing or kavaking. Other common responses included looking for educational or recreational activities or using a lookout bridge. When gathering in the area, most respondents would choose to gather in a tree grove plaza or by the water. Preferred activities in the landscape included walking and strolling (91%), wetland and river access (73%), and exploring (71%).

At the top of the bluff, most respondents chose the image of an overlook and/or seeing interpretation of the history and culture of the area. Gardens and stormwater management were also prioritized. Desired amenities included restrooms and bike racks. Building design should utilize local materials, blend into the surroundings, and be responsive to the landscape. While on site, learning interests are broad and varied; they include desires to learn more about the Dakota landscape, the rivers, and habitats and ecology.

When asked what keeps visitors from the river now, the most often cited reasons included lack of access. distance, crime, and feeling unsafe in the area.

Demographic data was also gathered and is included Learning Center. in the appendix.

Survey 3

Target Audience: committee members, general public, and community members.

Survey 3 was publicized to committee members and the public. There were 411 responses. The goal of the survey was to formally gather feedback on the three design alternatives. Overall, Scheme #2 "The Path" was the favored design followed by Scheme #3 "The Destination."

Additional questions related to specific project features. The welcome plaza shown in Scheme 3 was the favored design for the top of the bluff accompanied by gardens, plants, lookouts/pavilions, and trees. A "New Entry" was favored for Crosby Road, but there was not consensus on how the road should be changed. The bluff walk and canopy walk from Schemes 2 and 3 were the preferred way to get to the river from the bluff. The Canopy Walk image was vastly preferred as walking and/ or biking structure inspiration. A building with a minimal footprint was preferred. Along the river edge, the majority of survey respondents expressed that they would like to see a new channel. People saw themselves using this space to hike, walk, and run. Many also saw this as a place where they and family members could learn and engage with nature. Biking was also an activity that many were looking to do in this space. Full survey results are in the appendix.

Community Meetings

Throughout the project, community meetings aimed to gather feedback from a broad range of community members regarding what they would like to see as a result of this project and how they might envision themselves using the future Mississippi River

Community Meeting 1

Community Meeting 1 was a public meeting held virtually on April 14, 2022. There were 103 attendees. This meeting included a brief design presentation and a question-and-answer session. Questions from attendees included gueries about what this space will eventually feature including balance of land use and experience, project parameters, design, and program elements. There were also comments on ensuring the Dakota perspective is shared in this space and throughout the project's development.

Community Meeting 2

Community Meeting 2 took place on site at Watergate Marina on June 9, 2022. It is estimated that more than 100 guests were in attendance. The meeting began with a one-hour presentation of the project progress so far followed by presentation of the three alternative designs. After the presentation, community members were invited outside to visit one of three tents featuring images of the design alternatives for further conversations and a fourth tent to discuss and learn more about the historic and ongoing Dakota presence in this space. About half of attendees left after the presentation; the remaining guests visited tents for discussions.

After this event, the project team reflected upon the demographics of the attendance to this meeting, which was primarily Caucasian and 50 years or older. This fact influenced decisions made for scheduling and hosting the next community meeting.

Community Meeting 3

Community Meeting 3 took place virtually on August 11, 2022. There were 212 registrants and 93 attendees. There was one Spanish language request,

and a Spanish interpreter was included for live design. After the presentation, event attendees were interpretation during the event. This meeting included invited to participate in conversations with the design a one-hour design presentation on the single design team or site tours. Invitations to the event included scheme and a one-hour question-and-answer an offer for requesting language interpretation and session. The average number of participants during accessibility accommodations; no requests were made. Snacks and refreshments were provided. the presentation was 70, and during the questionand-answer there was an average 47 participants.

The site tour options included a boat ride, a walking Questions from attendees focused on various tour, or a birding tour. Each tour lasted approximately hydrology topics including historical floodplain study 20 minutes. A total of 97 individuals registered for concerns and the sustainability and maintenance of one or more tour activities, and approximately 60 the two harbors and the channel. There were other attendees were able to participate in one or more comments and questions about sustainability relating tours. There were 44 unregistered attendees who to the canopy walk and mass transit accessibility signed in upon arriving at the event. Those who were to reduce carbon emissions and improve the water not interested or unable to join a tour were invited guality. Other guestions included gueries about to complete a self-guided walking tour of the site. winter activities, the pedestrian and bike paths, and The design team provided a map featuring images the café in the River Learning Center building. of design renderings marked at key locations. Event attendees were also able to meet and chat with Comments and feedback from the community various members of the design team to discuss were very positive. Attendees stated that they were the final schematic design, the Dakota perspective, "happy with the direction of the project" and they hydrology studies, and the community engagement were "pleased to see public comments were taken schedule. Though many attendees arrived in time for seriously and incorporated into the plan." the presentation, arrival and check-in was ongoing throughout the entirety of the event. For those who were unable to arrive for the 4:00 p.m. presentation, Community Meeting 4 a looped video was played inside the Watergate The final community meeting took place on-site at Marina so they could hear and see the same information.

Watergate Marine on October 6, 2022. About 120 individuals attended this celebration. The purpose of this event was to inform the community about the final schematic design, identify next steps in the project, and celebrate the completion of schematic design with on-site activities. The event began with remarks from the City of Saint Paul Parks Director. Andy Rodriguez; Councilmember Chris Tolbert; Representative Dave Pinto; and a video message from the Mayor of Saint Paul, Melvin Carter. The GRPC executive director, Mary deLaittre, shared welcoming remarks and Anne Gardner, City of Saint Paul project manager, introduced the design team The design team presented the final schematic

The general feedback at the event was positive and optimistic. Community members were excited about the possibilities of the design for this project and were enthusiastic about the future of the site.

