EXISTING CONDITIONS

CHAPTER 4:

Sections

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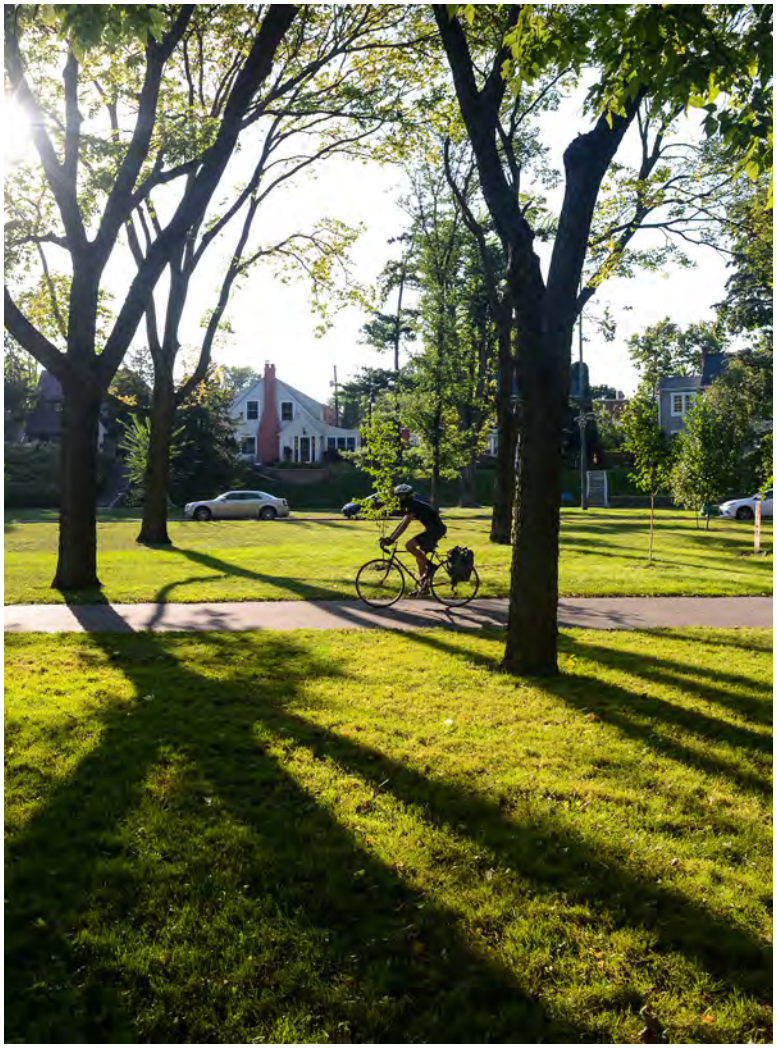
4.1 OVERVIEW



Bike trail along Dean Parkway

Throughout the planning effort, the Cedar-Isles project area was examined through several layers. This layered approach was taken to ensure that the overlapping systems that are impacted within and around the lakes could be understood together, with the intention of creating a holistic and integrated framework that addresses each topic.

The topics explored in this chapter include:

- Water Quality
- Natural Resources
- Circulation and Access
- Program and Amenities

The glossary in Appendix B clarifies many of the technical terms used in the following sections.

4.2 WATER QUALITY

This section outlines the recent history of water quality planning, current lake conditions, the function of both lakes within the larger Chain of Lakes system, and examines the drivers that impact their ability to function.

RECENT WATER QUALITY PLANNING

Urban lakes located within the Minneapolis Park and Recreation Board (MPRB) system face a unique set of factors that have impacted and will continue to impact their ecosystems. This includes recreational use, urban development, stormwater inputs, and an ever-increasingly changing climate. These issues compound over time and the full impacts to water quality are complex to understand and even more complex to address.

Due to these ongoing issues, various efforts and partnerships have formed over the years to address water quality challenges facing the Chain of Lakes and other water bodies within the MPRB system.

CLEAN WATER PARTNERSHIP

In 1990, the Minneapolis Chain of Lakes Clean Water Partnership (CWP) was formed in collaboration with six government agencies: the MPRB, the cities of Minneapolis and St. Louis Park, Minnehaha Creek Watershed District (MCWD), Hennepin County, and the Minnesota Pollution Control Agency (MPCA). The partnership aimed to address the water quality problems the lakes were facing. The Chain of Lakes Water Quality Management Citizens Advisory Committee (CAC) was formed during this time and consisted of over 20 organization representatives. The committee used a consensus-based process to develop a management plan for the Chain of Lakes that outlined water quality goals and recommendations. These recommendations were submitted to the Minneapolis Park and Recreation Board for implementation.

The primary goal of long-term management was to reduce the amounts of total phosphorus and sediments reaching the lakes from watershed sources. Targeted reduction amounts were defined by the CWP and set to achieve specific recreation-based water quality goals (water clarity, fisheries, avoidance of algal blooms, etc.). The following goals led to the development of various strategies that ranged from managing goose and carp populations to alum treatments.

The goals established by the CWP were:

1. Increase public awareness of water quality issues
2. Protect public health and safety
3. Reduce in-lake pollutants
4. Reduce pollutant loadings through implementation of best management practices
5. Improve government management
6. Monitor lake water quality and management practice

The active years for this partnership spanned from 1990 to 1997 which included a planning phase and implementation phase with associated milestones:

- **Planning Phase (1990 – 1993)**
  - › 1990 City of Minneapolis & MPRB awarded grant
  - › 1992 Water quality management citizens advisory committee appointed
  - › 1993 Diagnostic report & implementation plan

- **Implementation Phase (1994 – 1997)**
  - › 1994 Lake of the Isles grit chambers
  - › 1995 Monitoring program improved street sweeping
  - › 1996 Twin Lake was dredged

› 1996 Cedar Meadows wetland was constructed
› 1996 Alum treatment: Cedar Lake
› 1997 Alum treatment: Lake of the Isles

The CWP also established numeric goals for water quality that the Park Board continues to use today in their monitoring and assessments. Funding for the planning and implementation for the CWP came from MPRB, City of Minneapolis, City of St. Louis Park, MCWD, MPCA Clean Water Partnerships grants (state), and USEPA Section 319 grants over the course of several years.

WATER QUALITY STANDARDS

The State of Minnesota monitors and assesses lakes to determine if they meet water quality standards. Water quality standards are designed to determine if the lakes meet designated uses including aquatic recreation (swimmable/fishable), aquatic life (healthy fish/invertebrates), and aquatic consumption (safe to consume fish from the lake).

Water quality standards are frequently adopted statewide or by ecoregion. These standards can include large areas with different types of water; for example, those with different depth, watershed area, biological communities and natural water chemistry. For the purpose of this planning effort, the North Central Hardwood Forests ecoregion standards are used for both deep and shallow lakes (Table 4.1) were used to establish recommendations. Deep lakes (Cedar) and shallow lakes (Isles) are fundamentally different - these differences form the basis for future management strategies.

The standards are based on three key parameters: in-lake phosphorus concentration, chlorophyll-a concentration, and Secchi Disk/Clarity depth. Often a Trophic State Index (TSI) is used to categorized these measurements.

The CWP process, described in the beginning of this section, established ambitious water quality goals that go beyond state standards for Cedar Lake and Lake of the Isles (Table 4.2).

MPRB Water Quality Specialists monitor thirteen lakes within the park system, including Cedar Lake and Lake of the Isles, once in winter from April to October. The MPRB has been monitoring and collecting samples since 1991, which began during the CWP.

MPRB tests for a large profile of parameters including alkalinity, nitrogen, chloride, chlorophyll-a, and phosphorus. This data is used to calculate the TSI and compare with State goals. The current conditions and trends discussed in the next section contributed to

LAKE TYPE	TOTAL PHOSPHORUS (Ug/L)	CHLOROPHYLL-A (Ug/L)	SECCHI DISK/ CLARITY (METERS)
Aquatic Life and Recreation, ***Class 2B Deep Lakes***	≤ 40	≤ 14	≤ 1.4
Aquatic Life and Recreation, ***Class 2B Shallow Lakes***	≤ 60	≤ 20	≤ 1.0

Table 4.1: State Standards for lake aquatic recreation by lake type

	TOTAL PHOSPHORUS (Ug/L)	SECCHI DISK/ CLARITY (METERS)	INDEX VALUE (TSI)
Cedar Lake	25	1.9	51
Lake of the Isles	40	1.2	57

Table 4.2: Clean Water Partnership (CWP) water quality goals for each lake

the final Water Quality Goals listed in Chapter 5.

CURRENT CONDITIONS

CEDAR LAKE

Cedar Lake is a deep lake that is mesotrophic to slightly eutrophic (see Glossary and Figure 4.1), with a maximum depth of fifty-one (51) feet. Cedar Lake currently meets the established State water quality standards for Deep Lakes in the North Central Hardwood Forest ecoregion.

Looking at the monitoring numbers in Figure 4.1, (2008-2021) it would appear that the average of the two periods of data meets the CWP goal; however, observing the recent data from 2017-2021 shows that phosphorus concentrations are starting to increase (worsen). This demonstrates the importance of looking at longer periods of data to determine the general trend of such dynamic systems. The increased (or worsening) phosphorus concentrations in recent years follow improvements in water quality in the late 1990s and early 2000s. The water quality improvements at that time were a result of implementation efforts carried out as a result of the Clean Water Partnership.

Since approximately 2017, the frequency and intensity of harmful algae blooms, including blue-green algae blooms, appears to have increased on Cedar Lake with algal blooms also occurring earlier in the growing season. The cause(s) for the increase of in-lake phosphorus concentrations has not been fully established but the in-lake alum treatment implemented in 1996 may be reaching its effective life and other watershed practices may need further maintenance. Water quality samples collected from the bottom of

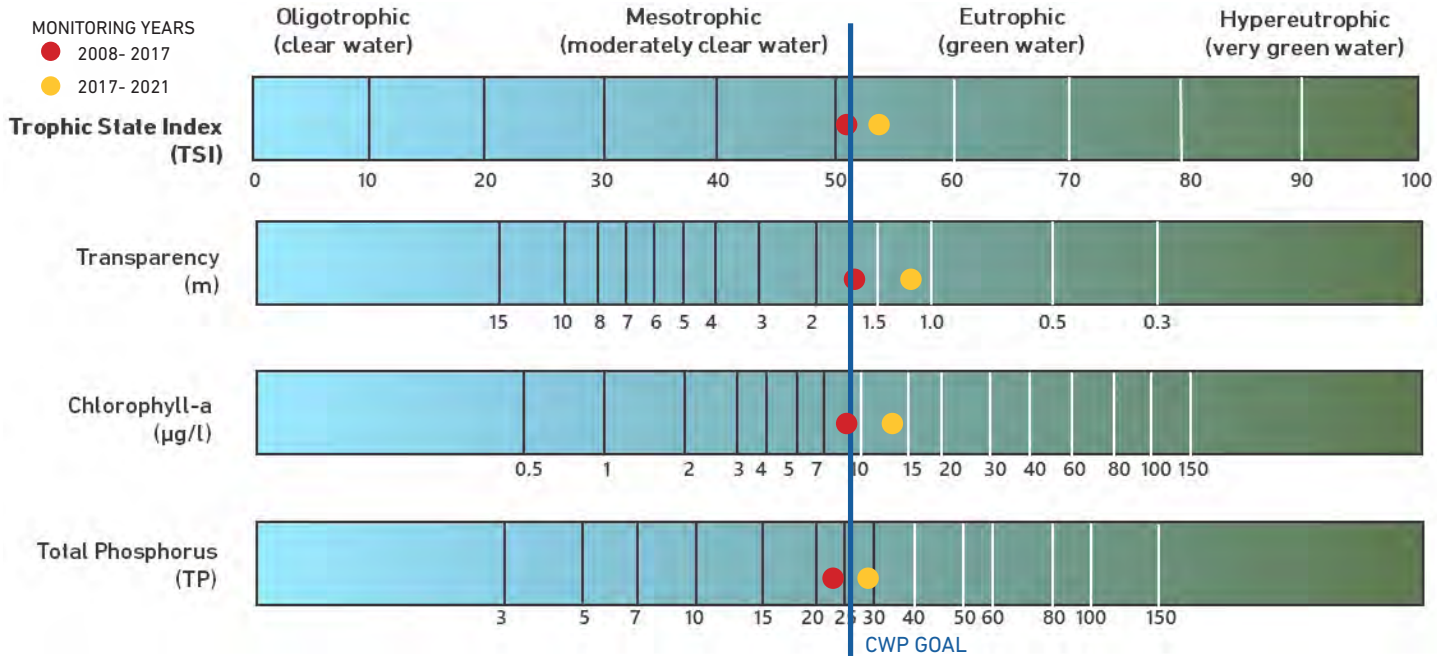


Figure 4.1: Cedar Lake trophic status index based on water quality data collected from 2008-2017, and 2017-2021. CWP goal shown for reference

Cedar Lake show increasing trends in phosphorous concentration. This finding suggests that practices designed to control both external and internal phosphorus loading will be required to prevent this trend from worsening.

