



Chapter 5

# MASTER PLAN

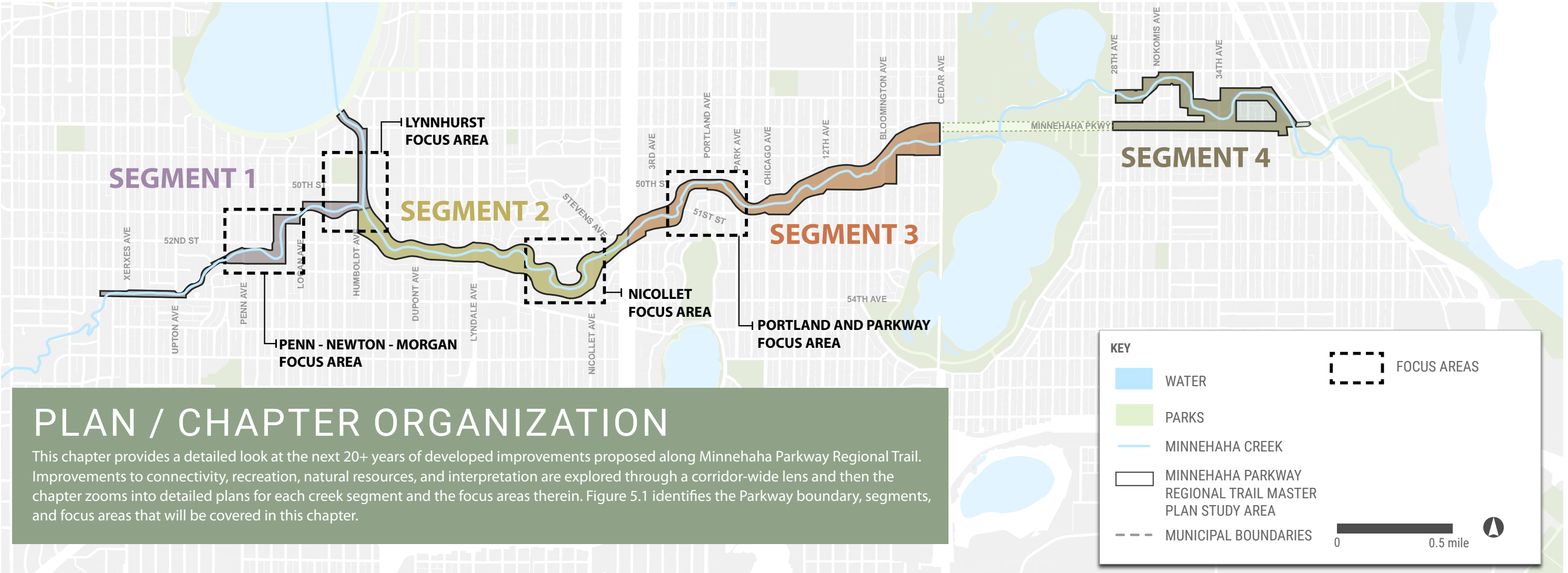


Figure 5.1 Diagram of Segments and Focus Areas

# VISION

**THE VISION FOR MINNEHAHA PARKWAY REGIONAL TRAIL WAS CREATED THROUGH INPUT RECEIVED FROM THE COMMUNITY ADVISORY COMMITTEE (CAC) AND FEEDBACK GATHERED THROUGH COMMUNITY ENGAGEMENT.**

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## MINNEHAHA PARKWAY REGIONAL TRAIL:

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- **Seeks to restore the ecological function of the creek corridor for improved wildlife habitat, flood resilience, and water quality**
- **Provides safe routes and entries to and within the corridor**
- **Thoughtfully incorporates recreational opportunities that complement nearby parks and provide increased interaction with Minnehaha Creek**
- **Enhances the corridor's function as a natural oasis and wildlife habitat**
- **Supports region-wide and local users of all ages, abilities, incomes, national origins, and racial/cultural/ethnic backgrounds**
- **Acknowledges the Creek's history while celebrating its unifying ability through interpretation, art, and programming**
- **Balances the needs of Minnehaha Creek, visitors, and nearby residents**
- **Promotes continued agency collaboration, particularly with water management**



# CORRIDOR-WIDE PLANS

## CONNECTIVITY

### CONNECTIVITY-RELATED GUIDING PRINCIPLES

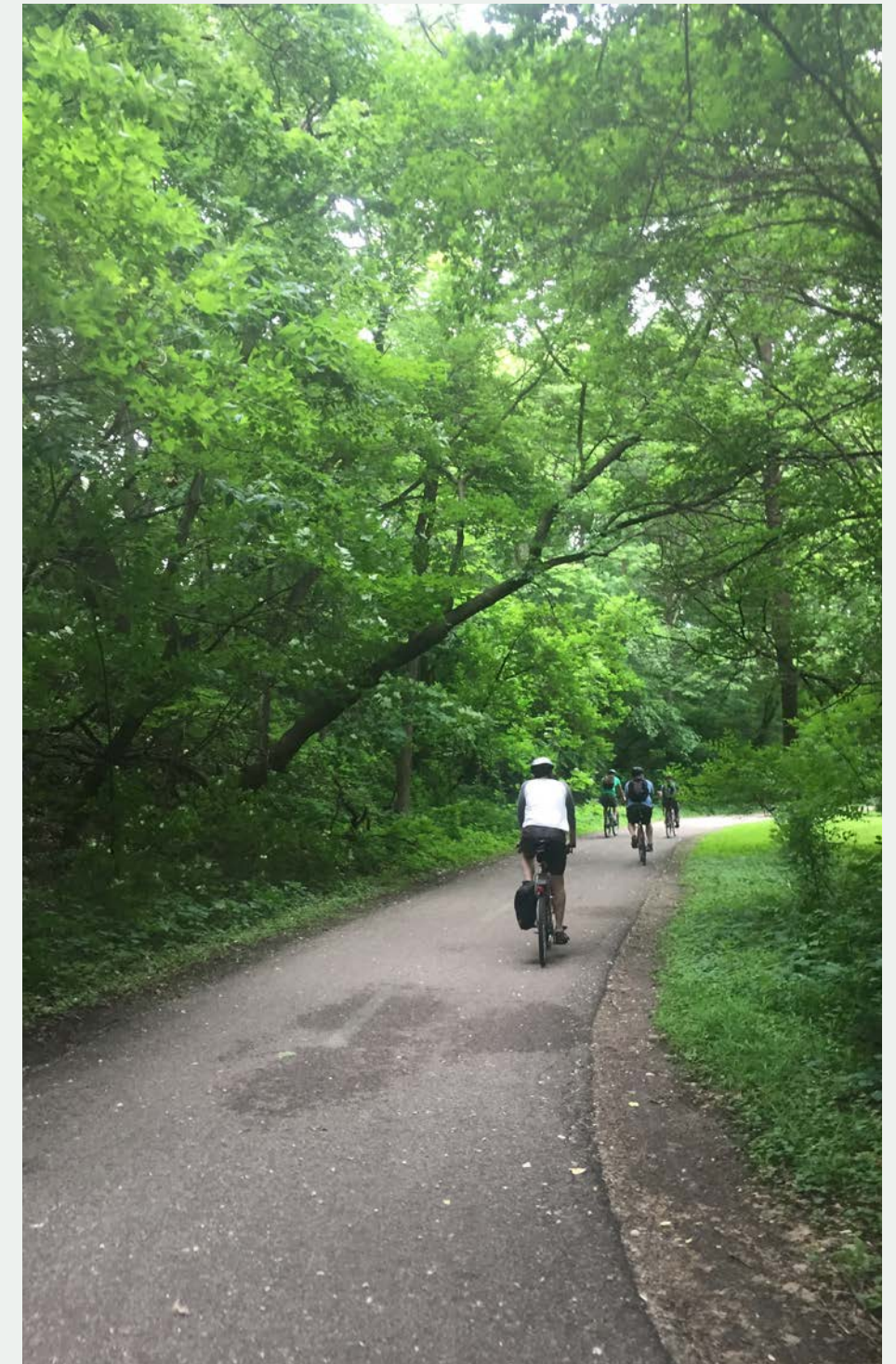
- C1. Separate bike and pedestrian trails wherever it is spatially possible to do so. If space or topography is limiting and modes are combined (including at intersection crossings), provide clear striping to separate different users.
- C2. Provide a continuous, consistent, and predictable trail experience.
- C3. Avoid at-grade roadway crossings by utilizing trail underpasses or other means of separation wherever topography and water table allows.
- C4. Create alternative bike and pedestrian trails of similar quality at higher elevations in areas that are prone to frequent flooding.
- C5. Provide an immersive urban nature trail experience for both pedestrians and bicyclists.
- C6. Maintain continuous vehicular circulation along Minnehaha Parkway while prioritizing bike and pedestrian safety by improving at-grade intersections.
- C7. Ensure clear, convenient access from adjacent transit stops to the Minnehaha Parkway trail network.
- C8. Enhance the public's ability to recreate in the Creek, especially paddling and tubing the length of the Creek in Minneapolis.



*Intersection crossings should be separated by mode, and queueing areas should be expanded to adequately maintain separation while accommodating all users.*



*Trails should be separated by mode where possible, or clearly marked by mode and widened where they must remain combined.*



*Minnehaha Parkway Regional Trail should provide an immersive urban nature trail experience for both pedestrians and bicyclists.*



ACCESSIBILITY TOPICS AND RECOMMENDATIONS

The number of people who have a disability is constantly in flux, for it’s the one population segment that someone can join at any time. But accessibility is not just about meeting the requirements of the Americans with Disabilities Act (ADA). A person born with a condition that impairs their mobility, someone with arthritis, a woman 8-months pregnant, a dog walker, a double-stroller wielding parent, and a septuagenarian all have different needs when using parks and trails. Considering only a traditionally fit and able person when designing the regional trail is very limiting. For this reason, it is important to provide ADA accessible routes, amenities, and features that allow all people to feel welcome, safe, and comfortable accessing and using Minnehaha Parkway Regional Trail.

TRAIL STANDARDS

The Minnehaha Parkway Regional Trail Master Plan provides an ADA-accessible trail throughout the length of Segments 2, 3, and 4. ADA-accessible paved trails are proposed in Segment 1 between Morgan Avenue and Lynnhurst Park, where they do not currently exist. At Penn Avenue in Segment 1, overlooks are proposed on the bridge in order to offer a safe and convenient place to take in the beautiful views up and down Minnehaha Creek. Stairways on either side signal to trail users that these access points lead to non-ADA-accessible trails. These, and other facets of the master plan illustrate the following recommendations related to accessibility and trail standards:

- Accessibility | a.** Provide alternative ways to experience the Creek corridor in areas where only natural surface trails exist or where trails cannot be made universally accessible.
- Accessibility | b.** Employ design cues to clearly mark all transitions to non-accessible trails.
- Accessibility | c.** Include information on trail maps and signage about trail slope and surface, as well as alternate accessible routes, loops, entrances, and exits.
- Accessibility | d.** As intersections get safety upgrades, adjust crossings to be more accommodating of all users through proper alignment of curb ramps, adequate landing areas, and tactile warning strips for wheelchair users and the visually impaired.
- Accessibility | e.** Locate pedestrian signal buttons so that they are reachable by wheelchair users, no higher than 42” from the ground.

SEATING INTERVALS

Providing well-designed seating at predictable intervals can encourage people of any age or ability level to feel comfortable getting out on the trails.

**Accessibility | f.** As individual projects get underway, assess seating and provide additional benches to fill in gaps in availability.

**Accessibility | g.** Locate seating near activity areas, at overlooks and vistas, and at no greater than 1/4-mile intervals.

**Accessibility | h.** Ensure that benches have back support and armrests to help users rise from a seated position.

DRINKING WATER

Drinking fountains are an amenity greatly appreciated by runners and cyclists; both groups are avid users of Minnehaha Parkway Regional Trail. New drinking fountains are proposed at Nicollet Hollow, the Bloomington Activity Node, and at “Cottontail on the Trail” near Portland Avenue to replace the former water pump.

**Accessibility | i.** As master plan projects enter the design phase, assess the possibility of additional hookups for drinking fountains.

RESTROOMS

Access to restrooms becomes more essential during certain life stages, and being uncertain about their availability along a trail is enough to prevent large segments of the population from being able to get out and enjoy the park. Having well-maintained restrooms available along trails makes a difference for pregnant women, families with little kids, and many older adults. This Master Plan calls for restroom facilities at the Nicollet Hollow and Bloomington Activity Nodes, which results in restroom intervals of roughly:

- » 1.5 miles between Lynnhurst Recreation Center and Nicollet Hollow
- » 1.5 miles between Nicollet Hollow and the Bloomington Activity Node
- » 1-mile between the Bloomington Activity Node and Nokomis Recreation Center

While certainly an improvement, providing restrooms at these locations still falls short of the recommendations for similar MPRB facilities, such as the Central Riverfront and Above the Falls Regional Parks, which suggest permanent or portable restrooms at 10-minute walking intervals (about every 1/2-mile).

**Accessibility | j.** Essential visitor services like restrooms should be considered for inclusion at other areas along Minnehaha Parkway Regional Trail as individual projects are identified for detailed design.

**Accessibility | k.** Sensitively site restrooms and screen with enclosures and/or plantings in order to minimize views from nearby homes.

**Accessibility | l.** Provide easy access for maintenance of restrooms.

ADA-ACCESSIBLE CREEK ACCESS RECOMMENDATIONS

Today, formal access to Minnehaha Creek within the Minnehaha Parkway Regional Trail project area is limited, and none of its recreational boat launches are ADA-accessible. Figure 5.1 shows areas along Minnehaha Parkway Regional Trail that have been identified as future creek access points, with the intention of creating more places to safely access the Creek for paddling, tubing, and interacting with the water. A number of future launches will be ADA-accessible.

ADA-ACCESSIBLE LAUNCHES

ADA-accessible launches are proposed south of Lynnhurst Park and at Nicollet Hollow. An ADA-accessible take-out is proposed at the end of the corridor in Segment 4, just south of Minnehaha Parkway.

**Creek Access | a.** Site launches designated for ADA-accessibility in areas where other activities and amenities are available, including nearby parking, accessible trails, and permanent or portable restrooms.

**Creek Access | b.** Coordinate with Lynnhurst and Nokomis Recreation Centers in order to provide rental equipment like kayaks and tubes to creek users.

CREEK ACCESS POINTS

Access points are distributed at approximately one-half-mile intervals along the creek for a total of eight access points, plus two in Nokomis-Hiawatha Regional Park. The range in distances allows for trips to be customizable based on available time and ability, and also accommodates shorter loops. Creek access points will be designed to suit the topography and expected audience, and will range from universally-accessible boat launches to less formal neighborhood launching areas for tubes and family kayaking trips, without amenities like dedicated parking.

**Creek Access | c.** Amenities at launches should include paved trail access, wayfinding signage, a trash receptacle, and occasional benches or picnic tables, with more robust amenities available at ADA launches.

**Creek Access | d.** Consider siting micro-mobility options such as scooters and bike share docking stations nearby to facilitate return trips.



