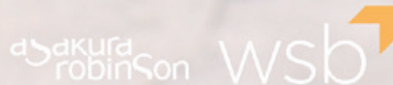


OPUS AREA PLACEMAKING + URBAN DESIGN

IMPLEMENTATION GUIDE



HOW TO USE THIS GUIDE

CONCEPT 1

Articulate neighborhood and trail network entrances, directions and place-based information with a clear hierarchy of wayfinding signage.

Overall District Brand

Reference Chapters:
2. Trail Loops
3. Wayfinding + Furnishing

Loops

Reference Chapters:
2. Trail Loops
3. Wayfinding + Furnishing
6. Planting Palettes

Wayfinding + Site Furnishing

Reference Chapters:
3. Wayfinding + Furnishing
4. Placemaking + Programming

Planting Zones

Reference Chapters:
6. Planting Palettes

This implementation guide may be used by different audiences, such as developers, existing businesses, and city staff, to achieve a cohesive branding, wayfinding, and placemaking vision for the district.

CONCEPT 2

Connect across neighborhood boundaries, between ped, bike and vehicular networks and to public transportation stations.

Regional Connections

Reference Chapter:
2. Trail Loops
5. On-Street Bikeways

Internal Trails

Reference Chapters:
2. Trail Loops
4. Placemaking + Programming

Developers may use this guide to shape new development that provides privately-owned, publicly available amenities that enhance the trail system and support new trail connections. Existing business owners may use this guide to consider branding opportunities to promote their goods and services as well as improve connections to the trail system. City staff may use this guide to designate funding for capital improvements and public space amenities in addition to using the guide as a tool to work with developers to leverage privately-managed public amenities.

CONCEPT 3

Support social, interpretive, restorative and recreational activity in central spaces and defined trail nodes.

Defined Activity Nodes

Reference Chapters:
2. Trail Loops
3. Wayfinding + Furnishing
4. Placemaking + Programming

Programming Overview

Reference Chapters:
2. Trail Loops
4. Placemaking + Programming
6. Planting Palettes

Central Plaza

Reference Chapters:
3. Wayfinding + Furnishing
4. Placemaking + Programming
5. On-Street Bikeways

Development Standards

Reference Chapters:
3. Wayfinding + Furnishing
4. Placemaking + Programming
5. On-Street Bikeways

TABLE OF CONTENTS

Chapter 1: Overall Concepts.....	4
Chapter 2: Trail Loops.....	24
Chapter 3: Wayfinding + Furniture.....	38
Chapter 4: Placemaking + Programming.....	46
Chapter 5: On-Street Bikeways.....	48
Chapter 6: Planting Palettes.....	54
Appendix A: Existing Conditions Report.....	65
Background.....	66
Identity + Use.....	76
Mobility.....	84
Natural Environment.....	102
Appendix B: Previous Plans.....	110

List of Maps

Map 1: Branded Trail Loops.....	6
Map 2: Wayfinding Signage by Type.....	8
Map 3: Opus District Planting Zones.....	11
Map 4: Regional Connections.....	12
Map 5: Proposed On-Street Facilities.....	14
Map 6: District Trail System Improvements.....	16
Map 7: Activity Nodes.....	17
Map 8: Opus Trail Overview.....	26
Map 9: Opus Trail Loop Placemaking + Wayfinding.....	27
Map 10: Opus Trail Loop Planting Zones.....	27
Map 11: Green Trail Overview.....	28
Map 12: Green Trail Loop Placemaking + Wayfinding.....	29
Map 13: Green Trail Loop Planting Zones.....	29
Map 14: Bren Trail Overview.....	30
Map 15: Bren Trail Loop Placemaking + Wayfinding.....	31
Map 16: Bren Trail Loop Planting Zones.....	31
Map 17: Blue Trail Overview.....	32
Map 18: Blue Trail Loop Placemaking + Wayfinding.....	33
Map 19: Blue Trail Loop Planting Zones.....	33
Map 20: Yellow Trail Overview.....	34
Map 21: Yellow Trail Loop Placemaking + Wayfinding.....	35
Map 22: Yellow Trail Loop Planting Zones.....	35
Map 23: Red Trail Overview.....	36
Map 24: Red Trail Loop Placemaking + Wayfinding.....	37
Map 25: Red Trail Loop Planting Zones.....	37
Map 26: On-Street Bike Facilities by Type.....	48
Map 27: Recommended Transit Routes and Bus Stop Locations.....	52



HOPKINS

Smetana Rd

MINNETONKA

Steady Oak Rd

Bren Rd E

Green Cir Dr

Bren Rd W

Smetana Dr

Red Cir E

Green Oak Dr

Blue Cir E

Crosstown Hwy

Yellow Cir E

EDEN PRAIRIE

— Southwest LRT Alignment

● Southwest LRT Station



CHAPTER ONE

OVERALL CONCEPTS

Introduction

The Opus area is currently characterized by a circuitous road network, 6 miles of off-road trails, mid-century design elements, and natural open spaces. This plan guides the transformation of the Opus area into a cohesive mixed-use community positioned for future needs while reflecting the history of the area. Aspects of the work include:

- Working with developers and businesses to create publicly-accessible privately-owned spaces.
- Successfully connecting the light rail station to the rest of the surrounding community.
- Creating a set of public realm design guidelines for the aesthetics within the public right of way.

The study also recommends a series of placemaking efforts within Opus that reflect the area's agriculture and business park history and serve as a catalyst for building community and creating an environment supportive of development opportunities. Specifically, the placemaking effort:

- Examines the potential to establish permaculture-based edible landscaping along the trail network and throughout the area to connect parks and open space to planned and future developments.

Project Goals

Key elements that guide the transformation of this area into a cohesive 'opus' of complementary built forms and development projects include:

- Establishing a mixed use community.
- Integrating light rail investment into the broader community.
- Enhancing the existing trail network to help create a sense of place.
- Enhancing the district's natural features & functions.
- Developing a scope and program elements for a signature new community level park/plaza space.
- Complementing the area's existing businesses.

It is important that these elements interact to create a unique sense of place that reflects the desires of the community while engaging all stakeholders, including historically underrepresented populations.

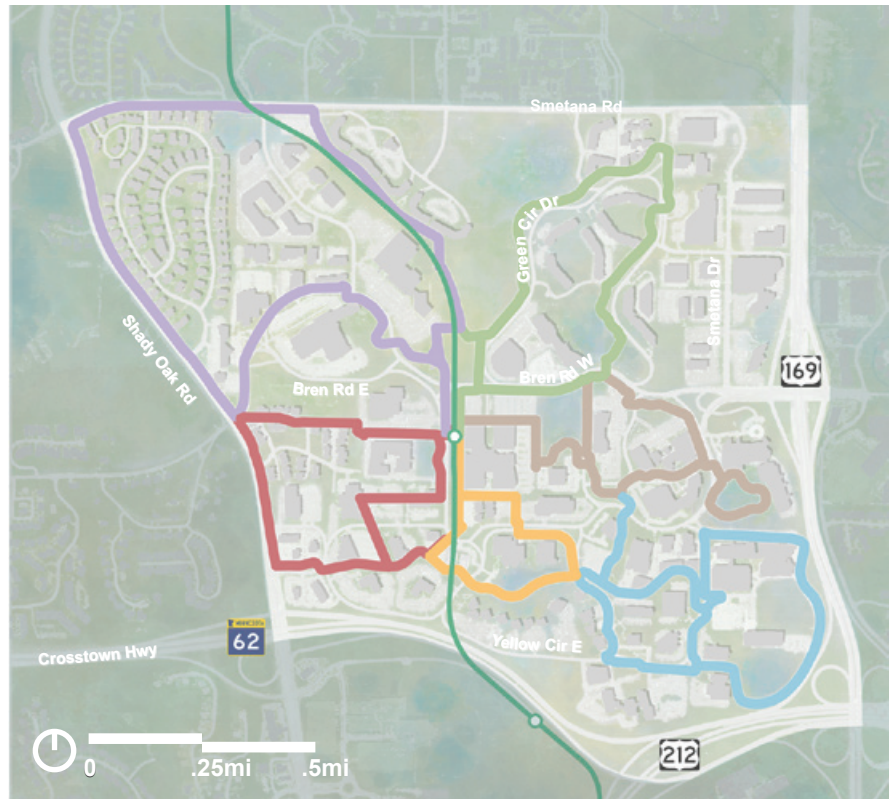
Branding Strategy









The site elements designed and selected within this document build upon the existing character, helping to create a sense of place within the Opus area. Color plays an important role in the identity of the area. The looping roadway networks were named by color, for example 'Blue Circle Drive'. These loops were meant to represent the colors of the Olympic rings: green, yellow, blue and red (excluding black). Proposed signage and special pavements within the area use this color scheme to strengthen this unique aspect of the area's character while also reinforcing the wayfinding strategy.

Proposed signage incorporates the mid-century font used on existing monument signs and on printed materials when the site was initially developed in the 1970's. Signage and site furnishings use natural materials such as wood to reinforce the natural, rustic character of the area.

These guidelines also suggest the removal of '2' from the Opus 2 name. The 2 suggests there is a series of places branded as Opus. The removal of the 2 creates a cleaner, more simple branding and identity for the area. At right is an example of an improved monument sign, two of which exist along Shady Oak Road. Monument signs, defined further under the wayfinding section of this chapter, are not city-owned and would be privately-funded upgrades.

Map 1: Branded Trail Loops



-  Southwest LRT Alignment
-  Southwest LRT Station
-  Red Loop
-  Blue Loop
-  Yellow Loop
-  Green Loop
-  Bren Loop
-  Opus Loop

Note: The existing monument sign is privately owned and the recommended design improvements are illustrative only. The City will need to partner with the private owners to determine an updated final design.



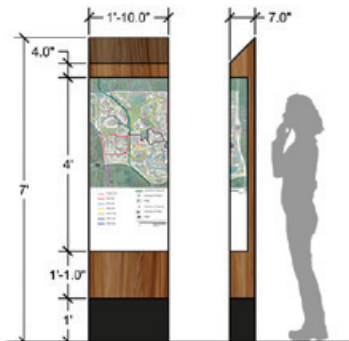
Left: Example of an existing monument sign. Right: Recommended monument sign design improvements.

Wayfinding Strategy

Wayfinding is a crucial component of the proposed Opus area improvements. The separation of the trail system from the roadway network, while offering a more pleasant experience for the user, can also make navigation challenging. Signage that coordinates with the colored loops will reinforce branding and improve wayfinding within the trail system. A hierarchy of sign types is proposed for the area:

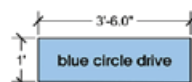
Campus Map

Provides a map of the Opus Area, with colored loops and key destinations identified. These are placed at entry points along the trail system. They are also located in areas where two or more colored loops converge.



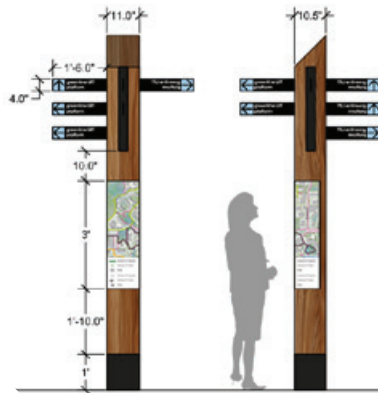
Monument Sign

Entrance signs identifying the Opus Area and welcoming visitors. These are placed at entry points along the roadway system that lead to the greater Opus area, and the entry point along the Green Line LRT (proposed park/plaza space adjacent to the Opus Station). An example of an improved monument sign is directly left.



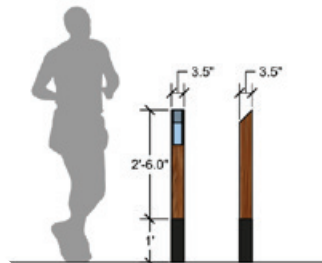
Trail Loop + Directional Map

Provides a map of the specific colored loop in which it is located, and directional arrows pointing to key destinations within the area. These are located in areas within a colored loop where there are two or more directions a user could travel. If a campus map is located within close proximity, a Trail Loop and Directional Map is omitted.



Mile Marker/Trail ID

A small sign indicating the loop color and the number of miles traveled. These are placed approximately every 0.25 miles along a colored loop.

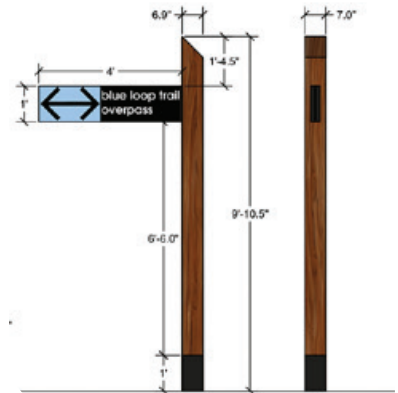


Road Name Sign

Identifies the name of the roadway under which a trail is traveling. These would be affixed to the outside of the concrete traffic barriers anywhere a trail passes underneath a roadway.

Vehicular Trail ID Sign

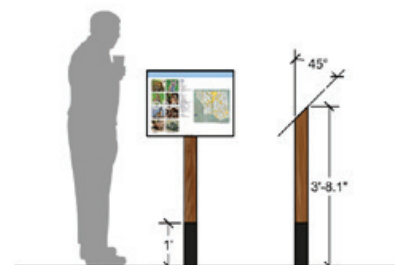
Indicates to vehicular travelers they are passing over the trail network. These are placed anywhere the roadway travels over a trail. The sign would be single-sided or double-sided depending on whether the roadway allows for one- or two-way travel.



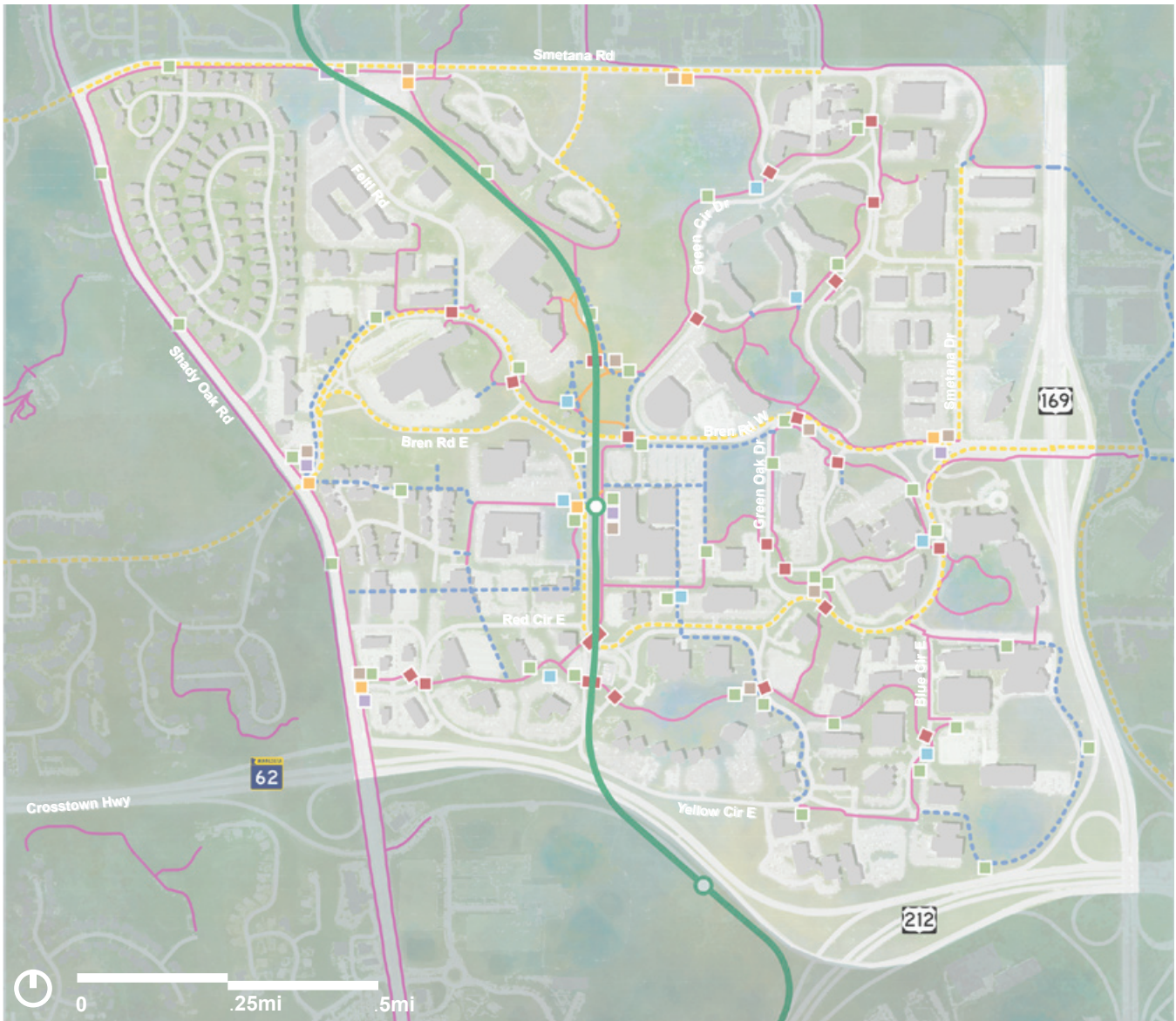
Interpretive Sign













Interpretive signs should be placed where information wants to be highlighted. Examples of this in the Opus area include:

- The area of the central park that features vegetation of the three ecoregions that converge in Minnetonka
- Information on edible landscapes in one of the edible palette locations
- Information on rain gardens and/or natural plant species
- Information about the history of Opus and/or the colored network tying to the Olympic rings



Map 2: Wayfinding Signage by Type



- | | | | |
|---|-------------------------|---|---|
|  | Southwest LRT Alignment |  | Campus Map |
|  | Southwest LRT Station |  | Monument Sign |
|  | Existing Trail |  | Pavement Compass |
|  | Removed Trail |  | Vehicular Trail ID Sign and Road Name Sign* |
|  | Proposed Off-Street |  | Trail Loop + Directional Map |
|  | Proposed On-Street |  | Mile Marker/Trail ID |

*One vehicular trail ID sign will be placed at-grade with the roadway and two road name signs will be placed per underpass for trail users traveling in both directions along the trail system.

In addition to wayfinding signage, pavement markings should be used to strengthen the colored loops and aid in wayfinding through the trail system. Paint or inlaid thermoplastic should be applied to the edges of the trail using the color of the loop. A painted compass pattern, shown in Chapter 3: Wayfinding + Placemaking, is recommended at trail network entrances.

Furniture + Amenities

Site furnishings were selected to complement the palette established by the wayfinding signage for the Opus area. Function, materials, color, and form were all considered in the selection. The use of natural materials is important as it reflects what was heard during community engagement and reflects the rustic and natural character of the area as well as the desires of the community as heard through the engagement process.

Benches

Both a manufactured option and guidelines for a custom option are available depending on location and node type.



The manufactured option incorporates a back for user comfort. Wood is the primary material and would be stained to match the proposed wayfinding signage. The simple metal legs are powder-coated black to match the metal components of the wayfinding signage. Benches should be in-ground mounted when possible.



Custom benches should be built into the existing landscape, for example utilizing a hillside or

retaining wall. Natural materials should be used such as wood, or a local stone.

Litter Receptacles



Wood is the primary material and would be stained to match the proposed wayfinding signage. The wood has a vertical orientation, mimicking the vertical wood posts of the wayfinding signs. Metal components are powder-coated black to match the metal components of the wayfinding signage. A rain hood would be included as the receptacles will be located outdoors in the elements.

Picnic Tables

A round and a rectangular option are available depending on site conditions.



The round picnic table option is for use within sites that are more organic in nature, as a community garden area or play area. Wood is stained to match the proposed wayfinding signage. Metal is powder-coated black to match the metal components of the wayfinding signage. Tables and chairs would be mounted in-ground when possible.



The rectangular picnic table option is for use within sites that are defined by sharp, square angles. Wood is stained to match the proposed wayfinding signage. Metal is powder-coated black to match the metal components of the wayfinding signage. Tables and chairs should be mounted in-ground when possible.

