



Chapter 3

EXISTING CONDITIONS

ORGANIZATION OF THEMES

Throughout the master planning effort, Minnehaha Parkway Regional Trail was examined through several lenses. This holistic approach was taken to ensure that the overlapping systems that are impacted along the creek corridor could be understood together, with the intention of creating a framework for a master plan that addresses each theme. The lenses explored in this chapter include:

- » Natural Resources and Water Resources
- » Cultural and Historic Resources
- » Recreation and Activities
- » Connectivity and Access

NATURAL RESOURCES AND WATER RESOURCES

This section will explore the functions of a creek system, examine the drivers that impact Minnehaha Creek’s function, outline Minnehaha Creek’s current condition, and discuss management strategies for the natural resources and water resources within the Creek’s corridor.

FUNCTIONS OF A CREEK

Clean water and a healthy natural environment are essential to create and sustain vibrant communities. The lakes, streams, wetlands, and green space that make up our landscape create a sense of place that provides local identity, adds economic value, and increases wellbeing.

WATER CONVEYANCE

Streams provide natural flood control by collecting water and by moving water through the landscape (conveyance). Stream channels are typically surrounded by low-lying land (floodplain), which is inundated by water during storm events and during high flow periods. Floodplains provide valuable storage space for floodwaters. Building capacity for a floodplain to hold more water decreases the likelihood of flood damage and erosion during high flow events.



Minnehaha Creek, Summer 2018

Meandering, sinuous channels slow the flow of water and dissipate energy that causes erosion. Native vegetation (either in restored areas or in areas that have not been altered over time) slows water velocities and also decreases the likelihood of flood damage. Creeks that are altered through straightening, narrowing or by armoring channels provide little habitat value and can increase erosion and flood damage impacts by increasing peak flood flows downstream from the altered area.

HABITAT

Natural vegetative buffers along streams can filter surface runoff before it reaches the water, which helps remove sediment, pollutants, bacteria, and debris; cools runoff; and results in cleaner water entering the creek.

Riparian, or streamside, forested and wetland corridors are critically important habitat for terrestrial and aquatic species. These green corridors are also important migratory routes for birds and wildlife in urban areas.

ECOSYSTEM INDICATOR

Creeks can be used as an ecosystem indicator, providing valuable insight into the health and function of a place. Studying water samples, conducting fish and macroinvertebrate surveys, wildlife surveys, and cataloguing aquatic vegetation can help us understand both an ecosystem and our society. Streams can tell us if residential lawns are shedding excess fertilizer, if erosion and soil loss are causing turbidity issues, if pharmaceuticals are being disposed of irresponsibly, if best management practices upstream are successful, and whether preservation or restoration work is helping to increase water quality and populations of fish, birds, pollinators, and other species.

DRIVERS IMPACTING MINNEHAHA CREEK’S FUNCTION

STORMWATER RUNOFF

Watershed runoff from rainfall events, or stormwater, can carry nutrients and other pollutants to surface waters leading to negative impacts in lakes, streams and wetlands. In urban areas, high proportions of impervious surfaces such as parking lots and driveways increase the volume and rate of stormwater runoff, which can cause flooding, and change stream flow in ways that negatively impact habitat for critical parts of the food-web like fish and macroinvertebrates.

These impacts heavily influence the conditions of surface waters because a healthy hydrologic condition is critical to supporting a healthy lake, stream or wetland. Generally, as impervious cover increases, stormwater runoff within a watershed increases, and the water quality of lakes, streams and wetlands decreases.

The pictures to the right show erosion along Mlnnehaha Creek west of Portland Avenue due to a due to a large stormwater pipe conveying water on opposite side of creek.

ALTERED CHANNELS

Historically, natural channels were straightened, widened and relocated to accommodate land use change. Channel alteration to improve watershed drainage can lead to a loss of physical habitat, increased peak flow velocities and downstream flooding, decreased dissolved oxygen, and increased sediment transport which can negatively impact fish and macroinvertebrate communities.

Minnehaha Creek was ditched, altered and utilized as a stormwater conveyance system as urban expansion occurred in Minneapolis. Alterations to Minnehaha Creek have resulted in a disruption of natural stream processes such as sediment transport and channel migration which have resulted in impairments throughout the stream system for dissolved oxygen, and fish and macroinvertebrate communities.

ALTERED WETLANDS

Historic alterations to Minnehaha Creek, as well as urbanization throughout the subwatershed, have drained and disrupted the natural hydrology of most of the wetlands within this region. This impacts the overall health of the creek by creating altered wetland systems that have poor or degraded plant communities, lack high level habitat potential, have reduced storage ability during flood events, and may contribute to elevated nutrient concentrations moving throughout the system.

UPLAND VEGETATION

The tree canopy cover along Minnehaha Creek is disconnected and narrow, interrupted by the many bridges and constrained by the Parkway on either side of the corridor. The Parkway’s active use by vehicles, bikes, and pedestrians bring with exposure to invasive species, which crowd out plants that are valuable habitat to native wildlife and serve as food for pollinators.



Image of bank erosion taken June 8th, 2018, west of Portland Avenue



By August 11th, 2018 the erosion had worsened

CURRENT CONDITION OF MINNEHAHA CREEK

The area surrounding Minnehaha Creek as it flows through Minneapolis has been under development for over a century. The Creek’s course, while disturbed (See Chapter 2: Creek History, Background, and Evolution) is generally stable, and has decent grade control. The flow of the Creek is influenced by the discharge at the Gray’s Bay Dam, although a majority of the Creek’s flow in Minneapolis is also attributed to watershed runoff. Extensive land development and impervious land cover, coupled with far-reaching storm sewer pipesheds, direct large volumes of water into the Creek very quickly, resulting in fluctuating flows that contribute to bank erosion, minor incision (cutting of the banks), and minor aggradation (deposition or movement of sediment) within the project area. Additionally, existing infrastructure within the floodplain, such as sewer pipes, retaining walls, manholes, and other structures, also contribute to erosion during high flow events.

WATER RESOURCE STATUS

A driver of water quality, water quantity, or ecological integrity is a force or stressor that causes a biological community or physical structure to change. Some example drivers include increased phosphorus loading, increased impervious areas, straightened channels, and drained wetlands. Some drivers are naturally-occurring, such as storm events. Most are human-caused, either directly or as a side effect of some other change such as a land use change or removal of natural vegetative land cover.

Within the Minnehaha Creek corridor, the channeling of the stream, the loss of wetlands, corridor fragmentation and increasing levels of impervious surfaces have disrupted the fluvial processes of the creek. This has increased runoff volumes and pollutant loads, decreased infiltration and baseflow, and fragmented and degraded habitat. All of these changes have negatively impacted the ecological integrity of Minnehaha Creek and its riparian system. As a result, Minnehaha Creek is listed by the Minnesota Pollution Control Agency (MPCA) as an impaired water body for multiple parameters, including fecal coliform bacteria, chloride, low dissolved oxygen, and fish and macroinvertebrate communities. Further, due to the sediment and nutrient loads transported by Minnehaha Creek, the MPCA has listed downstream receiving water body Lake Hiawatha as impaired for excess nutrients, and, along with Minnehaha Creek, has an approved Total Maximum Daily Load (TMDL).

Minnehaha Creek was evaluated in detail in 2003, and again in 2012, as part of MCWD’s Minnehaha Creek Stream Assessment, which included a physical

inventory of channel stability, an erosion survey, a biological assessment of stream and riparian habitat, and a review of water quality. An additional assessment was completed in the fall of 2014 to assess flood damage sustained from the 2014 flooding. The assessments found the Creek to be relatively stable, with reaches in Minneapolis tending toward degradation (loss of bed and bank material), as opposed to sediment deposition. Ecological ratings measured during both assessments found the ecological health of the creek to be poor due to fish barriers, inadequate riparian buffers, channelized streams, hydrologic alterations (low flow in winter, sustained high flow in summer), lack of in-stream habitat, and extensive bank erosion. These assessments also identify a number of areas that would benefit from restoration and have been flagged for inclusion for future restoration efforts within the project area.

WATER QUALITY

Minnehaha Creek is included on the State’s Impaired Waters List due to excessive chloride, fecal coliform concentrations, low dissolved oxygen, as well as impaired fish and macroinvertebrate communities. Total phosphorus concentrations on the Creek are less than the state river eutrophication standards with the primary nutrient cycling concern for the Creek being its conveyance of phosphorus load to Lake Hiawatha.

WATER QUANTITY

According to the U.S. Geological Survey, a watershed “is an area of land that drains all the streams and rainfall to a common outlet such as the outflow of a reservoir, mouth of a bay, or any point along a stream channel. The word watershed is sometimes used interchangeably with drainage basin or catchment.”

The MCWD encompasses 178 square miles that drain into Minnehaha Creek, and ultimately Lake Hiawatha and the Mississippi River. As an outlet for Lake Minnetonka and the upper watershed of MCWD, Minnehaha Creek discharges large volumes of water during spring snowmelt runoff, summer, and fall. In addition to the discharge from the Gray’s Bay Dam, flow in Minnehaha Creek is controlled by numerous other structures, including major weirs at the Browndale Dam (Edina) and at Hiawatha Avenue. There are also more than 100 bridge crossings throughout the 23 miles of the Creek, many of which restrict high flows and others that provide a grade control substantial enough to create impoundments, which stagnate water upstream.

Reduction in flows during drought periods or in winter can result in the Creek drying up for extended periods of time. In summer, fish can find refuge in

residual pools between rainfall events, provided those events occur before dissolved oxygen levels drop below lethal limits for fish. In winter, low flows often result in full freeze over and/or drying of creek segments. Winter low flow impacts both fish and aquatic macroinvertebrates that occupy the stream channel year round. Extreme low flows have the greatest negative impact on in-stream aquatic life.

There are more than 250 storm sewer outfalls along the entire length of the creek, including more than 100 in Minneapolis. This storm sewer infrastructure results in stormwater reaching the creek quickly, creating “flashy” (fluctuating) storm discharges that quickly raise water levels in the creek. MCWD’s modeling and stream assessments have identified locations throughout the Creek as being vulnerable to localized flooding and streambank failure, as well locations that have erosion near storm sewer outfalls from high water velocity.

Figure 3.1 shows that Minnehaha Creek was flowing around 85 cubic feet per second (cfs) on April 27, 2020 prior to a rain event. After a 0.83 inch rain event (heavy rainfall) on April 28, 2020, Minnehaha Creek’s flow jumped to 207 cfs.

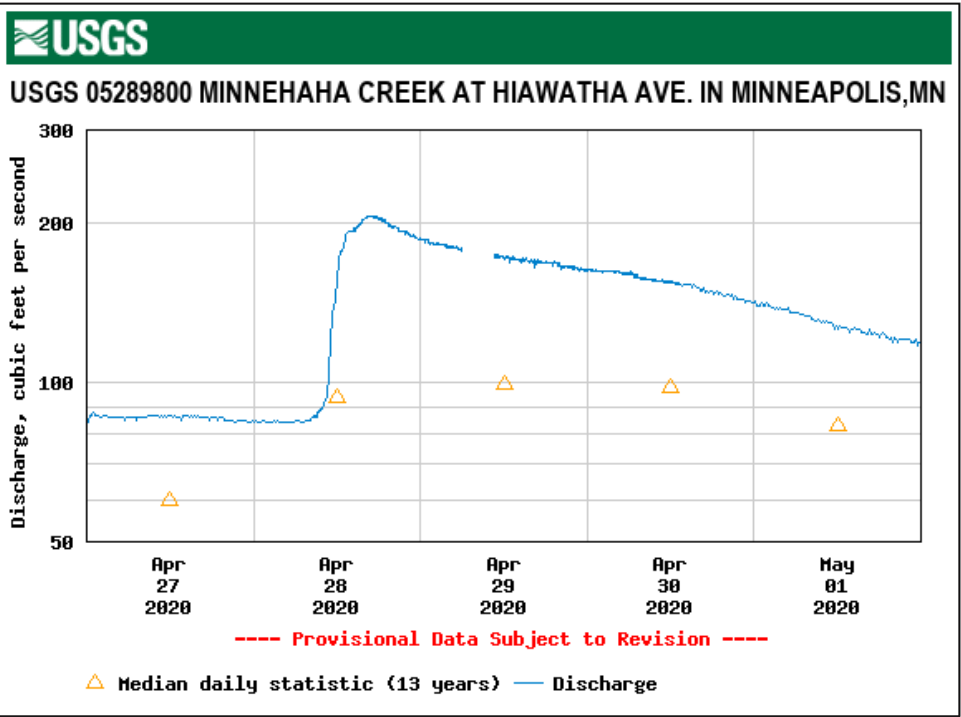


Figure 3.1 USGS Hydrograph of Minnehaha Creek April 27th, 2020 to May 1st, 2020

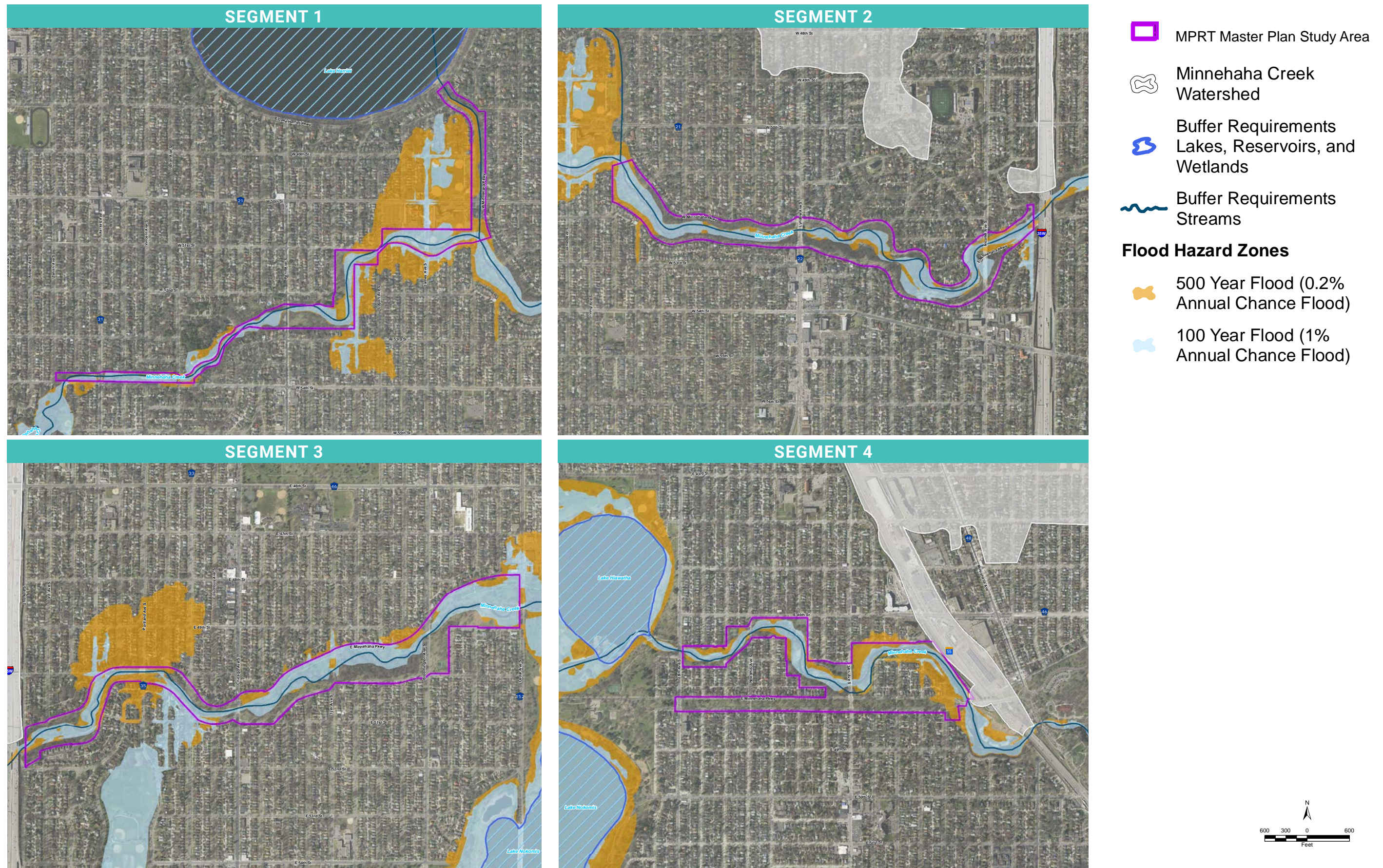


Figure 3.2 Current 100-year and 500-year Flood Hazard Zones

FLOOD HAZARD ZONES

Figure 3.3 illustrates the current FEMA 100 and 500-year flood hazard zones in and around each segment of the project area. There are approximately 196 acres of floodplain along Minnehaha Parkway Region Trail. The floodplain shown in blue have a 1% chance of flooding each year and the areas in orange have a 0.2% chance of flooding each year. The term “100-year floodplain” can be misleading, as this terminology was developed in 1973, as part of the U.S. National Flood Insurance Program. The terminology is based on an annual exceedance probability (AEP) and not a time interval as the name suggests. The blue and orange areas on these maps are likely to expand in the coming years, as FEMA is currently updating these maps to reflect more recent precipitation patterns.

PROJECTED FLOOD HAZARD ZONES

Flood events are predicted to occur more frequently as climate change accelerates. Flood hazard areas have been modeled to give an idea of what we could expect in the future. Figure 3.3 compares the current 1% floodplain (light blue) and the area projected to be at a 1% annual risk for flooding by 2050 (light orange). The future projection represents an approximate 5-fold increase in floodplain area.

This modeling was used throughout the planning and design process for this master plan to inform future recommendations.