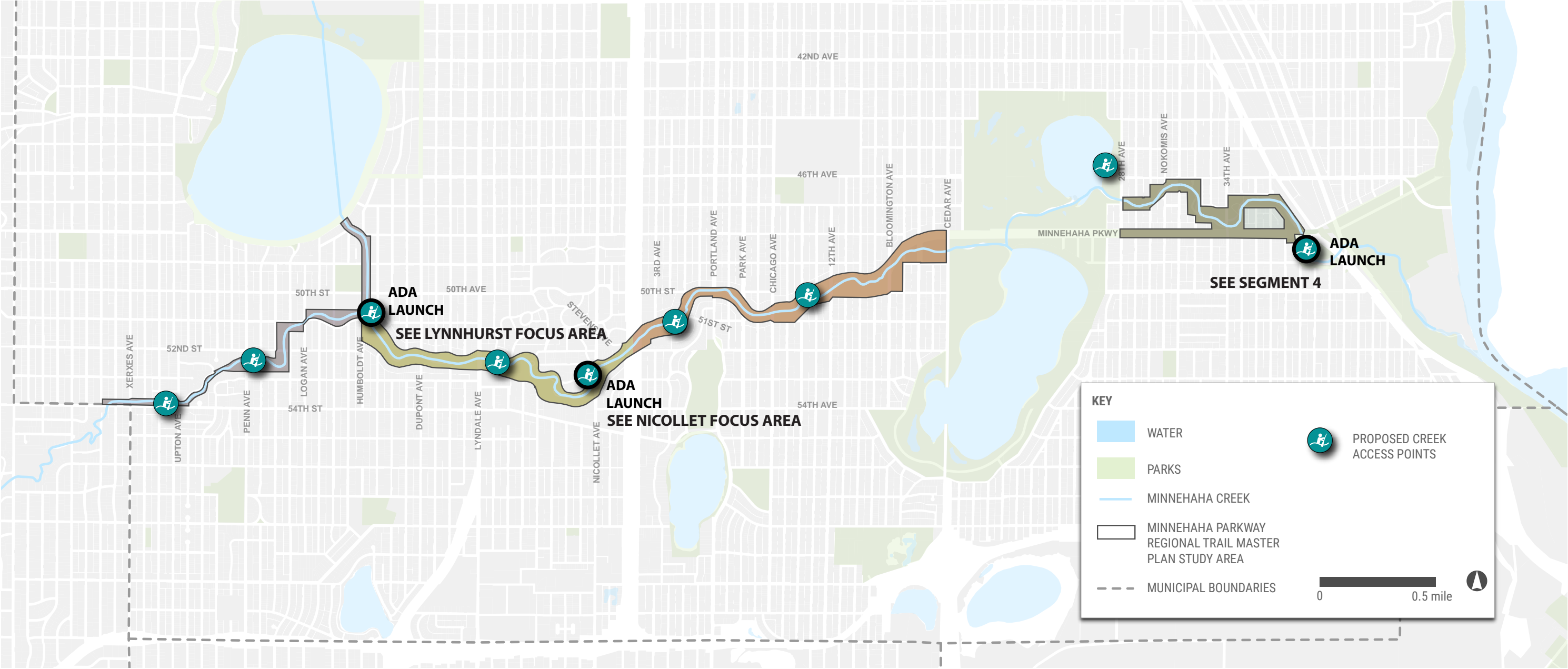


Figure 5.2 Corridor-wide Creek Access Points



TRANSIT ACCESS RECOMMENDATIONS

Minnehaha Parkway Regional Trail has good access to both bus and Light Rail Transit, but continuing to best fit access as routes change and providing additional amenities to promote trail use are recommended. Future intersection improvements along Minnehaha Parkway may involve nearby transit stops. Shade, shelter from wind, heaters, seating, and trash receptacles are all key amenities that will make taking transit to and from Minnehaha Parkway Regional Trail an easy and comfortable experience.

- Transit | a. As bus routes change or are added, offer a stop at the route’s intersection with Minnehaha Parkway.
- Transit | b. Provide well-located wayfinding signage pointing to or mapping the nearest trail access points and attractions along the Regional Trail to facilitate travel and help to generate awareness of the Parkway for transit riders.
- Transit | c. When redesigning an intersection, consider the location of the current transit stop and ensure that it is sited in the ideal location, has easy, well-signed, ADA-accessible connections to Minnehaha Parkway Regional Trail, and is designed with rider comfort in mind.

WAYFINDING AND SIGNAGE RECOMMENDATIONS

Implementation of a more robust wayfinding system can have a major impact on how comfortable visitors feel while traveling the Regional Trail, and can attract new visitors by making them aware of destinations along the corridor. New wayfinding will be especially important in Segment 1, where the proposed “Creek District” aims to better connect people with Minnehaha Creek, and works to overcome the lack of a Parkway road, which helps to delineate public space in the other segments.

In addition to the existing MPRB and Grand Rounds signage, Minnehaha Parkway Regional Trail should expand its wayfinding to better serve its mix of neighborhood and regional users, who may not be familiar with local destinations, corridor-wide recreation offerings, or resources related to safe use of Minnehaha Creek.

- Signage | a. Develop a wayfinding and signage master plan to help design, site, and implement new signs.
- Signage | b. Show loop options with distances, accessibility, and difficulty levels on trail maps so that trail users can cater routes to ability.
- Signage | c. Note nearby neighborhood business nodes, civic destinations, libraries, and parks on signage at access points, in order to connect trail users to the broader City.

- Signage | d. Improve the on-creek wayfinding network to ensure that signage is located at access points, prior to access points, and on bridges.
- Signage | e. For tubers and paddlers, provide information on distances, destinations, safety protocols, and creek flow rate both online and on-site at each of the launches.
- Signage | f. To minimize streambank erosion and disturbance, clearly delineate creek access points so that they are clear and understandable to visitors.
- Signage | g. Provide information on stewardship at creek access points and other vulnerable areas to help inform users of ways that they can help maintain Minnehaha Creek’s natural resources, while still enjoying the trails.
- Signage | h. Ensure that signage is low profile and efficiently sited to avoid visual disturbance of the natural corridor.

INTERSECTION RECOMMENDATIONS

The Master Plan identifies many intersections that would benefit from improvements to increase safety for all modes moving through the Regional Trail corridor.

- Intersections | a. Improve safety at intersections, especially where the trails cross roadways, through the use of innovative and proven facility upgrades, such as:
  - » High visibility, mode-separated striping at crosswalks
  - » Forward stop bars at all stop signs
  - » Curb extensions
  - » Signage alerting drivers of trail crossings
  - » Speed tables/raised intersections
  - » Limited or prohibited right turns for vehicles
  - » Pedestrian/bicycle signal timing adjustments
- Intersections | b. At roadway crossings of the trail, widen curb ramps and expand waiting areas to accommodate increased queuing at intersections.
- Intersections | c. Visibility of trail users from roadways at intersections is a priority. Avoid siting new elements that obstruct drivers’ vision of trail users, and ensure vegetation is trimmed to maintain views.

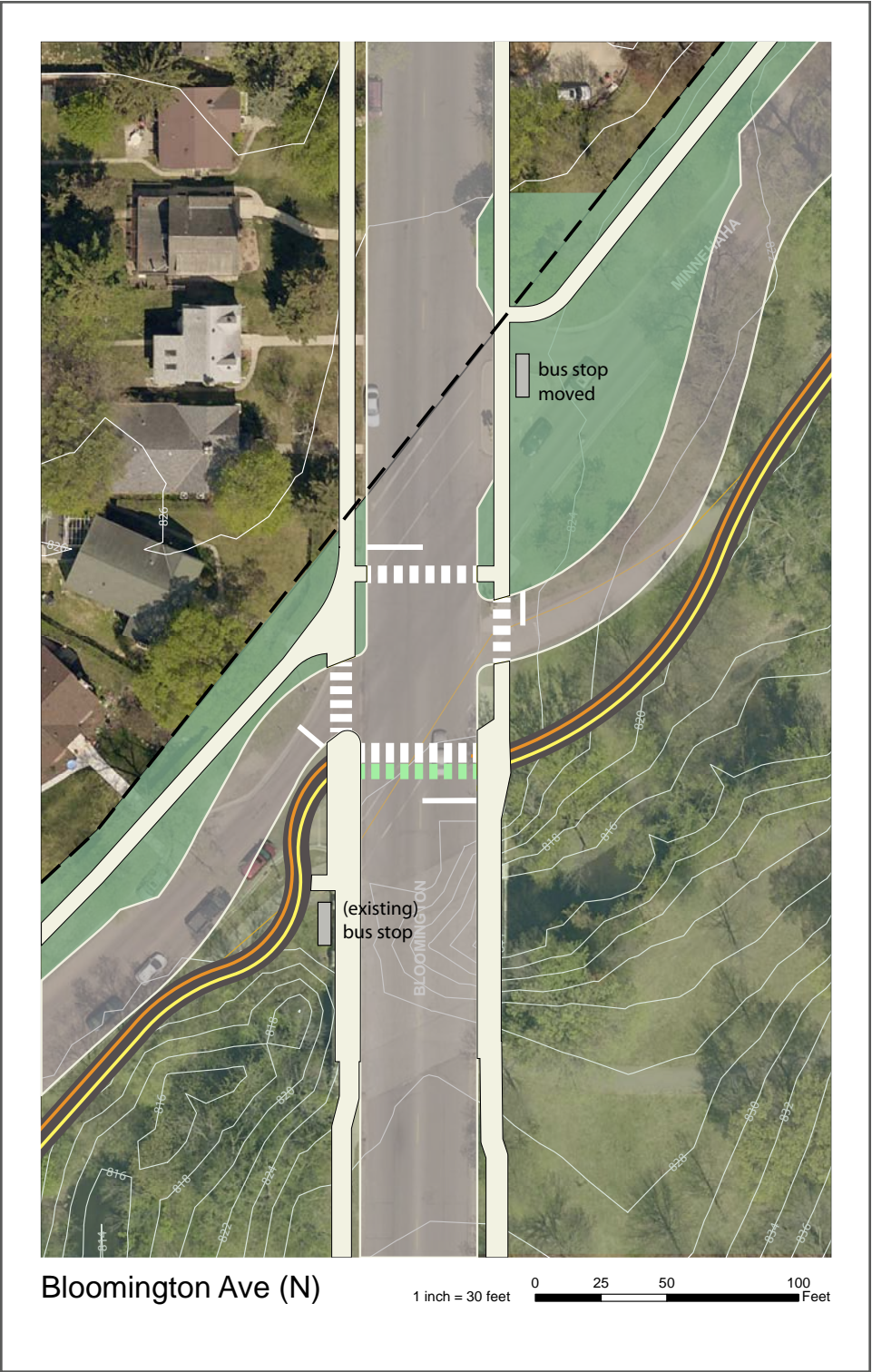


Figure 5.3 Example Intersection Realignment at Bloomington Avenue



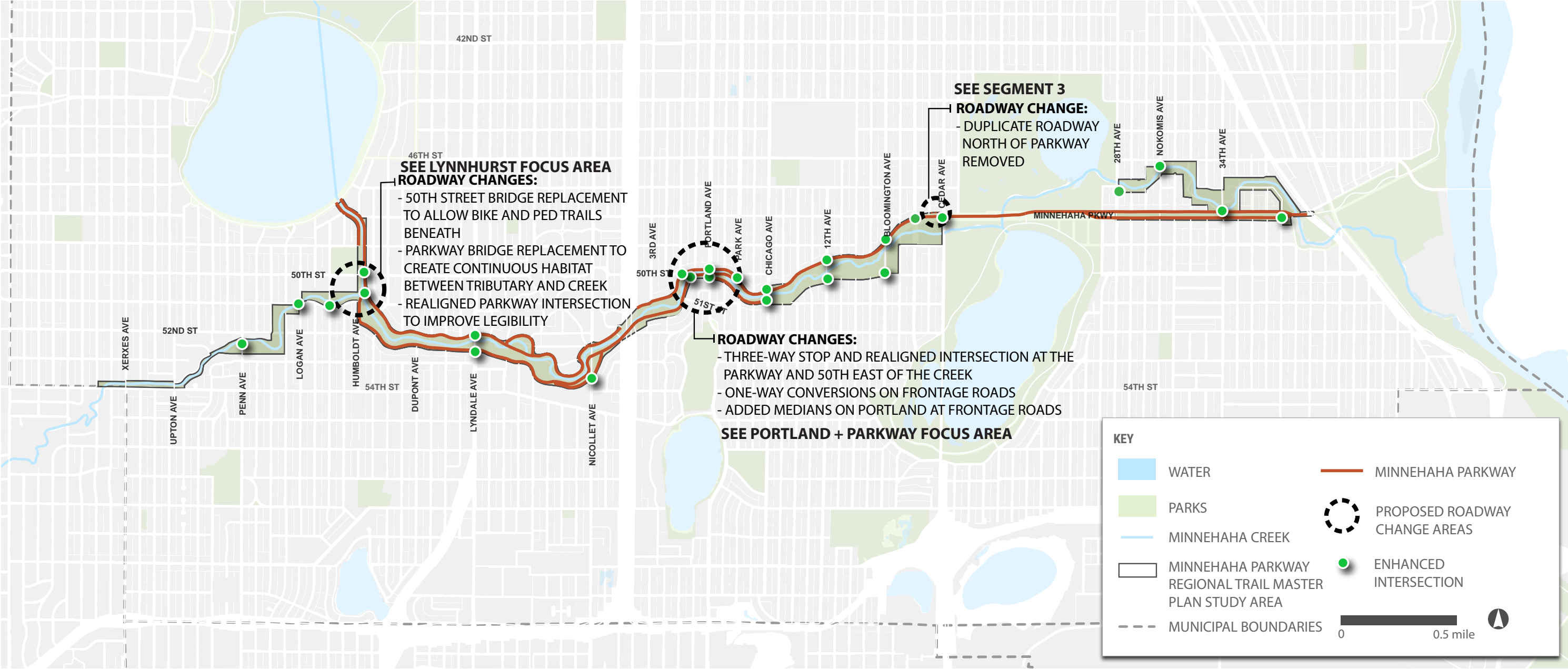


Figure 5.4 Corridor-wide Creek Vehicular Circulation and Intersection Enhancements



REGIONAL TRAIL RECOMMENDATIONS

MPRB provides guidelines for signage, striping, markings, width, and overall design of trails. Per the Connectivity Guiding Principles, trails should be mode-separated where topography and space allow.

- Trails | a. Minimum recommended trail widths include 10’ for bike trails and 8’ for pedestrian trails.
- Trails | b. Where trails must be combined, clearly delineate bike and pedestrian lanes with signage and pavement markings, and maintain a minimum width of 12’, with 14’ being preferred.
- Trails | c. Locate and design trails such that they do not degrade or threaten the integrity of adjacent natural resources, and relocate existing trails where they adversely impact the ecological function of the Minnehaha Creek corridor.
- Trails | d. In areas that are prone to flooding, endeavor to create alternative bike and pedestrian trails of similar quality at higher elevations. Trail users may be directed to use combined trails, sidewalks, or to bike along the Parkway road during flood conditions if alternate trails do not exist.
- Trails | e. Maintain vegetation to provide clear views of oncoming traffic, especially where trails converge.



Combined trails exist in areas where topography prohibits their separation

RECREATION AND ACTIVITIES

RECREATION AND ACTIVITIES-RELATED GUIDING PRINCIPLES

- R1. Continue to make natural resource-based recreation the main attraction of Minnehaha Parkway Regional Trail, with an emphasis on improvements to the trail network, informal open areas, and strengthening visitors’ connection to nature within the Minnehaha Creek corridor.
- R2. Balance new active and passive recreation opportunities with existing and planned facilities at nearby neighborhood and regional parks.
- R3. Identify new activity types and locations that will draw new users to the Trail, especially those historically under-represented among regional trail users.