There are three beaches on Cedar Lake. Bacteria, cyanotoxin, and water quality monitoring conducted on Cedar Lake generally find that the lake is supportive of recreational uses throughout most of the summer.

LAKE OF THE ISLES

Lake of the Isles is a shallow lake that is eutrophic (see Glossary and Figure below). Approximately 80% of the lake is less than 15 feet deep. In shallow lakes, sunlight can penetrate to the lake bottom and support aquatic plant growth. Aquatic plants are abundant in Isles due to its good water clarity. The biological components of Lake of the Isles (e.g., aquatic plants and fish) exert a strong influence on the ecological interactions within the lake. These biological components control the relationship between phosphorus and the response factors, especially water clarity. As a result of these ecological interactions, Lake of Isles can oscillate between cloudy, algae-dominated water and clear, aquatic plant-dominated water. Often, the lake exhibits both conditions in the same calendar year depending on the climate.

Currently, Lake of the Isles meets the State's water quality standards for shallow lakes in the North Central Hardwood Forest Ecoregion and the sometimes meets the Clean Water Partnership standards (Figure 4.2).

Lake of the Isles experiences abundant aquatic plant growth that

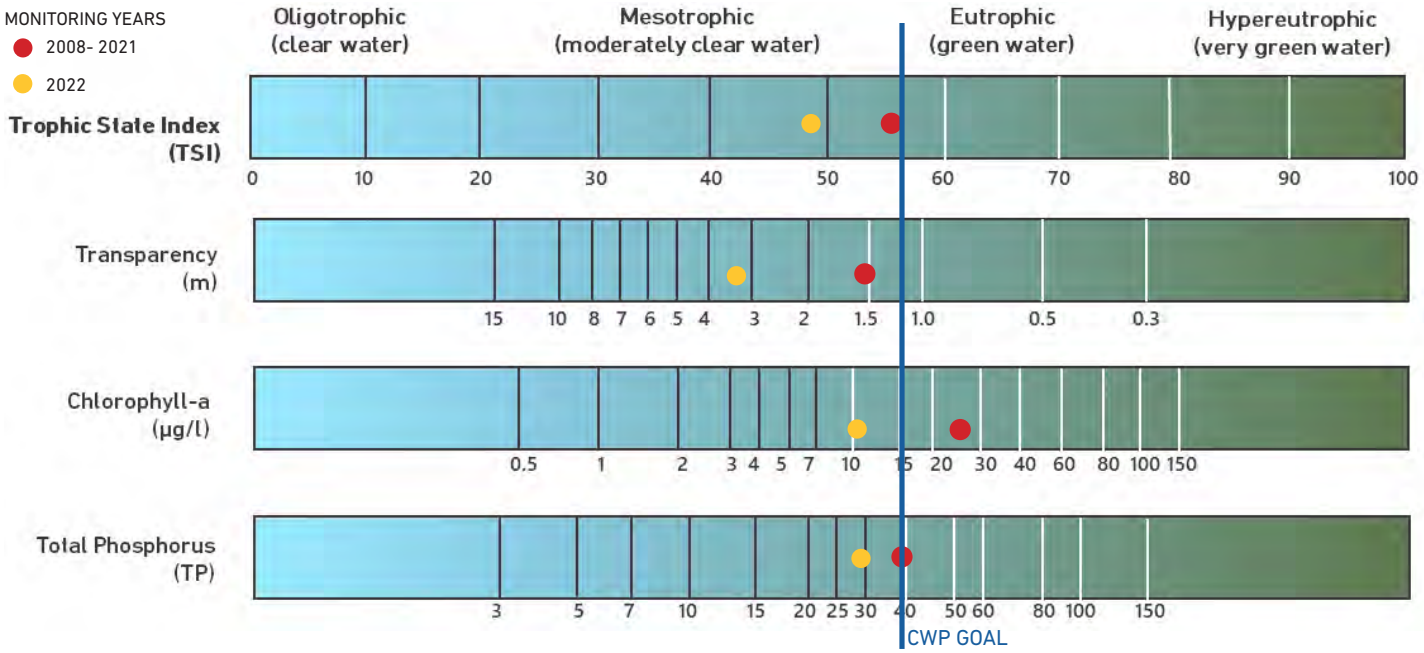


Figure 4.2: Lake of the Isles trophic status index based on water quality data collected from 2008-202. CWP goal shown for reference

requires intensive management and occasional harmful algal blooms that restrict recreational usability. When averaging 2008-2021 data, the lake does not meet the CWP goal for chlorophyll-a. (five of the years met its goal, and five years it did not in the last ten years). The lake again met its goal in 2022. (Figure 4.2). Lake of the Isles does not contain a public swimming beach and is not currently monitored for bacteria.

FLOOD HAZARD ZONES

The Metropolitan Council's 2018 Regional Climate Vulnerability Assessment found that extreme rainfall leading to "unprecedented flash floods" is a main symptom of climate change in Minnesota. The report counted 14 "mega rain events" since 1866, with half of them occurring within the past decade and a half. Flood events are predicted to occur more frequently as climate change accelerates. There was a notable flood in 1997 that damaged shoreline vegetation at Lake of the Isles, and another in 2014 that covered most of the pedestrian paths close to the shoreline. Also, spring flooding often covers portions of trails along Dean Parkway.

Figure 4.3 identifies different flood impact zones: primary, secondary,

Figure 4.3: Localized flood screening map. Source: Metropolitan Council

tertiary, and shallow. The flood zones help to assign general or potential risk to an area: primary (highest risk) to shallow (lowest risk). Each impact zone corresponds with different stormwater infrastructure that is needed to address the unique depth to volume quantities.

Starting in the early 2000s, MPRB worked to address flooding around Lake of the Isles through shoreline restoration, aquatic planting within the littoral edge, and raising the lower pedestrian trails above the flood plain using fill, addressing primary, secondary, and tertiary flood zones. The implementation of these projects improved flood resilience of the lower pedestrian trail for about 20 years. Over time, the paths have slowly settled with large sections of the pedestrian trails again flooding each spring (see image below). Additional improvements will be needed to address future flood projections.

STORMWATER MANAGEMENT AND BMPS

There are a number of pollutants traveling into the lakes including, but not limited to, trash, chloride, phosphorus, and sand. Current water resource management strategies within the Minnehaha Creek Watershed (including Cedar Lake and Lake of the Isles) focus on stormwater management. Strategies include reducing runoff volume and pollutant loading, shoreline restoration to stabilize lake edges and improve riparian buffers and habitat, and restoration of wetlands and ecological corridors.

Best Management Practices (BMPs) are structural, vegetative, or managerial practices used to prevent or reduce water pollution. Current BMPs around the lakes include the Cedar Meadows wetlands and grit chambers. These BMP's detain stormwater long enough to remove sediment and sources of phosphorus from entering the lakes.

Flooding at Lake of the Isles in 2000s

Cedar Meadows Wetland

OUTFALLS

There are 29 stormwater outfalls within the project area. Outfalls are storm sewer pipes from beyond park property that discharge runoff into the lakes. Each outfall in the storm sewer system has a pipeshed, which is the area of land that collects surface water discharged to a particular outfall. Individual pipeshed areas vary in size. Figure 4.4 shows the outfalls and corresponding pipesheds around the lakes throughout the study area. Storm sewer pipes are built and managed by other agencies, so partnerships amongst agencies is crucial to address runoff running into the lakes.

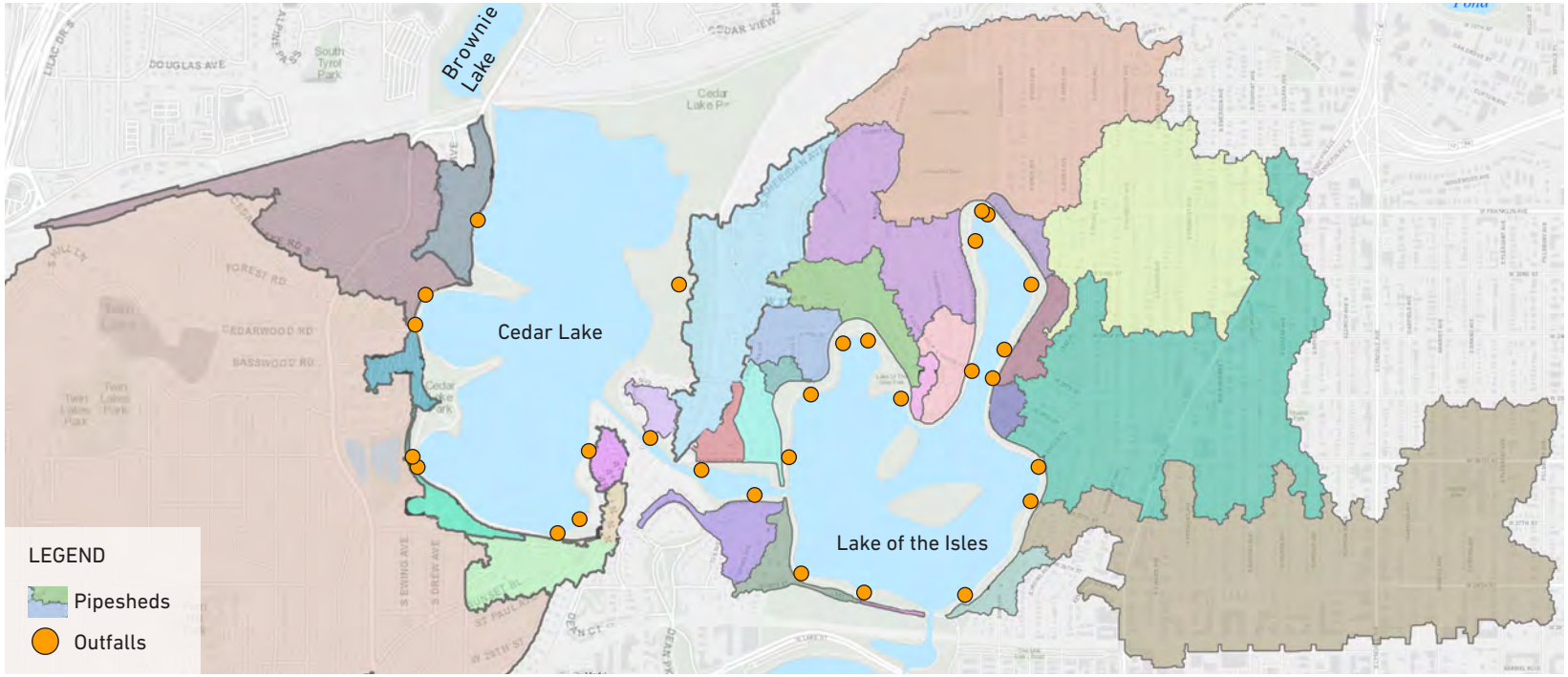


Figure 4.4: Existing Outfalls and Pipesheds. City of Minneapolis

4.3 NATURAL RESOURCES

This section will outline the changes to the natural areas over time, current soil conditions, plant communities, shoreline conditions, habitat and species, and current management strategies for the natural resources.