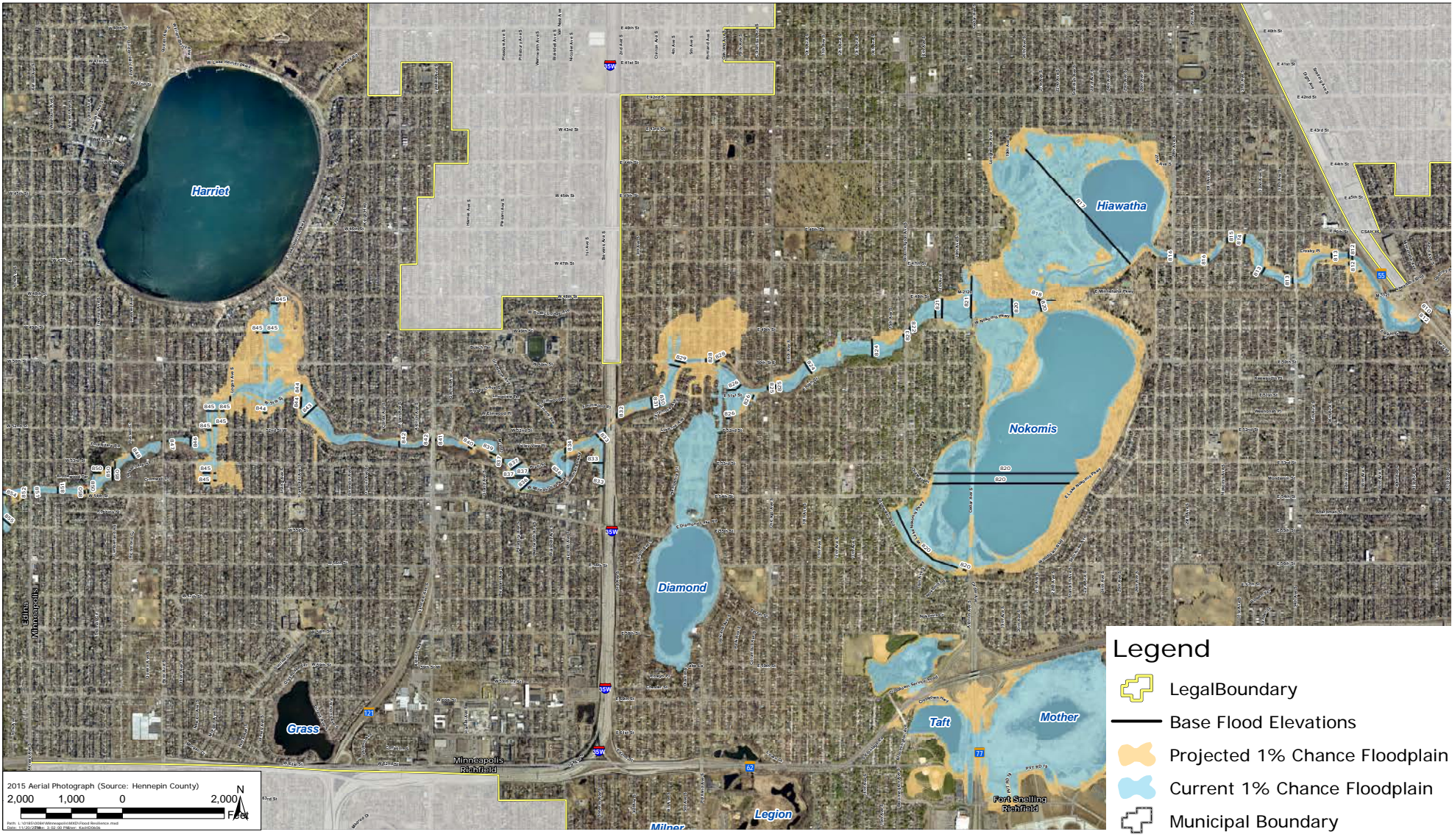


Figure 3.3 Current and Projected 100-year Flood Hazard Zones (Nov. 2018)

WETLANDS

There are no formally recognized National Wetland Inventory (NWI) wetlands within Segments 1 and 2. The eastern half of Segment 3 contains a large “seasonally flooded basin.” Segment 4 is predominantly a seasonally flooded basin, with a small areas of shallow marsh. The absence of formal wetlands in Segments 1 and 2 is concerning, as large portions are each within the 100-year floodplain and are subject to frequent inundation. The lack of formal wetland vegetation and wetland characteristics means these areas are less equipped to handle flooding and quickly recover after storms. Additionally, the size of the wetland located in Segment 3 is also concerning, as the 1850s original land survey referenced back in Chapter 2, showed an approximately 1,000 foot wide wetland corridor that stretched from present day I-35W to Lake Hiawatha.

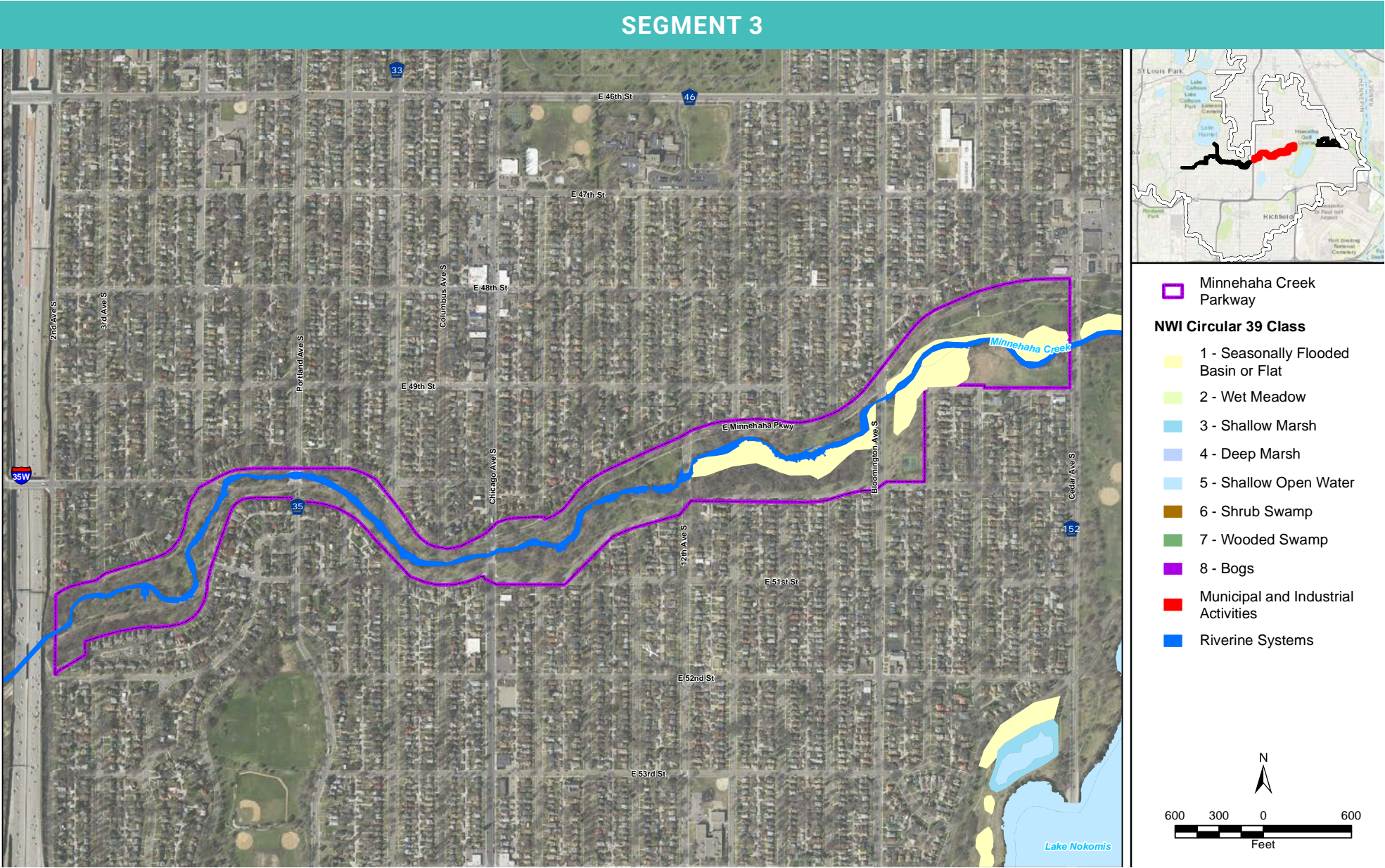


Figure 3.4 Segment 3 National Wetland Inventory (NWI)

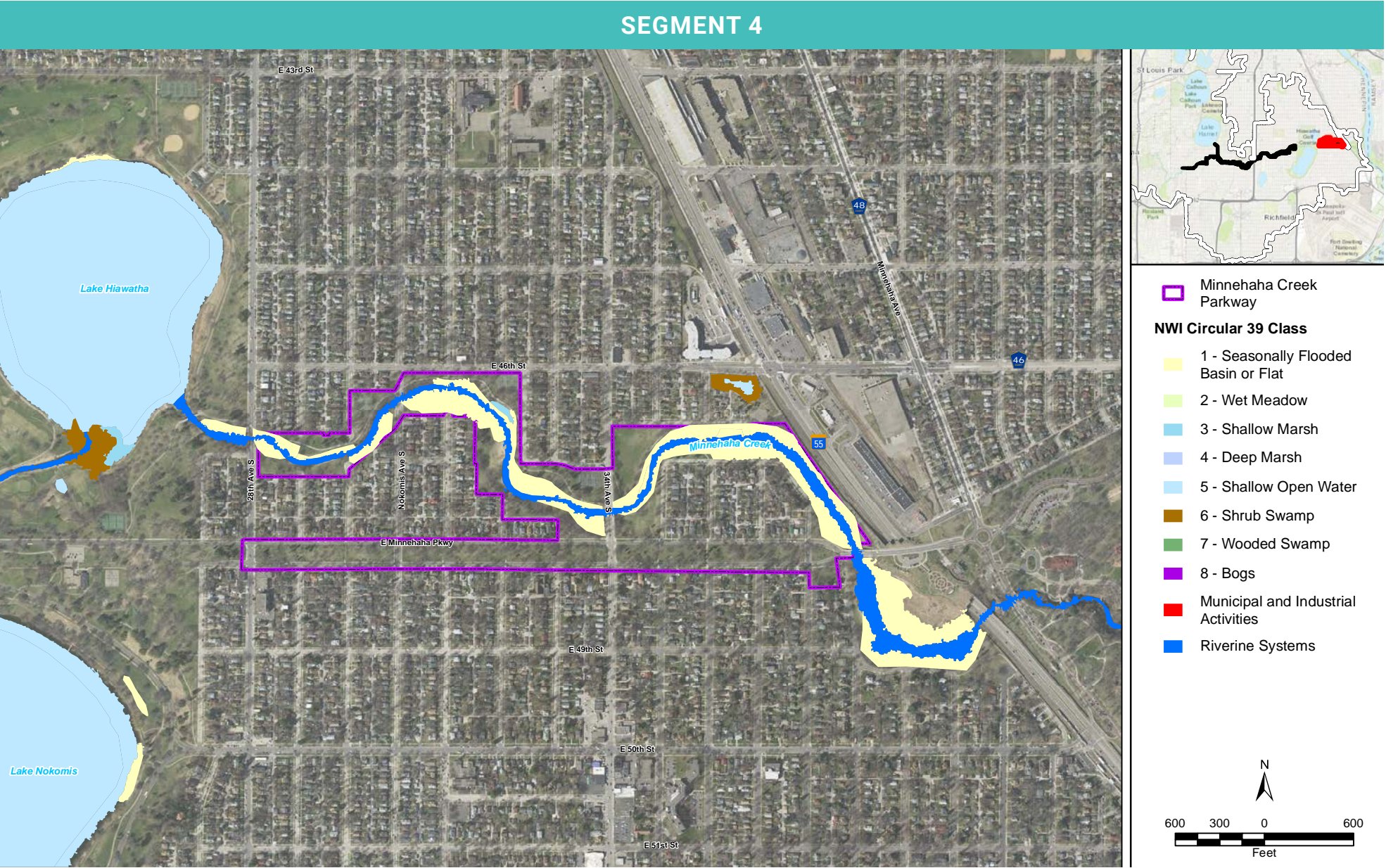


Figure 3.5 Segment 4 National Wetland Inventory (NWI)