Minnehaha Parkway Regional Trail offers a beautiful route for a bike ride



Paddling the creek will be easier and more accessible with new water access points



A temporary bike park installed on tennis courts near Segment 4 was well-received, and a bike skills park is a new activity now included in the Master Plan



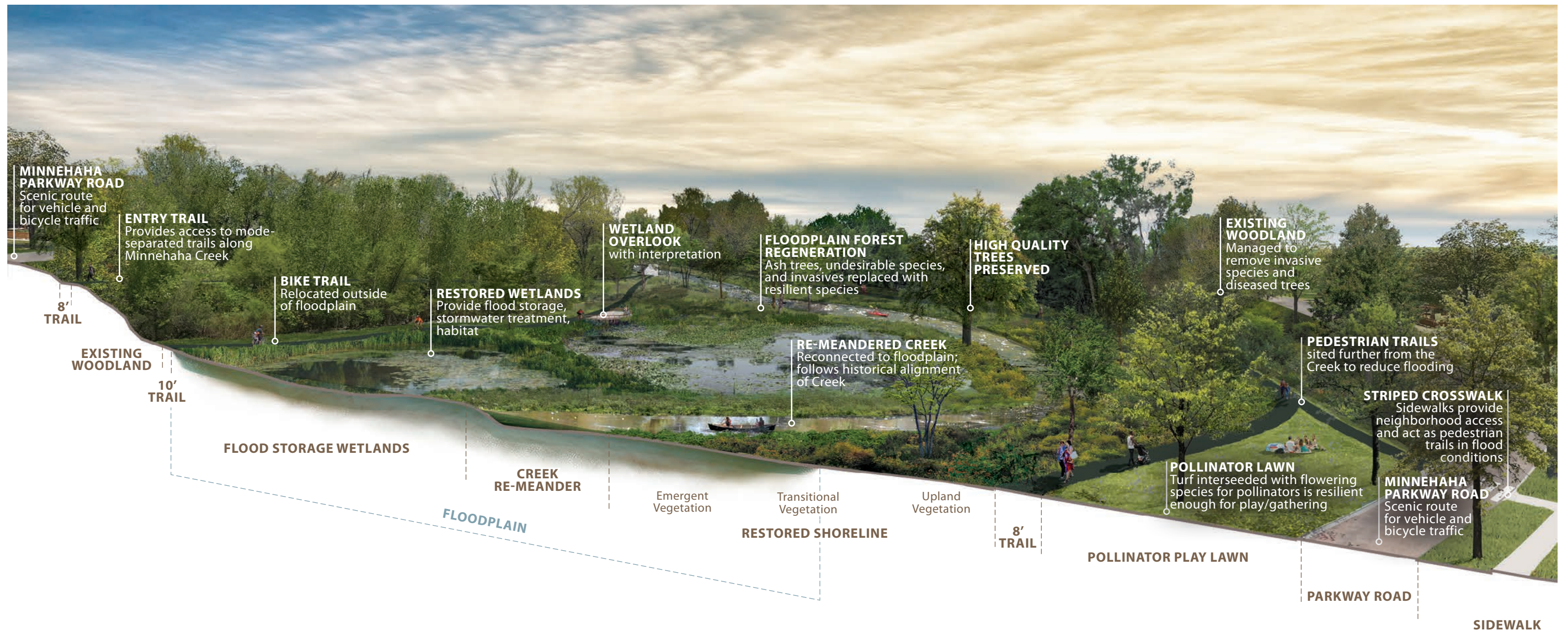


Figure 5.5 Section rendering of a portion of Minnehaha Parkway Regional Trail re-envisioned according to the Guiding Principles and Recommendations put forth in this Plan (looking upstream)



RECREATION RECOMMENDATIONS

Because Minnehaha Parkway Regional Trail offers an unparalleled natural setting for an urban trail, the recreational activities that it supports are meant to complement the landscape. This master plan moves away from structured field and court-based recreation (although tennis courts remain in places where they are clearly well-used), and toward activities that are flexible, benefit from the corridor’s unique setting, and accomplish multiple functions, like providing flood storage or pollinator benefits.

- Recreation | a. Recommended activities include (but are not limited to):
- » Trail use (walking, running, biking, skating, etc.)
  - » Sledding, cross-country skiing, and ice skating
  - » Paddling and tubing Minnehaha Creek
  - » Fishing
  - » Field sports in multi-use field spaces
  - » Tennis and pickleball
  - » Birding and wildlife watching
  - » Nature play and adventure play
  - » Boulderling and other nature-based active recreation
  - » Hammocking
  - » Picnicking
  - » Mountain biking (skills parks and single-track)

ACTIVITY NODE RECOMMENDATIONS

In order to maintain a majority of the corridor for passive recreational usage, habitat preservation, and flood control, most active recreational features are grouped together into activity nodes. This strategy ensures that the natural and pastoral scenery of Minnehaha Parkway Regional Trail is largely preserved, and that active areas have convenient access to a range of complementary amenities.

- Recreation | b. Ensure that new activity nodes embrace, highlight, and provide connection to the ecological function of the Minnehaha Creek corridor.
- Recreation | c. Site activity areas so that they are accessible via multiple modes of transportation.
- Recreation | d. Provide essential visitor services and comfort amenities such as restrooms, drinking water, seating, waste receptacles, wayfinding, lighting, and shade or shelter at all activity nodes.
- Recreation | e. Site new or redesigned recreational features outside the projected 100-year floodplain, or design and select them to be flood-compatible and flood-resilient.

SAFETY RECOMMENDATIONS

Safety of park and trail users is a major priority. Recommendations related to safety along parkway roads, trails, and at intersections are covered in those respective sections; however, there are some additional safety-related considerations that support park access and recreation as a whole.

LIGHTING

As a regional trail used by pedestrians, bicyclists, and vehicles, Minnehaha Parkway must be lit to provide safe passage for those traveling and staying to recreate. Paths wind through valleys sheltered from view by thickly wooded slopes and dip beneath bridges carrying traffic above. While these areas may feel sublime and immersive during the day, at night, without proper lighting they can feel unsettling. Lighting underpasses and ensuring that access points, wayfinding, and trail markings are visible improves safety for users and encourages a more positive perception of these areas that promotes continued parkway use at dawn and dusk and at times of the year when daylight hours are reduced.

- Safety | a. Provide lighting in accordance with The American Association of State Highway and Transportation Officials (AASHTO) guidelines, including at the following locations:
- » In a tunnel or underpass (always)
  - » Trailheads
  - » Bridge entrances and exits
  - » Activity nodes
  - » Along Minnehaha Parkway roads
  - » Crosswalks
  - » Where paths intersect
  - » Key signage



Typical recreation and activities along Minnehaha Parkway Regional Trail





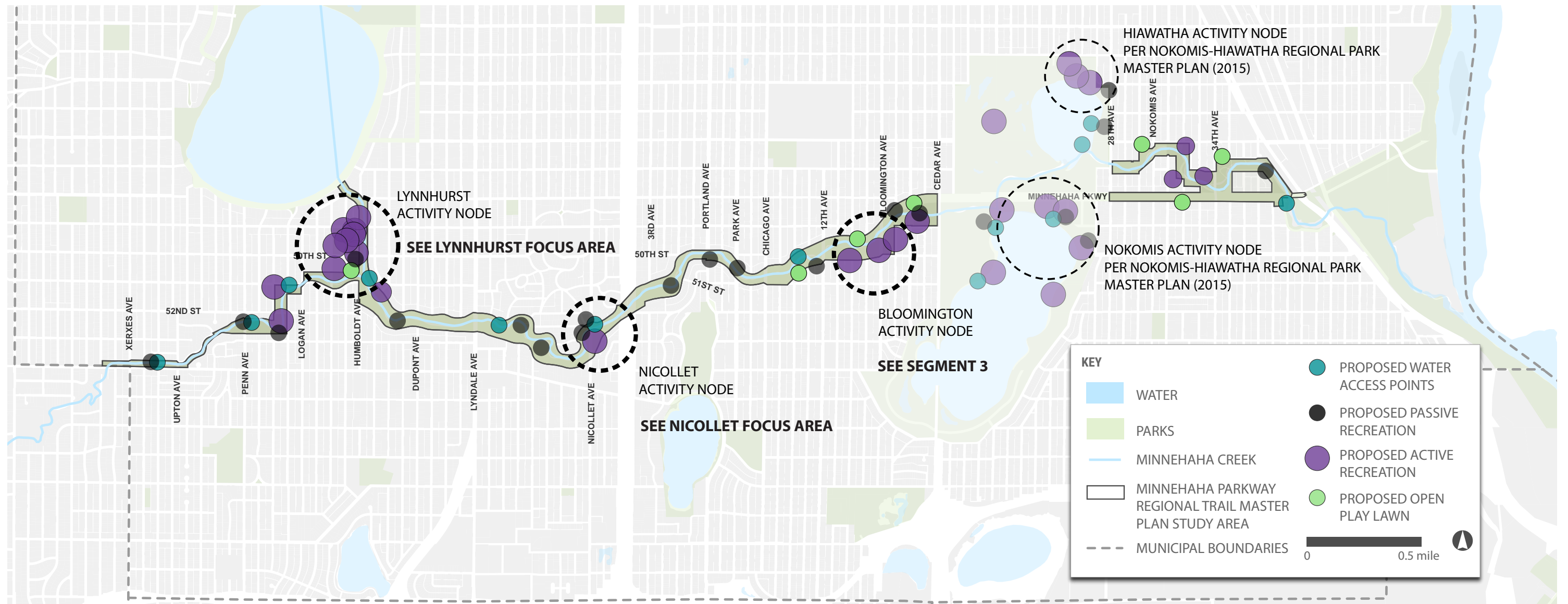


Figure 5.6 Corridor-wide Recreation



# NATURAL RESOURCES AND INFRASTRUCTURE (PUBLIC SERVICES)

## NATURAL RESOURCES AND INFRASTRUCTURE-RELATED GUIDING PRINCIPLES

- N1. Preserve and enhance the ecological function of Minnehaha Creek by restoring natural stream processes and historic sinuosity, reconnecting the floodplain, providing habitat complexity for native species, and improving flood resiliency throughout the corridor.
- N2. Re-meander Minnehaha Creek and the Lake Harriet tributary in identified locations to increase their overall length and capacity for flood storage.
- N3. Realign trails to accommodate re-meanders and to remove unnecessary trails and infrastructure from the floodplain.
- N4. Identify existing trees during BMP and re-meander design and protect trees during construction in order to minimize tree loss, especially of very large trees.
- N5. Collaborate among MPRB, MCWD, and the City of Minneapolis to review infrastructure repairs, BMP projects, re-meanders, creek access points, and recreation improvements along Minnehaha Parkway Regional Trail and identify opportunities where work can be aligned.

## NATURAL RESOURCE RECOMMENDATIONS

### HABITAT

Natural resource management focuses on preserving and enhancing wildlife habitat. MPRB’s Ecological System Plan includes pertinent recommendations on topics like biodiversity, habitat connectivity, invasive species control, urban forest management, and many others, and should be consulted for reference.

**Natural Resources | a.** In order to maintain canopy cover and a multi-aged forest structure, preserve healthy native tree species unless removal is necessary for other natural resource activities.

**Natural Resources | b.** Maintain an up-to-date inventory of existing trees.

**Natural Resources | c.** Replace traditional turf lawns with bee lawns or other native landscape types where identified to support pollinators and increase wildlife habitat quality throughout the corridor.

### WILDLIFE

Minnehaha Parkway Regional Trail attracts more than a million visits annually, but it also provides a seam of valuable habitat for wildlife in the middle of the city. The creek is a vital connection in a habitat corridor that runs from Lake Minnetonka to the Mississippi River– a flyway that sees the migration of about 40% of all North America’s waterfowl and shorebirds. Balancing the needs of park and trail users with those of the corridor’s flora and fauna is key to maintaining ecological function and a quality experience. Minnehaha Parkway’s urban setting requires certain elements in order to provide a safe, accessible, inviting, and comfortable experience for human users. And while things like lighting, trails, seating, signage, art, and interpretation provide valuable services to humans, wildlife doesn’t always see the same benefit.

Artificial light at night can have unintended consequences for wildlife by confusing their circadian rhythms; interfering with breeding, migration, and hunting; reducing areas for safe cover; and discouraging passage. Where possible, lighting design should endeavor to minimize impacts to the biota with whom we share the Parkway. The International Dark-Sky Association recommends that lighting only be on when necessary, only light areas that need it, is no brighter than necessary, minimizes blue light emissions, and is fully shielded in order to minimize impacts to wildlife.

**Natural Resources | d.** Mitigate harmful disruptions to the ecosystem by ensuring new and renovated lighting adheres to the following principles:

- » Make sure that light fixtures are fully shielded and down-facing
- » Mount lighting as low as is practical
- » In sensitive areas, consider Certified Wildlife Lighting like Low Pressure Sodium (LPS) or narrow-spectrum amber LEDs with a wavelength longer than 560 nm
- » Where LED lighting is necessary, choose warm-white or filtered LEDs with a correlated color temperature (CCT) of 3,000K or less
- » Implement adaptive controls such as automatic timers, dimmers, and sensor-activated lighting throughout the corridor
- » Consider dimming or turning off non-essential light fixtures between 11 p.m. and 5 am
- » Utilize reflective striping on trails and reflective markers in other areas to supplement existing light sources without requiring additional ones

### CREEK RESTORATION AND BEST MANAGEMENT PRACTICES

Best Management Practices (BMPs) are structural, vegetative, or managerial practices that treat, prevent, or reduce pollution in a water body. BMPs include strategies such as stormwater infrastructure, underground storage systems, pollinator or habitat-focused planting, stormwater wetlands, constructed wetlands, and restored floodplain forest. Restoration and/or re-meandering of the creek is also a BMP that can stabilize habitat and slow stream velocities, which reduces erosion along streambanks. Additionally, around 15% of the creek’s streambank has been hard armored (e.g. concrete, retaining walls) to prevent erosion; however, overtime this “hard armoring” has deteriorated and resulted in streambank erosion. Restoring the creek’s streambank back to its natural characteristics will also reduce erosion and provide riparian habitat.

Investments in BMPs at select locations along Minnehaha Parkway Regional Trail have the potential to significantly improve the ecological function of the creek corridor and the flood resilience of surrounding neighborhoods, similar to projects that were done upstream in St. Louis Park. Creek re-meanders and stormwater BMPs will add flood storage capacity, mitigate erosion, and improve water quality, among other benefits. Figure 5.7 shows areas along Minnehaha Parkway Regional Trail that have been identified as primary opportunity sites for future BMPs and creek restoration. High Priority Areas have the potential to address the largest stormwater flows.

**Natural Resources | e.** Focus stormwater and BMP investments in places that have been identified as high priority based on need and opportunity to have significant impacts.

**Natural Resources | f.** When re-meanders or stormwater BMPs are constructed, restore the former creek bed and other disturbed areas to native landscapes.

**Natural Resources | g.** Replace hard armored sections of streambank with natural streambank materials to reduce erosion and increase riparian habitat.

### SURFACE WATER AND GROUNDWATER MONITORING

MPRB, MCWD, the City of Minneapolis, and other public agencies will continue to study surface water, groundwater, and their interactions with each other, across the City of Minneapolis and the broader watershed. Every day more water data is available, and that data will continue to be used to inform future studies, inform future project designs, and understand future water quantity scenarios.

**Natural Resources | h.** Continue to study and monitor surface water and groundwater interactions and use that research to inform project designs and project construction.



## MANAGING NATURAL RESOURCES

Originally, stormwater management in cities addressed potential flooding issues only, and meant moving as much water as possible off the landscape as quickly as possible. Today, stormwater management has evolved to integrate several additional factors. While still addressing potential flooding, contemporary stormwater management works to reduce the volume of runoff sent downstream by infiltrating or storing stormwater, reduces flow rates by slowing or detaining runoff, and integrates opportunities to improve water quality, conserve or restore habitat, and incorporate recreation.



### RESTORED FLOODPLAIN FOREST

Floodplains are an integral part of healthy rivers and streams. They store and slow floodwaters, improve water quality, safeguard people and property, provide vital habitat, recharge groundwater, and provide unique opportunities for recreation. This Master Plan aims to move trails and other features out of the floodplain where possible, and invests heavily in the restoration of floodplain forest along creek re-meanders and other disturbed areas.