PRESETTLEMENT AND RECENT HISTORY

When glaciers receded from the regions approximately 12,000 years ago they deposited large mounds of soil called moraines, and melting blocks of ice left behind obvious depressions in the landscape. These processes created the topography seen in the parks today. [1]

According to the earliest European surveys, the pre-settlement vegetation at Cedar Lake, Dean Parkway, Cedar Lake Regional Trail and Lake of the Isles was dense Big Woods Forest composed of oak, maple, basswood, and hickory, and Oak Opening and Barrens, which are open-canopied woodlands and savanna.

Today, very little of the original terrain and native plant communities remain. Throughout the nineteenth and twentieth century, the metropolitan region grew rapidly and densely around the lakes. During the mid-to late- 1800s, railroads expanded through this area, first altering the eastern and northern edges of Cedar Lake by filling in bays to create causeways. In the 1880s, a railroad constructed a new right-of-way along the southern edge of Lake of the Isles, filling in between the existing shore and two southern islands.[2] A new line on the north side of Cedar Lake carved through that landscape and would become the future Cedar Lake Regional Trail. During two periods of dredging in the late 1800s and early 1900s at Lake of the Isles, 67 acres of marsh was converted to open water or parkland.[3]

1 Resource Environmental Solutions, SRF Natural Areas Plan II: Assessment and Management Recommendations, MPRB

2 Muriel Nord, "Lake of the Isles Historic District," National Register of Historic Places Nomination Form, 1984, at the Minnesota State Historic Preservation Office, Saint Paul.

3 Mathis, "Kenilworth Lagoon/Channel Context."

Most of that excavation was used as fill along the islands and shoreline and helped create Dean Parkway.

In the early 1900s, channels opened between Cedar Lake and Lake of the Isles and Bde Maka Ska. The dredging from those projects were added to the new shorelines of those water bodies and dropped the lake level in Cedar Lake by five feet.[1]

For more detail on the changes to the land within the project area, refer to Chapter 2: History of the Lakes.

1 Roise, "The Cedar Lake Parkway Bridge, In the Context of the Grand Rounds, Minneapolis."

Figure 4.5: Ecological provinces map. Source: MN DNR

CURRENT CONDITIONS

SOILS

Not much of the original soil remains within the two parks. The northeastern corner and northern edge of Cedar Lake was filled in to create a rail yard for the St. Paul, Minneapolis and Manitoba Railway in the 1880s.[1] When Cedar Lake and Lake of the Isles were connected by the Kenilworth Channel in 1913, the water elevation in Cedar Lake dropped five feet the newly exposed lake bed became the parkland that exists today. The lake's eastern bay became a dumping ground for the City in the 1950s-60s, accentuating hilly topography with a mixture of fill soil and rubble. As a result of the dredging of Lake of the Isles in the early 1900s, new land was created around the lake edges with the spoils of excavation, which means the soils from excavation were used to create land for the railroad lines.

According to NRCS Soil Survey data, about 60% of the soils within the two parks are cut and/or fill material. Restoring native habitat on poor soils is challenging and influences the type of restoration that is possible and requires a longer period of time to accomplish. Any soil that is compacted due to heavy use is a challenging foundation upon which to establish and maintain planting.

TERRESTRIAL (LAND-BASED) PLANT COMMUNITIES

The existing land-based (terrestrial) communities at Cedar Lake and Lake of the Isles are heavily impacted by human use. About 56% of the land area within both Cedar Lake and Lake of the Isles parks is devoted to areas typically used regularly and/or intensively by people (cultural landcover) such as turf grasses, beaches, paved roads and trails, and highly-trafficked areas of bare earth (Figure 4.6). Turf grass areas are heavily compacted, which can have a detrimental impact on stormwater runoff. Due to the important 'cultural' role the lawn has around Lake of the Isles as compared to Cedar Lake, there will be balanced strategies presented in the later chapter.

Figure 4.6: Simplified landcover: turf, prairie, and wooded cover

While there are some areas devoted to "human use" at Cedar Lake (three swimming beaches, paved trails, and some lawn areas), large portions of the park are well-loved forests and woodlands. Cedar Lake is considered to be the wilder, more natural park setting. The 2014 DNR Natural Areas Plan gave the natural communities around Cedar Lake and Lake of the Isles ecological quality ratings of C to D which is described as a "moderate condition natural community"

1 Mathis, "Kenilworth Lagoon/Channel Context."

with "obvious past disturbance" to a "poor condition natural community" that is "widely disturbed" and/or "dominated by non-natives". [1]

According to the 2018 Land Cover data, wet to mesic hardwood forest is the current predominant natural plant community around Cedar Lake.[2] In the northeast wooded areas around the lake, the plant species composition has been drastically altered over time due to infrastructure improvements, making it difficult to assign a comparable native plant community and it is therefore described as "Altered Forest/Woodland".

The most common canopy species observed are cottonwood, box elder, green ash, hackberry, and sugar maple, as well as oaks, elm and basswood, in approximate order of abundance. The understory is full of non-native species that can be disruptive to a healthy ecosystem. The primary non-native species is common buckthorn followed by glossy buckthorn, white mulberry and Tatarian honeysuckle. In some areas that are currently managed by volunteers, there are small pockets of forest that have a diversity of plant species.

The current condition of altered woodland at Cedar Lake requires a unique restoration approach, outlined in Chapter 5.

The strip of restored prairie along the Cedar Lake Regional Trail is one of the highest quality native plant communities within the park plan boundaries. While lacking in diversity compared to remnant, undisturbed prairies, it is dominated by native grasses including: big bluestem, switch grass, little bluestem, Indian grass, side oat gramma; and forbs such as: butterfly weed, goldenrod, white prairie clover, bee balm, hoary vervain, and lead plant. Compared to the forested areas of the park, the regional trail has well marked, paved trails for bicyclists and pedestrians. This activity, as well as the fact that a prairie is easy to observe and experience without leaving a trail, helps to preserve the integrity of this habitat.

Dean Parkway is covered mostly in turf and includes a diverse collection of deciduous trees and a few evergreen trees. The deciduous tree species include hackberry, catalpa, oak and maple.

Dean Parkway

1 Ecological quality ranking system employed by the DNR. "Natural Community Element Occurrence Ranking Guidelines"

2 Plant community mapping data comes from the 2018 Minnesota Land Cover Classification System

Lake of the Isles is interspersed with pockets of habitat, including a narrow naturalized buffer that hugs the shoreline, and two densely wooded islands. The parkland is comprised of mowed turf grasses with an open canopy of native and ornamental trees including; maples, elm, oak, and basswood mixed with tamarack, spruce, and cedars. Because much of the parkland was built on lake-dredged peat and muck, the lawns along the northside of the lake have shallow depressions that collect enough water to support wetland species like common spikerush along with flood-hardy turf grasses. The naturalized buffer ringing the shore has a variety of native shoreline plants including prairie cordgrass, sedges and bulrushes as well as a large component (20-30%) of non-native reed canary grass and giant reed.

The islands are dense lowland forests of silver maple, basswood, and green ash, along with a lot of non-native buckthorn. These islands provide a quiet refuge for nesting birds and other wildlife. Areas of naturalized vegetation can also be found between Lake of the Isles Parkway and Lake Street West on the southside of the park. Here, areas of untended vegetation have converted to pockets of wet meadow, emergent marsh, and lowland mesic forest, and include non-native species similar to the other naturalized areas around the lake.

Figure 4.7 Existing water-based vegetation as identified by ecological consultant, Source: EOR

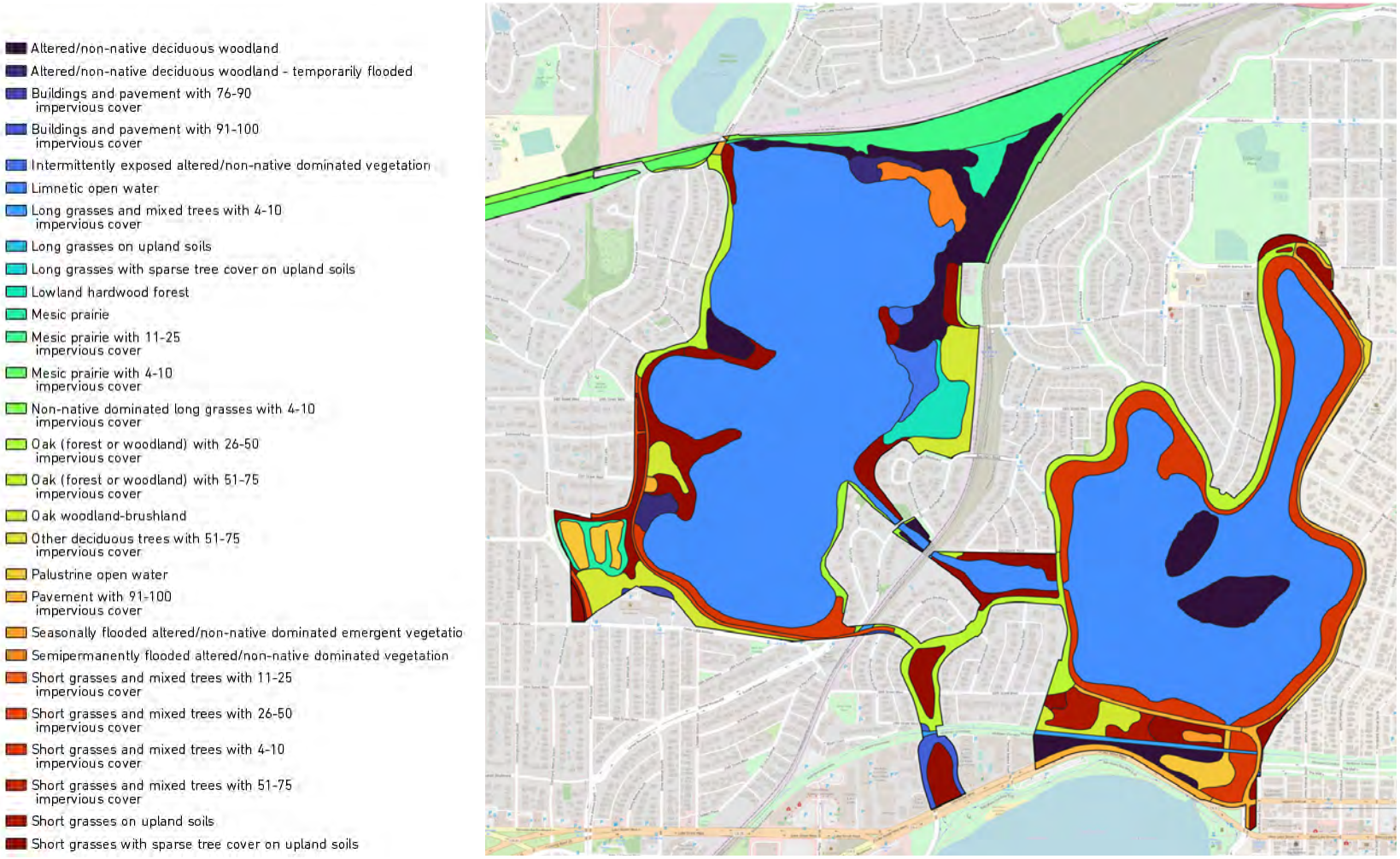


Figure 4.8 Minnesota Land Cover Classification System (MLCCS) for the plan area

WATER-BASED (AQUATIC) PLANT COMMUNITIES

The aquatic habitats within the lakes include beds of floating and submerged plants within the littoral zone (0-15 feet) as well as open water areas that are too deep (>15ft) to support plant life (Figure 4.9). The littoral zone of Cedar Lake has a surprising diversity of aquatic plants for a lake of its size in a metropolitan area. In a recent survey conducted by the ecological consultant, EOR, seven native aquatic species were found at one survey point on Cedar Lake, including muskgrass, Illinois pondweed, white stem pondweed, sago pondweed, leafy pondweed, coontail, and slender naiad. Additionally, beds of white water lily populate large portions of the shoreline and spill from the two shallow bays on Cedar.