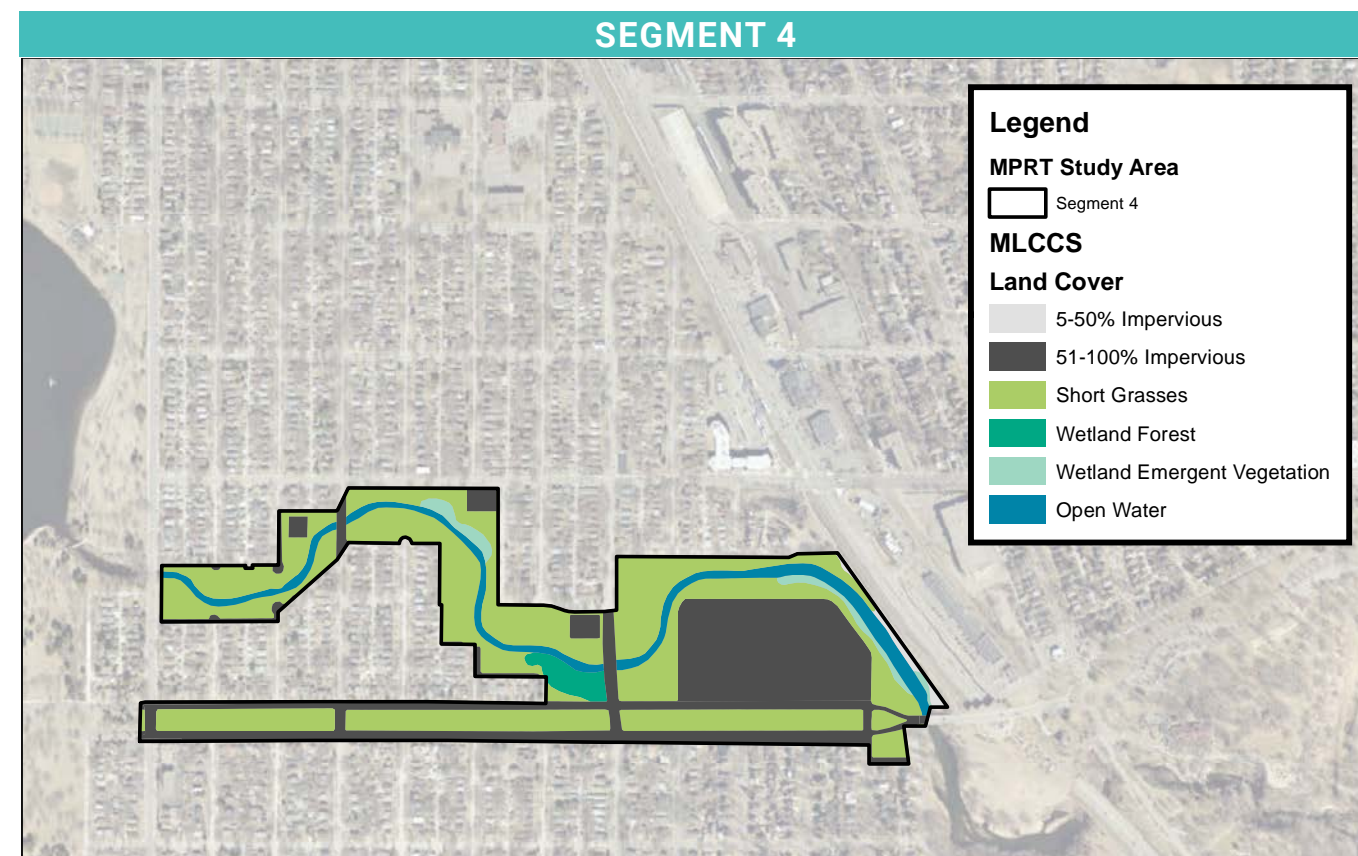
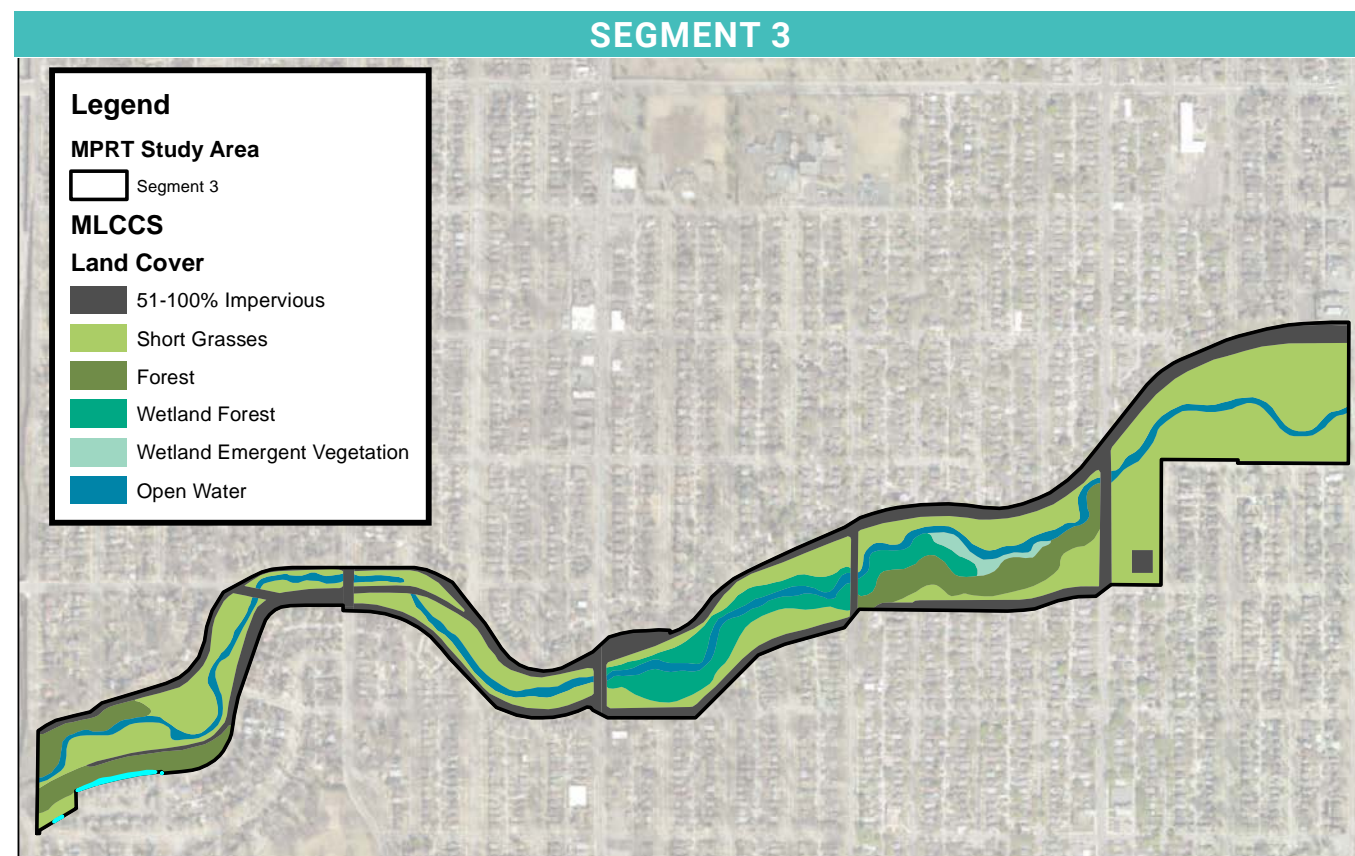
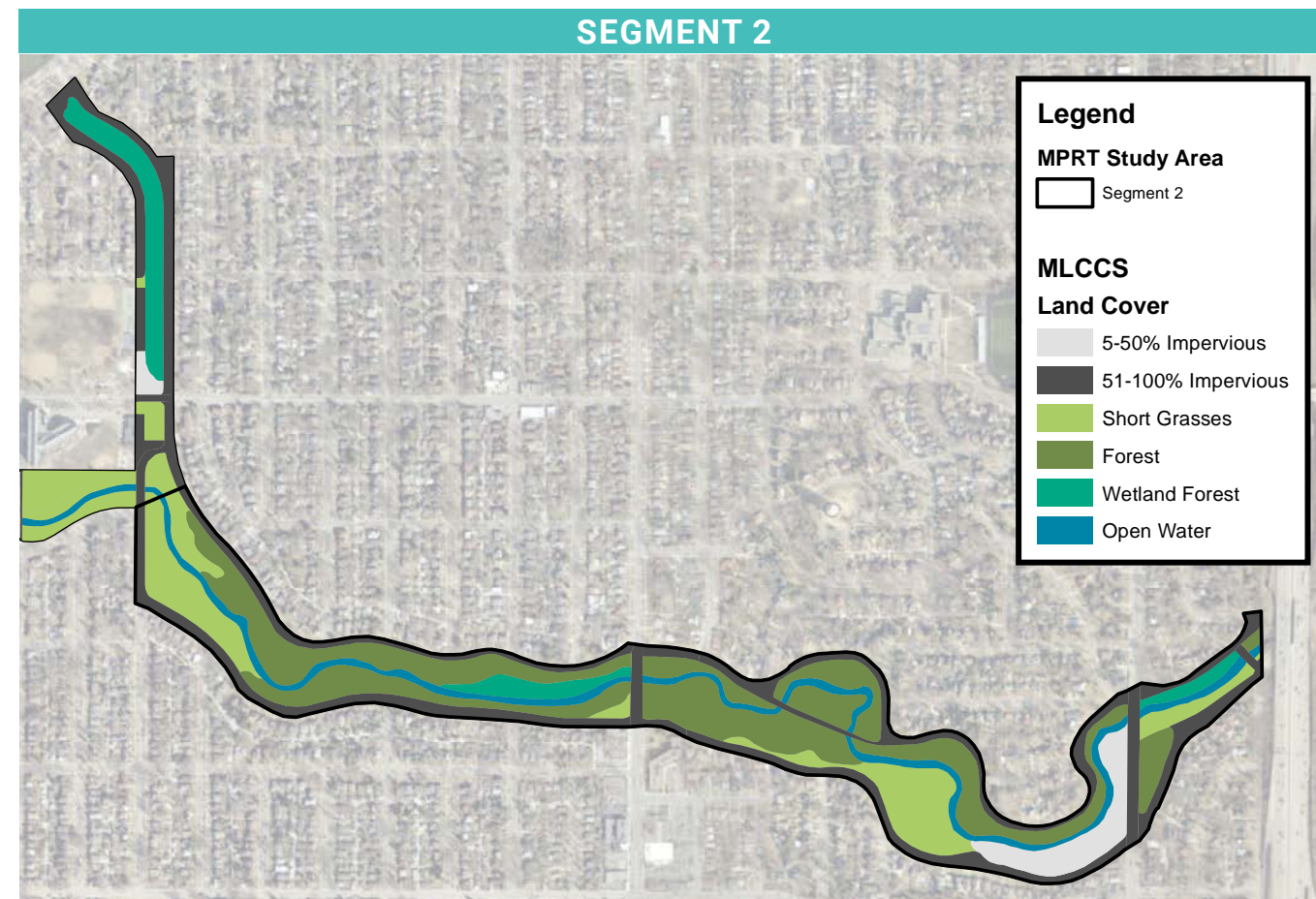
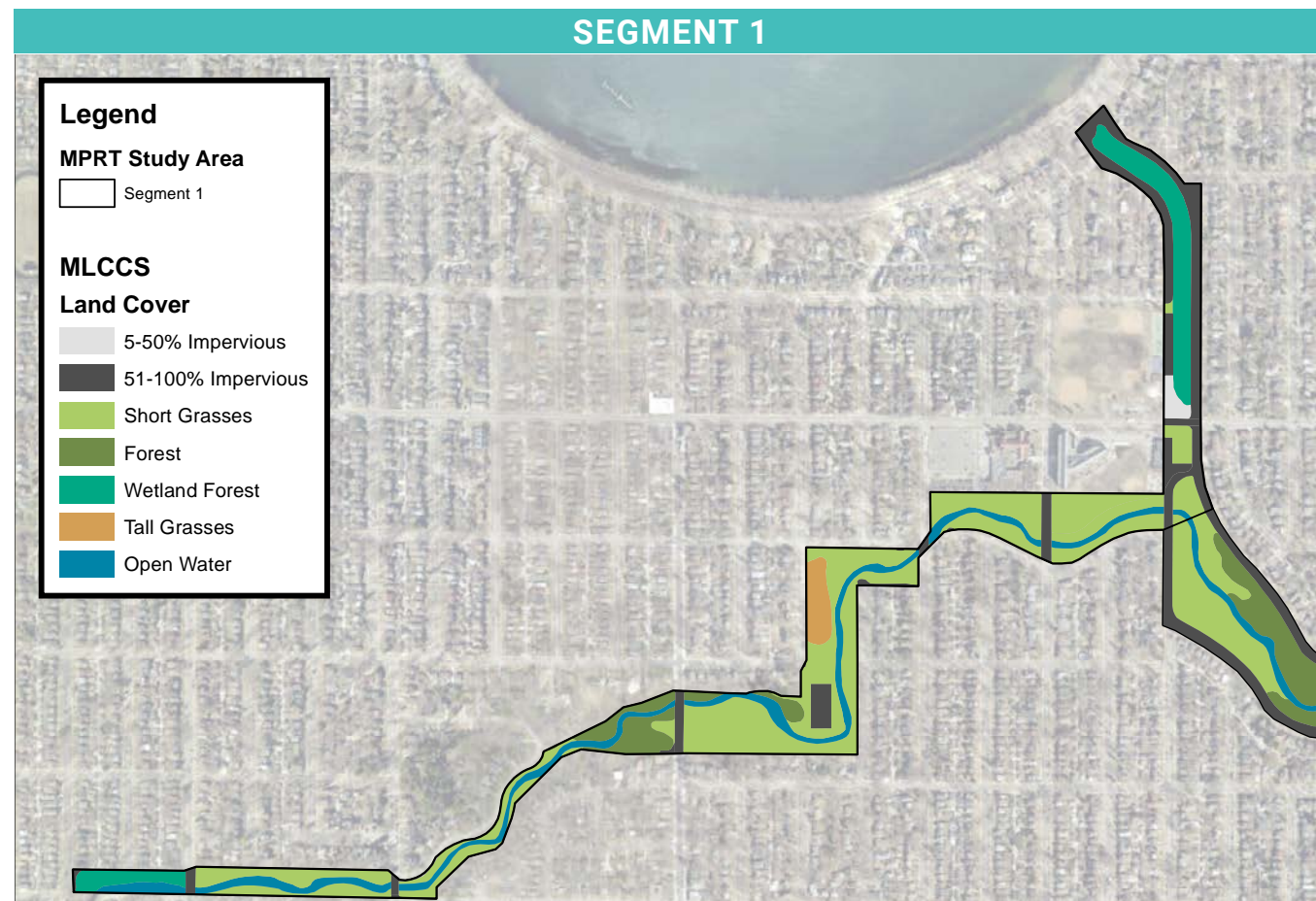


Figure 3.6 MLCCS Land Cover by Segment

UPLAND NATURAL RESOURCE STATUS

FOREST AND TREE CANOPY

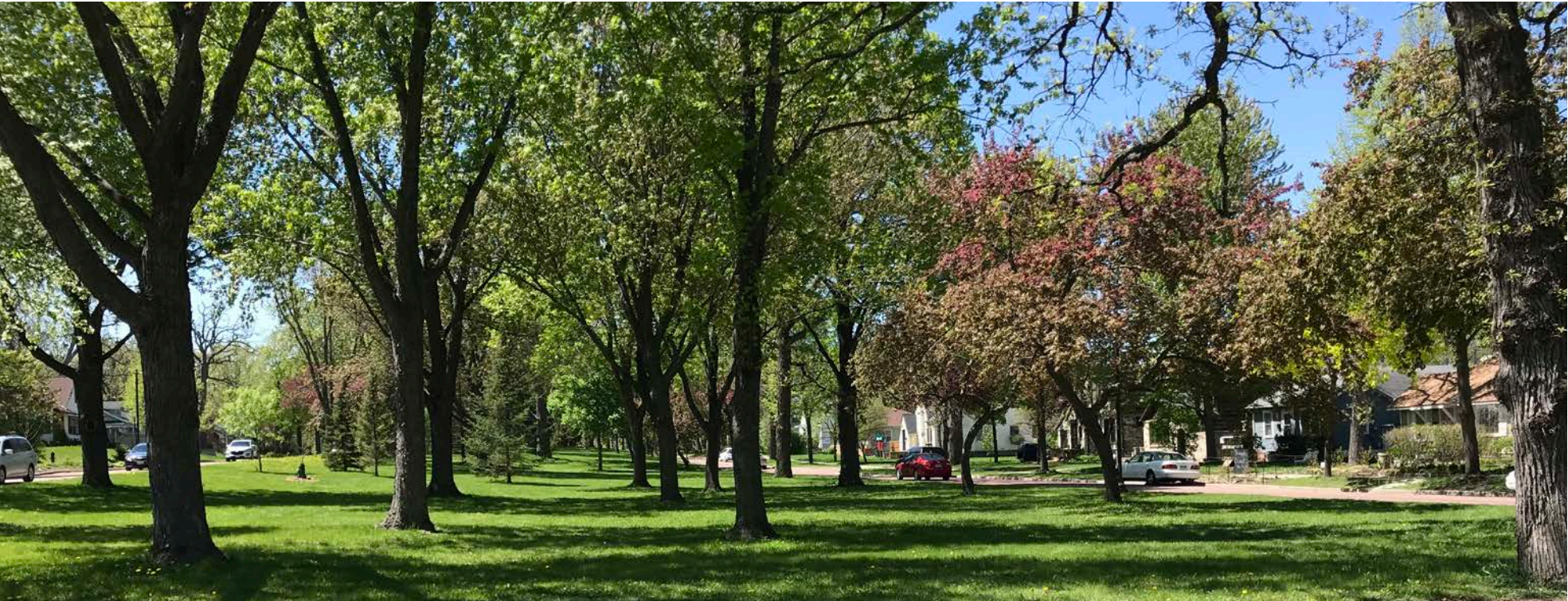
Figure 3.6 shows that the project area is largely covered with deciduous tree canopy over turf or mixed shrub understory. The surrounding area is primarily residential, with a grid of buildings, roads, and parking lots set into a canopy of trees.

Land along Minnehaha Parkway typically provides a pastoral experience, with scattered trees shading neat turf lawns. Astute trail users will notice groves of crabapples at many of the Parkway’s intersections, which provide a stunning visual marker in the springtime.

More densely vegetated areas are typically found along the banks of the Creek, where roots help to hold the shoreline in place and tree limbs bend gracefully over flowing water.



Typical canopy cover along Minnehaha Creek



Typical canopy cover along Minnehaha Parkway



Groves of crabapples greet trail users as they approach intersections

WILDLIFE

The Minnesota County Biological Survey shows no remaining natural communities, rare species, or sites of biodiversity significance in the project area. Despite having a disturbed, urban context, Minnehaha Creek functions as a valuable habitat corridor (and is a DNR-designated conservation corridor) for birds and other urban wildlife traveling between the Chain of Lakes and the Mississippi River. Birding is a popular activity along the trails, where a variety of songbirds, waterfowl, owls, woodpeckers, and hawks can all be seen.

FISH

Minnehaha Creek is listed on the State of Minnesota’s 303(d) list of Impaired Waters for its impaired biotic community. Assessments of fish communities along the Creek consistently return classifications of degraded and poor, indicating stream disturbance and lack of conditions that support healthy riverine fish communities.

2009 was the last reported fish survey of Minnehaha Creek. Black bullheads, yellow bullheads, and carp were the most common species reported. These low-oxygen adapted species are bottom feeders that stir up sediments from the creek channel, reducing water quality. The fish that live in Minnehaha Creek are subject to winter kill, so each spring, new populations find their way to the channel via Lake Minnetonka and Lake Harriet. Other species found include bowfin, black crappie, bluegill, green sunfish, largemouth bass, northern pike, various minnows, white sucker, and yellow perch.

MACROINVERTEBRATES

In 2003 and 2012, Minnehaha Creek geomorphic assessments were conducted and macroinvertebrates were collected and identified. This work was complemented by subsequent macroinvertebrate studies in 2014, 2015 and 2018. Each study examined aquatic insect and macroinvertebrate genera, and evaluated populations for diversity and tolerance to water quality problems. Biotic index scoring was completed and has become an important part of monitoring the water quality and impact of restoration in the Creek. The assessments generally classified a majority of the sites as degraded, meaning they are highly disturbed, with low species diversity and dominated by pollution-tolerant species.

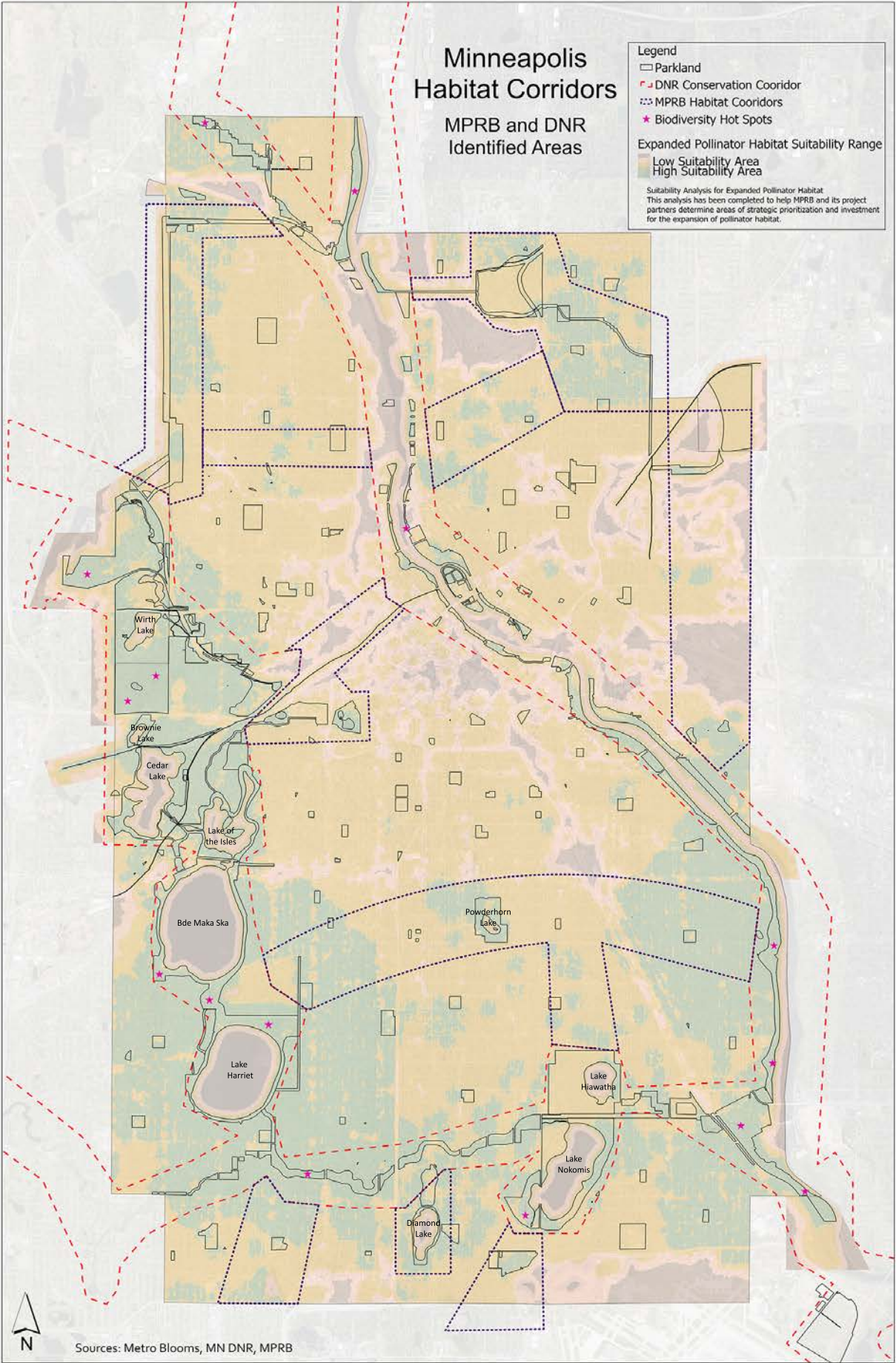


Figure 3.7 Minneapolis Habitat Corridors, MPRB Ecological System Plan (2020)

POLLINATORS

MPRB partnered with the University of Minnesota Bee Lab, Xerces Society, and a local non-profit, Metro Blooms, to study ways to foster healthy pollinator populations. A Pollinator Habitat Priorities Analysis was performed, with overlaid data from a variety of sources in order to determine places where investments in pollinator habitat would have the greatest impact (noted as Sweet Spots in Figure 3.8). The information was incorporated into the MPRB’s Ecological System Plan (see Figure 3.7), and also shared with local municipalities and agencies in an effort to expand pollinator habitat throughout the region. The entirety of Segments 1 and 2 are deemed high suitability areas for expanded pollinator habitat, as are the majority of Segment 3 and roughly half of Segment 4 (Figure 3.7).

WATER RESOURCE MANAGEMENT STRATEGIES

Water resource management strategies within the Minnehaha Creek subwatershed will focus on stormwater management to reduce runoff volume and pollutant loading, stream restoration to stabilize streambanks and improve riparian buffers and habitat, and restoration of wetlands and ecological corridors in ways that reduce nutrient loading downstream to Lake Hiawatha while improving ecological integrity and corridor connectivity within the subwatershed.

STORMWATER MANAGEMENT

The overall strategy for protecting water quality within Minnehaha Creek is to reduce pollutant loading and stormwater runoff volume from the landscape. Stormwater management will focus on reducing runoff volumes and rates, as well as reducing pollutant loading from runoff producing rain events. This can be done in a variety of ways, such as installation and load reduction Best Management Practices (BMPs); retrofitting developed areas with BMPs as infrastructure and development/redevelopment opportunities arise; and enhancing buffers along the streambank.