Focused Outreach

Community Group and Stakeholder Meeting

An additional community group and stakeholder

meeting took place on February 16, 2022, to build on the Community Advisory Committee feedback from CAC Meeting 1. This group included Anthony Taylor from Melanin in Motion. Haile Tegegne, a member of the local Eritrean community, City of Saint Paul staff, and the project team. This group discussed their thoughts and experiences with the river as well as their concerns about the project. The discussion noted desires for using honest language in interpretation and programming, providing authentic engagement, creating economic opportunities for BIPOC businesses, and building spaces for cultural expression. This group also expressed concerns about accessibility.

Focus Groups

Outreach for six unique focus groups included: African American/Black, Hispanic/Latino, Somali, and Hmong cultures along with affinity groups for education: day camps and schools and recreation groups. The engagement team contacted approximately 130 individuals via email, phone call, or both. Ultimately, the team conducted two virtual focus groups, a Black and African American Focus Group (four attendees) and a Latinx Focus Group (three attendees).

A focus group was held on March 30, 2022, for African American and Black community members. There were four attendees. Group members shared that they think the geography of the area is beautiful, and they value the perspective of the city it provides. During the discussion, the group stated it is difficult to access the space. There is a lack of wayfinding, and the area does not feel welcoming, particularly to members of the BIPOC community.

A focus group was held for the Hispanic/Latinx community on May 3, 2022. This was a small but productive conversation that highlighted the desire for continued access for birding and simply spending

time in nature. Concerns included overbuilding of the natural spaces and taking away from animal habitats. Attendees stated that having a BIPOC centered space is important to attract folks from the BIPOC community.

Focused Outreach: Phalen Lake Event

As a focus group alternative, the Hmong community was engaged through tabling at Parent Teacher Conferences at Phalen Lake Elementary on March 24, 2022. This outreach engaged about 47 individuals, including children and adults, from about 20 families. Most individuals spoke both Hmong and English languages, and a Hmong interpreter was on site to assist with communication.

Adults primarily had conversations noting they would like to see amenities to make the place feel safer. They placed value on including shelter, lights, restrooms, trash cans, and signage in the design. Water and fishing access were other desired features along with informal spaces to gather and/ or play. Families communicated that they would be looking for an escape from the city where they can be immersed in nature but also learn about the Indigenous history, land, and people, Activation of the space could include programming and field trips, tours, rental equipment, and food vendors. Children primarily added dots to board images, which can be seen in the appendix. The post popular images included educational and recreational programming, restrooms, places to picnic or fish, and a boardwalk.

Focused Outreach: Sibley Manor Event

On June 17, 2022, a focused outreach event connected with members of the Somali and East African cultural communities near the project area This event occurred at Sibley Manor Apartments, which is about one mile from the River Learning

Center site. This event engaged about 45 individuals: about 25 children and 20 adults. The project engagement team at the event included Spanish, Oromo, and Somali interpreters. According to the Oromo interpreter, the most heard language was Amharic, which she was able to interpret as well. Five or six individuals communicated through the Oromo interpreter. Participants tended to engage in groups of one or two but not as family groups.

Both adults and children held conversations and contributed dots to image boards. Conversations Focused Outreach: Highland Park Library and highlighted desires for a place to access and go in the Community Center water, specifically places that are family friendly and safe for kids. The nature of the area and the ability To raise additional awareness about the project, a to escape from the city was valued by many. For board showing the preferred design was posted near experiences and activation, ideas included playing in the entrance of the Highland Park Library from July 7 the water, having food/picnics in the park, opportunities through July 22, 2022. This board directed visitors to the to canoe or ride in boats, and having a place to go project website to increase awareness about the River fishing. Dot responses, which can be seen in the Learning Center, which is near the community center. appendix, showed preferences for a place to recreate The posted board presented two questions for with family or picnic with friends, canoeing or kayaking community members to answer: "Have you heard opportunities, biking trails, a place to have a campfire, of the River Learning Center?" and "Have you been and general exploration opportunities. to Watergate Marina, Crosby Farm, or Hidden Falls Park?" There was a total of 129 tally marks. Most Alternatives 2 and 3 were the preferred design people had not heard of the Mississippi River Learning concepts. One individual noted that having buildings Center project, but they had been to the project area. both at the top and bottom would be helpful and how A written comment stated, "No access, has a private the building at the top could help alert individuals to owner," which confirmed previously heard community the project site and serve those on Shepard Road, feedback that the area currently feels unwelcoming and how a building down into the park area would be and inaccessible to community members.

an ideal place to sit and eat or rent equipment (like a Paddle Share). Access to the space was a part of several conversations as was the ultimate timeline for this project to be completed.

Focused Outreach: African Global Roots

On June 24, 2022, a project team member attended this event for businesses and artists that had about 50 attendees. Of those attendees, about 12 engaged

with the project display through conversation and adding dots to board images. Those who engaged communicated a desire for opportunities to explore more natural areas and activities for children. Comfort and safety were a priority that could be supported through signage and restroom facilities. Participants suggested social events such as campfires, picnics, and paddling, and noted that opportunities for art and opportunities for immigrant groups would be valued at the River Learning Center.

Indigenous Outreach

Bringing Indigenous, especially Dakota, voices to the planning process was central to the community engagement approach. The consultant team sought to engage Indigenous elders, educators, and leaders, including the Tribal Historic Preservation Officers from the four Minnesota Dakota tribes. Throughout the project process, outreach engagements included

Indigenous voices to gain the perspective and insight of many Dakota people living in the Twin Cities, in greater Minnesota, and outside of Minnesota. These conversations also included other Indigenous people connected to the site.