These shallow bays also contain stands of cattail, which is a common plant found in lakes with high nutrient loading (see Water Quality Standards in section 4.2). Both native and non-native types of cattail are found in these lakes. In this rich and altered environment, it out-competes native marsh communities such as bullrush-white water lily habitats, that would support a greater diversity of emergent and aquatic plant life. Hybrid (or undesirable) cattail grows in dense stands that reduces habitat value for a variety of wildlife species including minnows, game fish, and waterfowl. Removal of cattails is very challenging and would require ongoing maintainance as seeds are airborne and present throughout the metro. Other invasive species in both lakes include a large concentration of Eurasian watermilfoil, populations of purple loosestrife, and curly leaf pondweed. Zebra mussels have also been discovered recently within the Chain of Lakes, in Lake Harriet.

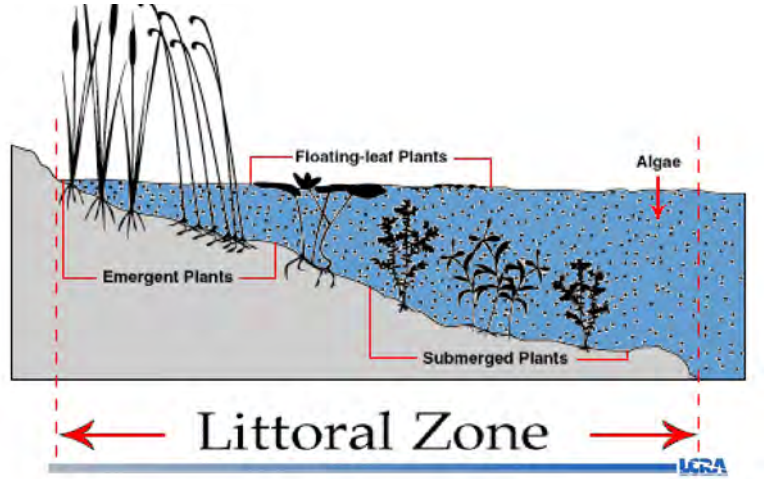


Figure 4.9: Diagram of littoral zone. Source: UMN Extension

White water lily bed at Cedar Lake. Source: TEN x TEN

SHORELINE CONDITIONS

The shorelines on both lakes are very different. The shoreline of Cedar Lake is densely forested in many areas, with overhanging branches and lots of coarse woody debris extending into the water. There are a number of formal water access spots, including beaches, a boat launch area, and a dock. Under the dense canopy, the ground is bare in many areas, and there are many informal access points. Approximately 20 private residences border the southeastern shore of Cedar Lake and the MPRB-owned shoreline adjacent to these residences varies in width and ranges from natural and planted buffers to lawns that extend to shoreline, armored with boulders or retaining walls. The majority of these properties have encroachments on MPRB property that range from retaining walls, fencing, or private docks. Many of the properties have legal encroachments in place with the MPRB that were put in place decades ago.

The shoreline along Lake of the Isles has a fairly narrow buffer of herbaceous vegetation that is generally made up of non-native and weedy native plant species. This buffer is occasionally perforated with mowed viewsheds and informal water access points. Additionally, there are a number of formalized water acces points, such as stone steps and two docks.

The Kenilworth lagoon has mowed lawn to the water on the northern side, and a naturalized shoreline on the south side. There is formalized water access on both sides.

EXISTING MANAGEMENT EFFORTS

The MPRB Natural Areas Plan – Phase 2 designated the majority of the forest within the project area as "Altered Forest." Currently, these areas are not actively managed within the park system outside of minimal tree and shrub maintenance. Additionally, the Cedar Lake Regional Trail has some of the highest quality prairie within the MPRB park system which is managed by the MPRB. The natural areas plan

Cedar Lake shoreline

Lake of the Isles shoreline

aims to both increase the percentage of managed natural areas and diversification of plant species, as well as increase internal capacity to manage existing natural areas. The Environmental Management team of the Park Board is currently working on a long-term plan to accomplish these goals.

MPRB conducts regular monitoring of lake conditions and aquatic species and also implements yearly plant harvesting to remove Eurasian Water Milfoil at both Cedar Lake and Lake of the Isles. There are a number of guidelines that the Park Board is required to follow, limiting the amount of milfoil that can be harvested throughout the year. Park Board Water Resources staff are constantly adapting their monitoring work to address new or evolving issues within the lakes, such as an increased presence of blue green algae due to Minnesota's changing climate.

There are a number of engaged and active volunteer groups who manage some natural areas around Cedar Lake; they remove non-native buckthorn and plant native seeds and trees. There are also community members who help manage garden beds and shoreline plantings around Lake of the Isles. Volunteers help to manage trash and beach clean-up at both lakes. MPRB is working to increase the efficacy of current volunteer systems.

HABITAT AND SPECIES

The Cedar-Isles project area provides habitat and refuge to a variety of wildlife. The lakes' location in the Mississippi Flyway makes them a stopover point for birds migrating through the flyway, including over 20 species of warblers. While there are no native plant communities mapped within the park plan area according to the Natural Heritage Information System (NHIS) of the Minnesota DNR, based on direct experience and recorded observations from web-based databases (primarily Ebird and iNaturalist), approximately 220 species of wildlife have been observed in and around the lakes. 180 of these species are birds. There are also several state-listed species (threatened of species of special concern) that have been observed within the vicinity of the lakes including: the Acadian flycatcher, Rusty-patched bumblebee (Federally endangered), Pugnose shiner, Least darter, and Blanding's turtle.

Improvement of habitats (terrestrial and aquatic) through expanded natural areas and increased plant diversity will improve the health of the lakes and create spaces for wildlife to thrive. Habitat improvements are based on the species shown in Figure 4.11 which include threatened and endanged species within the plan boundaries or at nearby Theodore Wirth Regional Park. All the species listed are state and federally listed and could benefit from habitat improvements.

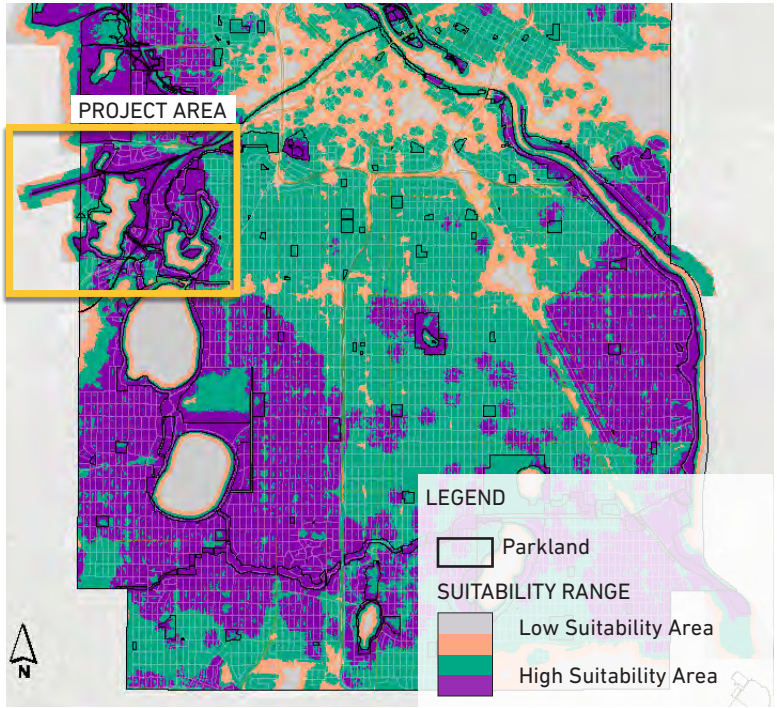
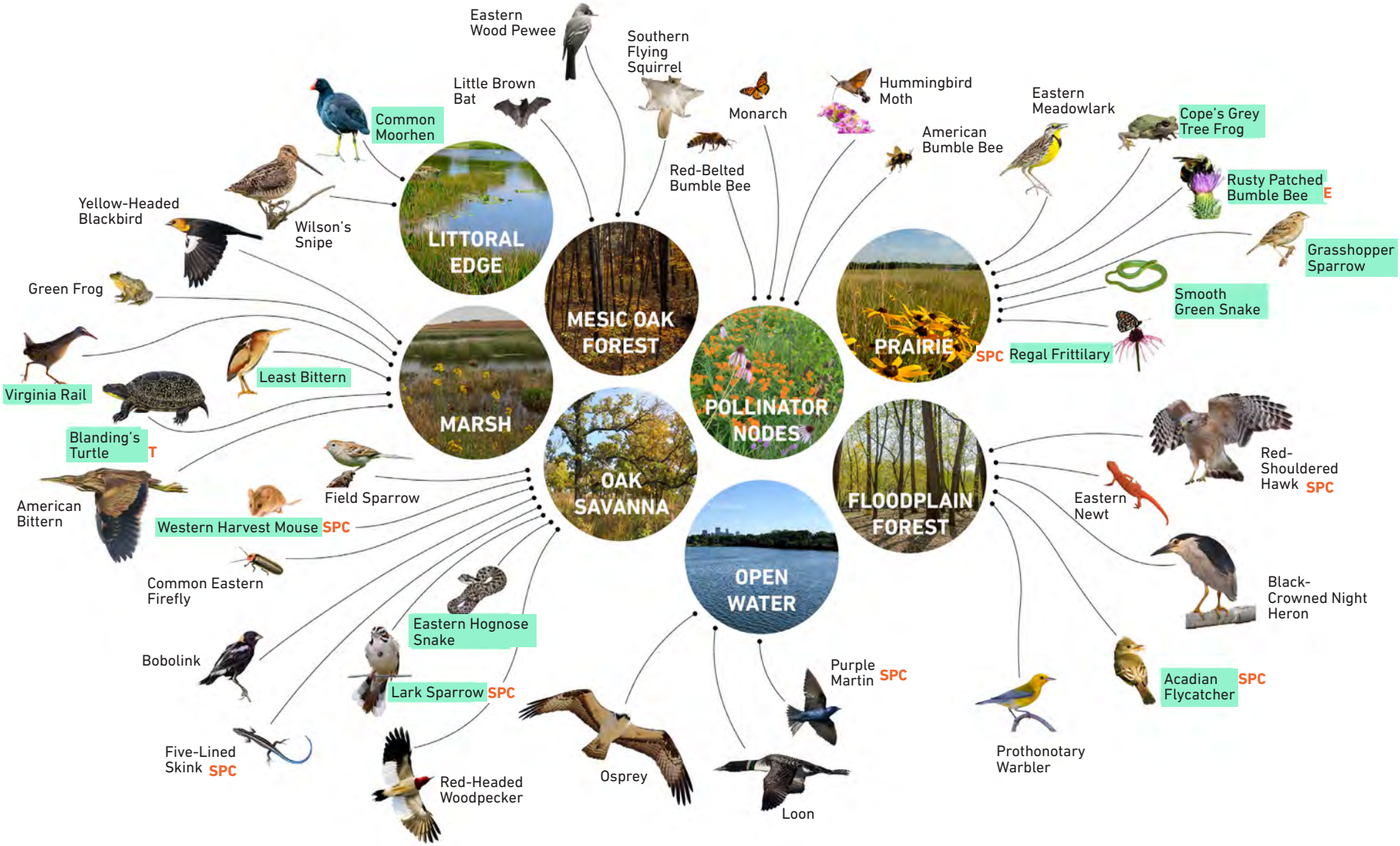


Figure 4.10: Suitability analysis for Expanded Pollinator Habitat.