Bike Racks



This bike rack is simple and functional. The 45-degree angle of the rack mimics the angle incorporated in the wayfinding signage. The bike racks are powder-coated black to match the metal components of the wayfinding signage.

Bike Fix-It Stations



These stations will be black in color to match the metal components of the wayfinding signage.

Defined Planting Zones

Plant palettes for the Opus area include the following categories:

1. Manicured Landscape
2. Natural Landscape
 - a. Wetland
 - b. Upland
 - c. Woodland
3. Edible Landscape
 - a. Early harvest
 - b. Late harvest

Each palette incorporates at least one seed mix, as well as several perennials, shrubs, and trees. Other guidelines must also be followed when designing with the zone identified on the planting zone maps. These guidelines are found in Chapter 6: Plant Palettes.

Manicured Landscape



Manicured landscapes are located primarily in low-density residential areas, at large corporate buildings, and at commercial development within the Opus area.

Natural Landscapes

Natural landscapes are located in the middle of the Opus area with small fingers of the natural palette permeating the manicured landscape. Subcategories are determined by site conditions. In lower areas prone to wet conditions, the Wetland subcategory is more appropriate. In drier

areas, the Upland subcategory is applied, whereas areas that are heavily wooded (or will be in the future) use the Woodland palette.

Woodland



Woodland landscape species include a variety of native perennials, shrubs and trees found in a shady, forested environment. These include species such as Ostrich Fern, Columbine, Bush Honeysuckle, Big Tooth Aspen trees and Basswood (Linden) trees.

Upland



Upland landscape species include perennials (grasses and wildflowers), shrubs and trees best suited for drier, sunnier sites. These include species such as Bluestem Grass, Coneflower, Chokeberry shrubs and Oak trees.

Wetland



Wetland plant species range from grasses, wildflowers (forbs) to large shrubs and trees. These species are recommended for wetlands, or areas with fluctuating water levels and consistent moisture in the soil. These include species such as native ferns and sedges, Northern Blue Flag Iris, Dogwood species, Willow varieties and River Birch trees.

Edible Landscape

Edible landscapes are located within three primary spines following the trail system. One is located along the Red Loop, consistent with its identity as the food loop. The other two are located along the Blue Loop and the Bren Loop, near large employment centers. This creates the opportunity for public/private partnerships in the care of the edible landscapes, which require maintenance beyond what would be considered standard. Generally, both early and late harvest subcategories are incorporated within an area to create interest throughout the entire growing season for users.

Early Harvest



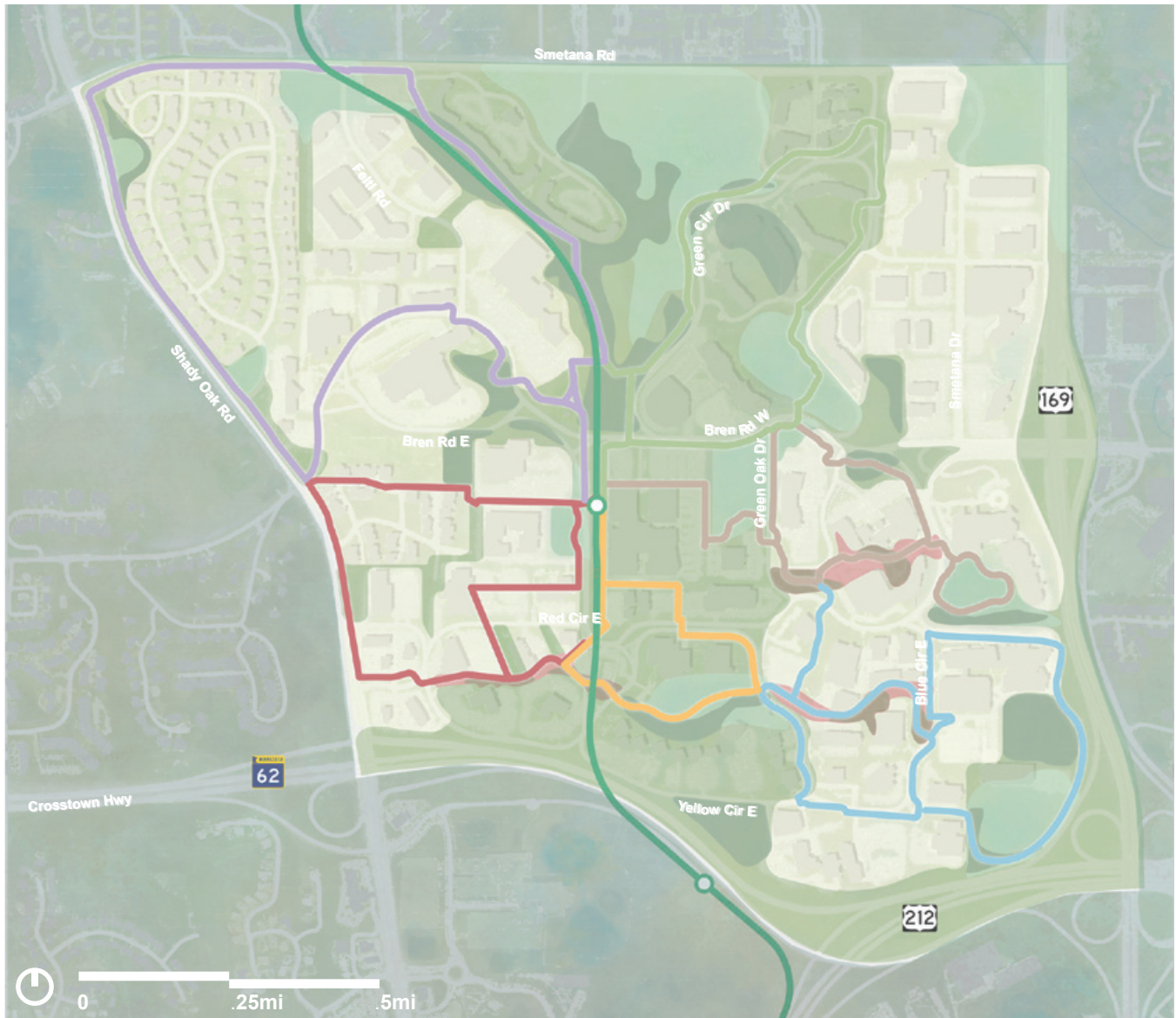
Edible plants with an early harvest, typically produce its edible parts (fruit, nuts, foliage or flowers) during spring and early to mid-summer months (May – August). Examples of early harvest plants include Asparagus, Common Sorrel, and Blueberry.















Late Harvest



Edible plants with a late harvest, will produce edible parts during late summer and fall months (August -October). Examples of these types of plants include grapes, apples and elderberries.

Map 3: Opus District Planting Zones



- | | | | |
|---|---------------------------------|---|-------------|
|  | Manicured Vegetation |  | Bren Loop |
|  | Native Wooded Vegetation |  | Red Loop |
|  | Native Upland Vegetation |  | Yellow Loop |
|  | Native Wetland Vegetation |  | Green Loop |
|  | Early Harvest Edible Vegetation |  | Blue Loop |
|  | Late Harvest Edible Vegetation |  | Opus Loop |
|  | Southwest LRT Alignment | | |
|  | Southwest LRT Station | | |

Connecting to Opus

Presently, there are existing regional and local trails that connect the Opus District to the surrounding municipalities of Hopkins, Edina, and Eden Prairie with many opportunities to strengthen active transportation connections to the area. Approaching the district from the west, an on-street bicycle facility or shared use trail is recommended along Rowland Road. Approaching the district from the north, safer trail crossings of Smetana Road at Shady Oak Road and at 11th Avenue South are recommended. An eastward extension of the Nine Mile Regional Creek Trail through Edina is recommended with on-street bicycle facilities providing additional connections along 7th Street South and Lincoln Drive as it becomes Vernon Avenue South. Approaching from the south, a cycletrack is recommended on the east side of Shady Oak Road.

Key Destinations

Recreationally, there are several municipal and regional parks within one to two miles of the Opus boundary. Some of these parks include Bryant Lake Regional Park, Lone Lake Park, Shady Oak Beach, the Westbrook Archery Range, and Green Circle Park and wetlands within Opus. Each of these parks offers a range of amenities from traditional elements such as benches and picnic tables to more modern elements such as pickleball courts and off-leash dog areas; most may be reached via trail from origin points within Opus.




Working in the District

For employers and workers, there are several business and residential destinations within the Opus District. Two of Minnetonka's top 10 employers, which are Boston Scientific and UnitedHealth Group, are located within the Opus area, which hosts nearly 15,000 jobs.

Living in the District

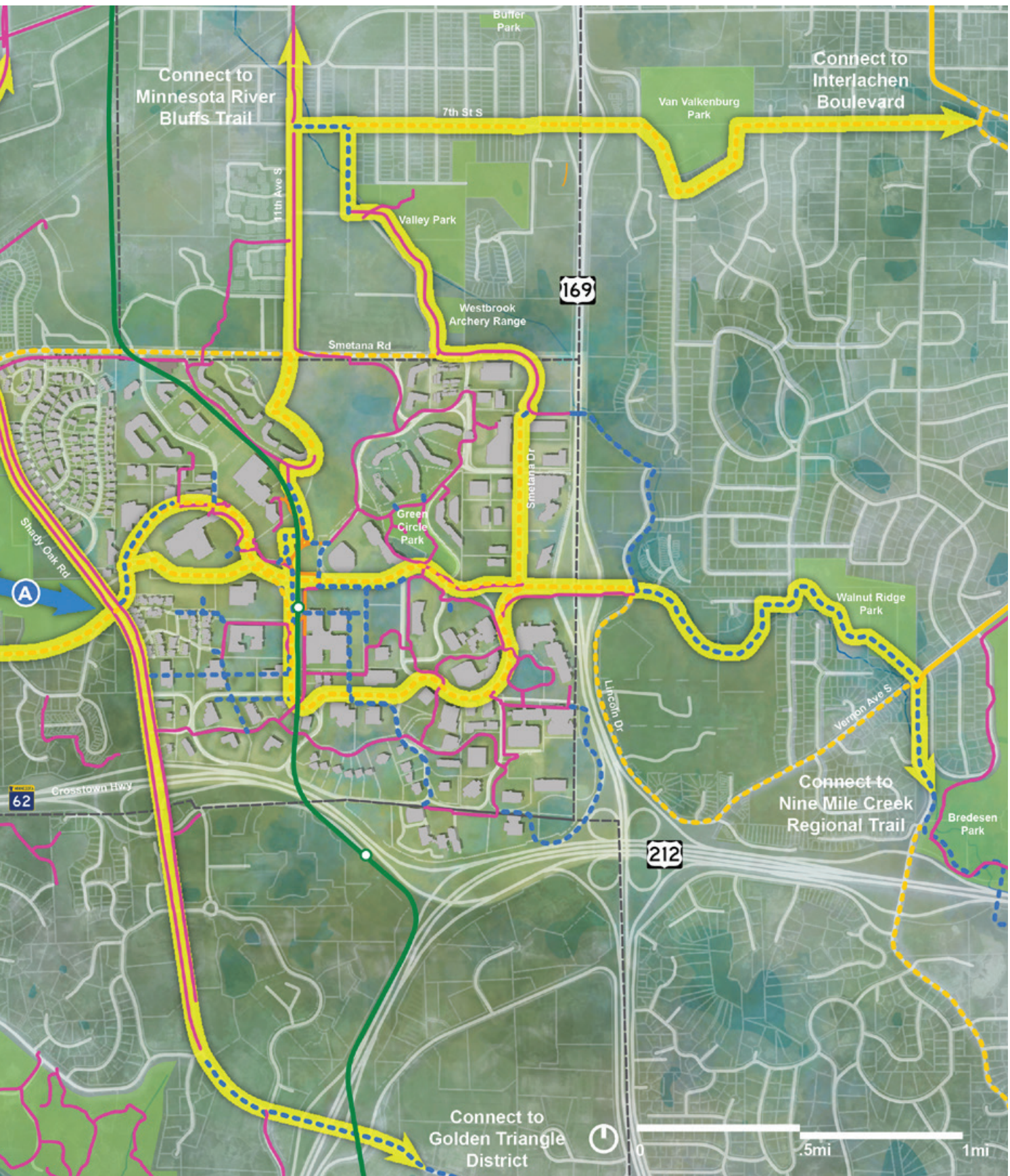
More than 2,000 people live in the Opus District in a mix of housing types, from townhome developments to condominiums. However, this population could more than double in the coming years with up to 1,830 new units proposed, planned, or in development, bringing an additional 3,100 new residents into the district. With younger generations moving into the district, trends suggest that there will also be increased demand for canine related amenities with up to 1,500 new dogs brought in by their owners.

Note: Additional study is needed for all final bikeway design recommendations. The proposed Shady Oak Road cycletrack will need to be discussed and coordinated with Hennepin County to determine feasibility.

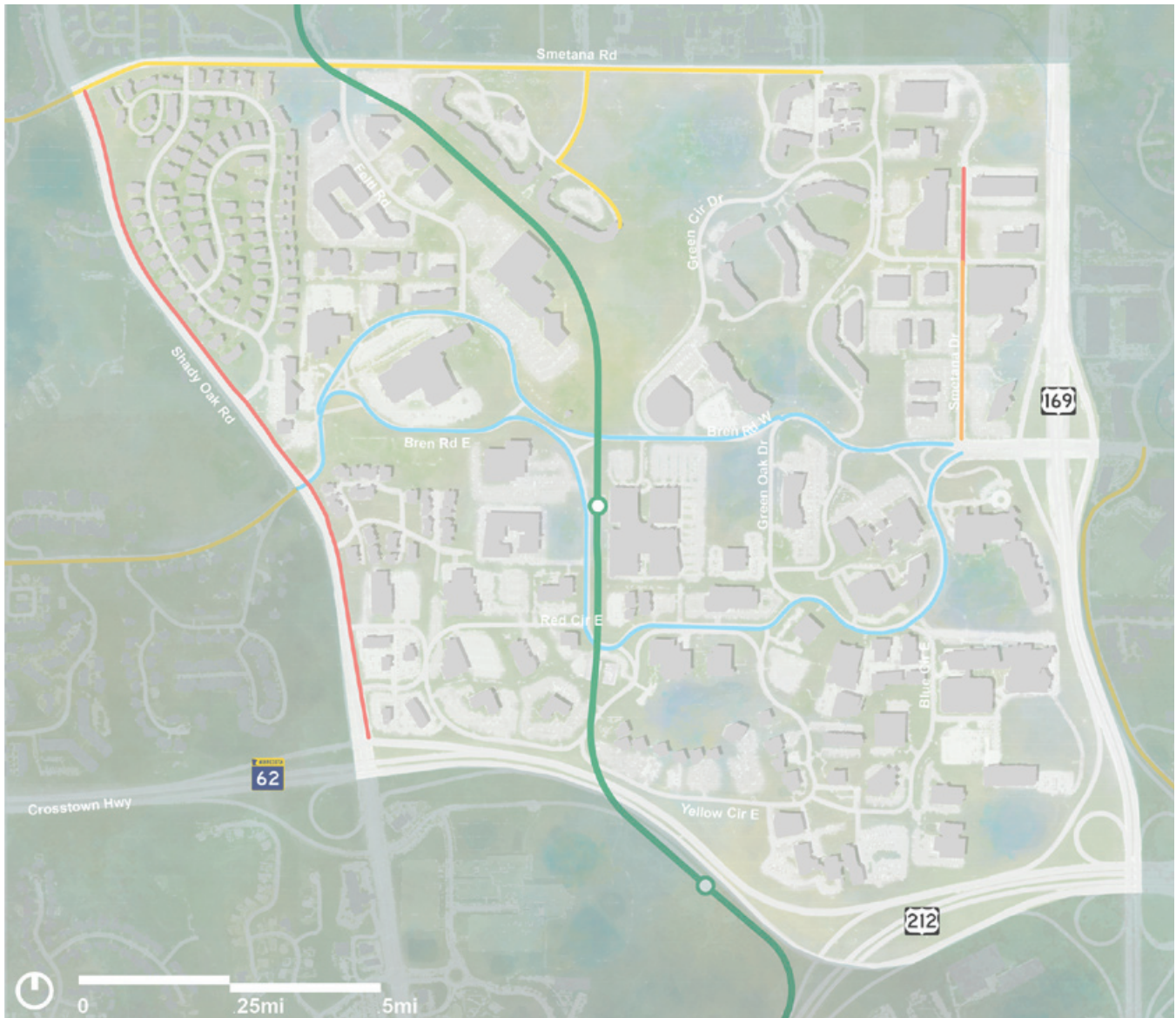
-  Southwest LRT Alignment
-  Southwest LRT Station
-  Existing Trail
-  Removed Trail
-  Existing On-Street
-  Proposed Off-Street
-  Proposed On-Street
-  Main Corridors
-  Parks
-  Provide pedestrian and bicycle connection to Lone Lake Park from Opus District
-  Municipal Boundaries

Map 4: Regional Connections





Map 5: Proposed On-street Facilities



- Southwest LRT Alignment
- Southwest LRT Station
- Cycletrack (bidirectional)
- Buffered Bike Lane (both sides of street section)
- Standard Bike Lane
- Buffered Bike Lane (one side of street section only)

Note: Additional study is needed for all final bikeway design recommendations for traffic and safety impacts as well as associated costs including impacts to right-of-way such as roadway widening.

On-street Bikeways

Additional on-street bikeways are recommended and will need to be further reviewed for feasibility. On-street bikeways will provide more direct connections for those traveling from a greater distance outside of the district and reduce commute times. Lastly, these on-street bikeways complement the trail system and may serve more confident cyclists that generally bike at faster

speeds than are appropriate for shared-used trails with pedestrians, especially since Strava heatmap data suggests that people recording their bike rides prefer the street network over the existing trail network, although this data is not representative of all trail activity in the district. Three different bikeway facility types are recommended and include cycletracks and standard and buffered bike lanes.

All existing condition and recommended facility street cross sections are included in Chapter 5 of this guide. Further study is needed to review on-street bikeway facilities for traffic and safety impacts.

Cycletracks



Cycletracks are a type of bikeway facility that provide dedicated space for cyclists separated from motorists with a permanent barrier, such as a curb or planters. Cycletracks are also separated from pedestrians and may either be at the street or sidewalk level and either one-way or bidirectional. Cycletracks are typically implemented along high volume, high speed roads and are considered the highest-comfort on-street bikeway facility.

A bidirectional, or two-way cycletrack is recommended along the eastern portion of Shady Oak Road to serve as an artery to the district for people on bikes. The prominence of a cycletrack along Shady Oak Road immediately adjacent to the district will also contribute to a sense of place by signaling that the district is a major destination that is traversable by bike. This cycletrack would shift the existing sidewalk further away from the roadway.

A bidirectional cycletrack is also recommended along the east side of Opportunity Court to connect the street facility to the Nine Mile Creek Regional Trail.

Standard Bike Lanes



Bicycle lanes are a type of bikeway facility that provide dedicated street space for cyclists separated from motorists and pedestrians with pavement markings, such as lane striping, and signage. Bike lanes are implemented at the street level along lower speed roads and/or lower volume roads than cycletracks. Standard bike lanes are less comfortable for users than cycletracks.

Standard bike lanes on are recommended along Smetana Road. Currently, there are 3-foot wide shoulders on either side of Smetana Road, which has a designated speed limit of 35 miles per hour. These conditions are uncomfortable for the majority of people on bikes, so widening the shoulder to 5-feet on either side would accommodate a wider variety of users, complementing the planned sidewalk improvements along Smetana Road. South of Smetana Road, a bike lane is recommended on the private drive around Claremont Apartments.

Buffered Bike Lanes

Buffered bike lanes are essentially the same as standard bike lanes with one crucial difference: a buffer achieved through pavement markings increases the space between cyclists and motorists, creating a more comfortable facility for cyclists. Buffered bikeways may be on one or both sides of the street.