Indigenous engagement activities included onsite discussions, online meetings, and other direct one-on-one conversations. Engagement conversations began with high-level discussions about the meaning of Bdote and the river landscape to Indigenous communities, both historically and today. Conversations often considered the relationship between multiple Dakota cultural sites along the Mississippi River. Additional conversations included observations and evaluations of the existing conditions of the site, culturally relevant features, site amenities, landscape, vegetation, and existing built structures. Based on these conversations, the consultant team noted site design considerations that would align with respectful use, preservation, and enhancement of both the Indigenous and non-Indigenous visitor experience of the site.

Key takeaways: Go beyond sustainability, be regenerative and restorative. Portray the authentic history of the area, good and bad. This is not a single location, but part of a connected system of natural and cultural areas. Everything is related, Restore lost connections. Make sure Native people share the opportunities created by this project: cultural, economic, and access.

Additional Feedback

Additional feedback was provided by various community organizations during the project duration, including comments from:

- Department of Natural Resources (DNR) on May 24
- Various public comments received via email on

June 10

- Friends of the Mississippi River (FMR) on June
 14
- Capitol Region Watershed District (CRWD) on June 14
- Saint Paul Department of Planning and Economic Development on July 7
- FMR, MPC, and Wilderness Inquiry Fellows on July 8

Key Takeaways

- Site development should keep the space as natural as possible.
- Community members are interested in using this space for hiking, walking, birding, and enjoying time with family members in a quiet and peaceful setting.
- All people need to feel welcomed in this space and feel welcomed to engage in programming in the area, including BIPOC community members and people with disabilities.
- Site development should ensure that the Indigenous meaning in this space, both past and present, is respected and protected.
- Partners and stakeholders need appropriate spaces for new and continued programs featuring the Mississippi River and surrounding natural areas.
- The community has concerns about year-round maintenance, the flood plain, environmental compliance, and accessibility throughout the year, but they are hopeful that what the design team has presented will address these concerns.

8.3 Public Survey #1



1. Have you ever been to this site?

Yes – 453 (83.70%) No – 88 (16.30%)

2. How far do you live from the River Learning Center site?

 $\frac{1}{2}$ - 1 mile - 52 (9.63%) 1 - 5 miles - 274 (50.74%) 5 – 10 miles – 121 (22.41%)



1. Have you ever been to this site?

Less than $\frac{1}{2}$ mile – 16 (2.96%) More than 10 miles -77 (14.26%)

3. Describe the River in three words.

Water is life. Full of life. Mother of everything. Taken for granted. Needs less colonization. Land back zone. Abused, neglected lady. The Great Connector. Minnesota's underappreciated gem. Keep it natural. A great place. Part of me. Best hidden destination. America's great river. Source of life. Perfect place. Please don't build an office building. Father of Waters Everyone free access. My drinking water, Needs our help!

2. How far do you live from the River Learning Center site?

4. What would you like to do at the River?











5 Canoeing / Kayaking

2 Touch the Wate









7 Ice Fishing

Visual Survey:

WHAT WOULD YOU LIKE TO DO AT THE RIVER?

- 1. Lookout Bridge 303 (59.18%) 2. Touch the Water – 358 (69.92%) 3. Beach -232 (45.31%)
- 4. Cultural Events/Ceremonies 282 (55.08%)
- 5. Canoeing/Kayaking 346 (67.58%)
- 6. Educational/Recreational 330 (64.45%)
- 7. Ice Fishing 49 (9.57%)
- 8. Boat Launch & Storage 109 (21.29%)
- 9. Pontoon Boating 85 (16.60%)
- Other 202 comments



4. What would you like to do at the River?

- Cultural blending site/Indigenous architecture
- Center around Indigenous perspectives/events/histories/voices
- Teach/Learn about Native ways to care for the land, water, plants, and animals
- Minimally disruptive river interactions
- Natural beaches
- Keep it natural/No need for built infrastructure
- Nature walks

- Fishing

- Harvest plants and mollusks

- Water festivities downtown fireworks, competitive events, entertainment, art & culture festivals
- Patio space/Garden space
- Café/Indoor space
- Off-leash dog areas/No dogs



- Experience wildlife/Experience nature
- Quiet space/Meditative space; Solitude
- Escape the city/Minimal concrete and manmade structures & human impact
- Photography of animals and nature
- Healing/celebration ceremonies
- Cross country skiing, dog sledding
- Year-round access & activities
- Enjoy the marina/Boating/Power boating/Give boating tours
- No boating/no motorized boating
- Maintained paths/biking, hiking & running trails
- Education: Twin Cities history, Native American history, environment, ecosystem, river/plants (herbs and uses), Bdote history & heritage
- "Bonfires. Picnics. Outdoor cooking. Hammocking. Open water Fishing. Hiking. Mountain biking. Musical jam sessions. Road biking. Bird watching. Obstacle courses. Weight lifting using natural objects for things like doing pull ups or shoulder dips. Photography classes. Taking naps. Yoga. Meditation. Forest bathing. Cross country skiing. Snowshoeing."

- Places for children to play safely
- Maintain sacred space
- Community Art, Art Classes
- River water safety/Pollution warnings
- Guided tours & Educational programming
- Rowing shell/public paddle boards
- Kayak rental/storage lockers
- Bird observation
- BIPOC specific programming and spaces
- Maintenance/clean of litter
- Picnic spaces/Spaces for families to gather
- Shops & Restaurants
- Habitat restoration/education

5. How do you want to gather here?











4 Tree Grove Plaza



5 Picnic Area



Visual Survey:

HOW DO YOU WANT TO GATHER HERE?

- 1. Welcome Plaza 196 (38.21%)
- 2. By the Water 321 (62.57%)
- 3. Outdoor Amphitheater 215 (41.91%)
- 4. Tree Grove Plaza 327 (63.74%)
- 5. Picnic Area 232 (45.22%)
- 6. Outdoor Classroom 264 (51.46%)
- 7. Shade Pavilion 226 (44.05%)
- 8. Indoor Gathering Space 192 (37.43%)
- 9. Festivals 136 (26.51%)
- Other 118 comments



- Blend with environment; low development; minimal human sound and light

- Do not commercialize it
- Remove invasive species
- Spaces where nature is prioritized over humans

- A safe and quiet space
- inclusive and inviting."