Target species that may inhabit area with proposed habitat improvements

SPC Species of Special Concern

T Threatened

E Federally Endangered

Figure 4.11: Existing species within existing natural resource communities and target species that may inhabit the area with proposed habitat improvements

4.4 CIRCULATION AND ACCESS

This section will provide an overview of mobility to, in, and around Cedar Lake, Cedar Lake Regional Trail, Lake of the Isles and Dean Parkway. There are two key ways of thinking about mobility related to park spaces: access and circulation. **Access is how people come to, or arrive at, the park.** This includes roads, trails, transit routes, and water trails, as well as key gateways, such as parking lots, crosswalks, and transit stations. **Circulation is how people move through the park once they've arrived, whether walking, biking, driving, traveling, paddling, skating, skiing, or any other movement through space.** These two elements combine to shape park user's experience.

CURRENT CONDITIONS

ROADWAYS AND PARKWAYS

The parks are well connected to robust neighborhood grids and are close to major streets, including Hennepin Avenue and Lake Street. The parks are also well integrated into the Grand Rounds system of parkways with clear and direct paths to adjacent park spaces, including Bde Maka Ska. Access to the north is significantly limited, with only Cedar Lake Parkway crossing over Interstate 394. All other routes from the north require a detour away from park spaces.

Cedar Lake does not circumnavigate the entire lake and only has a two-way parkway on the south and west sides of the lake. Due to the lack of north-south routes over Interstate 394, Cedar Lake Parkway is a major transportation route and has traffic volumes similar to other major connectors in the area, such as France Avenue. Lake of the Isles is circumnavigated by Lake of the Isles Parkway, a one-way road. Lake of the Isles Parkway serves mostly local traffic and supports traffic volumes that are similar to adjacent neighborhood streets. Dean Parkway provides an important connection to Lake Street and Bde Maka Ska and has higher traffic volumes at peak times as some drivers may use the route to avoid congestion on Lake Street. The Cedar Lake Regional Trail does not provide vehicular access along the trail.

TRANSIT

The parks are well served by exiting local bus lines that run frequently, including several routes along Lake Street and Hennepin Avenue. A major bus transfer station is located at Hennepin Avenue and the Midtown Greenway, just a few blocks from Lake of the Isles.

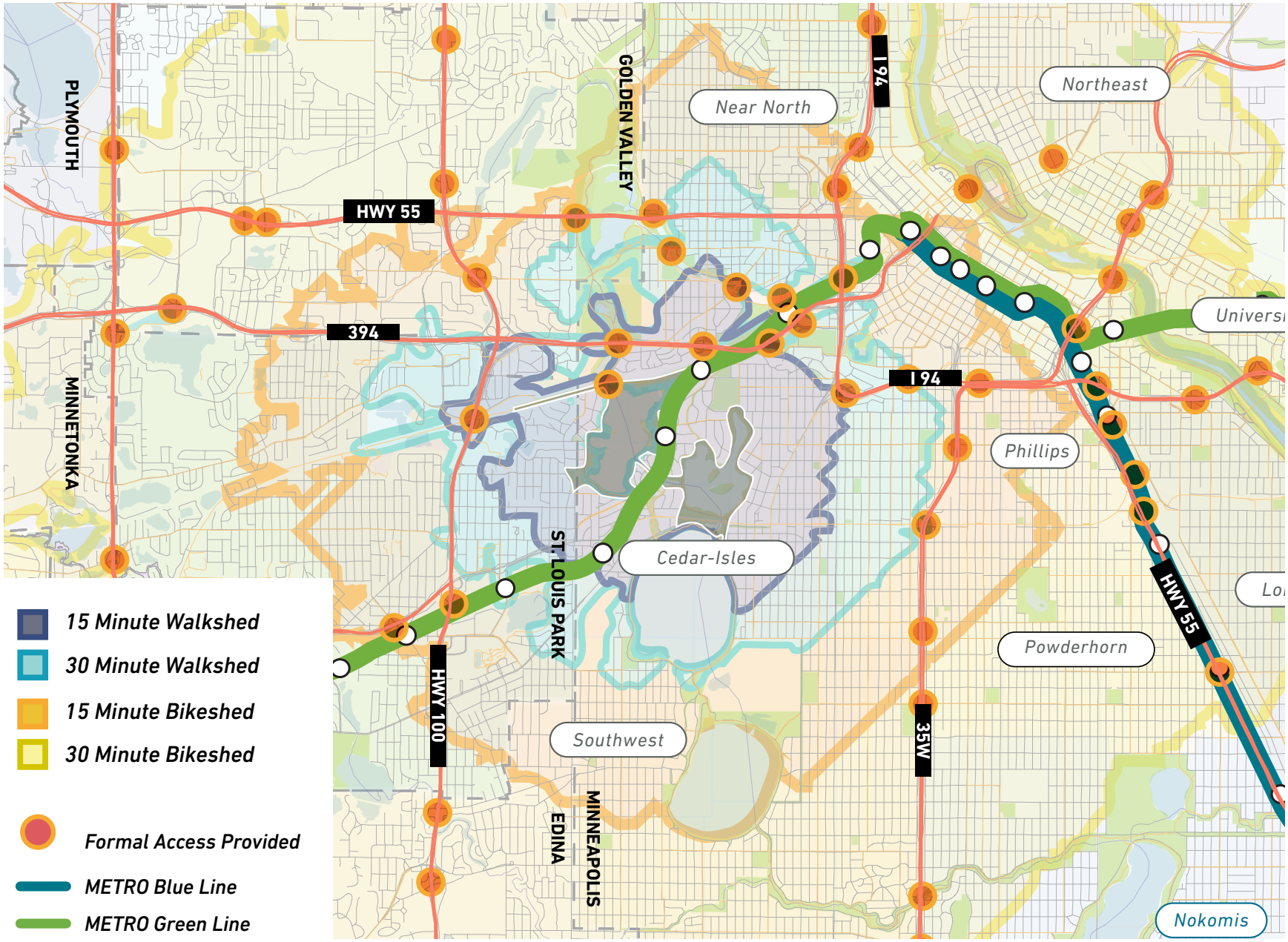
The extension of the Southwest Light Rail (Green Line) will create a new station at 21st Street, about two blocks away from Cedar Lake. This will fundamentally change the relationship of the park to transit and may make Cedar Lake and Lake of the Isles the most transit-accessible regional park area in the entire system. Additional investments within the project area are also being made to increase bus regional transit, including new Bus Rapid Transit stops at Dean Parkway on Lake Street and another at Lagoon Avenue and Bde Maka Ska Parkway.

PATHS AND TRAILS

Cedar Lake and Lake of the Isles are adjacent and well connected to several important and well used bicycle routes, including the Midtown Greenway, the trails along Bde Maka Ska, the Kenilworth Regional Trail and the Cedar Lake Regional Trail. Several additional neighborhood bikeways planned by the City of Minneapolis will connect to the trails within the project area. The adjacent neighborhood streets are generally well served by sidewalks, making these areas easy for neighbors to access. There are a few gaps in the sidewalk network, including the southern side of Lake of Isles, the west side of Cedar Lake near the parking lots, and near South Cedar Beach.

Cedar Lake has formal bicycle and pedestrian trails that run west and south along Cedar Lake Parkway and north along the Cedar Lake Regional Trail, however, there is no formal walking or bicycle trail

Figure 4.12: Walkshed and bikeshed map



along the shores of the northeast, east, and southeast sides of the lake. Not having trails connecting all the way around the lake makes Cedar unique to most other lakes within the MPRB system. Along the east side of Cedar Lake, a substantial network of ad hoc soft surface pedestrian trails have been created by park users. These trails are well used and enjoyed by community members but not formally mapped or maintained by MPRB. These trails also increase connectivity between Cedar Lake, the Cedar Lake Regional Trail, and the Kenilworth Channel.

South of the Kenilworth Channel, along the southeast shoreline, parkland exists in varying widths and sits adjacent to privately-owned resident properties. Many of these properties have formal encroachments with the MPRB and use the MPRB-owned shoreline for private use. Due to the existing shoreline conditions and existing infrastructure, the southeast shoreline is not accessible to an average park user. During the community engagement process, MPRB heard a strong desire from some in the community to add formal walking and/or bicycling trails around the entirety of Cedar Lake. For some, this was because they wanted to circumvent the lake like park users are able to at almost every other lake in the MPRB system. For others, they reported that, on principal, the MPRB should provide public access instead of private use of the publicly-owned southeast shoreline of the lake. Others reported a desire to "keep Cedar wild" and did not want to add additional trails or access to the east side, allowing for natural ecosystems to thrive more easily.

In several locations where there are formal trails at Cedar, bicycle and pedestrian paths are narrow and/or are directly adjacent to one another due to lack of parkland space and steep slopes. There are additional ad hoc soft trails on the west side of Cedar that create a more direct pedestrian connection to the existing pedestrian trail that wrap around the peninsulas. The Strava data in Figure 4.13 actually shows very little use of the existing trails on the west and much higher use of the bicycle path and ad hoc soft surface trail along the parkway.

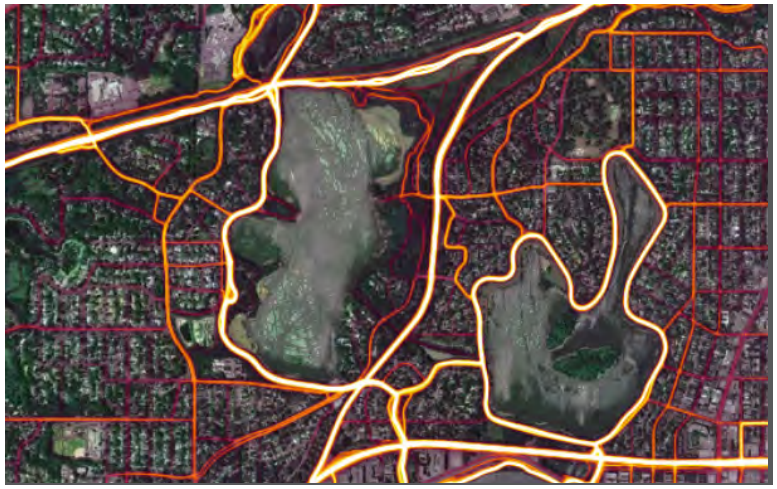
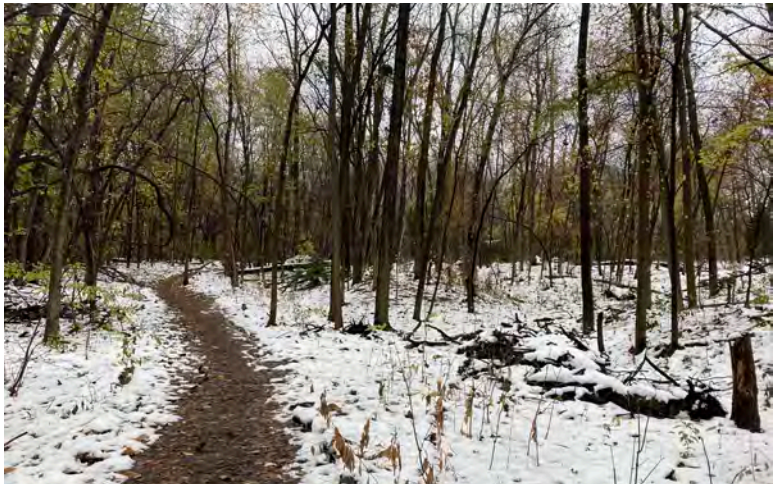


Figure 4.13: Self-reported biking and pedestrian use. Source: Strava App Data

Figure 4.14: Self-reported skiing and skating use. Source: Strava App Data)

Two-Way bike trail at Dean Parkway

Lake of the Isles pedestrian trail



Existing ad hoc soft surface trails at Cedar Lake

Cedar Lake two-way bike trail, parkway, and ad hoc soft trail

The Kenilworth Channel also has some ad hoc soft surface trails created by park users and used by those who know the area well. Currently, there is not a formal trail along the channel. During engagement, MPRB heard strong support for adding a low-impact trail connection along the Kenilworth Channel, connecting Cedar and Isles.