Oneway Streets



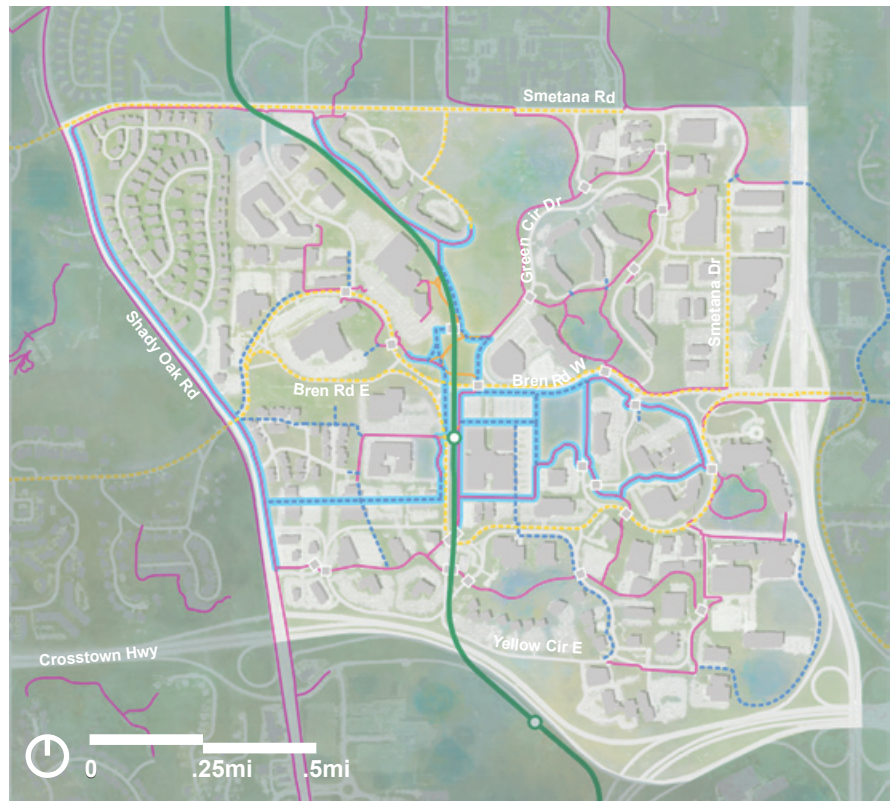
A buffered bike lane is recommended on the right side of the street for both Bren Road East and Bren Road West. Currently, both Bren Road West and Bren Road East are 2- to 3-lane, one-way roads posted at a speed limit of 30 miles per hour. This pair of buffered bike lanes will provide more direct access to the Opus Station as well as connections to several existing trail access points.

A buffered bike lane is recommended on both sides of the Smetana Drive street section. This wide street section currently has four lanes varying in width from 12 to 14 feet. Buffered bike lanes may be applied and retain the four vehicle travel lanes, or another option is a four-to-three lane conversion that will maintain 12-foot wide travel lanes. The City of Hopkins will need to review this recommendation.

District Trail System

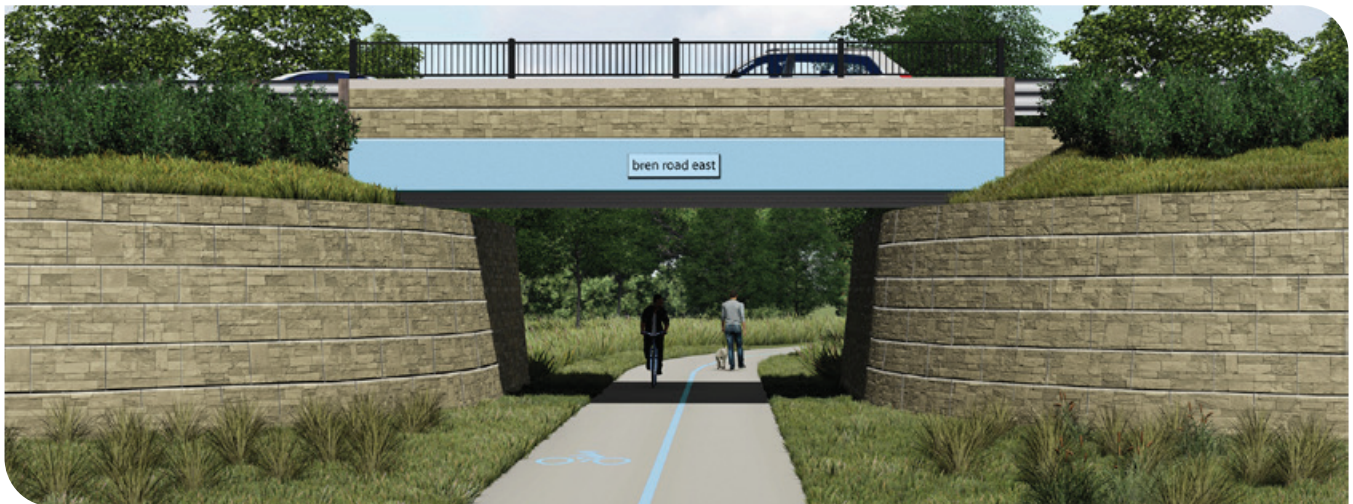
The Opus District features an almost fully separated trail system with very few at-grade street interactions between vehicles and pedestrians and people bicycling. However, there are several intrasystem connection recommendations, including widening main north-south and east-west trail corridors in the district trail system to accommodate a greater volume of trail users navigating to the Opus Station once light rail transit service begins. Widened trail sections will provide separate paths for pedestrians and people bicycling to increase the safety of trail users typically traveling at different speeds. Where trails cross the street system through underpasses, pedestrian space will be clearly demarcated from space devoted to people on bicycles. Since most underpasses will not be replaced as part of this process, signage and pavement markings will indicate to trail users where the trail narrows.

Map 6: District Trail System Improvements



- Southwest LRT Alignment
- Southwest LRT Station
- Trail Underpass
- Existing Trail
- Removed Trail
- Proposed Off-Street
- Proposed On-Street
- Mode Separated Trail

Underpass Treatment



Branded underpass with separated pedestrian and bicycle paths where trail narrows under roadway.

Programming Overview

There are four different node types within the Opus District based on level of programming and activity, with Opus Station representing its own node at the heart of the district. The Opus Node will be the center of activity for the district, providing the launching point for all train commuter trips to and from Opus as well as connecting directly to five of the six district branded trail loops. The three other node types, primary, secondary, and tertiary, have minimum programming requirements, which are described below. All nodes should incorporate a trash receptacle and a drinking fountain regardless of node type.

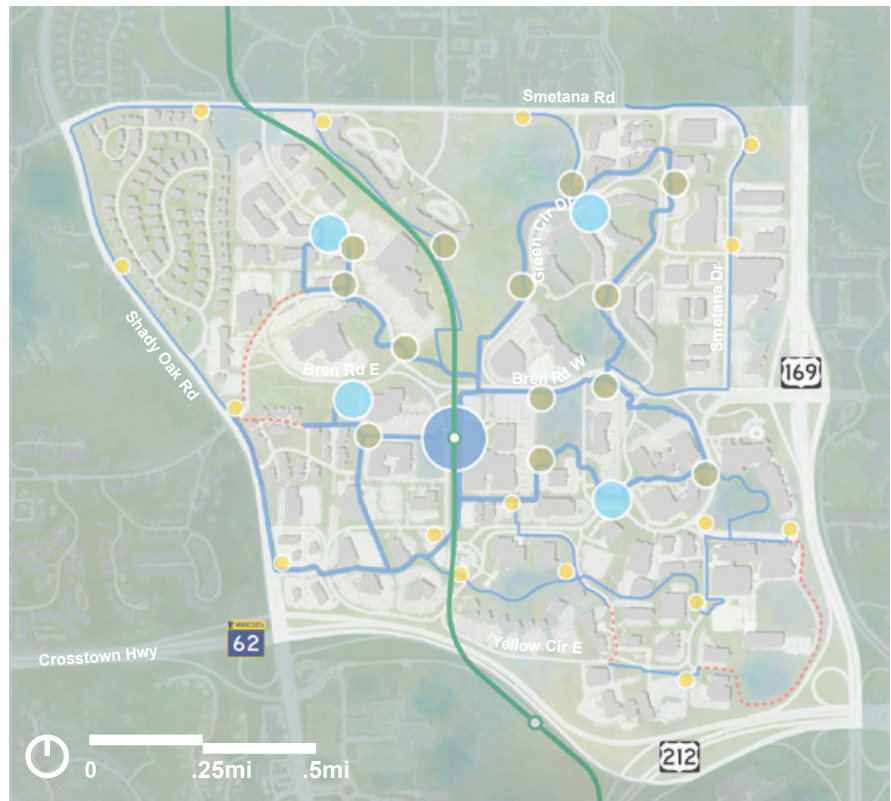
Primary Nodes must include four Passive Pedestrian Amenities and four other program elements.






Secondary Nodes must include two Passive Pedestrian Amenities and two other program elements.





Tertiary Nodes must include one Passive Pedestrian Amenity and two other program elements.

Within the Opus District, there are four primary nodes, 13 secondary nodes, and 16 tertiary nodes. As mentioned above, the Opus Node is located at the heart of the district and includes a central plaza. The central plaza concept is described in detail later in this chapter.

Map 7: Activity Nodes



-  Major Loop
-  Minor Loop
-  Proposed Connection
-  Southwest LRT Alignment
-  Southwest LRT Station

-  Opus Node
-  Primary Node
-  Secondary Node
-  Tertiary Node

Node Program Elements

Landscape Elements

- Rain garden
- Edible/permaculture landscape

Active Pedestrian Amenities

- Community garden
- Play area
- Small game courts
- Lawn games

Passive Pedestrian Amenities

- Picnic table
- Custom bench
- Manufactured bench

Shade

- Tensile fabric
- Pergola
- Picnic shelter
- Gazebo

Pet Amenities

- Pet drinking fountain
- Pet waste station

Cultural/Educational

- Educational/interpretive signage
- Public art
- Scenic overlook

Example Primary Node

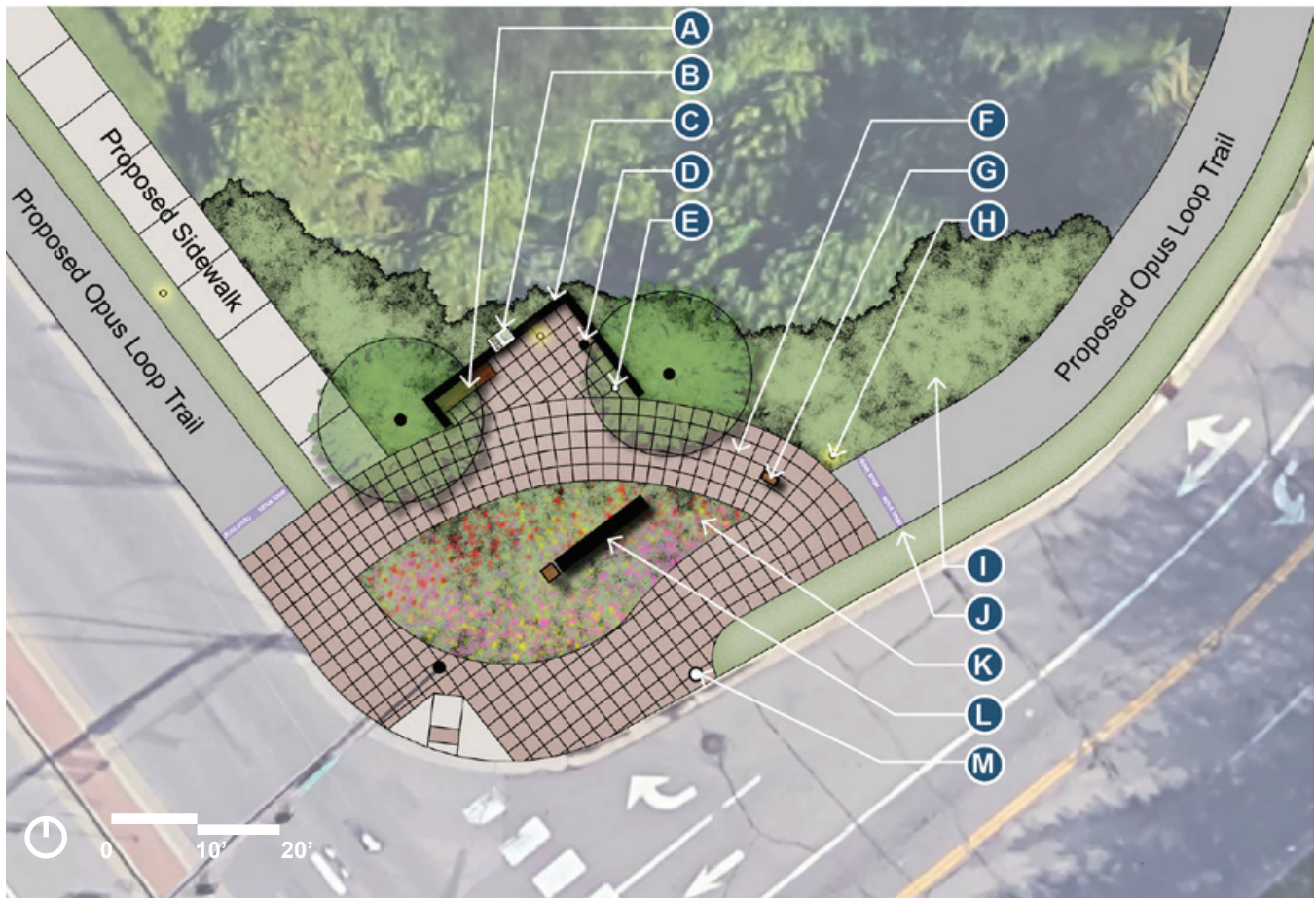


- A** Fruit Trees
- B** Space for Picnic/Game Tables
- C** Special Pavement
- D** Trash Receptacle
- E** Late Harvest Edible Plants
- F** Steps
- G** Retaining Wall
- H** Pedestrian Light
- I** Interpretive Sign
- J** Pergola and Edible Vines
- K** Campus Map
- L** Loop Pavement Marking
- M** Lawn
- N** Mile Marker Sign
- O** Drinking Fountain
- P** Early Harvest Edible Plants

Primary Node

The primary node off the Bren Loop Trail consists of a winding path with a special pavement (such as colored concrete or crushed granite) down the hillside. There are two seating areas with game tables and overhead pergolas with vines. Edible garden areas (with interpretive signage) are located in this node including vines on the pergolas. A large lawn area off the main loop trail allows for a flexible space for outdoor recreation.

Example Tertiary Node



- A** Bench
- B** Interpretive Sign
- C** Retaining Wall
- D** Bike Fix-It Station
- E** Drinking Fountain
- F** Special Pavement
- G** Campus Map
- H** Pedestrian Light
- I** Native Planting
- J** Loop Pavement Marking
- K** Manicured Planting
- L** Modified Existing Monument Sign
- M** Trash Receptacle

Tertiary Node

The tertiary node off the Opus trail consists of a modified Opus monument sign with lighting. A small shaded seating area within existing vegetation includes a bench, a bike fix-it station, and a drinking fountain. This is a visual node with a place to rest for bicyclists and pedestrians, with a campus map, for wayfinding.

Central Plaza

The Central Plaza is a signature new 5.6 acre community-level park/plaza space strategically located adjacent to the Southwest LRT's Opus Station. With several converging color trail loops and the platform adjacent to the north end of the park, this area is a hub of activity and serves as the front door to the Opus area for light rail users.

The park welcomes visitors into Opus with monument signage, a campus map housed within a kiosk that also features flyers for upcoming events in the area, colorful pavements representing the colored trail loops, and a water feature that will draw the eye of light rail travelers and double as a splash pad for family fun. Benches along the plaza space provide respite for travelers in the shade of strategically placed trees. During events such as farmers' markets, the water feature can be turned off and the plaza space set up with tents.

The plaza space should be designed to withstand heavier loads to allow for small trucks used for markets and/or food trucks to drive on the pavement. Where the plaza opens to a larger paved area, a space is created to house a large art piece that could double as a play area for children. This location is placed within the line of site of the LRT platform to draw visitors into the park. The park houses a multi-purpose building that incorporates restrooms,

drinking fountains, changing rooms, a community room, storage, and concessions.

A recent study shared a statistic that on average, housing units are occupied by 0.8 dogs. With up to 1,830 new units planned for Opus, this means there will potentially be around 1,465 new dogs in the Opus area in addition to the existing dog population. With an existing need for the City of Minnetonka, a dog park is incorporated in the Central Plaza. The park is designed with perimeter fencing to avoid acute angles and reduce the likelihood of dogs feeling trapped in corners. Entry points into the park are double-gated. The park is also designed to have two separate areas for small and large dogs. The dog park area is located adjacent to the parking lot and serves as a buffer between the roadway and inner central park features.

A performing space is located at the opposite end of the park from the LRT platform within the line of site from the platform but placed so that those seated within the amphitheater have views of the water behind the performance space. A large lawn is located behind the amphitheater for overflow during large events. The lawn also serves as flexible space for outdoor recreation, such as pop-up volleyball and lawn games. The manicured and formal spaces start to break down into more organic, natural spaces in the southwest portion of the park.

Trails lead users through

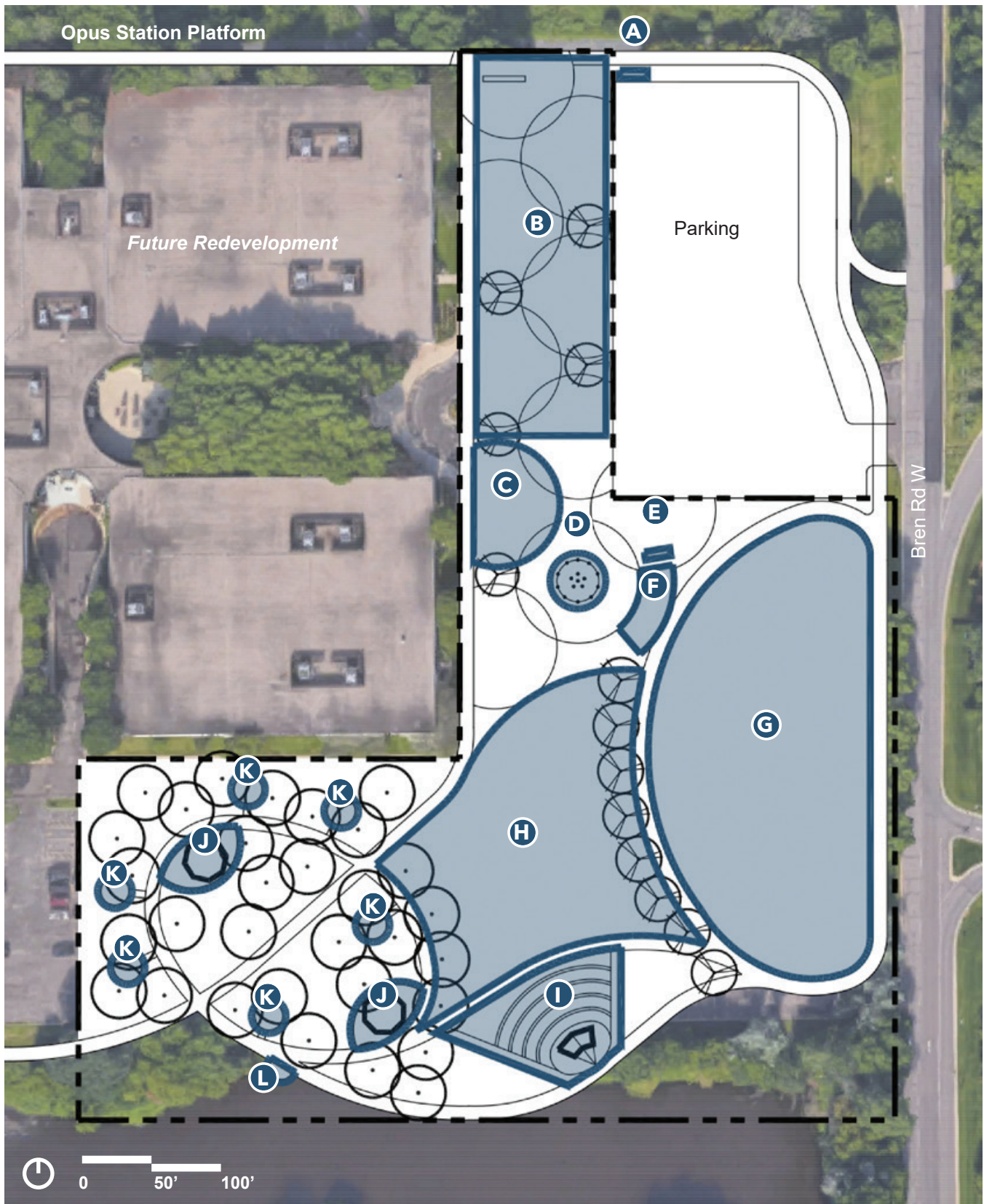
natural plantings with small nodes for picnicking, grilling, small gatherings, and educational opportunities.