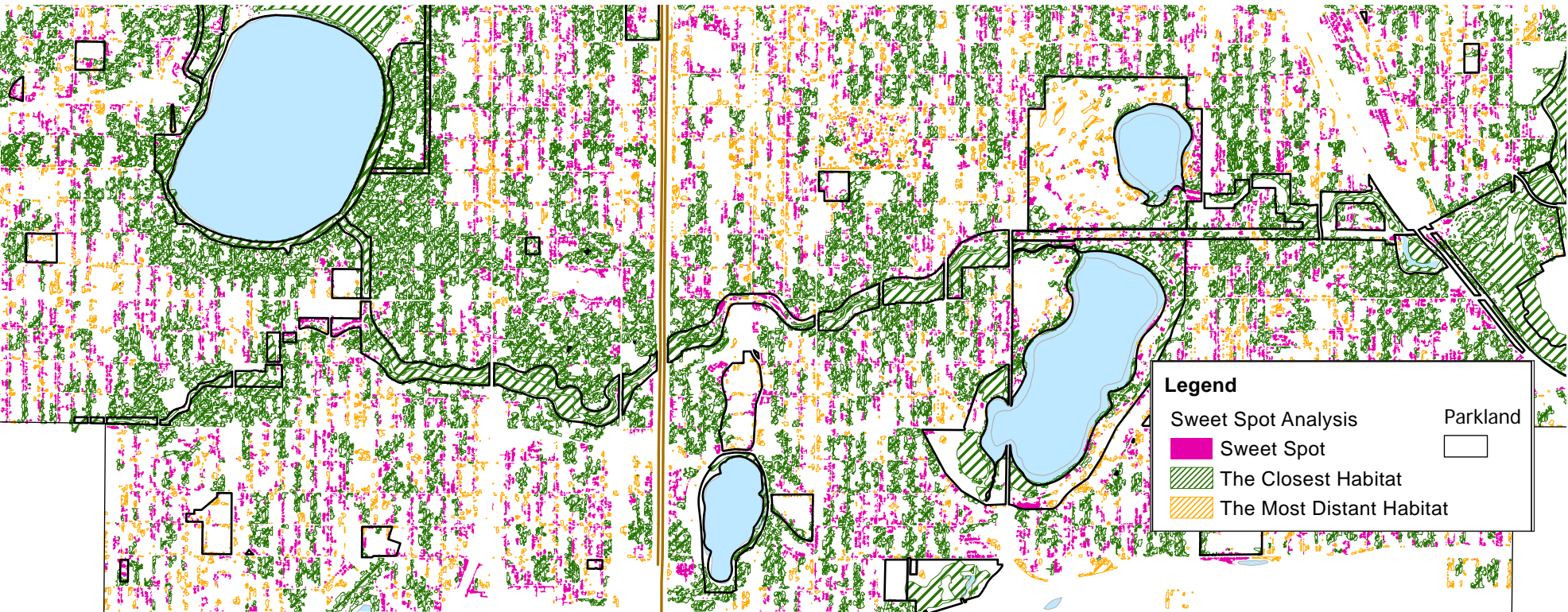


Figure 3.8 Determining Return on Investment Based on Pollinator Habitat Quality and Distance (from MPRB Adopted Ecological System Plan)

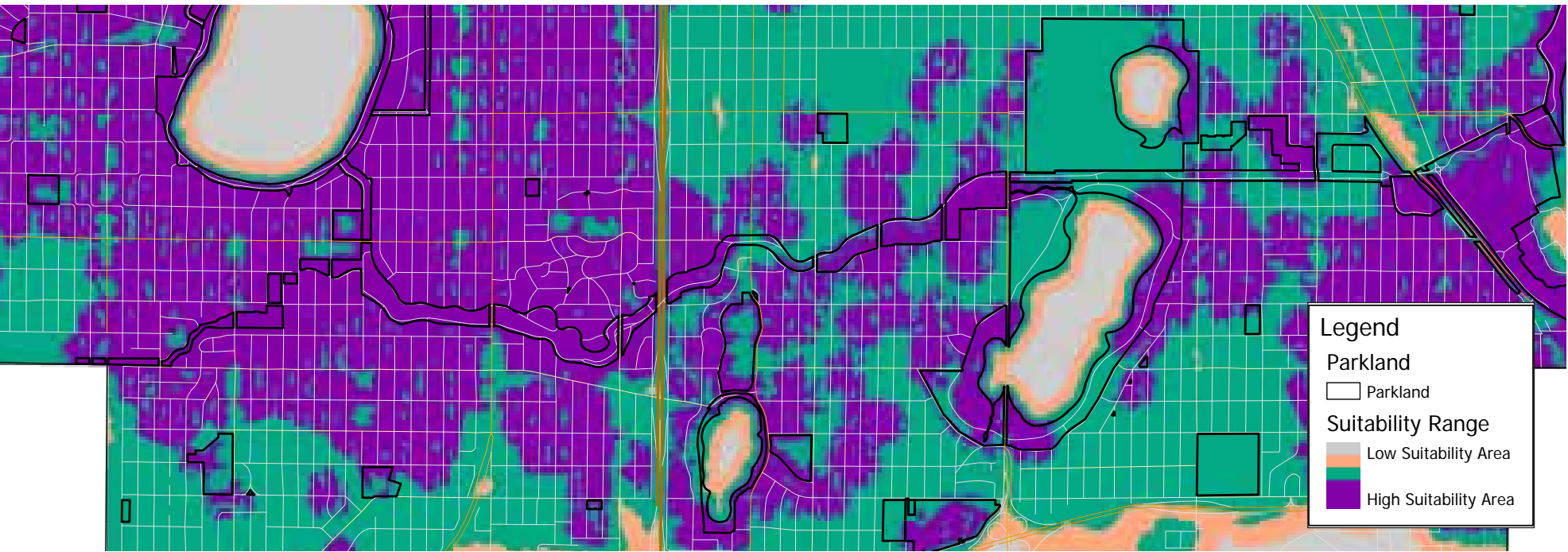


Figure 3.9 Suitability Analysis for Expanded Pollinator Habitat (from MPRB Adopted Ecological System Plan)

OUTFALLS

There are nearly 100 stormwater outfalls in the project area, where storm sewers discharge runoff into the Creek. Each outfall in the storm sewer system has a pipeshed, which is the area of land that collects surface water discharged from a particular outfall. Individual pipeshed areas vary in size. Figure 3.10 shows the outlets and corresponding pipesheds along Minnehaha Creek throughout the study area. Discharge from some of the larger outlets has caused major erosion along the banks of the Creek. During the 2014 flood, many outfalls were damaged. In 2018, the outfall on the south side of Lyndale Avenue was replaced by Minneapolis Public Works and a significant restoration project was undertaken (shown in the photos below) in order to repair and prevent future damage caused by the powerful runoff discharged during severe storms. The MOU between the City, MCWD, and MPRB means that future outfall repair projects along the Creek will consider if the outfall’s location provides an opportunity to install a BMP, implement restoration opportunities, and incorporate trail reconstruction and/or planned recreational opportunities.

There are a handful of overland flumes (also known as concrete spillways) throughout the Creek corridor. These flumes move stormwater from outfalls to the primary channel where the slope is too shallow for a typical vegetated swale. Most of the spillways throughout the study area have remained in the corridor past their useful life-cycle and are deteriorating along the banks of the Creek as the soil supporting the flumes has been undermined. There are (4) overland flumes within the study area, shown in Figure 3.11. All of the overland flumes in the study area are located in Segment 1.

BEST MANAGEMENT PRACTICES (BMPS)

BMPs are structural, vegetative, or managerial practices used to prevent or reduce water pollution. Traditionally upstream BMPs are preferred, because they detain stormwater long enough to prevent large bounces of water within the Creek, which in turn prevents erosion and flooding downstream. Given the Creek’s urban surroundings, retrofitting existing infrastructure to include BMPs is not always possible, and these projects can take years to plan and implement. However, space for BMPs and flood control efforts is more readily available with the Parkway along the Creek, therefore, there is opportunity for inclusion of future BMPs within the project area.

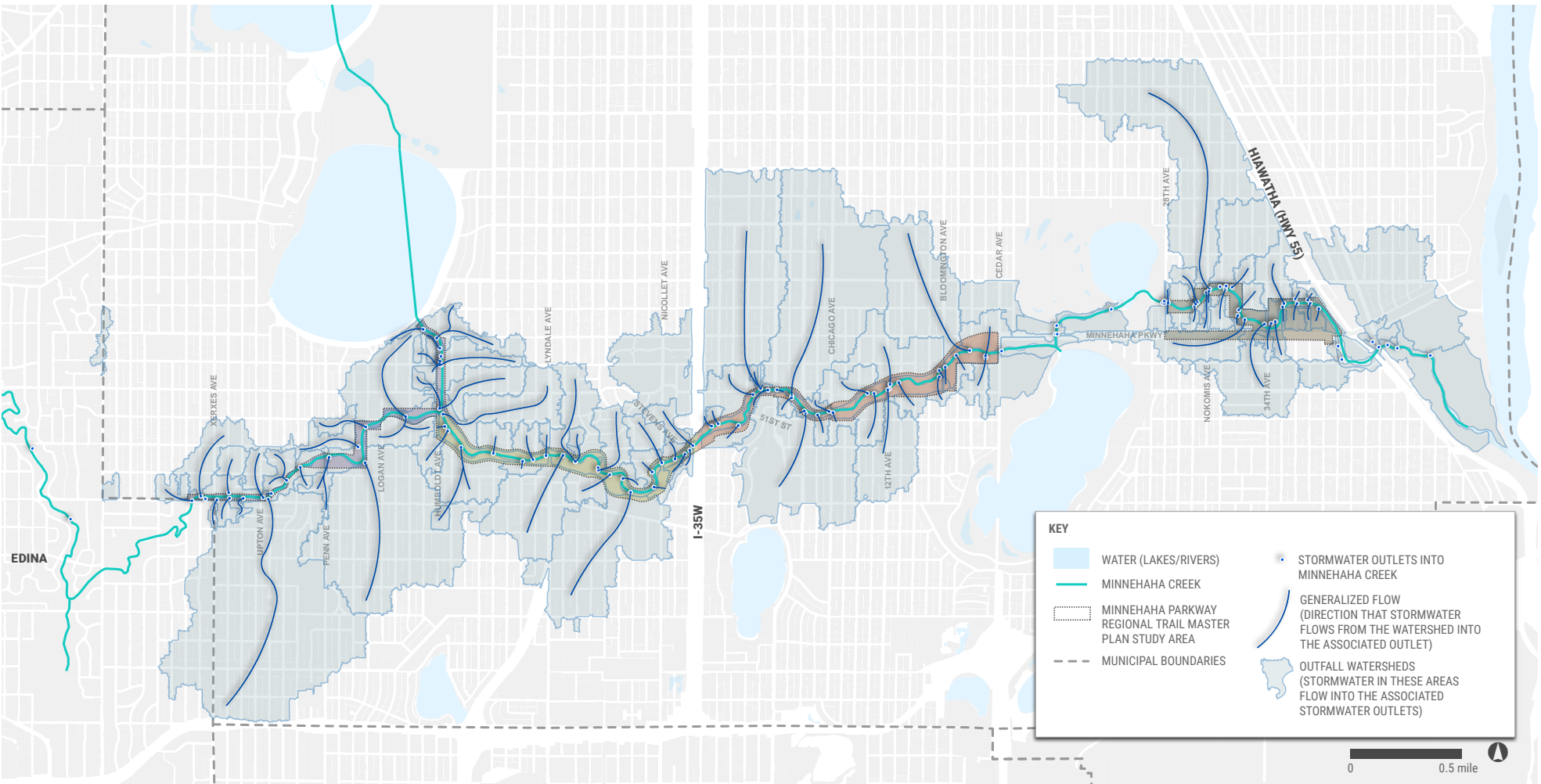


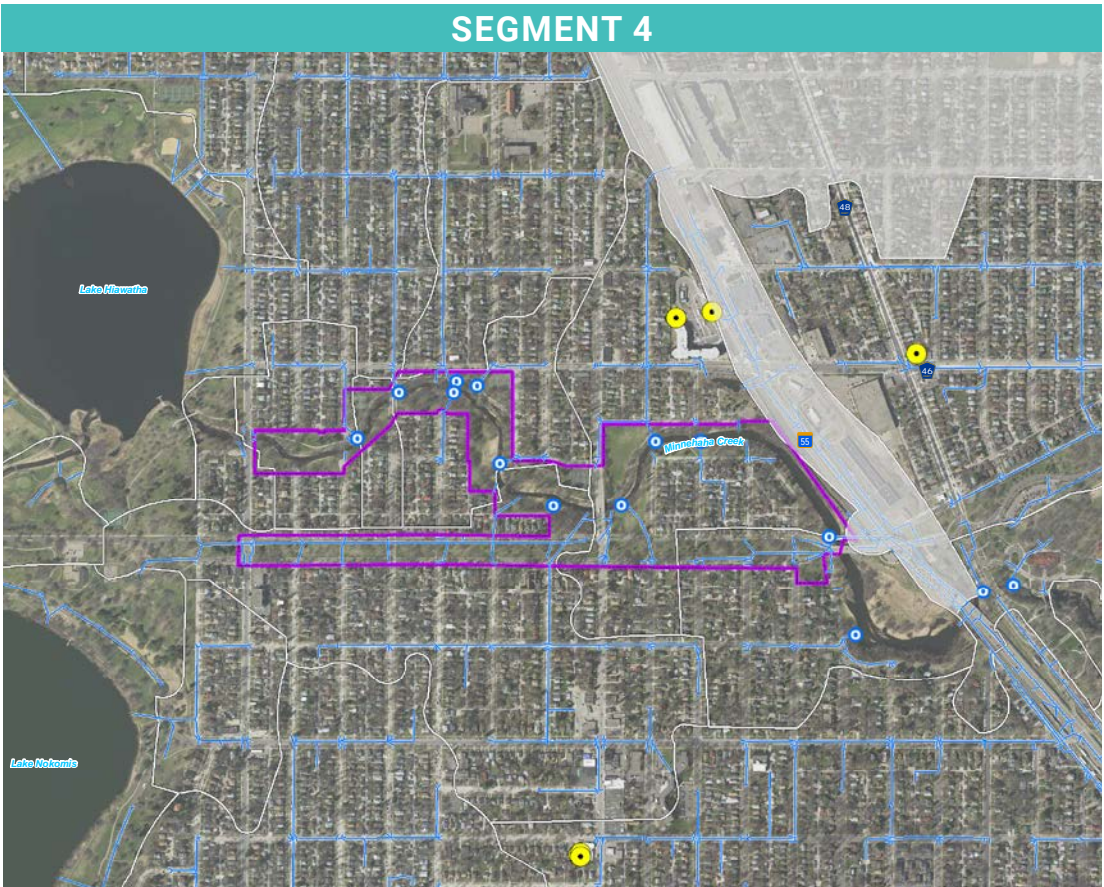
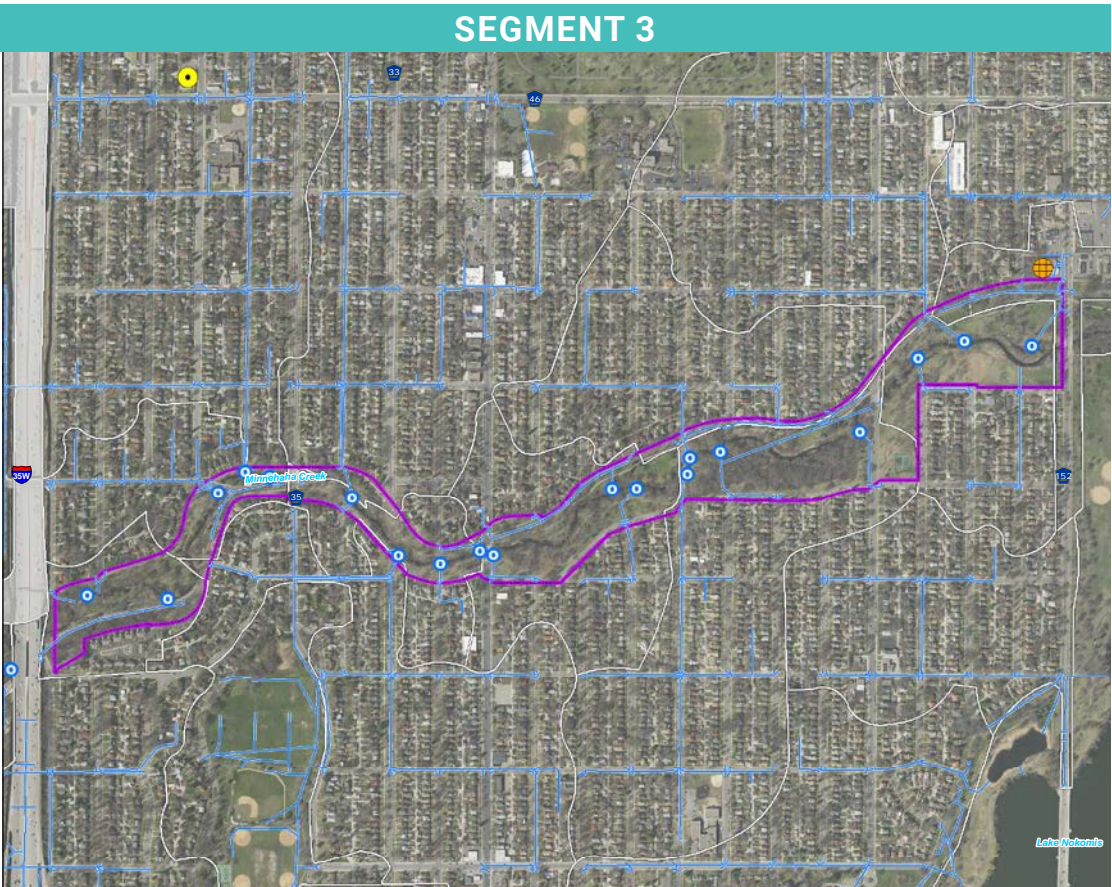
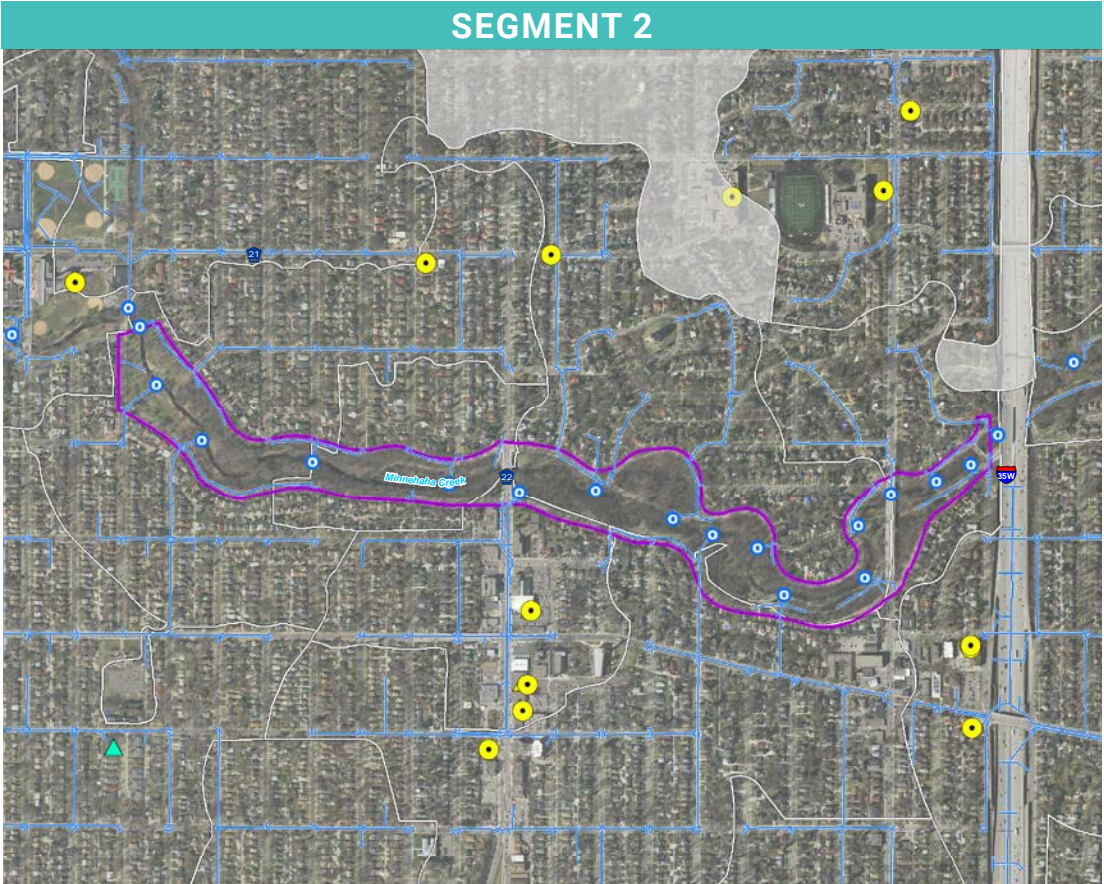
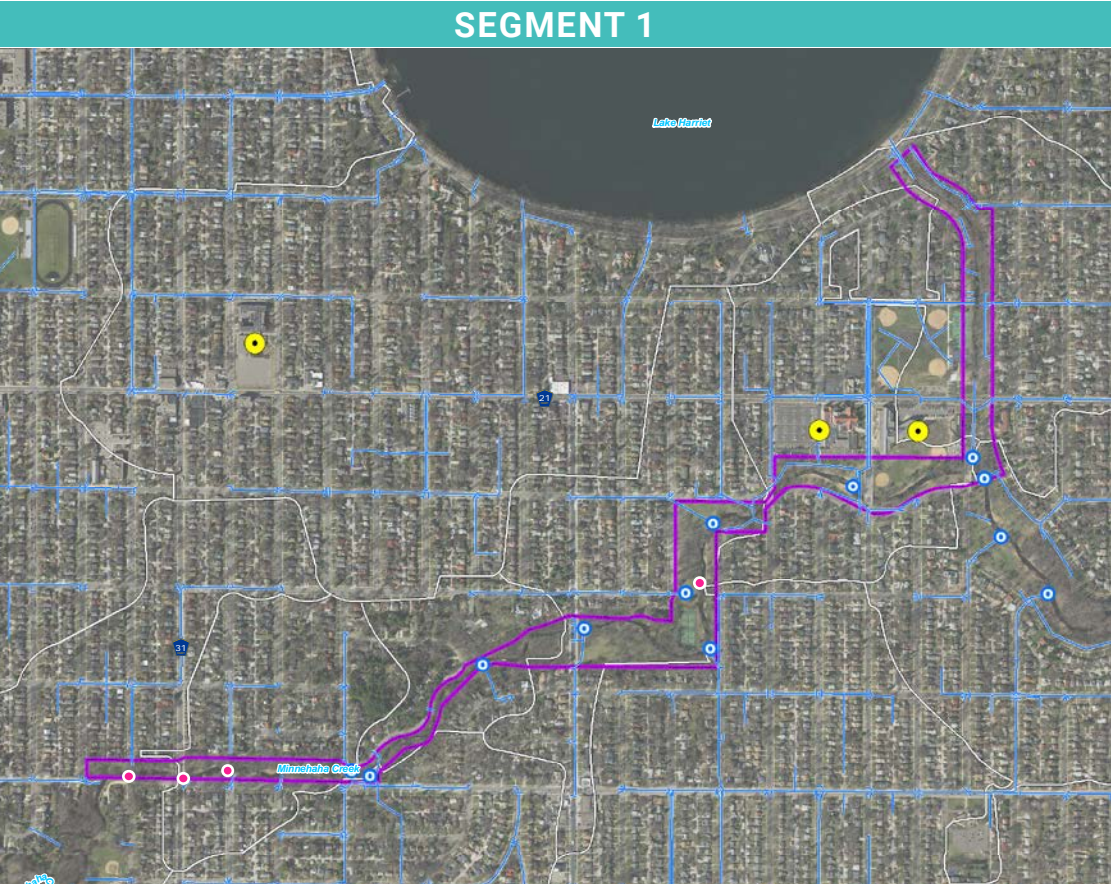
Figure 3.10 Corridor-Wide Outfalls and Pipesheds