Lake of the Isles has a separated one-way bicycle trail and a pedestrian trail circumnavigating the lake that are well used and enjoyed for recreation and commuting. There are several pinch points, mostly on bridges, where pedestrian and bicycle traffic are brought together for a short period. During engagement, MPRB heard strong support to create two-way bicycle circulation around Lake of the Isles. There was also opposition to adding more pavement to accommodate two-way circulation due to the narrow amount of parkland available. Some additional ad hoc paths exist, mostly on the south side of Isles, where park visitors have created connections where none existed like through unmanaged forest areas or to connect to activities such as the athletic fields and dog park.

The Cedar Lake Regional Trail is a major walking and bicycling thoroughfare that runs from downtown Minneapolis, connecting these lakes to other popular bike and pedestrian trails in the city and western suburbs.

Dean Parkway has a two-way bike trail and pedestrian trail that connect to the north side of Bde Maka Ska near Lake Street, the east side of Lake of the Isles, and the south side of Cedar Lake. There is also a ramp providing a direct connection between the Midtown Greenway and Dean Parkway.

WATER TRAILS AND SKI TRAILS

Movement on the Lakes is also an important part of access to the Parks. The lakes connect to Bde Maka Ska and Brownie Lake through channels. During the warmer months, kayaks, canoes, and other non-motorized watercraft travel around and to Brownie, Cedar, Isles, Bde Maka Ska, and the channel. Though there is not a boat rental on Cedar or Isles, there is a boat rental location at Bde Maka Ska, in close proximity to accessing Isles, the channel, and Cedar.

Paddling at Lake of the Isles

Open swim events happen annually at Cedar Lake, with swimmers traveling from Cedar Lake Point Beach across the lake to Cedar Lake East Beach. In the winter, ski trails are groomed on and around the lakes, which provide connections to the Trailhead at Theodore Wirth Park and to Bde Maka Ska.

PARKING

Cedar Lake has two small parking lots on the west side of the lake, along with limited parking bays near Cedar Lake Point Beach. With the exception of major events, parking is usually not difficult, but there are areas that can be challenging. On busy days, visitors of Cedar Lake East Beach and Cedar Lake South Beach have to park on city streets in the adjacent neighborhoods to find parking.

Lake of the Isles is served by parking bays located around much of Lake of the Isles parkway. Overflow parking is available on adjacent city streets as necessary. The busiest parking location tends to be on the southern side of the parkway near the athletic fields and dog park, as this area is more heavily programmed than other parts of the lake. Parking bays also exist on Dean Parkway between Cedar Lake Parkway and W Lake Street.

BRIDGES

Several historic bridges provide access above the channels between Lake of the Isles and Cedar Lake and Lake of the Isles and Bde Maka Ska. These bridges form an iconic park experience when experienced from the water, but also serve as bottlenecks for surface transportation, with bicycle and pedestrian trails and roadways squeezed within a narrow width. See Appendix A for historical information about the bridges.

SAFETY

Although no current trails or intersections stand out as the sight of frequent collisions, many stakeholders and community members expressed concern about potential for conflicts between vehicles, bicycles, and pedestrians, or needing lighting at some major intersections, as usership continues to grow. The parks contain several areas where bicycle and pedestrian modes are mixed and signalized crosswalks are infrequent.

MAINTENANCE

MPRB staff maintains the trails by keeping them free of debris and tree branches. Staff also patch and repair small issues as needed. Trails that become in too great of disrepair to be fixed internally are contracted out and may take more time to complete due to capacity and funding constraints.

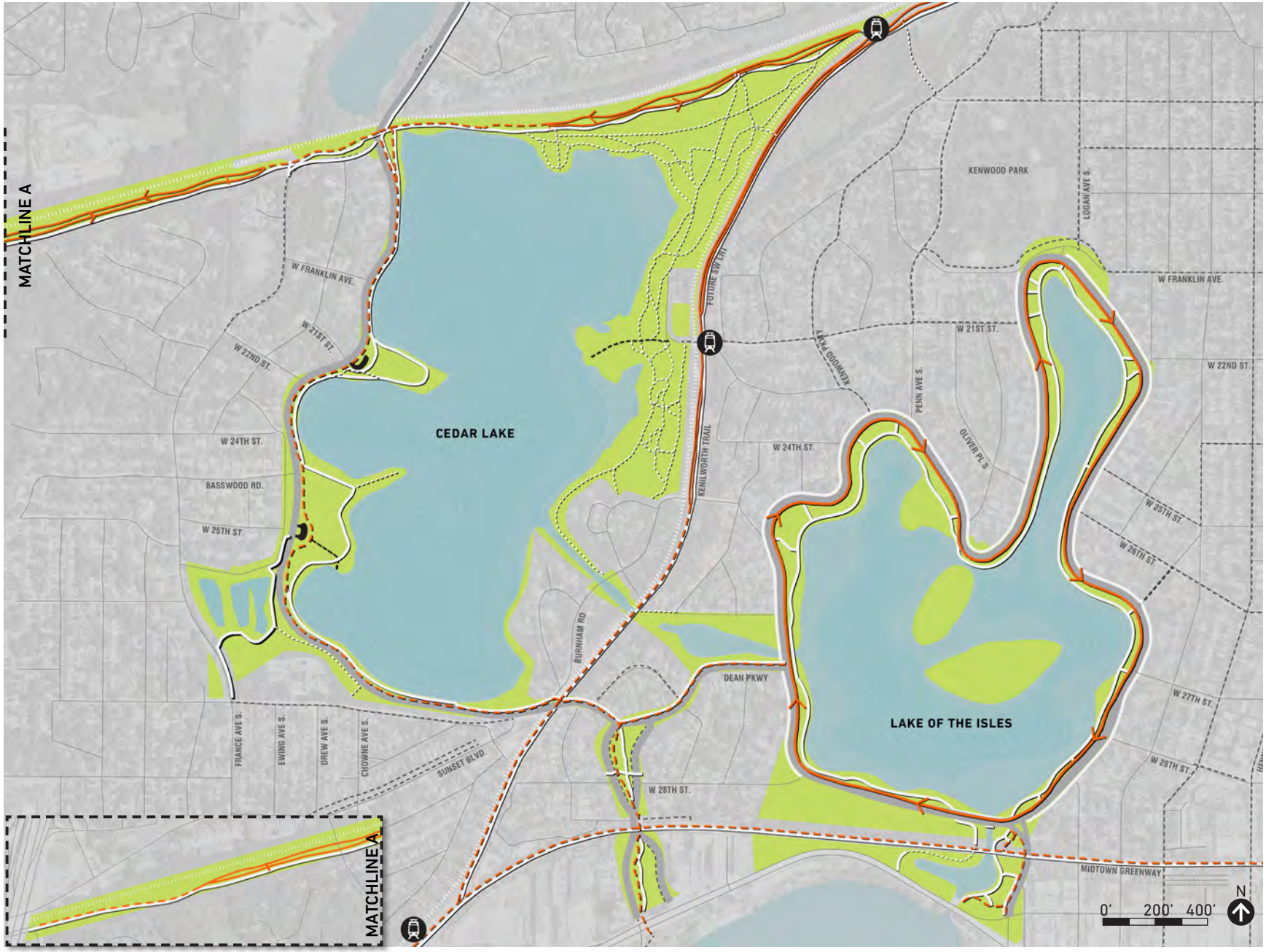
In the winter, pedestrian trails are not plowed to whereas bicycle trails are plowed to become shared-use trails. This is to both accommodate staff capacity and also to reduce the impact of salt use on MPRB's water bodies.

Ski trails are groomed and maintained by the Loppet Foundation and their volunteers.

LEGEND


EXISTING
Future LRT Station
Gravel Access Path
On-Street Bikeway
One-Way Bikeway (arrow indicates direction of travel)
Parkway
Parking Lot
Paved Pedestrian Trail
Railroad Tracks
Ad Hoc Soft Surface Trail
Paved Two-Way Bike Trail

Figure 4.15: Existing Circulation and Access



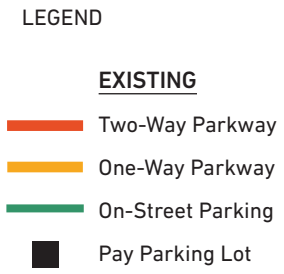
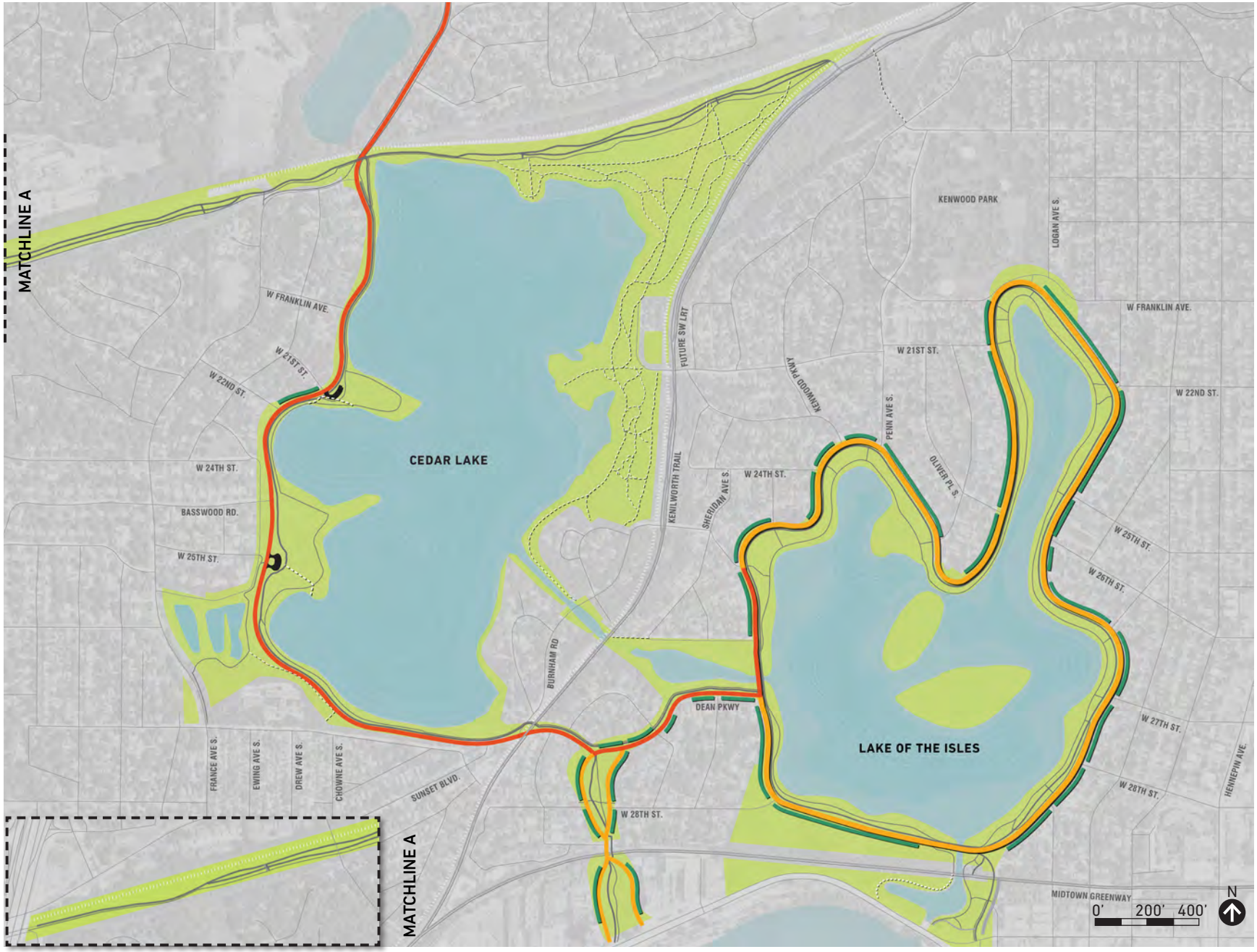