There are three distinct planting areas in this part of the park, each featuring an ecoregion near Minnetonka. These include the 'St. Croix Outwash Plain and Stagnation Plain', the 'Anoka Sand Plain and Mississippi Valley Outwash', and the 'Big Woods' ecoregions. An educational/interpretive sign will be located in this area featuring the ecoregions.

During the public outreach phase of the project, feedback indicated there is a strong desire for interaction with the water in the Opus area. To address this, the park also incorporates an overlook where RC boats could be rented.

- A** Bike Share: 20'x6'. Space for 10 bicycles.
- B** Linear Plaza: 25,920 S.F. Space for ~24 10'x10' tents with 12 commercial trucks parked in plaza, 12 trucks parked in parking lot.
- C** Interactive Art/Play Area: 4,600 S.F.
- D** In-Ground Jets: 1,300 S.F.
- E** Bicycle Parking: 18'-6"x6'. Space for 12 bicycles.
- F** Multi-Purpose Building: 1,400 S.F. Space for restrooms, utility room, vending.
- G** Dog Park: 1 acre
- H** Great Lawn: 29,800 S.F. Space for 4,262 people at 7 S.F. per occupant
- I** Amphitheater: 1,200 S.F. stage. Structured seating for approximately 185 people (2 L.F. per occupant).
- J** Large Gathering Space: 1,400 S.F. Space for 30' diameter shelter.
- K** Small Gathering Space: 315 S.F.
- L** Overlook: 110 S.F.

Central Plaza



Note: rendering does not include new infrastructure, which potentially includes utilities road connections, for example.

Central Plaza Rendering



Amphitheater Rendering



Development Strategy

Minnetonka's development codes, like those of most communities, typically define development in relationship to roadway infrastructure. This includes required setbacks, landscape requirements and design standards relating to the provision and location of parking.

However, Opus differs from other areas of Minnetonka in key ways. First, the one way roadway network utilizes large loops to smooth traffic flow and create more naturalistic movements, with fewer right angles. This has the impact of creating lots that are seldom exact squares or rectangles, as are the most common shapes in American land subdivision. As the primary intended uses at the time of the original development were mainly commercial, the parcels are also quite large, with ample space for buildings, surface parking and significant open space.

Second, Opus has two main transportation networks: the roadway network and the trail network. As a result of these differences, it has been difficult for developers to propose projects which clearly meet zoning requirements, and most developments require variances, at a minimum, or are of a scale at which a Planned Unit Development (PUD) makes sense.

As an additional challenge, the location of a light rail station within the district creates a

situation in which higher density development is desirable from both a policy and a land cost perspective.¹ Additionally, at higher densities and costs, the provision of structured parking becomes financially feasible while at the same time creating more opportunities for additional square footage of the building.

Due in part to these differences, the City of Minnetonka utilizes an overlay district for the Opus area in order to provide guidance to developers regarding desired outcomes and produce greater confidence that the city supports development, which brings greater density of built form and mixed uses to the areas directly adjacent to the light rail station and accessible by trails. The City may consider updating the overlay to coordinate development activities with the recommendations of this report. In addition to updates to the overlay district, the City of Minnetonka, in conjunction with the area's property owners and businesses, should explore the desirability of the establishment of an organization for the management of the district. This evaluation should include merchant's associations, business improvement districts, tax increment districts and/or other forms of special service districts.

In the short term, in coordination with proposed developments, the following should be required of all proposed area developments:

¹ Higher land costs will generally require either higher density or higher cost development in order for developers to make a proposed development "pencil".

For any parcel with a direct connection to a trail:

- A paved connection, utilizing the defined trail standards, to the trail
- A publicly accessible and prominent entrance facing the trail
 - As many proposed buildings will likely also have a main entrance facing their parking, this will often require that many buildings have two "main" entrances. Wherever feasible, the entrance fronting the trail should be considered the "front-door" of the developments.
- Wayfinding signage, as defined by this report, to and from their property.
- Planting, as defined by this report.
- If the parcel is located adjacent to a node, as defined by this report, the development will provide programming as is appropriate to the parcel's location and the proposed level of programming for the node.

For parcels without a direct connection to a trail:

- A sidewalk connection to the nearest trail access point, or the edge of the property line, if no connection to the nearest trail is possible.

For all parcels:

- All surface parking is screened from view from any trail utilizing Chapter 6 of this report.





CHAPTER TWO

TRAIL CHARACTERISTICS

Introduction

The contained Opus District trail system is organized into six distinct trail loops to facilitate wayfinding, placemaking, and movement to and from the centrally located Opus Station light rail platform. The six trails include the Opus Loop, Green Loop, Bren Loop, Blue Loop, Yellow Loop, and Red Loop. Each of the six trails are branded with their own color and character, which defines the type of programming and level of activity recommended for each node.

This chapter examines each of the six branded loops in depth, describing recommended trail connections, proposed trail improvements, placemaking and wayfinding signage locations, and defined planting zones. For additional details about programming along each trail loop by node type and node program element, see Chapter 4: Placemaking + Programming.



Opus Loop (2.5 miles)

This primarily residential loop connects Opus to Greater Minnetonka and parallels major thoroughfares (north and west), runs in between apartments and a wooded property buffer (east), and passes through mixed use commercial and educational buildings. Approximately one-half mile of existing trail will be reconstructed with 0.4 mile of entirely new trail added.

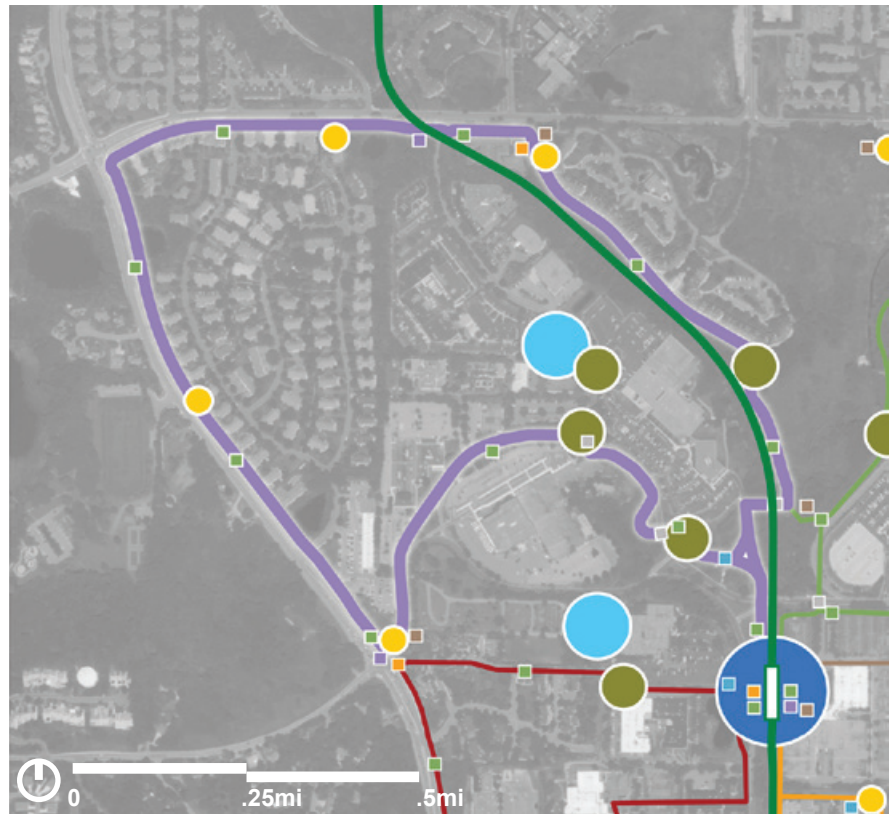
Trail Recommendations

- A** Connect trail between Shady Oak Road on northern side of Bren Road West.
- B** Connect trail between Claremont Apartments to Opus Station with new the METRO Green Line trail underpass; trail will cross Bren Road West at-grade.
- C** Widen north-south segment of trail to 16' for separated pedestrian and bicycle trails.

- Opus Loop
- Southwest LRT Alignment
- Southwest LRT Station
- Trail Underpass
- Existing Trail
- Proposed Off-Street
- Proposed On-Street
- Red Loop
- Yellow Loop
- Green Loop

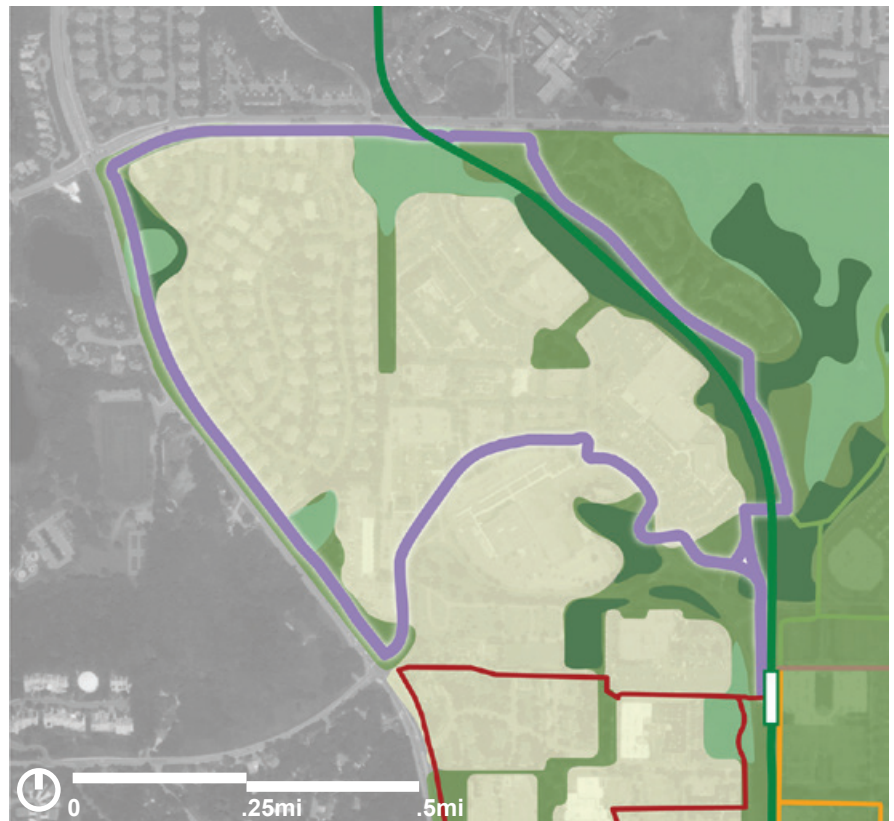
Map 9: Opus Trail Loop Placemaking + Wayfinding

- Placemaking + Wayfinding**
- Opus Node
 - Primary Node
 - Secondary Node
 - Tertiary Node
 - Campus Map
 - Monument Sign
 - Pavement Compass
 - Trail ID/Road Name Signs*
 - Trail Loop + Directional Map
 - Mile Marker/Trail ID
 - Opus Loop
 - Southwest LRT Alignment
 - Southwest LRT Station
 - Red Loop
 - Yellow Loop
 - Green Loop



Map 10: Opus Trail Loop Planting Zones

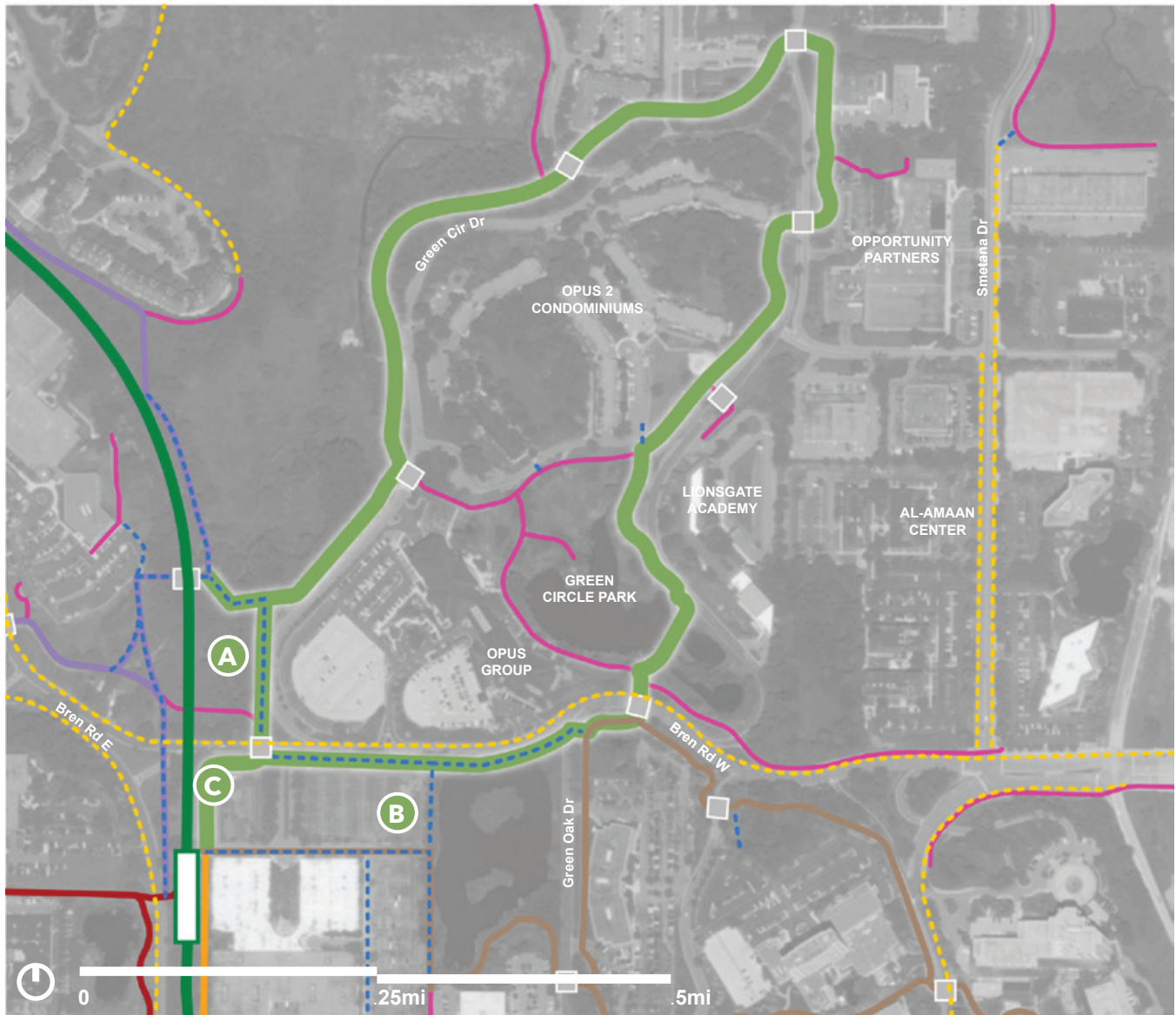
- Planting Zones by Vegetation Type**
- Manicured Vegetation
 - Native Wooded Vegetation
 - Native Upland Vegetation
 - Native Wetland Vegetation
 - Early Harvest Edible Vegetation
 - Late Harvest Edible Vegetation
 - Opus Loop
 - Southwest LRT Alignment
 - Southwest LRT Station
 - Red Loop
 - Yellow Loop
 - Green Loop



*One vehicular trail ID sign will be placed at-grade with the roadway and two road name signs will be placed per underpass for trail users traveling in both directions along the trail system.

GREEN TRAIL: THE WETLAND LOOP

Map 11: Green Trail Overview



Green Loop (1.5 miles)

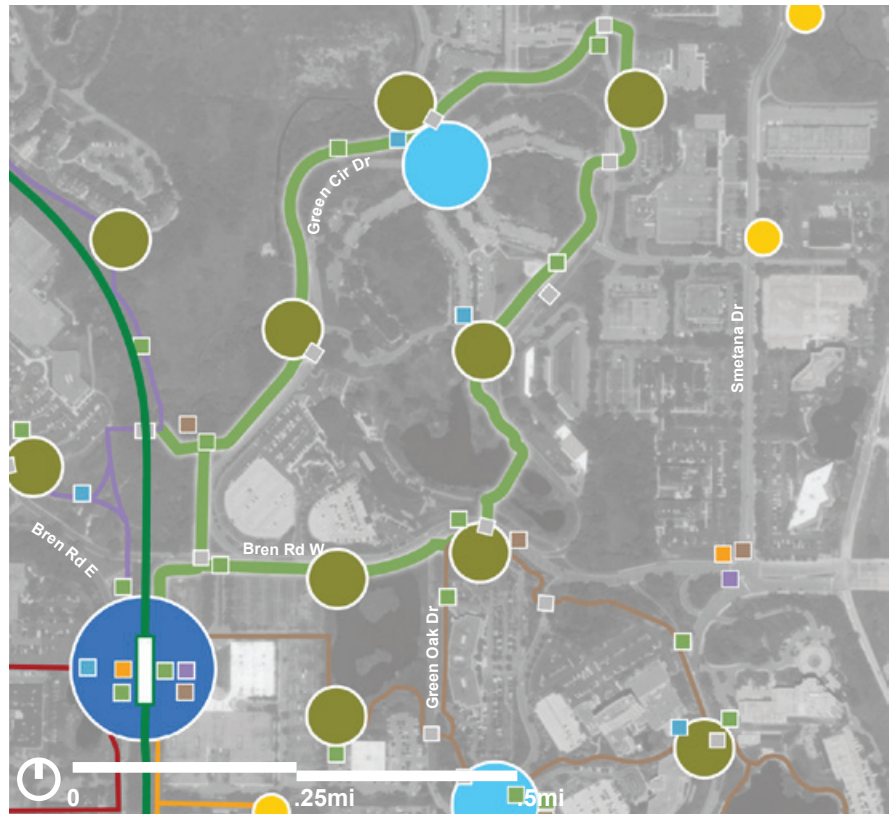
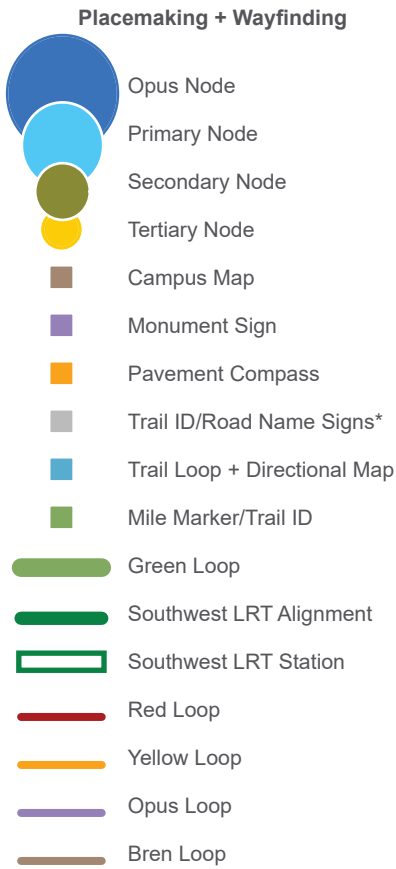
This wetland loop snakes through natural wetlands on its western edge before weaving between condos, the Opus corporate campus, small businesses, apartments and the Al-Amaan Center. The Green also contains Green Circle Park. Almost one-half mile of new trail will be added to the loop after old trail segments are removed for Southwest LRT construction.