### UNDERGROUND STORAGE SYSTEMS

Underground storage systems directly contribute to addressing stormwater volume and rate issues by capturing and storing stormwater collected from surrounding impervious areas. Underground storage systems are an effective alternative to surface ponds in areas where space is at a premium, like at Lynnhurst Park. With the stormwater facility below ground, the space above the facility can continue to be used for diamond and field sports.



### STORMWATER WETLANDS

Stormwater wetlands are constructed stormwater management practices that are considered an end-of-pipe best management practice to address water quantity and water quality issues. The storage capacity provided by stormwater wetlands can help reduce downstream stormwater volumes as well as peak runoff rates. Stormwater wetlands offer high pollutant removal efficiencies for pollutants and particulates, including nitrogen, phosphorus, oil and grease – with relatively low maintenance costs.



### WOODED RIPARIAN BUFFERS

Canopy cover along creeks helps to shade the water, keeping it cool, and promoting a healthy and comfortable environment in which aquatic species can thrive. Adequate riparian buffers include layers of forb, shrub, and tree species that hold soils in place, sequester carbon, scrub pollution from the air, and contribute to the healthy function of the hydrologic cycle. The canopy associated with the creek floodplain also provides a habitat corridor for many animals including mammals, aquatic species, riparian species, birds, and insects.



### BIOENGINEERING TECHNIQUES

Bioengineering techniques use natural fabrics to temporarily stabilize banks while plants establish. Long-term shoreline stability is achieved through vegetation growth. Careful grading of the soils, limited use of rock, installation of erosion control blankets or matting, and planting of live stakes, plugs, and seed, work together to revegetate the shoreline and hold it in place without the use of hard armoring like concrete walls or steel pilings.



### RESTORED WETLANDS

Wetlands protect and improve water quality, provide fish and wildlife habitat, store floodwaters and attenuate downstream flooding, help maintain surface water flow during dry periods, and enhance recreational opportunities. Restoring wetlands that have been removed or degraded results in the reinstatement of these valuable ecosystem services.



### POLLINATOR LAWNS

Pollinators move pollen from the male part of a plant's flower to the female part of the same or another plant, resulting in fertilization. This movement of pollen is necessary for the production of fruits, seeds, and many of the foods that we eat. Bees, butterflies, beetles, moths, bats and some birds are all pollinators. The flowering plants that comprise bee lawns are resilient enough to be used in recreational multi-use field spaces, are aesthetically similar to existing turf (if not more attractive), and have the added benefit of providing habitat and food sources for these valuable species.



# INVESTING IN HEALTHIER WATERS

Once implemented, the creek restoration and BMPs proposed in this master plan will likely help the City of Minneapolis and MPRB achieve their Total Maximum Daily Load (TMDL) reduction goal.

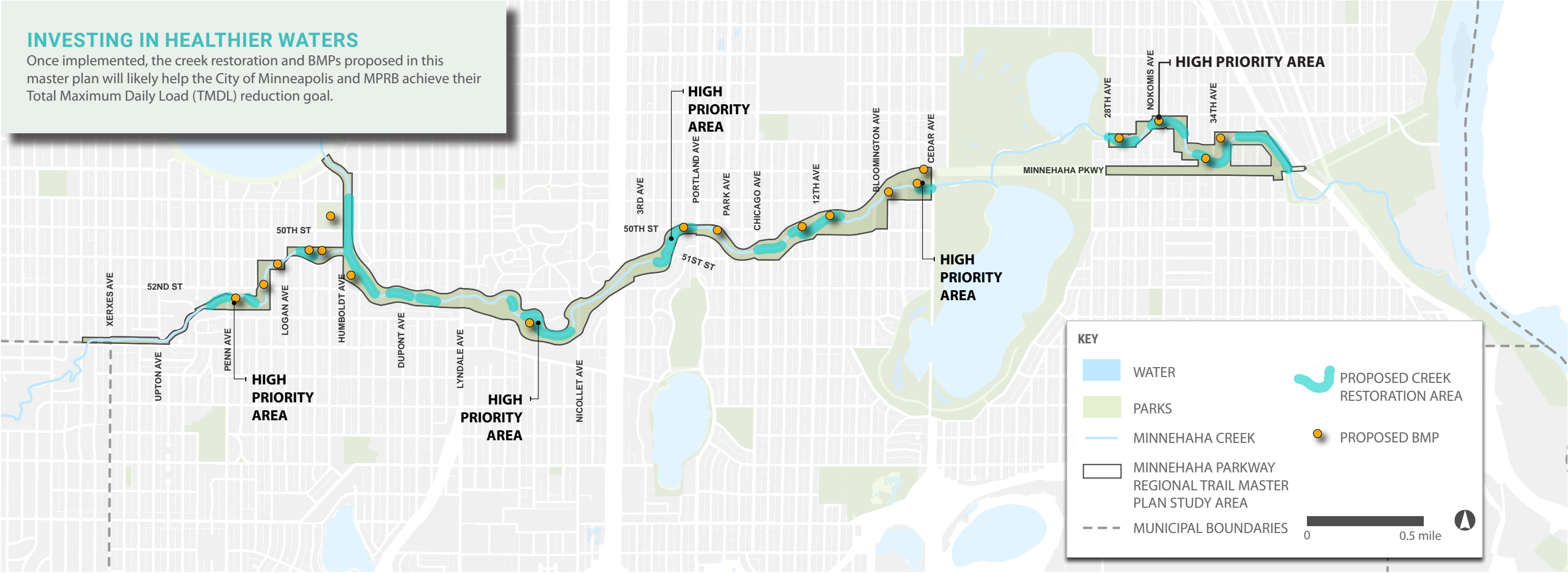


Figure 5.7 Corridor-wide Creek Restoration and Best Management Practices



Creek Re-meander: Year 1



Creek Re-meander: Year 2



Creek Re-meander: Year 3



Image of an existing Minnehaha Creek remeander upstream in St. Louis Park

## CREEK RE-MEANDERS

The meandering, or curving of a stream is an important factor in the stream's physical (erosion and sediment deposition) and ecological dynamics (habitat). Adding natural sinuosity (i.e. the degree of meandering) effectively reduces the slope of the stream. A reduction in slope can result in a slowing of streamflow velocities, effectively reducing bank and streambed erosion. Additional natural features, including riffles, pools, bars, and other in-stream habitat features work to enhance stability. Proposed re-meanders in this Master Plan are based on the historic sinuosity of Minnehaha Creek.



INFRASTRUCTURE RECOMMENDATIONS

STORMWATER

MPRB, MCWD, and the City of Minneapolis will continue to coordinate on stormwater infrastructure and opportunities to implement BMPs. While this plan cannot identify a BMP concept for all 100+ stormwater outfalls, the MPRB, MCWD, and City of Minneapolis have committed through their MOU to continue to work together to review if such an opportunity exists as outfalls are identified for repair.

Additionally, continued communication between MPRB, MCWD, and the City of Minneapolis’ Public Works Department about planned capital improvement projects is essential. While this plan cannot identify investments outside of the project area, BMPs, green infrastructure, and low-impact development (LID) upstream in the watershed tend to be more efficient than implementing solutions at or near the outfall to the creek. Given the large area of pipesheds and subwatersheds that impact Minnehaha Creek, opportunities for upstream capture, infiltration, and treatment of stormwater should be pursued wherever possible in order to reduce the burden on Minnehaha Creek. However, given how much of the upstream land is fully developed, it is unlikely that upstream BMPs will be able to provide all of the desired treatment.

- Infrastructure | a. Examine existing stormwater outfalls and overland flumes and schedule repair and replacement. Utilize BMPs suited to the existing conditions, water volume, and location. The City of Minneapolis and Minnehaha Creek Watershed District are leaders in this effort.
- Infrastructure| b. Daylight the buried section of tributary between Lake Harriet and Minnehaha Creek.

WATER AND SEWER

- Infrastructure| c. When repairs to existing infrastructure are planned, or new projects designed, assess the feasibility of water and sewer extensions to provide additional drinking fountains and/or restroom facilities to Minnehaha Parkway Regional Trail.

OTHER UTILITIES

- Infrastructure| d. Limit views of electrical transformer boxes and other utility infrastructure via considerate site selection, burying, camouflaging, or otherwise screening from view, in order to maintain a natural aesthetic along the corridor.

BRIDGES

- Infrastructure| e. Design new bridges over the Creek to minimize debris and ice build up, and to maintain safe passage beneath for paddlers.



Examples of places along Minnehaha Parkway Regional Trail that would benefit from the infrastructure improvements recommended in this Master Plan



# SEGMENT & FOCUS AREA PLANS

## SEGMENT 1

Segment 1 is the western-most section of Minnehaha Parkway Regional Trail, extending from the border of Minneapolis and Edina at Zenith Avenue to Lynnhurst Park, and north to Lake Harriet, along the tributary between the lake and the creek. Segment 1 has two focus areas:

- » Penn-Newton-Morgan
- » Lynnhurst

### CONNECTIVITY

This segment is unique in that it is not bounded by the parkway road and lacks paved trails for the majority of its length. Instead, Minnehaha Creek winds past backyards and a partly disconnected grid of residential streets for much of Segment 1. Without the parkway’s visual proximity or the coherent network of crossings and access points present elsewhere in the corridor, Segment 1 lacks legibility as a public park.

Ad hoc natural surface trails are present along varying stretches of the Creek, but they are frequented by neighborhood residents rather than regional park visitors. Having not been built deliberately with sustainable techniques, most are prone to erosion, which could be impacting water quality. Cyclists trying to travel west past Lynnhurst Park are directed off of the Parkway’s paved trails and onto City streets, without a prescribed route to follow.

The master plan for Segment 1 responds to its lack of legibility or formal trail network by implementing a broader “Western Creek District” intended to improve wayfinding, promote access, and increase use of this segment.

### WESTERN CREEK DISTRICT

Segment 1’s Western Creek District will provide enhanced wayfinding on city streets, sidewalks, and bikeways to Minnehaha Parkway Regional Trail and Minnehaha Creek at key intersections. The District is bounded by Morgan Avenue on the east, Zenith Avenue on the west, 54th Street on the south, and 50th Street on the north.

Entry points to the Western Creek District’s trail network will be defined by signage, wayfinding kiosks, and trailhead amenities like bike parking where active recreation or natural surface trails are present. Primary entrances include:

#### Newton/Morgan Avenues and 52nd Street

A bridge over the Creek here allows pedestrians to access the Western Creek District’s natural surface trail network just south of 52nd Street.

#### Morgan Avenue and 51st Street

- » Here, the proposed off-road paved bike trail from Lynnhurst Park comes to its terminus. Two potential paved trail options are available for connecting pedestrian and bicyclists to 54th Street. One option includes a new ped/ bike bridge over the Creek at Morgan Avenue, along with a new on-street bikeway and off-street pedestrian trail continuing southward along Morgan to 54th. The other option would continue the paved trail on the north side of the creek, along the base of the sledding hill, to the existing east-west pedestrian bridge at 52nd Avenue. From the eastern end of this bridge, a similar on-street bikeway and off-street pedestrian trail would continue southward to 54th Street. The final decision between these options will be made at the time of implementation, based on more detailed analysis of the area and on community engagement. In both cases, wayfinding signage and bicycle parking will be provided for those wishing to continue westward along the creek on natural surface trails.

#### Penn Avenue just south of the Creek

- » Penn Avenue has a large vertical disconnect from the floodplain here, but provides excellent views of the Creek. A new set of interpretive overlooks will offer a visual connection to the water for visitors who cannot traverse the natural surface trail network here. New stairways from Penn Avenue down to the natural surface trails provide access, and a proposed high-visibility crosswalk at Penn Avenue facilitates safe, at-grade crossing to make up for the fact that there is not room for trails beneath the bridge.

#### Forest Dale / Russell Avenue

- » A new pedestrian bridge between Forest Dale and Russell Avenue will connect the natural surface trails

#### 54th Street and Upton Avenue

- » The natural surface trail along the creek crosses Upton Avenue at an enhanced intersection here

#### 54th Street and Xerxes Avenue

- » The natural surface trail along the creek crosses Xerxes Avenue at an enhanced intersection here

#### 54th Street and Zenith Avenue

- » A new bridge connecting 54th Street to Zenith Avenue across the Creek provides a gateway to the Western Creek District from Edina

### WATER ACCESS POINTS

New creek access points for paddling or tubing are proposed at 54th Street and Vincent Avenue, east of Penn Avenue, at Morgan Avenue south of 51st Street, and near the realigned Minnehaha Parkway intersection south of Lynnhurst Park.

### RECREATION AND ACTIVITIES

Current recreation in Segment 1 consists primarily of passive natural surface trail use with the occasional creek paddler who started their journey at one of Minnehaha Creek’s upstream launches. A new waterside lounge and picnic area is proposed north of the Creek near Newton Avenue. Active recreation in this segment consists of tennis at the Morgan Avenue tennis courts, sledding on the hill at 51st and Newton, and traditional neighborhood park activities at Lynnhurst Park and Borroughs Elementary.

No new active recreation is proposed in Segment 1, except at Lynnhurst Park. See the Lynnhurst Focus Area Plan for detail.

### NATURAL RESOURCES & INFRASTRUCTURE

Segment 1 where Penn Avenue meets the Creek is one of the most essential locations for flood mitigation within the corridor. Opportunities for creek re-meanders around Penn and James Avenues, repair of storm sewer outlets and overland flumes (most of which are in very poor repair), and the construction of BMPs will all contribute to increasing habitat, gaining flood storage, and improving water quality in Segment 1.

At the Lynnhurst Focus Area, the existing culvert carrying the tributary from Lake Harriet across 50th Street to the Creek is undersized and contributes to flooding problems near 49th Street. The master plan proposes daylighting and re-meandering the tributary from Lake Harriet- a transformational project with a multitude of benefits. See the Lynnhurst Focus Area Plan for detail.