LEGEND
EXISTING
Two-Way Parkway
One-Way Parkway
On-Street Parking
Pay Parking Lot

Figure 4.16: Existing Parking



4.5 PROGRAM AND AMENITIES

CURRENT CONDITIONS

The Cedar-Isles project area offers different types of trails that travel through varied landscapes from pastoral lawns to wooded uplands. Many visitors use the lakes and trails for both passive and active recreation including hiking, paddling, floating, Nordic skiing, snowshoeing, picnicking, and birding.

EXISTING USES AND ACTIVITIES

Cedar Lake has three beaches that offer places to picnic, gather, and swim, which include Cedar Lake Point Beach to the west, Cedar Lake South Beach to the south, and Cedar Lake East Beach on the eastern peninsula. Further details about beach amenities are included in section 5.5.

The southern peninsula on western side of Cedar, known as South Cedar Point to many residents, is an area frequently visited to fish, launch canoes and kayaks, gather, and bird watch. The northern peninsula of South Cedar Point includes a gravel access road that ends at the tip of the peninsula. The peninsula is not a formal beach, but is used as a small gathering spot.

Several forested areas around the lake are managed by volunteers, who often add personal touches within the forest spaces, whether it be ad hoc soft surface trails, nature art, or viewing locations. The forest on the east side of Cedar is designated as a DNR School Forest and provides nature education programming to classrooms. Many of the forest areas are informally used by visitors for hiking, bird watching, and some trails to the northeast of Cedar Lake are used as a bicycle or mountain bike connection.

Winter recreation on Cedar Lake

Naturalized shoreline managed by volunteers at South Cedar Point. Source: Mark Schmidt

Much of the parkland around Lake of the Isles and Dean Parkway are formal lawns that are often used for gathering, reading, informal picnicking, and relaxing. Lake of the Isles offers two adjacent fenced-in dog parks that are open year-round. On the south side of Lake of the Isles are athletic fields, one of the few locations at Isles that has actively programmed use. Athletic tournaments are completed in partnership with community groups.

The northwest area of Lake of the Isles is another location for programmed activities: there is an existing dock and canoe racks across from the Peavey Fountain.

Within the project area, there are a number of formal and informal water access points that are used for fishing, non-motorized watercraft launch, observation, and light programming. Many of the informal water access spots have become heavily eroded. There are no formalized playgrounds within the project area, however, there are playgrounds located at several adjacent parks, including Kenwood Park and Joanne R. Levin Park near Lake of the Isles and Reserve Block 40 on the west side of Cedar Lake.

EVENTS

This area hosts a number of formal and informal events throughout the seasons. Volunteers have increased the amount of programming at Cedar Lake East Beach over the last several years and it has become a known hub for yoga, concerts, and art opportunities. Other community events, concerts, films, group gatherings, paddle tours, and swimming groups are often held at both lakes. The Cedar Lake Regional Trail, which provides access from the western suburbs to downtown Minneapolis, is often an important piece of large events such as the City Trail Loppet, the City of Lakes Tri-Loppet Triathlon, Minneapolis Bike Tour, and the Bike MS Twin Cities Ride.

Swimmer at Cedar Lake open swim

Luminary loppet at Lake of the Isles. Source: TEN x TEN

RENTALS

Paddle rentals are not available at Cedar Lake or Lake of the Isles, however, many paddlers access the lakes from the rental facility at Bde Maka Ska. The Park Board allows limited annual permits for canoe or kayak storage on racks at both lakes. The multi-use fields and ice rinks are reservable for practices or single games, and parkways can be closed for special uses with a permit.

COMFORT AND AMENITIES

Amenities located within the Cedar-Isles plan area like benches, picnic areas, water access points, docks, restrooms, drinking fountains, and trash receptacles all help make a visit to the park and trails more comfortable. Visitors have a wide range of needs and with unpredictable Minnesota weather, places to rest and recharge are important.

Benches exist frequently around Lake of the Isles and inconsistently along the trails at Cedar Lake; there is not a standard interval at either. This lack of consistent rest spots could be challenging for older, younger, or less fit trail users who enjoy being outside. There is plenty of shade around both lakes, so finding a spot to escape the sun is an easy task.

There are no picnic shelters within the project area, however, formal picnic areas, which include picnic tables, trash receptacles, and grills, exist at Cedar Lake Point Beach, South Cedar Point, Cedar Lake South Beach, and Cedar Lake East Beach. There are no formal picnic areas at Lake of the Isles, Dean Parkway, or the Cedar Lake Regional Trail and there are no ADA picnic areas currently available within the project area. The picnic area near the dock at South Cedar Point serves as an informal accessible picnic area and there is interest

Canoe rack storage at Cedar Point Beach

Cedar Lake East Beach Rest portable restrooms, Summer 2021. Source: MSR

in supporting MPRB to make the existing picnic area meet ADA standards in the future.

There is one permanent restroom (or visitor shelter) in the project area at Cedar Lake South Beach, which is open seasonally and is closed from November through April. Portable restrooms, or port-a-potties, are available year-round at Cedar Lake East Beach, Cedar Lake Point Beach, and the parking lot at W 25th Street and Cedar Lake Parkway (South Cedar Point). Lake of the Isles has one year-round portable restroom near the intersection of Lake of the Isles Parkway and the Midtown Greenway. Two seasonal portable restrooms are available on Lake of the Isles at the Warming House (winter) and at the end of Newton Ave S (summer).

Additional restrooms are located near the northern arm of Lake of the Isles outside the project area; a portable restroom at Kenwood Park and a permanent restroom at Kenwood Community Center that is available for use during building hours of operation.

Seasonal hand pump drinking fountains (summer only) are available on Lake of the Isles at W 25th St and at Franklin Ave. Cedar Lake has one drinking fountain outside of the permanent restroom at Cedar Lake South Beach and a water pump at the entrance of Cedar Lake East Beach. Waste and recycling receptacles exist at some intersections and key gathering areas such as beaches and picnic areas, but are not widely dispersed, and do not have options for compost.

Bike share stations are offered at a handful of locations around the project area, as well.

WAYFINDING AND SIGNAGE

Wayfinding helps users track where they are, how to get where they're headed, and what's available to them. Wayfinding and signage is most robust along the trails where standard MPRB signage indicates bike and pedestrian routes and traffic rules. Grand Rounds Scenic

Mural at Cedar Lake South Beach

Byway wayfinding posts and information kiosks exist within the Grand Rounds area. There is no existing wayfinding to point people toward destinations like neighborhood commercial districts or city-wide bikeway connections.

Currently there are no interpretive features along the trails or within the parkland, however, a mural was recently installed at Cedar Lake South Beach, a collaboration between the Cedar-Isles Dean Neighborhood Association and the MPRB.

MAINTENANCE

MPRB staff maintains regional parks year-round through different activities, which includes but is not limited to: reseeding and mowing the lawns, picking up garbage, opening and maintaining the beaches, dog park, and restrooms, and responding to visitor complaints or requests. Staff also report hazards or amenities in disrepair.

In the winter months, staff oversee the installation and maintenance of the seasonal warming house and hockey rink.

Repairing or replacing amenities sometimes does not happen right away and is based on capacity and funding available.

4.6 VOLUNTEER EFFORTS

Cedar Lake, Lake of the Isles, Dean Parkway, and the portion of Cedar Lake Regional Trail adjacent to Cedar Lake currently benefit from ongoing volunteer and stewardship efforts that span a wide range of work including invasive species removal, plant and forest restoration, park clean-up, place-making, and programming. Endeavors regularly evolve based on need, funding, and level of engagement or capacity from volunteers and/or MPRB staff.

These sustained stewardship efforts support the collective management and social cohesion of the public parkland. The Community Initiatives Map (Figure 4.17) documents community work and initiatives that were noted throughout the community engagement process; the map is not fully comprehensive and will continue to evolve over time.

MPRB should continue to formalize, maintain, and grow opportunities for volunteer stewardship in the future.