Trail Recommendations

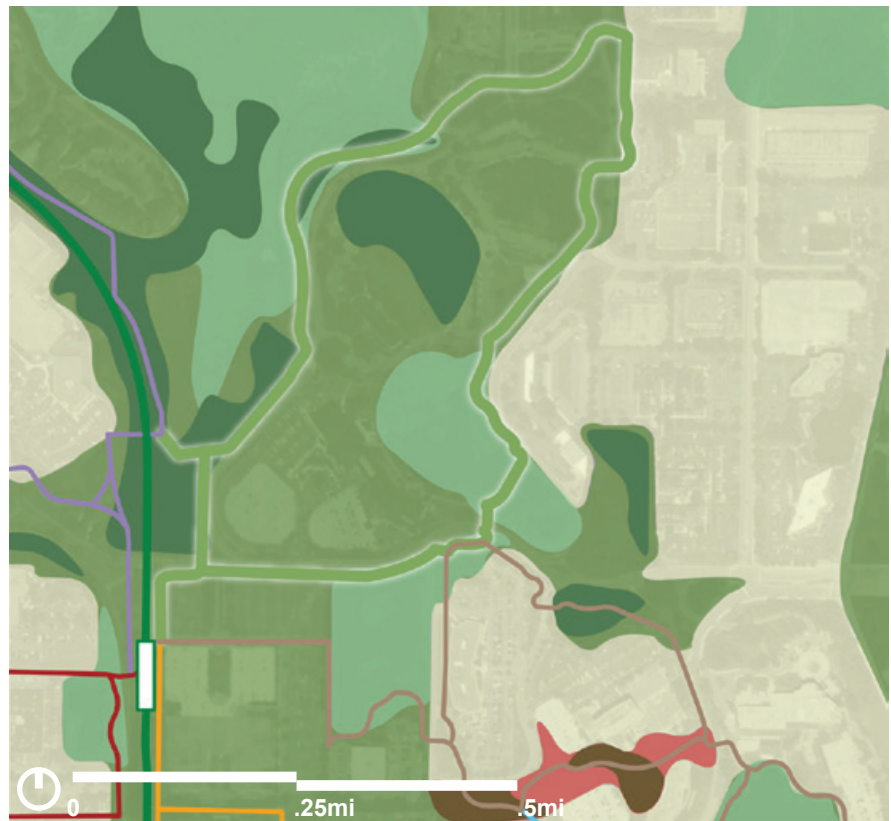
- A** Connect trail from new METRO Green Line underpass south to existing Bren Road West underpass; new trail segment should be 16' wide.
- B** Extend trail on south side of Bren Road West between two existing Bren Road West trail underpasses; new trail segment should be 16' wide.
- C** Provide separated pedestrian and bicycle paths to Opus Station platform.

- Green Loop
- Southwest LRT Alignment
- Southwest LRT Station
- Trail Underpass
- Existing Trail
- Proposed Off-Street
- Proposed On-Street
- Red Loop
- Yellow Loop
- Opus Loop
- Bren Loop

Map 12: Green Trail Loop Placemaking + Wayfinding



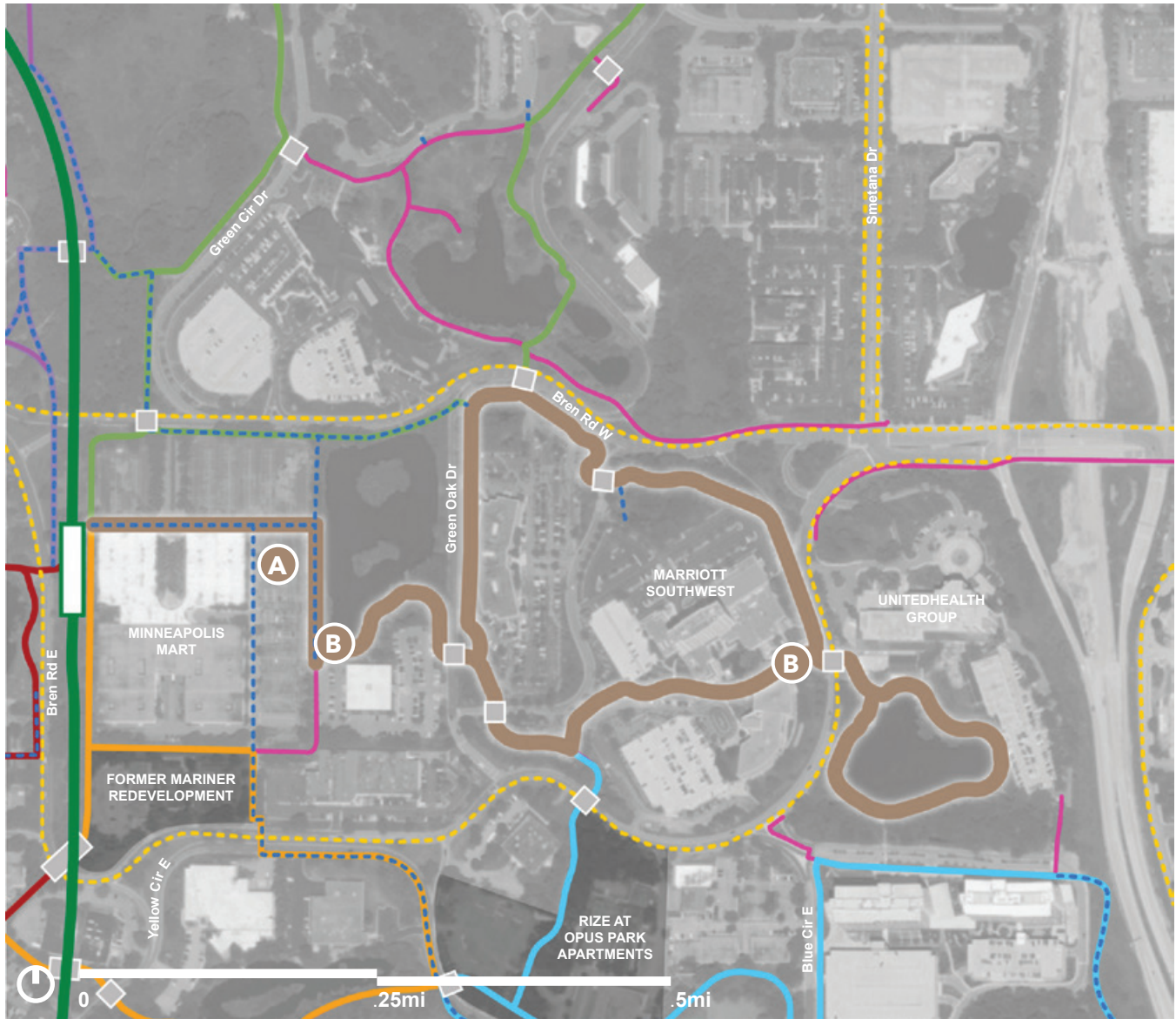
Map 13: Green Trail Loop Planting Zones



*One vehicular trail ID sign will be placed at-grade with the roadway and two road name signs will be placed per underpass for trail users traveling in both directions along the trail system.

BREN TRAIL: THE WELCOME LOOP

Map 14: Bren Trail Overview



Bren Loop (1.4 miles)

This welcoming loop will extend east from the Opus Station Central Plaza wrapping around the Marriot and UnitedHealth Group campuses; both campuses boast trails surrounded by maintained landscapes. Approximately one-quarter mile of new trail will be added.

Trail Recommendations

- A** Extend existing trail north and west to connect to Opus Station; new trail segment should be 16' wide.
- B** Widen the east-west loop from Opus Station to the UnitedHealth Group campus to 16' for separated pedestrian and bicycle trails.

- Bren Loop
- Southwest LRT Alignment
- Southwest LRT Station
- Trail Underpass
- Existing Trail
- Proposed Off-Street
- Proposed On-Street
- Red Loop
- Yellow Loop
- Green Loop
- Blue Loop
- Opus Loop

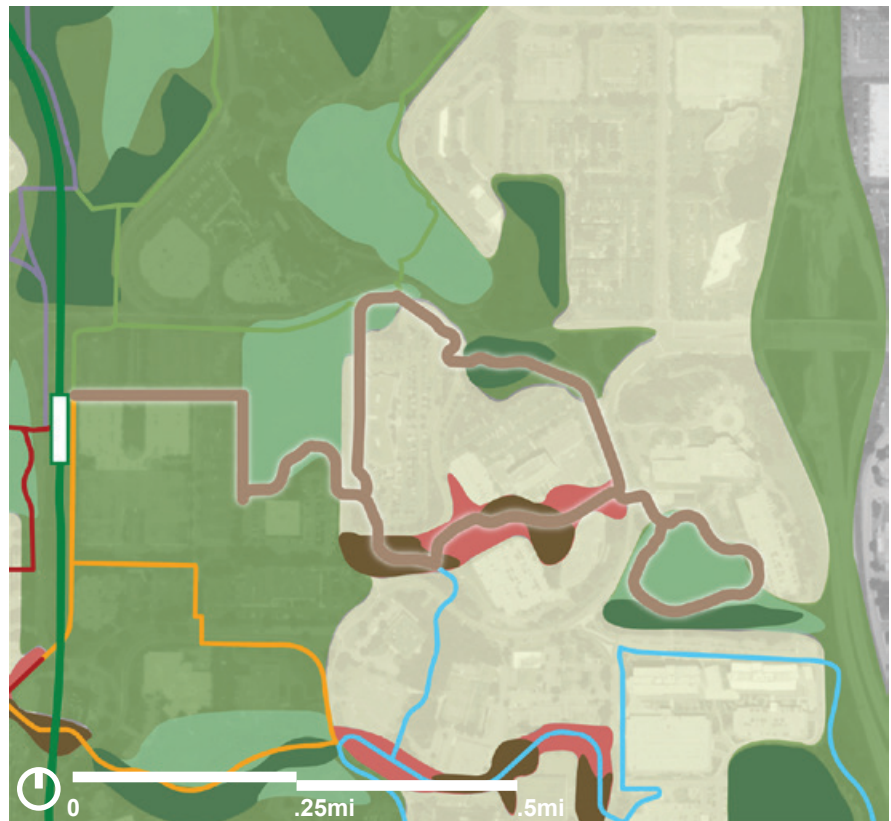
Map 15: Bren Trail Loop Placemaking + Wayfinding

- Placemaking + Wayfinding**
- Opus Node
 - Primary Node
 - Secondary Node
 - Tertiary Node
 - Campus Map
 - Monument Sign
 - Pavement Compass
 - Trail ID/Road Name Signs*
 - Trail Loop + Directional Map
 - Mile Marker/Trail ID
 - Bren Loop
 - Southwest LRT Alignment
 - Southwest LRT Station
 - Red Loop
 - Yellow Loop
 - Green Loop
 - Blue Loop
 - Opus Loop



Map 16: Bren Trail Loop Planting Zones

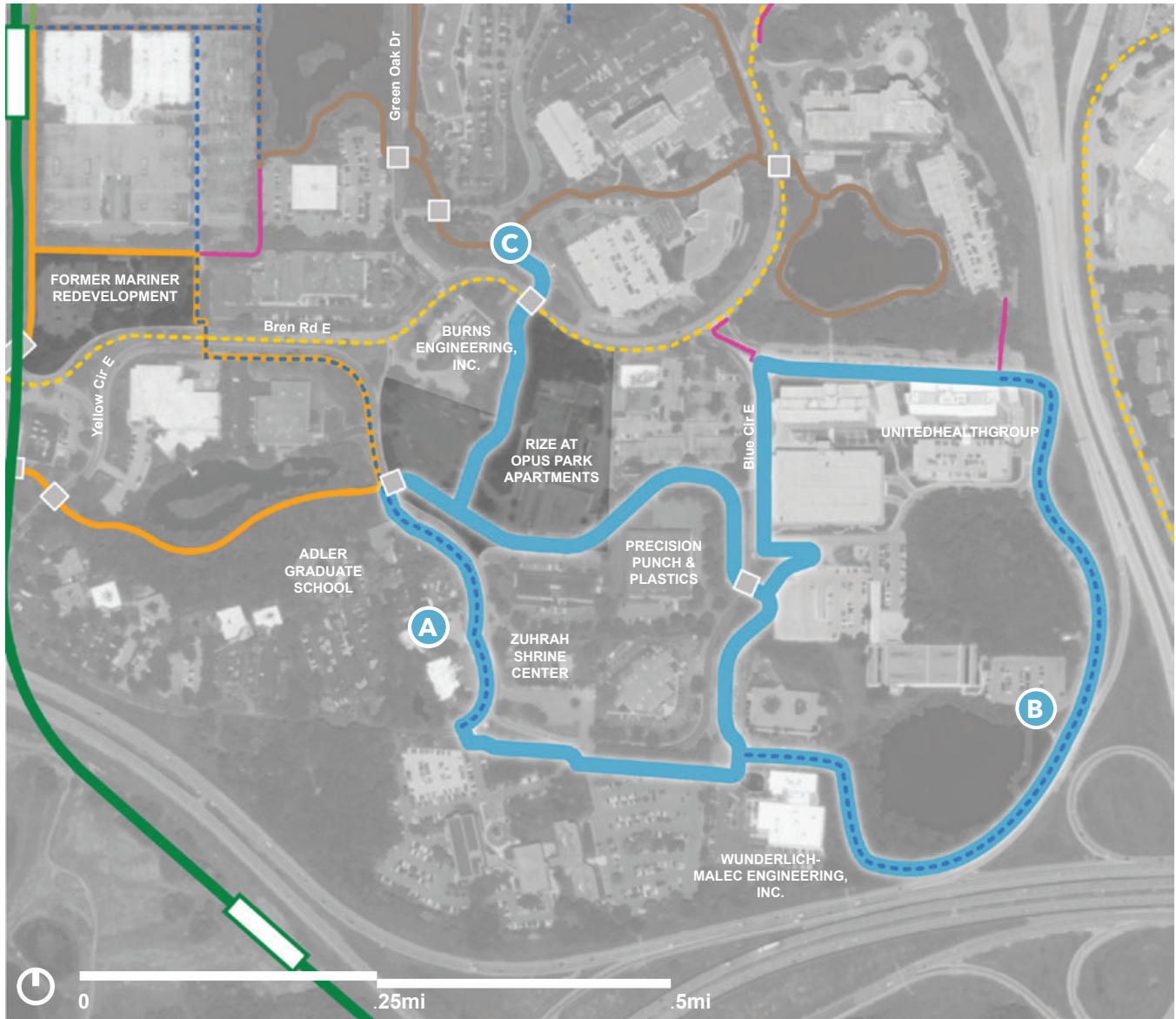
- Planting Zones by Vegetation Type**
- Manicured Vegetation
 - Native Wooded Vegetation
 - Native Upland Vegetation
 - Native Wetland Vegetation
 - Early Harvest Edible Vegetation
 - Late Harvest Edible Vegetation
 - Bren Loop
 - Southwest LRT Alignment
 - Southwest LRT Station
 - Red Loop
 - Yellow Loop
 - Green Loop
 - Blue Loop
 - Opus Loop



*One vehicular trail ID sign will be placed at-grade with the roadway and two road name signs will be placed per underpass for trail users traveling in both directions along the trail system.

BLUE TRAIL: THE CORPORATE LOOP

Map 17: Blue Trail Overview



Blue Loop (1.8 miles)

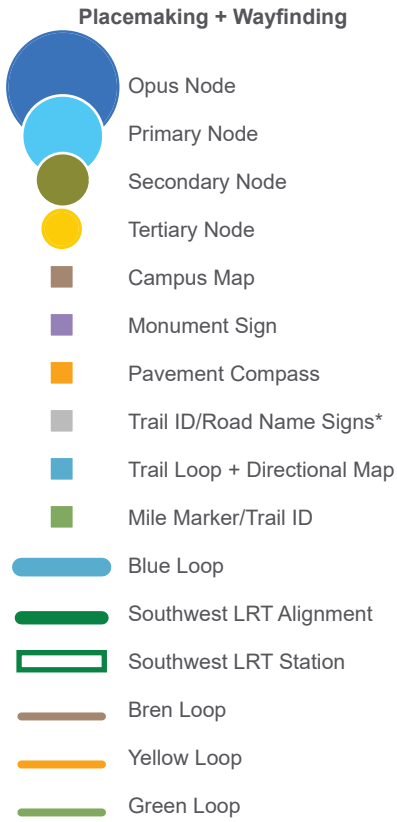
This corporate campus loop curves around multiple corporate campuses with less publicly accessible landscape than Bren Loop. Approximately one mile of new trail will be added to this loop.

Trail Recommendations

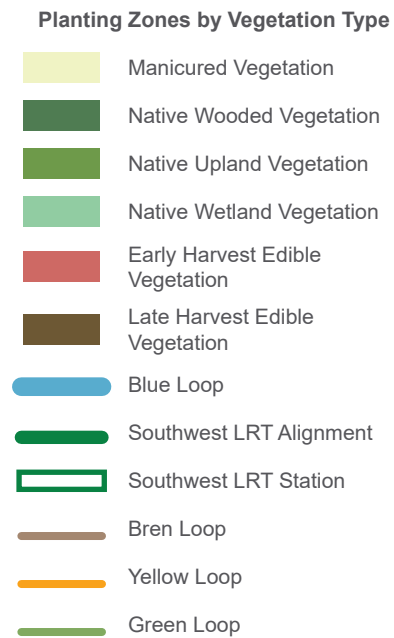
- A** Connect trail from the Bren Road East underpass near Adler Graduate School south to Blue Circle Drive; trail will cross Blue Circle Drive at-grade.
- B** Connect trail from Blue Circle Drive east and north along outer perimeter of the Opus District to connect to the UnitedHealthcare campus.
- C** Widen trail connection to Bren Loop to 16'.