Energy dissipation basin is used to reduce the water’s energy at Lyndale Avenue



Live stakes will grow new shrubs at the restored Lyndale Avenue outfall



- MPRT Master Plan Study Area
- Outfalls
- Storm Sewer
- Minor Subwatershed
- Stormwater BMP**
- ▲ Dry Pond
- ▲ Roof Storage
- Storm Filtration/Infiltration Device BMP
- Overland Flumes

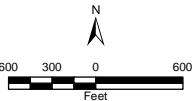


Figure 3.11 Existing Stormwater Infrastructure and BMPs

STREAM CHANNEL RESTORATION

While stormwater management is an effective tool in addressing stream flashiness and erosive velocities, stream channel restoration provides the opportunity to reinstate a more natural system design within a previously manipulated ecosystem.

Stream restoration focuses on balancing stormwater conveyance to prevent flooding and channel erosion while providing high quality habitat for fish and macroinvertebrates. Restoration includes, where applicable, improving channel sinuosity, stabilizing streambanks, controlling peak flow velocities, increasing channel roughness for habitat and recreation, narrowing stream channels to improve wetted width and ecological baseflow, and increasing stream structure.

Upstream in St. Louis Park, approximately one-mile of Minnehaha Creek has been restored to a meandering channel to reduce peak flows, reconnect the stream to its floodplain, limit erosion, and enhance habitat. Additional reaches of Minnehaha Creek along Minnehaha Parkway would benefit from channel restoration, streambank stabilization, buffer enhancement, and habitat improvement, and have been identified in Chapter 5.

WETLAND RESTORATION

Most of the wetlands along the Minnehaha Parkway have been altered and disrupted. This master plan has assessed and explored target areas to implement wetland restoration efforts in ways that provide the greatest benefit to water quality, quantity and ecological integrity, while integrating these efforts within the developed community.



Restoration at Minnehaha Preserve in St. Louis Park, MN

WATERSHED PROTECTION

Within the Minnehaha Creek subwatershed, redevelopment of urban and suburban areas provides an opportunity to address previous land use decisions and their negative impact on natural resources. Watershed protection is a critical component to ensure that change on the landscape is leveraged to find greater opportunity for the built environment while layering in water resource protection and ecological enhancement.

AQUATIC INVASIVE SPECIES (AIS)

Several aquatic invasive species are present in Minnehaha Creek including zebra mussels, curlyleaf pondweed, Eurasian water milfoil, common carp, and flowering rush.

Aquatic Invasive Species (AIS) issues in Minnehaha Creek and Minneapolis lakes are managed by MPRB. MPRB requires boat inspections at lakes and monitors invasive species finds in water bodies.

MPRB’s Ecological System Plan provides a more in-depth look at AIS and sets forth several policies for ongoing management of aquatic habitat.



UPLAND NATURAL RESOURCE STRATEGIES

Along Minnehaha Parkway Regional Trail, there are areas of lawn (mown roughly every 10 days), managed natural areas that require seasonal maintenance techniques like strategic mowing, prescribed burns, and other invasive species control, and there are unmanaged “wild” areas.

MPRB cares for hundreds of thousands of trees in Minneapolis’ urban forest, including those along Minnehaha Parkway Regional Trail. Here, MPRB is responsible for removal of hazard trees and branches, monitoring and removal of trees at risk of or sickened by pests or disease (like emerald ash borer or oak wilt), and planting new trees to aid in forest regeneration (as with the Canopy Replacement Plan for Ash Trees). Other than replacement of felled trees and removal of invasive species like buckthorn or garlic mustard, natural woodland areas like those in Segment 2 are largely left to themselves. More detailed information on natural resource management protocols can be found in the Ecological System Plan.



Managed natural resource area



Unmanaged "Wild Area"



Mowed turf area

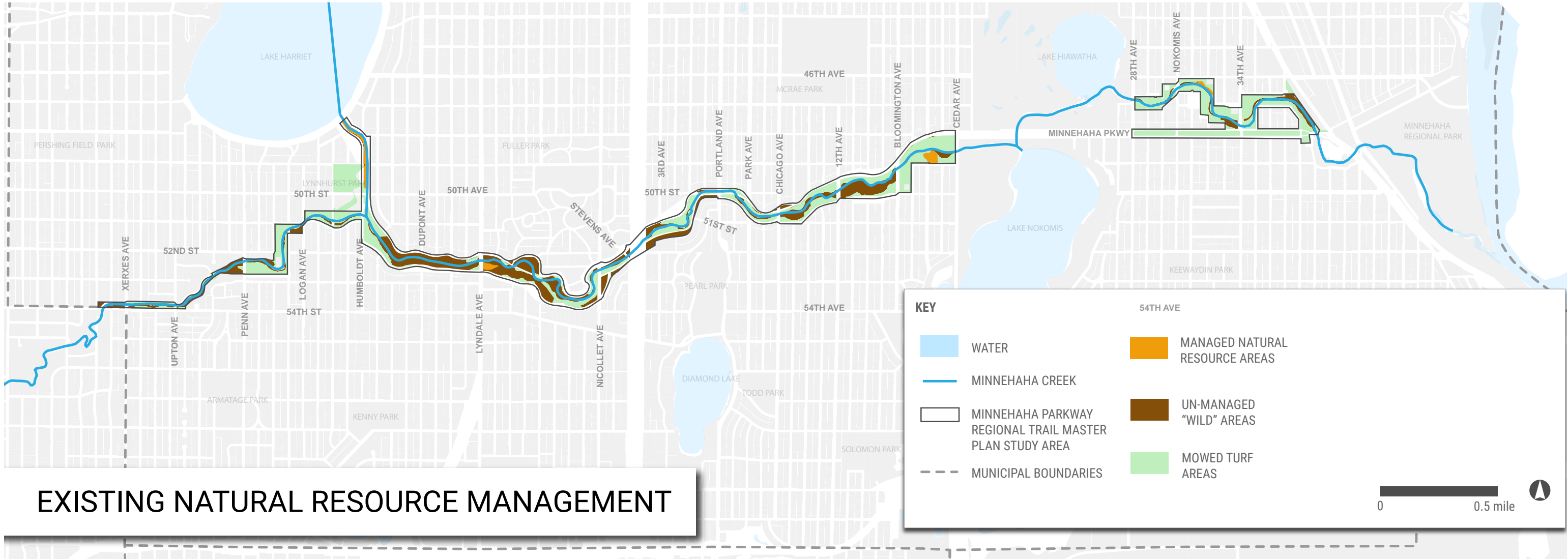


Figure 3.12 Existing Natural Resource Management

CULTURAL AND HISTORICAL RESOURCES

NATIONAL REGISTER OF HISTORIC PLACES (NRHP)

Cultural resources identified within or adjacent to the Minnehaha Parkway Regional Trail include four historic districts and associated contributing and noncontributing properties, ten historic bridges, and one historic house. See Chapter 6 for additional information regarding the historical significance of each resource.

The Minnehaha Parkway Historic District is eligible for listing in the National Register of Historic Places (NRHP). This district includes Minnehaha Creek and the parkland adjacent to it, as well as one property parcel beyond the parkway, between Dupont Avenue South and 31st Avenue South. There are 275 contributing properties and 12 noncontributing properties within the district. The contributing properties are primarily residential and include houses and one church/parsonage that front East and West Minnehaha Parkway. The noncontributing properties include two commercial properties, two parking lots, and eight residential properties that were built after 1961 and are not historically significant to the district.

Minnehaha Creek, the adjacent parkland, and Minnehaha Parkway from Godfrey Parkway to Lake Harriet Parkway are part of the Minnehaha segment of the Grand Rounds Historic District, which is also eligible for listing in the NRHP. This segment also includes Lake Nokomis Park and Lake Hiawatha Park, which are not part of the Minnehaha Parkway Regional Trail project area. Contributing properties within and adjacent to Minnehaha Creek include Minnehaha Parkway, the stone and concrete walls that reinforce the creek’s banks, pedestrian and bicycle paths, nine vehicular bridges, and three pedestrian bridges. Six of these vehicular bridges and one of the pedestrian bridges are also individually significant for their construction and design.

- These bridges are, from east to west,
- » Bridge 93827 at 36th Avenue South;
 - » Bridge 90482/Nokomis Avenue Bridge;
 - » Bridge 90592 at 28th Avenue South (replaced 2019/2020);
 - » Bridge 92322/12th Avenue Bridge;
 - » Bridge L8882 at 50th Street East;
 - » Bridge 9612 at Stevens Avenue South;
 - » Bridge L5730 at Minnehaha Parkway near Harriet Avenue South.

There are seven noncontributing vehicular bridges, which were either built as replacements to original bridges or within the last 50 years. Two of these vehicular bridges are also individually significant for their construction and design: from east to west,

- » Bridge 27547 at Chicago Avenue South; and
- » Bridge 90591 at Nicollet Avenue South.

The Washburn Park Historic District is eligible for listing in the NRHP and encompasses the Washburn Park neighborhood (also known as Tangletown), bounded by 48th and 49th Streets on the north, I-35W on the east, Minnehaha Parkway on the south, and Lyndale Avenue South on the west. There are 573 contributing properties and 5 noncontributing properties within the district. The contributing properties are primarily residential and include houses that front West Minnehaha Parkway, two mixed residential/commercial properties, and one church/school. The noncontributing properties include three commercial properties, two parking lots, and Bridge 90591 at Nicollet Avenue South.

The Minnehaha Historic District is listed in the NRHP and located at the east end of Minnehaha Parkway near Hiawatha Avenue, Minnehaha Drive, and Godfrey Parkway, to the west of the Mississippi River. This district contains the ruins of Godfrey’s Mill, two historic houses, a train depot, and a landscape feature (the Minnehaha Falls and Glen).

Additionally, there are two individual cultural resources that are both eligible for listing in the NRHP; neither is associated with a historic district: Bridge 92324 carries Upton Avenue South across Minnehaha Creek and is significant for its construction and design; and a house at 3 Minnehaha Parkway East that is an early farmhouse in the area.

There are no known archaeological sites or traditional cultural properties. Further information about known historic properties and previous cultural resource investigations can be found in Chapter 6.



Historical image of Luverne Ave Bridge, 1900-1930



Historical image of Minnehaha Creek Trail, 1900-1930



Figure 3.13 Historic Districts along Minnehaha Creek

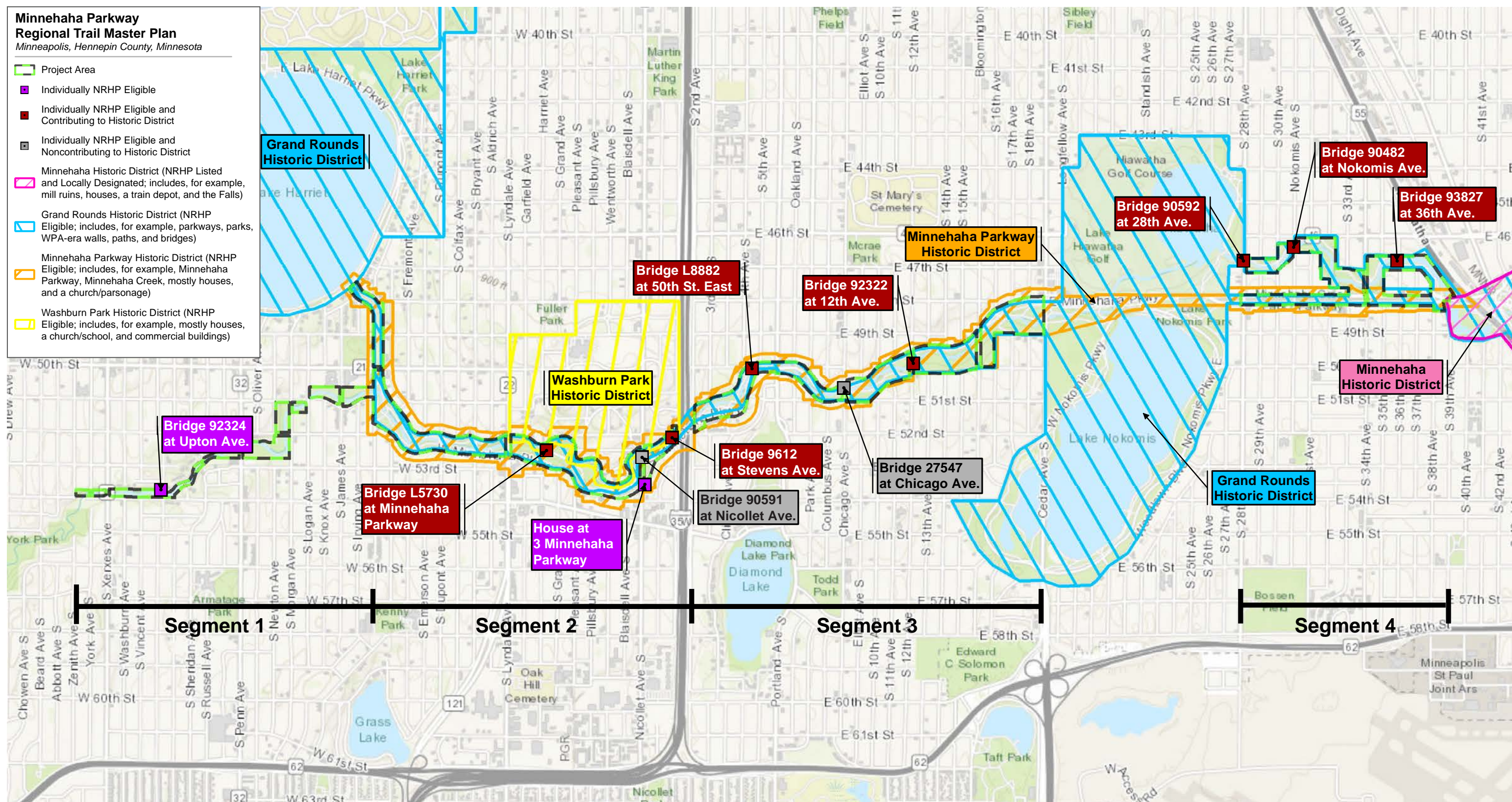


Figure 3.14 Map of Historic Districts, Features, and Bridges



Bridge 93827 - John A. Weeks



Bridge 92329 - John A. Weeks



Bridge 92322 - MnDOT



Bridge 90591 - The Nicollet Avenue Bridge



Bridge 92322 - The 12th Avenue Bridge from above



Bridge 90482 - John A. Weeks



Bridge 90591 - The Nicollet Avenue Bridge is in rough condition, and is in the City's CIP for repair

RECREATION AND ACTIVITIES

Minnehaha Parkway Regional Trail sees more than a million visits per year. Its multitude of paved trails pass through pastoral lawns, beneath shaded canopies of trees, and along flowing water, offering a relaxing route to walk the dog, go for a run, or bike to work. While many visitors use the Parkway for passive recreation, the Parkway does have a few active recreational offerings. Informal ballfields can be found along the Creek near Lynnhurst Park and in Segment 4 near 34th Avenue. Multi-purpose play fields, used for informal sports and games, are located at 49th Street west of Cedar Avenue, at 12th Avenue, and on the south side of the Creek east of Penn Avenue.