Yoga at East Cedar Lake Beach. Source: Kenwood Neighborhood Organization

Volunteers seeding in a restoration area. Source: Mark Schmidt

LEGEND

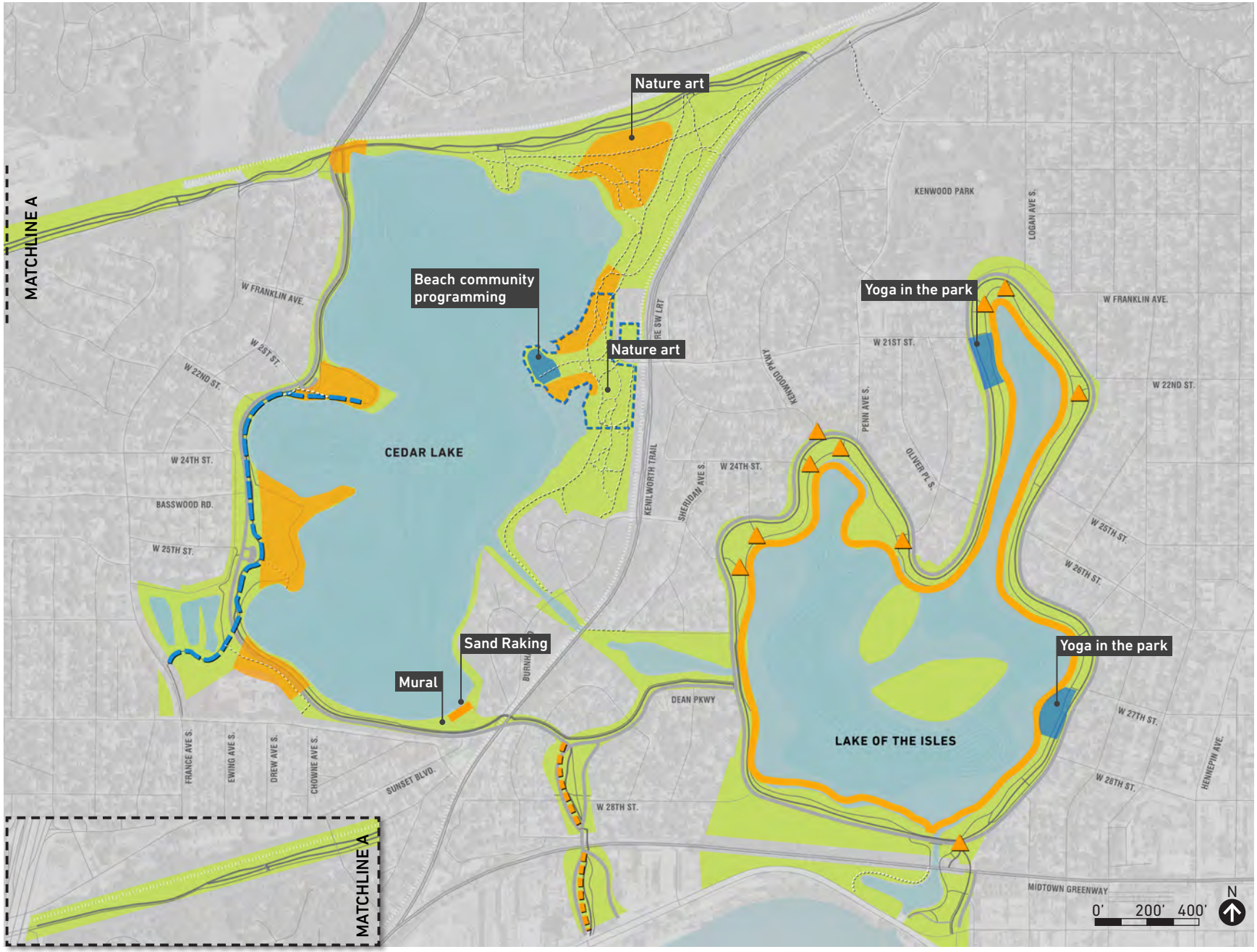
Restoration Volunteer Initiatives

- Garden Bed Maintenance
- Loosestrife Removal + Trash Pick-up
- Tree Planting Initiative
- Volunteer Restoration Area

Programming Volunteer Initiatives + Activities

- DNR School Forest
- Informal Birding Corridor
- Programming Areas

Figure 4.17: Community Initiatives Map



4.7 DEMAND FORECAST, TRENDS AND FUTURE NEEDS

DEMAND FORECAST, TRENDS AND FUTURE NEEDS

According to Metropolitan Council regional forecasts, the regional population will grow from 2,850,000 as of 2010 to 4,001,000 by 2050, a 30% population increase. In addition to population growth within the region, the annual estimated visits to the regional park system have continued to increase over time. The 2021 Annual Use Estimate includes the highest number of visits on record at 64.9 million. Of these 64.9 million visits, Minneapolis Chain of Lakes Regional Park makes up an estimated 7.6 million visits, which is almost double the number of the next most visited park, Como Regional Park Zoo & Conservatory, at an estimated 4.6 million visits. Additionally, the Minneapolis Chain of Lakes Regional Park has consistently been the most visited regional park for at least the last 15 years based on previous Use Estimate numbers, will continue to maintain high visitor numbers in the years ahead.

While the region's population is forecasted to increase and park visits will likely grow, biodiversity is decreasing rapidly for both animal and plant species. Supporting wildlife through increased habitat connections, removal of buckthorn and other well-adapted species, and retaining and improving land and aquatic habitat, are steps that can be taken to counter this concerning trend. Educational programming and activities along with other informational materials for park users can help to build relationships with the land, water, and wildlife.

The Green Line Extension project, also known as the Southwest Lightrail project, includes two stops that are close to or immediately adjacent to the project area. The Bryn Mawr and West 21st Street Stations will both bring new users to Cedar Lake. When completed, it's projected that this line will carry 17,450 to 20,975 passengers a day.

To meet the needs of increased user demands, recommendations will clarify mobility modes and increase the capacity of the parkland through, widening existing bicycle and pedestrian routes where appropriate, adding new spur trails where needed to improve access to the parks, and proposing measures to expand pedestrian and bicycle accessibility while slowing vehicular traffic.

The Metropolitan Council 2021 regional park visitor study data highlighted activities with a greater likelihood of participation by a particular group compared to the baseline group. The following charts outline the groups, activities, and identify how much more likely the group is to participate in a certain activity.

Overall, the top five activities visitors participated in while at regional parks were: hiking/walking, relaxing/doing nothing, observing nature, biking, and family/friends meetup. Incorporating and/or formalizing amenities and supporting existing activities within the project area will support new and future park users.

The 2021 visitor study data also identified the top five suggestions for improvement MPRB regional parks and trails, which includes: better trail maintenance, bathroom access, water/drinking fountain access, water fountains turned off, and nothing/all good. These items will need to be addressed to improve visitor satisfaction. [1]

1 Metropolitan Council (2022). "Visitor Study Data Discussion 1: Background and Visitor Satisfaction" [Workshop Handout]

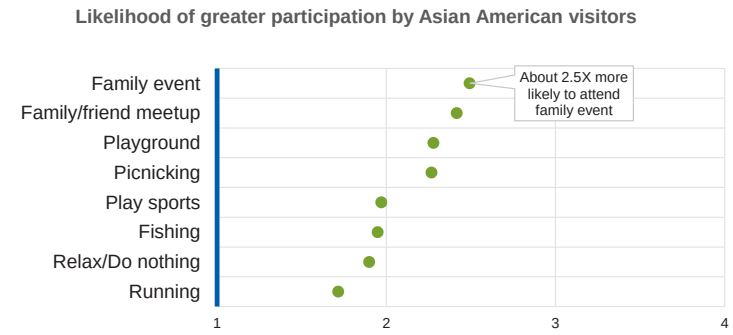


Figure 4.18: Likelihood Asian American visitors will participate in an activity compared with all other visitors in the 2021. Parks and Trails Visitor Study. Source: Metropolitan Council

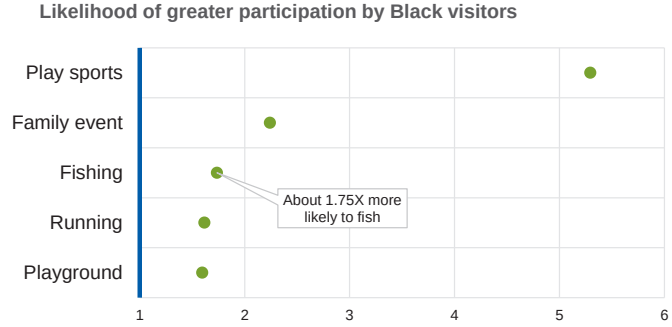


Figure 4.19: Likelihood of Black visitors will participate in an activity compared with all other visitors in the 2021 Parks and Trails Visitor Study. Source: Metropolitan Council

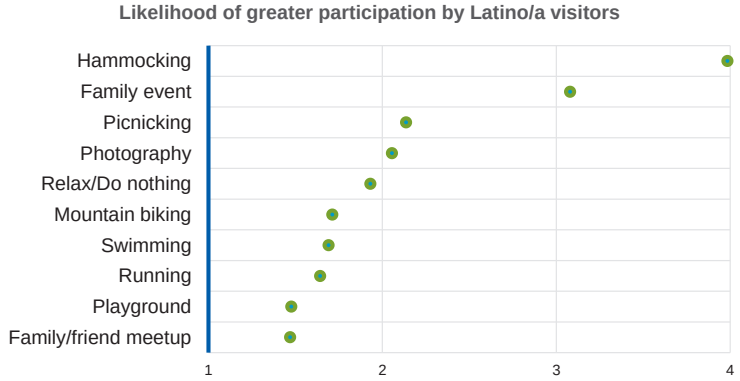


Figure 4.22: Likelihood Latino/a visitors will participate in an activity compared with all other visitors in the 2021. Parks and Trails Visitor Study. Source: Metropolitan Council

Figure 4.21: Likelihood White visitors will participate in an activity compared with all other visitors in the 2021. Parks and Trails Visitor Study. Source: Metropolitan Council

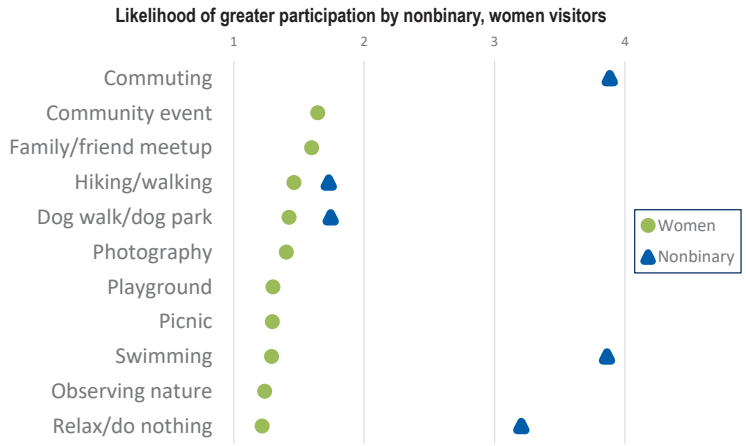


Figure 4.22: Likelihood visitors identifying as gender nonbinary and women will participate in an activity compared with visitors who identify as men in the 2021 Parks and Trails Visitor Study. Source: Metropolitan Council

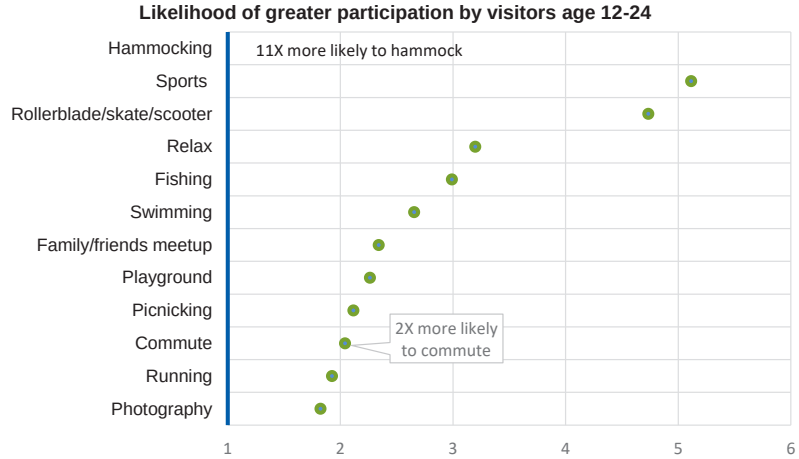


Figure 4.23: Likelihood visitors age 12-24 will participate in an activity compared with visitors age 45-64 in the 2021 Parks and Trails Visitor Study. Source: Metropolitan Council

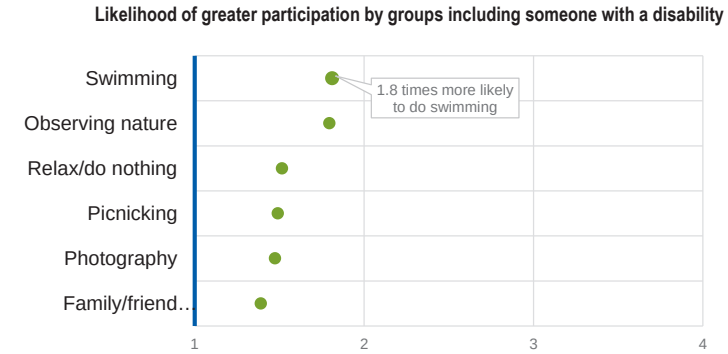


Figure 4.24: Likelihood groups including someone with a disability with participate in an activity compared groups without a person with a disability in the 2021 Parks and Trails Visitor Study. Source: Metropolitan Council