Square Lake Park Special Recreation Feature
Master Plan

Washington County

BOLTON & MENK

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Chapter 1:
Planning Framework Overview

Square Lake Park Special Recreation Feature

Located in the northeast quadrant of Washington County, Square Lake Park is designated as a Special Recreation Feature within the Metropolitan Regional Parks and Trails System. This designation stems from the pristine water of the park's adjacent lake, which hosts some of the clearest lake water in the Twin Cities region. At 25-acres, Square Lake Park provides several recreational opportunities, including scuba diving, swimming, pier and lake shore fishing, lake access, picnicking, and hiking. The lake and natural backdrop provide an idyllic setting enjoyed by an estimated 73,745 visitors[1] in 2019.

The Square Lake Park Special Recreation Feature Master Plan has been created in collaboration with the community, park users, and project stakeholders to form a comprehensive, long-term vision for the park's future. The planning process sought to balance recreation opportunities with natural resource stewardship best practices, while maintaining water quality of the lake – the site's defining feature. This document outlines planning and management of current park assets while identifying improvement opportunities. It is intended to be used as both a short- and long-term guide for strategic park capital improvements, acquisitions, and natural resource management towards maintaining a high-quality park facility for many years.

Goals for this master plan were developed with a Technical Advisory Committee (TAC) comprised of agency representation from Washington County and informed by fellow project stakeholders. Project goals and themes were established in the beginning stages of the planning process and ultimately guided the master plan. As the master plan public engagement was conducted, these statements were reflected on, and reevaluated, to address input and community priorities. They are reflective of the larger values of the park and Washington County. Each goal is intended to support key themes at Square Lake Park. A summary of these goals and desired outcomes can be found in **Table 1.1** on the following page.

[1] Estimated from Metropolitan Council's Regional Park System Annual Use Study

TABLE 1.1 – Square Lake Park Special Recreation Feature Master Plan Goals	
Square Lake Park Values/Themes	**Broad-Based Outcomes/Goals**
Access Improvements	Enhance visitor experience: welcoming arrival, clear parking, accessible circulation between park destinations
	Heighten awareness of the park
	Improve access and connectivity to the local community and region
	Preserve public access and opportunities to experience Square Lake
	Preserve and enhance diversity of visitor income, race, ethnicity, and age
Recreational Use	Expand recreational opportunities for year-round use
	Maintain and improve existing facilities
	Consider new or expanded facilities to accommodate new activities and users
	Reduce barriers for underrepresented users
	Expand opportunities for park programming
Infrastructure Improvements	Provide universal access to park facilities/amenities (ADA) to every extent possible
	Incorporate green infrastructure into park improvements
	Redevelop parking areas with enhanced stormwater best management practices
	Explore seasonal use opportunities for parking/overflow infrastructure
	Enhance gathering space to accommodate large and small groups
Water Quality Protection	Protect water quality and clarity of Square Lake
	Provide interpretive opportunities that highlight the importance of water quality
	Continue outreach coordinating operations/ management of Square Lake and contributing waters
	Continue Aquatic Invasive Species (AIS) prevention efforts with agency partners
Natural Resource Protection	Identify natural communities for preservation, protection and restoration for enjoyment by future generations
	Provide interpretive opportunities that highlight the important natural resources within the park
	Develop and implement a plan for continued canopy regeneration for future use
	Develop guidance on maintenance/management for different areas of the park

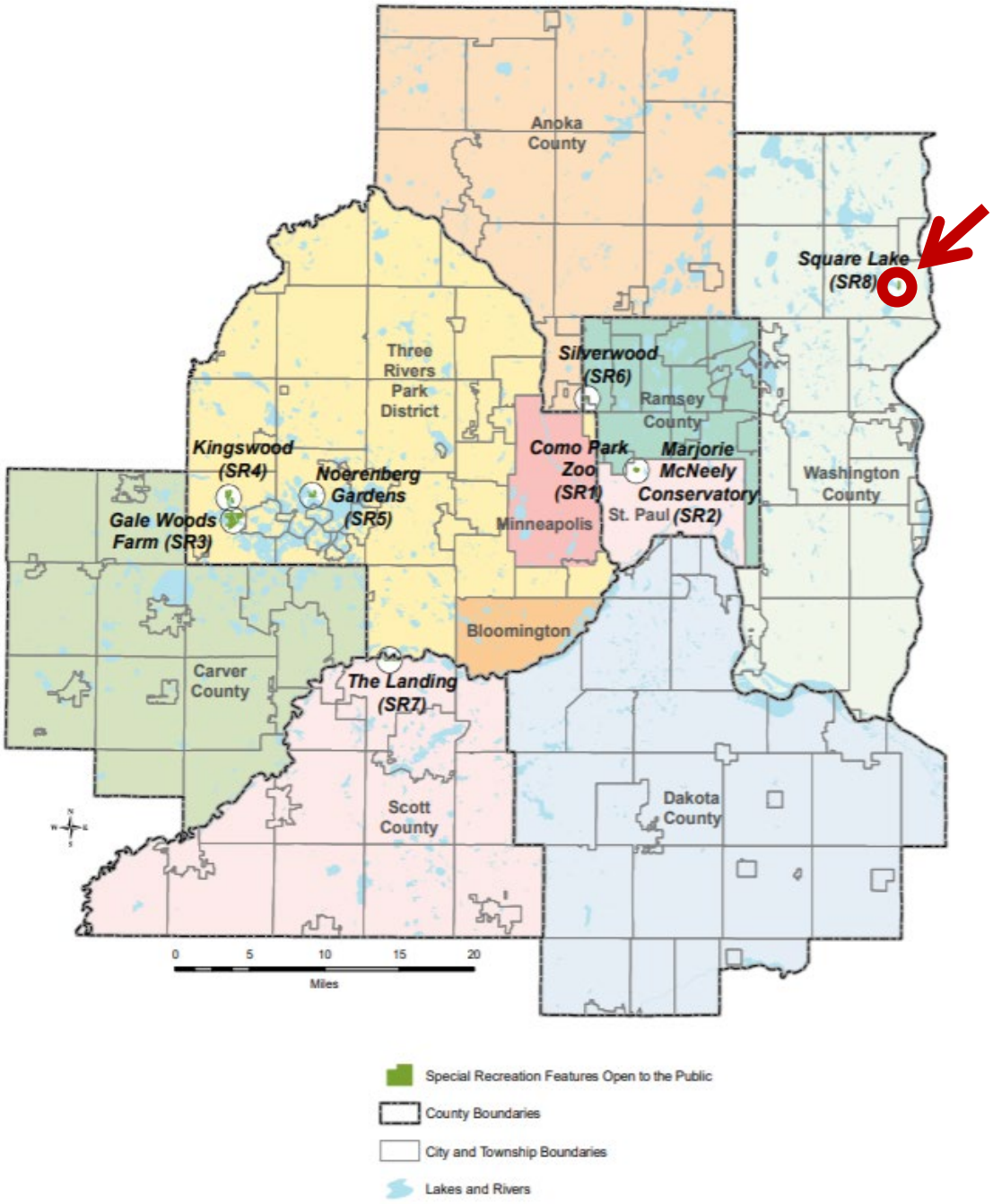
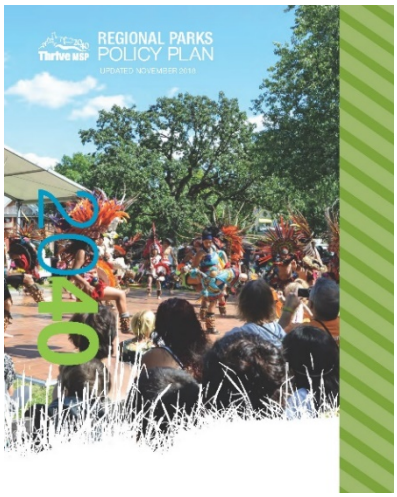


***Figure 1.1**: Metropolitan Regional Parks System - Public Special Recreation Features Map*

The Twin Cities Regional Park & Trail System serves the seven county Twin Cities metro region. With over 3 million residents across the region, more than 58 million visits occur each year. The regional park system hosts over 54,000 acres of park land and park reserves, eight special recreation features, and almost 400 miles of trails. The Metropolitan Council (Met Council) oversees visioning and planning for the system as well as acquisition and development of additional parks and trails. The system's parks and trails are operated and maintained, however, by partnering cities, counties, and special districts.

Thrive MSP & 2040 Regional Parks Policy Plan

Met Council provides planning and policy guidance for the region. Thrive MSP 2040 was adopted in May 2014 and is the result of extensive engagement with Twin Cities residents, business leaders, and governing bodies. The plan serves as a comprehensive development guide and outlines five outcomes and three principles as the "foundation of a prosperous, equitable, and livable region for today and for generations to come."



Outcomes

- Stewardship
- Prosperity
- Equity
- Livability
- Sustainability

Principles

- Integration
- Collaboration
- Accountability

The *2040 Regional Parks Policy Plan* (November 2018) was developed as one of three required metropolitan systems plans as part of Thrive MSP 2040 and outlines policy direction to ensure, "…fulfillment of outdoor recreation benefits for all residents of the metropolitan regional, now and into the future." Applying the above outcomes and principles to the regional park system resulted in the following guidance for the Parks Policy Plan:

- Expand the Regional Parks System to conserve, maintain, and connect natural resources identified as being of high quality or having regional importance, as identified in the 2040 Regional Parks Policy Plan.
- Provide a comprehensive regional park and trail system that preserves high-quality natural resources, increases climate resiliency, fosters healthy outcomes, connects communities, and enhances quality of life in the region.
- Promote expanded multimodal access to regional parks, regional trails, and the transit network, where appropriate.
- Strengthen equitable use of regional parks and trails by all our region's residents across age, race, ethnicity, income, national origin, and ability.

This Policy Plan shapes the regional vision for the park and trail system relating to facility siting and acquisition, access, cost sharing, protections, and funding among other topics. It is up to each Regional Park Implementing Agency to develop individual master planning documents for their regional facilities which support this larger vision. An approved master plan for each regional park, park reserve, regional trail, and special recreation feature is required to receive grant funding for acquisition or development.

Washington County

Washington County contains six regional parks and park reserves, two regional trails, and one special recreation feature - Square Lake Park. The park is one of just eight total special recreation features across the entire Twin Cities region. Each are high-quality facilities which offer complementary, but unique amenities within the regional park system such as specialized or single-use activities that require unique management or programming. These facilities range in their public offerings such as the Como Park Zoo, Majorie McNeely Conservatory, Norenberg Gardens, and Silverwood Park.

In addition to the regional parks and trails in Washington County, there is a historic courthouse and one county park. In total the Washington County park system totals over 4,400 acres. The Minnesota Department of Natural Resources (DNR) also operates two state trails within the county - Gateway and Browns Creek. The St. Croix river borders the County to the East and the Mississippi River to the South. Several lakes and natural resources are located throughout the County creating a wide variety of unique natural landscapes.

Washington County works cooperatively with local communities, adjacent counties, public agencies, and the Metropolitan Council to maintain a high level of park service.

Washington County Bicycle and Pedestrian Plan

At the time of this report, Washington County has concurrently been developing a Bicycle and Pedestrian Plan to guide the next 10 years of bicycle and pedestrian routes throughout the County. The draft plan provides information on future on- and off-road network connections including a potential future off-road facility along County Highway 7 (Square Lake Trail N) adjacent to Square Lake Park. Square Lake Park would anchor two segments of those planned off-road facilities. The draft plan identifies this as a longer-term project. Prioritization was based on whether a future facility fills a gap, enhances user comfort, would be part of the regional bicycle transportation network (RBTN), or connects to parks, schools, regional/state trails, an RBTN route, homes, or designated demand centers.

Local Communities & Park System

Square Lake Park is located in May Township. Neighboring communities include Stillwater Township, Grant, Hugo, Scandia, and Marine on St. Croix. Forest Lake is approximately 20-30 minutes to the northwest by car, and Stillwater is 15 minutes south. May Township operates one park adjacent to its Town Hall, Marv Schroeder Park. This 12-acre park has been expanded over the years to include ball fields, two playgrounds, a picnic area with pavilion, a sport court, and wildflower garden. Square Lake is located three miles east of this facility. In partnership with local agencies, the Carnelian-Marine St. Croix Watershed District (CMSCWD) oversees the Square Lake Clean Water Partnership, which closely monitors water quality in Square Lake.

Additional Precedent Planning Documents

The Square Lake Park Special Recreation Feature Master Plan supports the work of past planning initiatives and is consistent with the regional planning vision set forth in the 2040 Regional Parks Policy Plan. The May Township 2040 Comprehensive Plan has been reviewed in the development of this plan to ensure a shared vision for area natural, park, recreation, and open space resources. Additionally, the 2010 Watershed District Management Plan and 2013 Update prepared by the CMSCWD was reviewed during development of this master plan. The 2013 update was developed in response to public concern for aquatic invasive species and groundwater availability and quality. The Watershed District is currently amidst a 10-year update to the Watershed District Management Plan.

As part of the 2013 Water District Management Plan update the CMSCWD released a 2013 Square Lake Implementation Plan to provide specific guidance to measures toward improving water quality at Square Lake. The priority management areas identified through previous studies indicated the need for a primary focus on 'in-lake food web interactions' and secondary foci on 'groundwater' and 'surface water runoff' sources and conditions. The implementation plan table included as part of this document highlighted education, monitoring, and stabilization efforts to work towards water quality improvements among public and private users and landowners at Square Lake. Many of the efforts identified in the Square Lake Implementation Plan were introduced during discussions as part of this master planning process. A copy of this report can be found in **Appendix II** of this document.

Public Health and Environment

Developing resilient and sustainable communities is core to Washington County, who realizes that its communities must remain well-prepared and adaptable to change. This master plan aspires to the ideals of resilience, sustainability and social equity laid out in Washington County's 2040 Comprehensive Plan which defines the terms resiliency, sustainability and social equity in the following paragraph:

> *"Washington County will strive to maintain its identify, high quality of life, and its current and future resident's access to a healthy lifestyle, by embracing resiliency and sustainability in future decision making. Efforts will be made to ensure resiliency through the county's ability to react, adapt and thrive in the face of environmental,*

social and economic changes. Healthy and vibrant communities are those that are prepared and have the capacity to evolve."

The 2040 Comprehensive Plan identifies four primary areas in which to focus their efforts on resiliency, sustainability, and equity:

- Hazard Mitigation/Community Vulnerability
- Healthy Communities
- Energy
- Solid Waste Management

The first two of these are of particular relevance to the planning at Square Lake Park. Hazard mitigation and community vulnerability considers the impacts of changing climate and precipitation trends. The master plan provides a framework for managing natural resources within the park while offering guidance for protecting the lake's water quality.

Washington County also seeks to incorporate natural resource best management practices with its park management, such as the use of native plants and responsible use of water. Enhancements to the park also present the chance to establish a standard for adjacent properties, particularly those surrounding Square Lake, to elevate sustainability practices.

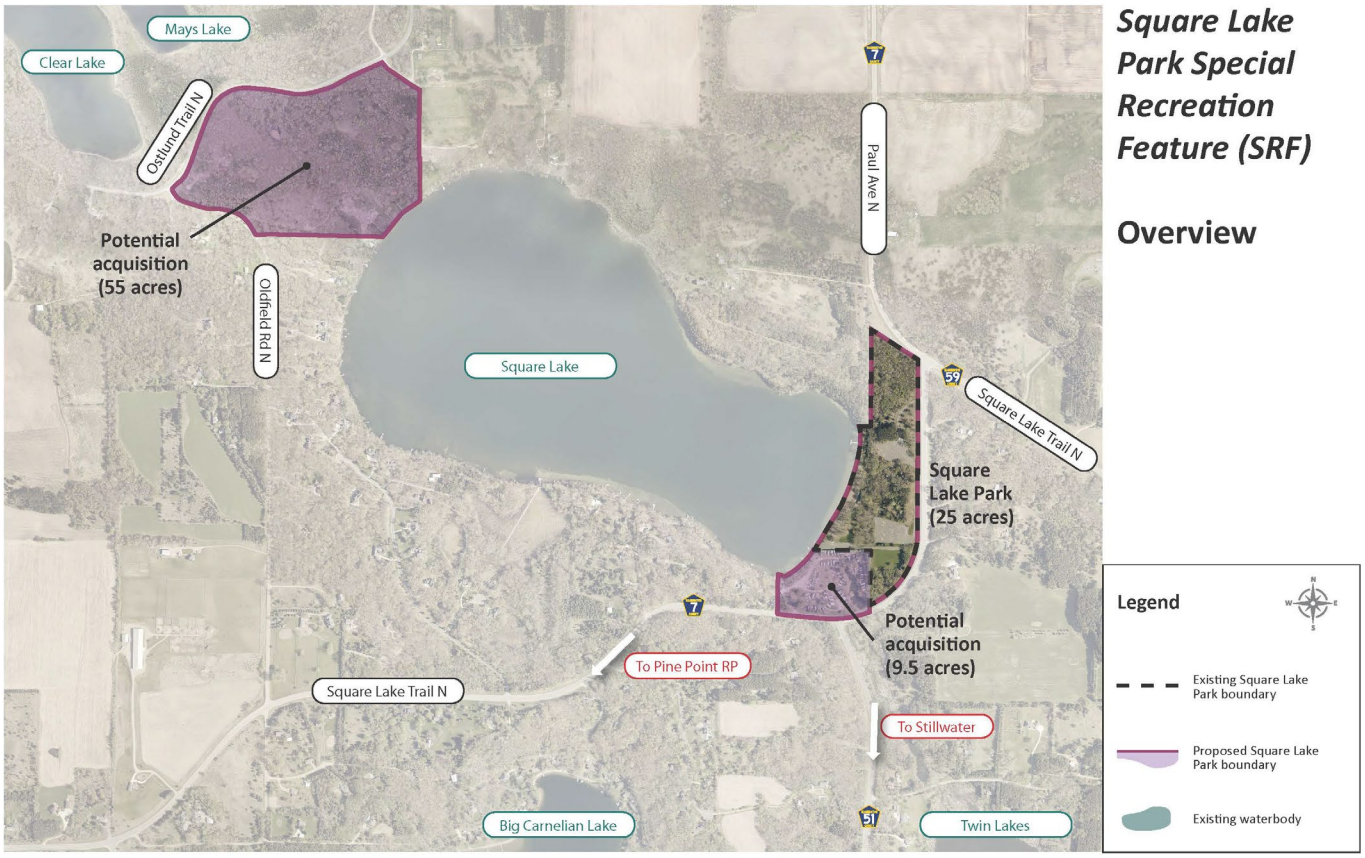


Figure 1.2: Square Lake Park Context

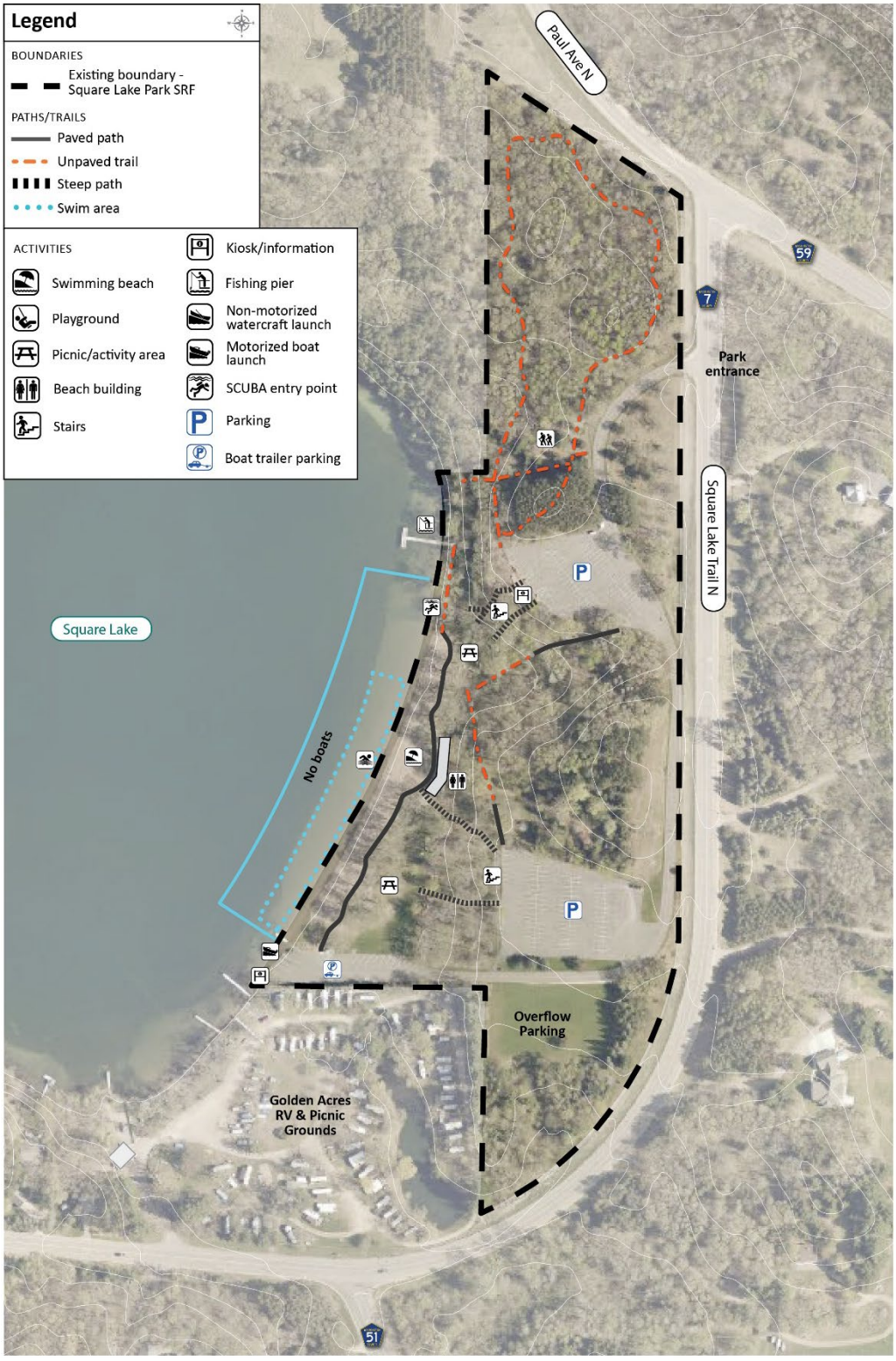


Figure 1.3: Square Lake Park Existing Conditions

Chapter 2
Demand Forecast

A Regional Treasure

Square Lake Park is designated as a Regional "Special Recreation Feature" by the Metropolitan Council as a result of the outstanding water quality of Square Lake. The lake has some of the clearest waters in the metropolitan region and draws scuba divers and swimmers from local communities and beyond. Adjacent to the beach, trails connect visitors to parking lots on the upper terrace of the park and to a wooded area in the northern reaches of the park. A fishing dock and boat launch complete the nature-oriented amenities that encompass the park's many features.

Washington County Population

Square Lake Park is nestled in the upper northeast quadrant of Washington County. With a 2019 estimated population of 262,440 the County is the fifth most populated in Minnesota. While anchored by the large suburban communities of Oakdale, Woodbury, and Cottage Grove, the County includes several smaller communities and townships, and enjoys some of the more rural expanses of the Twin Cities Metro. A full community profile of Washington County can be found in **Appendix III**.

262,440
POPULATION (2019 est)

335,790
2040 PROJECTED

93,184
HOUSEHOLDS (2019 est.)

132,400
2040 PROJECTED HOUSEHOLDS

423.2 Square Miles
COUNTY LAND AREA

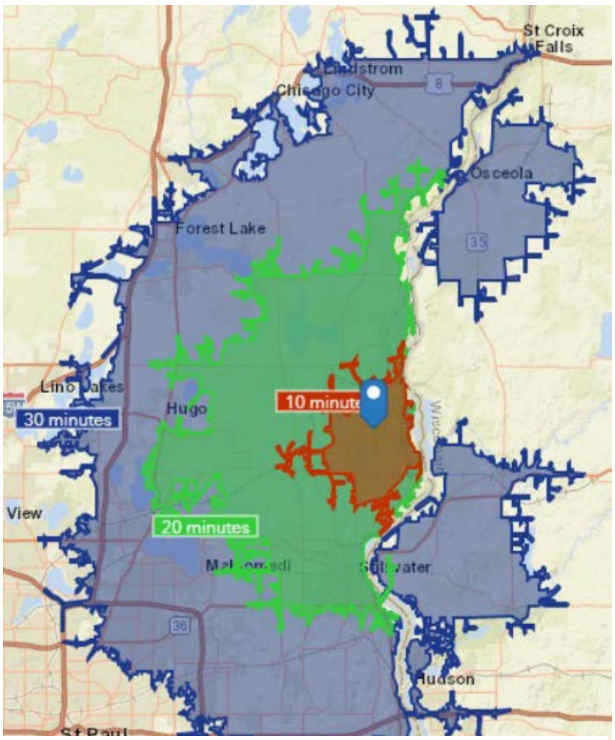


Figure 2.1 *Travelshed for Square Lake Park at 10, 20, and 30 min drives. Source National Park & Recreation Association*

Square Lake Park 'Special Recreation Feature'

417,000

Residents living within a 30-minute drive

40

Median resident age within 30-minute drive

48

The average number of minutes visitors tend to spend at Square Lake Park

Source: National Recreation & Park Association Market (NRPA) Report

Square Lake Park Service Area

A service area is generally defined by the characteristics of residents within a set distance from the point of focus. Understanding the service area sheds light on those who may use the park. Square Lake Park's market area includes over 417,000 residents across 159,306 households who can access the park within a 30-minute drive. The median age for this group is slightly over 40 years old. While decreasing slightly, the majority population in this area is 82% white with a median household income of $81,865 – both conditions higher than the Twin Cities Metro average. Renters comprise 23% of the households in the service area. The median home value is $276,266.