Existing Grand Rounds Signage could be expanded for Western Creek District wayfinding



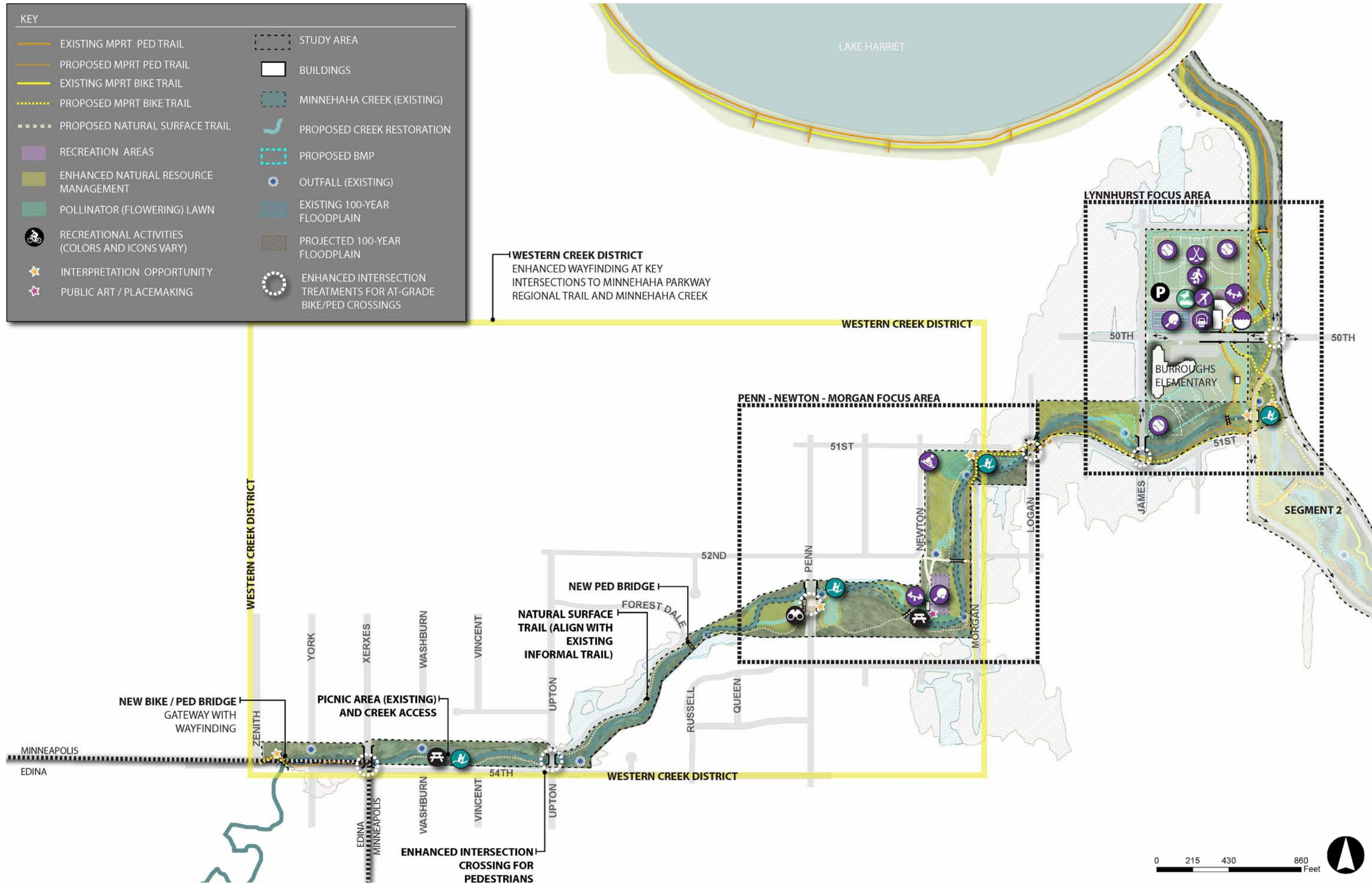


Figure 5.8 Segment 1 Master Plan



# PENN-NEWTON-MORGAN FOCUS AREA

## CONNECTIVITY

### ACCESSIBILITY

The area between Penn and Logan Avenues represents a transitional space for Segment 1 and the creek corridor as a whole, as it moves from the isolated network of natural surface trails at its western-most edge to the new paved trail that is the recognizable regional trail route east of Morgan. In order to make up for the lack of accessible trails here, the proposed Penn Avenue Interpretive Overlooks will provide exceptional views and a visual connection to Minnehaha Creek for those unable to use the natural surface paths. Stairways link the overlooks to the non-ADA accessible trail network in both directions, and a high visibility crosswalk at Penn Avenue will facilitate safe crossing.

### BIKE AND PEDESTRIAN TRAILS

Moving east, the natural surface path skirts the outside of the stand of oaks, staying away from the floodplain, and provides options to cross the creek at a new bridge and remain on a soft surface trail west of the creek, or continue east to Morgan Avenue, where it links with a paved walking trail extending north to a new non-motorized regional trail bridge. From here, pedestrians can cross Logan Avenue at a new high-visibility crosswalk. Existing segments of concrete sidewalk will remain around the tennis courts and the 52nd Street bridge.

Currently, there is no formal bicycle infrastructure in this area. Because this plan extends the paved regional trail from Lynnhurst to Morgan Avenue, a new on-street bike lane is proposed along Morgan, which, combined with the new bridge crossing, creates a convenient bike connection between 50th and 54th Streets. This new access is vital to the creation of Segment 1’s “Creek District.” The area around the Morgan Avenue bridge will include bike parking for those who wish to continue west on foot, and wayfinding for those hopping on or off of the paved Minnehaha Parkway Regional Trail. When this project is initiated, trail route options between Morgan and Logan will be considered in detail before a trail is constructed.

### WATER ACCESS

Creek access points are available east of Penn Avenue on the south side of the creek, and east of the new Morgan Avenue bridge on the north side of the creek. The Penn Avenue launch is conveniently located near the overlook stairs, and would be suitable for use as a tubing launch, while the Morgan Avenue launch will have reasonable grades and on-street parking available for launching canoes and kayaks. Together, these launches represent an easy tubing loop, or could be extended to the water access point at Lynnhurst to create a longer, but still easily walkable course.

## RECREATION AND ACTIVITIES

The Morgan Avenue tennis courts are well-loved but in need of attention, including court resurfacing, new nets, and new fencing. Additional improvements proposed include the addition of a shelter and picnic area along the creek where players and onlookers can relax, and a nature play area, which fills a service gap in the recreation system.

The existing sledding hill between Newton Avenue and 51st Street will not be impacted by the natural surface trail at the bottom, and can remain in use.

## NATURAL RESOURCES AND INFRASTRUCTURE

The area around Penn Avenue is a prime location for stormwater management. West of Penn, a braided channel restoration will increase flood storage, while east of Penn, a stormwater BMP and creek re-meander will help treat 230 acres of stormwater runoff, reduce the volume of water entering the creek directly from pipe outfalls, and slow flow velocities, while creating habitat. The grove of oaks south of the creek here is both beautiful and valuable from an ecosystem services standpoint. Every effort to preserve these trees should be made in the siting, design, and construction of the nearby BMPs.

An existing concrete spillway between Newton and the creek is proposed to be replaced with a multi-cell BMP, which will detain and treat runoff rather than discharging it immediately into the creek untreated.

Restoration and management of existing oak and floodplain forest areas are proposed, as well as the conversion of existing turf to pollinator lawn.



Precedent imagery of features in the Penn-Newton-Morgan Focus Area Master Plan



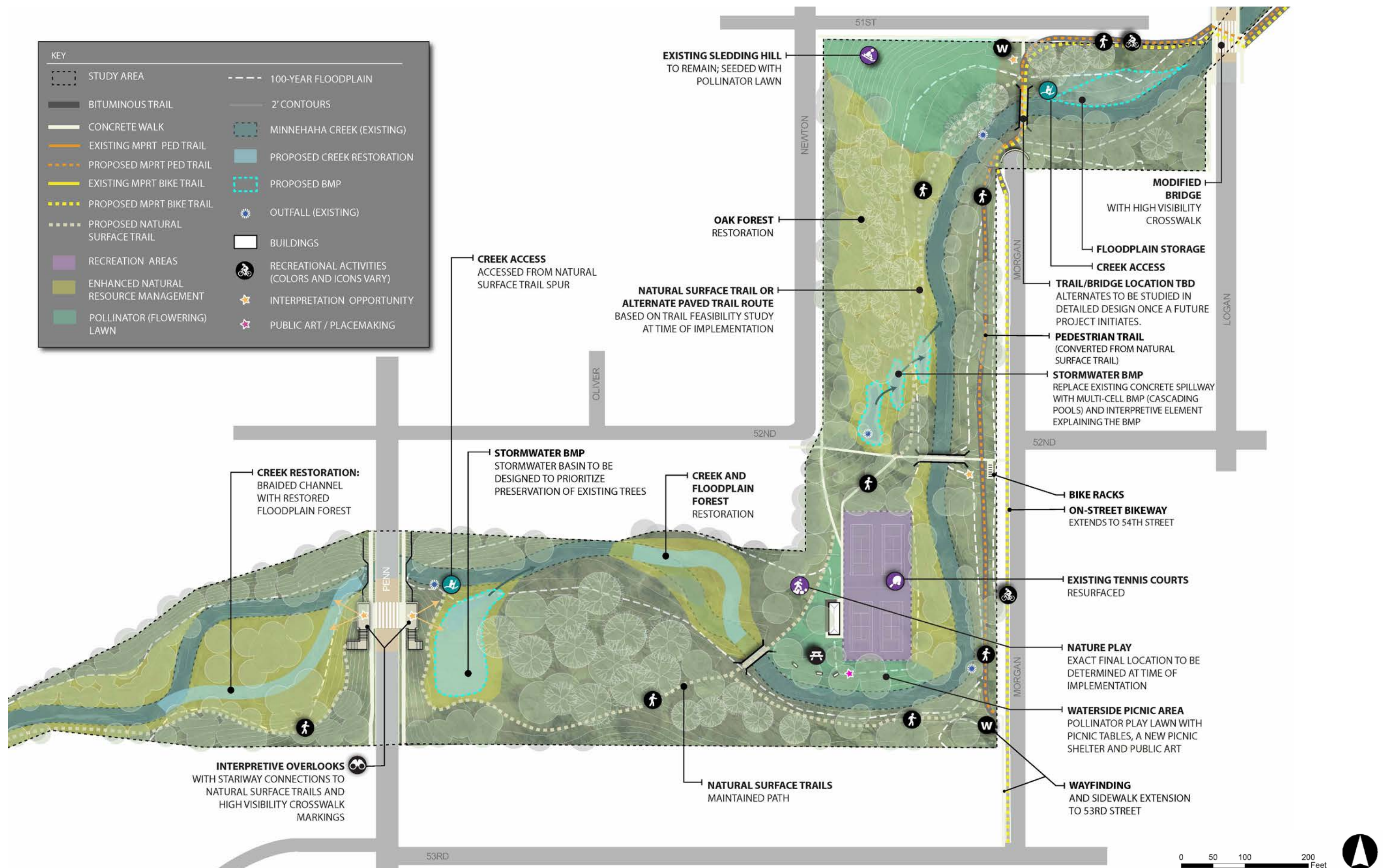


Figure 5.9 Penn-Newton-Morgan Focus Area Master Plan



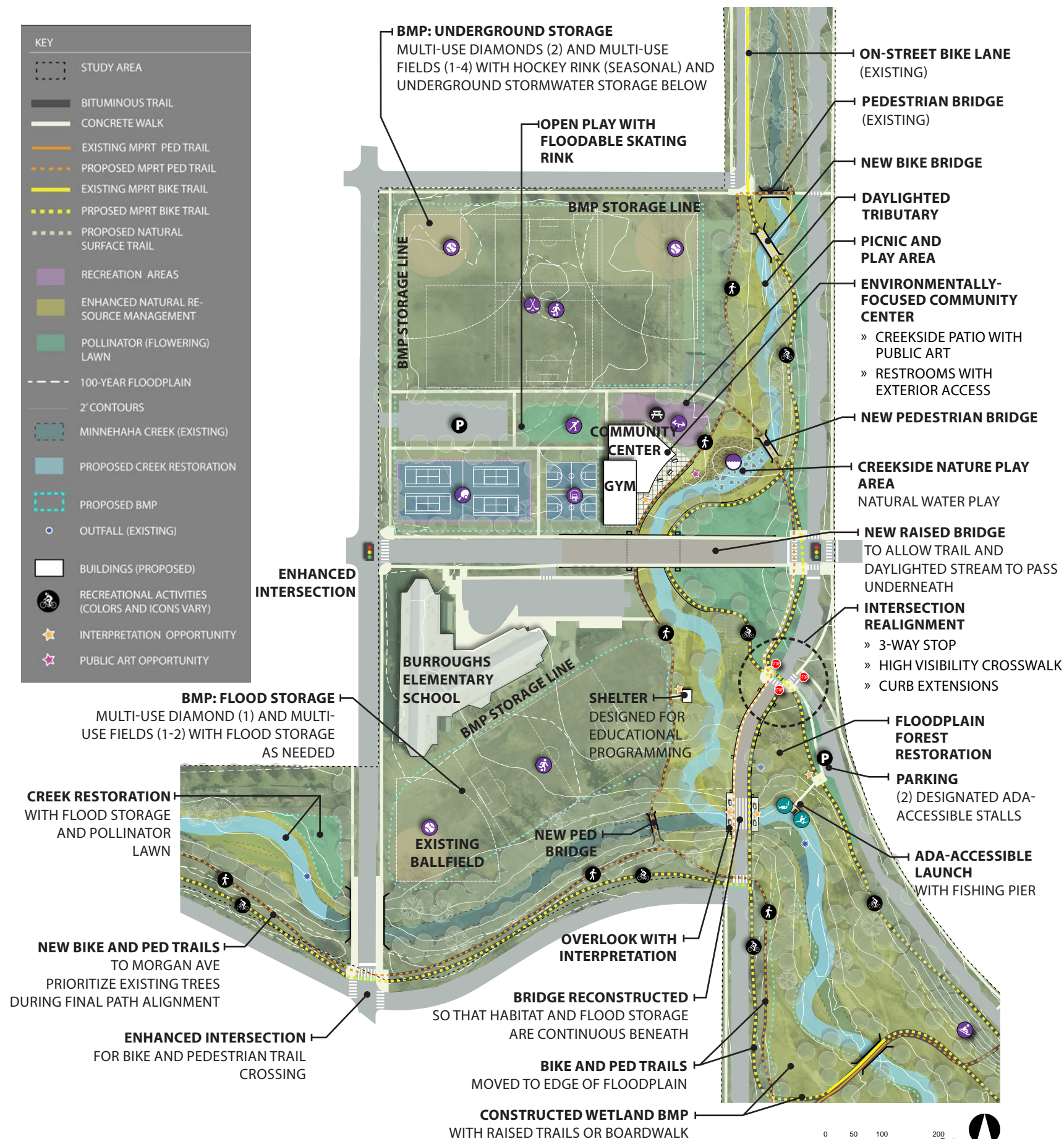


Figure 5.10 Lynnhurst Focus Area Master Plan

## LYNNHURST FOCUS AREA

This focus area is unique because Lynnhurst Park is a neighborhood park, and was planned jointly as a part of the Southwest Service Area Master Plan. It is likely the existing regional park boundary will need to shift to include at least the full daylighted tributary, but the final location of the park boundary has not yet been determined.

### A VISIONARY TRANSFORMATION

Lynnhurst Park and its surrounding neighborhoods are exceptionally vulnerable to flooding. The park offers the most available space to store floodwater, but is also prized for its field recreation offerings, two uses that seem mutually exclusive. The joint planning process resulted in a flexible rearrangement of Lynnhurst's fields and courts and the proposed integration of underground water storage, which will maintain space for multi-use diamonds and hockey, while adding essential flood storage. Active uses are grouped safely out of the floodplain, while land along the tributary is reclaimed for restored habitat and floodable passive recreation.

Currently, Lynnhurst Community Center sits across 50th Street from the rest of the park. The busy road represents a major barrier for trail users and program participants trying to get from the building to the park's amenities. Additionally, the tributary from Lake Harriet, which is daylighted north of 50th, is diverted into a pipe beneath the road until it discharges into Minnehaha Creek. This disconnect not only disrupts habitat, but also presents a flood hazard as the inlet is undersized and the grate that covers it frequently gets clogged with debris, exacerbating the problem.

This master plan proposes a dramatic re-connection of park function and ecology, re-linking Lynnhurst Park and its community center by moving the building north of 50th Street, and daylighting the tributary by constructing a new raised bridge at 50th in order to accommodate the channel and bike and pedestrian trails beneath.

### CONNECTIVITY

#### ACCESSIBILITY

ADA-accessible paved trails are proposed throughout this focus area, including along 51st Street, where there are currently none. This area also includes an accessible fishing pier and water access.

#### VEHICULAR

Simplification of the existing vehicular network will be possible once the existing community center is relocated. The intersection of Minnehaha Parkway's roads south of 50th Street can be realigned to more clearly maintain traffic flow rather than aligning with oncoming one-way traffic as the current intersection does. The bridge south of this intersection will be extended north (at the same elevation it is today) to allow habitat and floodwaters to flow continuously beneath. A new raised bridge at 50th Street will provide creek and trail passage beneath, which provides a no conflict alternative to the at-grade trail crossing at 50th and Minnehaha Parkway. The at-grade crossing will remain, but queuing will be expanded and mode-separated crosswalks are proposed to improve safety.