- Exhibits/interpretation, programming tours

- from others."
- human presence.
- 3-season outdoor shelter, protected from elements; ways to enjoy during winter
- Indoor spaces with large windows for winter; accessible winter spaces

5. How do you want to gather here?

- Dedicated space for Native Indigenous cultural and spiritual gatherings.
- Less hardscape; less concrete, more nature
- Keep it wild, natural and undeveloped, do not cut down trees/do not damage the habitat
- No need to gather here; this place is for peace and quiet not classes and concerts
- Nothing that brings large crowds, crowd management is important
- Scattered spaces without large crowds; sites should flow together but be separate
- "Let nature be the guide and be the main focus. Not building structures, which aren't
- Small clearings for separated picnic areas gather, eat, throw away trash, and use restroom
- Gathering spaces that fit into the landscape
- Open sheltered space for circle dance/song circle
- Room/space for ceremony and meditation
- "Is the outdoor classroom specifically for K-12 groups? How will it be used in the summer? Will public school districts be left out? Why an indoor gathering space? Who are these spaces for? Will all groups be welcome and feel welcome?"
- "Festivals? Are you kidding? If you want to go to a festival, pick one of the dozen other festival locations, i.e., giant open fields, you can go to in the Twin Cities."
- "I don't want to gather with others. I want peace and simplicity and a place to get away
- Water access points should ensure that the river is not negatively affected by increased

- Fire pit at the marina
- Patio by the water
- Restaurant
- Walking paths next to the water
- Rowing regattas
- Marina docks
- Marina fire pit
- Don't need a Shade Pavilion. Use trees.
- No festivals.
- Group camping
- Off leash dog area
- Playground area
- Horseback riding stables/trails
- Creative and cultural programming

6. What would you like to do in the landscape?

2 Biking



Walking/Strollin











7 Educational/Recreational Programs

Visual Survey:

WHAT WOULD YOU LIKE TO DO IN THE LANDSCAPE?

8 Nature Play

- 1. Walking/Strolling 473 (91.67%)
- 2. Biking 299 (57.95%)
- 3. Forest Canopy Walk 332 (64.34%)
- 4. Fat Tire Biking 68 (13.18%)
- 5. Outdoor Exercise 207 (40.12%)
- 6. Snowshoeing 221 (42.83%)
- 7. Educational/Recreational Programs 316 (61.24%)
- 8. Nature Play 231 (44.77%)
- 9. Exploration 367 (71.12%)
- Other 116 Comments



- Native Indigenous games area
- Cultural Ceremony on Sunday mornings
- Space for healing
- Cross Country skiing
- No fat tire biking; Fat tire biking is too destructive
- surroundings.
- Protect nature

- Ziplining

- A place for adults only
- Coffee or food, cafe
- Dog walking
- playground.
- Gather wild foods and restore ecological functionality
- Meditation/spiritual practice, prayer and reflection
- Quite space
- Exercise: yoga, running clubs, biking clubs, tai chi, low impact sports, rowing, hiking, cliff climbing, kayak, canoe





9 Exploration

6. What would you like to do in the landscape?

- Spring, Summer, Fall, Winter seasonal games and activities
- Minimize the amount of concrete and manmade structures. The beauty is in the natural
- Minimalist structures; No need for building at all.
- Ways to explore that are not intrusive, low impact exploration
- Playgrounds/exercise spaces should not destroy nature
- Observing: Birdwatching, wildlife viewing, nature photography
- Extra vote for forest canopy walk; Tree canopy sounds cool; I love forest canopy walk.
- Nature play/Fort building for kids; Nature play and explore also good. Please no ordinary
- Learning: plant medicine classes, foraging, book clubs, BIPOC programming, cooking over bonfires, preservation, interpretive hikes/boat rides, night programming, attend talks from professors/rangers, Dakota culture

- Hiking on natural paths (not paved)
- Separate trails for walking/biking
- Creative projects/spaces/installations
- Enjoy visiting with fellow slip holders on the docks where our boats are
- Access for average citizens

7. What else would you like to do in the landscape?



Visual Survey:

WHAT ELSE WOULD YOU LIKE TO DO IN THE LANDSCAPE?

- 1. Picnicking 286 (55.64%)
- 2. Meadow Field 308 (59.92%)
- 3. Boardwalk 338 (65.76%)
- 4. Art Installation 161 (31.32%)
- 5. Fire Pit/Ring 219 (42.61%)
- 6. Overlook 289 (56.23%)
- 7. Wetland/River Access 376 (73.15%)
- 8. Bird Watching 320 (62.26%)
- 9. Community Garden 129 (25.10%)
- Other -72 comments



- Honor the Native community
- Dakota Teachings, learn about Bdote
- Less is more; nature is enough
- Keep it wild
- Least obtrusive, minimalize infrastructure

- Desire for peace and quiet
- Respect the flood plain
- Gathering spaces
- Permitted fire rings only; No fire pits; Fire pits are essential
- Year-round restrooms
- Indoor overlook

- Off leash dog area
- Consider bussing/transit access
- How would a community garden work? Not a good space for a community garden
- Foraging plants mushrooming, wild herb gathering, sustainable medical and food plants

7. What else would you like to do in the landscape?

- "These changes should be made only after free, prior and informed consent and project leadership of the tribes whose ancestral lands these changes would impact."
- Naturalist/Live guides on staff for learning
- No art installation. Trees are art. Leave art to nature
- Should not hurt wildlife and prevents people from trampling
- Restore habitat, leave large areas wild
- Get close to the water, learn about the watershed/river system
- Walk in the woods, self-guided forest tour, forest interpretation
- Separation of quiet and louder areas
- "This is a significant flyway...emphasize bird watching..."