Many tennis courts were installed along the Parkway in the latter half of the 20th century, creating one of the largest concentrations of courts in the city. Though tennis is still popular, larger banks of courts have become more preferable, from a maintenance and tournament play standpoint, than single or pairs of courts. In addition, pickleball’s rise in popularity suggests the need for pickleball-specific courts in the Minneapolis system. Most courts in the creek area are in poor repair today.

Paddling or floating is a great way to experience Minnehaha Creek; however, there is only one formal launch within the project area: at 51st Street and Minnehaha Parkway south of Burroughs Elementary. Other nearby creek-connected launches are located just north of Lake Nokomis and on Lake Hiawatha, and just downstream of Segment 4 near 39th Avenue.

In the winter, groups can be found sledding down hills at the Parkway and Newton Avenue, near 51st and Girard, on the south side of the Creek around 49th Street and 16th Avenue, near 50th Street and 14th Avenue, and near 32nd Avenue. Paved trails along Minnehaha Parkway are plowed in the winter, but snowshoeing is possible elsewhere along the Parkway. Ice skaters can be found occasionally along the creek, where low areas flood and freeze over, while Nordic skiers sometimes create their own trails when snowfall is favorable.

There are no formalized play areas within the project area, except at Lynnhurst Park, which is a neighborhood park adjacent to the project area, situated along the Lake Harriet tributary and Minnehaha Creek.

Other amenities along the corridor, like picnic tables along 54th Street near Upton, and near 17th Avenue, or public art like “Cottontail on the Trail” (affectionately referred to as ‘the Bunny’ by locals) set the stage for gathering.

Because Minnehaha Parkway Regional Trail spans the length of south Minneapolis, it is the nearest available park for many residents; and along some stretches, Minnehaha Parkway functions (or residents want it to function) more like a neighborhood park. The neighborhoods to the north and south of Segment 2, in particular, look to Minnehaha Parkway Regional Trail for outdoor recreation and park access. Their closest neighborhood parks, Fuller and Windom South, are among the smallest of Minneapolis’ neighborhood

TYPE	ACTIVITY	EXISTING
Passive	Picnicking	Segments 1 & 3 (table)
	Creek Access	One in Segment 1
	Open Play Lawns	Throughout
	Art	Segment 3 (Bunny)
	Trails	Paved throughout for walking/biking
Active	Sledding	Informal hills
	Ice Skating	Informal locations
	Tennis	Segments 1, 3, & 4
	Informal Ball Fields	Segments 1 & 4
	Play Areas	Segment 1 at Lynnhurst

Table 3-1. Existing Recreation throughout Minnehaha Parkway Regional Trail

parks, with few recreational offerings relative to others. As it is, this section of Minnehaha Parkway Regional Trail (while it has beautiful tree canopy and secluded topography), lacks any formalized recreational amenities other than its trail network. The other three segments each have a few options for activities besides trail use; however, when you compare the amount of recreational amenities adjacent neighborhood parks provide in their relatively small footprints, the corridor has very few offerings. Instead, the land between the Parkways along Minnehaha Creek is almost entirely devoted to a trail network that winds through uncluttered expanses of woodland and lawn.



Paddling Minnehaha Creek



Tributary near Lynnhurst Park playground



Cottontail on the Trail -- Public art at Portland Avenue, artist: Jeffrey Barber, 2002

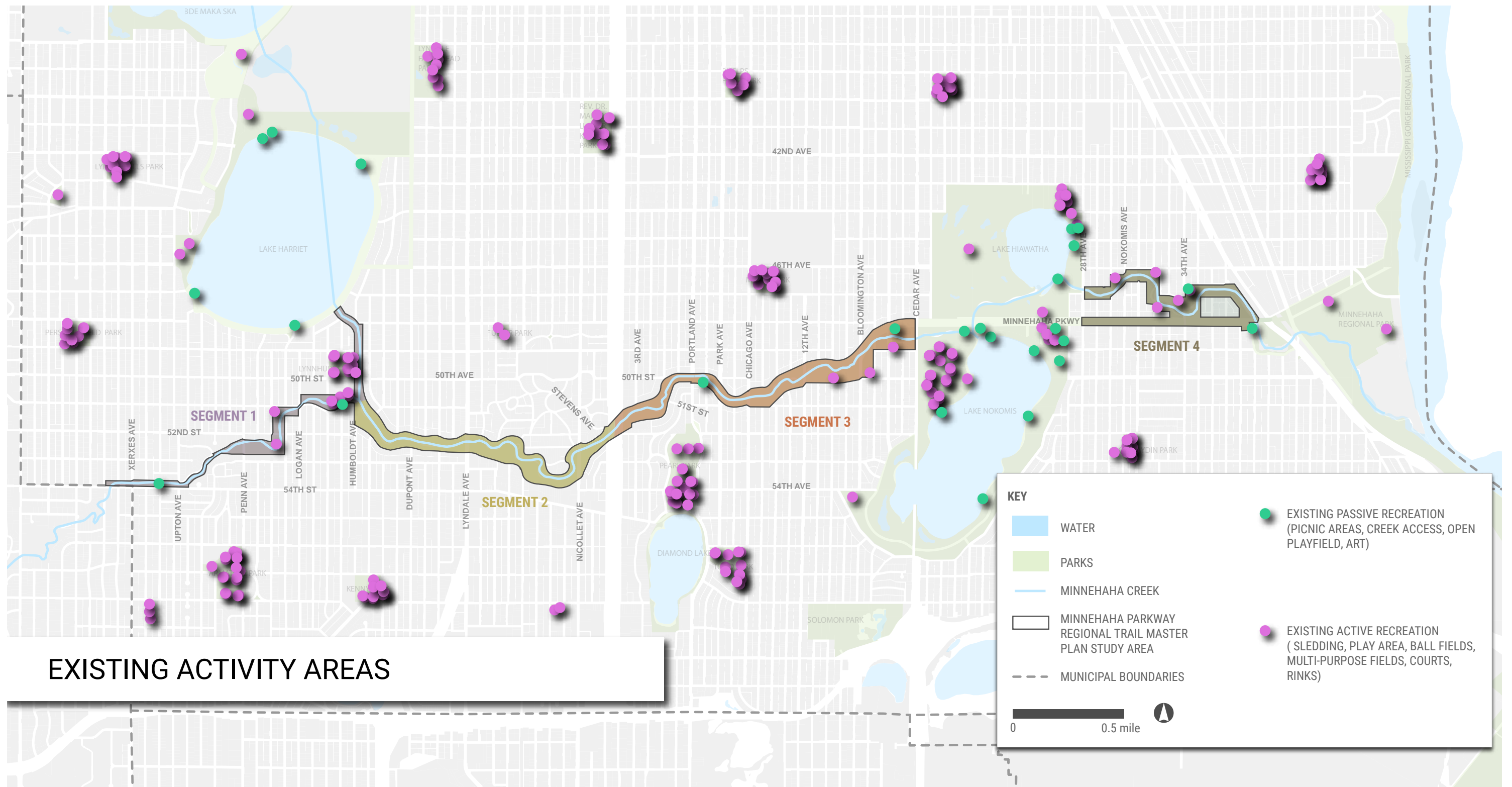


Figure 3.15 Existing Activity Areas within and around the Project Area

Paddle launch along Minnehaha Creek at 51st Street and West Minnehaha Parkway

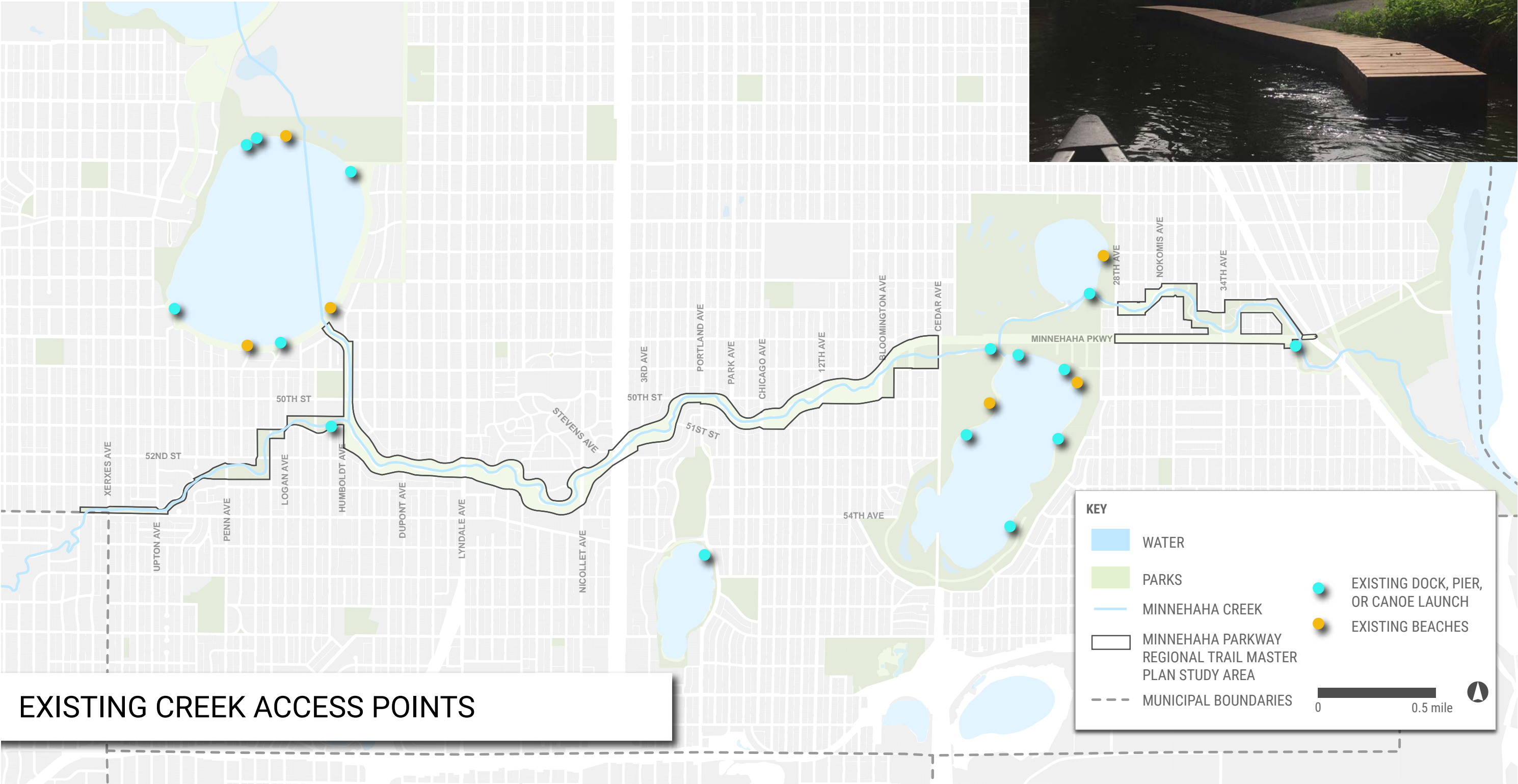


Figure 3.16 Creek Access Points

CONNECTIVITY & ACCESS

Each segment of the project area has a different character. One of the defining factors is the level of connectivity to the fabric of the City. The frequency at which people are exposed to Minnehaha Parkway Regional Trail contributes to their recognition of it as a place to visit, and understanding/ease of available access points contributes to whether or not they perceive it as a place “for them.”

SEGMENT 1

While Lynnhurst and the Penn-Newton-Morgan area are relatively visible, Segment 1, from its border with Edina to Lynnhurst Park, feels secluded and private due to its lack of Parkway or trail infrastructure. Though there are several north-south crossings of the Creek, traveling east-west while trying to maintain a connection to the Creek is confusing. The street network breaks away from the grid here, the neighborhood feels more suburban, and Segment 1 as a result feels disconnected from the rest of the Regional Trail. For able-bodied residents, Segment 1 offers quiet natural surface trails along Minnehaha Creek that give a sense of ownership or privacy. Though these trails were not built and are not maintained by MPRB, they provide an important recreational resource in Segment 1.

The Parkway road and trails along the tributary from Lake Harriet are well-connected to the street grid. This, along with Minnehaha Parkway Regional Trail’s connection to Minneapolis Chain of Lakes Regional Park at Lake Harriet Parkway makes the northerly extension of Segment 1 a prominent entry point for visitors. A recently constructed high-visibility crosswalk at this intersection endeavors to mark it a safe and easily recognizable connection.

SEGMENT 2

Segment 2 is fully enclosed by Minnehaha Parkway roads, which lends legibility to this section of parkland. Topography is more varied here than in any other segment, and there are some areas where the Creek runs through what feels like a wooded ravine or gorge. The trail network feels distinct from the surrounding City because, in many places, topography and dense vegetation visually separate it from the adjacent roads and homes. Only a few north-south roads bisect this Segment, and all do so via bridge, which creates a continuous east-west route for trail users passing through Segment 2. The conditions that make this grade separation possible lead to situations, like at Nicollet Avenue, where the Parkway splits and an upper road provides vehicles access to the intersection, while the lower road continues beneath an underpass. These routes offer convenient motorized access for neighborhood residents, but are otherwise duplicative in function, and contribute to a large quantity of excess impervious surface. Many of the residential north-south streets end at the Parkway and trails maintain non-motorized access across the Creek via pedestrian bridges.

Neighborhood entrances to the trail network are at-grade in some areas, like near Lynnhurst, but require stairways in others, like at Dupont or Nicollet. At Lyndale, long ramping stretches of trail or boardwalk provide access to the lower trail network from the intersection.

SEGMENT 3

In Segment 3, the winding route of Minnehaha Creek and the placement of surrounding parkland, including Pearl Park, Diamond Lake, Lake Hiawatha, and Lake Nokomis, combine to restrict the east-west continuity of the surrounding street grid. This condition requires Minnehaha Parkway’s roads to function as a necessary commuter route for motorized users traveling across the City. For this reason, and because topography here flattens out, there are half a dozen locations where trail users are forced to cross roadways. The resulting interruption of pedestrian and bicycle travel makes the trail network here feel disjointed and less safe than in other segments; however, it does provide ample opportunities for at-grade neighborhood access to Minnehaha Parkway Regional Trail.

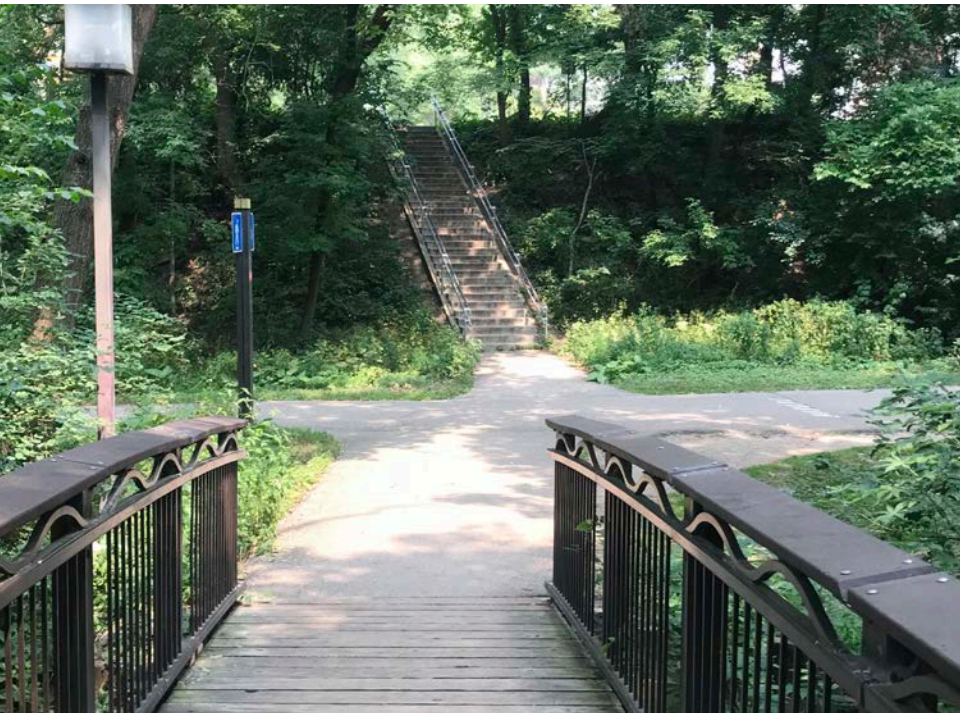
The area in Segment 3 between I-35W and Chicago Avenue is fairly constrained between the Parkway Road, especially in areas near Portland Avenue where there are duplicate Parkway Roads to the north and south. East of Chicago Avenue, there is more space, especially on the south side of the Creek, with some informal surface trail connections and openings. The topography change from the Creek to E 50th Street in this area is drastic, with areas of dense canopy cover and openings, providing opportunity for quiet exploration of wooded areas and potential for interesting future bike trails.

