Hiawatha Golf Course Area Water Management Alternatives Assessment

July 2017

Minneapolis Park & Recreation Board

Minneapolis City of Lakes

MINNEHAHA CREEK WATERSHED DISTRICT
QUALITY OF WATER, QUALITY OF LIFE

BARR

Young Environmental Consulting Group, LLC

Economic Development Services, Inc.

Impact Infrastructure

HZUNITED

Hiawatha Golf Course Area
Water Management Alternatives Assessment

Project conducted by the Minneapolis Park and Recreation Board

Like many Twin Cities landmarks, the Lake Hiawatha area has undergone significant change in the last century. The Minneapolis Park and Recreation Board (MPRB) purchased the land in 1922 to build the Hiawatha Golf Course; ever since, the fate of the lake and the course have been intertwined. The course's fairways and greens were actually built with material from massive dredging of Lake Hiawatha (at that time a marshland known as Rice Lake). Construction of the course started in 1929 and the first nine holes opened for play in 1934; the full 18-hole course was playable the following summer.

Through the years the Hiawatha golf course has continued to fight the area's swampy topography and continued settlement. During large storm events and wet conditions that lead to high creek flows, the course becomes part of the Minnehaha Creek floodplain. The primary tools for keeping the course dry and playable are raised and tiled greens and tees, drainage ponds, an earthen berm that separates the course from the lake, and high-capacity pumps which pump excess water from the course into Lake Hiawatha.

In June 2014, record rainfalls overtopped the berm, overwhelmed the pumping system and flooded the course for an extended period. Between repairs and lost revenue, total flood costs were $4 million. Investigations into the wet conditions and flooding led to three discoveries: (1) 308 million gallons of water (including 242 million gallons of groundwater) were being pumped annually from the course to Lake Hiawatha—eight times the amount allowed by the course's state appropriations permit; (2) the excessive pumping was not only keeping the course dry but protecting the basements of low homes under normal, nonflooding conditions; and (3) if pumping ceased, the area would revert to historic wetland conditions.

The exceedance of the MPRB's current permit and the historically wet conditions led the MPRB to ask, "What is the best way to manage this land?." Over the past few years, engineering consultants, the MPRB, the City of Minneapolis, the Minnehaha Creek Watershed District, and members of the public have been working to answer that question. This document presents a water-management evaluation of the golf course, ultimately leading to an assessment of two alternatives: one that keeps the golf course in play and one that will reduce pumping and potentially restore the area's natural ecological function. The comparative assessment will weigh a variety of factors that will guide the MPRB to the future of the Hiawatha Golf Course area. Regardless of the direction selected, the area will remain one of the city's recreational jewels.

Partners

The Minneapolis Park and Recreation Board has worked with the City of Minneapolis, the Minnehaha Creek Watershed District, Young Environmental Consulting Group, and Barr Engineering Co. to evaluate alternatives to address drainage and pumping in the Hiawatha Golf Course area. The alternatives and assessment outlined in this document are the result of their collaborative efforts. Economic Development Services, Inc. has provided input on economic considerations associated with each alternative, and consultation on traffic and parking was provided by HZ United. Assistance in analyzing the costs and benefits of each option was provided by Impact Infrastructure.

Minneapolis Park & Recreation Board
BARR
Minneapolis City of Lakes
Impact Infrastructure
Minnehaha Creek Watershed District
HZ UNITED
Young Environmental Consulting Group, LLC
Economic Development Services, Inc.

This document provides a summary of studies related to water management and the assessment of alternatives at the Hiawatha Golf Course. For more information, please consult these documents, located on the MPRB website: https://www.minneapolisparks.org/park_care__improvements/park_projects/current_projects/hiawatha_golf_course_improvements/

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Hiawatha Golf Course Area History

Presettlement History

Prior to 1854 the Lake Hiawatha area, the Minneapolis Chain of Lakes, and the confluence of the Mississippi and Minnesota Rivers were the spiritual center and home of the Dakota Sioux tribe. The lake now known as Hiawatha, then called Rice Lake (named for the wild rice harvested there), was described by Theodore Wirth as "swampy."

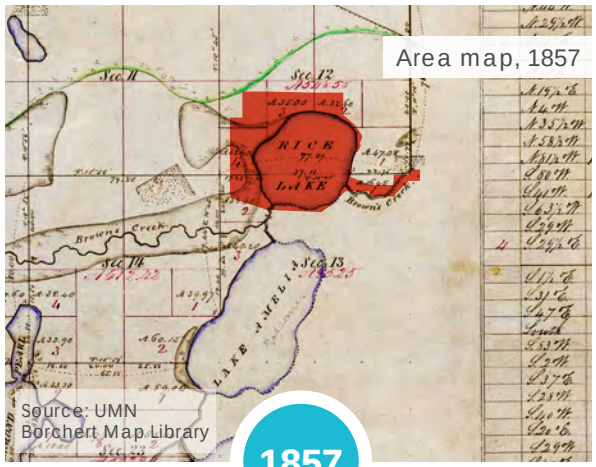
Presettlement mapping information shows the Rice Lake delta and riparian areas around Minnehaha Creek as large wetlands (ranging from 35 to 92 acres depending on the map). The surrounding upland landscape comprised prairie with oak openings and barrens. Land survey maps from 1857 and 1892 differ on the lake size (134 vs. 76 acres), but both maps show Minnehaha Creek entering on the western shoreline of the lake.

The land now used for golf and other area recreation was purchased by the Minneapolis Park and Recreation Board (MPRB) in 1922 for $550,000.

Golf Course Development

Construction of the Hiawatha golf course began in 1929 with the dredging of Lake Hiawatha (named after Henry Wadsworth Longfellow's epic poem "Song of Hiawatha"). The course was constructed on the wetland to the west of the lake, with the dredged spoils used to create a more interesting, rolling terrain. Dredging was completed in 1931 and the course clubhouse was built in 1932. The first nine holes of the course were open for play on July 30, 1934; an additional nine holes were opened the following summer.

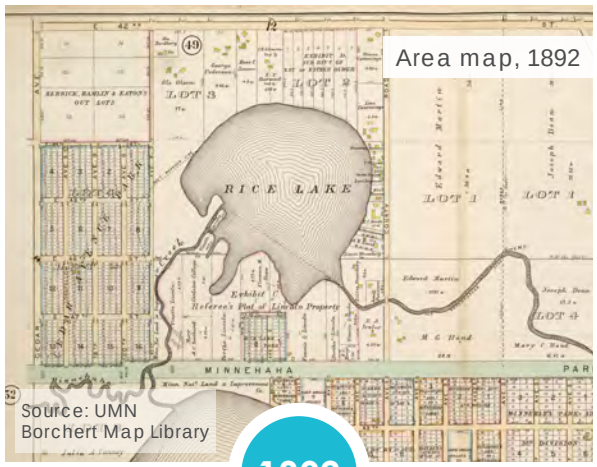
Over the years, the Hiawatha Golf Course has undergone several repairs. The original pumps were installed in the 1960s. In the 1990s, drainage was improved by elevating some of the fairways, adding water hazards as water collection points, and installing new pumps. To maintain a playable area the lake (which is often higher than parts of the course) is separated from the course by an earthen berm.



Area map, 1857

Source: UMN Borchert Map Library

1857



Area map, 1892

Source: UMN Borchert Map Library

1892

Hiawatha Golf Course, 1935

Source: Minnesota Historical Society

1930s

Water Everywhere

The Hiawatha Golf Course has been plagued by water management issues through much of its history and was impacted by large floods in 1952, 1965, 1987, and 2014. There are several factors contributing to the water problems at the course:

- Built over wetland peat covered with dredged spoils, the course has settled over time.
- The course receives groundwater flow and stormwater runoff, as well as seepage from the lake and creek through the berm.
- Creek flows and lake levels have increased since original construction of the course.
- The course becomes part of the Minnehaha Creek floodplain when the berm overtops.
- The pumps used to move water from the course to Lake Hiawatha do not have the capacity to keep up with large volumes of water; this causes long drawdown times.