8. What do you want to see at the top of the bluff?





Visitor Center / Welcome Plaza









4 Overlook





7 Pavilion

Visual Survey:

WHAT DO YOU WANT TO SEE AT THE TOP OF THE BLUFF?

- 1. Wayfinding Signage / Orientation 243 (47.09%)
- 2. Visitor Center / Welcome Plaza 208 (40.31%)
- 3. Café 156 (30.23%)
- 4. Overlook 356 (68.99%)
- 5. Interpretive History / Culture 327 (63.37%)
- 6. Highlighted Entry 119 (23.06%)
- 7. Pavilion 126 (24.42%)
- 8. Ground Mural / Site Map 192 (37.21%)
- 9. Gardens Stormwater Management 308 (59.69%)
- Other -73 comments



- Keep it simple, blend in, minimalist, less is more
- Less concrete, more nature

- Low profile
- Overlook only, visitor center should be at the river

- Bathrooms and site map
- Kids activities/playground
- Eagle viewing, sunlit deck

- Parking is an issue
- Garbage/recycling bins
- Ziplining

8. What do you want to see at the top of the bluff?

- Tribes should be part of the leadership of this decision
- Leave it alone, nothing but trees and plants; keep it wild
- No buildings; no interference with Flyway
- Leave the trails at the top of the bluff
- Welcome center at the top of the bluff would be more in harmony with nature
- NPS presence is appropriate near the top of the bluff but not an overwhelming presence
- Gathering space; indoor seating
- Signage/Orientation in all major languages
- Transit connection: bike rentals
- Historical information, importance of the site
- Orientation to Indigenous peoples, plant-animal relatives, and caretakers
- Education on stormwater management, geology interpretation
- Digital technology instead of physical signage
- Pollinator gardens with native plants
- How would the ground mural site map be accessed in winter?
- "Emphasize the Dakota heritage, the Urban Wilderness, the full expanse of the Mississippi and the wildlife it supports - and the role of this particular segment of it."

9. What amenities would you like to see?

2 Picnic Pavilion 4 Praver/Meditation Space 5 Cafe 6 Solar WiFi







Fire Pit Visual Survey

WHAT AMENITIES WOULD YOU LIKE TO SEE?

- 1. Bike Racks 357 (69.46%)
- 2. Picnic Pavilion 265 (51.56%)
- 3. Restroom 441 (85.80%)
- 4. Prayer / Meditation space 167 (32.49%)
- 5. Café 193 (37.55%)
- 6. Solar wifi 121 (23.54%)
- 7. Fire Pit 219 (42.61%)
- 8. Fishing Pier 178 (34.63%)
- 9. Kayak Launch / Boat Storage 241 (46.89%)
- Other 73 comments



- Bookstore
- Open spaces
- No café or food vendors
- No boat storage/launch/fishing
- No fire pits
- No need for wifi

- Indoor seating

- Water fountains
- Fishing piers/dock
- Better parking options
- Native plant installations

9. What amenities would you like to see?

- No need for built space for prayer that is done by the water; a few scattered benches is fine
- Combination solar, wind, and water power generation, to be replicated up and down stream
- Soft lighting (reduce light pollution)
- Eastside version of the Landscape Arboretum
- Boat rentals, bike rental, snowshoe rental, fishing shop
- Emphasis on human powered activity
- BIPOC friendly environment and businesses
- Keeping the natural/wild character of the area; minimal man-made elements
- Kayak launch (but without the boat storage)
- "I want places I can be alone with the river-- away from the city life. Where I can hear the water lapping at the shore; feel the cool water and sand on my feet; see deer and foxes; or watch the birds soaring freely on the breeze."

- Quiet hiking trails; Separate hiking and biking trails
- Ability to take a guided, narrated tour out on the river.
- More places to gather
- Double support for prayer meditation space
- Dakota art and gathering space
- Rowing facilities
- Trash cans/bins
- Maps and signage
- Boat slips
- Playground space for kids
- Forest bathing space

10. Which building(s) do you think are inviting?





2 Campus-like



1 Responsive to landscape







4 Built In



6 Maximizing views

Communal



Visual Survey:

WHICH BUILDING(S) DO YOU THINK ARE INVITING?

- 1. Responsive to Landscape 342 (66.80%)
- 2. Campus-like 34 (6.64%)
- 3. Communal 164 (32.03%)
- 4. Built In 198 (38.67%)
- 5. Elevated 73 (14.26%)
- 6. Maximizing Views 192 (37.50%)
- 7. Local Materials 354 (69.14%)
- 8. Blended In 326 (63.67%)
- 9. Vertical Beacon 35 (6.84%)
- Other 66 comments



- No buildings
- Carbon Neutral; Green building standards
- Native Indigenous architecture
- Less concrete, more nature

- Simple, economical, easy to clean

- "Vertical Beacon nearly makes me cry"
- Honor & respect sacred nature of this area for Native peoples

10. Which building(s) do you think are inviting?

- Keeping the natural/wild character of the area
- Least damage; least possible impact
- Use bird safe and environmentally friendly materials
- Light on the land, blend with the landscape
- Porta-potties/publicly available and open restrooms
- Must be inviting to BIPOC/Indigenous groups
- Like the descriptors but not the images
- Connects to the river, the land, the history & welcomes everyone in
- What does responsive to landscape actually mean?
- Are these buildings open to the public?

11. What would you like to learn about the site?



9 Mississippi Flyway

7 Programs Visual Survey:

WHAT WOULD YOU LIKE TO LEARN ABOUT THE SITE?