SEGMENT 4

Segment 4 picks up east of Nokomis-Hiawatha Regional Park, where Minnehaha Parkway and the trail network were planned as part of the Nokomis-Hiawatha Master Plan (2015). Minnehaha Parkway in Segment 4 is south of Minnehaha Creek, and is separate from the Regional Trail. Many of the local north-south roads through Segment 4 do not cross the Creek, allowing the trail network to continue uninterrupted, similar to Segment 2. There are currently three locations where the trails cross intersections. Recently, the trail crossing at 28th Avenue was converted to a grade-separated crossing (underpass). Half a dozen pedestrian bridges cross the Creek in Segment 4, connecting trails and residential areas and providing convenient access to the Regional Trail. Thick vegetation between Minnehaha Parkway’s roads and the Creek often obscure views of the trails and water, which can make portions of Segment 4 feel disconnected to other areas. The entrance onto Minnehaha Parkway Regional Trail coming west from Longfellow Gardens lacks definition, and could be made more legible, as this is a key connection between Nokomis-Hiawatha Regional Park and Minnehaha Regional Park.



At-grade trail crossing at the Minnehaha Parkway and Cedar Avenue intersection



Typical neighborhood access in Segment 2 - Source: John A. Weeks

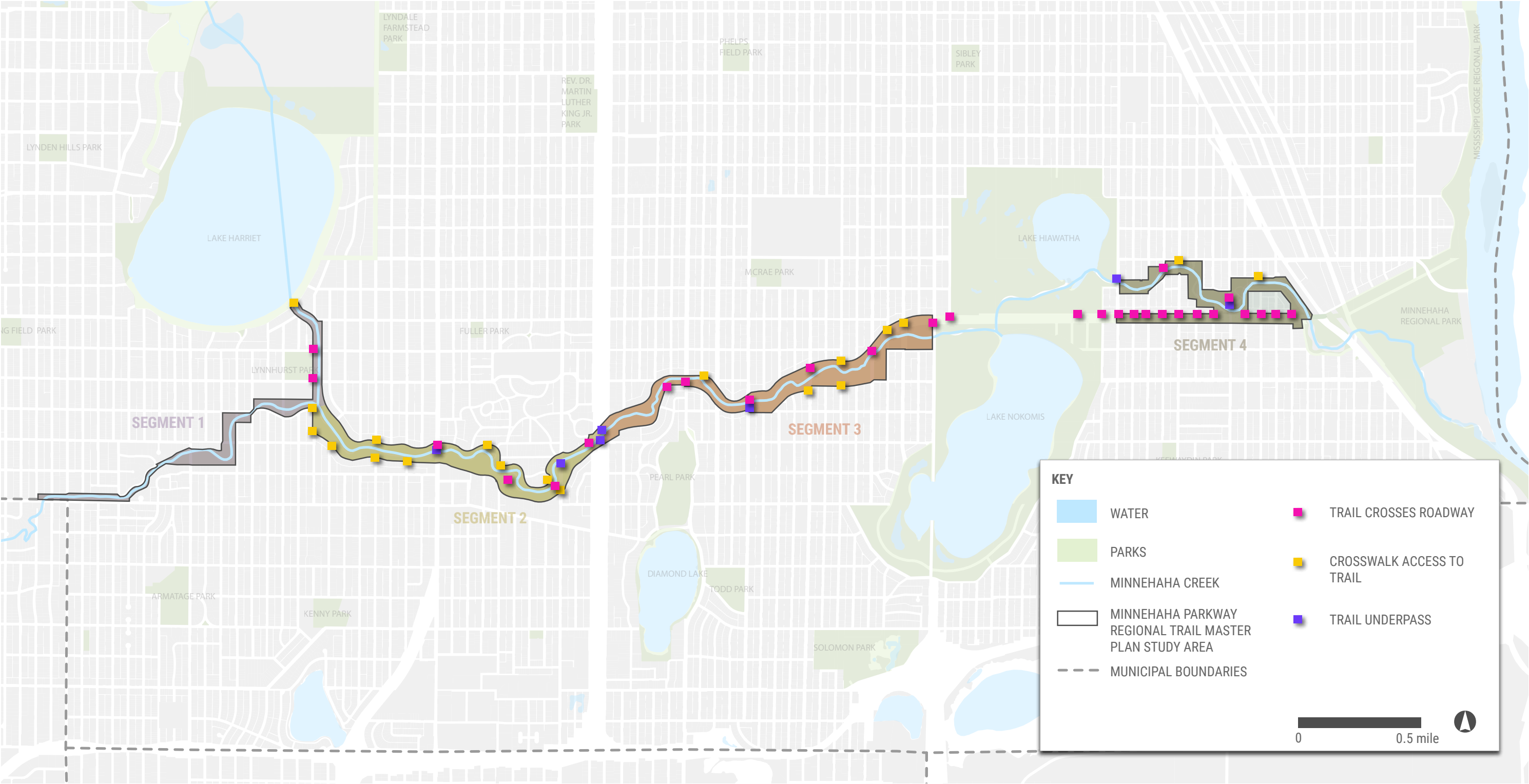


Figure 3.17 Trail Access Points and Intersections

3-24 MINNEHAHA PARKWAY REGIONAL TRAIL MASTER PLAN

NOVEMBER 2020

THE BRIDGES OF MINNEHAHA CREEK

Minnehaha Creek’s winding course across Minneapolis necessitates a multitude of bridges. With dozens of crossings no more than a quarter mile apart, bridges have a significant presence along Minnehaha Parkway Regional Trail. They allow people to experience the corridor from multiple levels: long views of sparkling water framed by greenery; dark, cool underpasses echoing with rumbling traffic from above; cobwebbed ribs of the underside of bridges mere inches from your nose as you glide down the creek. Whatever mode of travel you choose, you will interact with bridges along the way.

Typical clearance beneath one of Minnehaha Creek’s bridges

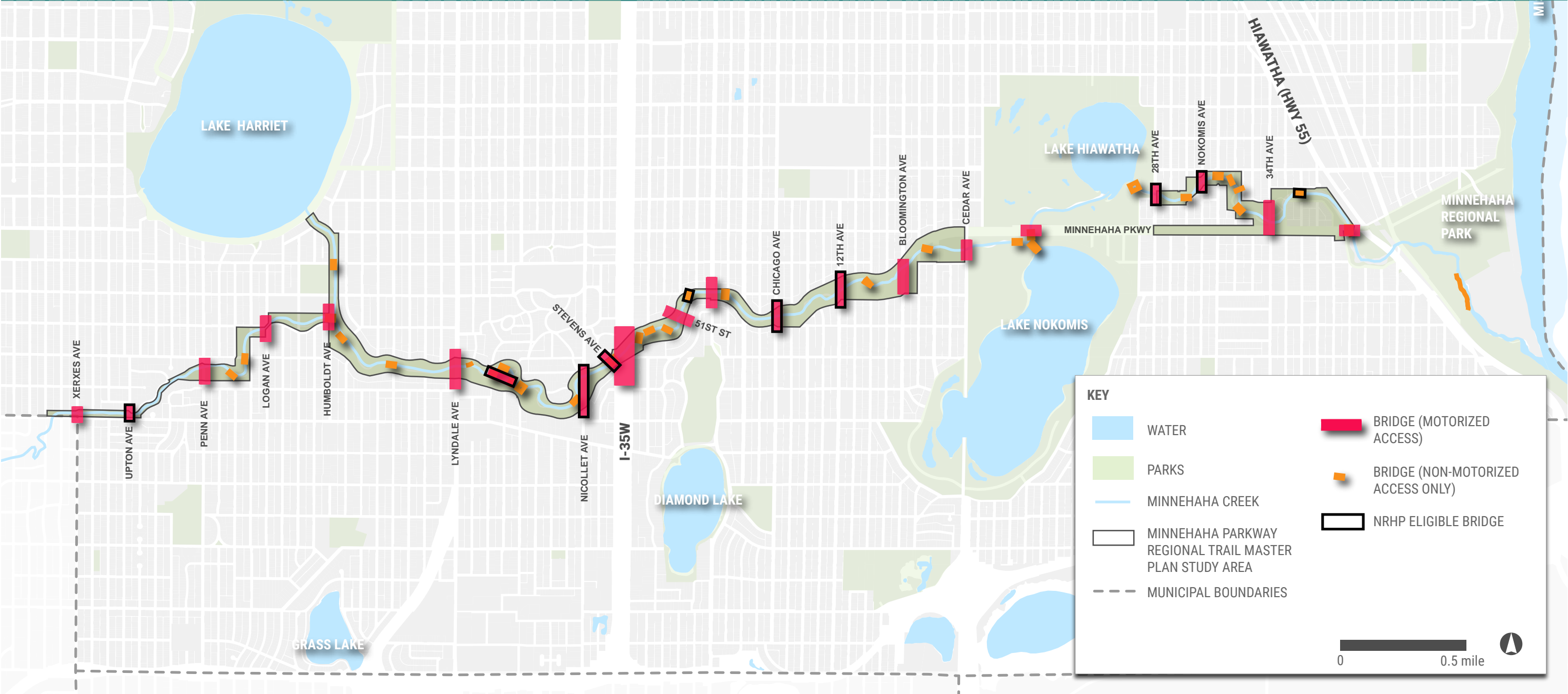


Figure 3.18 Bridges and Crossings of Minnehaha Creek

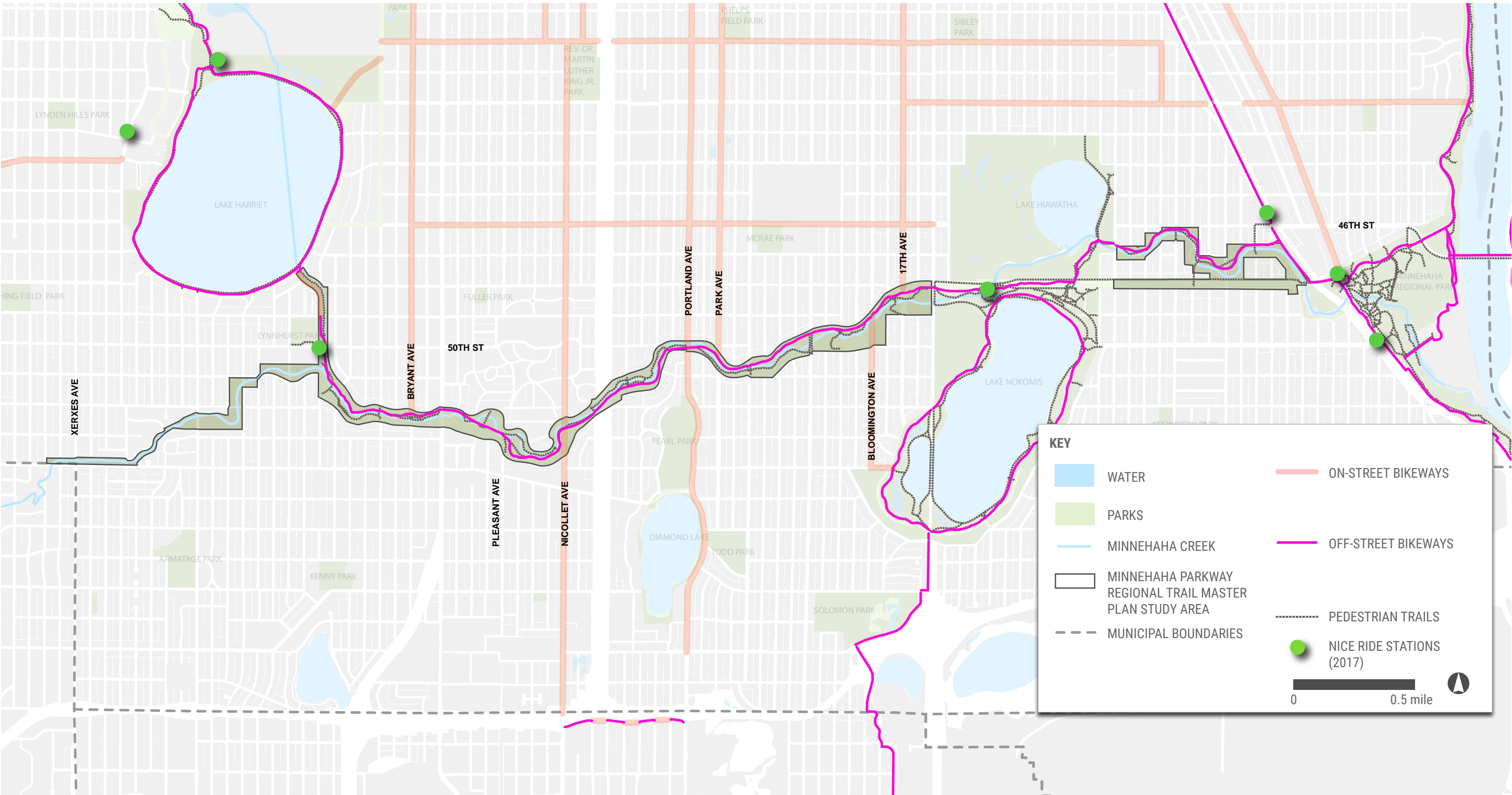


Figure 3.19 Existing Bikeways and Pedestrian Trails

MODES AND USERS

As a cross-town route, Minnehaha Parkway Regional Trail intersects with just about every type of travel mode and user. The trails serve bikers, runners, dog walkers, people pushing strollers, and many other users of non-motorized means of transportation. The Parkway roads are an attractive route for cyclists and vehicles traveling east or west across south Minneapolis. Both bus and light rail transit options provide connections to Minnehaha Parkway Regional Trail. Minnehaha Creek is used as a recreational water trail by paddlers and tubers. At the time of writing, MPRB does not yet have a policy on micro-mobility options like electric scooters on Parkway trails.

BIKEWAYS

Minnehaha Parkway Regional Trail includes an off-street bikeway through Segments 2, 3, and 4. Where space and grade allow, it is separated from pedestrian trails, although it is combined along some stretches. Segment 1 contains bikeways through the Lynnhurst Park area, as well as an on-street bikeway to the north, connecting towards Lake Harriet.

Cyclists can reach Minnehaha Parkway Regional Trail on many of the City of Minneapolis’ on-street bikeways, including those at:

- » Bryant Avenue
- » Nicollet Avenue
- » Park Avenue
- » Portland Avenue
- » Bloomington Avenue
- » 17th Avenue

Off-street trail connections include:

- » Minneapolis Chain of Lakes Regional Park trails
- » Nokomis-Hiawatha Regional Park trails
- » The Hiawatha LRT Trail
- » Minnehaha Regional Park trails



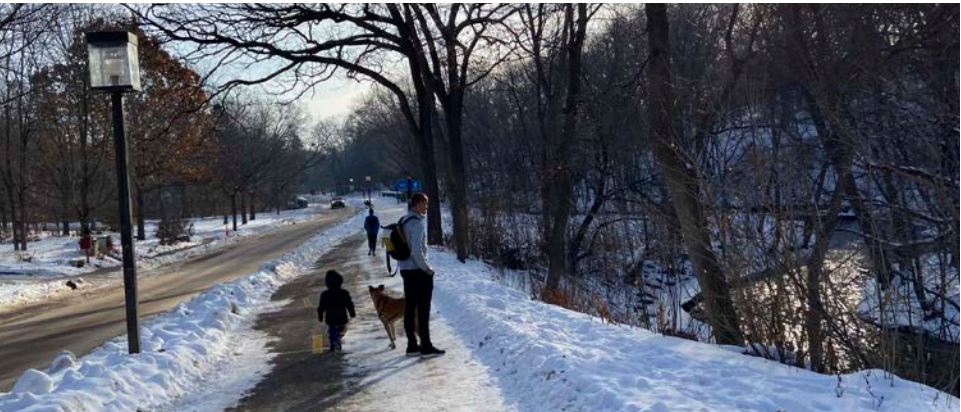
On-street Bikeway along the tributary south of Lake Harriet



Typical mode-separated off-street trails along Minnehaha Parkway Regional Trail



Paddlers on Minnehaha Creek



Plowed trails remain a popular place to recreate in the winter



Dog walkers are common along the Regional Trail

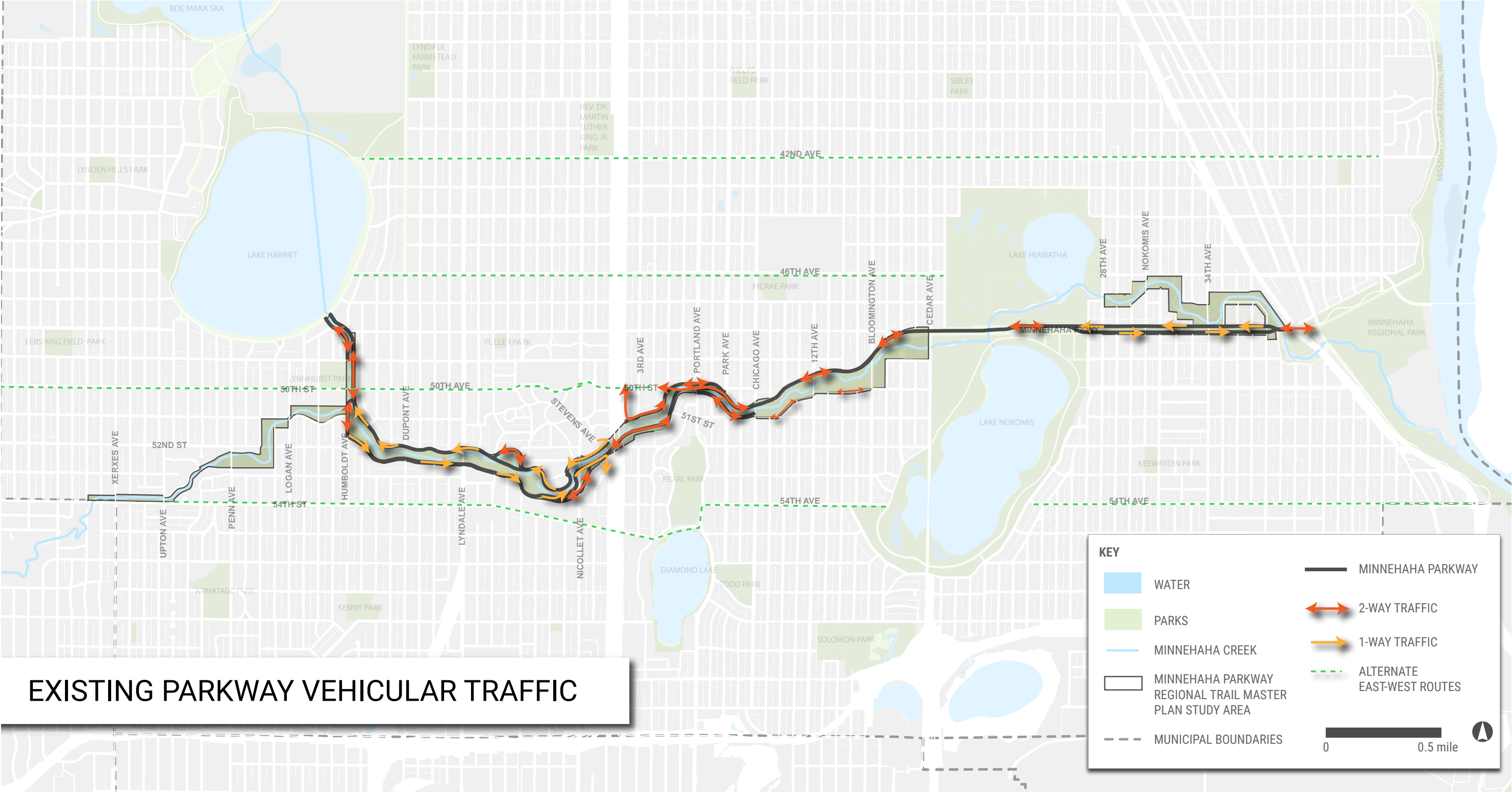


Figure 3.20 Existing Parkway Vehicular Traffic

THE PARKWAY ROADS

Originally designed for pleasure driving, Minnehaha Parkway offers a winding, tree-lined passage across the City that makes an attractive alternative to busier roadways. Lanes are 12’ in width, and 8’-wide parking bays are available intermittently. Parkway road sections are typically narrower than what is recommended for contemporary roads, but their explicit purpose is not to efficiently move traffic, as other roadways are designed to do. Parkway vehicles are subject to a 25-mile per hour speed limit, and trucks and other overweight vehicles are prohibited from using Parkway roads except by permit. Speed limits and tonnage restrictions are intended to maintain a tranquil driving experience and deter commuter traffic; however, Minnehaha Parkway is situated such that it offers the only direct crossing of Nokomis-Hiawatha Regional Park, which makes its eastern half a busy commuter route nonetheless.