Regulatory Issues

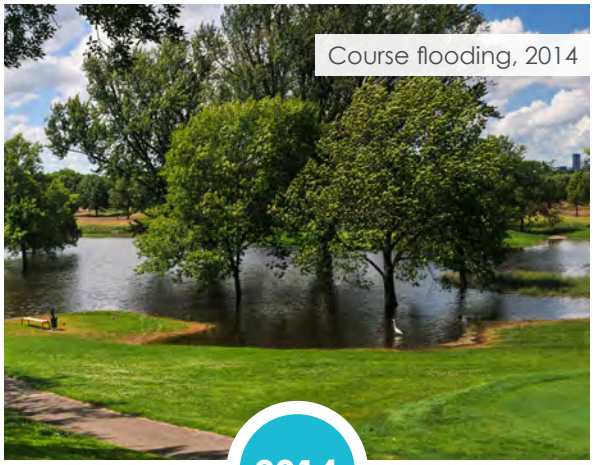
Investigations into wet conditions and flooding in 2014 led to the discovery of excessive pumping. The total amount of water pumped from the course to Lake Hiawatha each year is 308 million gallons, including 242 million gallons of groundwater. That's a lot of water—and eight times the amount the course is allowed to pump by its current Minnesota Department of Natural Resources (MnDNR) appropriations permit (36.5 million gallons for irrigation). This led the MPRB to question the long-term sustainability of current water management at the course.

As the MPRB works to understand the water and pumping issues and make decisions about the future of the course, MnDNR staff have recommended continued pumping at existing rates under a temporary appropriations permit. This is primarily done to protect adjacent homes and basements from flooding until a water-management solution is selected.

Declining Golf Course Use

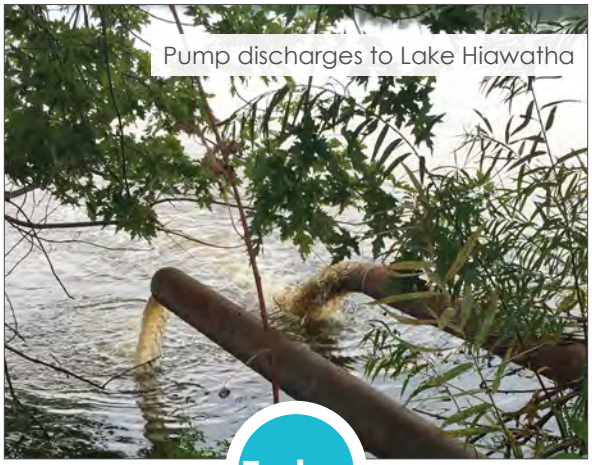
Over the last two decades, the popularity of golf in America has declined. This trend is seen at all MPRB courses and is reflected in decreasing numbers of rounds played and net revenue. At Hiawatha, once the MPRB's most profitable course, this decline in popularity, combined with closures and flood-related damage, have recently caused the course to operate at a deficit. Only 20,000–40,000 rounds of golf have been played annually in recent years. Unfortunately, a nine-hole course is not financially viable.

While declining golf popularity is not the primary reason the MPRB is reconsidering the use of golf course land, it is a factor in the larger water management discussions. And, the MPRB is not alone in trying to strike the right balance of land use for park patrons. Declining revenue and increasing expenses have led other metro-area communities to scale back on golf areas. For example, Edina Parks and Recreation recently downsized from 45 holes to 27 holes, and after losing nearly $1 million in 2013, St. Paul privatized two of its four courses in 2014.



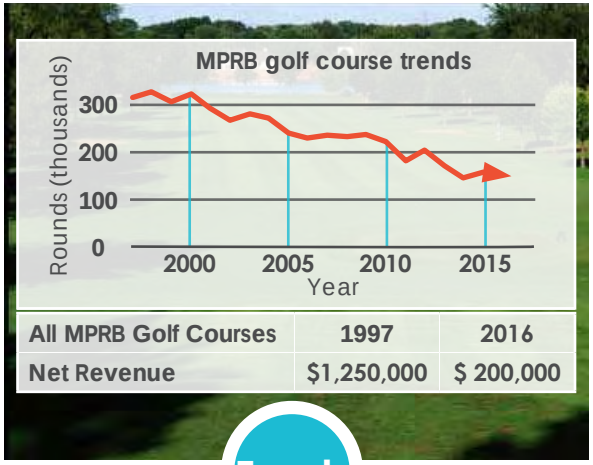
Course flooding, 2014

2014



Pump discharges to Lake Hiawatha

Today



All MPRB Golf Courses	1997	2016
Net Revenue	$1,250,000	$ 200,000

Trends

Playing conditions at Hiawatha have historically been wet and the area has always been part of the floodplain. Conditions were particularly wet after the City of Minneapolis rerouted approximately 70 acres of watershed to the golf course and dredged select ponds for water quality treatment—prompting the City to investigate the course's water management issues in 2013. That process has been ongoing and has included the City, the MPRB, and most recently, the MCWD. The timeline below summarizes many of the steps to date.

2013–2015

City of Minneapolis Investigation

- Initiated studies in response to water-management concerns at Hiawatha course
- Collected information about existing conditions
- Conducted topographic survey
- Developed preliminary groundwater model
- Updated existing stormwater management model
- Analyzed pumping

2015–2016

MPRB Investigation

- Analyzed pumping and permit threshold
- Collected groundwater level and pumping data
- Conducted three public meetings
- Analyzed water samples to determine percent groundwater vs. surface water
- Conducted deep water pump test
- Recalibrated groundwater model
- Calculated electrical consumption for pumps
- Conducted two public meetings

2017

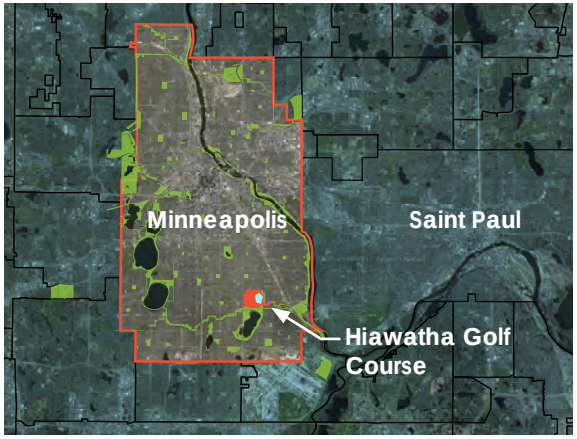
Joint Investigations by MPRB and City of Minneapolis

- Recalibrated groundwater model based on 1 year of monitoring data
- Measured basement floor elevations of low homes
- Analyzed impacts of reduced pumping
- Performed lake-level and creek flow analyses
- Estimated surface water flooding and water-quality impacts
- Defined preferred reduced-pumping alternative
- Performed complete impact assessment of two alternatives, including benefit/cost analysis
- Conducted four public meetings and one online survey

Process

Based on input from MPRB, City of Minneapolis, and Minnehaha Creek Watershed District (MCWD) staff, the following objectives were identified as the highest priority for water management at the golf course.

1. Reduce golf course pumping while protecting adjacent basements
2. Maximize water quality treatment for the watershed (and reduce phosphorus load to Lake Hiawatha)
3. Maintain or reduce current levels of surface flooding in adjacent neighborhoods
4. Capture trash from the larger Hiawatha watershed



Seven water management alternatives were developed and evaluated; two were selected for full assessment. One alternative would maintain existing pumping rates and support an 18-hole golf course and the other would reduce pumping in the golf course area. These two alternatives are summarized on the following pages. In evaluating the two alternatives, the following information was considered:

- Historic park and golf course data provided by members of the MPRB staff, including recent wetland delineation and forestry information, annual rounds of golf played, total revenues and expenses, and information related to MPRB enterprise/concession features (e.g., Tin Fish, water craft/bike rentals, weddings, etc.)
- Information from other publicly owned recreational facilities in the Twin Cities metro area (e.g., Saint Paul, Edina, Roseville, Chaska, and Maple Grove)
- Metropolitan Council regional park user data
- Publicly available data for ecological assessments

The 2015 MPRB Nokomis-Hiawatha Regional Park Master Plan

While the Nokomis-Hiawatha Regional Park Master Plan (the Plan) focused on the regional park surrounding the lakes and did not specifically focus on the Hiawatha Golf Course, public input and information from the Plan was considered in assessing alternatives. The Plan includes information on recreation trends, user estimates, and desired use—with data suggesting that park use will continue to grow about 5% each year. Park users indicated that the water quality of Lake Hiawatha, Lake Nokomis, and Minnehaha Creek are of great concern. They also showed a preference for development of stormwater treatment areas/wetlands, more native landscaping features (as opposed to turf), and increased shoreline restoration.