8 Habitats / Ecology

- 1. The Dakota Landscape 431 (83.85%)
- 2. The Caves 384 (74.71%)
- 3. The Bluffs 350 (68.09%)
- 4. The Forest 368 (71.60%)
- 5. The Rivers 430 (83.66%)
- 6. Past Histories 397 (77.24%)
- 7. Programs 218 (42.41%)
- 8. Habitats / Ecology 413 (80.35%)
- 9. Mississippi Flyway 368 (71.60%)
- Other -65 comments



- Medicinal and food plants, foraging, and stewarding the plant populations

- Places to view highlights from trail cams and underwater cams to see animals

- Indigenous perspectives on past, continued, and current presence
- Ecological education/Climate Change effects/Conservation/Green energies
- Invasive species vs. native plants

- New river amenities
- The river's place within state and regional contexts

- Information should be public availability

11. What would you like to learn about the site?

- Native Indigenous ways to care for water, land, plants, and animals
- The history and beauty of the land; nature
- Mississippi Flyway/Bird ecology
- Dakota/Indigenous Language learning (also represented in signage)
- More opportunities to learn and engage people's interests, in general
- Something where you can flip/scroll through pictures of the same spot at different times of the year/how things look in seasons other than the one you're visiting during
- Interactive and experiential learning: canoe lessons/building, boating lessons, etc.
- Energy, pollution, and preservation education
- Protecting the environment and the river
- Public art involvement; contemporary art and activism about the Mississippi
- Upkeep and maintenance (avoiding pollution)
- Japanese American History in the region; other minority history and perspectives
- Minimalist intervention/No buildings
- Increase the involvement of Native peoples
- How humans have changed the river
- Importance of the River as a transportation link in our economy.

12. What (if anything) keeps you from the River now?

396 responses:

- Nothing; leave the river alone
- Work/Classes/Other obligations/General distractions
- Crime/Feeling unsafe/car vandalism/being attacked/lack of surveillance/too many homeless people
- No connection from the river to the city
- Transit commitment/distance & parking
- Lack of access/traffic/Shepard Rd is too busy/access unsafe or unclear
- Lack of trails/trails need to be repaired
- Bike entry is too difficult/paths too narrow
- Lack of boat access & boat storage/lack of access from the water
- Lack of perceived necessary equipment
- Too many boats/boats are not publicly available
- Lack of affordable/free/public activities
- Too crowded/Too many people
- Water is threatening/polluted/too deep
- Garbage
- Mud
- Bugs
- Weather
- No bathrooms
- No food
- Wheelchair accessibility
- Lack of seating
- Not BIPOC/LGBTQ+ friendly
- Feels too private; Marina is intimidating
- Poor signage
- COVID
- Other parks are closer
- Off leash dogs/bikes/path traffic is a deterrent

Hmong -7 (1.62%) Other – 22 Comments

1 - Multiracial 1 - Swede

6 - Human 2 – Saami

2 - Immigrant

Note: not race/ethnicity but I am LGBTQ identified Dakotah. Sisseton-Wahpeton Dakotah Oyate (added to American Indian)

13. (Optional) Which race(s) or ethnicity do you identify with?

Black or African American – 24 (5.54%) Hispanic or Latino -14 (3.23%) Asian or Asian American -27 (6.24%) American Indian or Alaska Native – 24 (5.54%) Native Hawaiian or other Pacific Islander -2 (0.46%) White or Caucasian -350 (80.83%) Somali or East African -1 (0.23%)

14. (Optional) Which age range describes you?

Under 18 - 3 (0.67%)18-24 - 10 (2.23%)25-34 - 87 (19.38%) 35-44 - 108 (24.05%) 45-54 - 83 (18.49%) 55-64 - 68 (15.14%) 65+ - 90 (20.04%)

 $1-5^{\text{th}}$ gen St. Paul Resident

13. (Optional) Which race(s) or ethnicity do you identify with?



14. (Optional) Which age range describes you?



15. (Optional) Which descriptor(s) below identify your relationship with this site?

Current Park Visitor – 339 (74.34%) Neighbor – 190 (41.67%) Staff – 7 (1.54%) Relative – 22 (4.82%) Future Park Visitor – 142 (31.14%) Boater – 76 (16.67%)

15. (Optional) Which descriptor(s) below identify you relationship with the site?





8.4 Public Survey #2

1. What is your favorite scheme?

Answered: 381 Skipped: 30 Scheme #2 The Path – 173 (45.41%) Scheme #3 The Destination – 140 (36.75%) Scheme #1 The Bridge – 68 (17.85%)



#1: The Bridge

Summary:

- Most <u>direct connection</u> down to the River (elevator, stairs)
- Offers views onto the River & Pike Island
- All bus drop off and parking at river level
- More space between marina & bluff
- Reconfigured Marina



#2: The Path - Bluff to Floodplain

Summary:

- <u>A welcome center</u> at the top of the bluff with NPS offices, parking and bus drop off
- Universal access down to the River Learning Center (elevated walk) with rooftop public space
- Minimized impact at the river level
- <u>Island</u> for contemplation or exploration
- Marina remains at current size



#3: The Destination

Summary:

- Landscape experience knits the site together unfolding the landscape
- Sharable spaces all in one building collaborative environment at the river
- All bus drop off and parking at river level
- Island for contemplation or exploration
- Smaller marina

and welcoming?

Answered: 382 Skipped: 29



#1: The Bridge

elevator with staircase.

2. At the top of the bluff, which site entrance do you see as the most visible and welcoming?

#1 Entry plaza & elevator

#2 Welcom center buildin

> #3 Welcome plaza w/.

1. What is your favorite scheme?

Answered: 381 Skipped: 30



2. At the top of the bluff, which site entrance do you see as the most visible

#3 Welcome Plaza w/ pavilions – 196 (51.31%) #2 Welcome center building -139(36.39%)#1 Entry Plaza & elevator – 47 (12.30%)

#2: The Path - Bluff to Floodplain

A small entry plaza off the Sam Morgan Trail, connected to a sky bridge/observation deck and A welcome center with public restrooms and other amenities, both for park visitors as well as community members.