Park Usage

Establishing a knowledge of current usage creates a baseline understanding of the park's current user base. This informs planning priorities for the park. Square Lake Park is used by both local and regional residents, with many visitors living within the Twin Cities metropolitan area. Nearly 80% of visitors travel 30 miles or less to get to the park and tend to spend about 48 minutes there. 40% of visitors come from households with kids, and household income and education is fairly evenly distributed. Not surprisingly, visitation peaks during both the summer months and holidays as visitors seek to enjoy the park's seasonally-oriented uses. The county has observed use of Square Lake Park amenities by a mix of individuals and families from diverse ethnic backgrounds. Among these are Latino, Hmong and people of Somali decent.

One way to determine park usage is to use Streetlight Data[2] to analyze aggregated mobility analytics for a given area. Using this data, decision makers are able to determine location-specific areas of usage, while better informing future planning efforts. Streetlight counted users who entered the park and where they were visiting from, then assessed where they traveled to within the park and how long they spent at various destination areas. In 2019, the park hosted an estimated 73,745 visits. These visits occurred most often on weekends, which also saw people spending more time at the park. When visitors arrived, they tended to use all improved areas of the park as user measurements show a near-even distribution across developed park spaces. Higher concentration did occur at

[2] While the project team looked at demographic data provided by Streetlight, it recognizes limitations of this data. Visitor demographics are inferred using streetlight's proprietary probabilistic model. Once a device's home census bock has been established, the model assigns the device characteristics based on the census block's American Community Survey (ACS) characteristics. Visitor demographics are inferred from the device's home location, not information on the device's owner. The Twin Cities region has distinct spatial concentration of people by race, income, and educational attainment, which strengthens the assumptions behind the modeling. In contrast, family status does not have the same spatial context and may be less reliable.

the pay station, parking lots, and beach building. Current use data demonstrates that activity within the park is evenly distributed, visitors are interacting with all amenities, and that use congregates at common facilities – parking lots and the beach building.

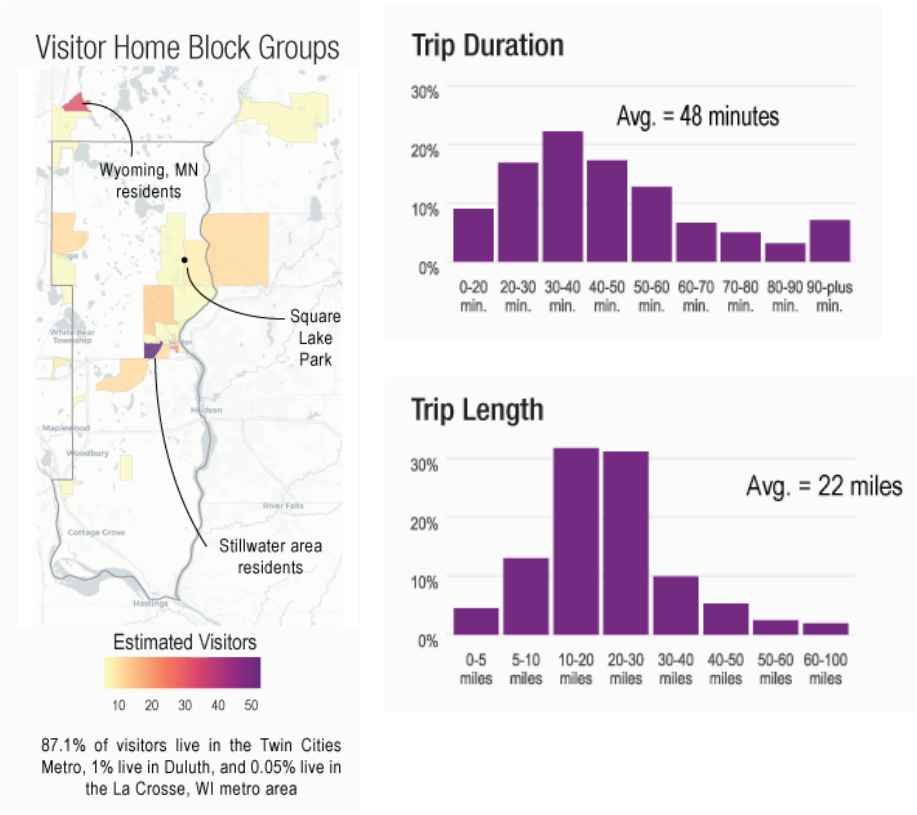


Figure 2.2: *Square Lake Park Visitor Characteristics (Met Council)*

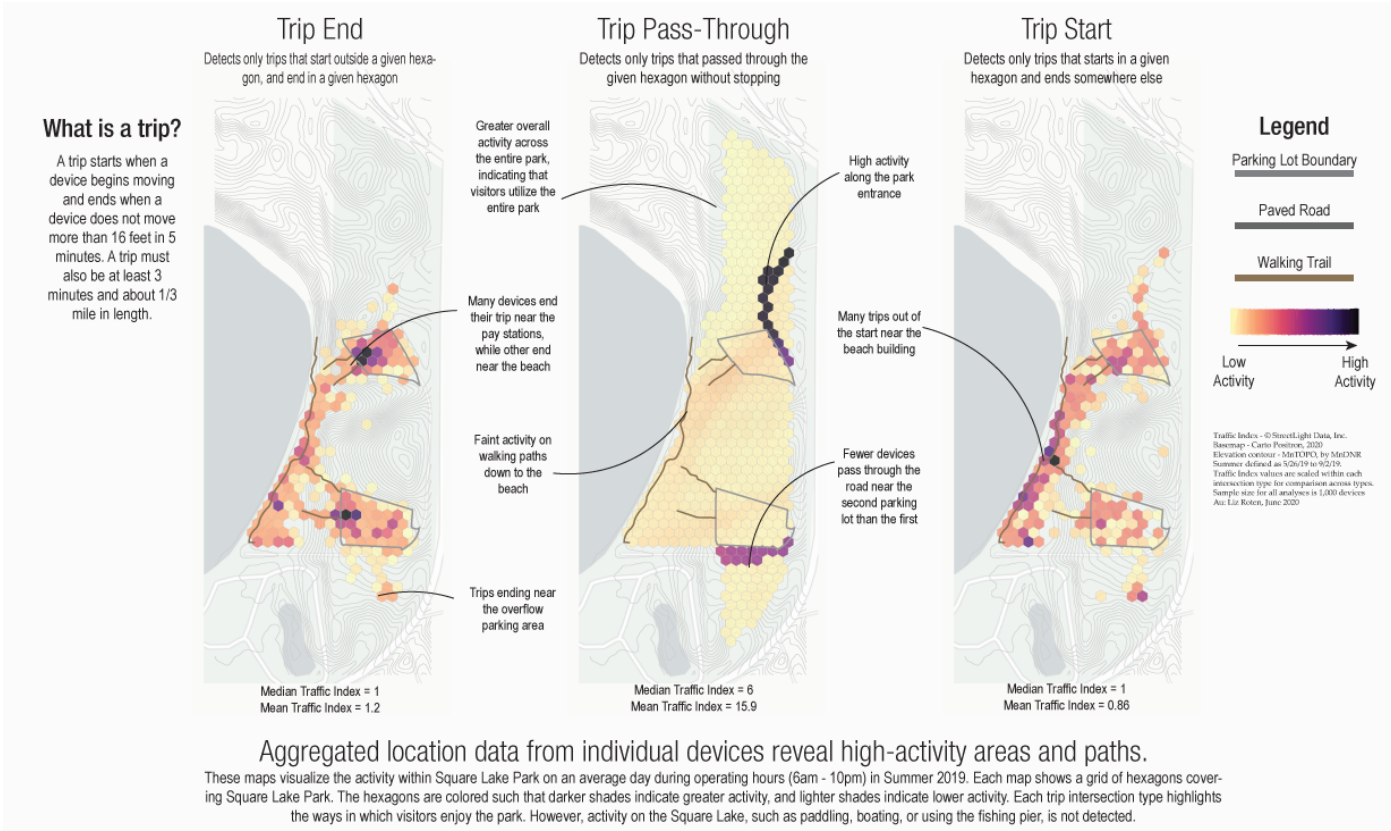


Figure 2.3: *Activity within Square Lake Park – Summer 2019 (Metropolitan Council)*

Square Lake Park Usage - User Feedback

As part of efforts to understand usage and user experience, the project team hosted a series of online user surveys and engagement sessions to gather user feedback. Findings from this outreach reveal a unique regional amenity highly sought after for its natural beauty, particularly access to the lake's pristine water. However, this amenity is also driving increased use, stressing the park's services. The beach area is becoming increasingly crowded, with respondents noting a resulting diminished visitor experience. Similarly, there was an expressed demand for improving nonmotorized watercraft amenities and programming. While the summer months continue to be the busiest of year, respondents expressed a clear interest in using Square Lake Park during non-summer months. Outreach feedback supports usage data gathered by Metropolitan Council and other partners, particularly anticipated demand increases stemming from projected local and regional population growth.

A full description on the Square Lake Park Master plan engagement process, findings, and COVID-19 impacts is outlined in **Chapter 4**.

Future Trends and Demands

Local and State Trends

While identifying current users are necessary to establish an understanding for the present, recognizing future-oriented trends is needed to successfully establish a robust vision for the future. It is expected that usage of Square Lake Park will continue to grow as new residents move into the region, county, and immediate surrounding communities. Without necessary planning, this increased usage will continue stressing the park's services.

The County anticipates its population to grow about 25% by 2040, attaining roughly 335,790 total residents. Growth is also expected for the surrounding Twin Cities metropolitan area, which anticipates growing to 3.7 million residents by 2040. While Washington County is anchored by the large suburban communities of Oakdale, Woodbury, and Cottage Grove, its greatest percentage of population increase is being anticipated in some of its smaller communities. Square Lake is located within one of those growth communities, May Township, and adjacent to Hugo - another expecting growth. The growth in population and resulting demand for recreational amenities, needs to be considered when planning for the future of Square Lake Park's services.

Similarly, special attention should be given to anticipated demand of amenities that accommodate all ages and abilities. Nearly 3/4 of county households have children, which have varying comfort levels with park services. The county's 65+ age demographic is also anticipated to grow significantly over the next ten years, which requires planning for park services through the lens of user ability. Likewise, nearly 20% of Americans have a disability that impacts major life activities.

Square Lake Park must also adapt to growing population diversity, while considering equity in access and experience. Minority populations are quickly growing in the County, increasing from 7.5% in 2000 to nearly 18% in 2019. Demographic changes need to be understood to combat regional disparities in park access and usage while ensuring amenities reflecting the rich diversity of all communities.

At the county level, respondents to the 2016 Metropolitan Council's Regional Parks System Visitor Study ranked Washington County's parks as very good (73%). The study noted too that most users visit parks close to their home (9.5miles). This is notable as the average Square Lake Park visitor travels up to three times further than this reported county average, presumably as they seek out the unique amenities and natural features offered by Square Lake Park.

In 2018, Washington County conducted a survey asking residents to assess the county's performance. Residents awarded the parks system the *Top Rated County Service*, *Top County Characteristic*, and the *Services and Facilities Most Used by Older Adults*. Simply put, Washington County regional park and trail facilities are one of the most visible and well-used services the county provides.

Even at a state level, expanded demand of outdoor recreation should be expected. The 2017 Minnesota Outdoor Recreation Household Survey indicated that the number of individuals listing outdoor activities as very important increased from 57% to 70%. The survey further shed light on recreation usage as 66% of Minnesotans participate in an outdoor activity more than twice a week.

Benefits of Natural Recreation

As our collective understanding of the impacts that outdoor recreation spaces play in our daily lives grows, a renewed commitment has emerged to protect, enhance, and enjoy these spaces. Along with increases in area population, the demand for natural recreation spaces is anticipated to increase as more people seek connections with nature and each other.

Among the most easily attainable benefits of outdoor recreation are those that improve health. Regular physical activity, such as hiking and swimming, significantly reduces the risk of dozens of largely preventable chronic diseases. Finding connections with nature and natural environments, such as wooded areas, fields, and beaches, improves mental health and psychological well-being. The need and provision for such health-promoting places must be maintained, especially against the backdrop of national rates of increasing chronic diseases prevalence. Further, destinations such as Square Lake Park present opportunities to connect with others and support social health. As feelings of social connection continue to erode, expediated by the COVID-19 pandemic, the provision of places to connect with others has become crucial towards combating isolation.

This culture of "active living by design" has been adopted by Washington County and the state of Minnesota. Living Healthy in Washington County is part of a larger statewide effort to make long lasting economic and health impacts easier for people to incorporate into their daily lives. Some of the key principles that stem from this movement include:

Living Healthy Washington County

33%

Percentage of adults considered obese in Minnesota

$5 billion

The cost of treating chronic disease in Minnesota

Source: Minnesota Department of Health

6.1%

Percentage of adults under the age of 65 in Washington County with special needs

9.4%

Percentage of homes where a language other than English is spoken

Source: 2018 United State Census Bureau data

- Physical activity is a behavior that can favorably improve health and quality of life.
- Everyone, regardless of age, gender, language, ethnicity, economic status or ability, should have safe, convenient and affordable physical activity choices.
- Parks and trails should be safe, accessible and part of a transportation network that connects destinations of interest, such as other parks, housing, schools, work sites, transit, community services and businesses.
- Municipalities and other governing bodies should plan for ongoing interdisciplinary planning and collaboration, promotion of facilities, behavioral supports and policies that implement an active living vision.
- Routine maintenance and management ensuring continued safety, quality and attractiveness of the physical infrastructure and the natural environment.

Natural amenities similarly play a critical role in environmental sustainability and habitat protection. Natural vegetation areas aide in water purification, air quality improvements, pollutant reduction, animal habitats, and mitigating impacts of climate change. Ensuring resilient natural elements is critical to providing a robust ecosystem that ensures a continued exceptional amenity for generations to come.

As future demand of outdoor recreation is considered, particularly those that offer unique experiences like Square Lake, resulting adaptations and improvements must provide for all people to continue enjoying recreational resources that promote healthy lifestyles and healthy environments.

Chapter 3
Existing Conditions

Natural Resources

Washington County is renowned for its natural landscape. The landscape tells the history of the land, while providing a lens through which we can better understand how our world has taken shape. Natural resources at Square Lake Park include Square Lake, a 203-acre public water body with nearly 2.5 miles of shoreline and a maximum depth of 68 feet. The lake has among the best water quality of any lake in the metropolitan area. Upland areas of the park are dominated by mixed woodlands, planted pine stands, and oak savanna.

Natural History

Square Lake, part of the St. Croix river basin, has experienced millions of years of geologic and hydrogeologic activity. Approximately 500 million years ago the area that now holds the Lake was covered by a shallow sea that deposited sand when coupled with extreme compression formed the sandstone of the region. Subsequent glacial presence, pressure, and receding have since shaped the river valley towards how it appears today.

For centuries, people from the Dakota and Anishinabe communities occupied the region, shaping the natural world through customs of hunting, gathering, and intentional prairie burns. In the 1500's, Anishinabe tribes displaced by the Iroquois arrived in the basin area, leading to conflicts between the Dakota and Anishinabe people. The resulting interactions reduced hunting, settlements, and routine burns. Over time, prairies gave way to oak bush and more intensive woodlands.

New settlements were established when European traders arrived in the 1600 and 1700's. A robust lumber industry eventually emerged, further catalyzing additional European presence along the west bank of the St. Croix River valley. The river served as an important way to move both people and goods as resources were sent downstream from more heavily forested areas and milled at sites such as Marine Mills (Marine on St. Croix) and Stillwater Lumber Company (Stillwater).

In 1847 the land around Square Lake was surveyed as part of the Public Land Survey. Notes from the surveyor indicated the

presence of “White Oak” and “Jack Oak” (Northern Pin Oak) suggesting that oak savanna was present in the area. The surveyor’s map of the area also shows the presence of wetlands on the south side and southeastern corner of the lake. An early Government Land Office (GLO) map of the area from 1848 corroborates this observation noting the wet areas, presumably wetlands, south of the lake and that a stream and associated slough/wet area was located at the southeastern corner of the lake.

A Minnesota Department of Natural Resources map of the state’s vegetation created at the time of the Public Land Survey shows northern Washington County dominated by Oak Woodland and Brushland (bur oak, pin oak, aspen and hazel thickets, and prairie openings) with some areas of Maple-Basswood Forest, Peatland, and Floodplain Forest.

Climate Change

Annual average temperatures in the Twin Cities increased slightly over 3 degrees during the period between 1951 and 2012; a rate higher than the national average. Climate trends indicate that Minnesota will become hotter and wetter over the next 50 years with more extreme weather events such as torrential rainfall, heavy snowfall and drought. Effects may include more extreme heat days, air quality degradation, increased risk of drought and flooding, and impacts to local ecosystems. Natural resources at Square Lake Park are, and will continue to be, impacted by this warming trend.

These anticipated weather extremes will especially place increased stress on natural environments; through devastation by insect pests and invasive species, dwindling native flora and fauna as conditions soar outside of their ability to adapt. Square Lake will likely have higher water temperatures and increased water pollution from surface runoff and erosion; factors which will negatively impact conditions in the lake itself. These impacts may have cascading impacts including reduced water clarity, lower oxygen levels, higher nutrient levels, and declining plant and wildlife species abundance.

Building climate resiliency will be essential to successful long term natural resources management. With climatologists predicting more extreme weather patterns inclusion of measures proactively preparing Square Lake Park for hotter temperatures, higher rainfall events and prolonged periods of drought will help protect these resources. Native plant species more tolerant of warmer temperatures and both wetter and drier conditions should be considered in long range habitat management plans. Increasing the capacity of the park to better adapt to anticipated temperature and rainfall variances will be an essential consideration in this master plan’s ability to provide the county with the direction necessary in planning for more resilient park infrastructure and habitats.

Water Resources

Square Lake encompasses 203 acres and 2.42 miles of shoreline, with a maximum water depth is 68 feet. The lake’s Trophic State Index, a measure of water nutrients and corresponding clarity, is 38, denoting an above average level of water clarity compared to other waterbodies in its region.

Rainfall runoff at Square Lake Park is heavily influenced by its hard parking surfaces and access driveways. The north and south lots, the connecting drives, and the boat access drain toward the lake relatively untreated. The North Parking Lot captures runoff in a small bioretention best management practice (BMP), and the remaining areas drain through natural low areas and swales. Except for the boat access drive, the parking and drive surfaces drain through natural areas and stormwater is filtered through the vegetation.

The natural topography tends to capture excess stormwater runoff in low areas. The “Stormwater Drainage and Improvements Exhibit” shows critical discharge points and low areas where runoff volume accumulates and either infiltrates into the ground or is carried away by natural swales. The following list describes current drainage conditions and critical stormwater management features.

TABLE 3.1 *- Drainage Conditions & Critical Stormwater Management Features*

1. Stormwater drainage follows the north entry driveway along a vegetated swale to a low area east of the parking lot and drive. This area also drains half of the north parking zone. The drainage area to the low point is 3.5 acres and is approximately 50% impervious. The low area currently infiltrates accumulated runoff.

2. The north parking lot currently drains into a linear BMP, which ultimately discharges downhill toward the lake. The drainage area to the BMP area is approximately 0.6 acres and is purely impervious.

3. The south parking lot discharges south and east toward a bituminous swale. The swale discharges overland down the boat launch driveway to a low point in the Picnic Area/Activity Zone.

4. The low area in the Picnic Area/Activity Zone is currently served by an area inlet and storm sewer that discharges directly into Twin Lakes.

5. A wooded ravine head discharges a portion of the park drive. The ravine discharges runoff to low area in the Picnic Area/Activity Zone, north of the restrooms and boat house. Water infiltrates or discharges overland into the lake when this depression is full.

Figure 3.1*: Stormwater Drainage & Improvements Exhibit (****Appendix V****)*

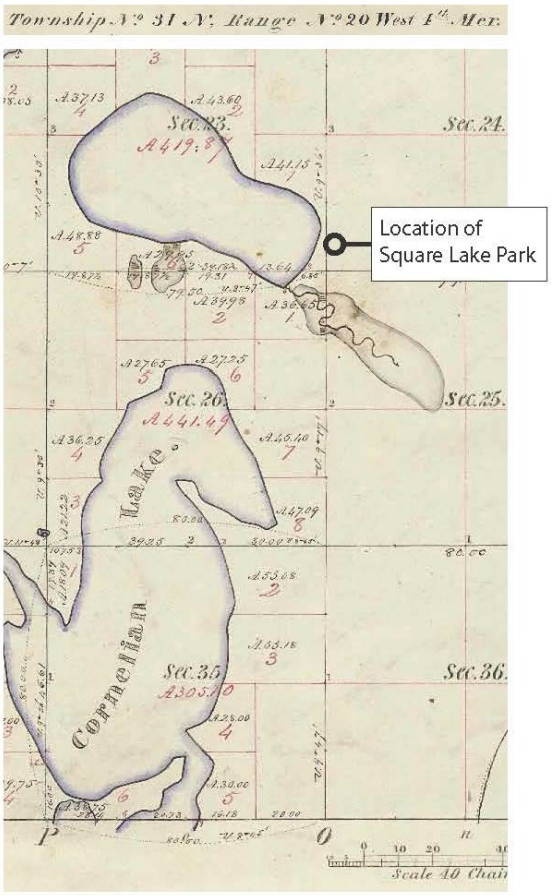
6. Approximately 4.6 acres of the park drains through the beach area and directly into Square Lake. The area is primarily vegetated and likely clean. The restrooms and boat house are the only impervious surfaces in this area and contribute a relatively small fraction of the runoff volume.

7. The north and south sides of the park are marked by a trail, woodlands, and low wetland areas on the north and the overflow parking area on the south. There are no serious drainage concerns in these areas as they do not contain impervious areas.

Soils Characteristics

Mahtomedi loamy sands dominate the park. These soils formed from sandy outwash of glaciers and are deep and well drained with rapid permeability. These types of soil make groundwater more susceptible to contamination and special precautions should be taken to reduce this risk. Bedrock is generally deeply buried by sediments associated with Late Pleistocene Superior lobe deposits, generally sand to gravels that are over 100 feet in thickness. The area immediately surrounding the lake has a more recent surficial geological history, dating from about 9,000 years ago to present, and is comprised of sand, clay, and silt.

No active pollution sites are located in or around Square Lake, the Park, or adjacent Mays Lake or South Terrapin Lake.



Public Land Survey of the 1800s

The Public Land Survey used trees as survey markers and noted features such as soil and waterbodies. The journal from the 1847 survey in this area indicates the presence of "White Oak" and "Jack Oak," which suggests that oak savanna was present in the area. Jack Oak likely refers to Northern Pin Oak (*Quercus ellipsoidalis*).

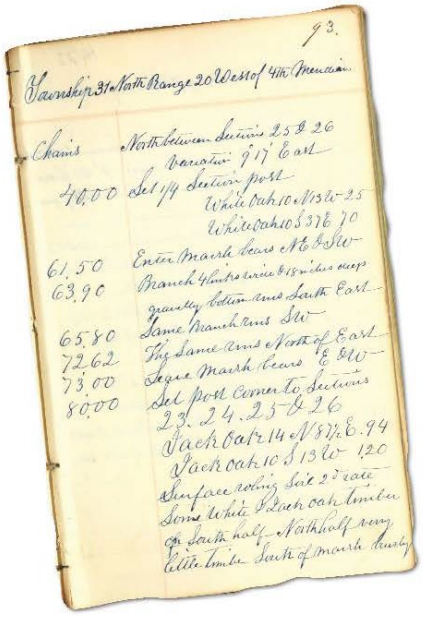


***Figure 3.2**: Minnesota DNR Historic Vegetation Materials (**Appendix V**)*

Land Cover Overview

Square Lake Park is dominated by several wooded areas surrounding open areas that have been developed into manicured lawns used by park visitors. A northern tree stand exists at the entrance of the park that is dominated by mixed deciduous trees, with an understory dominated by buckthorn. A similar stand is found on the southern portion of the park, but buckthorn does not dominate the understory as it is mixed with other shrub species. The center of the park is dominated by an oak savanna with a mixed understory. Finally, there is a stand of red pines that is most likely a remnant of early European forestry practices.

Vegetative land cover was mapped at Square Lake Park using MNDNR's Land Cover Classification System and field verified by ecological experts.

Field surveys noted additional needs and opportunities for oak remediation/treatment and stabilization, oak savanna restoration, pine grove management, prairie restoration, shoreline vegetation restoration and protection, wetland restoration at the Golden Acres grounds, an adjacent RV park, and general invasive plant species control.

A tree survey was conducted on the site in July 2020, which identified an advanced Emerald Ash Borer infestation in the Park. Infected trees comprising this advanced infestation are located along the shoreland area of the park. Ash trees in other areas of the park did not exhibit signs of infestation, but it can be assumed that they may have some level of infestation.

Potential Future Acquisitions: Soils & Land Cover Summary

Two privately owned parcels of land in the proximity of Square Lake and the existing park were considered as potential future additions to Square Lake Park. Both parcels would provide additional lake access opportunities and would allow Washington County to better protect areas immediately adjacent to Square Lake from potential erosion or contamination threatening water clarity and quality. As the team did not have access to these parcels for firsthand natural resource inventories, we will provide a summary based on review of aerials and other resource mapping. This summary was also supplemented through windshield surveys by consultant and County staff.

One of the parcels being considered as a potential future addition to Square Lake Park is the Golden Acres RV Park & Picnic Area. Located immediately south of and abutting Square Lake Park, this parcel is comprised of udifluvent and hydric soils characteristic of floodplain geomorphology. In fact, the RV Park contains a pond in the general vicinity of mapped hydric soils; with the same soils profile extending beneath Square Lake Trail N and connecting to a channel in the direction of Twin Lakes.

Being largely developed, Golden Acres is comprised of a mixed species canopy providing shade around the pond and RV pads. Eastern White Pine, Red Pine, Hackberry, Willow and Ash are present without any one dominant species noted. A large portion of the site is maintained as gravel drives or parking areas or manicured lawn. Most of the shoreline is maintained in a manicured condition to the water's edge.