Evaluating Alternatives

The existing golf course management scenario, along with six alternative scenarios (summarized below) were evaluated using data collected in earlier phases of the work. The goal of this initial assessment was to understand the impacts of each option on water management at the golf course and in the surrounding area. To protect area homes, groundwater pumping cannot be completely eliminated, regardless of the selected alternative. Ultimately, the MPRB, City of Minneapolis, and MCWD selected two alternatives with different water management approaches. These two alternatives were then further evaluated on the basis of surface water and groundwater impacts, ecological implications, recreation and economic impacts, traffic and parking, and applicable regulations. Cultural resources within the project area were also reviewed. The results of the alternatives assessment are detailed on the following pages.

Public Meetings and Survey

Four public meetings have been conducted for this phase of the Hiawatha Golf Course alternatives assessment project:

Meeting 1—March 30, 2017: Update on the project, including outline of the scope, timeline, and public input process.

Meeting 2—April 20, 2017: Meeting attendees were divided into nine working groups and tasked with identifying potential recreation concepts based on a reduced-pumping water-management alternative.

Meeting 3—May 18, 2017: This meeting provided an update on the information compiled through the impact and alternatives assessment process.

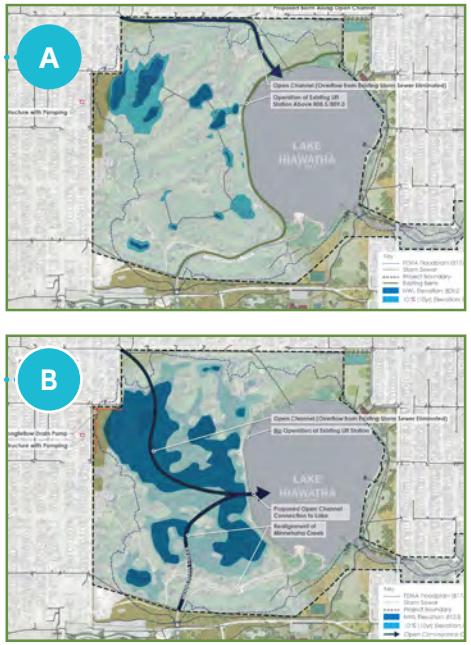
Meeting 4—June 21, 2017: Meeting to present the results of the full alternatives assessment, including the preliminary results of the cost-benefit analysis.

Online Public Survey—July 3–9, 2017: An online survey was posted to the MPRB website to gain feedback on current and desired uses and management strategies.

INITIAL WATER MANAGEMENT ALTERNATIVES ASSESSED

1	Existing conditions—golf course operational, current pumping rates
2	No groundwater pumping
3	**Open channel around operational golf course, current pumping rates**
4	Open channel through course area, gravity connection to lake, reduced pumping rates
5	**Open channel through course area, gravity connection to lake, Minnehaha Creek realigned to connect with floodplain, reduced pumping rates**
6	Open channel around golf course area, berm in place, reduced pumping rates
7	Open channel through golf course area, berm in place, reduced pumping rates

WATER MANAGEMENT ALTERNATIVES SELECTED FOR DETAILED ANALYSIS



Alternative A

- Maintains current pumping rates
- Maintains 18-hole golf course and implements previously identified improvements
- Protects nearby basements
- Reduces flooding in the watershed to the north and has no impact on the watershed to the west
- Allows for trash mitigation
- Limited opportunity to increase water quality treatment

Alternative B

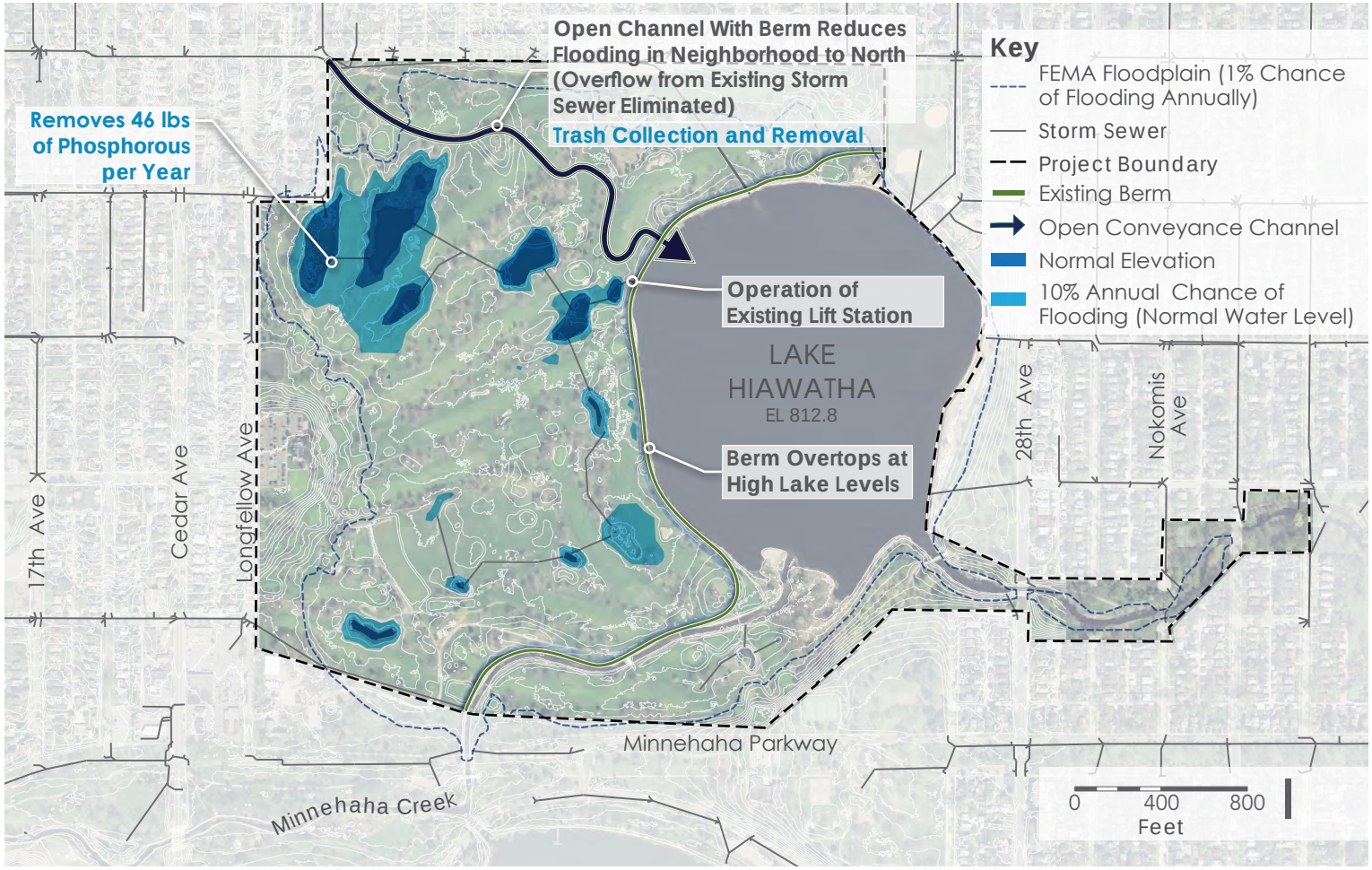
- Eliminates need for stormwater pumping and reduces groundwater pumping
- Protects nearby basements
- Reduces flooding in watershed to the north and has no impact on watershed to the west
- Changes recreational use of land; provides opportunity to restore ecological function and develop habitat
- Allows for trash mitigation
- Maximizes opportunity for water quality treatment
- Allows for realignment of Minnehaha Creek to historic location