#3: The Destination

A welcome plaza with trees and shade pavilions off the Sam Morgan Trail.



3. Which of the following do you like as inspiration(s) for the welcoming entrance at the top of the bluff?

Answered: 390 Skipped: 21 Garden: Plants + Signs + Lookout - 157 (40.26%) Entry Plaza: Pavilions + Trees – 156 (40%) Entry Plaza: Kiosks + Restrooms – 101 (25.90%) Welcome Center: Community space – 91 (23.33%) Bridge to Vertical Access – 72 (18.46%)



#1: Bridge to Vertical Access



#2: Welcome Center: Community space + Restroom:



#3: Entry Plaza: Kiosks + Restrooms



#4: Entry Plaza: Shade Pavilions + Trees



#5: Garden: Planting + Signage + Lookout

Answered: 373

Skipped: 38



#1: The Bridge

Keeping it the way it is: Two-way traffic on Crosby Farm Rd, with two entrances and exits, main one with existing traffic light at Gannon Rd, and another at Davern St. All parking at river level.

#1 Keeping the

#2 New entry & one-way road

#3 New entry 8 gate turnaround

3. Which of the following do you like as inspiration(s) for the welcoming entrance at the top of the bluff?



4. If you arrive by car, which changes to Crosby Farm Road between Gannon Road and Davern Street do you like the most? The drive down to the park would remain as is (two-way).

Mixed results – majority (56%) prefer New Entry but do not agree on changes (gate turnaround vs. oneway road) while 42% prefer to keep it the way it is.

#1 Keeping the way it is -160 (42.90%) #3 New entry & gate turnaround -120(32.17%)#2 New entry & one-way road – 93 (24.93%)



#2: The Path - Bluff to Floodplain

A dedicated & signalized entrance off Davern St and an exit at Gannon Rd. Narrow Crosby Farm Rd at top of bluff to one-way traffic for drop offs and pedestrian space. This keeps some of the traffic out of the river level.



#3: The Destination

A dedicated & signalized entrance and exit off Davern St. Shorten Crosby Farm Rd at top of bluff to a bus turnaround and limited parking. Most parking at river level.

4. If you arrive by car, which changes to Crosby Farm Road between Gannon road and Davern Street do you like the most? The drive down to the park would remain as is (twowav)



5. How would you like to walk/bike down to the river from the bluff?

Answered: 383 Skipped: 28 #3 Bluff walk to the river trail – 179 (46.74%) #2 Canopy walk onto a roof garden – 162 (42.30%)

#1 Sky bridge & elevator – 42 (10.97%)



#1: The Bridge

Access the site from the Sam Morgan Trail via a pedestrian sky bridge and an elevator/staircase that takes you directly from the top to bottom of the bluff, where the River Learning Center is located.



#2: The Path - Bluff to Floodplain

Arrive at a welcome center at the top of the bluff. Walk down an elevated walk and land on the rooftop garden of the River Learning Center, where you can access the park through ramps on the exterior, or elevator inside the Center.



#3: The Destination

Arrive at a welcome plaza at the top of the bluff. Walk down an elevated walk and land on the Falls to Farm Trail, which leads you through the forest to the River Learning Center and Marina.

6. Which walking/biking structure do you like as inspiration(s) for this project?

Answered: 386 Skipped: 25 Canopy Walk - 273 (70.73%) Sky Bridge – 112 (29.02%) Elevated Walk - 93 (24.09%) Elevator and Stairs - 53 (13.73%)



5. How would you like to walk/bike down to the river from the bluff?

Sky Bridge

Elevator and

Elevated Walk

Canopy Walk

Stairs



#1: Elevator and Stairs



#2: Stairs and Ramps



#3: Elevated Wall



#4: Canopy Walk



#5: Sky Bridge

6. Which walking/biking structure do you like as inspiration(s) for this project?



7. Which type of building configuration do you like the most?

Answered: 392 Skipped: 19 #1 Minimized footprint – 157 (40.05%) #2 Buildings at top & bottom – 123 (31.38%) #3 One building at the river -112 (28.57%)

for this project?

Answered: 382 Skipped: 29



#1: The Bridge

Compact building layout in a cluster, with direct connection between the bluff & the River.

#2: The Path - Bluff to Floodplain

Having a welcoming anchor at the top of bluff in addition to the River Learning Center by the River. Everything located at the river level, with public amenities and services all in one building.

#3: The Destination

Image 3 – 152 (39.79%)

Image 2 – 121 (31.68%)

7. Which type of building configuration do you like the most?



Image 4 – 74 (19.11%)

Image 1 – 36 (9.42%)

8. Which building(s) do you like as inspiration(s)



8. Which building (s) do you like as inspiration(s) for this project?



Answered: 382 Skipped: 29

9. Which river edge do you like the most?

Answered: 391 Skipped: 20 #3 New channel w/ smaller marina – 154 (39.39%) #2 New channel w/ existing marina -123 (31.46%) #1 Short inlets w/ more park space -114 (29.16%)



#1: The Bridge

Shorter and wider inlets to free up more park space between the bluff and the River. Dedicate the smaller inlet for human-powered boats.



#2: The Path - Bluff to Floodplain

Restore the floodplain landscape by connecting the two man-made inlets with a channel. The channel and island offer safer and easier access to the River.



#3: The Destination

Restore the floodplain landscape by connecting the two man-made inlets with a channel. Reduce Marina size to free up more park space between the bluff and the River.