A second parcel being considered as a potential future addition is currently owned by the Wilder Foundation and comprises roughly 55 acres on the northwest corner of Square Lake. This parcel is largely comprised of soils similar in nature to those found in Square Lake Park, formed from sandy glacial outwash and are deep and well drained. Unlike the bedrock under Square Lake Park, the bedrock of this parcel is Jordan Sandstone with characteristics of medium to coarse grained sandstone and fine-grained sandstone and shale dating from the Paleozoic Era.

Despite a history of use as a youth camp this site is largely dominated by mixed deciduous forest with an understory comprised largely of buckthorn. A large stand of pine is present in the southwest corner of this parcel in the area of an existing building being used as a private residence and extending east parallel to Oldfield Road North to the turn off for Idlewylde Road. A natural wetland is present near the lake and adjacent to the former youth camp beach and the property to the south of this parcel. An open lawn area remains from the former beach extending to an existing youth camp support building and a small parking area at the end of the narrow entry road.

Cultural Resources

Notable cultural resources at Square Lake encompass the existing swimming beach and a boy scouts camp that closed in 1937. Additional resources around the lake include 19 archeological sites within a three-mile radius. One property, the Second Congregational Church Monument located about one mile away from the Park, is listed on the National Register of Historic Places.

History of Indigenous Communities in the Area

The precontact period in Minnesota began approximately 13,500 years before present (BP [present defined as 1950]), with the Paleoindian Tradition, which is known primarily through isolated finds of projectile points.[3] This period is associated with the hunting of large game, including the now extinct wooly mammoth, though no occurrence of mammoth skeletal parts in secure association with cultural materials is known in the State.[4] Following the Paleoindian Tradition is the Archaic Tradition, beginning approximately 9,500 BP and lasting until around 2,500 BP. While this is the longest precontact tradition in Minnesota, it is generally defined by what it lacks: the diagnostic point types of the Paleoindian Tradition and the ceramics associated with the subsequent Woodland Tradition. The Archaic Tradition takes

[1] History of the Dakota Tribes, Thayer Watkins, https://www.sjsu.edu/faculty/watkins/watkins.htm

[3] 2011. *Investigating the Earliest Occupation of Minnesota: A Multidisciplinary Approach to Modeling Landform Suitability & Site Distribution Probability for the State's Early Paleoindian Resources*. Austin A. Buhta, Jack L Hofman, Eric C. Grimm, Rolfe D. Mandel, and L. Adrien Hannus. Archeological Contract Series 248. Prepared by Archeology Laboratory, Augustana College. Prepared for The Minnesota Historical Society.

[4] 1988. *The Prehistoric People of Minnesota*. Elden Johnson. Minnesota Prehistoric Archaeology Series, Minnesota Historical Society, St. Paul, Minnesota.

place during a time of dramatic environmental and climatic change. Technological changes during this period include the use of ground stone and copper tools and the use of the atlatl, a spear-throwing tool, as well as early horticulture of plants such as cucurbits (squash). Following the Archaic Tradition is the Woodland Tradition, a period which marks the advent of pottery and more diversified chipped stone tool types, and an increase in population size and density of the landscape. Exotic materials brought to the region through interaction spheres include obsidian, galena, and shark teeth. Maize horticulture and an increased intensity of wild rice harvesting took place throughout the state based upon environmental and geographic settings.

Prior to European contact in the 1600's the Dakota people lived in the area around Lake Superior; a largely forested region where they lived by hunting, fishing and gathering wild rice [1]. They also participated in limited agriculture, growing corn to the extent possible being at the edges of its growing area. Within this region they were often in conflict with the Anishinabe people who also fought to control this region; having been pushed west by the Iroquois when European settlers arrived on the East Coast. The Dakota were driven west into Minnesota once the Anishinabe obtained guns from French trappers in the early 1700's. As they migrated west, the Dakota split into three bands: the Dakota, Nakota and the Lakota. The Dakota settled around the Minnesota River basin and continued a way of life similar to their migratory ancestors while expanding their traditions to encompass a land abundant with fauna and flora and less competition from warring tribes.

The first intensive presence of non-native North Americans on the landscape began with the French and British fur trades generally, with the French presence in Minnesota beginning in the early 1600s.[5] While the United States' political presence in the territory that would become Minnesota began in 1803, it more appropriately began with the first permanent US military presence: the founding of Fort Snelling in 1819.

In the resulting years, Native Americans were removed from the territory in which their familial, economic, political and spiritual connections originated. Major land cessations began in 1837 between the US government and the two major indigenous groups in the area: the Dakota and the Anishinabe.[6] By 1851 the Dakota had ceded all of their land in Minnesota in the Treaty of Traverse des Sioux.[7] The Dakota were assured a swath of land, 10 miles wide, on either side of the Minnesota River following the cessations. In 1858, the same year that Minnesota was granted Statehood, an additional treaty allowed for Euro-American settlers to occupy the land on the north side of the Minnesota River. Annuities to the Lower Sioux Agency were delayed in 1862, and a portion of the starving, mistreated, and frustrated Dakota retaliated, leading to the start of the US-Dakota War. Following the war, only a small number of Dakota remained in Minnesota. By 1863 due to the government abrogating all Dakota treaties, it was illegal to be Dakota in the state of Minnesota.[6]

Washington County was part of the Minnesota Territory, as organized in 1849, which predates the Statehood of Minnesota (1858). A Treaty signed in 1837 with the Dakota and a separate Treaty in the same year with the Anishinabe includes the area that is now Washington County.[8]

The history of Washington County generally is tied to the lumber industry, which spurred settlement along the west bank of the St. Croix River valley. The river served as an important way to move both people and goods. Logs were sent downstream from more heavily forested areas and milled at sites such as Marine Mills (Marine on St. Croix) and Stillwater Lumber Company (Stillwater).

[5] 1988. *Outline of Historic Contexts for the Prehistoric Period*. Clark Dobbs. Institute for Minnesota Archaeology, Minneapolis.
[6] 1994. *Historic Context: Indian Communities and Reservations 1837-1945*. Scott Anfinson. Available at Minnesota Historical Society.
[7] 1998. *Minnesota: A History*. William Lass. W.W. Norton, New York.
[8] 2020. Indian Land Cessions in Minnesota. Electronic resource: https://www.arcgis.com/apps/MapSeries/index.html?appid=7f4115b3efa24ed7a0ecc03884695712&fbclid=IwAR2bE99qcG68I7hSwfYUJNNCUEj1C_QKJMLCn9mx6D4rn_mOQMFsOPsBtgo, accessed October 2020.

Establishment of a Recreational Destination

As new Minnesotans continued to establish communities across the state, they were enticed by the abundance of natural outdoor swimming beaches the State offered. These beaches and public baths (pools) have a long history in Minnesota. Even before the advent of railroads and personal automobiles, Twin Cities residents were traveling to engage in recreational activities. It wasn't uncommon for residents to hop on a trolley to destinations well outside the metro area to frequent the amusements constructed by these rail line companies, such as Big Island Amusement Park on Lake Minnetonka.

Figure 3.3: *Waiting for the Bus at Square Lake. 1950*

While the availability of public transportation did create recreation access, it was also a limiting factor for many visitors to more outlying and remote areas. Eventually, those wealthy enough to afford an automobile were the primary users of recreational destination, alongside locals that resided near such areas. With the remoteness of locations like Square Lake, coupled with the economic resources needed to reach such locations, real recreational usage limitations existed for many Minnesotans, particularly those without expendable income.

Figure 3.4: *Boy Scout troop going to Square Lake Camp in horse-drawn wagon, 1918* [15]

It wasn't just economics that inhibited some people from using beaches and pools however. Up until the mid-1900's, public beaches, municipal pools, and other swimming locations were segregated by race, barring African American use in such locations. While swimming facility segregation in the Northern United States ended in the 1940s to 1950s, it then became common for white users to leave public facilities in favor of private clubs in suburbs. As stated in an article in *American Trails* "Up until very recently in our country the majority of African Americans were not allowed to access National Parks, local parks, pools, campground, beaches, trails, or many other places the same way white Americans have always been able to."

Figure 3.5: *Boy Scouts at Square Lake Camp making 'stick biscuits', Approximately 1930* [14]

Between 1918 to 1937, the Oak Point Boy Scout camp was present along the north short of Square Lake. Oak Point Camp was the first property purchased by the St. Paul Boy Scout Council. Until this time, scouting councils did not acquire permanent property but rather set up temporary camps adventitiously on undeveloped lands. Oak Point Camp, referred to as Square Lake Camp by the scouts, eventually proved to be too small a space. The camp was officially closed in 1937 after being severely damaged by a storm.

Formation of Square Lake Park

Square Lake Park was formed using land acquired by Washington County when building CSAH 7 (Square Lake Trail N) in the late 1960s. This project relocated the roadway from along the east shore of Square Lake to its present location upland from the lake. The land where the roadway used to be, now owned by the County, provided an opportunity for public access to Square Lake. Records are a little unclear exactly when Square Lake Park was dedicated but it would have been after CSAH 7 constructed was completed in 1968.

Existing Recreational Resources

Square Lake Park currently includes several recreation opportunities that capture the appeal of the landscape and leverage access to Square Lake and its pristine water. Existing facilities include the following:

- Two paved parking lots (191 spaces); one overflow (grass) parking area
- Boat launch with small adjacent parking lot
- Swimming beach
- Concrete sidewalk connecting the boat launch to the swimming beach and beach building
- Gravel path connecting the swimming beach to the fishing pier and SCUBA entry area
- Fishing Pier
- SCUBA entry point
- Walking/Hiking Trails
- Picnic tables
- Park grills
- Stairs providing access from parking lots to the swimming beach and other lake amenities
- Beach building located adjacent to the beach and including restrooms and changing facilities
- Outdoor shower located adjacent to the beach

Figure 3.6: *Swimming Beach*

Figure 3.7: *Fishing Pier*

Figure 3.8: *Picnic Area*

Park Programming

Washington County Parks offers and manages educational nature programs, outdoor recreation lessons, and community events. At Square Lake Park there is a stand-up paddle boarding (SUP) program, and Family Fishing events.

Park Access

Access to the Park

Square Lake Park is located off County State Aid Highway (CSAH) 7 (Square Lake Trail N/Paul Ave N) at the intersection with County Road (CR) 59 (Square Lake Trail N from Paul Ave N to MN Highway 95) in May Township. The Square Lake Trail N segment of CSAH 7 is a two-lane rural section with paved shoulders on both sides and a speed limit of 45 mph near the park entrance. The Paul Ave N segment of CSAH 7 is a two-lane rural section with gravel shoulders and a speed limit of 50 mph. CR 59 is a two-lane rural section with paved shoulders on both sides and a speed limit of 55 mph. From the south, CR 51 (Partridge Road N) also provides access to the immediate vicinity. This is a two-lane rural section with paved shoulders on both sides and a speed limit of 55 mph. Square Lake Park is not presently accessible by transit.

By Vehicle

Driving is the most common form of transportation to the park according to a survey conducted as part of this master planning process. A single point of entry provides access into the park leading to two paved parking lots providing approximately 191 stalls. Current parking configurations provide no accessible ADA designated stalls in the main parking lots: (0 out of 83) in the north lot and (0 out of 108) in the south lot.

An additional paved parking lot at the boat ramp provides some accessible parking while also catering to vehicles with trailers (12 spaces, 2 ADA-designated). Parking lots can fill up quickly in the popular summer weekends. A grass overflow parking area is located on the south side of the park and can accommodate additional vehicles based on standard stall size and access lanes. The overflow parking area is often used for additional boat trailer parking too.

Washington County requires a vehicle permit fee for parking at Washington County Parks ($7/daily, $30/annually). Electronic pay stations are available at both paved parking lots at Square Lake Park to purchase vehicle permits.

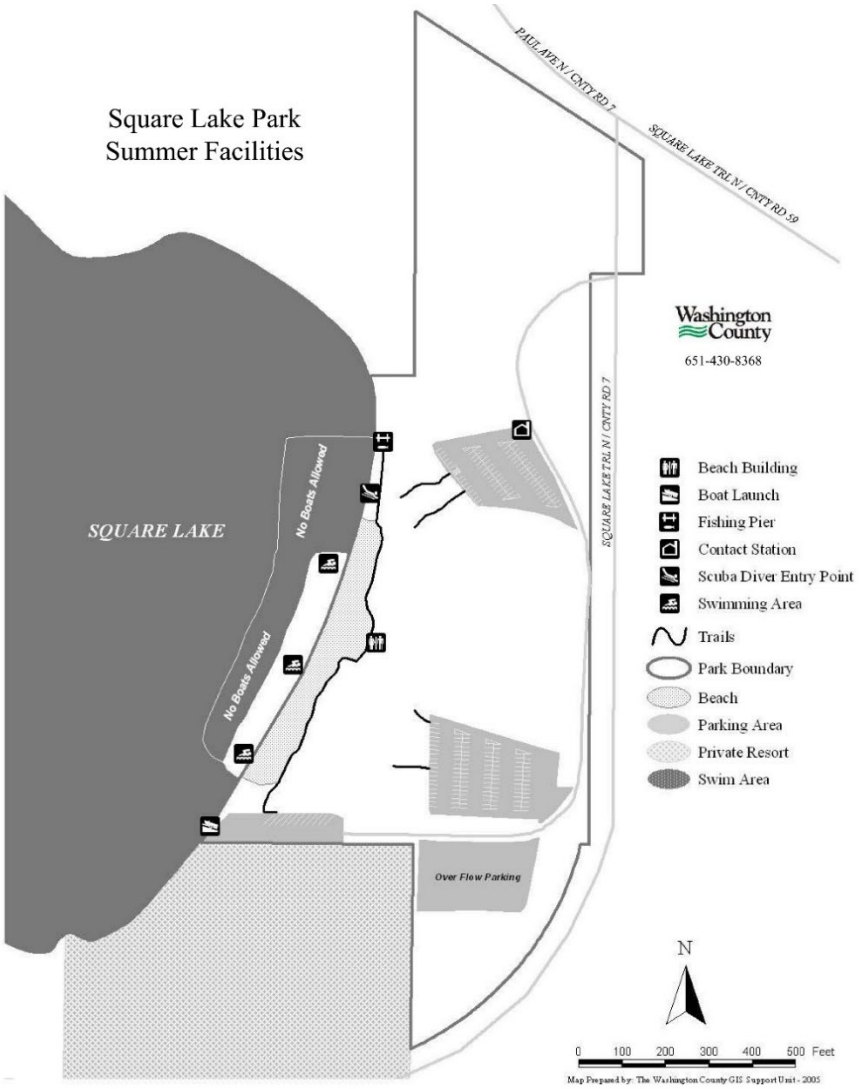


Figure 3.9: *Square Lake Park Recreation Resources*

Local drivers can rely on the county road system for a route to the park. For those coming from regional origins, the nearest major north-south highways connecting to the county road system include:

- Interstate 35E (located 11.5 miles west of the park)
- Interstate 694 (located 12 miles southwest of the park)
- U.S. Highway 61 (located 10 miles west of the park)
- State Highway 95 (St. Croix Trail N, located two miles east of the park along the St. Croix River)

The nearest east-west highways to the park include:

- Interstate 694 (located 12 miles southwest of the park)
- State Highway 97 (located 5 miles north of the park)
- State Highway 96 (located 5.5 miles south of the park)
- State Highway 36 (located 8 miles south of the park and serving as the main arterial access to the Stillwater region, as well as providing an interstate crossing of the St. Croix River to Wisconsin)

By Bicycle

The paved shoulders along CSAH 7 (Square Lake Trail N), CR 59 and CR 51 are the primary bicycle routes to reach the park. These shoulders are identified as part of the bicycle and pedestrian network in the draft Washington County Bicycle & Pedestrian Plan as shoulders wider than 5.5 feet. The draft plan notes that bicycle level of traffic stress for all

three of these roads is 3, designating a comfort level appropriate for experienced bicyclists. Bicyclists can use the paved shoulder on CSAH 7 to reach the separated multi-use trail at CR 55 (Norell Avenue N), connecting south to the Gateway State Trail at Pine Point Regional Park. The Gateway Trail extends approximately 18 miles to the west into downtown Saint Paul and also links to Brown's Creek State Trail into downtown Stillwater.

Currently there is no designated on-site bicycle parking at Square Lake Park. Washington County is currently developing a County Bicycle and Pedestrian Plan. This plan will identify a future, off-street route along CSAH 7 connecting the Norell Avenue trail to Square Lake Park.

On Foot

Paved shoulders also serve as the primary pedestrian connection to the park. There is no separate pedestrian entrance to the park, who must rely on the same access drive as vehicles. There are currently no marked crossings for pedestrians across County Highway 7 or across the park driveway. The rural context is likely the reason that walking is the least popular mode of transportation to the park.

Access within the Park

The natural topography of Square Lake Park creates access challenges. There is an approximate 40-foot elevation change between the parking lots and lake with a hillside slope of 22-percent. There are currently ADA accessible parking spots located near the boat launch that allow users with mobility challenges to avoid the hill grade and access the park.

Figure 3.10: *Access within Square Lake Park*

To enter the park, people use the main park access road from the park entrance off CSAH 7. This road links the two paved parking lots, the unpaved overflow parking lot and the boat ramp and parking area. There are no shoulders or adjacent sidewalk along the access road, so people walking or bicycling walk on or alongside the access road.

To reach the beach and other recreation facilities around the lake, visitors can use one of four staircases (located off the parking lots), walk/bike down an internal maintenance road just south of the northern parking lot, or follow the internal access road to the boat ramp and lot. The internal maintenance road is in poor condition and does not meet ADA guidelines (grade is estimated to exceed 12 percent).

There are no paved walking paths from the bottom of the stairs and maintenance road to other park facilities. At the lake, a narrow concrete sidewalk (3 to 4 feet wide) runs parallel to the water connecting the beach, beach building and boat launch. This concrete path is not ADA compliant for width in places. The fishing pier north of the beach is connected by a 4-foot-wide crushed aggregate walking path.

The hiking trails in the northern portion of the park are rough graded earthen trails, forming a loop that begins/ends at the north parking lot. There are several locations which do not meet trail guidance in either cross slope or surface uniformity. These trails are a relatively new addition to Square Lake Park and may be further developed and expanded.

Figure 3.11: *Stair from north lot*

Figure 3.12: *Stairs from north lot*

Figure 3.13: *Maintenance Road*

Figure 3.14 *Fishing pier access path*

Figure 3.15 *Sidewalk to beach*

Figure 3.16 *Boat launch road*

Conflicts Affecting Square Lake Park

In general, the existing park features and land uses affecting Square Lake Park complement the surrounding land uses. For example, the park is well buffered from neighboring properties and is setback from the county road. Additional concerns from adjacent neighbors did include viewsheds of the park from people on the lake. To address, the master plan proposed additional vegetation along the shoreline that will not only screen the beach, beach building, and lower parking lots, but have stormwater and ecological benefits. Washington Country will continue to work collaboratively with neighbors to identify and address concerns.

During the master planning process, several comments were received regarding user conflicts. This includes motorized boat users and non-motorized watercraft users sharing one drop-off area and launch area. As demonstrated in the master plan's public engagement findings, a dedicated non-motorized watercraft area and launch was one of the most requested amenities. The proposed capital improvement concept plan addresses this by planning for separated launch and drop-off area (see **Chapter 5**). Furthermore, public feedback included safety concerns of the motorized boat use and non-motorized boat use on the lake. Motorized boat use is regulated and enforced by the MNDNR and Minnesota Administrative Rules 6110.4000. Master plan recommendations include signage to better communicate regulations and expectations to motorized watercraft users who use the park to access the lake.

Park capacity is another concern that is experienced during Square Lake Park's peak visitation events. The master plan seeks to balance additional parking and traffic impacts with providing a safe experience for park users. It is important to note that these peak visitation events are typically limited to a few weekends a year (based on weather, weekends, events, etc.) and for a large majority of the year, the park is not reaching capacity. The master plan proposes adding additional park improvements in strategic locations to provide additional recreational options away from the crowded main beach and picnic area. These uses will also help in nonpeak seasons. More information can be found in **Chapter 5**.

Finally, it is important to note the improvements proposed in **Chapters 5 and 6** may require permitting or review from May Township and the Carnelian-Marine-St. Croix Watershed District (CMSCWD). Furthermore, the improvements will also comply with the regulations as stated in the Washington County Development Code.

Chapter 4
Planning & Public Engagement Overview

Public Input Summary

In Washington County, park and trail planning begins with staff developing a public engagement plan to gather input and ideas from community members, partners, and other stakeholders. It is through this process, in addition to the analysis of the facility itself, that a guiding document outlining future developments takes shape. This chapter summarizes the public engagement plan for the Square Lake Park Special Recreation Feature Master Plan and the feedback received from community members, park users and agency partners. **Appendix IV** includes a full account of input gathered throughout the process.

Project Management Team

Master plan development was led by the Project Management Team (PMT) comprised of Washington County and consulting staff. The Square Lake Park Special Recreation Feature Master Plan kicked-off in April 2020 with an overview of the master planning process, discussion of anticipated timeline, and brainstorming strategies to safely engage the community and collect data during the unfolding COVID-19 pandemic. The PMT met throughout the project and was responsible for managing development of the master plan, reviewing existing conditions and public input, and identifying park improvements in line with the long-term vision of the park.

Partner & Agency Engagement

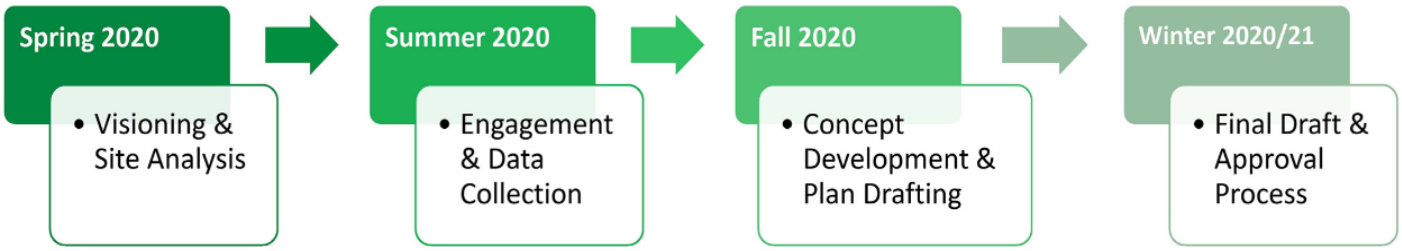
A Technical Advisory Committee (TAC) was created for inter-agency collaboration, review of existing conditions and discussion of improvement opportunities at Square Lake Park. In addition to Washington County employees across multiple divisions, the TAC was comprised of representatives from the following partner agencies:

- May Township
- Metropolitan Council
- The Carnelian-Marine-St. Croix Watershed District (CMSCWD)
- Minnesota Department of Natural Resources (MNDNR)

- Washington County Conservation District
- Square Lake Homeowners Association
- Metropolitan Council Park and Open Space Commission
- Washington County Park and Open Space Commission
- Square Lake Film and Music Festival

As part of the project kick-off meeting the TAC members explored desired outcomes and goals for the overall plan and analyzed the park using a Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis exercise. (T*hese goals can be found in* **Chapter 1**). Findings were reviewed at each milestone: existing conditions, public engagement summaries, and potential park improvements. TAC meeting agendas and notes are available in **Appendix IV**.

Public Engagement & Participation



Engaging park users and the public was important throughout the master planning process and specifically during the investigation and evaluation phases. Washington County places incredible value on the input process to ensure that the improvements identified in this plan align with the desires of current and future user groups. The master planning process was initiated with the awareness that the public engagement plan would need to be adjusted to meet safety requirements mandated by the Center for Disease Control and Prevention, State of Minnesota and Washington County in light of the COVID-19 pandemic. At the same time we acknowledged that the process maintain the same transparency and accessibility expected by our partners and the general public.

Engagement Strategies and Pandemic Challenges

As the magnitude of the pandemic became apparent, it was necessary for virtual meeting discussions to replace many outreach efforts to ensure participant and staff safety. This included PMT and TAC meetings as well as planned in-person open house events. A few in person discussions were still able to occur during the inventory phase; between consultant and Washington County staff and also between consultant and park goers by practicing CDC guidelines through mask use and by practicing social distancing. Despite these changes, the project teams felt that ample information was made available to the public and that the feedback received was valuable and representative of current and potential park users. An outline of the engagement tools used during the master plan process are included below:

Project website

Washington County hosted a project website throughout the master planning process to act as a primary source for sharing information related to planning efforts. This included project goals adopted by the PMT and TAC groups, displays prepared to accompany a public input survey and proposed improvements for consideration by the public.

County Newsletter

The Washington County Newsletter, Staying In Touch, is sent to all county residents and is one of the primary ways the county shares information. The Square Lake Park Special Recreation Feature Master Plan Process was featured in the summer 2020 edition. The story introduced the project and asked people to visit the project page to provide input. This approach efficiently and effectively spread the word about the project and increased public awareness.

Online Engagement Event #1

This event was held to solicit input on park use, existing conditions, and desired improvements. The online engagement event replaced the previously planned Open House #1 due to COVID-19 restrictions and concern for the safety of attendees. Signage advertising for this opportunity was placed at Square Lake Park. Flyers were also posted at local businesses and nearby schools. To help spread awareness, local organizations and outdoor equity groups were identified and reached out to. Additionally, the public was made aware of the event through PMT and TAC connections, along with Washington County social media platform posts: Facebook, Twitter, Nextdoor and Instagram.

- **Project Introduction** – the online engagement webpage was populated by graphics and text that provided visitors with information about the master plan process and schedule. Existing conditions and project goals/themes was also included.
- Online Survey – a virtual survey was promoted through social media to collect user input on park use, existing experiences, and desired improvements. Full survey results are available in ***Appendix IV***. *(An example of the online survey and corresponding analysis can be found in the figure below.)*
- Interactive Comment Map – a digital comment map was available for community members to provide spatially-specific feedback as part of the first online engagement event.