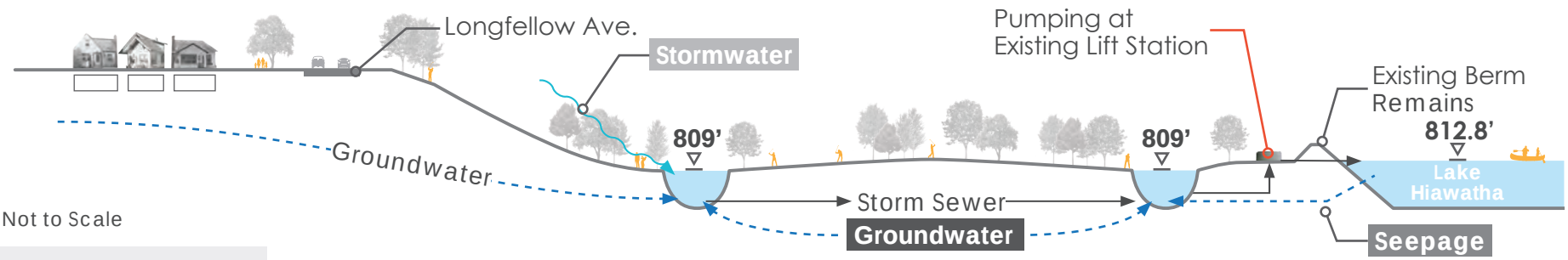
Water Management | Alternative A

Total Pumping
308 Million
Gallons a Year

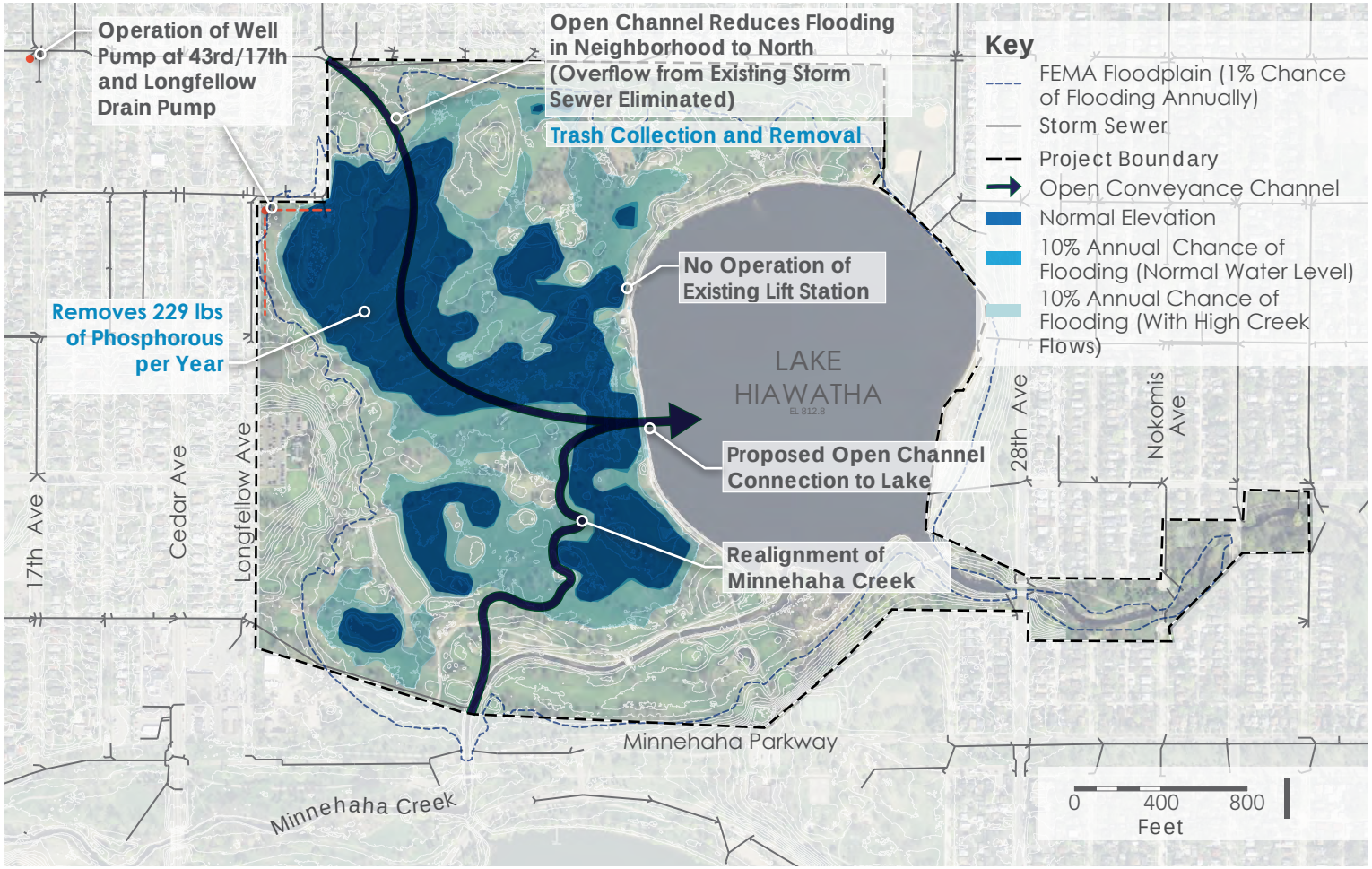
- 21% **Stormwater Runoff**
- 46% **Seepage from Creek and Lake**
- 33% **Regional Groundwater**

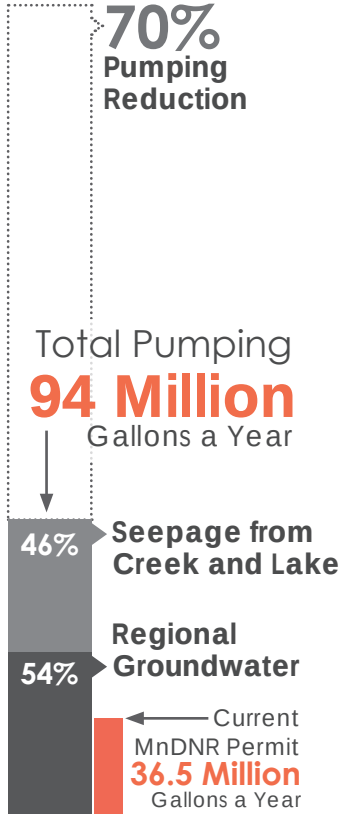
Current MnDNR Permit **36.5 Million** Gallons a Year