#### BIKE AND PEDESTRIAN TRAILS

Paved pedestrian trails are separated from bike trails throughout the Lynnhurst Focus Area. A new pedestrian bridge south of Burroughs Elementary allows the primary pedestrian route to remain along the west side of the tributary for easy access to recreational amenities at Lynnhurst Park. A new pedestrian bridge over the tributary provides access to the Community Center from 50th Street.

Bike trails typically remain on the east side of the tributary. A new bike bridge is proposed on the north side of the project area to facilitate this.



WATER ACCESS

Lynnhurst Park has the westernmost ADA-accessible launch in the project area. Located just downstream of the tributary’s confluence with the creek, the launch will have sidewalk access from nearby ADA parking spaces along Minnehaha Parkway.

RECREATION AND ACTIVITIES

The new community center will function as a recreation and activity hub along Minnehaha Parkway Regional Trail. The facility is proposed to have an environmental learning focus, which leverages its location next to the tributary as an educational tool that will enable visitors to learn about the challenges and wonders of urban ecology. A patio overlook will provide views of the restored channel and a nature play area where kids can safely interact with the water. Additional neighborhood park amenities can be seen in the plan, and are further detailed in the Southwest Service Area Master Plan.

A new shelter along the daylighted tributary will function as an outdoor classroom space for Burroughs Elementary students, who will also benefit from direct pedestrian access beneath 50th to the park and new community center. An accessible fishing pier is located near the new paddle launch.

NATURAL RESOURCES AND INFRASTRUCTURE

In many ways, the Lynnhurst Focus Area is a microcosm for the Minnehaha Parkway corridor as a whole. The driving force behind its transformation is water, and the ways in which we can celebrate, accommodate, enhance, and showcase this vital resource. The daylighted tributary and restored creek re-meanders will dramatically improve the hydrologic function of this area. Flood storage is expanded both above ground and below, as flexible field spaces and recreation areas are designed to work with flooding rather than fight against it. Implementation of these features will reduce the frequency

and intensity of flooding experienced by nearby homes. Aquatic and riparian habitat connectivity from Lake Harriet to Minnehaha Creek will be restored, and pollinator habitat will be expanded through the integration of bee lawns that layer ecological function and recreation. The vision for Lynnhurst shifts the paradigm of neighborhood park design beyond recreation to achieve harmonious integration of both land and water. The ecosystem services that result from this approach will profoundly benefit the health and well-being of all who interact with the Minnehaha Parkway corridor.



Rendering of the proposed daylighted tributary from Lake Harriet, people using trails under the raised 50th Street bridge, and nature play outside of the new, environmentally-focused Lynnhurst Community Center (looking south)



## SEGMENT 2

Segment 2 runs from Lynnhurst Park to I-35W and is fully bounded by Minnehaha Parkway roads. It is surrounded by residential homes, and has one focus area, referred to as “Nicollet Hollow,” between Girard Avenue and Minnehaha Parkway east of Nicollet Avenue.

### CONNECTIVITY

#### BIKE AND PEDESTRIAN TRAILS

Segment 2 has steep topography and is heavily wooded along most of its length, which makes it feel secluded from the bustle of its urban environment. While immersive, the gorge-like conditions of Segment 2 also make for fewer access points and difficult accessibility in spots. Pedestrians and bicyclists value this stretch of Minnehaha Parkway Regional Trail for its continuous nature, made possible by the many grade-separated crossings, but underpasses and dense vegetation sometimes present safety and visibility concerns. Trail users love walking and biking along the creek here, but also want paths separated by mode. The topography makes creating separate bike and pedestrian paths difficult or impossible in places, and after rain events, low trails such as these can become inundated. To respond to these conditions, the master plan for Segment 2 focuses on maintaining the beloved natural feel of the trail network, while improving access and safety for trail users.

Where possible, the master plan separates bike and pedestrian trails throughout Segment 2. Topography and a lack of available space necessitate a multi-use trail between Dupont and Garfield, but bike and pedestrian lanes will be delineated by pavement markings and signage according to the guiding principles and recommendations put forth in this plan. Just west of Nicollet, a new pedestrian bridge is proposed in order to separate pedestrian and bicycle trails that are currently combined and present a safety hazard.

The master plan reroutes many of the trails in Segment 2 in order to accommodate stormwater BMPs and restored re-meanders along Minnehaha Creek, interventions that add flood storage and are intended to reduce the frequency and duration of inundation. In order to maintain passage during flood conditions, alternate trails are made available on higher ground where possible. These routes should be wide enough to safely accommodate multiple modes, as trail users may be directed to share these trails while floodwaters recede. Where alternate regional trail routes are unavailable, pedestrians can use sidewalks and cyclists can ride on Minnehaha Parkway, as always.

#### WATER ACCESS

Segment 2 proposes two new creek access points, one on the north side of the creek between Garfield and Harriet, and another east of the Nicollet Avenue underpass, which will be ADA-accessible.

### RECREATION AND ACTIVITIES

Proposed recreation in Segment 2 is designed to complement the natural setting, while providing necessary amenities in key locations to serve regional trail users and neighborhood residents who lack nearby recreational offerings.

New path connections around 51st Street should be designed to maintain access to the existing sledding hill in the winter. Other trail additions, including boardwalks and interpretive overlooks, will supplement the trail network and offer better access to natural resources and wildlife viewing.

A proposed picnic area in the knoll between the Minnehaha Parkway roads near Valleyview Drive offers a peaceful creekside gathering place. The secluded topography offers a natural barrier for grill smoke and noise, and the picnic grounds is well away from any homes. A non-reservable picnic shelter will support gatherings on a first-come-first-served basis. Scattered picnic tables and grills will be able to accommodate many small groups, or a large event. Posts for hammocking will encourage lounging without having negative impacts on trees. Space is available for additional parking stalls along the Parkway. The new picnic grounds are a prime location for a public art piece, as the clearing can be viewed from the Parkway, adjacent trails, and from above via a neighborhood access stairway.

In order to maintain an uncluttered, natural aesthetic throughout Segment 2, the Nicollet Focus Area is the only area where new active recreation is proposed. This area is a key rest stop between existing trail amenities at Lynnhurst Park and Nokomis-Hiawatha Regional Park, and will have water, a restroom enclosure, seating, and picnic tables, in addition to the ADA-accessible water access. Nature-themed play features and public art will enliven the space and mark the area as a worthwhile trail stop. Redesign of the Nicollet Avenue underpass should emphasize placemaking to promote comfort and safety for visitors. The bridge’s design should layer structural function with recreation by incorporating activities like bouldering or swings. A detailed description of the Nicollet Hollow Focus area can be found on the following pages.

### NATURAL RESOURCES & INFRASTRUCTURE

Segment 2 offers the most opportunity for large-scale creek restoration when compared to other sections of the creek. Southeast of Lynnhurst, frequently flooded lawn spaces are proposed to be converted to wetland habitat. Between Emerson and Aldrich, the master plan proposes creek re-meanders and a braided channel restoration. The creek will gain length and flood capacity between Girard and Nicollet with proposed re-meanders, and the addition of several new wetland basins will treat and store stormwater before it enters the creek. Management of the existing woodland habitat, removal of invasive species, and replacement of traditional turf with pollinator lawns are proposed throughout Segment 2.



Imagery of features proposed in Segment 2



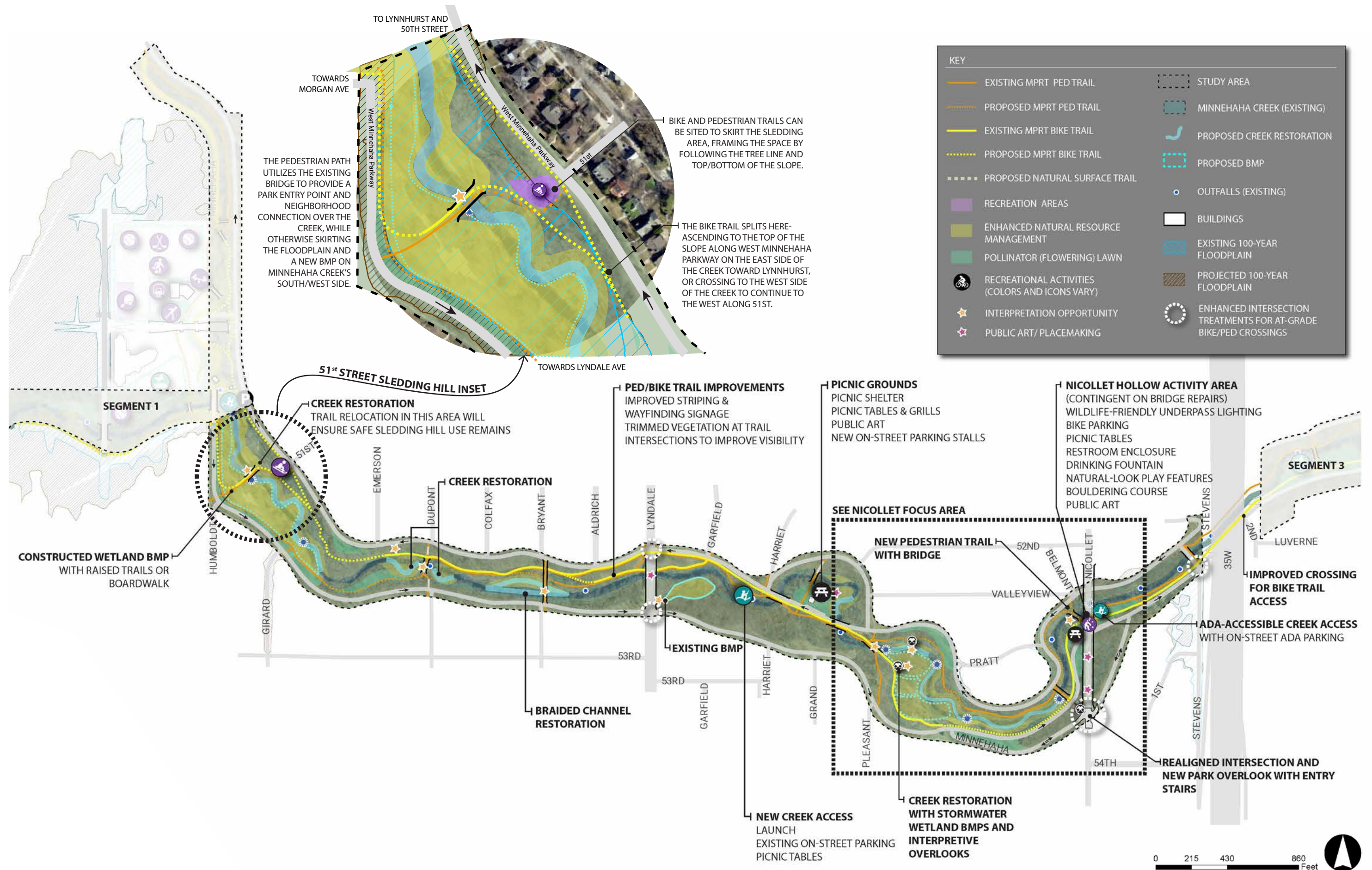


Figure 5.11 Segment 2 Master Plan



# NICOLLET FOCUS AREA

Once the need for an activity node was identified in Segment 2, the area west of Nicollet quickly materialized as a good fit. The Nicollet Avenue underpass lacks the vibrant natural surrounds prized elsewhere in the corridor, and the bridge is due for repair or replacement in the near future. Despite its dilapidated condition, the scale and form of the architecture offers a striking contrast to its wild environment, and possesses a certain draw. Investment here will transform the stark, grey underbelly of the crumbling bridge into the “Nicollet Hollow” Activity Area, a welcoming stopping point along Minnehaha Parkway Regional Trail.

## CONNECTIVITY ACCESSIBILITY

ADA-accessible paved trails are proposed throughout this focus area. Nicollet Hollow also includes Minnehaha Parkway Regional Trail’s central ADA-accessible water access.

## VEHICULAR

The only proposed changes to Minnehaha Parkway in the focus area include the addition of parallel parking stalls at the new picnic grounds and ADA-accessible water access, and intersection improvements at the intersection of Minnehaha Parkway and Nicollet Avenue. Realigning the intersection at Nicollet will reduce the angle of skew, which shortens crossing distances and increases safety for all modes. Curb extensions and updated crosswalks will enhance pedestrian safety for those using this neighborhood park entrance.

## BIKE AND PEDESTRIAN TRAILS

Pedestrian trails are separated from bike trails throughout the Nicollet Focus Area. A newly proposed pedestrian bridge west of Nicollet makes moving the pedestrian route to the north side of Minnehaha Creek possible, which leaves enough space for the bike trail on the south side of the creek and does not require moving or closing the lower Parkway road. Access to Nicollet Avenue is maintained via the existing pedestrian bridge and a reconstructed stairway. A new overlook at Nicollet is proposed as part of the intersection improvements. New segments of pedestrian trails respond to a re-meandered creek alignment and are moved farther from the creek in order to avoid flooding. While topography prevents some portions of the trail network from being built outside of the floodplain, the additional flood storage from the proposed wetlands aims to reduce occurrences of trail flooding.

Minnehaha Parkway Regional Trail’s bike route is separated from pedestrian trails in this area, and runs along the south side of Minnehaha Creek. A segment of the trail is relocated closer to the lower Parkway road, in order to remain outside of the floodplain and make room for creek restoration. Bike parking and multi-modal options should be made available at Nicollet Hollow as part of the activity area.

# RECREATION AND ACTIVITIES

Segment 2 functions like a neighborhood park in places because it is the closest park to many residents. For this reason, play was frequently-cited as a desire here. In order to respond to the idyllic natural setting, play features proposed at Nicollet Hollow are intended to use natural materials and stand alone as playful sculptural elements rather than reading as a traditional playground. The reconstruction of the Nicollet Avenue underpass presents a unique opportunity to integrate play as part of the bridge. A bouldering course fits the theme of nature-based active recreation and would offer a great no-cost introduction to climbing as the sport gains popularity. Swings, creative lighting, and public art could also be employed in the bridge’s design to make the underpass more habitable and enhance the recreational potential of Nicollet Hollow in addition to holding traffic above.

Situated at a mid-point between Lynnhurst Park and Nokomis-Hiawatha Regional Park, Nicollet Hollow is an ideal location for comfort amenities and gathering space. Picnic tables, seating, drinking water, and a restroom enclosure will all be available. The bridge itself will function as a shelter.

West of Nicollet Hollow, on the south side of the creek, an overlook will provide sweeping views of the new wetland BMPs and the re-meandered creek. The overlook will be a prime location for bird watching, and associated interpretation will encourage exploration and understanding of the natural world.

# NATURAL RESOURCES & INFRASTRUCTURE

The Nicollet Focus Area has eight outfalls that direct stormwater runoff into Minnehaha Creek, five of which are in the western half. The series of stormwater wetlands proposed here will help to manage the influx of water from these pipesheds (one of which is roughly 170 acres). A significant section of re-meandered creek will add storage capacity and slow the velocity of water as it flows downstream. Outfall repair and replacement should be undertaken as necessary as part of these natural resource projects, in coordination with the City of Minneapolis and MCWD.

Restoration work as part of these projects should take care to preserve the tree canopy where possible, and replace it elsewhere, working to achieve a healthy, resilient floodplain forest habitat. Nicollet Hollow Activity Area and other areas currently maintained as turf should be converted to pollinator lawn.

Expanded infrastructure investment may be needed beneath the Nicollet Avenue Bridge in order to bring drinking water to the Nicollet Hollow Activity Area. A sewer connection should be examined as well to determine if formal restrooms are a possibility.