- Blue Loop
- Southwest LRT Alignment
- Southwest LRT Station
- Trail Underpass
- Existing Trail
- Proposed Off-Street
- Proposed On-Street
- Bren Loop
- Yellow Loop
- Green Loop

Map 18: Blue Trail Loop Placemaking + Wayfinding



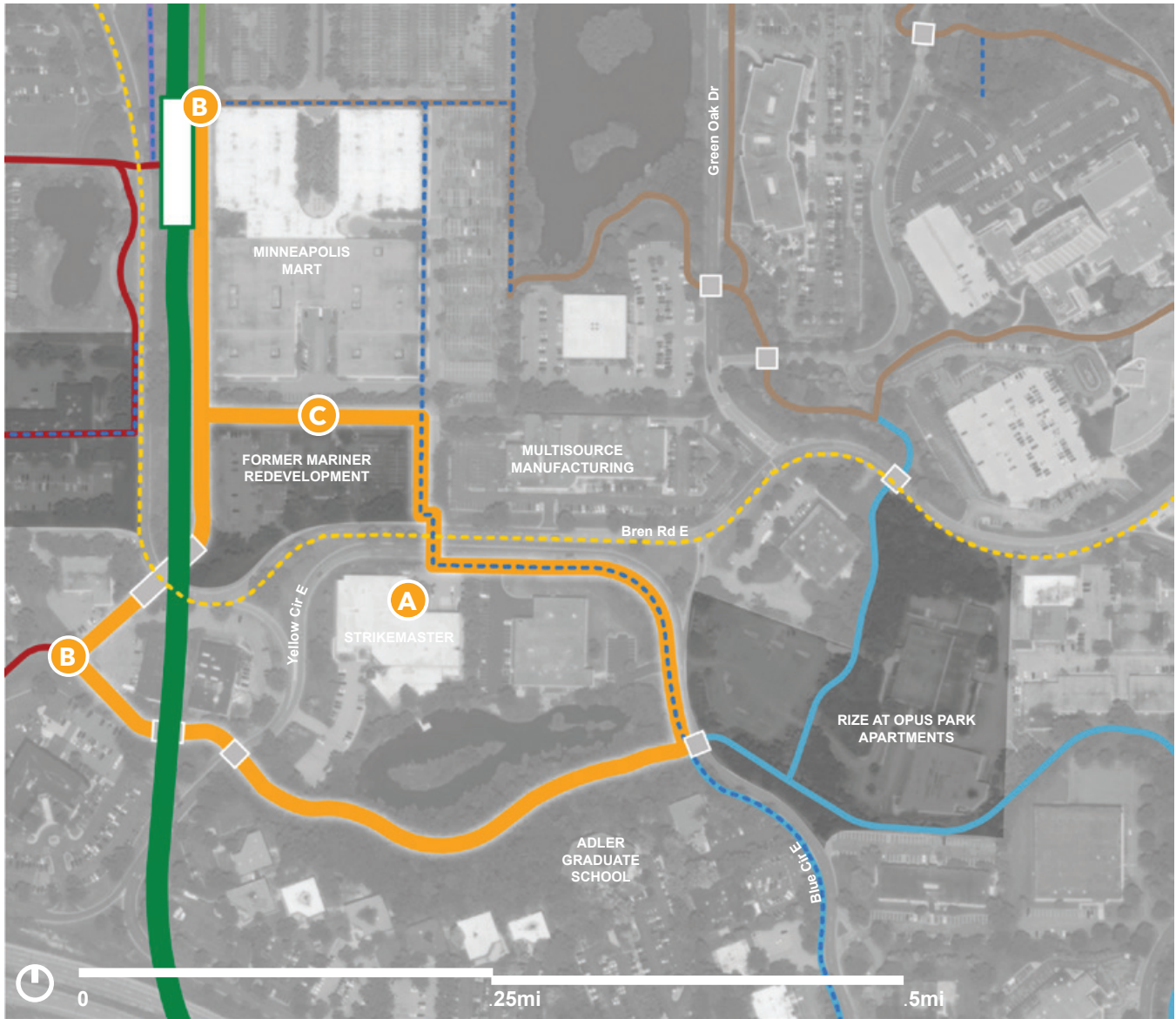
Map 19: Blue Trail Loop Planting Zones



*One vehicular trail ID sign will be placed at-grade with the roadway and two road name signs will be placed per underpass for trail users traveling in both directions along the trail system.

YELLOW TRAIL: THE SCENIC LOOP

Map 20: Yellow Trail Overview



Yellow Loop (0.9 mile)

This scenic loop cuts between corporate campuses and small businesses. Due to a stormwater pond and a steep wooded slope, the trail environment feels more natural than others in the southern half of Opus. Approximately one-third mile of new trail will be added.

Trail Recommendations

- A** Connect existing trail from Minneapolis Mart site south to cross Bren Road East at-grade and continue east and south to connect with the Blue Circle Drive underpass.
- B** Widen existing trail from Opus Station south to connect with the Red Loop at the METRO Green Line underpass to 16' for separate pedestrian and bicycle trails.
- C** Widen existing trail to 16'.

- Yellow Loop
- Southwest LRT Alignment
- Southwest LRT Station
- Trail Underpass
- Existing Trail
- Proposed Off-Street
- Proposed On-Street
- Red Loop
- Bren Loop
- Green Loop
- Blue Loop

- Placemaking + Wayfinding**
- Opus Node
 - Primary Node
 - Secondary Node
 - Tertiary Node
 - Campus Map
 - Monument Sign
 - Pavement Compass
 - Trail ID/Road Name Signs*
 - Trail Loop + Directional Map
 - Mile Marker/Trail ID
 - Yellow Loop
 - Southwest LRT Alignment
 - Southwest LRT Station
 - Red Loop
 - Bren Loop
 - Green Loop
 - Blue Loop

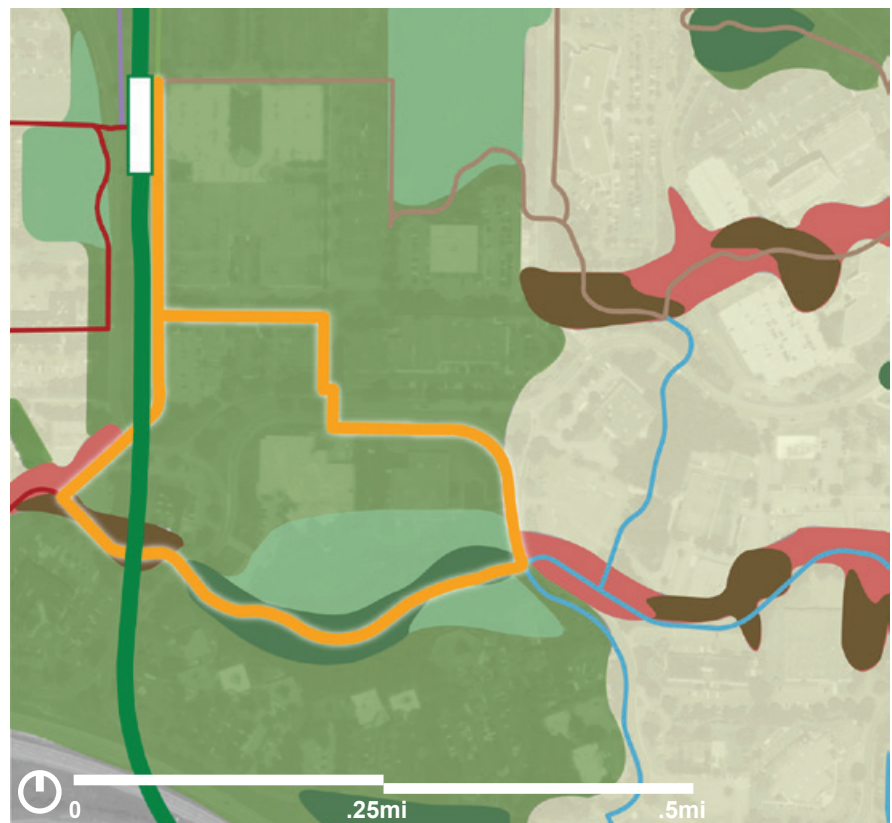
Map 21: Yellow Trail Loop Placemaking + Wayfinding



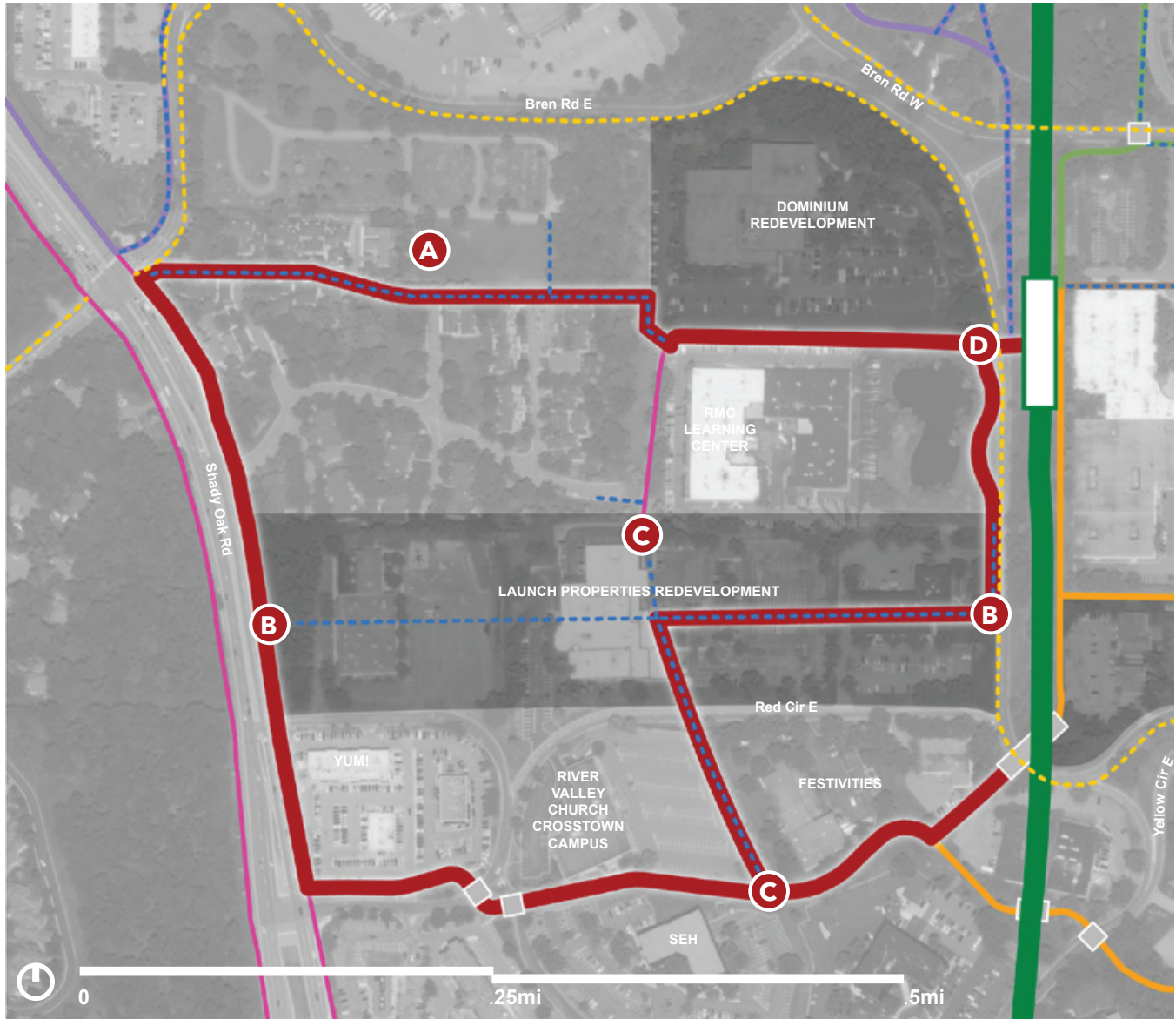
Planting Zones by Vegetation Type

- Manicured Vegetation
- Native Wooded Vegetation
- Native Upland Vegetation
- Native Wetland Vegetation
- Early Harvest Edible Vegetation
- Late Harvest Edible Vegetation
- Yellow Loop
- Southwest LRT Alignment
- Southwest LRT Station
- Red Loop
- Bren Loop
- Green Loop
- Blue Loop

Map 22: Yellow Trail Loop Planting Zones



*One vehicular trail ID sign will be placed at-grade with the roadway and two road name signs will be placed per underpass for trail users traveling in both directions along the trail system.



Red Loop (1.5 miles)

This food loop extends alongside the light rail line and bends west through a handful of small businesses and eateries and back around through a residential neighborhood towards Opus Station. Approximately 0.75 mile of trail will be added, contingent upon the Launch Properties development final concept.

Trail Recommendations

- A** Connect trail from Shady Oak Road east to existing trail.
- B** Connect trail from Shady Oak Road east to Bren Road East through Launch Properties development; new trail alignment dependent upon redevelopment.
- C** Connect trail from existing trail terminus south across Red Circle East; street crossing to be determined after development of the Launch Properties site.
- D** Widen existing trail to 16'.

- Red Loop
- Southwest LRT Alignment
- Southwest LRT Station
- Trail Underpass
- Existing Trail
- Proposed Off-Street
- Proposed On-Street
- Bren Loop
- Yellow Loop
- Green Loop
- Opus Loop

Map 24: Red Trail Loop Placemaking + Wayfinding

- Placemaking + Wayfinding**
- Opus Node
 - Primary Node
 - Secondary Node
 - Tertiary Node
 - Campus Map
 - Monument Sign
 - Pavement Compass
 - Trail ID/Road Name Signs*
 - Trail Loop + Directional Map
 - Mile Marker/Trail ID
 - Red Loop
 - Southwest LRT Alignment
 - Southwest LRT Station
 - Bren Loop
 - Yellow Loop
 - Green Loop
 - Opus Loop



Map 25: Red Trail Loop Planting Zones

- Planting Zones by Vegetation Type**
- Manicured Vegetation
 - Native Wooded Vegetation
 - Native Upland Vegetation
 - Native Wetland Vegetation
 - Early Harvest Edible Vegetation
 - Late Harvest Edible Vegetation
 - Red Loop
 - Southwest LRT Alignment
 - Southwest LRT Station
 - Bren Loop
 - Yellow Loop
 - Green Loop
 - Opus Loop

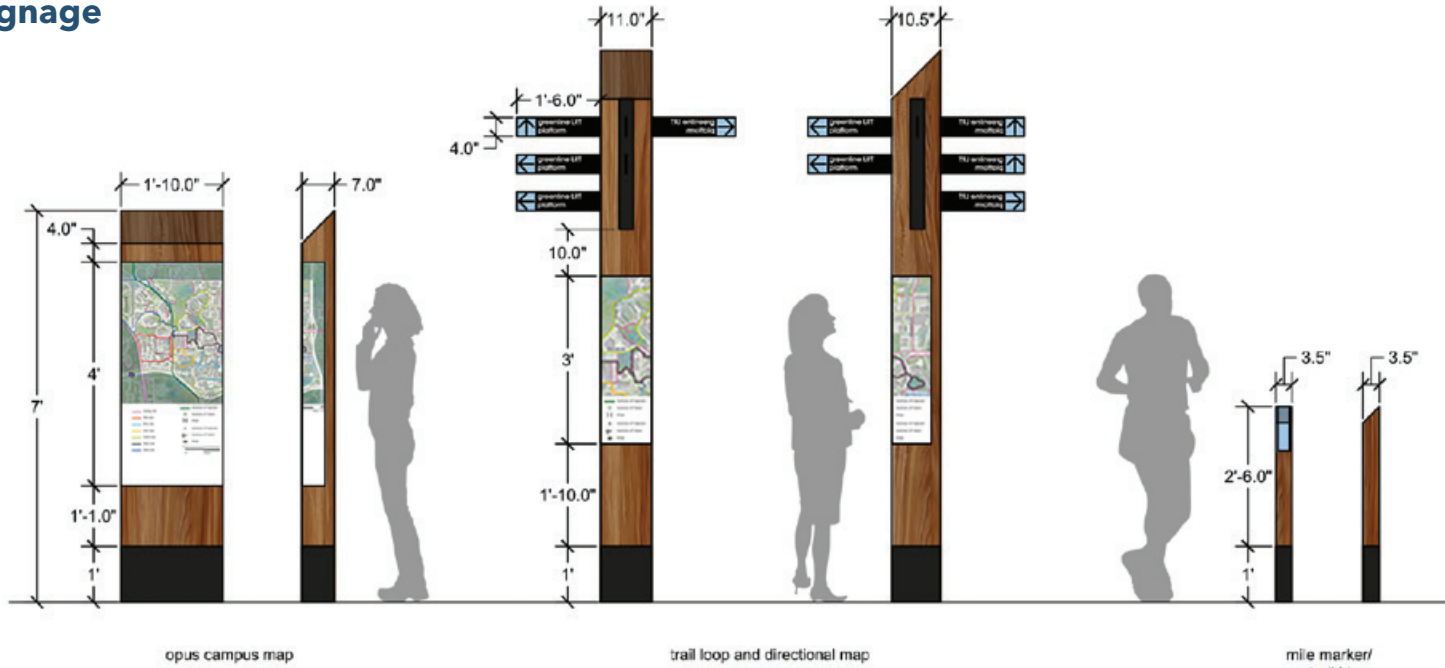


*One vehicular trail ID sign will be placed at-grade with the roadway and two road name signs will be placed per underpass for trail users traveling in both directions along the trail system.

CHAPTER THREE

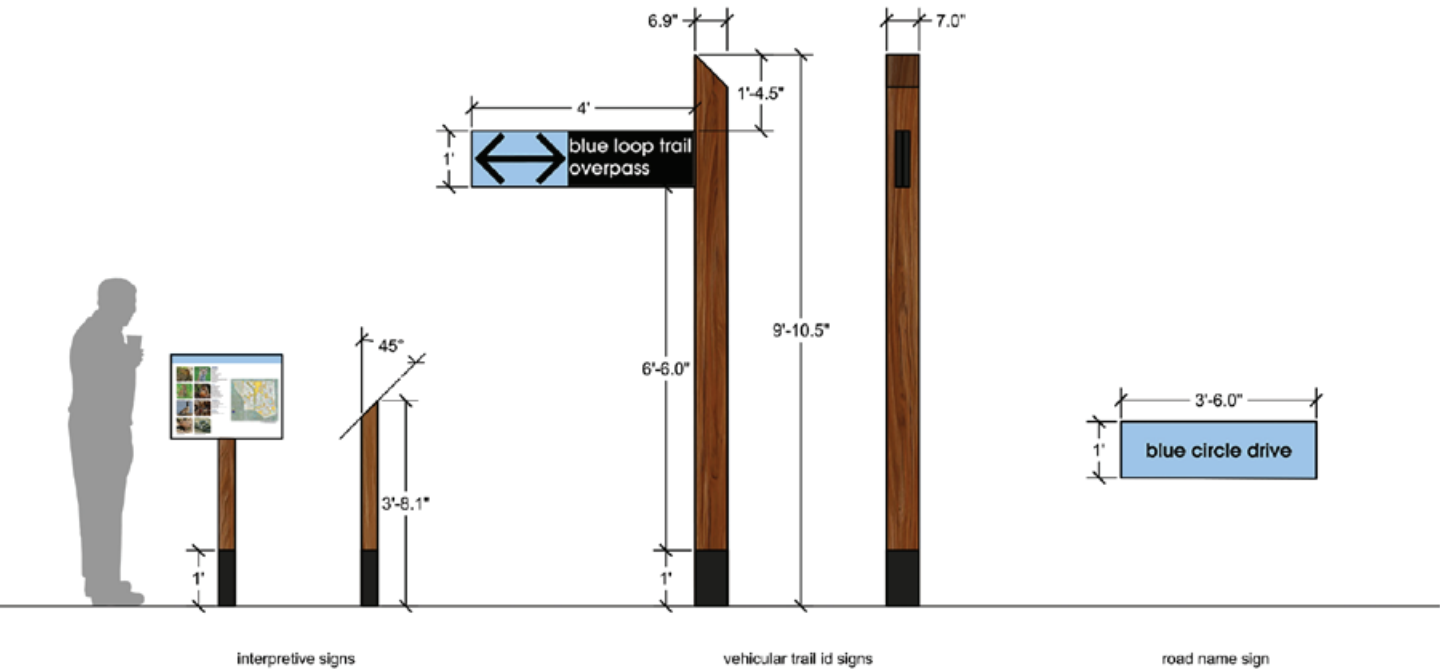
WAYFINDING + FURNITURE

Signage



Underpass Treatment

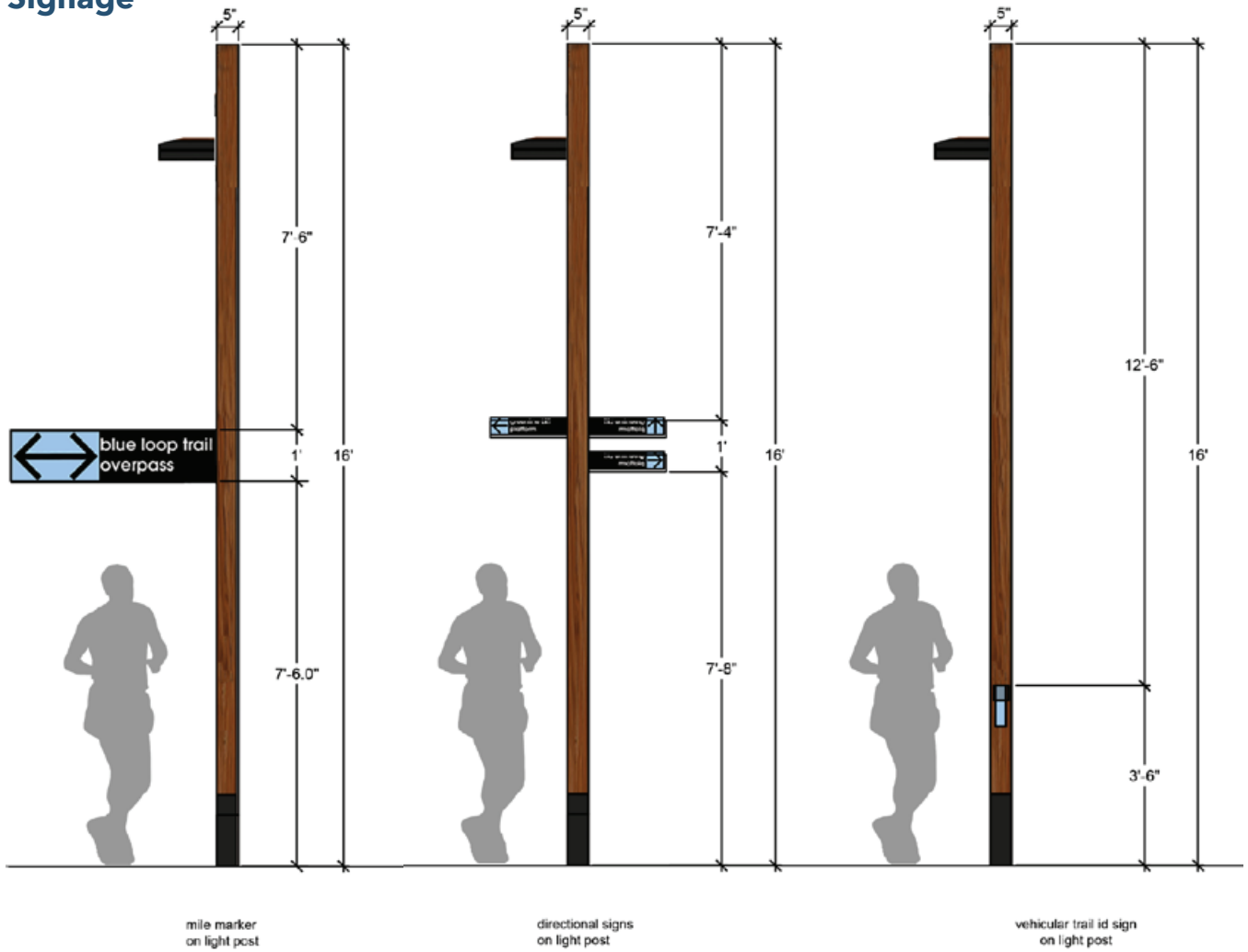




Pavement Inlays



Signage



Pavement Compass



Furniture Placement

Benches

Placement of benches should take advantage of scenic opportunities and allow for shade and sunlight during different times of day and various seasons. Adjacent pads should be provided to allow for wheelchair seating as required by ADA for a minimum of 50% of all benches within a specific area.