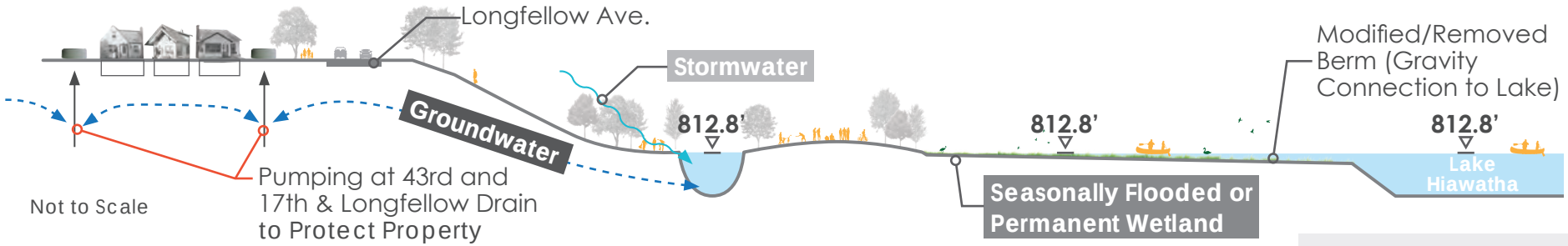




Water Management | Alternative B

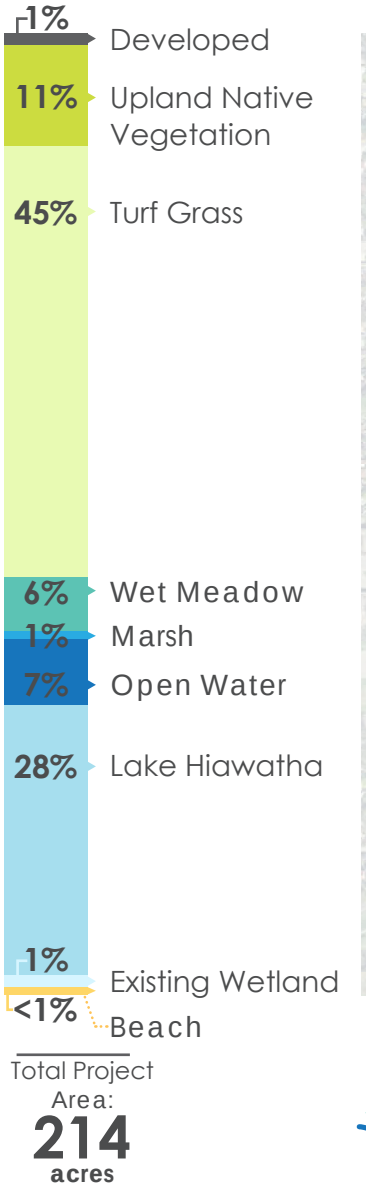


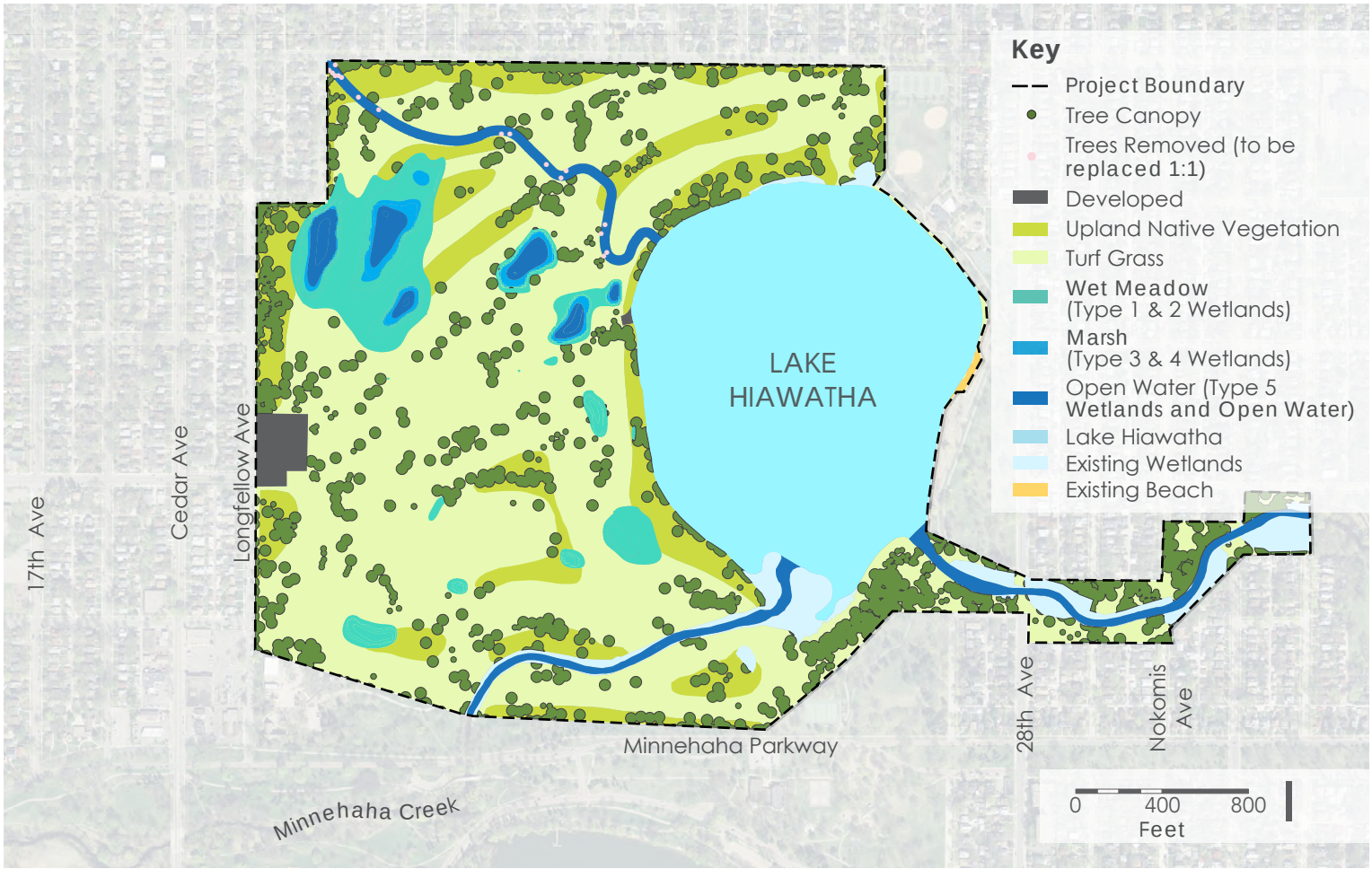




Ecological Impacts* | Alternative A

*These concepts were developed based on existing topography. Actual land cover types and locations may vary from what is shown based on future planning and design.





16 Acres
Total Wetlands

20 Acres
Additional Upland Native Vegetation

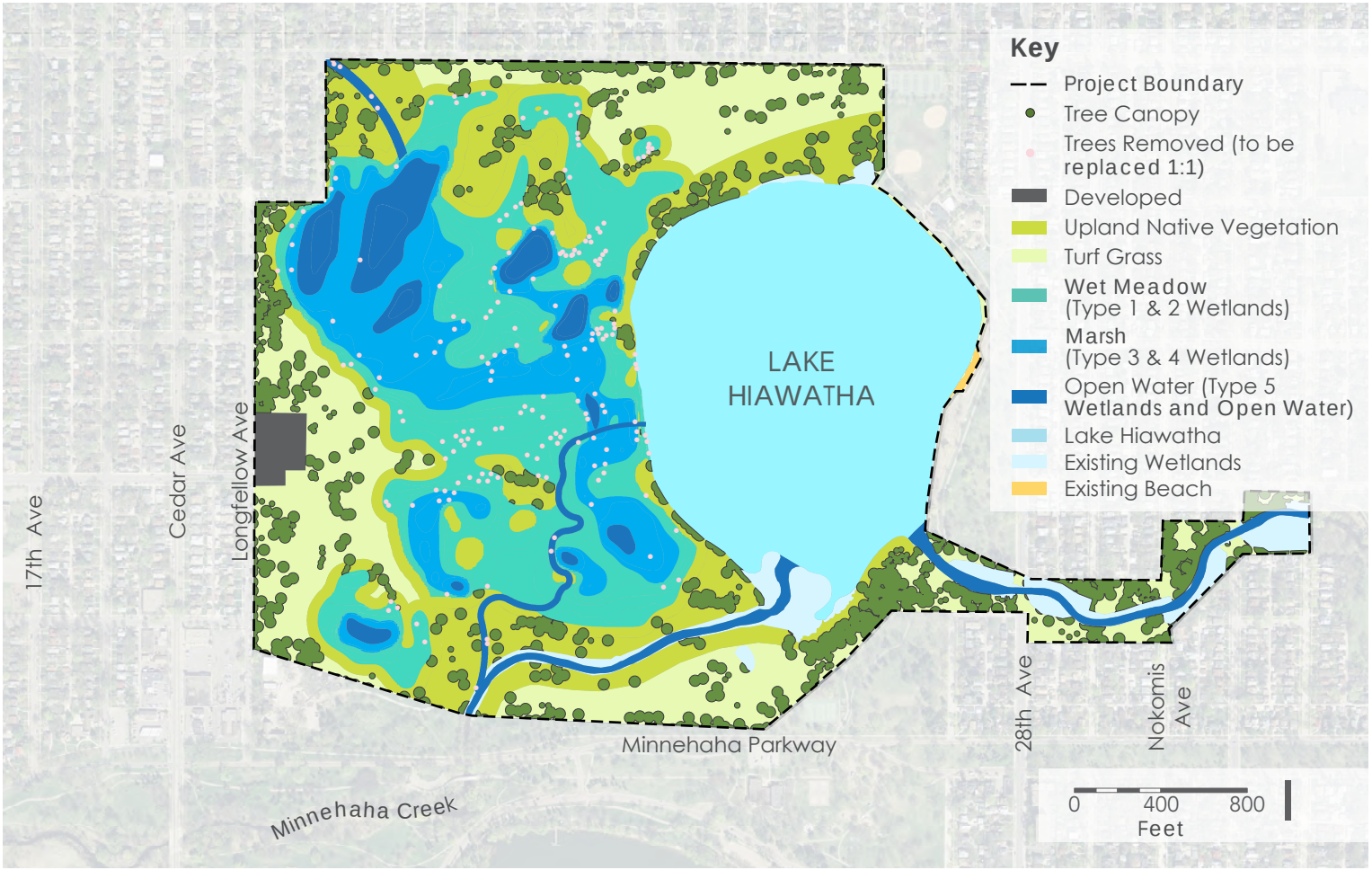
31Acres
Canopy Cover
(Low potential for reforestation)