Precedent imagery of proposed features in the Nicollet Hollow Focus Area Master Plan

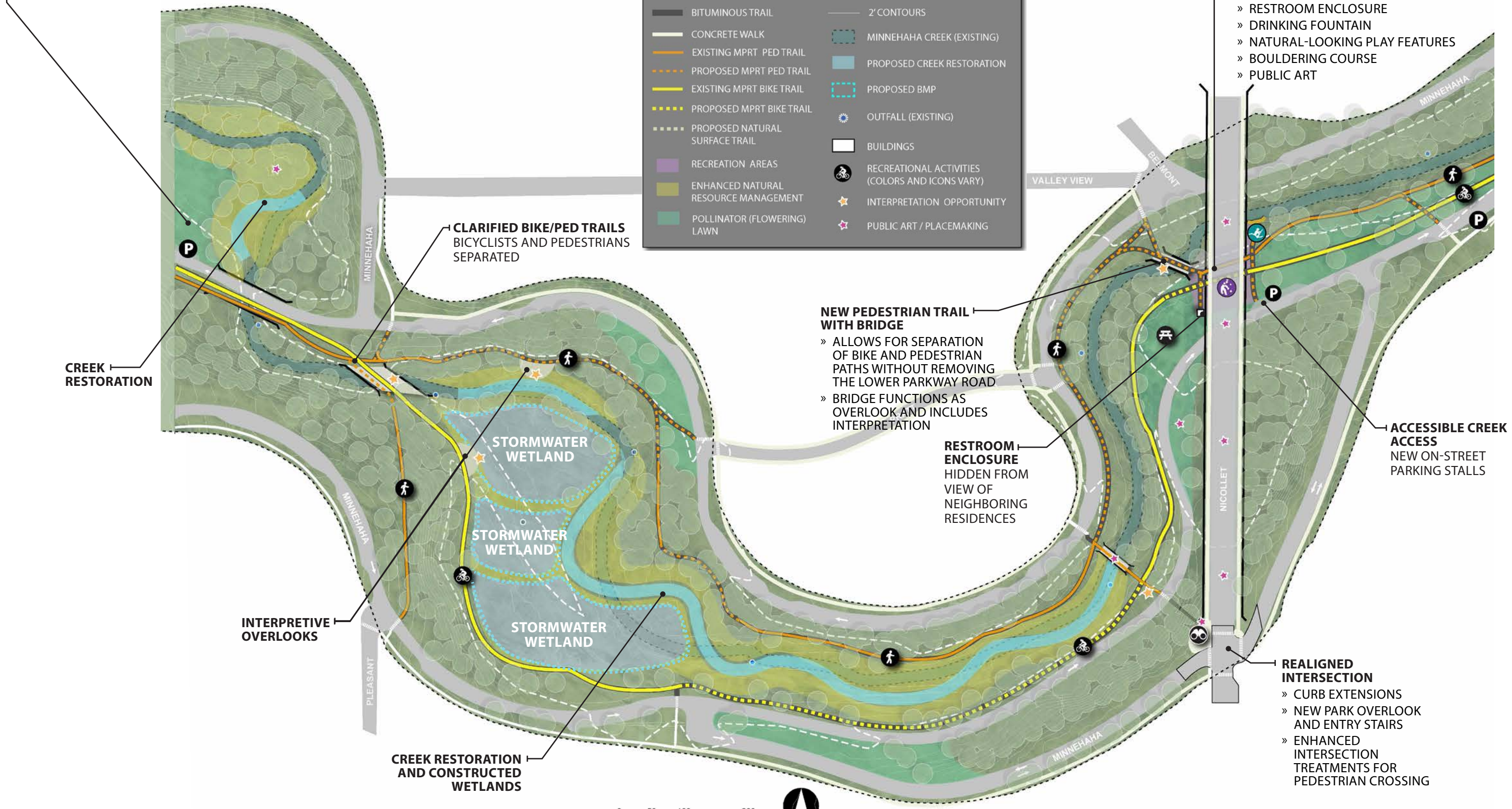


- PICNIC GROUNDS**
- » NON-RESERVABLE SHELTER
  - » PICNIC TABLES AND GRILLS
  - » DESIGNATED HAMMOCKING
  - » PUBLIC ART
  - » NEW ON-STREET PARKING STALLS

- NICOLLET HOLLOW ACTIVITY AREA**
- » (CONTINGENT ON BRIDGE REPAIRS)
  - » UNDERPASS LIGHTING
  - » BIKE PARKING
  - » PICNIC TABLES
  - » RESTROOM ENCLOSURE
  - » DRINKING FOUNTAIN
  - » NATURAL-LOOKING PLAY FEATURES
  - » BOULDERING COURSE
  - » PUBLIC ART

**KEY**

STUDY AREA	100-YEAR FLOODPLAIN
BITUMINOUS TRAIL	2' CONTOURS
CONCRETE WALK	MINNEHAHA CREEK (EXISTING)
EXISTING MPRT PED TRAIL	PROPOSED CREEK RESTORATION
PROPOSED MPRT PED TRAIL	PROPOSED BMP
EXISTING MPRT BIKE TRAIL	OUTFALL (EXISTING)
PROPOSED MPRT BIKE TRAIL	BUILDINGS
PROPOSED NATURAL SURFACE TRAIL	RECREATIONAL ACTIVITIES (COLORS AND ICONS VARY)
RECREATION AREAS	INTERPRETATION OPPORTUNITY
ENHANCED NATURAL RESOURCE MANAGEMENT	PUBLIC ART / PLACEMAKING
POLLINATOR (FLOWERING) LAWN	



- NEW PEDESTRIAN TRAIL WITH BRIDGE**
- » ALLOWS FOR SEPARATION OF BIKE AND PEDESTRIAN PATHS WITHOUT REMOVING THE LOWER PARKWAY ROAD
  - » BRIDGE FUNCTIONS AS OVERLOOK AND INCLUDES INTERPRETATION

- RESTROOM ENCLOSURE**
- HIDDEN FROM VIEW OF NEIGHBORING RESIDENCES

- REALIGNED INTERSECTION**
- » CURB EXTENSIONS
  - » NEW PARK OVERLOOK AND ENTRY STAIRS
  - » ENHANCED INTERSECTION TREATMENTS FOR PEDESTRIAN CROSSING

- ACCESSIBLE CREEK ACCESS**
- NEW ON-STREET PARKING STALLS

Figure 5.12 Nicollet Focus Area Master Plan



# SEGMENT 3

Segment 3 runs from I-35W to Cedar Avenue. West of Park Avenue, it is predominantly bounded by Minnehaha Parkway roads, while east of Park Avenue Minnehaha Parkway runs along the north side of Minnehaha Creek. The segment is surrounded by residential homes, and there is a small commercial node at Cedar where Minnehaha Parkway Regional Trail enters Nokomis-Hiawatha Regional Park. Segment 3 has one focus area, referred to as “Portland and the Parkway” near the iconic bunny sculpture.

## CONNECTIVITY

### VEHICULAR

Minnehaha Parkway in Segment 3 functions as an important east-west spine, providing a route across south Minneapolis in a street grid that is interrupted by natural features like Pearl Park, Nokomis-Hiawatha Regional Park, and Minnehaha Creek itself. The Parkway road carries more commuters and cross-city traffic here than elsewhere in the corridor. To promote safety, intersection improvements are recommended at many locations, including at:

- » the intersection of Minnehaha Parkway roads and 50th
- » Portland Avenue
- » Park Avenue
- » Chicago Avenue
- » 12th Avenue
- » Bloomington Avenue
- » 17th Avenue
- » Cedar Avenue

Specific interventions are to be determined in detailed design. See the “Intersection Recommendations” section earlier in this chapter for examples. Figure 5.4 maps out proposed intersection enhancements and roadway changes throughout the corridor.

Other adjustments to Minnehaha Parkway are focused around Portland Avenue and the Parkway, where proposed medians will limit turn movements. This measure, combined with a conversion of the frontage roads off of Portland to split one-ways, will prevent dangerous cut through traffic that currently develops at peak hours. A proposed realignment and 3-way stop at the intersection of two Minnehaha Parkway roads and 50th Street will address safety at the most oft-cited difficult intersection in the corridor.

A one-block segment of MPRB-owned frontage road is proposed to be removed west of Cedar Avenue. This road is used as a cut-through for vehicles, but is otherwise functionally redundant from a traffic standpoint. Removal of this excess impervious surface to make way for a stormwater BMP will provide both water quality and flood benefits.

### BIKE AND PEDESTRIAN TRAILS

Minnehaha Parkway intersects with busy north-south roads frequently along Segment 3, which creates safety concerns and disrupts travel for cyclists and pedestrians. Proposed intersection enhancements include features like larger landings for queueing, mode separated crosswalks, and signal timing adjustments that will make biking and walking Segment 3 safer and more convenient. A new overlook and improved Minnehaha Parkway Regional Trail connection at Park Avenue’s protected bikeway will facilitate access from this major cyclist thoroughfare.

Master Plan trail adjustments in Segment 3 focus on maintaining separation of bicyclists and pedestrians, while making room for creek restoration that will reduce flooding and increase habitat. Additions to the trail network include a new bridge near 10th Avenue that will connect bike and pedestrian paths to a proposed water access point on Minnehaha Creek. A proposed bike tunnel beneath Cedar Avenue will allow grade-separated crossing of the busy county road into Nokomis-Hiawatha Regional Park, eliminating the need to cross at a high-conflict intersection.

On the south side of Minnehaha Creek, natural surface trails between 12th Avenue and Cedar Avenue offer a creekside walking path for those seeking a slower-paced, more grounded experience.

### WATER ACCESS

A new water access point is proposed on the north side of Minnehaha Creek near 10th Avenue.

## RECREATION AND ACTIVITIES

In the western half of Segment 3, trail use is the primary form of recreation. Restoration of a working drinking fountain at “the Bunny” will improve the function of this popular rest area. Picnic areas near 51st Street on the north bank of the creek and 11th Avenue on the south bank provide places for people to rest and gather.

A proposed picnic ground on the north side of the creek at 16th Avenue will provide restroom and water access to support the active recreational uses around the Bloomington Activity Node. These include a sledding hill, four new pickleball courts that will replace the existing tennis courts, and a new course of single-track bike trails between 12th and 16th Avenues, on the south side of Minnehaha Creek. A new creekside overlook with interpretation is proposed along the natural surface trails on the south side of the creek near 17th Avenue. These trails are compatible with continued winter use of the sledding hill.

## NATURAL RESOURCES & INFRASTRUCTURE

Established neighborhoods adjacent to the creek belie the fact that the entirety of Segment 3 was wetland in the 1850s. With climate change, the area around Portland Avenue is projected to be particularly susceptible to future flooding. Here, the creek receives runoff from nearly a dozen outfalls that drain an exceptionally large area. During storms, the influx of water and the sharp bend in the creek result in damaging scouring that requires hard armoring and high walls to protect the shoreline from eroding. A re-meander of Minnehaha Creek is proposed to help soften the angle of the channel and reduce the destructive velocity of the water as it flows beneath 50th Street. Reconstruction of the 50th Street bridge may be necessary to make room for the ideal creek alignment. Upstream, a braided channel restoration will add flood storage.

Three re-meanders of the creek are proposed between Chicago and 14th Avenues. The re-meanders between 12 and 14th will restore the creek to its “pre-Wirth” alignment, as shown in 1912 MRPB maps. BMPs associated with the 11th and 13th Avenue re-meanders will detain and treat approximately 150 acres of stormwater before it enters Minnehaha Creek. Standalone stormwater BMPs are proposed near Oakland, 16th, and 18th Avenues. Near Cedar Avenue, a small re-meander of the creek makes a large wetland restoration possible. This BMP will be high-profile, with views from adjacent trails, a new overlook, the Cedar Avenue Bridge, and the hill on the south side of the creek, and presents a great opportunity for environmental education and interpretation.



Precedent imagery of features in Segment 3



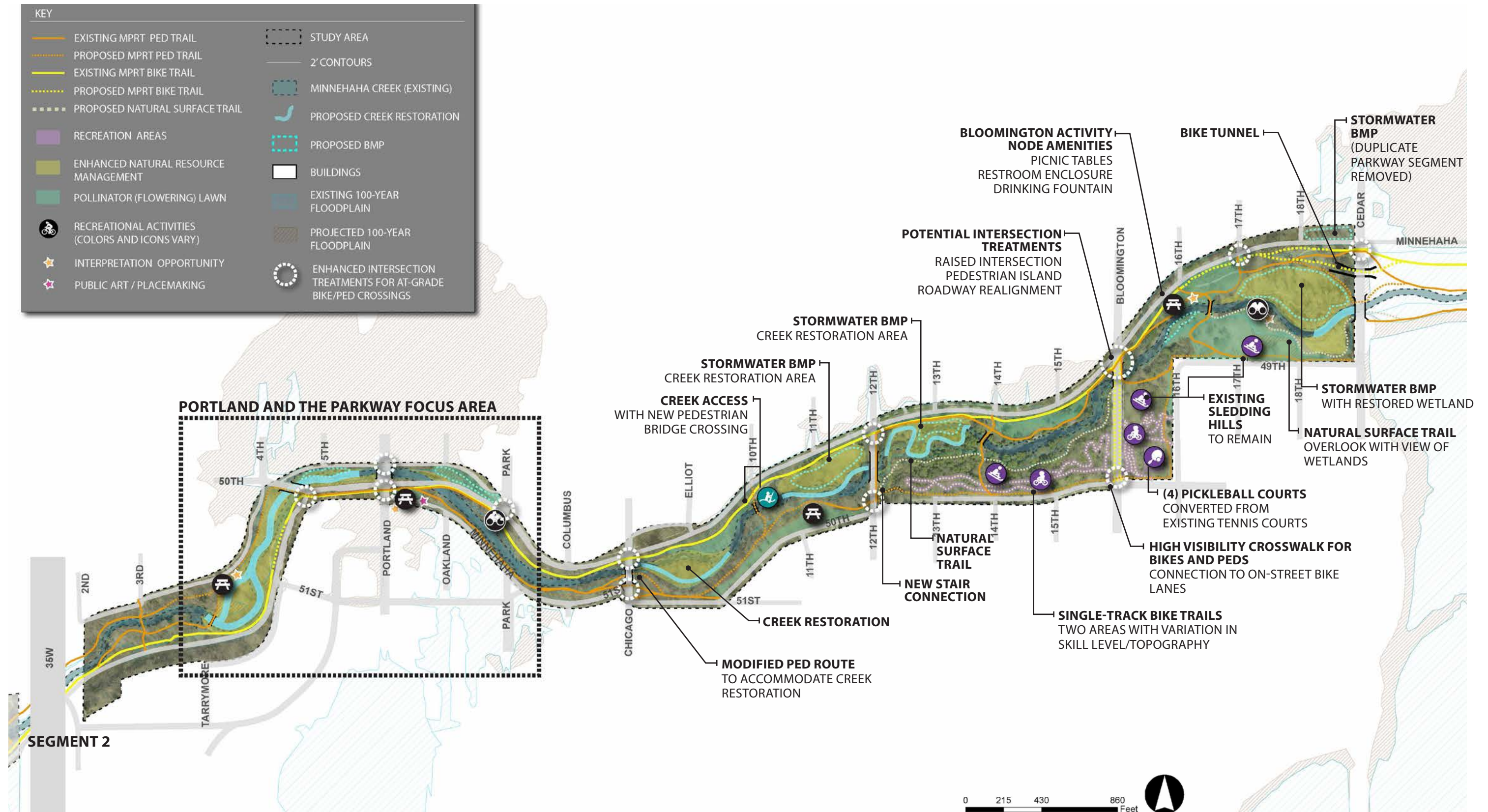


Figure 5.13 Segment 3 Master Plan



# PORTLAND AND THE PARKWAY FOCUS AREA

## CONNECTIVITY

### ACCESSIBILITY

ADA-accessible paved trails are proposed throughout this focus area.