Canoeing Learn more about the na Walking/Hiking/Runnir Biking Separate bike/hike trails Good experiences Engagement/learning for Bring guests/visitors Meeting park rangers/se employment Learning/educational pr Picnicking Classes Community events Access for all mobility Family events River access Fishing Snow activities (snow s Historical education Indigenous cultural edu Geological history Wildlife information and





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10. How do you see yourself using the River Learning Center site? What kind(s) of experience do you hope to have?

	Canopy walkway
atural landscape	Rehabilitation of the river bluff and plain
ng	Preference for the natural setting
	Kayaking
5	Connecting to nature
	Better marina accommodations
or children	Public marina access
	Private marina access
eeking park related	Birding
	Space for Dakota spiritual use
rograms/lectures	BIPOC owned and operated vendors
	Interactive experience
	Bathrooms
	Park Info
levels	Safety
	Quiet
	Pollution concerns
	Flooding concerns
hoeing, skiing)	Aquatic approach
	Dog walking, dog friendly
cation	Boat rental
	Paddle boarding
ld sighting	Public events

11. Any additional ideas, features, or experiences you would like to see at the River Learning Center site?

Overnight camping for canoers	Da
Data about the river to understand floodplain	Pu
Small footprint development	М
Leave park as is	O
Less development plans	W
Restrooms	
Benches	Hı
Picnic tables	Hi
Paved paths	De
Signage	Bi
Trash receptacles	Er
Graffiti removal	De
Camping	na
Focus on accessibility and safety (limited	Са
mobility, BIPOC, women)	М
Bird focused programming	М
Community garden	Fc
All ages enjoyability	Sh
Promotion of conservation	O
Nature exploration	Sp
Minimal disruption to land	Ec
Boating/boating rentals for all people	Pe
Address flooding issues	In
Deliberate plans for upkeep of both anticipated	Re
structures and the landscape in this area	Re
Coffee shop/cafe/bistro/restaurant/brewery/food	Pu
No development/not interested in these	Re
ideas/skeptical to unenthused	Er
Repair existing bluff walk	an
Engage all residents	pr
Minimize the marina, maximize/promote non-	In
motorized boating	

Dakota Interpretation ublic art installations linimize additional vehicle traffic Outdoor fire pits inter activities lative wildflowers Imong cultural education istory programming Dog/pet friendly designs like trails ingagement of ages 8-80 Downloadable nature apps for identification of atural life anoe storage and boat storage Iore Parking Iusic ocus on marina renovation hared exhibits with other nature facilities Outdoor learning pace for contemplation/meditation ducational tours eaceful spaces digenous businesses Restore Indigenous names ental facilities ublic, private, and community events emove the marina Emphasize this as Indigenous peoples' space nd educate on their use both in the past and resent. nteractive historical and natural exhibits

12. How did you first learn about the alternative schemes for the River Learning Center?

Answered: 391 Skipped: 20

Other -165 (42.20%) I learned about them in the survey -126 (32.23%)I watched the presentation on the **project website** -107 (27.37%)I attended the Community Meeting on June $9^{th} - 38 (9.72\%)$

Others: 79 Newspaper 18 Family/Friend word of mouth 12 Email updates/Project website 12 Facebook Friends of Pool 2 Group) 5 Twitter 4 St. Paul Parks email/updates 4 On a committee 3 Condo newsletter/posting 3 Mississippi Park Connection 3 St Paul Yacht Club presentation 2 NPS Employee 2 Signs by Crosby Farm 1 City Council Presentation

Other comments: of the plans submitted here.

(Pioneer Press, Villager, Star Tribune, TwinCities.com, Bring Me The News) 15 Current user of area/Active in community

(Capitol Region Watershed District, Highland Villager, St Paul Parks and Rec, Bike Trails Group,

I support the objections expressed by the Friends of the Mississippi and withhold my approval from any



13. (Optional) Which race (s) or ethnicity do you identify with?

Answered: 362 Skipped: 49 White or Caucasian -325 (89.78%) Other -16(4.42%)American Indian or Alaska Native – 10 (2.76%) Hispanic or Latino -9 (2.49%) Black or African American – 8 (2.21%) Asian or Asian American -8 (2.21%) Native Hawaiian or other Pacific Islander -1 (0.28%)







Other: Norwegian American American American Middle Eastern Jewish Immigrant family Midwesterner Indigenous or Native is preferred to "American Indian"

Comments: This is not needed for this project. Doesn't really matter. Prefer not to answer NA NA Why does it matter? Doesn't matter This info is not needed. Why ask.

14. (Optional) Which age range describes you?

Answered: 381
Skipped: 30
65+ - 92 (24.15%)
55-64 - 85 (22.31%
35-44 - 82 (21.52%
25-34 - 60 (15.75%)
45-54 - 55 (14.44%)
18-24 - 6 (1.57%)
Under 18 – 1 (0.26%)

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Skipped: 30
65+ - 92 (24.15%)
55-64 - 85 (22.31%
35-44 - 82 (21.52%
25-34 - 60 (15.75%)
45-54 - 55 (14.44%)
18-24 - 6 (1.57%)
Under 18 – 1 (0.26%)

14. (Optional) Which age range describes you?





Answered: 397 Skipped: 14 Current Park Visitor – 300 (75.57%) Neighbor – 174 (43.83%) Future Park Visitor – 139 (35.01) Boater – 58 (14.61%) Staff – 15 (3.78%) Relative - 10 (2.52%)

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15. (Optional) Which descriptor(s) below identify your relationship with this site?

15. (Optional) Which descriptor(s) below identify your relationship with this site?

Answered: 397 Skipped: 14

Current Park 75.57% Visitor 43.83% Neighbor Staff 3.78% Relative 2.52% Future Park 35.01% Visitor Boate 14.61% 0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

W ARCHITECTURE AND LANDSCAPE ARCHITECTURE with 4rm+ula +106 Group + Solution Blue + etm + CPMI