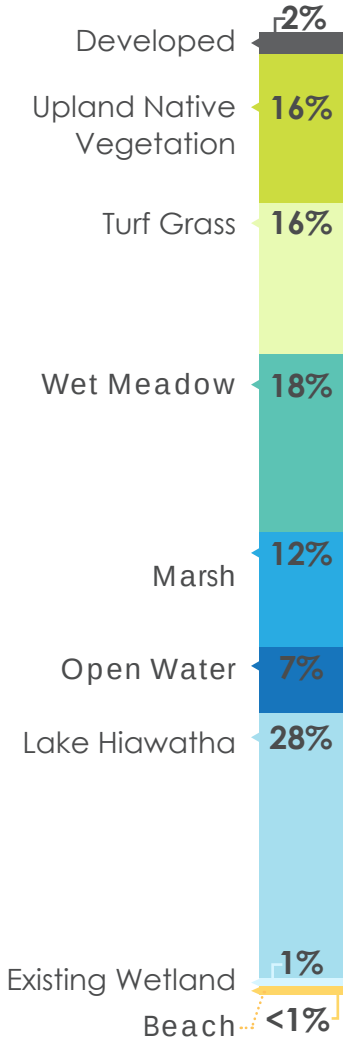
84 Acres
Managed Turf Grass
(Golf Course)

2,200 Linear Feet
Proposed Addition of Open Channel

Ecological Impacts* | Alternative B

*These concepts were developed based on existing topography. Actual land cover types and locations may vary from what is shown based on future planning and design.





65 Acres
Total Wetlands

30 Acres
Additional Upland Native Vegetation

25 Acres
Canopy Cover (high potential for reforestation)

30 Acres
Managed Turf Grass

4,200 Linear Feet
Proposed Addition of Minnehaha Creek Realignment & Open Channel

Recreation & Enterprise Activities | Alternative A

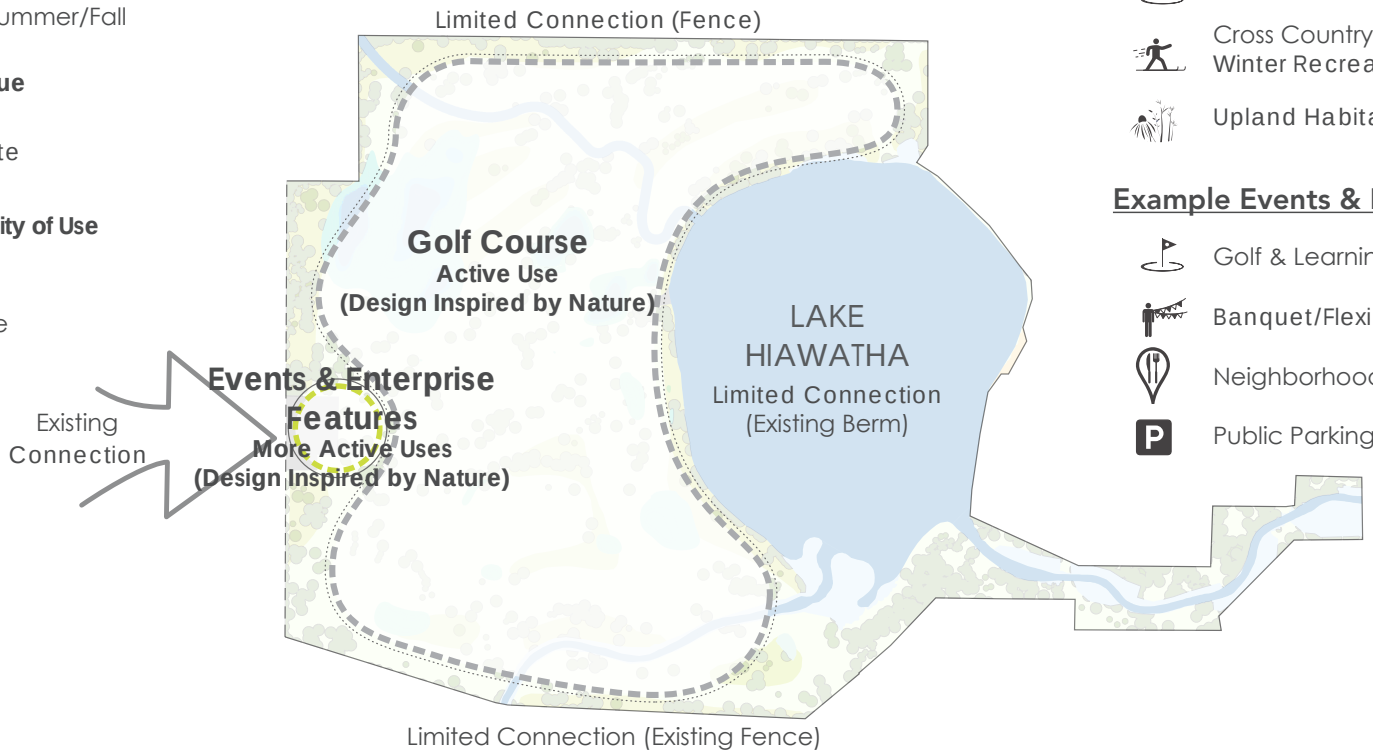
Key

Recreation Type
- Active
- Passive

Seasonality Uses
- Spring/Summer/Fall
- Winter

Ecological Value
- Low
- Moderate
- High

Parkland Diversity of Use
- Limited
- Extensive



Golf Course Uses Limited To:
- Improved Golf Course
- Cross Country Skiing & Winter Recreation
- Upland Habitat Restoration

Example Events & Enterprise Uses:
- Golf & Learning Center
- Banquet/Flexible Space
- Neighborhood Restaurant
- Public Parking

Events & Enterprise Features

Reconstruction of clubhouse to include a neighborhood-focused restaurant with an outdoor patio and banquet space. Additional off-street parking would be developed around the clubhouse area.