Trash Receptacles

Receptacles should be placed in convenient locations such as

near intersections for park and trail users and maintenance crews alike. These locations should be convenient to benches and tables, but should not be so close that odors and bees are problematic.

Picnic Tables

Similar to benches, the picnic tables should be located to take advantage of views and shade/sunlight during different times and seasons. At least 50% of tables must be ADA compliant.

Bike Racks

Bike racks should be located near trails allowing some buffer space adjacent to the trail for safety.

Bike Fix-it Stations

Bike fix-it stations should be located near trails allowing some buffer space adjacent to the trail for safety.

Picnic Tables
Round



Tournesol Siteworks Round-about Collection Table
Tier 3 IPE Wood
Metal Color: Black
Mounting Options:
Preferred: Embed
Alternate: Surface mount



Sitecraft Columbus Circle Table and Regency Stools
IPE Wood
Metal Powdercoated Black



Thomas Steele Ashton Courtyard Table
Seat Material: IPE Wood; Flat Seat
Table Material: IPE Wood
Metal Powdercoated Black
Mounting Options:
Preferred: In-Ground
Alternate: Surface Mount

Rectangular



DuMor Table 75-60I
Metal Color: Black
Mounting Options:
Preferred: S-1 Embedment
Alternate: S2 Surface Mount



Victor Stanley Homestead Collection ST-6
Wood
Metal Powdercoated Black
Mounting Options:
Preferred: In-Ground
Alternate: Surface



Sitecraft Regency Table 72"
Length and Regency benches
IPE Wood
Metal Powdercoated Black

Benches



DuMor Bench 51-60I

Metal Color: Black
 Mounting Options:
 Preferred: S-1 Embedment
 Alternate: S2 Surface Mount
 Wood: IPE



Tournesol Siteworks Cascade Bench CA-0200-72

Tier 3 IPE Wood
 Metal Color: Black
 Mounting Options:
 Preferred: Embed
 Alternate: Surface mount



Landscape Forms Gretchen Bench

IPE Wood
 Metal Powdercoated Black
 Mounting Options:
 Preferred: In-Ground
 Alternate: Surface



Custom Bench

Trash Receptacles



DuMor 187-32I-FTO with Bonnet Cover (BT)

Powder Coat Black



Forms + Surfaces Cordia Litter & Recycling Receptacle with Rain Cover

Wood slats
 Metal Powdercoated Black



Landscape Forms Gretchen Litter

Side Open
 IPE Wood
 Metal Powdercoated Black

Bike Racks



Dero Swerve Rack
Powder Coat Black
Mounting Options:
Preferred: In-ground
Alternate: Surface



Belson Outdoors Swerve Rack
Powder-Coated Black
Mounting Options:
Preferred: In-ground Mount
Alternate: Surface Mount



American Bicycle Security Company Swerve Rack
Powder Coated RAL 9005 (black)
Mounting Options:
Preferred: In-ground Mount
Alternate: Surface Mount

Fix-It Stations



Dero Fixit Station with Pump
Color: Black



Saris Infrastructure Deluxe Public Work Stand with Bike Pump and Wheel Chock
Color: Black



Kirby Built Ultimate Bike Repair Station & Bike Pump
Color: Black

Lighting Pedestrian Poles



**BEGA Square Straight
Wooden Pole**
13' 5-3/8"
Product # 98 522



Structura SPAR Wood Pole
14' Height



Timberwood Pole
12' Height

Pedestrian Luminaires



Bega Product # 99 868



Hubbel Lighting RAR1 Ratio

Vehicular Poles

Use luminaire manufacturer pole, color black, square if an option

Vehicular Luminaires



Bega Product # 84 407



Hubbel Lighting RAR2 Ratio

CHAPTER FOUR

PLACEMAKING + PROGRAMMING

Trail Node Programming Guidelines

Loop Name	Opus Loop: Connecting			Green Loop: Wetland			Bren Loop: Welcome		
Node Type	Primary (1)	Secondary (4)	Tertiary (3)	Primary (1)	Secondary (6*)	Tertiary (2)	Primary (1*)	Secondary (4*)	Tertiary (2*)
Node Elements	Choose 4	Choose 2	Choose 1	Choose 4	Choose 2	Choose 1	Choose 4	Choose 2	Choose 1
Passive Pedestrian Elements	Picnic table, Custom bench, Manufactured bench			Picnic table, Custom bench, Manufactured bench			Picnic table, Custom bench, Manufactured bench		
Program Elements	Choose 4	Choose 2		Choose 4	Choose 2		Choose 4	Choose 2	
Social	Community garden, Tables and benches	Tables and benches		Outdoor kitchen, Social gathering space, Tables and benches	Tables and benches		Outdoor dining space, Social gathering space	Tables and benches, Social gathering space	
Edible	Outdoor dining space	Permaculture landscape		Food trucks	Permaculture landscape		Food trucks	Permaculture landscape	
Interpretive		Educational signage		Amphitheater	Public art, Educational signage			Public art, Educational signage	
Restorative	Rain gardens	Rain gardens		Boardwalks, Rain gardens	Scenic overlooks, Rain gardens		Rain gardens	Rain garden	
Recreational	Play area, Splash pad	Small games courts, Dog amenities		Paddle docks, RC Boats, Multi-use fields, Skating on the lake, Dog park	Dog amenities		Multi-use fields	Small games court	

Blue Loop: Corporate			Yellow Loop: Scenic			Red Loop: Food		
Primary (0)	Secondary (0)	Tertiary (5*)	Primary (0)	Secondary (0)	Tertiary (3)	Primary (1)	Secondary (1)	Tertiary (3)
Choose 4	Choose 2	Choose 1	Choose 4	Choose 2	Choose 1	Choose 4	Choose 2	Choose 1
Picnic table, Custom bench, Manufactured bench			Picnic table, Custom bench, Manufactured bench			Picnic table, Custom bench, Manufactured bench		
Choose 4	Choose 2		Choose 4	Choose 2		Choose 4	Choose 2	
	Tables or benches, Small gathering spaces			Tables and benches, Small gathering spaces		Social gathering space, Outdoor cafe seating, Food trucks		Tables and benches
	Permaculture landscape			Permaculture landscape		Permaculture landscape	Permaculture landscape	
	Educational signage			Educational signage			Educational signage	
	Rain gardens			Scenic overlook, Rain gardens		Rain gardens, Shade structure	Rain gardens	

CHAPTER FIVE

ON-STREET BIKEWAYS

Map 26: On-street Bikeways by Facility Type

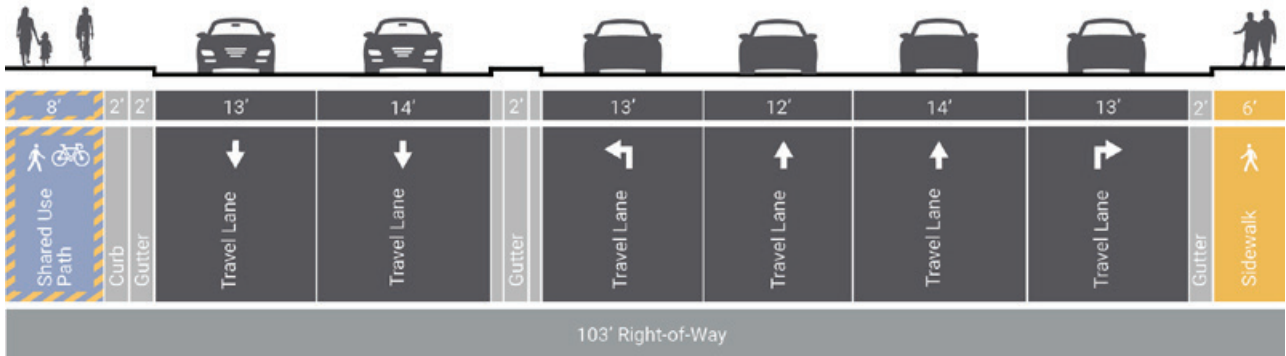


- Southwest LRT Alignment
- Southwest LRT Station
- Cycletrack (bidirectional)
- Buffered Bike Lane (both sides of street section)
- Standard Bike Lane
- Buffered Bike Lane (one side of street section only)

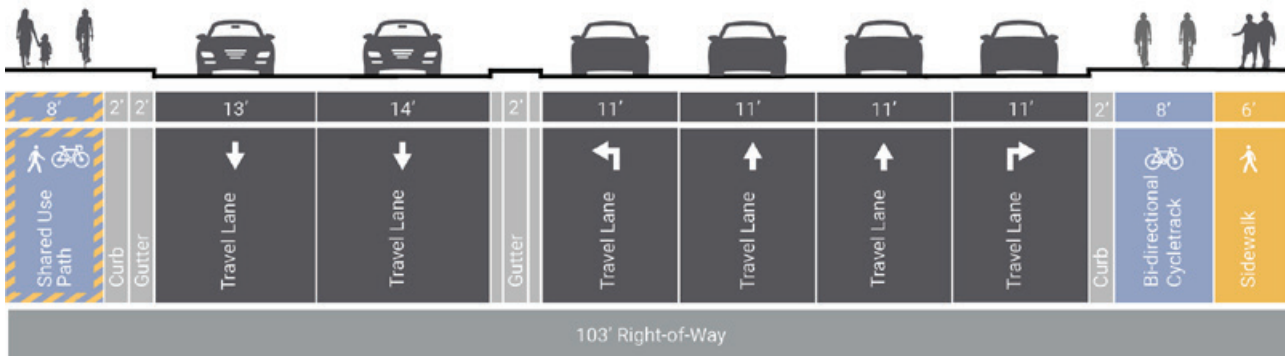
Ownership + Implementation

Some of the on-street facility recommendations are along street segments owned outside of the City of Minnetonka. The cycletrack along Shady Oak Road is a recommendation for Hennepin County to further explore feasibility and engineering concepts. The standard bike lane along the segment connecting 11th Avenue South to the Opus District along the east side of Claremont Apartments is a recommendation for the private property owners to consider. Where the City wishes to maintain minimum lane widths, the bike lane buffer may be reduced one to two feet where needed.

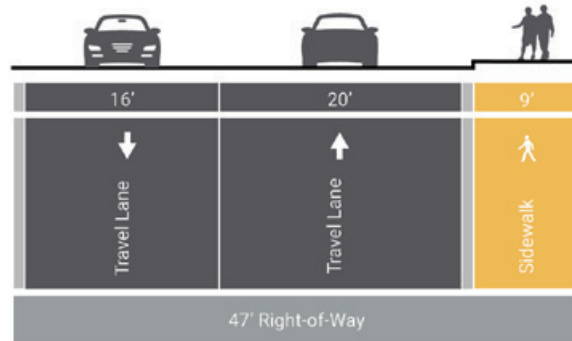
A. Shady Oak Road - Existing Conditions



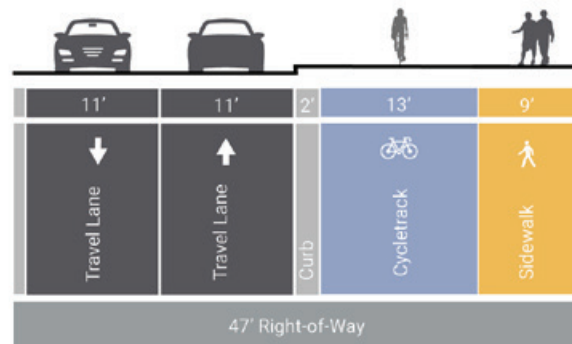
A. Shady Oak Road - Bi-directional Cycletrack (without moving median)



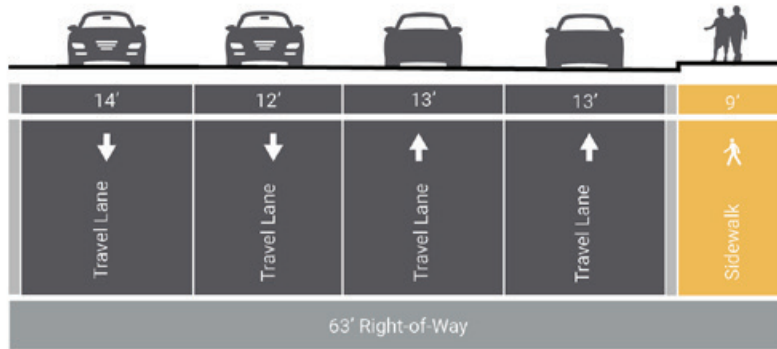
B. Opportunity Court - Existing Conditions



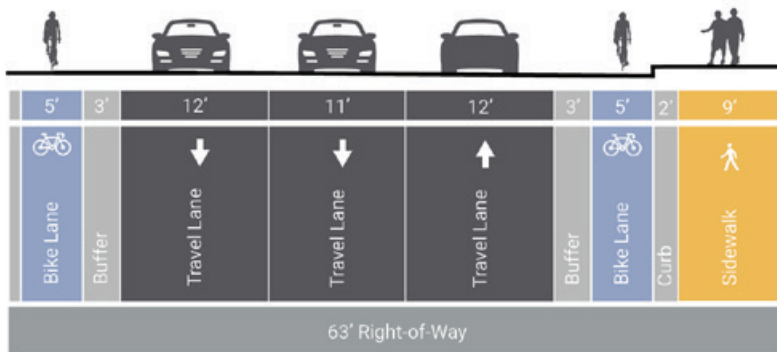
B. Opportunity Court - Bi-directional Cycletrack



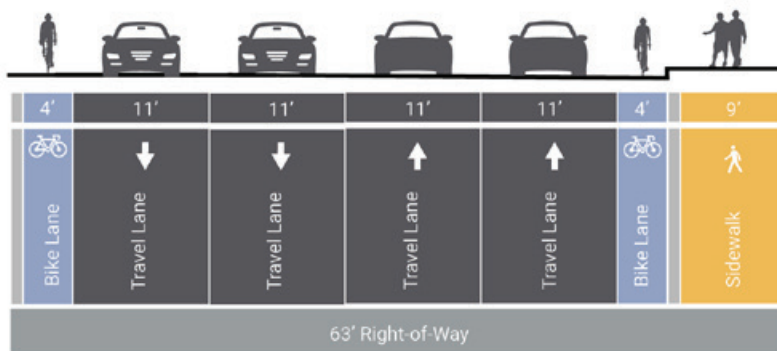
C. Smetana Drive - Existing Conditions



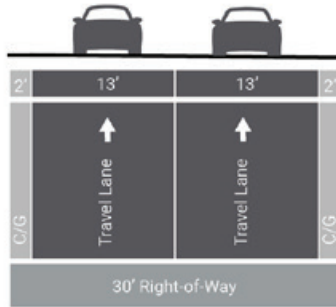
C. Smetana Drive - 4-to-3 Lane Conversion with Buffered Bike Lanes (Option 1)



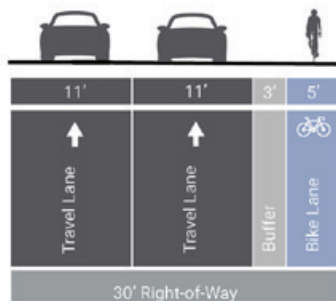
C. Smetana Drive - Standard bike Lanes (Option 2)



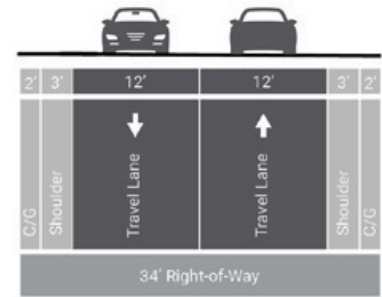
D, E. Bren Road West & East 2 Lanes - Existing Conditions



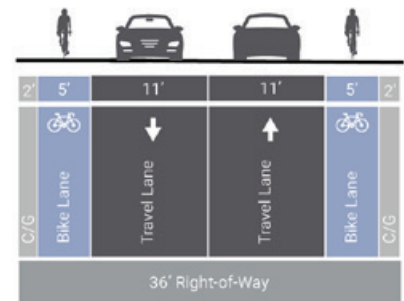
D, E. Bren Road West & East 2 Lanes - Buffered Bike Lane



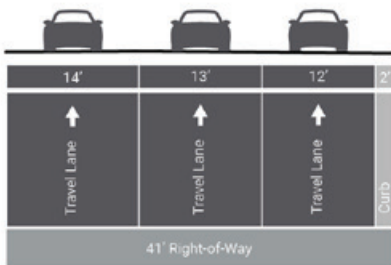
H. Smetana Road - Existing Conditions



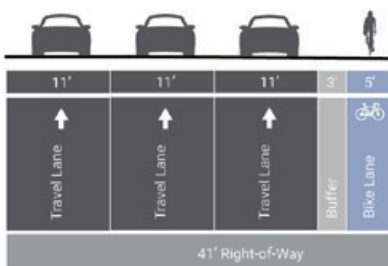
H. Smetana Road - Standard Bike Lane



F, G. Bren Road West & East 3 Lanes - Existing Conditions



F, G. Bren Road West & East 3 Lanes - Buffered Bike Lane











Additional Study Needed

These recommendations are based on preliminary findings of existing conditions and are subject to change under future study. Some improvements may require expansion or the addition of roadway facilities, including pavement width, curb and gutter, or alteration of utilities, which may have budgetary impacts. It is important to note that these improvements would need to be further evaluated with a feasibility study to determine the extent of physical and financial impacts before any stage of engineering.