Engagement Event #1

1,200
Website visits

616
Survey Responses

65
Interactive Map comments/likes

4,655
Facebook reaches

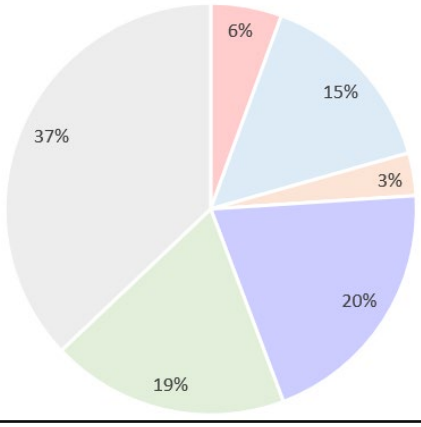
262
Twitter impressions

7,040
Nextdoor post impressions

With questions on the survey related to concerns with existing conditions of potential improvements, the consulting team analyzed responses and compiled them according to the five goals listed in Chapter 1.

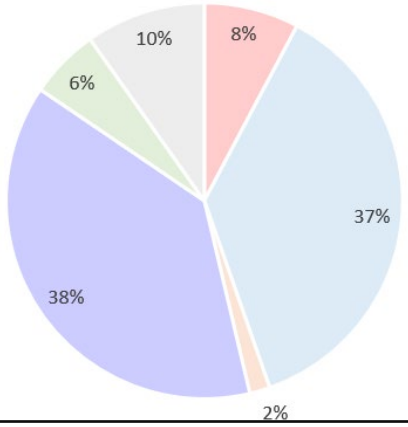
63% of the responses provided For Question 13, "**What is your biggest concern about the park?**", aligned with at least one of the 5 goals (~394 responses). Responses:

- **Unclassified:** over-crowded, over-developed, maintenance (cost/funding), noisy
- **Infrastructure Improvements:** parking, access down to the swimming beach
- **Recreational Use:** number of boats, motorized v. non-motorized boat use, boat/beach/swimming



91% of the responses provided for Question 14, "**If you could prioritize one simple change that would improve your experience at Square Lake Park, what would it be?**", aligned with at least one of the 5 goals (~493 responses). Common themes:

- **Infrastructure Improvements:** accessibility, parking, restroom/building improvements
- **Recreational Use:** playground, equipment rental, hiking/walking trails



Targeted Stakeholder Outreach

The project team solicited feedback from multiple stakeholder agencies with jurisdictional responsibilities at Square Lake to supplement public input from the first online engagement. These discussions included feedback on current park conditions as well as potential future improvements.

- Outreach occurred with the Carnelian-Marine-St. Croix Watershed District (CMSCWD) and MNDNR in late October to review potential improvements related to water quality improvement goals. Washington County received letters of support from both agencies (see **Appendix VI**).
- Park maintenance staff were able to provide targeted feedback as part of an on-site review occurring on September 28th. This feedback reviewed conditions of existing infrastructure, issues related to seasonal or storm events and provided a list of potential improvements. The full list is included in **Appendix IV**.
- Presented at May Township Board Meeting and received resolution of support (see **Appendix VI**).

Listening Sessions and Site Visits with Underserved Populations

The project team made additional efforts to reach underrepresented populations knowing restrictions in place because of the pandemic. Not only did COVID-19 safety measures limit the type of activities suitable for project team staff; they also affected representatives of the communities we hoped to solicit input from. Self-reported demographics gathered from the initial online survey demonstrated a need to supplement these engagement strategies with additional outreach.

Outreach occurred with underrepresented populations through targeted listening sessions. For example, Washington County met with representatives of Outdoor Latino Minnesota to tour the park and discuss opportunities to improve the park experience for Latinx communities. Key findings included developing culturally-sensitive programming, providing easy and clean bathroom access, picnic and group gathering space, and public safety. These finding were used to inform the master plan's goals and proposed recommendations.

An on-site review of accessibility within the existing park occurred on September 29, 2020 with Metropolitan Council Park and Open Space Commissioner Todd Kemery. Commissioner Kemery is a member of the Paralyzed Veterans of America, Minnesota Chapter and an accomplished adaptive scuba diver. This meeting provided the opportunity to discuss accessibility challenges that exist at the park. Key findings included identifying trail grade challenges, accessible park amenities (mobility beach mats, accessible boat/scuba launch, accessible fishing pier), and signage improvements. A full list of items discussed as part of this meeting can be found in **Appendix IV**.

Online Engagement Event #2

This event was held to solicit input on potential park improvements, review draft concept displays and confirm direction of the master plan relative to input received during the first online engagement event. Feedback helped the design team refine potential improvements and highlight any needs at odds with the larger community which may not have been identified through discussions with the TAC and PMT Committees. As with previous outreach tools, the online engagement tool was used because of concerns with the ongoing pandemic.

This input opportunity was promoted in a similar fashion as the first online engagement event. Participants were made aware of the event through PMT, TAC, and community group connections. Flyers were also posted at local businesses and nearby schools.
Additionally, Washington County leveraged social media platform posts. As this event occurred in December, the decision was also made to have it open for two weeks to provide the public plenty of

Engagement Event #2

609
Website visits

30
Survey Responses

100
Interactive Map comments/likes

994
Facebook reaches

614
Twitter impressions

time to review materials on the website, provide feedback on the interactive map and participate in the survey.

- **Project Update** – the online engagement webpage included background information on the project (for people who were not aware of it yet) and shared key project findings that had been gathered at that point. There was also information on how public input was incorporated into the proposed concepts.
- Online Survey – an engagement survey was provided as part of the online engagement tools promoted through social media. It was comprised of seven questions and gauged public support of capital and natural resource improvement recommendations. Full survey results are available in **Appendix IV**.
- Comment Map – an interactive comment map was available for community members to provide feedback directly to potential recommendation displays. This tool also allowed comments to previously posted notes, providing an opportunity for dialogue between different members of the public and potentially different stakeholder groups with different end goals for the park.

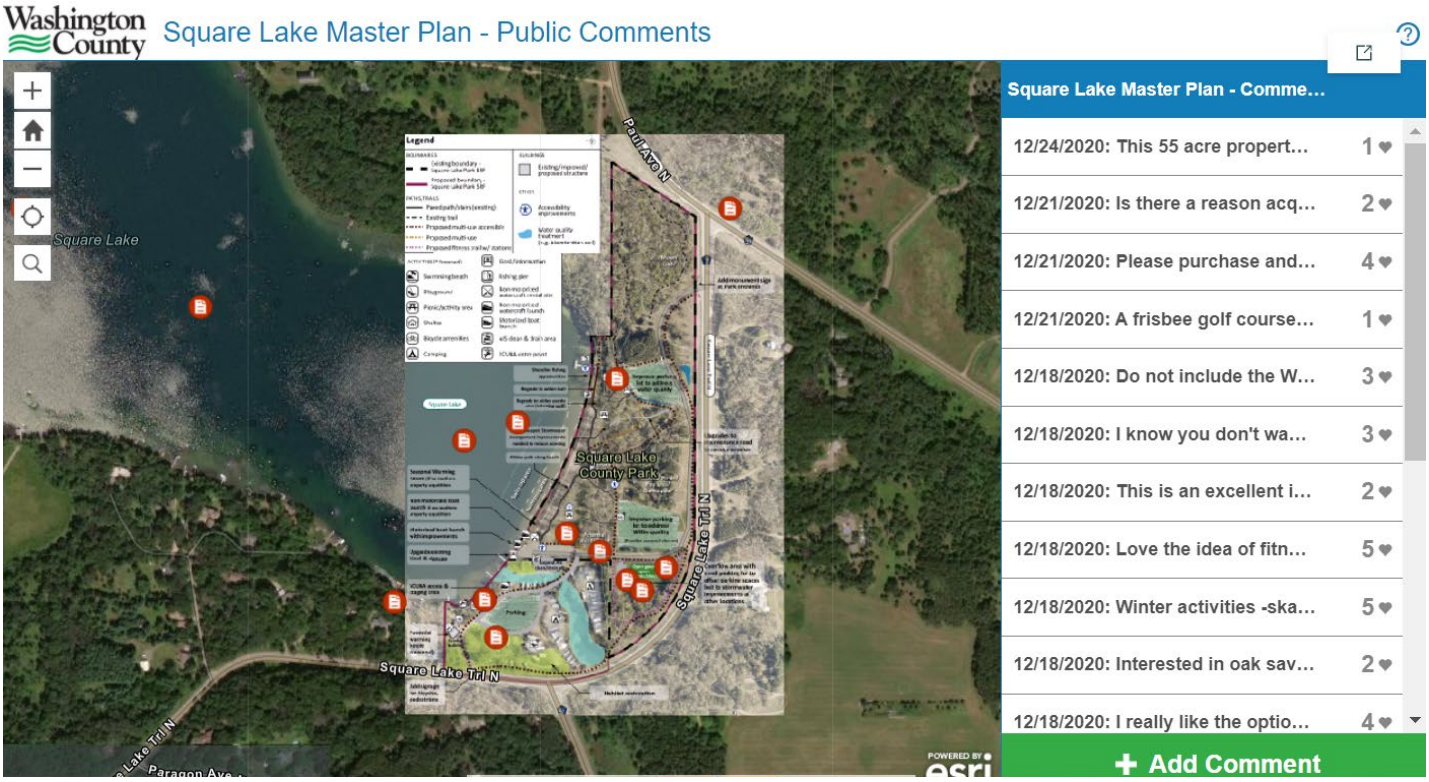


Figure 4.1 *Online Engagement Event #2 Interactive Map*

Equity analysis

During the master plan process, Washington County conducted an Equity Analysis: an examination of the public engagement process and outcomes for stakeholders by race, ethnicity, national origin, income, ability, age, and other pertinent characteristics.

1. Project Data:

a. Scope: What are the boundaries and demographics of the public engagement area? Please consider neighborhoods adjacent to the park or trail, travel sheds, and agency/regional boundaries.

Washington County focused on engaging existing and potential park users within a 30-minute travelshed. Although usage and constituent population vary by the park type, the 30-minute travel time area is presented as a general guideline on the size of the population most likely to visit a regional park. The National Recreation and

Park Association's (NRPA) Facility Market Report provided the county with statistics on the residents served by the park within this travelshed, with additional information on their habits and interests. See Appendix III: NRPA Market Reports for more information.

b. Context: What is known about future stakeholders, underserved populations, and how the region's history created present-day inequitable outcomes?

Within the 30-minute travelshed, NRPA's Community profile provides the following insights on the projected demographic profile of future park users.

2010 Census Data and 2020 & 2025 Forecast Data of People Residing Within a 30-Minute Drive of the Facility			
Population & Household	**Census 2010**	**2020 Forecast**	**2025 Forecast**
Population	228,330	248,966	261,566
Households	87,951	96,257	101,054
Families	61,797	66,986	70,199
Average Household Size	2.54	2.54	2.54
Owner Occupied Homes	70,118	77,286	81,654
Renter Occupied Homes	17,833	18,971	19,400
Median Age	40.2	41.4	42.1
Median Household Income		$85,845	$92,416

2010 Census Data and 2020 & 2025 Forecast Data of People Residing Within a 30-Minute Drive of the Facility						
Race and Ethnicity	**Census 2010**		**2020 Forecast**		**2025 Forecast**	
	Number	**Percent**	**Number**	**Percent**	**Number**	**Percent**
White Alone	205,948	90.2%	215,306	86.5%	220,201	84.2%
Black Alone	6,441	2.8%	9,630	3.9%	11,850	4.5%
American Indian Alone	1,088	0.5%	1,232	0.5%	1,342	0.5%
Asian Alone	8,446	3.7%	13,336	5.4%	16,650	6.4%
Pacific Islander Alone	82	0.0%	159	0.1%	203	0.1%
Some Other Race Alone	1,887	0.8%	2,702	1.1%	3,257	1.2%
Two or More Races	4,438	1.9%	6,601	2.7%	8,063	3.1%
Hispanic Origin (Any Race)	6,419	2.8%	9,154	3.7%	11,125	4.3%

Furthermore, on a county-wide level, underserved communities were identified in the Metropolitan Council commissioned Regional Parks System Visitor Study (2016). This report provide benchmark data of park and trail visitor experiences at regional parks and trails, aggregated by implementation agency. Key findings from the report included:

- Disparities in Washington County park and trail visitation included:
  - Age
  - Household income
  - Educational attainment
  - Physical or mental ability

- When compared with other implementation agencies, Washington County park and trail users were more likely to:
  - Rate the quality of facilities, services, and recreation opportunities as very good (73 percent)
  - Visit a park closer to home (average of 9.5 miles to travel to park)
  - Arrive in an automobile (81 percent)
  - Look for information prior to visiting (18 percent)
  - Bring kids under age 10 (30 percent)
  - Report a larger average group size (average group size of 2.84)
  - Visit longer periods of time (average time spent of 3.01 hours)
  - Say that lack of free time is the primary barrier to visiting more often (83 percent)

Finally, the master plan recognizes the impacts that past decisions have had on the present-day inequitable outcomes experienced at Square Lake Park and the metropolitan regional park system. An example of this is the historic segregation of access to swimming and development of swimming skills by race and ethnicity, as described in **Chapter 3** - Establishment of a Recreational Destination. The impact of this history is found in the disparities experienced by these communities today. For example, a report from the Minnesota Safety Council found:

- For all ages, American Indians/Alaska Natives had the highest drowning rate, twice that of whites; the rate for African Americans was 1.4 times the rate for whites.
- Drowning rates for black children were significantly higher than those for whites and Hispanics at every age from five years through 18 years.
- The greatest disparity was seen in swimming pool deaths, where the drowning death rate for black children and teens ages 5-19 years was 5.5. times the rate for whites. (Centers for Disease Control, May 2014).
- Factors such as the physical environment (e.g., access to swimming pools) and a combination of social and cultural issues (e.g., fear of drowning; choosing or not choosing recreational water-related activities) may contribute to these differences in drowning rates.

2. Public Engagement and Participation:

a. Participants: Which stakeholders discussed in 1b contributed to the planning effort? The following list is illustrative of stakeholders to consider including youth, Black, indigenous, and people of color communities, people with disabilities, low-income populations, populations age 60 and over, and neighborhood/regional groups that participated as planning staff, community advisory committee members, outreach liaisons, and the general public.

Washington County strives to provide an inclusive public engagement process for its park planning efforts. To reach a diverse cross-section of the community and to engage people of diverse races, ethnicities, classes, ages, abilities and national origin, the project team developed a plan to provide information to the public in multiple ways with an emphasis on trying to make it easy and accessible for people to participate in the planning process. The public engagement process included the following engagement strategies types:

- Online engagement survey
- Advisory Committee

  - Committee consisting of local residents, representatives from nearby businesses, non-profit organization, public agencies and other regulatory agencies.
- Target stakeholder outreach
- Listening sessions and site visits with underserved populations
- Online interactive engagement events (online open houses)

It is important to note self-reported demographics gathered from the initial online survey demonstrated a need to supplement these engagement strategies with additional outreach. An example that highlights this work is the listening sessions and site visits the project team conducted with two representatives of underserved groups, including Latinx park users and people with different abilities. Please see **Chapter 4** - Listening Sessions with Underserved Populations for more information.

b. Engagement: What engagement, outreach, and communication was conducted for stakeholders described in 2a? Please identify the level of public impact on the International Association for Public Participation's Public Participation Spectrum and requisite engagement strategies for each stakeholder group. Please consider culturally competent and community representative staffing, training, locations, times, public awareness, and input approaches.

Washington County implemented three key strategies to address equity within the public engagement process of the Square Lake Park Special Recreation Feature master plan:

- Washington County involved the community systematically by having stakeholders participate in the Technical Advisory Committee (TAC). The TAC included local residents and representatives from the local community, nearby businesses, and non-profit organizations to deliver community expertise and insight on issues throughout the planning process from across a diverse range of community perspectives. They worked closely with county staff and the consultant team and made recommendations that shaped the plan. They also served the vital role of advising on broader outreach efforts, ensuring that key stakeholders and affected communities were informed and given the opportunity to provide input.

  This is an example of "Collaborate" on the International Association for Pubic Participation's Public Participation Spectrum. More information on engagement events can be found earlier in in **Chapter 4** - Partner & Agency Engagement.

- In order to reach out to populations that may not feel comfortable attending a traditional open houses or public meetings, the county would normally organized pop-up events designed to "meet people where they are already located." Unfortunately, these informal events were not possible due to the COVID-19 pandemic. To still reach this population, the county conducted an online survey to collect user input on park use, existing experiences, and desired improvements. The county received 616 responses to the online survey, which proved to be successful efficiently gathering a large amount of input. The survey included optional questions requesting demographic information. One thing to note was the county received over 6% of responses from those who describe themselves as having a disability. This is important because, according to the Regional Park System Visitor Study (2016), 8.4% of county residents identified as having a physical or mental condition, compared to just 2.0% of parks and trail visitors who identified the same way.

  This is an example of "Consult" on the International Association for Pubic Participation's Public Participation Spectrum. More information on engagement events can be found earlier in in **Chapter 4** - Online Engagement Event #1 and in **Appendix IV**.

- Washington County also implemented a targeted engagement strategy of social distanced listening sessions with underrepresented groups. After an initial round of public engagement, the project team identified

opportunities to gather additional input from underserved communities who may not have been well represented. Listening session/site visit invitations were sent to key representatives or groups who have experience with equity in the outdoor issues. Listening sessions are a useful method of engagement because the information shared by an individual reflects their personal experiences and perspective. Washington County then conducted two site visits and listening sessions with two representatives of underrepresented groups, Outdoor Latino Minnesota and Paralyzed Veterans of America, Minnesota Chapter. In both cases, the site visit allowed for more in-depth, one-on-one conversations and site-specific recommendations.

This is an example of "Collaborate" on the International Association for Public Participation's Public Participation Spectrum. More information on the Urban Roots event can be found earlier in **Chapter 4** - Listening Sessions with Underserved Populations and **Appendix IV**.

c. Public Participation: What did you learn from the engagement conducted in 2b? Please summarize the advice you heard into themes and identify the contributing stakeholder.

Feedback received during engagement events and listening sessions were synthesized comprehensively with all the project findings into themes and goals that guided the master plan. Specifically, of the 17 of the 23 outcomes/goals directly address comments and input received by the underserved populations that the project team engaged with. See these below and **Chapter 1** – **Table 1.1** for the complete list.

- Access Improvements:
  - Enhance visitor experience: welcoming arrival, clear parking, accessible circulation between park destinations
  - Heighten awareness of the park
  - Improve access and connectivity to the local community and region
  - Preserve public access and opportunities to experience Square Lake
  - Preserve and enhance diversity of visitor income, race, ethnicity, and age

- Recreational Use:
  - Expand recreational opportunities for year-round use
  - Maintain and improve existing facilities
  - Consider new or expanded facilities to accommodate new activities and users
  - Reduce barriers for underrepresented users
  - Expand opportunities for park programming

- Infrastructure Improvements:
  - Provide universal access to park facilities/amenities (ADA) to every extent possible
  - Enhance gathering space to accommodate large and small groups

- Water Quality Protection:
  - Protect water quality and clarity of Square Lake
  - Provide interpretive opportunities that highlight the importance of water quality

- Natural Resource Protection:
  - Identify natural communities for preservation, protection and restoration for enjoyment by future generations
  - Provide interpretive opportunities that highlight the important natural resources within the park
  - Develop and implement a plan for continued canopy regeneration for future use

3. Evaluation Summary:

a. Transparency: How did the public participation from 2c impact the decisions and policies made? Please consider input that advances, supports, coincides, and diverges from the master plan.

In addition to the overall guiding project themes and goals (see 2c), public engagement with underserved groups impacted the proposed capital improvement and natural resource concept plan. Input from the different public engagement strategies were summarized into a comprehensive list. Key findings that guided concept plan development:

- Square Lake Park is visited and loved by both local residents and people all over the region
- Protecting and enhancing water quality and clarity is a key priority
- Significant demand for improving non-motorized watercraft site amenities and programming
- Preservation of natural, scenic setting is desired
- Improvements are needed to better connect and access upper and lower areas of the park
- Crowding at the beach and high use of the lake impacts the park user experience
- People are interested in visiting and using the park more in non-summer months
- The restroom facility is used by all users and improvement and consistent maintenance is important.
- Develop additional trails and explore opportunities to complement existing uses
- Proposed acquisitions will add value to the park and region through conservation of natural resources and low impact park improvements

The key findings are addressed in the proposed capital improvement and natural resource concept plan. See **Chapters 5 and 6** for more information.

b. Accountability: How will the planning effort create better outcomes? Please consider outcomes related to regional and local access, quality of experience, facility rules/policy, and reporting back about 3a to stakeholders discussed in 2a.

These key findings highlighted in 3a permeate the proposed concept plans and guidance described in the Square Lake Park Special Recreation Feature master plan. One proposed improvement captures the value of targeted public input from underserved populations. In talking with underserved groups about accessibility, it was clear that the proposed improvements made to better connect and access upper and lower areas of the park will not only benefit those using mobility devices, but also for families carrying beach supplies or pushing strollers from the parking lots.

The target engagement led to a better and more inclusive master plan. Through this process, Washington County was able to create relationships and build trust with community stakeholders. For example, the site visit and listening session with Outdoor Latino included discussion about future programming opportunities, not only at Square Lake Park, but at other parks across the Washington County system.

Finally, targeted underserved groups were followed up with as the final master plan drafts were out for public comment. Washington County will continue to engage the community on the future implementation of the master plan.

Public Engagement Outcomes – What we heard

The public engagement opportunities provided the county and project team with a broad understanding of existing concerns and improvement opportunities at Square Lake Park. Input was concentrated in the Twin Cities region, but responses spanned from Duluth to St. Peter geographically.

The following list highlights key findings from the public engagement opportunities and subsequent TAC and PMT meetings.

- Square Lake Park is visited and loved by both local residents and people all over the region
- Protecting and enhancing water quality and clarity is a key priority
- Significant demand for improving non-motorized watercraft site amenities and programming
- Preservation of natural, scenic setting is desired
- Improvements are needed to better connect and access upper and lower areas of the park
- Crowding at the beach and high use of the lake impacts the park user experience
- People are interested in visiting and using the park more in non-summer months
- The restroom facility is used by all users and improvement and consistent maintenance is important.
- Develop additional trails and explore opportunities to complement existing uses
- Proposed acquisitions will add value to the park and region through conservation of natural resources and low impact park improvements

In general, the feedback received through the summary can be described as follows:

> *People appreciate the clean water in Square Lake and feel strongly that this should be preserved and enhanced – this is the major draw and what people like most about the park. Many also appreciated the mature trees providing shade along the swimming beach. Overall, Square Lake Park is viewed as a quiet, peaceful, simple park. There are concerns that substantial improvements, to facilities or additional programming, will increase the park's popularity and negatively impact the quality (water quality, crowding on the beach, facility cleanliness). Added amenities should not take away from the simplicity of the park which allows visitors to enjoy the beautiful natural surroundings. Allocating spaces or activities away from the beach may be able to be incorporated in a way that spreads out users to create a feeling of fewer people. Access from the parking area to the lake should be improved for the elderly, people with special needs, or those with young children while still preserving the vegetation along the hillside*.

Chapter 5
Development Concept & Design Guidance

Square Lake Park provides access to some of the clearest water in the state. Community and partner engagement determined a desire to focus on enhancing the park's infrastructure to address stormwater runoff while also enhancing the park's ecological qualities. The public also indicated an interest in further developing recreational amenities with Square Lake while expanding opportunities outside of the primary May through August park use timeframe.

This chapter discusses the overall vision for Square Lake Park, with a more detailed coverage of natural resource enhancements occurring in chapter 6. The following development plan outlines the long-term vision for the park, including trail development and improvements, accessibility, natural resources, and recreational amenity considerations. This chapter discusses the overall 'vision' for Square Lake Park, with a more detailed coverage of natural resource enhancements occurring in **Chapter 6**.

ADA Accessibility Considerations

The Americans with Disabilities Act of 1991 (ADA) was a landmark civil rights legislation prohibiting discrimination based on disability. The ADA and subsequent regulations contain technical requirements for accessibility and usage of sites, facilities, buildings, and elements by individuals with different needs and abilities. ADA requirements are to be applied during, "design, construction, additions to, and alteration of sites, facilities, buildings, and elements to the extent feasible". The main applicability of ADA for the Square Lake Park Special Recreation Facility Master Plan is in the physical accessibility requirements for public accommodations.

As it prepares for plan implementation, Washington County intends to use this master plan and the Washington County ADA Transition Plan to provide guidance for accessibility standards for proposed improvements.

Park Programming

Washington County has a commitment to continue partnerships towards developing educational programming at its regional parks and special recreation features. Existing programs and events across the system garner strong public support. The Square Lake Special Recreation Feature master plan supports the continued growth of programming and educational resources. As with all park offerings, programming should be leveraged towards underrepresented groups in the parks system, and be mindful of visitor age, ability, and language.

Overwhelmingly, improvement of Square Lake's water quality was the most supported of all park improvement goals. Public programming that provides water resource and stormwater education will be an important component of future educational programming. One of Square Lake's most popular current education offerings is a standup paddle board event. With limited capacity, this opportunity to get more people on the lake remains in high demand with the County anticipating expanding programming like this in future. The desire for more opportunities and programming like this became evident during the survey and would coincide with the request for kayak, canoe, paddleboard and other non-motorized watercraft rentals at the park. The county will explore opportunities to expand this programming in the future.

Recreation Development Opportunities for Existing Park

Multiple development opportunities were identified from feedback provided by the community and project partners throughout the input process. These included programming changes, additions to the park during the summer months, and new recreational features to extend use of the park throughout the year. These recommendations directly informed creation of this Plan's development opportunities recommendations.