Traffic on Minnehaha Parkway includes both two-way and one-way streets, which can be confusing for unfamiliar drivers. Segment 1’s only stretch of Parkway is a two-way road between Lake Harriet and Lynnhurst Park. Segment 2 has one-way Parkway roads framing Minnehaha Creek for almost its entire length, with the exception of a two-way section south of Lynnhurst Recreation Center and two two-way spurs that offer additional neighborhood connectivity. Segment 3’s Parkway roads host entirely two-way traffic on both sides of the Creek, while Segment 4 reverts back to one-way roads that frame a large central median until converging into a two-way road to cross Hwy 55.

In addition to carrying motorized vehicles, Minnehaha Parkway also sees significant use by cyclists, who prefer to use the roadway rather than the multi-use trails for safety reasons due to their speed. Cyclists using Parkway roads are subject to the same traffic laws and rights as motorized vehicles.



Eastern entrance (by vehicle) to Minnehaha Parkway



Red granite chip pavement: signature of MPRB parkways



A cyclist attempting to turn left onto Minnehaha Parkway



Minnehaha Parkway's typical two-way section with parking bays

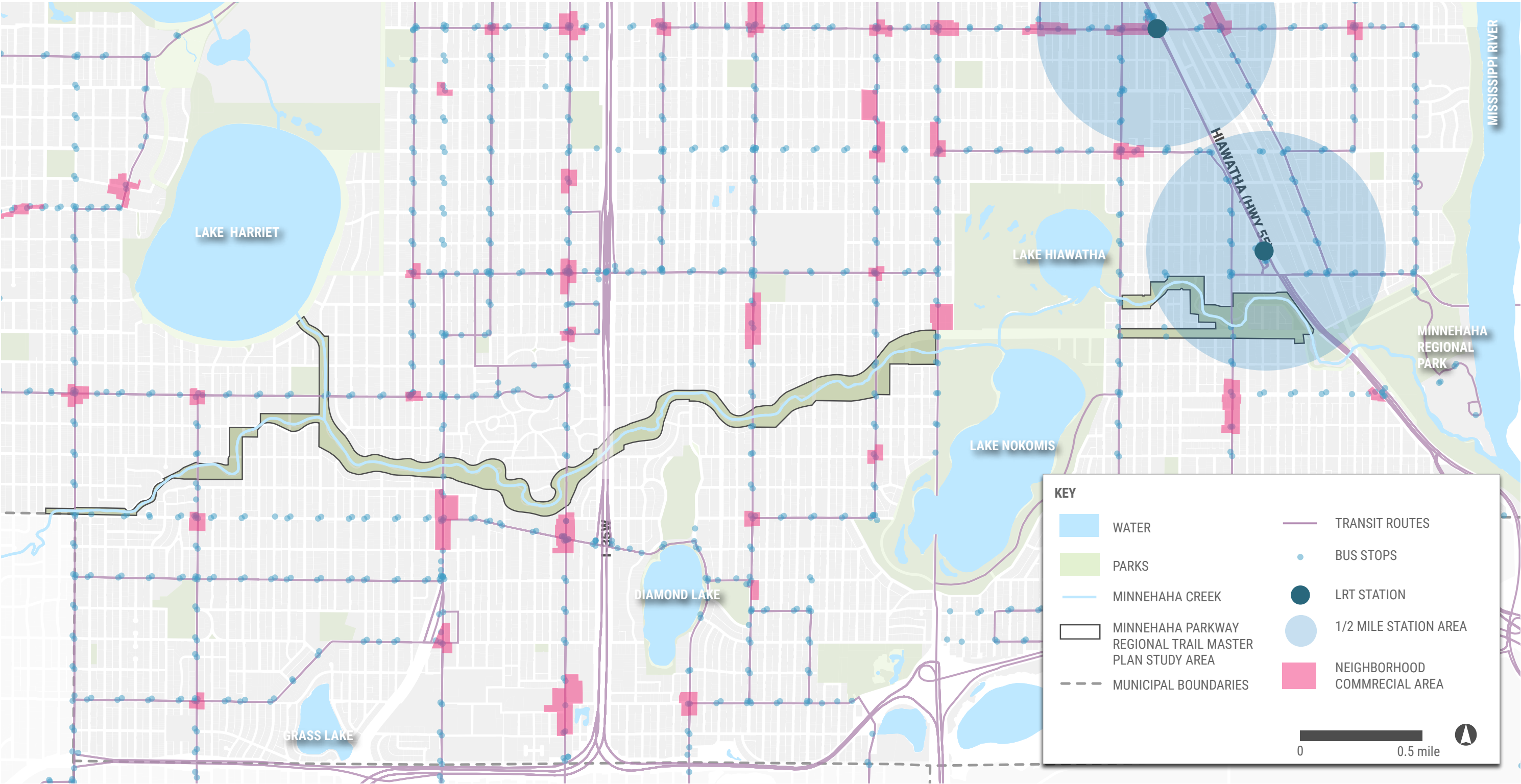


Figure 3.21 Transit Access and Neighborhood Commercial Areas

TRANSIT

Transit riders coming from the north or south are able to access Minnehaha Parkway Regional Trail at roughly half-mile intervals along the corridor, with bus stops located within a block of the Parkway. East-west bus connections are available at 50th and 54th Street in Segment 1, along Diamond Lake Road in Segment 2, and at 46th Street a block north of Segment 4. The LRT Blue Line travels along Hwy 55 and the 46th Street Station is a three-block walk from Minnehaha Parkway Regional Trail.

SAFETY

Safety for trail users is an imperative. Uncontrolled intersections, where vehicles are not required to stop at stop signs or traffic lights, can pose as a barrier for trail users. Crosswalk markings, signage, and sometimes flashing lights indicate where trail users have the right-of-way, but for families with children walking or biking together, intersections like this present a concern. There are a number of intersections that require trail users to trust that vehicles will see them and yield right of way.

Busy intersections like those around 50th and Portland are cited by residents and trail users as a particularly concerning, as drivers are often in a hurry to make a turning movement and do not stop ahead of a trail crossing, or fail to take the time to look for trail users.

Bridges create another set of concerns for trail users. Trail underpasses can be dark and difficult to see around, making trail users wary, especially in the mornings and evenings when there are fewer people on the trail and the skies are dark. Lighting helps to make underpasses and dark stretches of trail



This three-way intersection between 50th St. and Portland is cause for conflicts between vehicles, pedestrians, and bicyclists

feel more secure. However, while the Parkway Road has pedestrian-scaled street lights, illumination of the trail drops off where the trail diverges from the roadway. Existing light fixtures have been installed and replaced over time, and represent a variety of styles and lighting qualities. Some employ fluorescent bulbs, others are newer LED fixtures.

COMFORT AND TRAIL AMENITIES

Items along the trail like benches, restrooms, drinking water, trash receptacles, and shelter all help make a visit to the Regional Trail more comfortable, while wayfinding helps users track where they are, how to get where they're headed, and what's available to them. Visitors have a wide range of needs, and Minnesota weather can be unpredictable, which makes having places to rest, shelter, or recharge important.

Benches exist sporadically throughout the corridor, but do not follow a standard interval, which could be helpful for older, younger, or less fit trail users who enjoy being outside but would like places for the occasional break. Fortunately, there is plenty of shade to be had, so finding a spot to escape the sun is an easy task. Waste receptacles exist at some intersections and at

parks that intersect the corridor, but are not widely dispersed, and do not have options for recycling or compost.

Wayfinding and signage is most robust along the trails, where standard MPRB signage indicates bike and pedestrian routes and traffic rules. Grand Rounds Scenic Byway wayfinding posts and information kiosks exist along the way, but no other layer of wayfinding exists to point people toward destinations like neighborhood commercial districts or city-wide bikeway connections.

Minnehaha Parkway Regional Trail does not have any picnic shelters available within the project area. Those looking to take shelter from inclement weather usually do so beneath one of the many bridges along the corridor. Restrooms and drinking fountains are available at Lynnhurst Park and Nokomis-Hiawatha Regional Park, which are more than 3.5 miles apart. Drinking fountains used to be available on the south side of Lake Harriet and at the intersection of Portland Avenue with Minnehaha Parkway, but these pumps were removed from service due to health concerns.

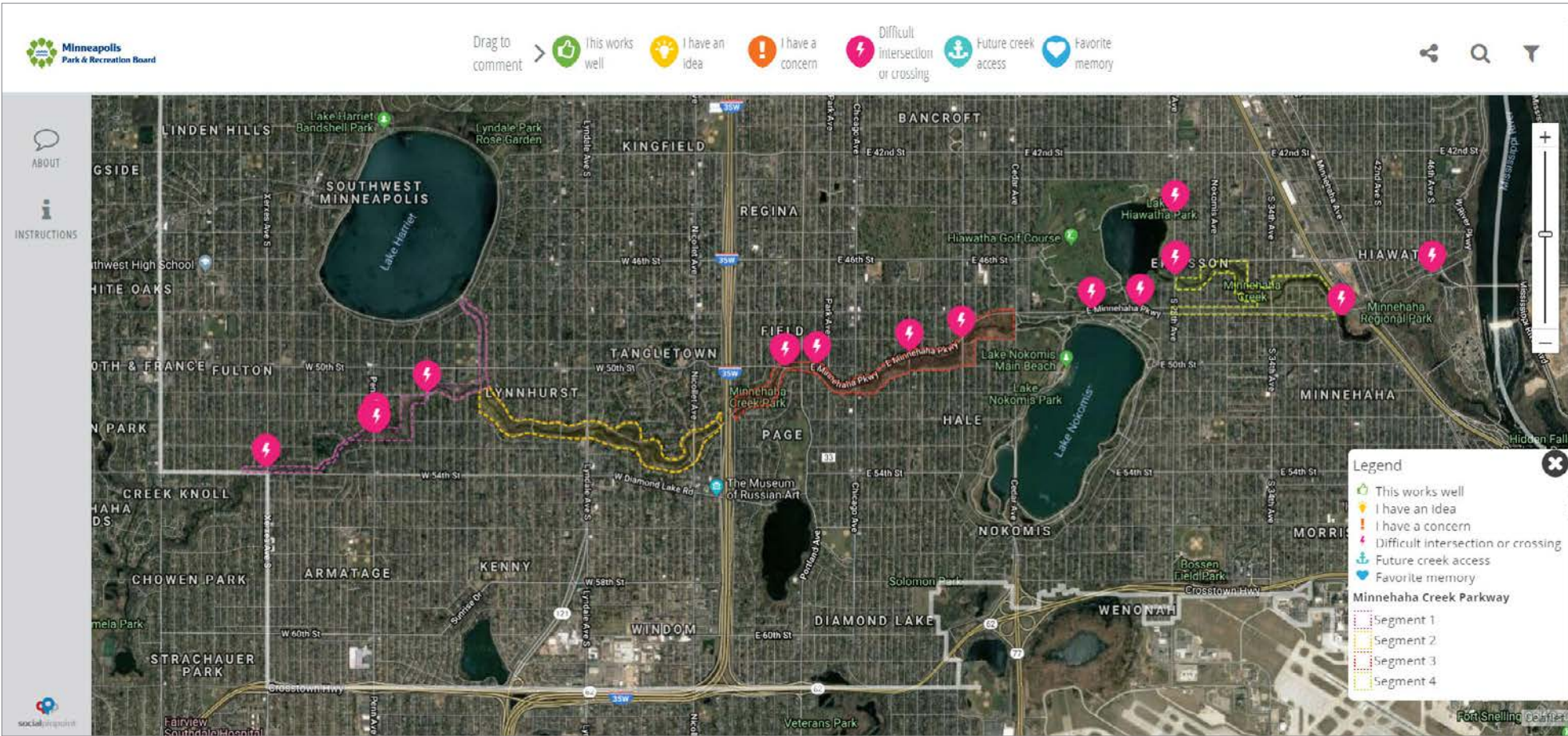


Figure 3.22 Screenshot of “Difficult intersections” identified on Social Pinpoint

PUBLIC ART AND INTERPRETATION

“Cottontail on the Trail” by Jeffrey Barber, or “The Bunny,” as it’s colloquially known throughout the neighborhood, is probably Minnehaha Parkway Regional Trail’s best known piece of artwork. Resting near Portland Avenue, the large bronze sculpture often has children climbing on it. The sculpture is a beloved attraction, and is sometimes adorned with whimsical decorations by locals. The landmark has become a popular rest area along the trail with drinking water access. However, the well-fed hand-pump drinking fountain was closed for health reasons.

In addition to public art, other interpretive features can be found occasionally throughout the corridor. Boulders and plaques hold up well, but interpretive panels tend to appear dated and worn.



“Cottontail on the Trail” sculpture near Portland Avenue

NEEDS ASSESSMENT AND DEMAND FORECAST

According to a November 2019 Metropolitan Council Regional Forecast, the population of the seven-county metro is projected to increase by approximately 15% between 2020 and 2040. In 2017, Minnehaha Parkway Regional Trail was estimated to have had more than 1.3 million visits annually, based on the Metropolitan Council’s annual use estimates. If the population of the seven-county metro increases as projected and park usage rates remain the same, Minnehaha Parkway Regional Trail could see an additional 232,335 visitors each year by 2040.

INCREASED DEMAND AND CHANGING USER NEEDS

By 2040, 1 in 5 Minneapolis residents will be 65+ years old, making this cohort the fastest growing segment of society. Older adults tend to have more free time than other segments of the population, but face health challenges at greater rates, making passive outdoor recreation an important offering. Trail use is a low-impact activity that has positive impacts on health and wellbeing. Additionally, the connectivity provided by a cross-city trail network like Minnehaha Parkway Regional Trail offers a safe and convenient way to travel for those who cannot or choose not to operate a motor vehicle. In order to accommodate an aging user population, providing additional trail amenities like restrooms, seating, wayfinding, shelters, and drinking fountains at reliable intervals would help ensure a comfortable experience. Designated loop trail routes with wayfinding that identifies distances and rest areas would make it easier to design trips that cater to different ability levels.

By 2040, 40% of residents in the Twin Cities metro area will be people of color, up from 24% in 2010. Lower rates of nature-based park usage among non-white populations is a concern. Overcoming a lack of awareness of the park system and its regional offerings (especially in places like south Minneapolis where restrictive covenants have specifically disenfranchised populations of color) and addressing perceptions about the safety of wild-feeling natural corridors like Minnehaha Parkway Regional Trail will both be important if this valuable amenity is to continue to be enjoyed by a changing future population.

VISITS TO ALL MPRB REGIONAL PARKS AND TRAILS

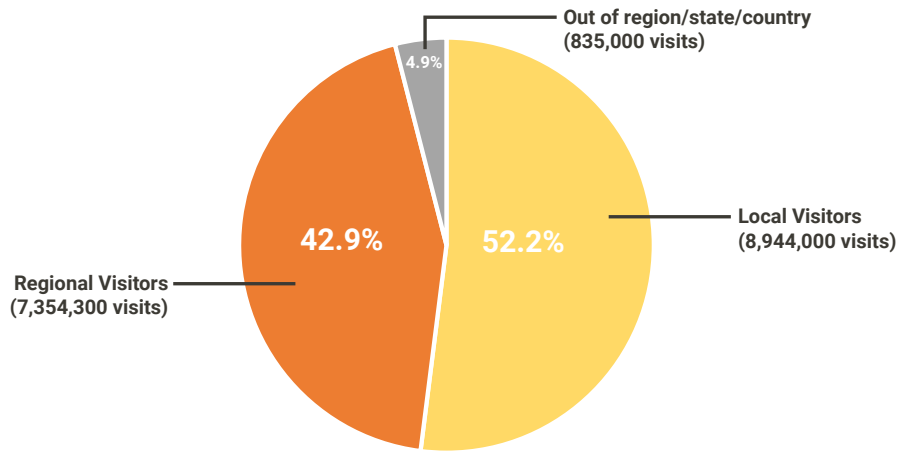


Figure 3.23 Visit Estimates of all MPRB Parks and Trails (2016)

Households are projected to increase in size by 2040, as a result of rising housing costs and multi-generational cohabitation. Reductions in available personal space make access to the outdoors a desirable amenity. When members of a household recreate together, first-come first-served picnic areas and shelters with nearby amenities help accommodate family gatherings. Larger picnic grounds with convenient parking and transit access are a great way to welcome new visitors into the regional park system, create space for heritage and holiday celebrations, and increase awareness of formerly unfamiliar parks and trails so that people are comfortable visiting on their own in the future.