Golf Course

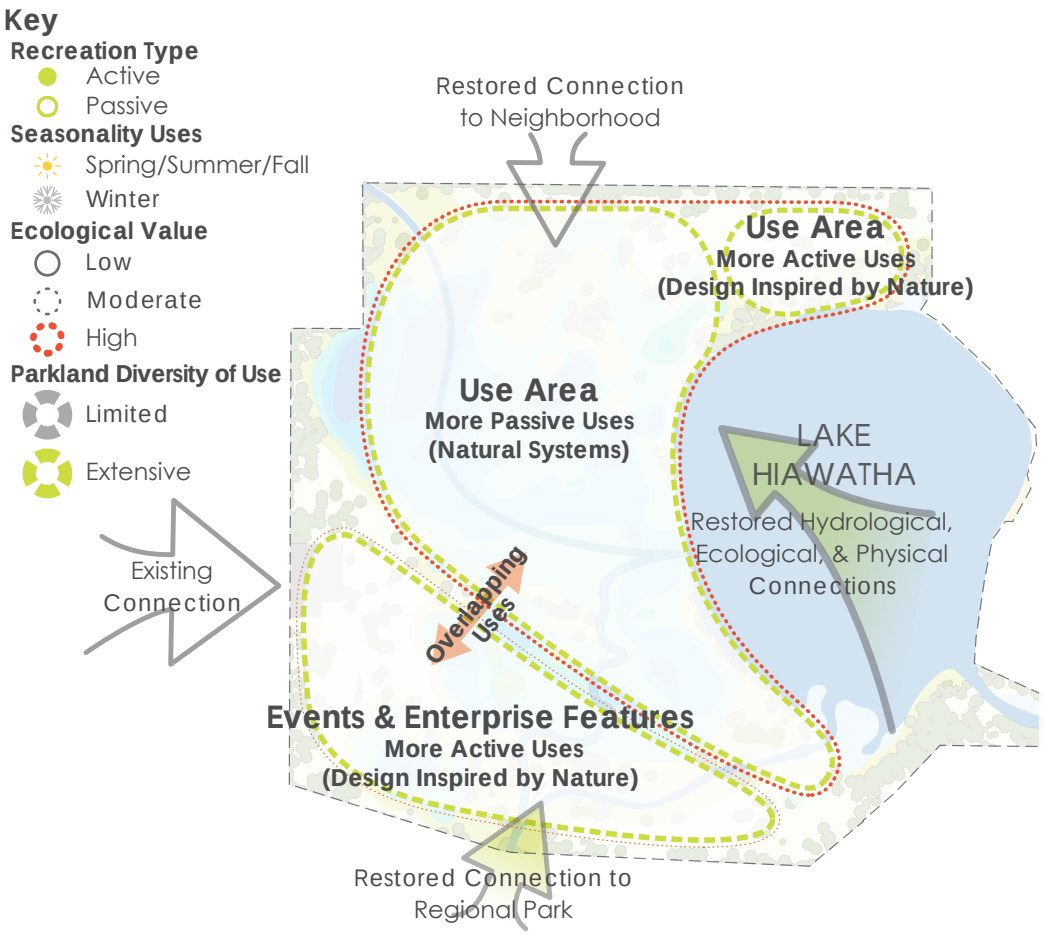
Improvements will include the incorporation of an open channel through the golf course and the reconfiguration and raising of holes on the course to accommodate the channel and avoid wet areas. Native plant communities could be incorporated into course areas of play.

146 Acres
Park Area

211,000 Visitors
Estimated Annual Use at Buildout
(30,000 Rounds of Golf Annually)

2.6 Miles
Estimated Trails
(Winter Only)

Recreation & Enterprise Activities | Alternative B



Top 20 Uses*:

- Canoeing/Kayaking
- Pollinator Gardens
- Inundated Wetlands
- Ice Skating
- Forest Restoration
- Picnicking
- Wildlife Blind
- Bee Keeping
- Public Art
- 9-Hole Golf Course
- Prairie/Wet Meadow Habitat Restoration
- Wetland Jetty/ Boardwalks
- Amphibian Education Trail
- Urban Gardens/Agriculture
- Fishing
- Nature Playground
- Recreation Trails
- Cross Country Skiing
- Sledding
- Dog Park

Example Events & Enterprise Uses:

- Festival Grounds
- Neighborhood Restaurant
- Banquet/Flexible Space
- Ceremonial/ Retreat Space
- Public Parking

*Suggested by public at April 20, 2017 meeting

Events & Enterprise Features

Reconstruction of clubhouse to include a neighborhood-focused restaurant with outdoor patio and banquet space. The construction of a new ceremonial/retreat space for gatherings such as weddings, memorials, and corporate events. Creation of a minimally developed festival area. Additional off-street parking would be developed in the park.

Use Area Designs Inspired by Nature

Restored wetlands and native prairies would allow for areas to improve water quality and create high-quality habitat for wildlife and pollinators. Recreation trails will be integrated with natural areas, allowing for a full connection around Lake Hiawatha, throughout the park area, and to the larger regional park. Open turf areas may also provide an opportunity for picnicking and active and passive recreation. The public has also expressed an interest in restoring the connection to Lake Hiawatha and Minnehaha Creek with the creation of a canoe/kayak landing and fishing pier.

146 Acres
Park Area

525,000 Visitors
Estimated Annual Use at Buildout

3.5 Miles
Estimated Trails
(All Seasons)

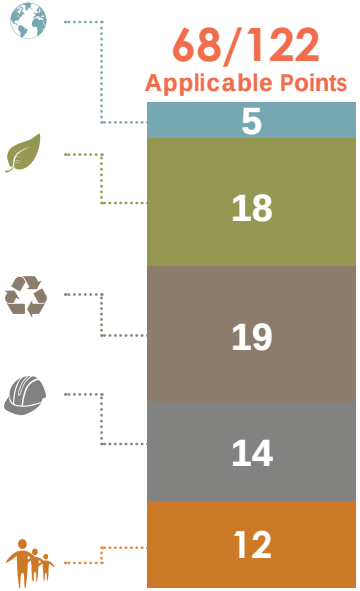
Sustainability Indicators | Envision

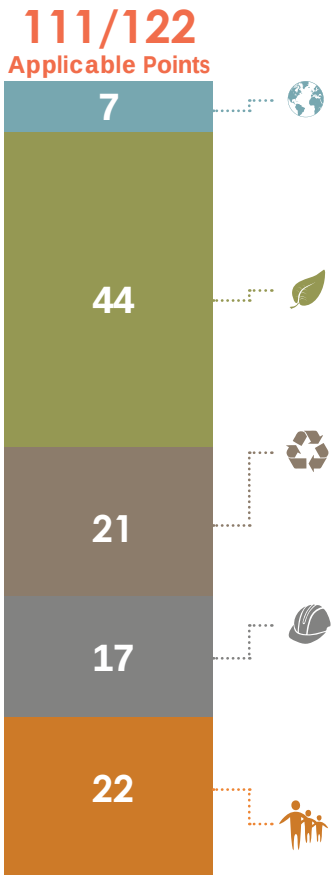
Envision Rating System Results

Envision is a rating system developed by the non-profit Institute for Sustainable Infrastructure & Zofnass Program for Sustainable Infrastructure. The rating system is intended to serve as a surrogate evaluation for the long-term value each alternative might bring to the community and the public. Envision is intended to identify possible advantages and disadvantages each alternative may present for balancing various social, environmental, and economic needs.

Sustainability Drivers: Alt. A

- Continued risk of course damage due to flooding
- Pumping during drought creates risk
- Pumping groundwater exceeds permitted capacity
- Costly & resource-intensive turf maintenance
- Less biodiversity
- Opportunities to conserve water, energy and materials, source local products
- Uncertainty of golf revenue
- Using a sustainability lens
- Golf use -limited to one recreational activity in warmer months
- Fewer users
- Fee-Access
- Golf course remains fenced off from the public





Sustainability Drivers: Alt. B

- Long-term flexibility and adaptability with uses and ecological communities
- Less risk of repair costs due to flooding
- TMDL runoff pollution reduction, stormwater treatment
- Showcase natural resources at the site
- More biodiversity & habitat areas
- Improved ecosystem services
- Restored floodplain connection to the lake and creek
- Opportunities to conserve water, energy and materials, source local products
- Infrastructure integration (address multiple issues with one solution)
- Using a sustainability lens
- Must address long-term O&M funding
- Reduced pumping is favored by regulators
- More public space with free access
- More recreation uses and trails
- More visits and more users
- Addresses more issues heard during community stakeholder engagement

Envision Rating System Developers

INSTITUTE FOR SUSTAINABLE INFRASTRUCTURE ISI
APWA
ASCE AMERICAN SOCIETY OF CIVIL ENGINEERS
ZOFNASS PROGRAM FOR SUSTAINABLE INFRASTRUCTURE Graduate School of Design Harvard University
ACEC

Envision Rating System Categories

CLIMATE & RISK
-Emissions
-Risks (short- & long-term)
-Resilience

NATURAL WORLD
-Project Siting
-Land & Water
-Biodiversity

RESOURCE ALLOCATION
-Renewable Materials
-Energy
-Water Resources

LEADERSHIP
-Management
-Collaboration & Outreach
-Planning

QUALITY OF LIFE
-Community
-Purpose
-Wellbeing

Benefit/Cost Analysis | Triple Bottom Line

AutoCASE Results

By considering a broader range of big-picture social, economic, and environmental benefits accrued during the project life (referred to as the triple bottom line), a more complete characterization of value for each alternative can be obtained. The figures below summarize the anticipated benefits and costs associated with both alternatives. This was calculated by applying recent cost data from comparable facilities to AutoCASE. AutoCASE is an economic tool, developed by Impact Infrastructure, that monetizes social and environmental benefits. It was used as a companion tool to the Envision rating system outlined on page 11.