Accessibility and Trail Development

Square Lake Park currently provides limited trail opportunities. The connections that do exist largely connect parking lots to the beach, picnic areas, and fishing pier. All official trail paths from the upper parking lots to the lakefront include stairs. An unofficial path connecting the north parking lot the beach/picnic area is available by navigating an existing maintenance road that is steep in several areas. Despite this steep incline, many people have resorted to use of the road for strollers and coolers with wheels as stairs prohibit easy use of these. Similarly, patrons who park at the south lot and have strollers or coolers typically bypass the stairs and travel along the edge of the boat ramp access road, which provides access to the beach area. This road is also steep and can provide mobility challenges for some.

An additional path extends from the small parking area adjacent to the boat ramp and provides access to the beach, beach building and fishing pier. This path is narrow, only partially paved, and provides an uneven route between park destinations.

Washington County recently added a mowed trail loop in the wooded area adjacent to the north parking lot. This loop doesn't connect any park features and contains segments where grade could prove challenging for people with mobility needs. Additional trail

development is needed to provide more accessible connections between park destinations, while expanding facilities for walking, hiking and snow shoeing throughout the year. Patrons were hopeful that these additional trails would help decentralize use of the park during the crowded summer months by expanding opportunities away from the beach to other areas of the park.

Public input supports infrastructure for the purpose of designating a trail segment near the overflow parking lot as a fitness loop. A fitness trail consists of a path with outdoor exercise equipment or obstacles installed along its length for exercising to promote good health. This was a popular request from the community, and it is not an amenity currently offered at other Washington County parks.

There is a regional trail search corridor that will provide a future bike and pedestrian connection between Square Lake Park and Pine Point Regional Park. Washington County will continue to be open to opportunities that would link this special recreation feature to the larger trail network, such as the Gateway State Trail. Some of the shared trails along the entry road are recommended not only for bike traffic who may visit the park currently but also to provide for this infrastructure once this park can be connected to the larger trail network.

Recreational Amenities

A reoccurring theme during public and partner input was the desire for recreation opportunities to complement facilities at the park, while providing expanded use beyond the core summer months. At the same time these amenities should not replicate recreational opportunities available at other parks without a reason expressed through public input or supported by existing conditions or future park planning efforts. As such, improving the condition of existing amenities and access between parking lots and park amenities is a recommendation of this master plan.

Proposed recreation features to enhance existing park offerings include an open green space for flexible uses such as pick-up games, kite flying, and picnics. This area could also accommodate a short (quarter mile) fitness trail with fitness stations.

A non-motorized watercraft launch and rental opportunities is proposed north of the existing boat launch. If proposed acquisitions occur, this would shift over to the newly acquired property. Other accommodations include improvements to the existing boat launch, and new signage educating park users about responsibilities related to Aquatic Invasive Species (AIS).

Other new features would include a new small group picnic shelter by the fishing pier, improvements to the fishing pier to better accommodate people with different abilities and needs, and expanded shoreline fishing amenities.

To better provide for patrons at the swimming beach and picnic areas, this master plan calls for renovation and expansion of the beach building. The existing structure is well used and requires ongoing maintenance. For example, the facility ventilation needs to be addressed. Improved access is needed from parking lots to this facility and other park amenities, as well as expanding the restrooms and shower facilities with ADA accessibility upgrades. As upgrades are considered, the county should look at opportunities for accommodating potential future programming events and/or material storage space related to these uses. Throughout the park, this plan encourages the introduction of ADA accessible grills and picnic tables.

A few improvements are targeted towards water quality and visibility concerns. This includes use of shoreline restoration and vegetation to mitigate the presence of paved surfaces and vehicles from the lake viewshed. It also includes careful consideration of available parking limiting motorized boat access from the park. One operational change the county may consider is to designate a certain number of parking spots for motorized boats, including electric motors-only spots.

This plan recognizes that the existing maintenance road, while providing an important service for ongoing maintenance, also establishes a direct connection from the upper portion to the lower park and lake by which stormwater runoff and erosion can be conveyed to Square Lake. This plan therefore encourages upgrades to that maintenance road that will reduce erosion and limit transference of stormwater to the lower park.

The following items are recommended for consideration as improvements are made to the existing park. Some of these improvement recommendations (marked *) may shift depending on whether the County acquires additional parcels reviewed as part of this master plan and described below:

- Small group shelter
- Improved picnic amenities
- Remodeled beach building
- Additional shoreline fishing amenities
- Improved fishing pier
- Non-motorized watercraft rental site*
- Dedicated non-motorized watercraft launch*
- Improved motorized boat launch
- Expanded AIS watercraft cleaning/drain facilities*
- Improved Signage (wayfinding/education)
- Open green space
- Fitness trail and stations
- Improved parking lots
- Bicycle amenities
- Multi-use trails*
- Multi-use accessible trails
- Maintenance road upgrades

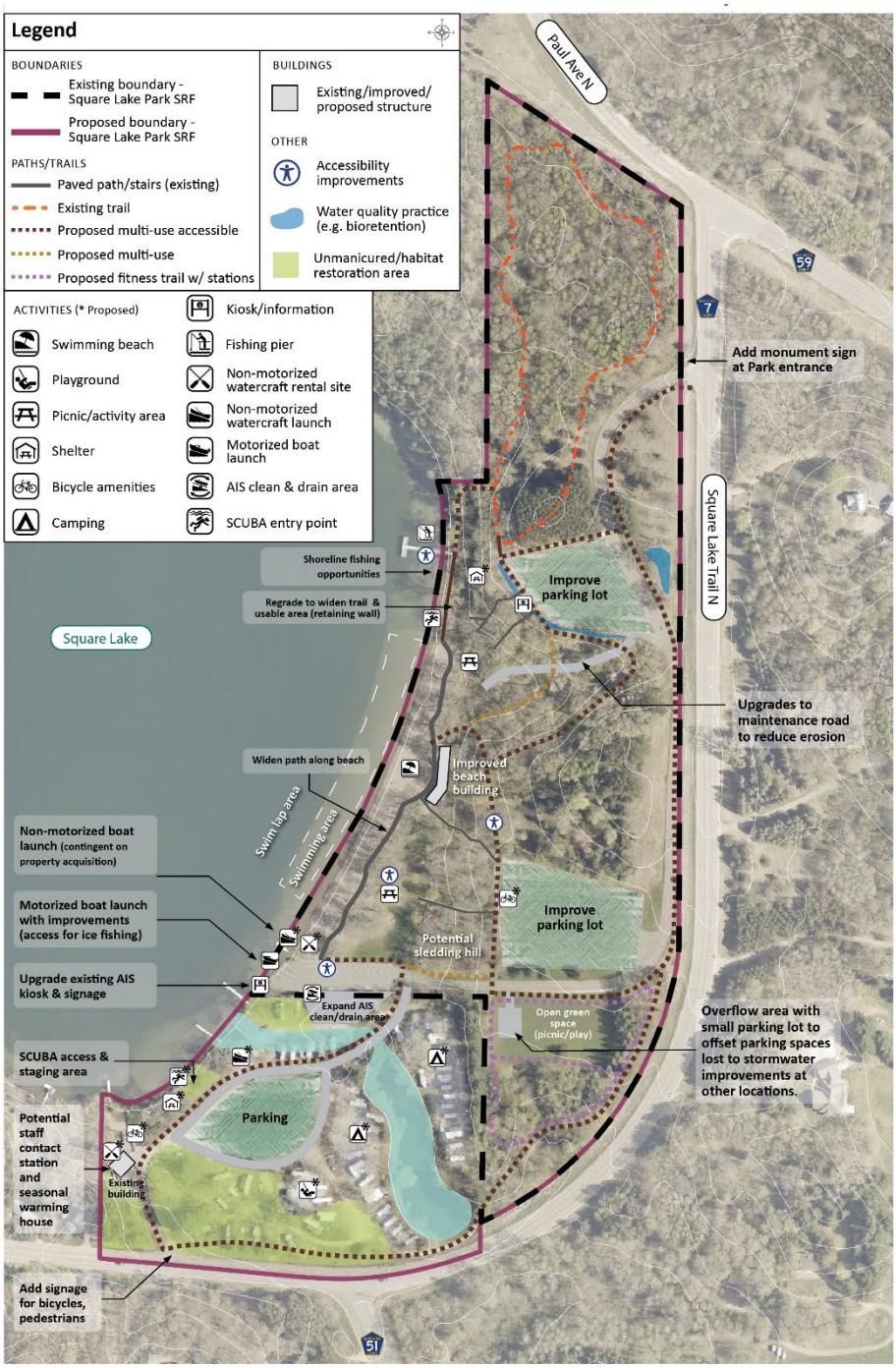


Figure 5.1 *Capital Improvement Recommendations (***Appendix V***)*

Wayfinding and Interpretive Signage

The variety of trails and amenities, along with stormwater improvements and ecological restoration practices offer unique opportunities for wayfinding and signage. With the potential for future

acquisition, it will be important to continue using uniform signage throughout the park; helping to orient visitors to site features, denote trails, communicate rules and regulations, and help interpret natural systems and park features.

Design of wayfinding and interpretive signage should be consistent to provide clear messaging throughout the park. It should also adhere to the Washington County brand so park guests recognize the jurisdiction overseeing Square Lake Park and its facilities. The following items were identified during public and partner input sessions:

- Park entry monument sign
- Wayfinding signs to identify destinations and distances
- Signage communicating park policies and ordinances
- Interpretive panels educating about natural systems
- Kiosks providing information
- Water safety tips for swimming, kayaking, paddle boarding, etc.

Implementation will need to coincide with trail development, stormwater improvements, restoration practices or acquisition redevelopments as described later in this chapter.

Proposed Acquisitions and Future Park Boundary

To further improve park resources and accommodate growing demand, two locations near Square Lake Park have been identified for potential acquisition. Through the master plan process, these sites were identified for their ability to address project goals and match the criteria for Square Lake Park's inclusion into the regional park system. This additional land will allow the county to better protect areas around the lake while providing opportunities for people to experience the outdoors. Washington County's current practice for park land acquisition is on a 'willing-seller' basis. The projected timing and sequencing for acquiring any of the land identified in this master plan will be ultimately determined by funding and the timing of parcel availability.

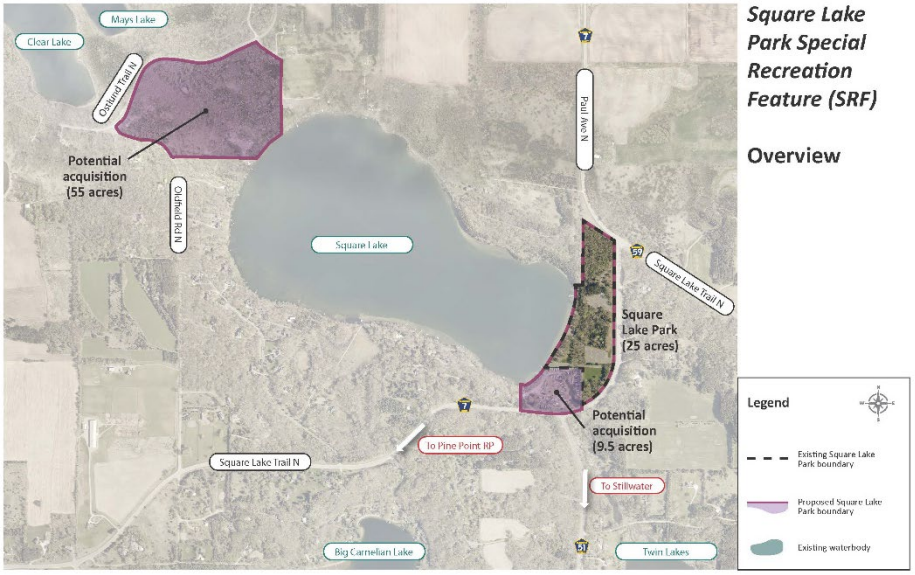


Figure 5.2: Square Lake Park Context

Golden Acres RV and Picnic Area

One site being considered for potential park expansion is the Golden Acres RV and Picnic Area, a roughly 9.5 acres site immediately south of Square Lake Park. Located on relatively flat terrain, this property currently operates as an RV campground and picnic area, while also providing lake access to SCUBA divers, motorboats and non-motorized water craft enthusiasts. The site contains an access onto Square Lake Trail N, a permanent structure serving as the administration building, and a pond around which RV sites are situated.

Aside from its proximity to Square Lake Park, the current use and build-out at Golden Acres serves a similar function as the park. Acquisition would provide additional natural resource protections to the lake through conservation and restoration, which is the main focus of Square Lake Park, and the primary reason for its designation as a regionally significant special recreation feature. Golden Acres would also provide opportunities to thoughtfully design accessible

and environmentally sustainable facilities providing more universal access to the lake, a separation of motorized and non-motorized watercraft and the expansion of amenities already adjacent to the existing park.

Acquisition of the Golden Acres RV and Picnic Area will allow for expanded park amenities. Vegetation and wetland enhancements can also be pursued to expand the function of the existing pond for water quality. With acquisition of this parcel, this master plan recommends closing the existing entry from Square Lake Trail N and establishing a new vehicular access at the bottom of the hill providing access to the existing park boat ramp to make it easier for park staff to control access.

The proposed concept shifts the non-motorized watercraft and SCUBA access, while motorized boat access would remain at the current park launch. A separate boat launch for non-motorized watercraft will make this popular activity safer and more accessible. Furthermore, the master plan recommends that the county explore future opportunities to provide rental equipment for the public. As a destination for scuba divers, including experienced divers and those training for certification. The master plan seeks to accommodate this use by providing a staging area that is close to parking and lake access.

Additionally, an expanded trail network will provide connections within and through the park. Camping will remain an ongoing consideration with the proposed concept retaining a portion of the camping opportunities that exist at Golden Acres today. A playground and shelter are also being considered towards providing additional year-round amenities for park patrons.

The following amenities are included as recommendations for the Golden Areas RV and Picnic Area site. (*Refer to* **Figure 5.1** *Capital Improvement Recommendations on page 36.*):

- Expanded parking options near Square Lake
- Trail connections to a larger park network
- Bicycle facilities
- Playground
- Camping
- Small group shelter
- Expand AIS clean/drain area at existing boat launch
- Separation of non-motorized and motorized watercraft launches and staging areas
- Potential renovation of existing building as staff building, warming house, and/or rental station

Wilder Property Parcel

This master planning process identified the 55 acres owned by the Wilder Foundation and south of Ostlund Trail as land that best met the criteria for inclusion in the park's future boundary. The additional adjacent acreage north of Ostlund Trail is also owned by the Wilder Foundation and may become a future 'county conservation area' as part of a larger acquisition effort between multiple partners. County conservation areas are slightly different than parks with a purpose more focused on ecological conservation, similar to that of Scientific Natural Areas that the MNDNR manages. There were no definite details of any acquisition during the final drafting of this master plan. Regardless, the county will ensure the 55 acres proposed for inclusion into Square Lake Park complements adjacent land uses.

This 55-acre site being considered as an expansion for the Square Lake Park Special Recreation Feature is located on the northwest shore of Square Lake. This site is largely wooded and was previously used as a youth camp. Acquisition of this property would allow Washington County to further expand natural features while providing additional protection to areas draining toward Square Lake. It would also introduce new features not feasible in the existing park: a larger network of trails, programming space, and passive lake access. New amenities would promote connections to the site's natural elements, with potential access to a wider range of natural habitats. Importantly, amenities being considered for this site are adaptive to year-round use. A larger trail network could promote hiking during the spring, summer, and fall while also accommodating snowshoeing and cross-country skiing during winter months.

More site-specific inventory and analysis is needed to determine the suitability of site features, and potential for renovation or remodeling to accommodate future uses as described by this master plan. Several outbuildings that provided operational functions for the day camp will need to undergo structural review to determine future-use suitability. The entry road will also need to be reviewed to determine whether the current alignment can be expanded to accommodate two-way traffic, or if a new alignment may be more suitable based on-site restrictions.

The following improvement recommendations are being considered for this parcel should Washington County acquire this property as part of an expansion of Square Lake Park.

- Hiking trails (may double as ungroomed cross country and snow shoeing during winter months)
- Single track mountain biking trails (more study is needed here)
- Connection to potential conservation area
- Boardwalk over the existing wetland
- Shoreline fishing
- Fishing pier
- Signage
- Carry-in non-motorized watercraft launch and docking opportunities
- Picnic areas
- Potential programming space
- Restoration and stormwater management education
- Entry road improvements
- Parking opportunities

Figure 5.3 *Capital Improvement Recommendations – Wilder Property (***Appendix V***)*

Capital Improvement Phasing

Knowing that the Square Lake Park Master Plan will be implemented in phases, the Project Management Team (PMT) worked with the Technical Advisory Committee (TAC) to help determine prioritization of the capital projects included as part of the recommendations.

Phase 1

The first phase of recommendations for the park includes development anticipated to occur within the next five years. See **Figure 5.3: Phase 1 (1 to 5 Years)**.

- New Park Entrance Monument Sign
- Improvements to the fishing pier to provide better accessible use
- Install shoreline fishing amenities
- Install accessible picnic tables and grills
- Add bike amenities
- Upgrade AIS kiosk and Signage
- Construct paths providing access from upper parking lots to beach amenities
- Improvements to the Beach Building
- Expand internal trail system within park
- Upgrades to the park maintenance road

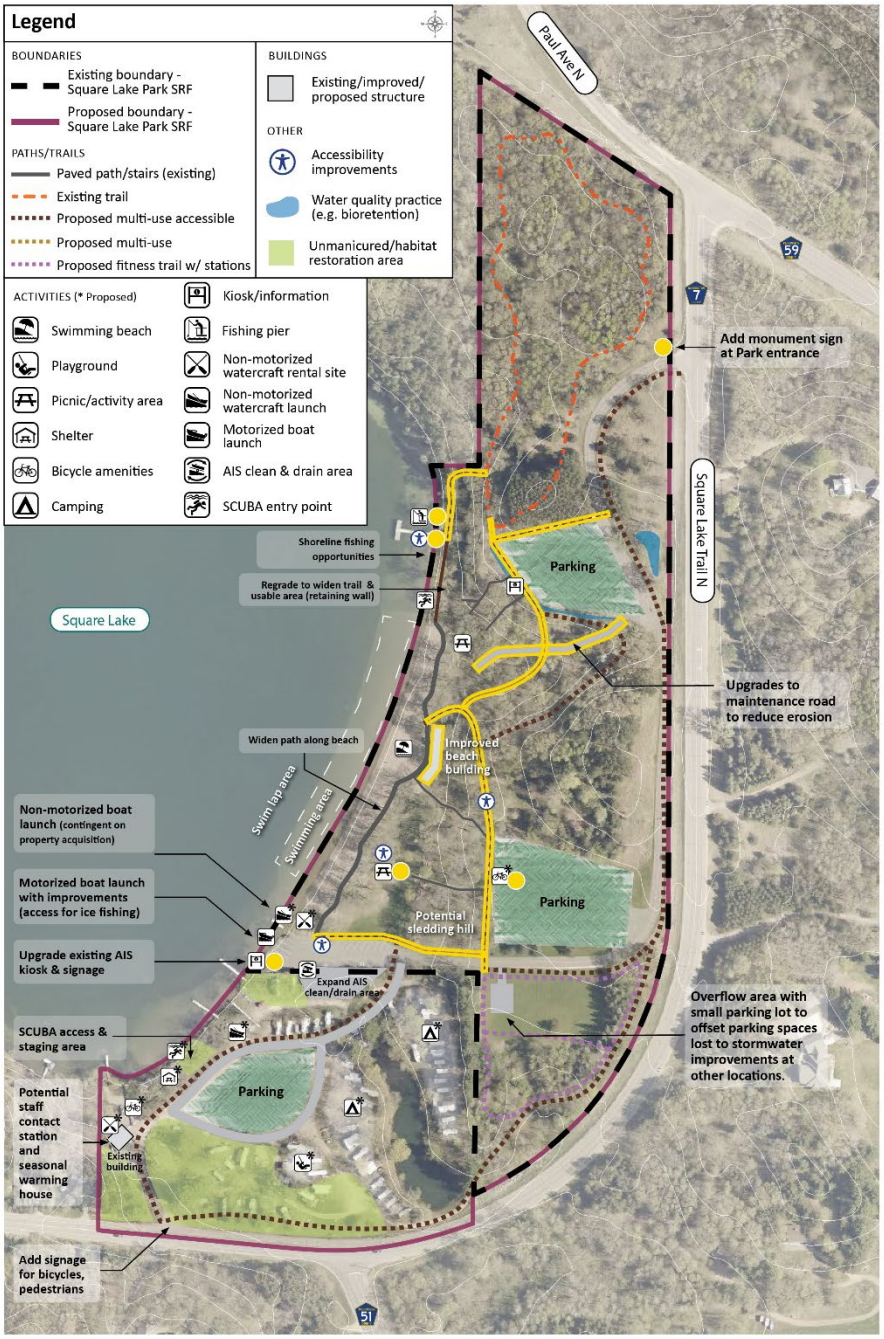


Figure 5.4 *Phase I Capital Improvement Recommendations (***Appendix V***)*

Phase 2

The second phase lists development recommendations anticipated to occur over the next five to ten years. See **Figure 5.4: Phase 2 (5 to 10 Years)**.

- Widen park road to integrate shared path bike lane
- Add official crossings over main park road
- Install small parking lot in 'overflow parking area'
- Add fitness trail loop
- Add open green space in 'overflow parking area'
- Improve concrete trail connecting lower parking, beach, Beach Building and fishing pier
- Improved parking lots with integrated stormwater best management practices (BMPs)
- Install shelter by fishing pier

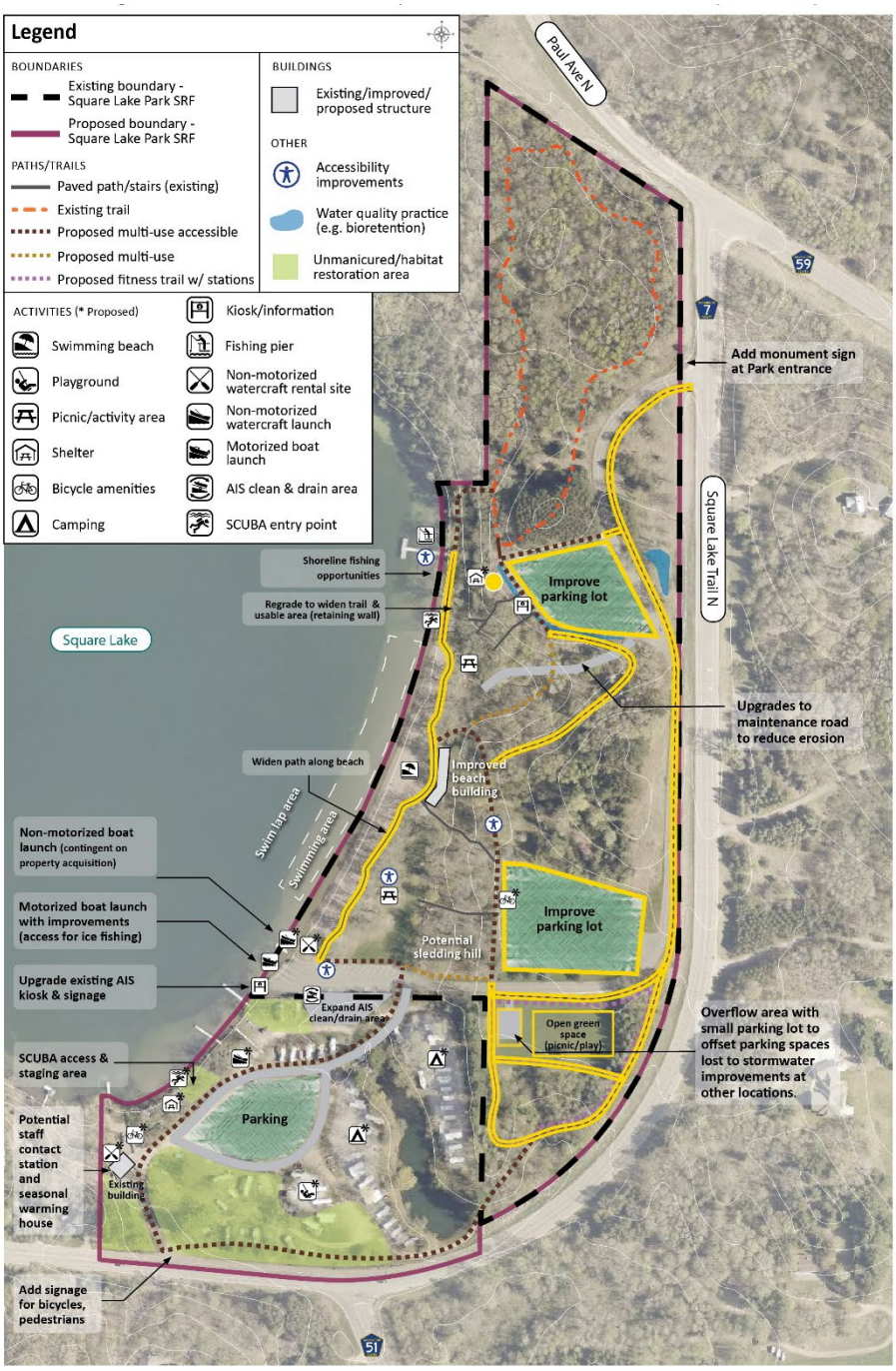


Figure 5.5 *Phase II Capital Improvement Recommendations (***Appendix V***)*

Phase 3 – Improvements Contingent on Proposed Acquisitions

The final phase lists development recommendations anticipated to occur ten years and beyond. Improvements to potential acquisition properties fall into this phase since they are contingent with acquisition by the county. Washington County will likely need to gather additional information to better understand the amenities at each site to understand the scope of park infrastructure needs. See **Figure 5.5: Phase 3 (10+ Years)**.