### VEHICULAR

This section of Segment 3 has the corridor’s most complicated roadway network. As a cross-town pinch point, it experiences a lot of congestion at peak hours and can feel unsafe no matter which mode of travel one prefers. Proposed medians at Portland Avenue and conversion of the Parkway’s frontage roads to opposing one-ways endeavors to restrict the cut-through traffic that plagues this area during rush hour. Curb extensions will improve queuing space and reduce crossing distances for bikes and pedestrians. A proposed intersection realignment will tee up Minnehaha Parkway with 50th Street and 4th Avenue to clarify crossing. Combined with an extended central median along 50th, this will limit use of the frontage road, making rush hour traffic through this area much more predictable, and thereby, safer.

Adjustments to the 50th Street bridge over Minnehaha Creek may be necessary so that its abutments can accommodate a channel realignment that successfully reduces scouring. MPRB, MCWD, and the City of Minneapolis should collaborate on the best timing for these projects.

A new three-way stop at the intersection of 50th and two Minnehaha Parkway roads will force all travelers to stop and observe right-of-way. Realignment of this intersection, curb extensions, crosswalk improvements, and trimming of overhanging vegetation to maintain views will all contribute to safer passage here.

Improvements to the intersection of Minnehaha Parkway Regional Trail at Park Avenue include curb extensions and a more robust system of mode-separated crosswalks. Realigning this intersection will improve the ease and safety of moving between the protected bikeway and the regional trail for cyclists.

### BIKE AND PEDESTRIAN TRAILS

West of 50th Street, bike and pedestrian trails are proposed to be rerouted in order to make room for a creek re-meander and maintain mode separation. Intersection realignment, vegetation management, and the addition of stop signs will greatly improve safe crossing of Minnehaha Parkway and 50th Street. East of this intersection, limited width necessitates a combined trail until “The Bunny,” and no adjustments to the existing trail network are proposed. Bike and pedestrian lanes will be delineated by pavement markings and signage where combined.

## RECREATION AND ACTIVITIES

With a bustling network of roads and trails in a tight corridor, and major issues with stormwater to resolve, this focus area leaves little room for active recreation. Instead, this node carves out spaces for rest and wonder in three spots along the creek. A new creekside overlook at Park Avenue provides a welcoming feature for visitors entering the trail from the north. A revitalized rest area at “The Bunny” will be fortified with permeable pavers, and offer working drinking water, seating, bike racks, and picnic tables for visitors. South of 50th Street on the west side of the creek, a new picnic grounds will provide inviting views of a newly restored braided channel.

## NATURAL RESOURCES & INFRASTRUCTURE

Because of the large pipeshed directing runoff into Minnehaha Creek around Portland Avenue, the focus area is prone to flooding. Upstream of 50th, a braided channel restoration will increase flood capacity and slow water velocity. The channel is proposed to be realigned beneath the 50th Street bridge, in order to further reduce scouring. At 5th Avenue, energy dissipation at the outfall, restoration of the shoreline, and implementation of a BMP all aim to reduce the need for hard armoring of the creek section. A new BMP and pollinator lawn are proposed between Oakland and Park Avenues to provide flood storage and treat stormwater before it is discharged to Minnehaha Creek.



Precedent imagery of features in the Portland and the Parkway Focus Area Master Plan



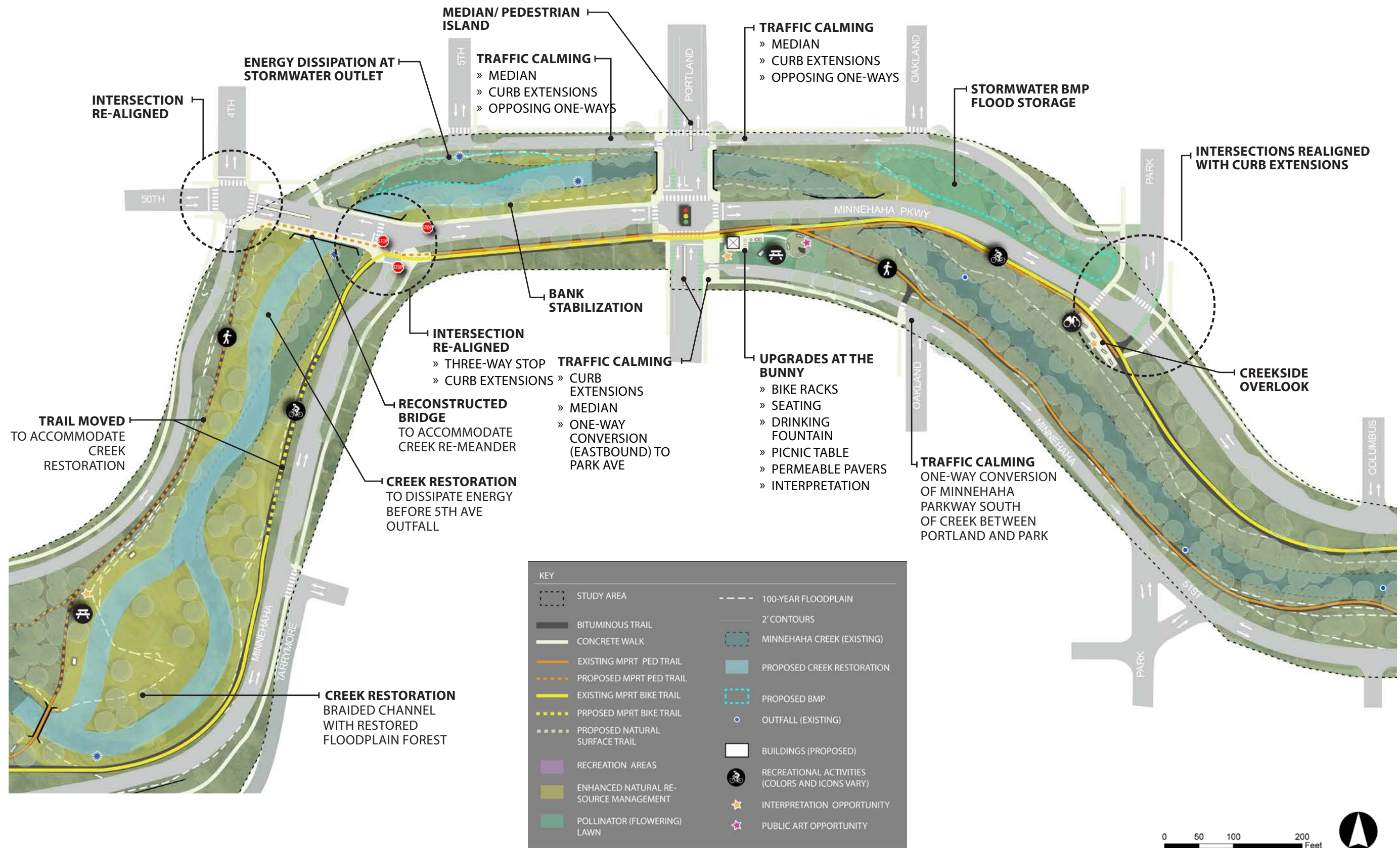


Figure 5.14 Portland and the Parkway Focus Area Master Plan



# SEGMENT 4

Segment 4 runs from the border of Nokomis-Hiawatha Regional Park at 28th Avenue to 39th Avenue S. This segment is unique because the parkway roads form a boulevard south of Minnehaha Creek, while the regional trails run along the creek itself. The two prongs connect at the blocks around 34th Street, but pockets of residential homes keep the parkway and trails separate elsewhere in the segment.

## CONNECTIVITY

### VEHICULAR

Minnehaha Parkway has one-way roads through Segment 4, which allows for relatively predictable traffic flow and crossings; however, intersection improvements like crosswalk re-striping are suggested at 28th Avenue, Nokomis Avenue, 34th Avenue, and 39th Avenue.

### BIKE AND PEDESTRIAN TRAILS

Minnehaha Parkway Regional Trail’s bike and pedestrian paths are separated throughout Segment 4, except around 34th Avenue, where they are combined beneath the bridge. The trail network generally remains the same, except where existing trails are relocated to make room for creek re-meanders or stormwater BMPs, as is the case between 28th and 30th Avenues, and between 36th and 39th. The latter section of trail is the only area where development occurs on the south side of the creek, elsewhere, the south side is preserved for flexible, unprogrammed use.

### WATER ACCESS

The final takeout before Minnehaha Falls is located just south of the Minnehaha Parkway bridge east of 39th. It is proposed to be converted to an ADA-accessible water access with available on-street parking, a new curb ramp, and an accessible path.



## RECREATION AND ACTIVITIES

Segment 4 currently has several underutilized tennis courts that are in poor condition. In order to diversify recreation offerings here, the westernmost court is proposed to be removed and converted to an open pollinator play lawn, the courts at 32nd are slated to be repaired, and the courts at 34th are proposed to be converted into a bike skills park.

Underground flood storage will be installed beneath the playfield at 34th, and the field will be restored as a pollinator play lawn for flexible field use. The sledding hill west of 32nd Avenue will remain. A new overlook with views of the re-meandered creek will be installed along the proposed boardwalk near 38th Avenue.

The Minnehaha Parkway boulevard has a variety of tree plantings, but does not currently offer any recreational amenities. The master plan proposes the addition of a Storywalk, which will connect Nokomis-Hiawatha Regional Park to Longfellow Gardens. The new natural surface trail will provide a more direct route between Lake Nokomis Recreation Center and Minnehaha Regional Park, and offer a unique interpretive program along the way. For cyclists, protected bikeways will be installed on Minnehaha Parkway to connect the two parks.

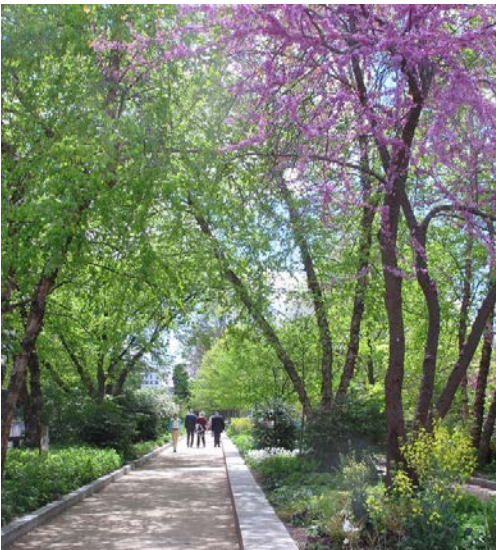
Many of the area’s natural features have names inspired by American Indian culture, but through a romanticized, euro-centric lens, drawn from Henry Wadsworth Longfellow’s poem “Song of Hiawatha.” The proposed Storywalk will provide a place where traditional foods and medicines, and other native plants can ground visitors in a facet of Dakota culture that is rooted in the land. Here, indigenous artists can create and showcase artworks, and choose to speak to culture in their own way. A new sidewalk connection between Nokomis-Hiawatha Regional Park and 28th Avenue will provide a link to the west entry of the Storywalk, while a new gateway to Minnehaha Parkway Regional Trail is proposed on the east end.

## NATURAL RESOURCES & INFRASTRUCTURE

Four areas of Minnehaha Creek are proposed to be re-meandered and restored in Segment 4:

- » 28th Avenue to 30th Avenue (includes a stormwater BMP)
- » Nokomis Avenue to 32nd Avenue (includes a stormwater BMP)
- » 33rd Avenue to 35th Avenue
- » 36th Avenue to Hiawatha (includes constructed wetlands)

To further improve flood resilience, an underground storage BMP is proposed beneath the pollinator play lawn east of 34th Avenue. Additional pollinator lawns are proposed near 30th Avenue and along the Storywalk. Continued invasive species management and native habitat restoration is proposed throughout disturbed areas of the corridor.



Precedent imagery of features in Segment 4



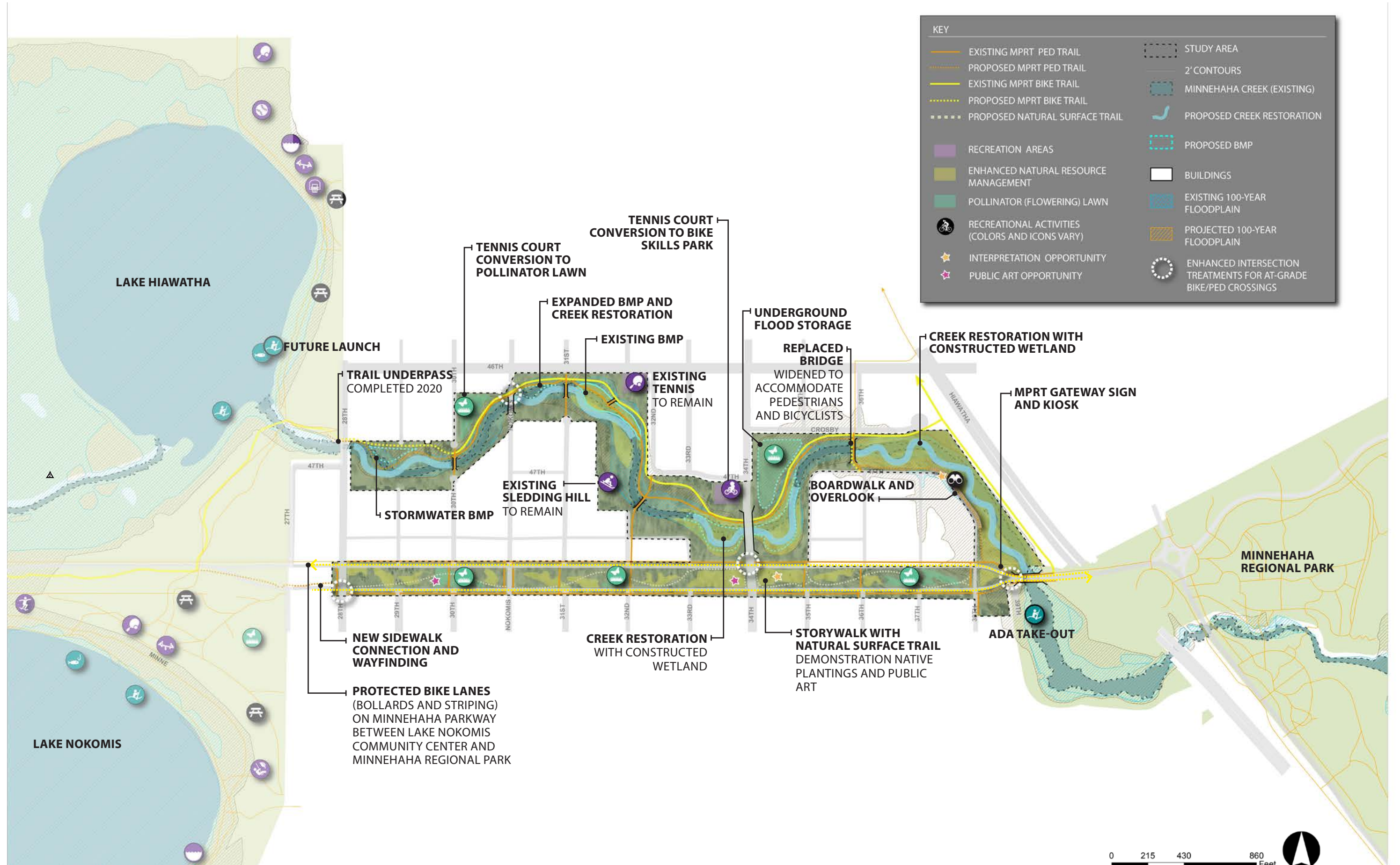


Figure 5.15 Segment 4 Master Plan