AutoCASE®

Impact Infrastructure (Software Vendor)

Economic		Social & Environmental				
Revenue, Operational Savings	Water Quality	Flood Risk Reduction	Recreation Value	Heat Island Mitigation	Criteria Air Contaminants	Value of Time
Capital Costs, O&M Costs	Water Quantity	Shadow Wage Benefit	Property Value Uplift	Health and Safety	Green House Gases	Other

Bottom Line

Triple Bottom Line

Benefits/Costs: Alt. A

Social & Environmental Benefits[1]
- Benefits from greenspace

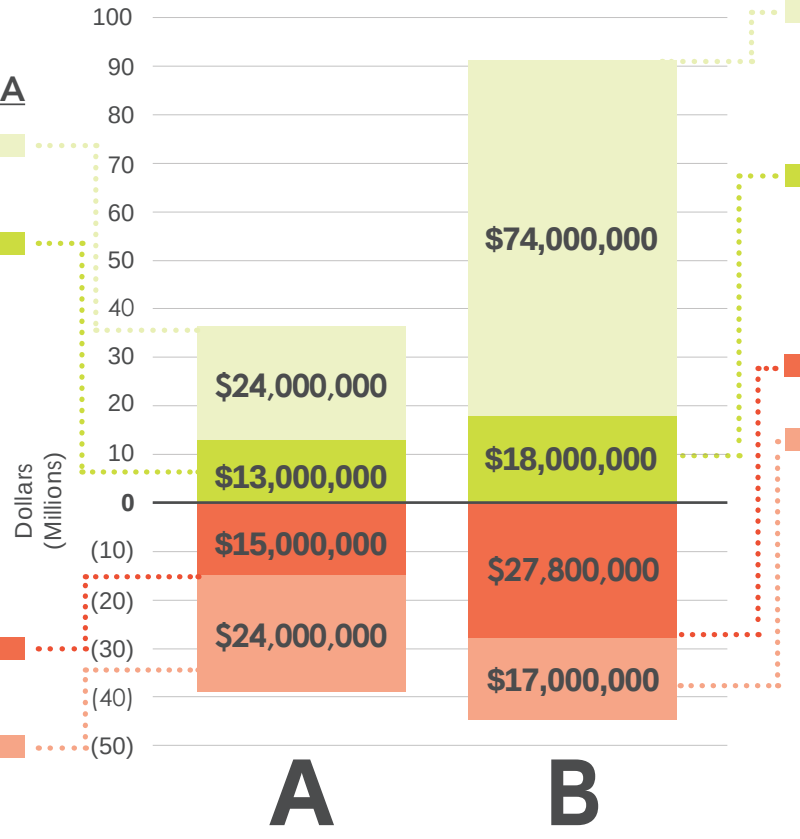
Revenue Drivers[2]
- Golf (when playable)
- Restaurant/Pub
- Banquet facility rental

Benefits (20 year)

Costs (20 year)

Capital Cost Drivers[2]
- 18-hole golf course renovation and repair

Long-Term Operations & Maintenance[2]
- Facility improvements, renovations, and maintenance
- High-maintenance turf areas



Benefits/Costs: Alt. B

Social & Environmental Benefits[1]
- More accessible public space, more users and uses, water quality improvement, ecological restorations, and reduced pumping

Revenue Drivers[2]
- Restaurant/Pub
- Banquet facility rental
- Flexible event space rental
- Festival grounds

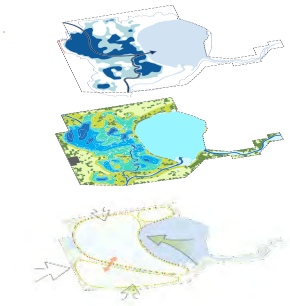
Capital Cost Drivers[2]
- Complete park reconstruction

Long-Term Operations & Maintenance[2]
- Facility improvements, renovations, and maintenance
- Lower maintenance native landscaping (once established)
- Initial intense plant establishment

[1] Assume 5% annual growth MPRB system visitors.

[2] Costs and revenues are based on the proposed alternative concepts using comparable recent projects and facilities in the Twin Cities metro area, including other MPRB facilities at the Chain of Lakes, Minnehaha Falls, Nicollet Island, and Nokomis-Hiawatha Regional Park and projects for the cities of Roseville, Saint Paul, and Edina.

Recommended Alternative



Alternative B

After reviewing the results of the alternatives assessment, MPRB staff recommend Alternative B as the preferred water management solution. City of Minneapolis and MCWD staff also support this recommendation. Although this solution will not completely eliminate the pumping (needed to protect homes), it significantly reduces the pumped volume of water and provides the opportunity to achieve other water management objectives. The MnDNR views this alternative as a long-term solution for this area. If Alternative A was selected, the MnDNR would require the MPRB to pursue the reduced pumping option the next time the course floods as part of the appropriations permit conditions.

Water Management and Regulatory		Alternative B reduces the amount of pumping by 70%. The alternative also provides opportunities to manage runoff and maximize treatment, helps alleviate flooding in the local watersheds, mitigates trash in Lake Hiawatha, and is preferred by the MnDNR.
Recreation and Enterprise		Alternative B offers multiple uses in all seasons and will cater to a much larger and more diverse group of visitors. It also reestablishes connections between the golf course area and the lake, the creek, the regional park, and surrounding neighborhoods. A variety of enterprise features provide an opportunity for the MPRB to generate revenue.
Ecological		Alternative B provides more opportunity to restore wetlands, native uplands, and creeks, and creates more habitat for wildlife and pollinators. It also reconnects Minnehaha Creek with its floodplain.
Sustainability		Alternative B creates public value, provides diversity of use for more visitors, manages water resources, invests in shared ecological resources, reduces long-term risk, and provides long-term flexibility and adaptability.
Benefit/Cost	**2–3x**	While Alternative B is anticipated to cost more to construct, long-term operation and maintenance costs are lower and the social and environmental benefits are two-to-three times greater than Alternative A. Opportunities for MPRB to generate revenue are also greater.

Public Meetings

MPRB staff heard wide-ranging opinions about water management and use of the Hiawatha Golf Course. The course has been a long-time gathering place for community golfers and is a tremendous recreational asset. While the MPRB recognizes the passion that many have for the course, Alternative B was chosen because it allows for improved water management and accommodates many other goals expressed during the public input process of this investigation.

Public Online Survey (July 3–9)

A total of 772 people responded to a survey about the Hiawatha Golf Course. Nearly half of the respondents live within 1 mile of the course; nearly 70% were between the ages of 18 and 54. More than half indicated they do not play golf at Hiawatha, but nearly all have used the larger regional park for a variety of summer and winter activities. Based on the survey responses, the protection of nearby homes was the highest priority related to pumping. Evaluation of long- and short-term ecological impacts was the second priority, followed by maintaining golf as the primary property use. Survey results also showed a desire for a park that balances recreation and ecological needs.

Potential recreational concepts for a reduced pumping alternative generated by participants at a public meeting in April 2017.

Recommended Next Steps

Project funding

Currently, operations and maintenance costs for the Hiawatha Golf Course are through the MPRB Enterprise Fund. The proposal for Alternative B would shift these operations and maintenance costs to the MPRB General Fund. Further discussions related to this will continue in the next stages of work along with overall project financing.

Project Selection*

Three meetings: July 12, discussion by the full MPRB Board of Commissioners; July 19, review by planning committee and public hearing; August 9, consideration by full board and selection of alternative. MPRB staff to coordinate with MnDNR on temporary appropriations permit.

9–12 months

Master Planning*

The Board of Commissioners convenes a master planning process that includes an appointed Community Advisory Committee and a public input process. Additional studies related to traffic, geotechnical investigations, and additional cultural resources review will begin.

24–36 months

Engineering, Design, and Permitting*

Schematic design will begin upon adoption of the master plan, followed by final design. Permitting and regulatory review will be aligned with the design process.

12–24 months

Project Construction

Hiawatha Golf Course will close for project construction.

Area open to public

* Hiawatha Golf Course stays open through planning and design process (2017, 2018, 2019 seasons and potentially longer).