- Reconstruct access road to provide access to Golden Acres, including channel/wetland/lakeshore restoration
- Close existing Golden Acres vehicular entrance
- Extend trail loop from fitness trail to current Golden Acres entrance and back to existing boat ramp
- Construct parking lot with BMPs
- Expand AIS clean/drain area at boat ramp
- Install a non-motorized watercraft boat launch
- Install a shelter and staging area near the SCUBA launch area
- Install a play area
- Improve campground sites
- Upgrade existing building to serve as staff contact building and potential warming house
- Install additional signage

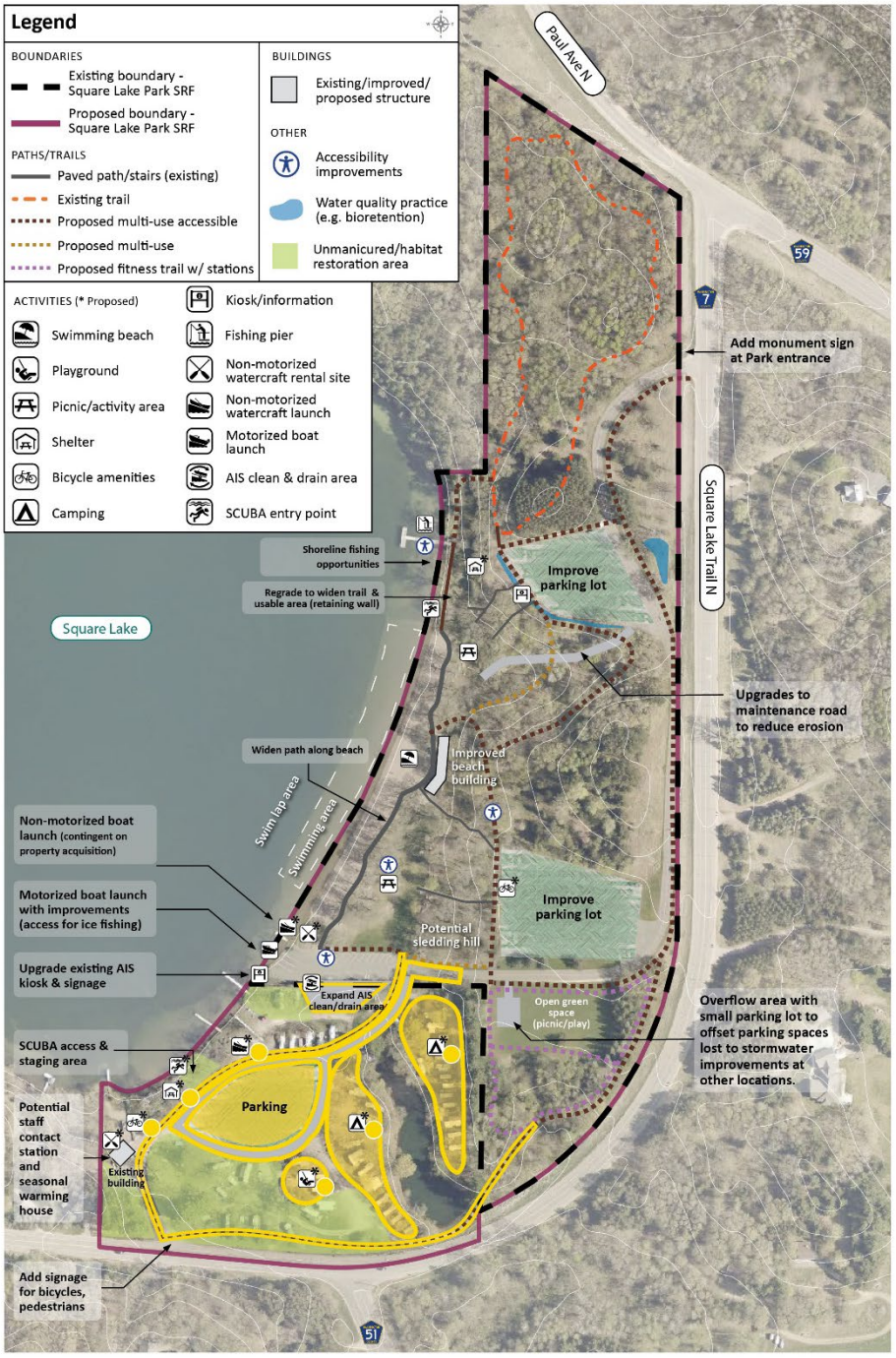


Figure 5.6 *Phase III Capital Improvement Recommendations (***Appendix V***)*

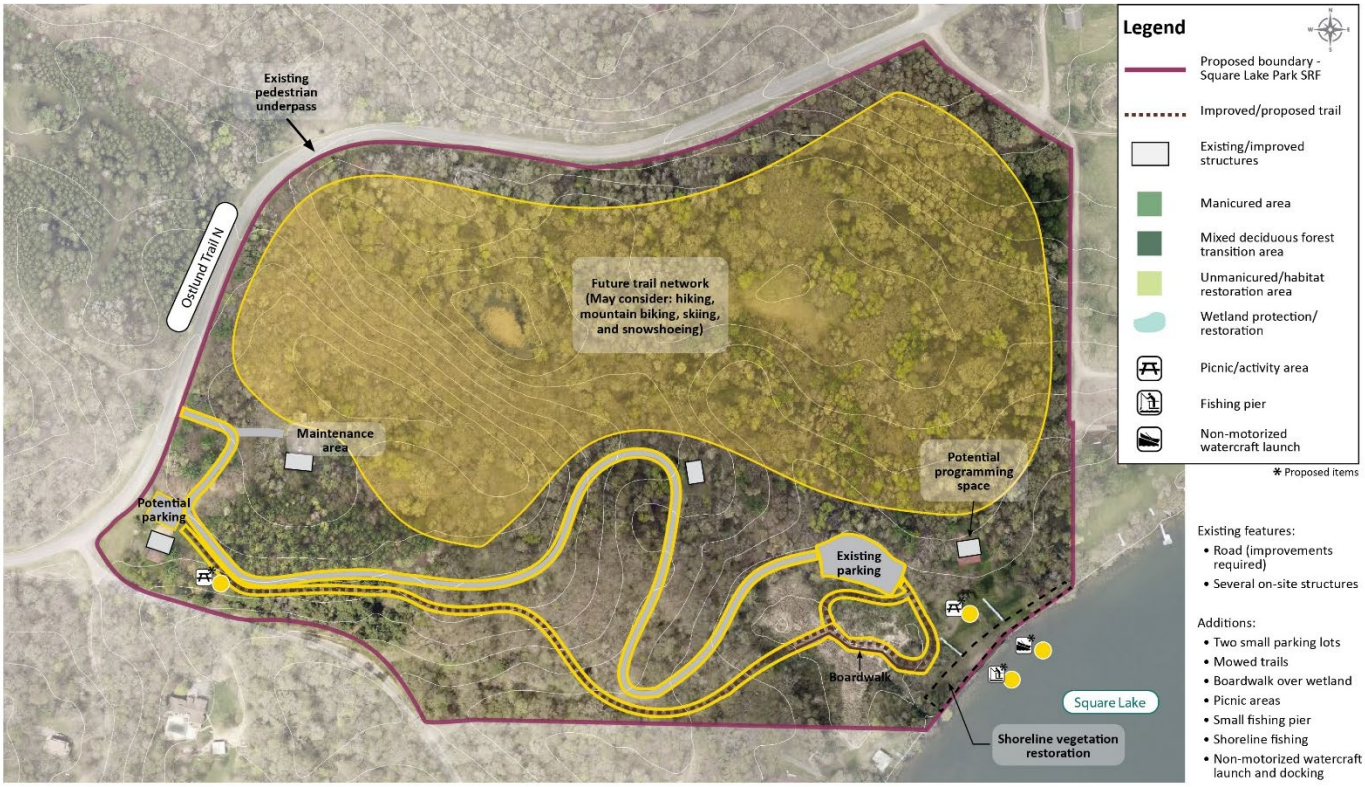


Figure 5.7 *Phase III – Wilder Property Capital Improvement Recommendations (***Appendix V***)*

- Improved parking lots/parking amenities at Wilder Acquisition
- Widen existing entry road to accommodate 2-way traffic
- Construct trail from picnic area to shoreline
- Improvements/construction of new building amenities
- Construct new trail system
- Install boardwalk
- Install non-motorized boat launch
- Install small fishing pier
- Install shoreline fishing amenities
- Provide picnic tables, grills and other amenities

Chapter 6
Natural Resource Management & Stewardship Recommendations

This chapter provides guidance on the natural systems within Square Lake Park and potential acquisition parcels. These habitats collectively form the unique experience enjoyed by park users and relay a story about people's interaction with Square Lake. The information in this chapter provides recommendations on how to best provide stewardship, acknowledging existing natural systems and plant communities and threats they face through human interaction and changes to climate.

Water Resources Protection

Square Lake Park is a special recreation feature because it provides access to some of the clearest waters in the metropolitan region. Protecting the quality of the water in Square Lake is therefore critical towards preserving this amenity not only to Washington County but residents of the entire metropolitan region. Several factors contribute to water quality; including stormwater runoff, groundwater pollution and threats by aquatic invasive species (AIS). This chapter will dive into the role that these factors play; while outlining recommendations that Washington County can deploy to maintain the quality of this feature for future generations.

Aquatic Invasive Species

Aquatic Invasive Species (AIS) are non-native plants or animals that have been introduced to a water body and have the potential to displace native species, disrupt habitats, and degrade the water quality of lakes, rivers, and wetlands. Through these negative impacts, AIS can also impair recreation and local economies that depend on these water resources. Examples of some well known AIS that are present in Washington County include Zebra mussels, Eurasian Watermilfoil, Bighead carp, and Purple loosestrife.

AIS are becoming a growing threat to the region's water ecosystem. The CMSCWD has steadily increased resources toward fighting AIS and educating the public on the important role they play. CMSCWD updated their 2010 Management Report in 2013 to address AIS concerns within the region. At

the recommendation of the Board of Water and Soil Resources in 2015, the District devoted additional resources to the fight against AIS, focusing on four implementation strategies:

- Conducting regular assessment of district lakes to determine AIS presence and prevalence
- Developing a prioritized list of known AIS with corresponding protection and management strategies
- Developing and implementing a 10-year education, assessment, inspection, and management plan in collaboration with relevant stakeholders including state and federal agencies, county and local governments, homeowners' associations, and other district residents
- Exploring ways to mitigate the effects of native vegetation on recreational usage

Cipangopaludina chinensis (Chinese Mystery Snail) is a regulated invasive species confirmed to be in Square Lake. These snails can die-off in large numbers, fouling beaches and shoreland. The ecological impact are unknown at this time but Washington County and agency partners will continue to monitor its presence. According to the DNR, there is no known effective population control in natural water bodies at this time. General best practices should be employed to prevent the spread of the snail. For example, whether or not a lake is listed as infested, Minnesota law requires water recreationists to:

- Clean watercraft of all aquatic plants and prohibited invasive species.
- Drain all water by removing drain plugs and keeping them out during transport.
- Dispose of unwanted bait in the trash.
- Dry docks, lifts, swim rafts and other equipment for at least 21 days before placing equipment into another water body.

Washington County is currently working with Washington Conservation District and CMSCWD to provide regular boat inspections and whole lake meander surveys to help prevent the spread of AIS. Additional effort is made to work with the general public, boaters, anglers, and lake association members to inform them about AIS and how they can help prevent the spread. This is achieved through public workshops, a targeted newsletter for lake association members and shoreline owners, providing training opportunities to become certified AIS detectors, social media campaigns, and important signage at boat launches.

Groundwater & Stormwater Management

Square Lake Park is characterized by native woodland vegetation, natural low wetland areas, and ravine drainage systems. For the most part, stormwater can flow naturally overland with minimal introduction of pollution. However, the access drive, maintenance road, and parking areas increase stormwater runoff because the impervious surface has eliminated the ability for water to infiltrate. Furthermore, the parking lots accumulate pollution, and stormwater runoff discharges it into low areas, or directly to the lake.

Stormwater runoff accumulates in natural low areas throughout the park, some of which have primarily impervious drainage areas. The two most prominent areas of water ponding occur in the picnic areas; one north of the lower parking lot and boat launch and the other in the picnic area north of the beach building. An area intake north of the boat launch allows water to slowly drain from that location. Debris periodically blocks this inlet, causing ponding.

The area north of the beach building has no natural or mechanical drain and captures runoff from the maintenance road and a portion of the north parking lot. The sidewalk between the beach building and fishing pier acts as a natural dam, impeding stormwater runoff from discharging into Square Lake. Larger storm events produce enough runoff that this walk is overtopped, and a portion of the stormwater flows directly into the lake; along with any debris, sand that has to be replaced/raked, or contaminants picked up along its path. The remaining water slowly infiltrates, disrupting use of that space until the area dries to allow regular activity.

Stormwater best management practices (BMPs) were cited to capture and treat runoff prior to discharging into Square Lake based on review of existing conditions (see exhibit on page 18). Improvement recommendations seek to address stormwater runoff at paved sources, directing it toward a series of BMPs within and around parking areas. Targeting water in these areas will give the county opportunities to collect, cool, and treat stormwater discharge prior to it entering the groundwater system. These improvements will also intercept stormwater that is currently being directed to the lower picnic areas to assist in remediating areas of ponding. Further review of stormwater intakes and percolation rates of the soils in these areas will be valuable in determining a system of improvements. With the activity occurring in the picnic grounds during peak use, controlling water is of upmost importance for public safety and protecting the water quality of Square Lake.

Figure 6.1: *Stormwater Runoff Near Lower Parking*

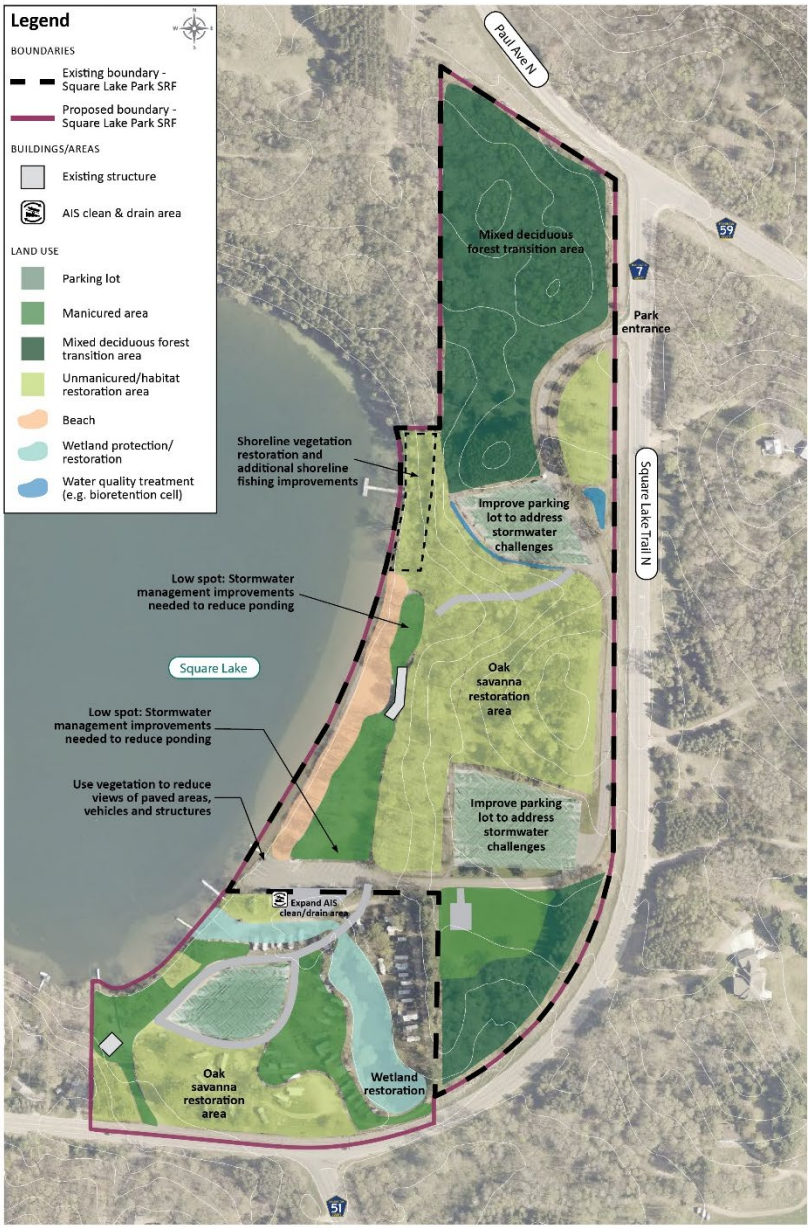


Figure 6.2*: Natural Resources & Land Use*

The 'Natural Resources & Land Use' figure provides an overview of water quality improvements to the park. It does not get into specifics at the master plan level but does provide flexibility enabling the county to identify and implement appropriate treatment BMPs as they reconstruct parking lots. In weighing these treatments the county should consider current grading to determine whether runoff is being shed toward the lake untreated, and whether it may be feasible to redirect this water toward BMPs throughout the parking lot. Redirecting away from the lake will not only remove current overland stormwater transmission but will also provide groundwater recharge opportunities.

Careful consideration should be given during final design to account for well drained soils. Regulations are in place that limit infiltration rates to no more than 8.3 inches per hour, which may require soil enhancements in key areas.

From a high-level review of existing parking lot age and condition of bituminous pavement surfacing, the following strategy is one consideration for integrating stormwater BMP treatments into a reconstruction lot while still: naturalizing drainage, providing pedestrian connections and shading, and greening these surfaces. The following illustrations from the *Sustainable Green Parking Lots Guide Book*, prepared by the Montgomery County Planning Commission (montcopa.org/planning), depict how Washington County could integrate a series of treatment strategies into parking areas.

Depending on final stormwater calculations, the integration of BMP treatments in parking bays to reduce runoff velocity and intercept runoff could also accommodate space for trees. The introduction of trees would provide an additional stormwater uptake feature, shade and cool the pavement runoff would be flowing over, and provide screening of paved surfaces from adjacent areas within and external to the park. These vegetated bioretention areas would also absorb sunlight that is currently being reflected as heat and negatively affecting vegetation immediately adjacent to parking lots and paved surfaces in the park. For all current and future parking considerations, Washington County should review potential stormwater BMP strategies appropriate for each location.

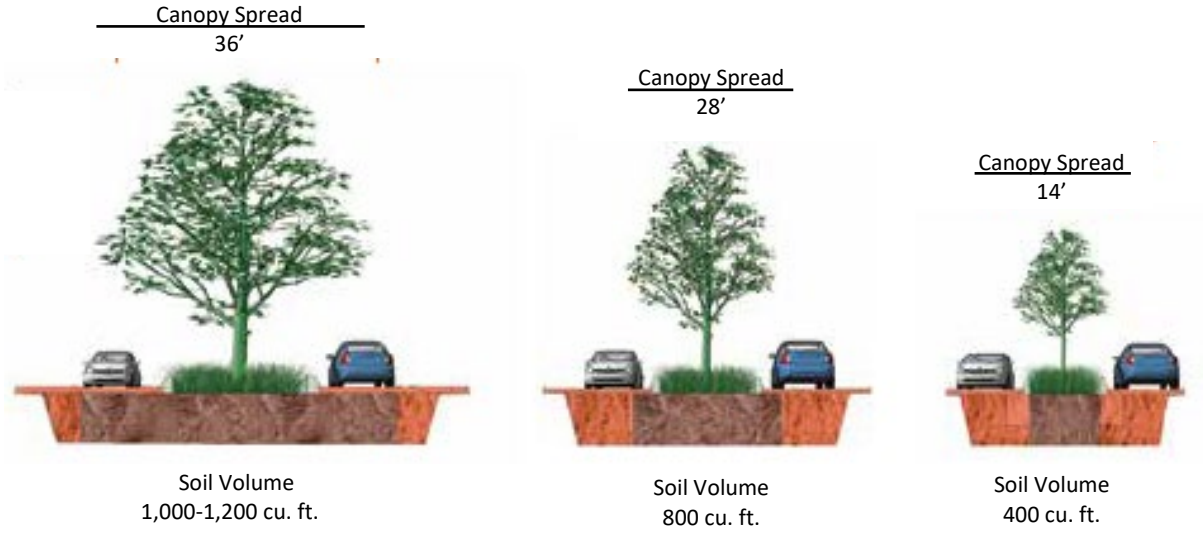


Figure 6.3: *Soil needs for trees in paved areas (data courtesy of Deep Root Green Infrastructure)*

During the design phase the county may also want to review streamlining parking lot ingress and egress points to further reduce paved surfacing and take advantage of adapting this space to a vegetated system capable of handling stormwater runoff. It is possible that the current parking count could remain relatively unaffected by reconfiguring the entrance points that are driven over but not parked on.

Considerations related to stormwater management include the following potential BMP strategies:

- Conversion of parking areas to stabilized vegetation or incorporate porous pavement.
- Analyze park mowing operations and consider putting the park on a "mowing diet". Enhancing no-mow areas not only increases native buffer but reduces carbon footprint by reducing mowing times.
- Convert turf grass to native plants or pollinator habitat.
- Encourage public education and connectivity to natural resources by adding informational signage, enhancing park programing to promote the park as an educational destination, and continue to coordinate with the DNR, Watershed District, and other agency partners.

Figure 6.4: *Naturalized Drainage and Stormwater Treatment in Parking Lots*

Plant Communities – Core Restoration Strategy

History: A Changing Relationship with the Land

Indigenous communities shaped the land by using fire; and relied on the native plant communities and wildlife of the area. This relationship changed as the region was settled by Europeans who replaced fire with land clearing to support row crop agriculture and farm animal grazing/haying techniques. Intensive grazing continued on land that would support this practice until population growth pressures necessitated houses and roadways supplant these practices.

When the land became a park after construction of Square Lake Trail N, it was largely vegetated with aggressive, locally growing non-native species. Through land management practices, some of the areas in the park are seeing a resurgence of native remnant plantings from seed that remained viable after grazing and roadway construction ceased. Plant diversity is limited within the park due to the shade in canopied areas and proliferation of more aggressive native and non-native species capable of persisting through intensive grazing and subsequent construction operations. Some of the more aggressive species found in the park during inventories for the master plan include garlic mustard, spotted knapweed, and birdsfoot trefoil. These can pose multiple issues when considering management of natural resources. Areas of lower plant diversity aren't capable of supporting more diverse wildlife communities, especially pollinators and birds. Additionally, plant communities with lower diversity are susceptible to mass die off from outside pressures, such as pathogens or insects targeting certain species. Past evidence of this within the United States include the Chestnut Blight, Dutch Elm Disease, and more recently the Emerald Ash Borer. In fact, many of the ash trees assessed in Square Lake Park indicate that the Emerald Ash Borer is active within the park.

What is an Invasive Plant Species?

An invasive plant is defined as a plant not native to an area and which impacts the economy, environment, or human health of the area. Invasive plants are aggressive species that grow and reproduce rapidly because few checks and balances occur in the ecosystem.

Since 2005, Washington County has made efforts to clear invasive shrubs from oak savanna remnants while restoring prairie on key county property. Through these efforts staff have learned the full extent of necessary planning, time, staffing, and funding to successful restore and manage these areas. This plan seeks to prioritize the challenges faced by the understanding of invasive species, public perception, and a changing climate.

Opportunities:

- Implement an Adaptive Management Plan to restore and enhance native plant communities in the park.
- Focus native plant community restoration and enhancement on core restoration areas. Within these areas, efforts will be made to restore native plant communities by controlling invasive species, promoting native species and implementing natural processes (grazing, fire, and people)
- Control Emerald Ash Borer by removing infected trees
- Maintain healthy tree canopy in picnic and beach areas
- Shoreline restoration
- Oak savanna
- Implement practices that protect the water quality of Square Lake
- Wetland restoration

Adaptive Management Plan

An adaptive management approach is recommended for Square Lake Park to preserve and enhance the unique resources within the park and properties being considered for potential acquisition. This management approach is an incremental process of testing techniques, observing effectiveness, and adjusting techniques in response. The intent of adaptive management is to guide plant communities into more resilient conditions through:

- Controlling invasive plant species that negatively impact native plant communities.
- Restoring native plant communities by disturbance and supplemental seeding.
- Implementing forest management practices to make forest more resilient.

Native Plant Community – Core Restoration Strategy

Restoration efforts should begin with the core areas of highest ecological potential identified through natural resource inventories. These are areas where remnant plant communities are present that can be restored and expanded to provide connections around them. Within these areas intense focus should be on removing invasive species to eliminate competition of impeding native plant regeneration. The goal is to establish a diverse and protected community dominated by native species, and to then repeat this process in areas adjacent to the original area of regeneration. The 'Natural Resources & Land Use' display in **Appendix V** depicts goals for eventual (target) plant communities in the park. The speed at which regeneration is implemented will depend on funding and park staff's capacity for overseeing the plant management work required.

Emerald Ash Borer Infestation

Ash trees are abundant in Square Lake Park. An advanced Emerald Ash Borer (EAB) infestation was confirmed within the park in July 2020. Multiple trees showed signs of infestation including branch die-off in upper canopy, bark blonding from woodpecker feeding activity, EAB exit holes (D-shaped holes from emerging adult), EAB larval galleries below the bark, and cracked/sloughing bark. A few standing dead ash trees with signs of infestation were also present.

EAB is widespread in the Twin Cities Metro Area, and most of Washington County is categorized as "Generally Infested" by the Minnesota Department of Agriculture (MDA). Photographic evidence of the infestation at Square Lake Park was submitted to the MDA and accepted for inclusion in their EAB tracking database.

Developing an EAB management plan should evaluate the presence of ash trees and the potential risks. Ash trees killed by EAB dry out quickly and become a hazard much sooner than trees that die due to other reasons. Removal of EAB-killed trees has a higher injury risk to workers and often a higher removal costs. A knowledgeable tree worker will take extra precautions with these trees because they may act in unexpected ways when being taken down.

Figure 6.5: *Emerald Ash Borer*
https://blog-yard-garden-news.extension.umn.edu

As EAB elimination is unrealistic where it is widespread, most efforts focus on control of spread and reduction of risk to people and property. This includes removal and proper disposal of infested trees, chemical treatment to protect healthy and high-value ash trees, participation in the MDA biocontrol program, firewood restrictions, and quarantines. In a natural woodland, removal or chemical treatment of ash trees is often cost-prohibitive. A reduced cost but high impact approach is to focus on ash trees that pose a risk to public safety and property. Ash trees near active use areas such as picnic areas, trails, and parking lots should be prioritized for removal and replacement. Undesirable ash should be removed and properly disposed of during the EAB low activity period (typically October 1 to May 1 but weather dependent) to reduce the risk of spread.

Figure 6.6: *Emerald Ash Borer Damage*
https://www.loveyourlandscape.org

Proper disposal methods of ash trees include grinding tree materials on-site to use as mulch or transporting materials to a nearby ash tree waste disposal site. Before removing ash trees, consideration should be given to timing (low activity period), quarantine boundaries, and transport method (covering tree materials). The MDA has many online resources to assist with EAB management: www.mda.state.mn.us/eab.

Successional planting of Canopy Trees

Before replanting areas where ash trees have been removed, the manager should consider what tree species are most suited to the location, management objective, and which species will help diversify the tree population against future infestations or climate change. Native species to consider include Black Cherry, Red Oak, American Basswood, and Hackberry. The University of Minnesota Extension has a list of recommended trees for ecological regions of Minnesota.

Trees within the picnic areas show signs of oak wilt and EAB. To maintain a canopy in these areas, trees should be removed successionally and replaced with healthy trees. Some native species that would maintain a canopy are Red Oak, White Oak, Paper Birch and Yellow Birch.

Shoreline Restoration

One of the most used areas of the park is the fishing pier on the east end of the beach. This heavy use leads to erosion from lack of vegetation along the banks and in areas of shallow water. The scarcity of vegetation in this area allows wind, wave action and overland stormwater flow to erode fine soil particles and course soil from the bank and into the lake. To prevent this, the non-native and invasive species along the banks should be eradicated and replanted with native grasses and more resilient forbs such as Canada anemone, swamp milkweed, golden alexanders, porcupine sedge, fowl managrass or fox sedge. Introducing shoreline fishing platforms to provide level areas for park goers to fish from will also reduce trampling of restored shoreline plantings. To help dampen the effects of wave action erosion, shallow species such as water plantain, arrowhead and giant bur-reed can be planted along the shoreline in this area.

Additional restoration opportunities should be explored along the lakeshore, particularly in areas where pavement and infrastructure are present to help shield parking and support amenities from Square Lake. Bolstering these vegetative buffers will also intercept stormwater runoff and can collect suspended particles and contaminants before they enter the lake. Another benefit of these shoreline buffers is to encourage park goers to access the lake in areas where infrastructure permits easier access and where measures have put in place to reduce shoreline erosion. Vegetative shoreline buffers can also serve to deter use by migrating waterfowl like Canadian geese who can contaminate large manicured areas adjacent to open water while they raise their offspring. During these times they can also pose a hazard to the public while trying to protect their young.

Mixed Deciduous Forest Transition Area

The most well-established community within the park is the northern mixed deciduous forest along the entrance of the park. A large stand of oak dominates this landscape, mixed with maple, black cherry, elm, pine, ash and aspen. Although the tree stratum is dominated by native species, the under story is dominated primarily by buckthorn. This shrub is an aggressive non-native species that is a prolific berry producer. The berry is ingested by birds and other animals and can quickly spread. Buckthorn also produces a toxin which is active in the soil and effectively chokes out root systems of native shrubs and herbaceous plants.

The available resources will require that initial efforts are focused on priority areas within the park. These areas will be selected for several reasons, including presence of existing native vegetation, capacity to provide habitat more suited to area wildlife and considerations on the level of effort required to restore and maintain these areas until an adaptive management system can expand these efforts. Using this adaptive management approach will also provide educational opportunities to showcase the difference between various stages of restoration; including discussions of historic vegetation habitats and efforts to restore areas of the park with considerations of climate change and inclusion of vegetation species that may contribute to more resilient park ecosystems long term. Impacts from a changing climate, particularly more extreme weather events, will influence what future plant species will thrive. Ensuring plant species can thrive in current conditions and adapt to anticipated future variances should be considered to promote longer term resiliency considerations.

Undesired Species Control

Stands of aggressive, undesired species such as buckthorn, reed canary grass, garlic mustard and smooth brome are present throughout the park and should be identified through a comprehensive inventory of each area. As each species

requires specific plans for control, an adaptive management plan should be developed to eradicate individual species based on desired outcomes for long-term management of each area. Depending on the species, eradication may take several seasons. Eradication plans should include an establishment plan that will introduce native species suitable for the habitat to coincide with removal of undesired species.

Buckthorn Management

If opportunities and conditions make sense, the county may also purse a more active invasive removal management strategy for these areas. Successful eradication of buckthorn must include several techniques over a period of several seasons. Buckthorn control is recommended in the spring, late summer and late fall. Initial mechanical removal and basal herbicide treatments with Garlon 4 should be conducted over the winter. Cutting the shrubs is recommended as pulling and digging up the root systems proves too costly and ineffective. This will allow for a spring burn in areas where buckthorn has been removed. The burn will encourage native species to emerge with the hopes of outcompeting the buckthorn seedlings. As the buckthorn seedlings emerge in the spring they should be treated with triclopyr. Areas where buckthorn has been eradicated should be reseeded with native grasses which are not affected by the herbicide and will emerge once the ground toxin has diminished. Remaining shrubs that have been missed can be treated with triclopyr in late summer by spraying the new shoots emerging from the top killed branches that resulted from the burn. If shrubs remain, they can be cut in the fall and treated with the basal herbicide. During the growing seasons following eradication, these areas should be monitored and treated with the same management regime. This technique has proven to show an understory dominated by native species by the third year.

With the adaptability of buckthorn across Minnesota woodlands, and the rigorous effort required to bring infested areas under control, alternative (non-chemical) methods of control are gaining popularity. Several studies by landowners and municipalities have shown the effectiveness of using goats to naturally graze areas inundated with buckthorn. Burnsville's Goat Grazing Pilot Project, started in 2018, is set to wrap up in 2021. This project enlisted the aid of grazing goats at Civic Center Park to help manage buckthorn as part of a savanna restoration efforts. Though goat grazing does not immediately kill the buckthorn stand, they do damage the plants and cause them resprout from the roots; wasting their energy while providing new growth at a height easier for goats to graze. Over time, this method can kill buckthorn but must be repeated for several years. It is most effective when combined with other management techniques, depending on the desired outcome. Washington County has used this management technique in several other parks and has found it successful and will evaluate the potential of this strategy at Square Lake Park.

Red Pine Stand Management

Red pine trees are present in a couple of different locations in Square Lake Park; within the mixed deciduous forest south of the current overflow parking area and at the park entrance near the north parking lot. The red pine stand near the park entrance is not a native formation but does provide a unique perspective into practices early settlers. Pines were originally planted in dense rows to compensate for potential failures during establishment. This dense arrangement also provided for harvesting (or prescribed thinning) of trees to provide an income on areas of soil that were unsuited for more prolific crops. Throughout the life of these pine plantations, settlers would periodically thin additional trees; providing space among rows for native trees like oak to slowly establish, while continuing to provide wood through periodic harvesting. Eventually, all pines within the original plantation would be cut and mixed deciduous forest trees would dominate the area.

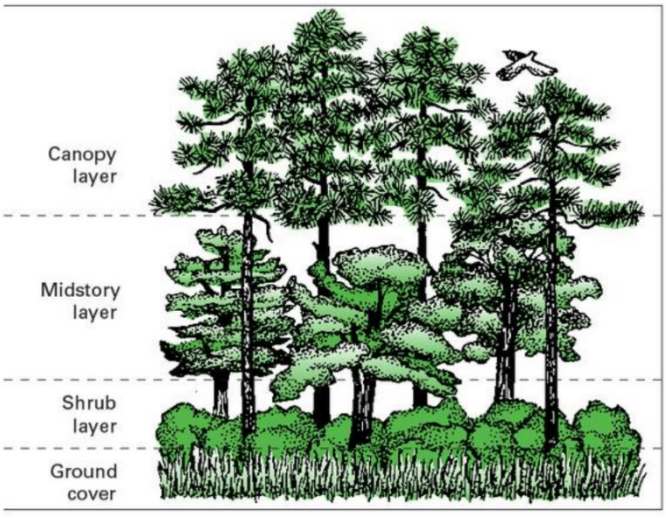


Figure 6.7: *Wildlife Friendly Pine Stands*
https://content.ces.ncsu.edu/developing-wildlife-friendly-pine-plantations

Without a planned process for thinning, these stands will suffer from spindly, weak yet tall trees too densely spaced for healthy growth. This can also result in a stand that will be susceptible to disease, damage during drought and winds. It is essential that the County consult a professional forester in preparation on a process of managing the red pine stand at Square Lake Park.

Oak Savanna Restoration

A mature oak savanna exists in the central portions of the park. Some of the oaks show signs of Oak Wilt and this should be investigated thoroughly to control the disease. Identifying the extent and location of Oak Wilt will determine best management practices to stop the spread of the fungal disease. Once the extent of the disease is determined, an adaptive management plan should be developed that specifically targets the issue within the park.

The understory in this area is dominated by thorny shrubs such as raspberry, smooth brome and other undesirable species. To restore the savanna, the undesirable species should be eradicated and replaced with plantings of wild indigo, lead plant, pale purple coneflower, round-headed bush clover, blue aster and other species native to oak savannas.

Figure 6.8: *Restored Oak Savanna*
https://pleasantvalleyconservancy.org/savannas.html

Undesired Species Control

Stands of aggressive, undesired species such as buckthorn, reed canary grass, garlic mustard and smooth brome are present in areas where oak savanna restoration is recommended and should be identified through a comprehensive inventory. As each species requires specific plans for control, an adaptive management plan should be developed to eradicate individual species based on desired outcomes for long-term management of each area. Depending on the species, eradication may take several seasons. Eradication plans should include an establishment plan that will introduce native species suitable for the habitat to coincide with removal of undesired species. *(Consult the section on buckthorn management on page 51 for more information related to that species.)*

Resource Management of Proposed Acquisition Sites

Golden Acres RV and Picnic Area

As a largely developed site, natural resource management within the Golden Acres RV and picnic area would include infrastructure and resource restoration efforts. Efforts to restore and manage identified natural resources will be consistent as those mentioned above for the park, using an adaptive management process.

One addition to this potential acquisition is coordinating with MNDNR, the Watershed District, and other partners and neighbors in restoring the wetland feature linking Square Lake to the downstream channel towards Twin Lakes. This is within the area of the existing pond feature at Golden Acres and could look to reconnect this function to Square Lake to provide additional habitat and stormwater water quality functions disconnected over the years.

In continuity with previous recommendations, this master plan calls for stormwater BMPs consideration within development of any paved surfacing. Planned improvements on this parcel include an overall reduction in non-vegetative areas to more permeable surfacing. Many of these conversion areas are projected to be restored to natural areas. Depending on the elements that would be constructed after a successful acquisition, reduction and restoration efforts could be as high as 50% from existing gravel roads, parking areas and camping pads.

Wilder Property Parcel

The Wilder property site is currently comprised of mixed deciduous hardwoods, a wetland, and multiple outbuildings of varying use including one as a private residence. County staff observed an abundance in invasive woody shrubs in the forested areas near the beach and youth camp facilities. Like the main park, natural resource management and restoration efforts will employ an adaptive management process and will focus on key areas of concentrated use and areas of higher ecological significance as part of short-term efforts. Initial restoration of the entire site isn't feasible due to the abundance of undesired vegetation and the limited capital and staff resources available to begin and manage restoration efforts. With restricted access to this parcel, this master plan makes assumptions on acres and areas of initial restoration efforts. Like the other parcels, it contains opportunities for mixed deciduous hardwood restoration, wetland restoration and shoreline stabilization. With improved access and parking infrastructure needed to adequately provide public access to areas of this site, the county will be able to consider stormwater best management practices that align with design efforts for these features.

Phasing Improvements

With the understanding that the Square Lake Park Master Plan will be implemented in phases, the Project Management Team (PMT) worked with the Technical Advisory Committee (TAC) to determine prioritization of the concept elements included as part of these recommendations. As some of the infrastructure elements where stormwater BMP strategies will be considered are included in the discussion of capital improvements, the phasing for some of these natural resource elements will parallel implementation of those items as outlined in the capital improvements section in Chapter 5.

Natural Resource Improvement Phasing

The first phase of recommendations for the park includes development anticipated to occur within the next five years. See **Figure 6.10: Phase 1 (1 to 5 Years)**.

- Address picnic area ponding
- Remove ash trees infected with Emerald Ash Borer
- Continue program of installing successional tree planting in beach and picnic areas
- Construct shoreline stabilization strategies around fishing pier
- Oversee oak savanna restoration near park entrance
- Begin invasive species management as part of an adaptive management strategy
- Coordinate stormwater BMPs and restoration efforts as part of maintenance road improvements

Figure 6.9: *Phase I Natural Resource Improvement Recommendations (***Appendix V***)*

Phase 2

The second phase lists development recommendations anticipated to occur over the next five to ten years. See **Figure 6.11: Phase 2 (5 to 10 Years)**.

- Installation of stormwater BMPs as part of large parking lot reconstruction efforts
- Install stormwater BMPs near park entrance to capture runoff
- Continued invasive species management as part of the adaptive management strategy
- Expand oak savanna restoration
- Continue successional tree planting in beach and picnic areas
- Initiate restoration efforts in mixed deciduous forest priority areas. Assess and manage red pine stand
- Ongoing establishment and maintenance

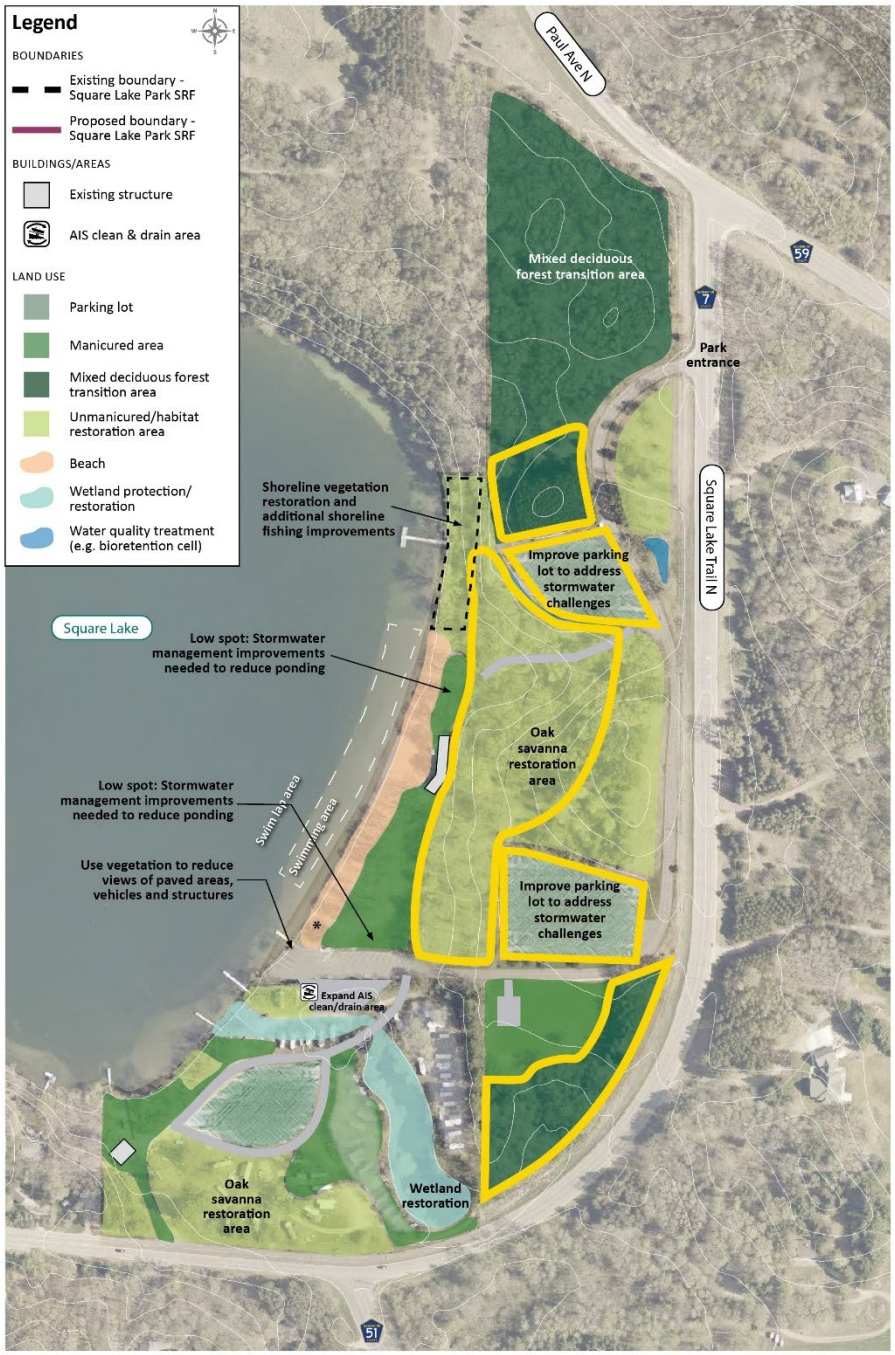


Figure 6.10: *Phase II natural Resource Improvement Recommendations (***Appendix V***)*

Phase 3 – Improvements Contingent on Proposed Acquisitions

The final phase lists natural resource recommendations anticipated to occur ten years and beyond. Improvements to potential park expansion properties fall into this phase since they are contingent on acquisition by Washington County. The county will need to gather additional information to better understand the amenities at each site to determine the scope of natural resource needs. See **Figure 6.12: Phase 3 (10+ Years)**.

- Ongoing invasive species management
- Expand successional tree planting efforts in high use areas beyond beach and picnic areas
- Continued mixed deciduous forest restoration as part of adaptive management plan
- Ongoing establishment and maintenance
- Oak Savanna restoration
- Shoreline restoration
- Wetland restoration and reconnection with Square Lake

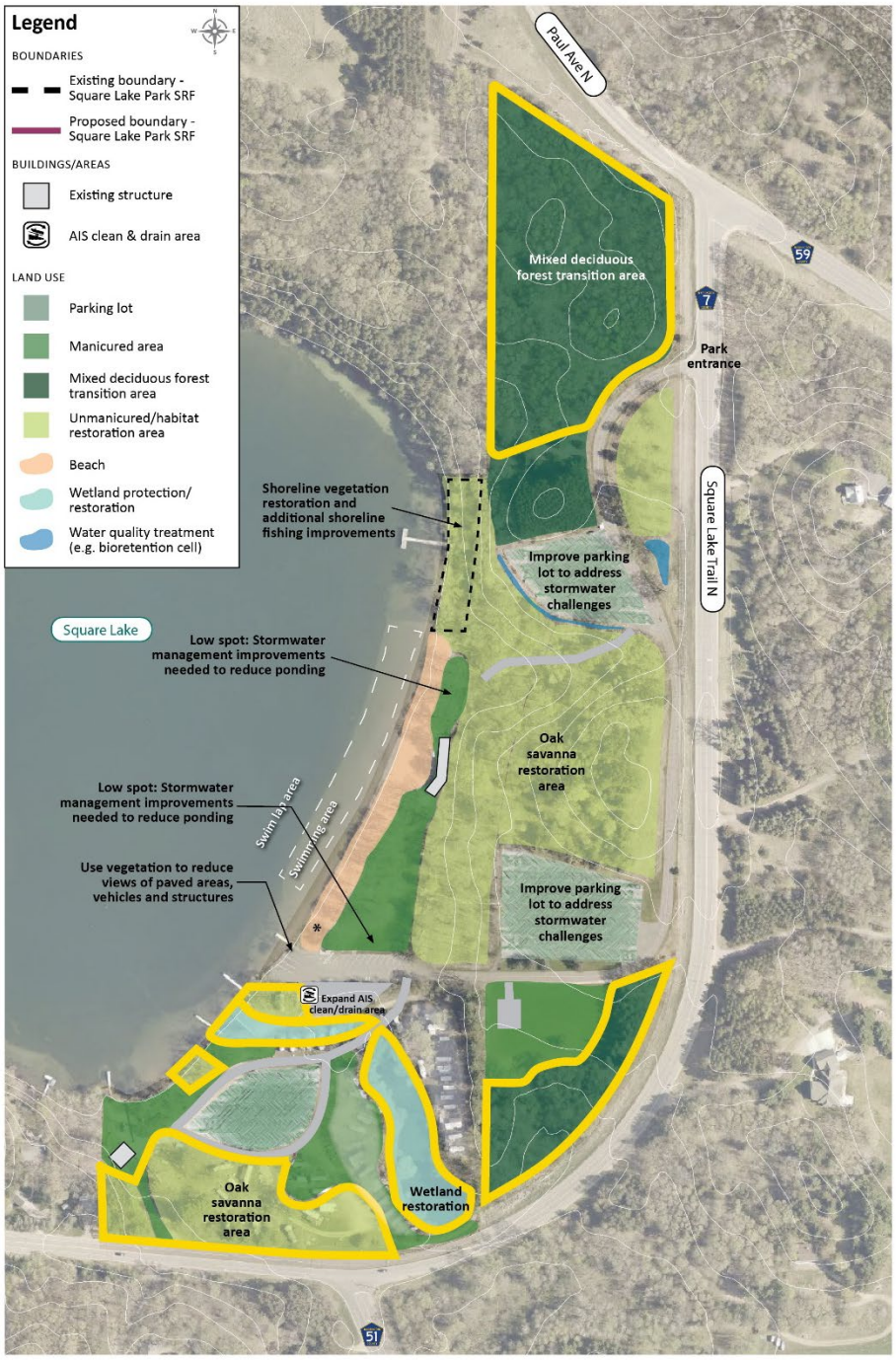


Figure 6.11: *Phase III Natural Resource Improvement Recommendations* ***(Appendix V)***

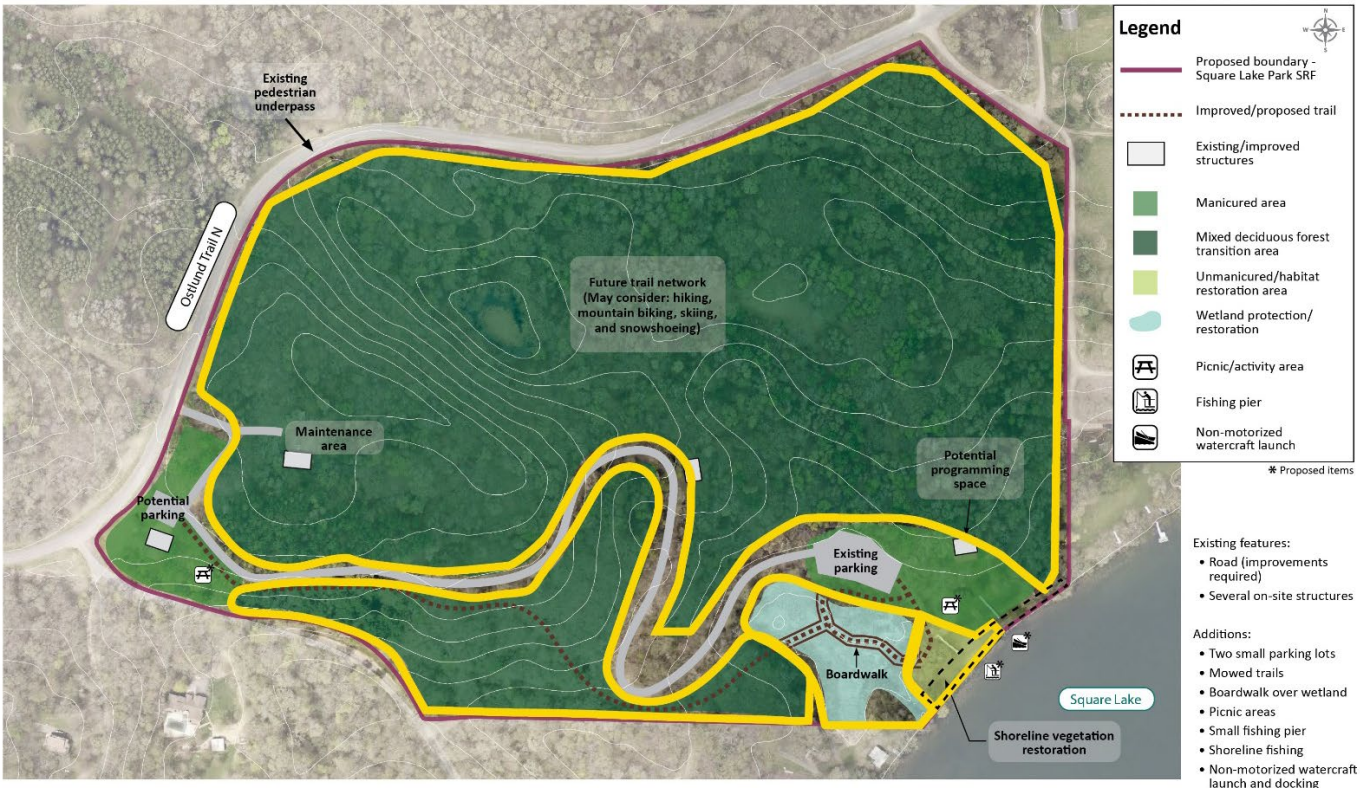


Figure 6.12: *Phase III – Wilder Property Natural Resource Improvement Recommendations (***Appendix V***)*

- More in depth study of parcel natural resources
- Begin mixed deciduous forest restoration using adaptive management plan and targeting areas of high use and high priority habitat
- Wetland restoration
- Shoreline restoration
- Pine plantation management
- Ongoing establishment and management
- Determine and integrate stormwater BMPs along with improvements

Chapter 7
Operations & Maintenance Planning

Programming, maintenance, and other operations are the means in which a park's natural and recreational offerings are provided for and protected towards ensuring continued public use. Planning for such operations is critical in maintaining high quality services and amenities. A robust and attainable operations and maintenance plan has been developed for Square Lake Park to provide for enduring public facilities.

Operations & Management

Washington County parks are operated and managed through use of both full-time and seasonal staff who operate out of Washington County's Public Works North Shop. The Parks division utilizes an annual budget of approximately $4 million to operate and maintain the entirety of its park and trail system.

Current maintenance for Square Lake Park includes:

- Maintaining stairs and trail surfaces
- Trimming brush
- Mowing designated park areas
- Keeping the beach and park spaces clean
- Maintaining signage and wayfinding
- Maintaining restroom facilities
- Controlling erosion
- Monitoring vegetation and taking appropriate action for diseased branches/trees
- Clearing downed vegetation after storm events
- Limited snow plowing during winter months
- Vegetation restoration efforts
- Monitoring and maintaining the fishing pier

The master plan calls to retain current maintenance practices, while identifying areas of additional need:

- Maintaining surfacing of new trails
- Maintaining and cleaning remodeled Beach Building
- Maintaining and cleaning stormwater BMP practices
- Monitoring and maintaining board walk
- Monitoring and maintaining non-motorized boat launch site

- Monitoring and maintaining shoreline fishing amenities
- Maintaining picnic shelters
- Maintaining camp sites and camp facilities
- Managed camp site reservations

The two acquisition opportunities outlined previously in the master plan would add significant additional acreage to Square Lake Park, thereby requiring additional maintenance and operations. Additional staff, equipment, and services such as waste and recycling may need to be expanded to serve expanded amenities and facilities in these areas.

Stewardship Plan

Each year, Washington County budgets for the operation of its parks system in coordination with the Metropolitan Council. This budgeting process provides resources that allow for facility maintenance and natural resource management. This funding originates from three primary sources:

- Vehicle passes
- County levy
- Operations and maintenance grants from State general funds
- Funds disbursed by the Metropolitan Council from lottery in-lieu sales tax funds

The anticipation is that future Square Lake Park improvements and expansion will allow for increased attendance, thereby generating additional park revenue. As new amenities are incorporated, such as improved trails, water recreation amenities, and wetlands education facilities, new revenue sources should be explored and leveraged.

Public Awareness

Washington County employs a spectrum of strategies to promote awareness and usage of its parks and programming, including social media, direct mailing, park websites, brochures, flyers, and press releases. Of these tools, the most dynamic for outreach are social media and online resources. The Washington County park system website contains general information about the system, including trails, reservations, and permits. A dedicated Square Lake Park page hosts park-specific information and park updates. Washington County also shares information on Facebook and Twitter, leveraging the ease of access for each platform to communicate real-time information. As with its regionally important park features, Washington County partners with several organizations to publicize the programs, initiatives, events, and facilities at Square Lake Park.

As the county continues to advertise Square Lake Park, outreach efforts should be tailored towards reaching audiences of all ages, abilities, and ethnicities. Special effort should be given to ensure that messages are provided in multiple languages so that all park visitors are provided equal access to messaging and park updates. Similarly, a continued balanced approach of online and paper marketing should be deployed to maximize outreach to the widest possible audience.

Chapter 8
Implementation Overview

Successfully realizing the vision of this master plan will depend on the county's ability to secure additional funding towards implementation of park improvements, and acquisition of the additional surrounding parcels identified in the plan. These efforts will include developing or strengthening partnerships with key jurisdictional agencies and groups who share an interest in reaching park goals. This master plan is therefore intended as a long-term guiding document and considers phased improvements as funding becomes available.

The following section provides guidance on costs anticipated in achieving the recommended components of the master plan. This chapter also identifies potential funding sources that may be useful in assisting with plan implementation.

Anticipated Costs

The following cost projects are planning-level estimates based on information known at the time of preparing this master plan. Each item is based on recommended improvements included in the plan, with associated costs based on relative project data. As improvement projects move from the master plan level into consideration for implementation, costs should be reviewed and updated to reflect available funding, more specific site data, construction costs, and additional economic factors. At times it may even be beneficial for the county to consider combining multiple smaller projects to maximize project efficiencies and savings during the bidding process.

Estimates included in this plan are based on 2021 costs and should be increased at least 5% per 12-month period to factor inflation. The final section of estimated costs includes a 10% overall Design and Engineering (D&E) Contingency for budget items requiring design and engineering. It also includes an added 20% Construction/Implementation Contingency for all relevant budget items - a standard practice in cost estimation.

The following planning level costs include:

- Development Concept/Infrastructure
- Natural Resource Management
- Potential Parcel Acquisition
- Contingencies
- Summary of Overall Estimated Costs

Estimated Costs

Estimated Development Concept/Infrastructure Costs

Unit Abbreviations: Each (EA), Linear Foot (LF), Square Foot (SF), Lump Sum (LS)

Existing Park Trail Improvements	Comments	Quantity	Unit	Unit Costs	D&E	2021 Est Cost/Project
Wayfinding Signage	*small wayfinding signage with metal post (installed)*	15	EA	$200.00		$3,000.00
Pedestrian paths *(total new length)*	*new 8' paths primarily for pedestrian use (0.6 miles), mixed surface materials and designed in compliance with ADA Guidelines for natural areas. Costs can vary widely depending on finish surface from $5/LF for natural surface trails to $15/LF for crushed limestone; covering clearing and grubbing, grading, base and surface aggregate, seeding and signage*	3,340	LF	$15.00	20%	$60,120.00
Shared use multi-use Trail *(total new length)*	*new 10' paved trails (0.4 miles) developed alongside park road*	1,900	LF	$67.00	20%	$152,760.00
Existing trails and steps *(continued maintenance)*	*continued maintenance only*	2,350	LF	N/A		N/A
Bike Maintenance Station	*bike maintenance station*	1	EA	$1,000.00		$1,000.00
Bike Parking	*bike rack, not including cost of paved pad should it be installed in a non-paved area*	1	EA	$200.00		$200.00
Widened concrete walk	*widen sidewalk from lower parking, along beach to fishing pier and beach building to 8' to provide better accessibility and 2-way pedestrian traffic*	900	LF	$60.00	20%	$64,800.00
Relocate retaining wall and construct widened concrete walk	*regrade area up slope from the fishing pier and relocate retaining wall to accommodate an 8' widened concrete walk to provide better accessibility*	50	LF	$250.00	20%	$15,000.00
					Subtotal:	**$296,880.00**

Acquisition Contingent Trail Improvements	Comments	Quantity	Unit	Unit Costs	D&E	2021 Est Cost/Project
Wayfinging Signage	*Contingent on acquisitions, small wayfinding signs with metal post (installed), (3) for Golden Acres and (12) for Wilder Property*	15	EA	$200.00		$3,000.00
Pedestrian paths *(total new length)*	*Contingent on acquisitions, new 8' paths primarily for pedestrian use designed in compliance with ADA Guidelines for natural areas, (0.7 miles total), 1650' for Golden Acres and 2100' for Wilder Property. Costs can vary widely depending on finish surface from $5/LF for natural surface trails to $15/LF for crushed limestone; covering clearing and grubbing, grading, base and surface aggregate, seeding and signage*	3,750	LF	$15.00	20%	$67,500.00
Multiuse/single-track trail	*conceptual cost based on 10 miles of new single-track mountain biking trails. Actual distance and alignments to be determined during design and implementation. Costs can vary widely depending on finish surface from $5/LF for natural surface trails to $15/LF for crushed limestone; covering clearing and grubbing, grading, base and surface aggregate, seeding and signage*	52,800	LF	$9.00	20%	$507,240.00
Boardwalk	*Contingent on Wilder Property Acquisition, helical anchor and composite or treated lumber decking and rail construction with safety rails*	420	LF	$750.00	20%	$378,000.00
Bike Amenities	*bike maintenance station*	1	EA	$1,000.00		$1,000.00
Bike Parking	*Contingent on acquisitions, bike rack, not including cost of paved pad should it be installed in a non-paved area*	1	EA	$200.00		$200.00
					Subtotal:	**$1,109,940.00**

Existing Park Development Improvements	Comments	Quantity	Unit	Unit Costs	D&E	2021 Est Cost/Project
Non-motorized boat launch and rental station	*kayak/canoe/paddleboard*	1	LS	$15,000.00	20%	$18,000.00
Fishing pier improvements	*accessibility improvements*	1	LS	$10,000.00	20%	$12,000.00
Picnic Shelter	*big enough for 10-12 people, with elec. (appr. 600SF ($125-$150 per SF)*	1	EA	$90,000.00	20%	$108,000.00
Fitness Stations	*fitness stations for a roughly 1/4 mile trail loop designated for fitness.*	10	EA	$1,000.00	20%	$12,000.00
Parking lot renovation	*parking lot resurfacing and restriping with trees and integrated stormwater best management practices*	99,000	SF	$14.00	20%	$1,663,200.00
New parking lot	*new parking lot with striping, trees and integrated stormwater best management practices in current overflow parking area to offset parking lost through integration of stormwater bmps*	5,400	SF	$16.00	20%	$103,680.00
Maintenance road improvements	*400' road with improvements to reduce stormwater runoff flow and erosion*	1	LS	$40,000.00	20%	$48,000.00
Beach Building remodel		1,200	SF	$350.00	20%	$504,000.00
Open green space	*field roughly 165' by 105' for open, flexible play*	16,800	SF	$5.00	20%	$100,800.00
Park entry signage	*large entrance sign*	1	EA	$8,000.00	20%	$9,600.00
Picnic Tables	*picnic tables for new shelter*	3	EA	$1,500.00		$4,500.00
Accessible Grills	*ADA accessible grills*	5	EA	$500.00		$2,500.00
Accessible Picnic Tables	*ADA accessible picnic tables*	5	EA	$1,500.00		$7,500.00
Kiosk/Signage	*replace/update existing Aquatic Invasive Species (AIS) kiosk/signage*	1	EA	$2,500.00	20%	$3,000.00
Motorized boat launch improvements	*Motorized boat launch improvements*	1	LS	$50,000.00	20%	$60,000.00
Shoreline fishing improvements	*Shoreline fishing improvements*	1	LS	$5,000.00		$5,000.00
					Subtotal:	**$2,661,780.00**

Acquisition Contingent Development Improvements	Comments	Quantity	Unit	Unit Costs	D&E	2021 Est Cost/Project
Access road reconstruction, existing entry closure and wetland improvements	*Contingent on Golden Acres Acquisition, grade and provide roadway connection from main park to acquisition parcel and grade connection of existing wetland to Square Lake (2-way bituminous with crossing over restored wetland) [demo 2,700' existing roads; construct 1,710' new roadway; grading; culvert/bridge; utility adjustments]*	1	LS	$1,000,000.00	20%	$1,200,000.00
Picnic Shelter	*Contingent on Golden Acres Acquisition, big enough for 10-12 people, with elec. (appr. 600SF ($125-$150 per SF)*	1	EA	$90,000.00	20%	$108,000.00
Playground - Large	*Contingent on Golden Acres Acquisition, nature/adventure play facility (for 10-20 people)*	1	LS	$250,000.00	20%	$300,000.00
Existing building remodel or rebuild	*Contingent on Golden Acres Acquisition, evaluate and remodel main building as potential staff station/warming house*	430	SF	$350.00	20%	$180,600.00
Non-motorized boat launch [1]	*Contingent on Golden Acres Acquisition, kayak/canoe*	1	EA	$15,000.00	20%	$18,000.00
Camp sites	*Contingent on Golden Acres Acquisition, prepare camp pads and amenities (pad spacing, utilities, benches, grills, etc…)*	20	EA	$7,000.00	20%	$168,000.00
New parking lot	*Contingent on Golden Acres Acquisition, new parking lot with striping and integrated stormwater best management practices*	31,500	SF	$16.00	20%	$604,800.00
Expand AIS cleaning/drainage area	*Contingent on Golden Acres Acquisition, expand cleaning and drainage area for water craft as part of Aquatic Invasive Species (AIS) protection efforts*	4,680	SF	$11.00	20%	$61,776.00
Park Entry Signage	*Contingent on Wilder Property Acquisition, large entrance sign*	1	EA	$5,000.00	20%	$6,000.00

Access road reconstruction	*Contingent on Wilder Property Acquisition, grade and expand from 1 lane to 2-way traffic. Cost will be dependent on changes to alignment, drainage needs and planned surface material (2,900' road)*	70,000	SF	$12.00	20%	$1,008,000.00
Fishing Pier	*Contingent on Wilder Property Acquisition, small pier*	1	LS	$40,000.00	20%	$48,000.00
Improved and new parking areas/lot	*Contingent on Wilder Property Acquisition, new parking areas/lot with striping and integrated stormwater best management practices*	2,700	SF	$16.00	20%	$51,840.00
Existing building assessment/ remodeling	*Contingent on Wilder Property Acquisition, assessment of existing buildings to determine needs, then enact recommendations (reuse or demolition)*	3,100	SF	$250.00	20%	$930,000.00
Picnic Tables	*Contingent on property acquisitions, around playground and as part of shelter at Golden Acres acquisition, in picnic areas of Wilder acquisition. Combination regular and ADA accessible picnic tables*	10	EA	$1,500.00		$15,000.00
Kiosk/Signage	*Contingent on property acquisitions, provide additional Aquatic Invasive Species (AIS) kiosk/signage*	3	EA	$2,500.00		$7,500.00
SCUBA Staging Area	*Contingent on Golden Acres property acquisition, develop a staging area for SCUBA, including tables and racks to support equipment and considerations for cleaning materials post dive*	1	LS	$10,000.00		$10,000.00
					Subtotal:	**$4,717,516.00**

Total Existing Park Trail/Development Improvements:	**$2,958,660.00**
Total Acquisition Trail/Development Improvements:	**$5,737,456.00**

Estimated Habitat Restoration and Management Costs

Unit Abbreviations: Linear Foot (LF), Lump Sum (LS), Acre (AC)

The following charts present projected costs for the implementation of native plant community restoration and management of existing plant communities. This information was developed by reviewing materials prepared for similar practices and costs incurred from similar projects in the region over the last few years.

Existing Park Native Plant Community Restoration	Comments	Quantity	Unit	Unit Costs	2021 Est Cost/Project
Oak Savanna & Prairie Restoration	*cost varies depending on vegetation type. Includes removal of undesirable tree, shrub and forbs in high traffic and identified high value ecological habitat areas first as defined by adaptive management plan, then progressively expanding restoration efforts based on stabilized prior phase restoration*	6.8	AC	$4,000.00	$27,200.00
Mixed Deciduous Forest Restoration	*As a lower priority, undesirable species will be managed to check spread in the short term. In the long run, use of an adaptive management strategy will include removal of undesirable understory vegetation in identified high traffic and high value ecological habitat areas. Some areas may be restored as part of long-term efforts, while others may remain in a managed, yet resilient condition.*	7.3	AC	$5,000.00	$36,500.00
Shoreline Restoration	*cost varies depending on vegetation type, removal of undesirable species and seeding/planting, structural needs to reduce erosion factors (wave action, stormwater overland flow, etc…)*	320	LF	$150.00	$48,000.00
Address picnic area stormwater ponding	*identify and construct suitable mitigation efforts to address two areas of ponding in picnic area resulting from heavier rainfall events.*	2	EA	$20,000.00	$40,000.00
				Subtotal:	**$151,700.00**

Acquisition Contingent Native Plant Community Restoration	Comments	Quantity	Unit	Unit Costs	2021 Est Cost/Project
Oak Savanna & Prairie Restoration	*Contingent on Golden Acres property acquisition, cost varies depending on vegetation type. includes undesirable species removal and seeding/planting*	2	AC	$4,000.00	$8,000.00
Mixed Deciduous Forest Restoration	*Contingent on Wilder Property Acquisition. Removal of undesirable species will be managed to check spread in the short term. In the long run, use of an adaptive management strategy will include removal of undesirable understory vegetation in identified high traffic and high value ecological habitat areas. Some areas may be restored as part of long-term efforts, while others remain in managed, yet resilient condition.*	40	AC	$5,000.00	$200,000.00
Shoreline Restoration	*Contingent on property acquisitions, cost varies depending on vegetation type, removal of undesirable species and seeding/planting, structural needs to reduce erosion factors (wave action, stormwater overland flow, etc…)*	550	LF	$150.00	$82,500.00
Wetland Restoration	*Contingent on property acquisitions and restoration needs; includes design, invasive species removal, construction, seeding and planting*	3.2	AC	$30,000.00	$96,000.00
				Subtotal:	**$386,500.00**

Existing Park (Annual) Native Plant Community Maintenance	Comments	Quantity	Unit	Unit Costs	2021 Est Cost/Project
Oak Savanna & Prairie	*includes use of prescribed burns/mowing, supplemental seeding, monitoring, noxious weed control and planting. (includes area from main entry to beach building)*	8	AC	$450.00	$3,600.00

Mixed Deciduous Forest	*in the short-term undesirable species will be passively managed to check spread. Some areas may be restored as part of long-term efforts, while others may remain in a managed, yet resilient condition.*	0.5	AC	$500.00	$250.00
				Subtotal:	$3,850.00

Acquisition Contingent (Annual) Native Plant Community Maintenance	**Comments**	**Quantity**	**Unit**	**Unit Costs**	**2021 Est Cost/Project**
Mixed Deciduous Forest	*contingent on Wilder property acquisition. In the short-term undesirable species will be passively managed to check spread. Some areas may be restored as part of long-term efforts, while others may remain in a managed, yet resilient condition.*	1.5	AC	$500.00	$750.00
Wetland	*contingent on property acquisitions, includes monitoring and mowing buffer strip and selective removal of unwanted vegetation.*	1	AC	$400.00	$400.00
				Subtotal:	$1,150.00

Total Existing Park Native Plant Restoration/Maintenance:	**$155,550.00**
Total Acquisition Contingent Native Plant Restoration/Maintenance:	**$387,650.00**

Contingencies

Contingency	
10% Design & Engineering Contingency	
10% across all budget items requiring Design & Engineering assistance	$863,571.60
20% Construction/Implementation Contingency	
20% across all budget items (except for parcel acquisition costs)	$1,847,863.20
Total	$2,711,434.80

(D&E) Design and Engineering Contingency amounts are based on an additional 10% to all budget items requiring Design and Engineering.

Construction/Implementation Contingency is based on an additional 20% on all budget items (save for parcel acquisition costs) to account for soft costs not otherwise tracked as part of this master plan.

Potential Parcel Acquisitions

Potential Acquisitions		
Parcel ID	*Acres*	*2020 Tax Assessed Value*
26.031.20.11.0001	9.47	$1,104,400.00
22.031.20.14.0001 *	17.03	$232,391.48
23.031.20.23.0002 *	37.72	$407,915.00
23.031.20.22.0002 *	1.46	$16,097.54
Total:	65.68	$1,760,804.02

* *calculated by using the proportional cost of the entire parcel by the fractional amount of the parcel to be included in this potential acquisition.*

Summary of Overall Estimated Costs

Summary Table	Estimated Totals
Development/Infrastructure	$8,696,116.00
Natural Resources	$543,200.00
10% Design/Engineering Contingency	$863,571.60
20% Construction Contingency	$1,847,863.20
Parcel Acquisition	$1,760,804.02
Full Park Development:	$13,711,554.82

Funding Opportunities

The below table highlights possible grant funding opportunities the County could pursue to address improvements outlined in the master plan. Because eligibility criteria and existence of each grant is not guaranteed each year, the County should confirm grant details prior to establishing funding plans.

Grant Program	Category	Sponsor Agency	General Information	Eligibility	Link
America Walks	Outdoor Recreation	Other - Minnesota	America Walks awards stipends to communities for projects related to creating healthy, active, and engaged places to live, work and play.	School Districts, City, County	https://americawalks.org/community-change-grants/
Boating Infrastructure Grant Program (BIGP)	Outdoor Recreation	Minnesota Department of Natural Resources (MNDNR)	Boating Infrastructure Grant Program (BIGP) 2020	City, County	https://www.dnr.state.mn.us/grants/recreation/bigp.html
Building Resilient Infrastructure & Communities	Natural Resources, Sustainability	Federal Emergency Management Agency (FEMA)	The BRIC program aims to categorically shift the federal focus away from reactive disaster spending and toward research-supported proactive investment in community resilience.	City, County, State Agency. Tribal	https://www.fema.gov/grants/mitigation/building-resilient-infrastructure-communities
Clean Water Fund Competitive Grant	Water Resources	Minnesota Board of Water & Soil Resources (BWSR)	Protecting, enhancing, and restoring water quality in lakes, rivers, and streams in addition to protecting ground water and drinking water sources from degradation.	County	https://bwsr.state.mn.us/apply
Clean Water Funding - Conservation Corps	Water Resources	Minnesota Board of Water & Soil Resources (BWSR)	The Conservation Corps provides hands-on environmental stewardship and service-learning opportunities to youth and young adults while providing low cost labor to eligible applicants.	City, County	https://www.conservationcorps.org/clean-water-funding/
Clean Water Partnership Loan Program	Water Resources	Minnesota Pollution Control Agency (MPCA)	Control of nonpoint source pollution to surface and groundwater.	City, County, State Agency, Tribal	https://www.pca.state.mn.us/water/cwp-loans
Clean Water Revolving Fund	Water Resources & Wastewater	Minnesota Public Facilities Authority (PFA), Minnesota Pollution Control Agency (MPCA)	Helps communities build or upgrade wastewater and stormwater systems to comply with Federal Clean Water Act.	City, County	https://mn.gov/deed/pfa/funds-programs/
Conservation Partners Legacy Grant Program 2021	Water Resources	Minnesota Department of Natural Resources (MNDNR)	To restore, protect or enhance prairies, wetlands, forests, or habitat for fish, game, or wildlife in Minnesota.	City, County, State Agency, Federal Agency	https://www.dnr.state.mn.us/grants/habitat/cpl/index.html

Credit Enhancement Program	Outdoor Recreation	Minnesota Public Facilities Authority (PFA)	Helps cities and counties reduce the costs of borrowing to build certain public facilities.	City, County	https://mn.gov/deed/pfa/funds-programs/credit-enhancement.jsp
Environmental Assistance Grant - Climate Adaption	Natural Resources, Sustainability	Minnesota Pollution Control Agency (MPCA)	Strategies to adapt to climate change, improve community resilience, and achieve positive environmental outcomes.	Tribal, City, County, State Agency	https://www.pca.state.mn.us/about-mpca/grants-community-strategies-adapt-climate-change
Environment and Natural Resources Trust	Natural Resources	Environment and Natural Resources Trust Fund (ENRTF)	ENRTF aims to protect, conserve, preserve, and enhance Minnesota's air, water, land, fish, wildlife, and other natural resources.	City, County, State Agency, Federal Agency, Tribal	https://www.lccmr.leg.mn/
Five Star and Urban Waters Restoration Grant Program	Water Resources, Habitat Protection	National Fish and Wildlife Foundation	Develop community capacity to sustain local natural resources by improving water quality, watersheds and the species and habitats they support.	City. County, State Agency	https://www.nfwf.org/programs/five-star-and-urban-waters-restoration-grant-program?activeTab=tab-2
Flood Mitigation Assistance Grants (FMA) FEMA	Water Resources	Federal Emergency Management Agency (FEMA)	FEMA makes federal funds available through the FMA grant project to reduce or eliminate the risk of repetitive flood damage. The program strengthens national preparedness and resilience.	City, County, State Agency, Federal Agency, Tribal	https://www.fema.gov/grants/mitigation/floods
GreenCorps Host Site	Water Resources	Minnesota Pollution Control Agency (MPCA)	The goal of Minnesota GreenCorps is to preserve and protect Minnesota's environment while training a new generation of environmental professionals.	City, County, State Agency, Tribal	https://www.pca.state.mn.us/mngreencorps/host-site-application
Lessard-Sams Outdoor Heritage Council	Natural Resources, Habitat Protection	Lessard-Sams Outdoor Heritage Council (LSOHC)	Provides funding for the benefit of Minnesotans to restore, protect, and enhance wetlands, prairies, forests, and habitat for fish, game, and wildlife.	City, County, State Agency, Tribal, Private, School Districts	https://www.lsohc.leg.mn/
Local Trail Connections Program	Outdoor Recreation, Trails	Minnesota Department of Natural Resources (MNDNR)	To provide grants to local units of government to promote short trail connections between where people live and desirable locations, not to develop significant new trails.	City, County	https://www.dnr.state.mn.us/grants/recreation/trails_local.html
Managing Ash for Emerald Ash Borer in Community Forests Grants	Natural Resources	Minnesota Department of Natural Resources (MNDNR)	Assists communities in managing ash trees on public land for Emerald Ash Borer.	City, County	https://www.dnr.state.mn.us/grants/forestmgmt/managing-ash.html
Minnesota Off Highway Vehicle Trails Assistance Program	Outdoor Recreation	Minnesota Department of Natural Resources (MNDNR)	Facilitates development and maintenance of trails for use by All-Terrain Vehicles, Off-Highway Motorcycles, and Off-Road Vehicles.	City, County	https://www.dnr.state.mn.us/grants/recreation/gia_ohv.html

Natural and Scenic Area Grants	Natural Resources	Minnesota Department of Natural Resources (MNDNR)	To increase, protect and enhance natural and scenic areas.	City, County, School Districts	https://www.dnr.state.mn.us/grants/land/natural-scenic-app-cycle.html
No Child Left Inside	Outdoor Recreation	Minnesota Department of Natural Resources (MNDNR)	Support and increase efforts to expand programming that connects youth to the outdoors.	City, County, Private	https://www.dnr.state.mn.us/no-child-grants/index.html
State Park Road Account Program	Outdoor Recreation	Minnesota Department of Natural Resources (MNDNR)	Assist local governments in improving access to public recreation facilities.	City, County	https://www.dnr.state.mn.us/grants/recreation/parkroads/index.html