Map 27: Recommended Transit Routes and Bus Stop Locations



Map Features

-  Bus Stops
-  Future SWLRT Stations
-  SWLRT Routing
-  Route 12
-  Route 146
-  Route 46
-  Route 612
-  Route 664

Bus Network

There are 22 total active bus stops shared between five bus routes that operate within Opus. Of these bus stops, only two bus stops provide any form of shelter which is primarily due to Metro Transit daily boarding requirements for a shelter. The two shelters in place were provided by employers in the area and exemplify the types of public private partnerships we would like to foster in the area.

In addition to the two sheltered bus stops along Bren Road East, only three other bus stops provide a concrete boarding and unloading pad to facilitate accessibility for people with personal wheeled mobility devices. One of these bus stops does not provide any sidewalk or trail connections and a more accessible curb cut to the street for people with wheeled devices may be needed. As bus stops should be accessible by trail

and by accessible curb cuts, the City has an accessibility plan it is implementing after the completion of Southwest LRT construction.

Of the 20 unsheltered bus stops, many are located near thick or overgrown vegetation with poor sightlines and one stop is not signaled with signage at all. Three bus routes (Routes 12, 46, and 664) only provide weekday service while two provide weekend service (Routes 46 and 612).

A reroute for Route 12 is recommended to better connect bus riders to the Opus Station, especially since riders may easily transfer from an existing stop on Routes 46, 146, 612, and 664 to Route 12. Instead of connecting riders to Shady Oak Road, Route 12 should travel along Bren Road West and continue around to Bren Road East in a large circuit.

Bus Stops

Metro Transit specifies criteria by which the agency prioritizes adding shelters to bus stops. Stops are considered for shelters if they board 30 or more average daily passengers. Next, stops are prioritized based on boarding numbers, whether customers could particularly benefit from a shelter (for example a stop near senior housing), whether the stop is a major transit point, and whether nearby households have low car ownership.

No new bus stops are recommended at this time. Instead, the city should

continue to work with Metro Transit to monitor bus ridership numbers throughout the first year of Southwest LRT operations to better understand where there may be future and additional bus ridership demand.

Ahead of opening-day light rail operations, existing bus stops should be well-maintained and kept free of overgrown vegetation. Wayfinding signage described in earlier sections of this report may be incorporated at bus stops to facilitate navigation within the district. At minimum, bus stops should include a concrete pad and curb cuts to facilitate ADA access to the street network and trail network. All bus stops should have a paved connection to the existing and future trail network so that people of all mobilities may use these transportation systems.



Bus stop with shelter and sidewalk.



Bus stop with bench.



Bus stop sign without shelter, bench or sidewalk.

CHAPTER SIX

PLANTING PALETTES



- SUN
- SHADE
- PARTIAL

MANICURED

Manicured Lawn Seed Mixes

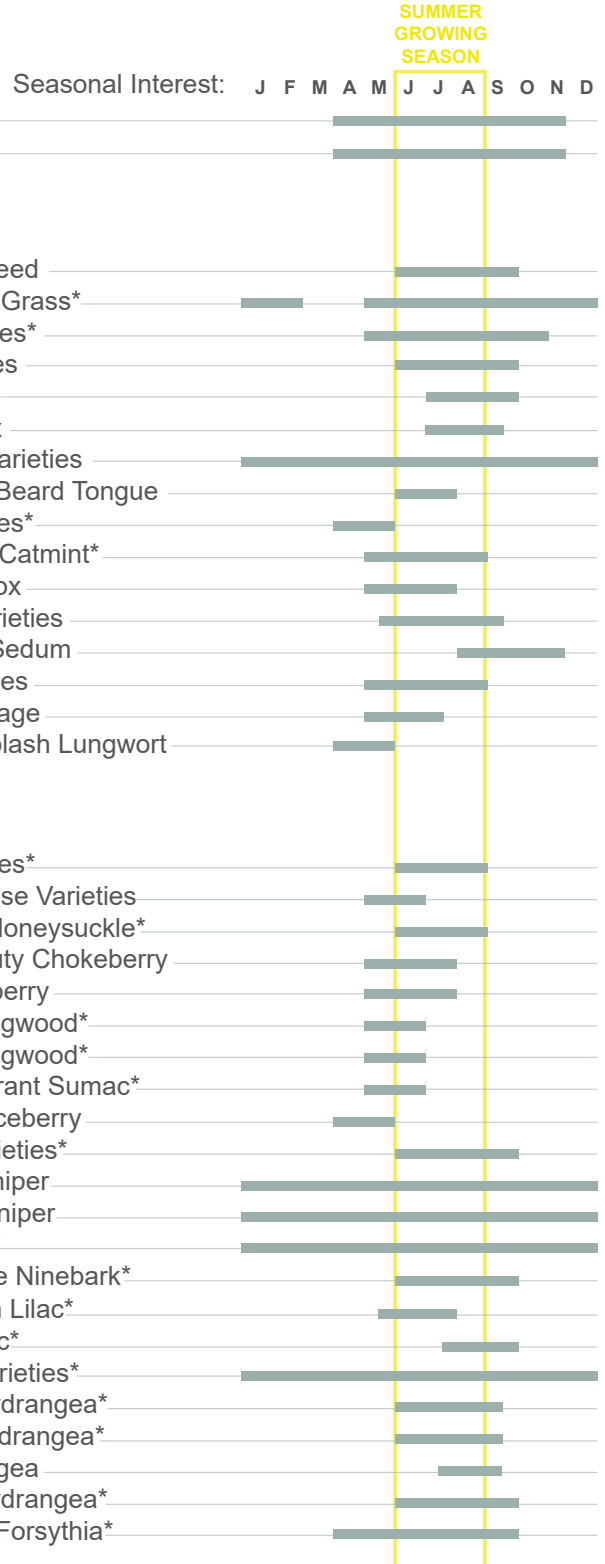
- Sunny Mix: Shooting Star Native Seed Supply
- Shade Mix: Shooting Star Native Seed Supply

Manicured Perennials / Grasses

- Sporobolus heterolepis
- Calamagrostis x acutiflora 'Karl Foerster'
- Hemerocallis sp.
- Hosta sp.
- Matteuccia struthiopteris
- Phlox paniculate
- Echinacea sp.
- Penstemon digitalis 'Dark Towers'
- Paeonia sp.
- Nepeta x faassenii 'Walkers Low'
- Phlox subulata
- Monarda sp.
- Sedum 'Autumn Joy'
- Astilbe sp.
- Salvia x sylvestris 'Caradonna'
- Pulmonaria 'Raspberry Splash'

Manicured Shrubs

- Spirea japonica sp.
- Rosa sp.
- Diervilla lonicera
- Aronia melanocarpa 'Morton'
- Aronia melanocarpa elata
- Cornus stolonifera 'Farrow'
- Cornus alba 'Bailhalo'
- Rhus aromatica 'GroLow'
- Amelanchier alnifolia 'Regent'
- Potentilla sp.
- Juniperus horizontalis 'Blue Chip'
- Juniperus chinensis 'Monlep'
- Taxus x media 'Taunton'
- Physocarpus opulifolius 'Seward'
- Syringa meyeri 'Palibin'
- Syringa patula 'Miss Kim'
- Thuja occidentalis sp.
- Hydrangea arborescens 'Abetwo'
- Hydrangea arborescens 'Annabelle'
- Hydrangea paniculata 'ILVOBO'
- Hydrangea paniculata 'Jane'
- Forsythia 'Courtaneur'

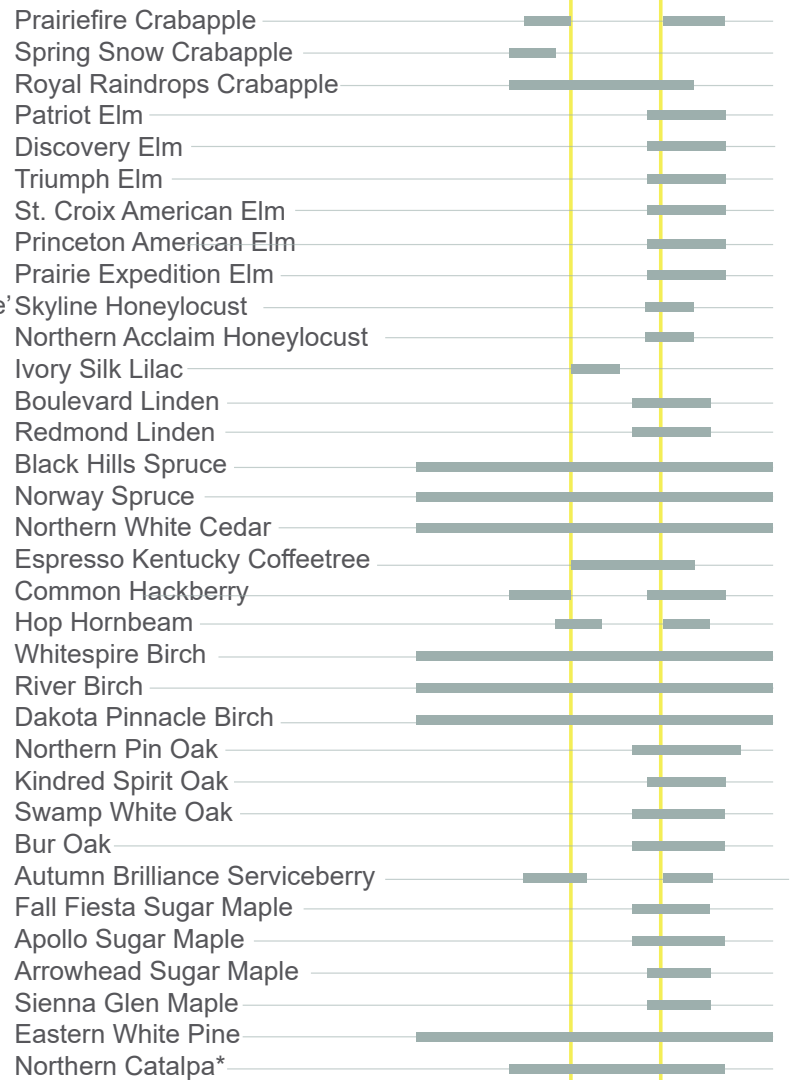


*Refer to Maintenance Section

Manicured Trees

- Malus 'Prairiefire'
- Malus 'Spring Snow'
- Malus 'JFS-KW5'
- Ulmus 'Patriot'
- Ulmus davidiana 'Discovery'
- Ulmus 'Morton Glossy'
- Ulmus americana 'St. Croix'
- Ulmus americana 'Princeton'
- Ulmus americana 'Lewis & Clark'
- Gleditsia triacanthose var. inermis 'Skycole'
- Gleditsia triacanthose var. inermis 'Harve'
- Syringa reticulata 'Ivory Silk'
- Tilia americana 'Boulevard'
- Tilia americana 'Redmond'
- Picea glauca 'Densata'
- Picea abies
- Thuja occidentalis
- Gymnocladus dioicus 'Espresso'
- Celtis occidentalis
- Ostrya virginiana
- Betula populifolia 'Whitespire'
- Betula nigra
- Betula platyphylla 'Fargo'
- Quercus ellipsoidalis
- Quercus x warei 'Nadler'
- Quercus bicolor
- Quercus macrocarpa
- Amelanchier x grandiflora
- Acer saccharum 'Bailsta'
- Acer saccharum 'Barrett Cole'
- Acer saccharum 'Arrowhead'
- Acer x freemanii 'Sienna'
- Pinus strobus
- Catalpa speciosa

Seasonal Interest: J F M A M J J A S O N D



SUMMER
GROWING
SEASON

Note: Perennials and shrubs in this category are suitable for mass plantings of three or greater. Most species are selected based on desired compact growth characteristics.

NATIVE

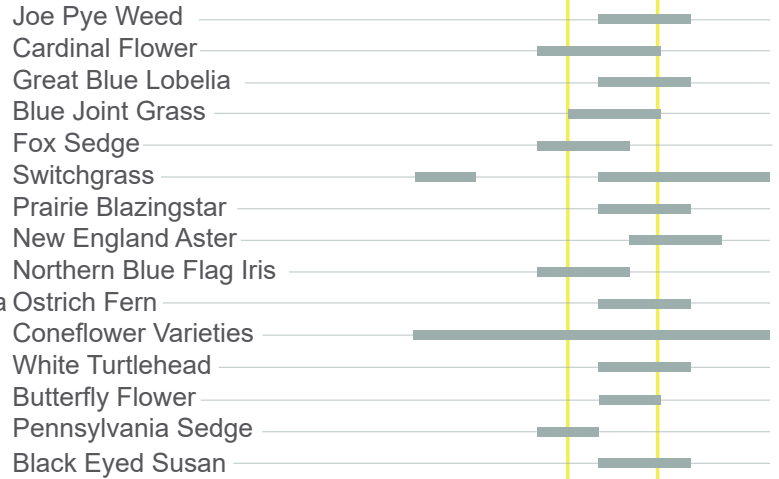
Wetland Seed Mixes

Seasonal Interest: J F M A M J J A S O N D

- Emergent Wetland Mix: MnDOT 34-181
- Wet Prairie Mix: MnDOT 34-262

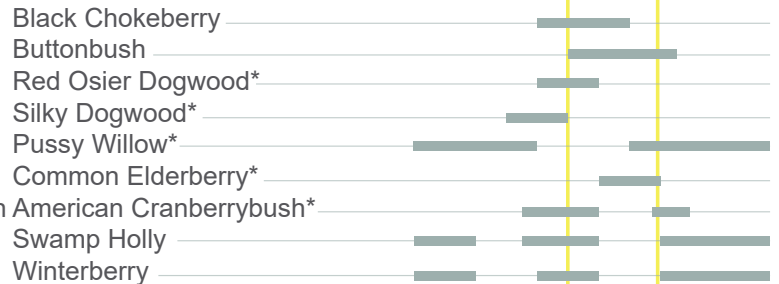
Wetland Perennials / Grasses

- Eupatorium maculatum
- Lobelia cardinalis
- Lobelia syphilitica
- Calamagrostis canadensis
- Carex vulpinoidea
- Panicum virgatum
- Liatris pycnostachya
- Symphyotrichum novae-angliae
- Iris versicolor
- Matteuccia struthiopteris var. pensylvanica
- Echinacea sp.
- Chelone glabra
- Asclepias tuberosa
- Carex pensylvanica
- Rudbeckia hirta



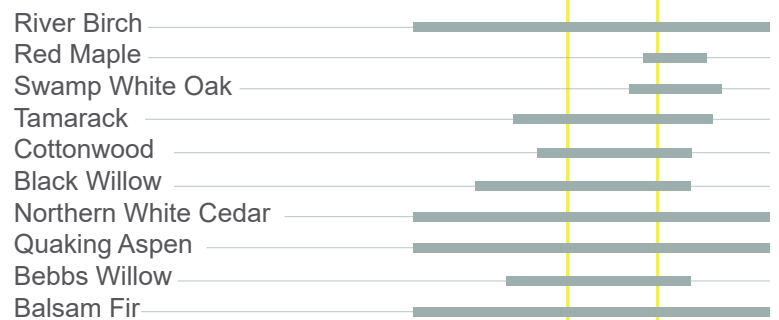
Wetland Shrubs

- Aronia melanocarpa
- Cephahanthus occidentalis
- Cornus sericea
- Cornus amomum
- Salix discolor
- Sambucus canadensis
- Viburnum opulus L. var. americanum Aiton
- Ilex mucronata
- Ilex verticillata



Wetland Trees

- Betula nigra
- Acer rubrum
- Quercus bicolor
- Larix laricina
- Populus deltoides
- Salix nigra
- Thuja occidentalis
- Populus tremuloides
- Salix bebbiana
- Abies balsamea



Upland Seed Mix

- Pollinator Mix: Shooting Star Native Seed Supply



SUMMER
GROWING
SEASON

Upland Perennials / Grasses

- Rudbeckia hirta var. pulcherrima
- Tradescantia bracteata
- Asclepias tuberosa var. interior
- Aquilegia canadensis
- Symphyotrichum ericoides
- Eurybia macrophylla
- Koeleria macrantha
- Schizachyrium scoparium
- Echinacea angustifolia
- Carex pensylvanica
- Sporobolus heterolepis
- Panicum virgatum

Upland Shrubs

- Aronia melanocarpa
- Diervilla lonicera
- Juniperus communis var. depressa
- Cornus racemosa
- Physocarpus opulifolius
- Symphoricarpos albus
- Hudsonia tomentosa
- Viburnum rafinesquianum
- Viburnum dentatum
- Corylus americana

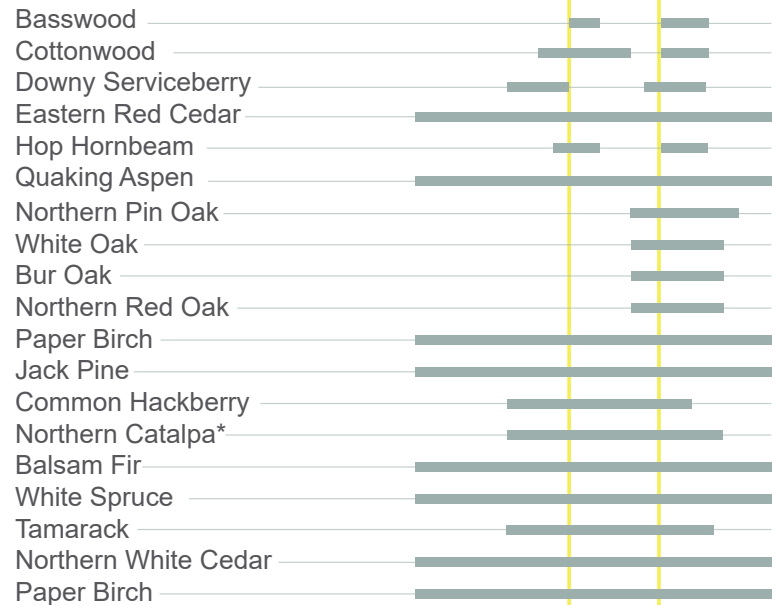
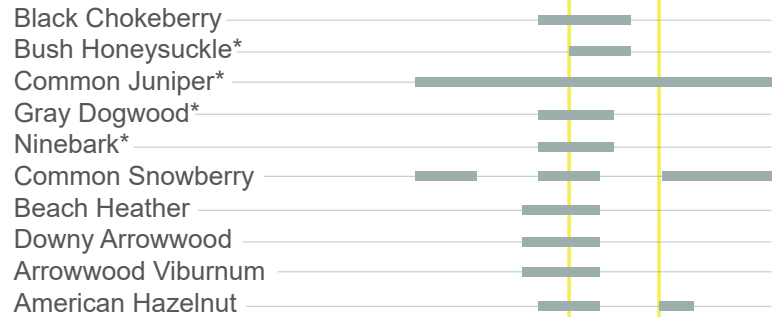
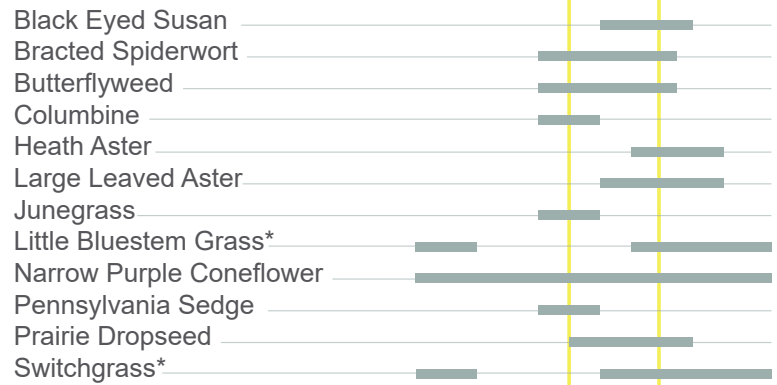
Upland Trees

- Tilia americana
- Populus deltoides subsp. monilifera
- Amelanchier arborea
- Juniperus virginiana
- Ostrya virginiana
- Populus tremuloides
- Quercus ellipsoidalis
- Quercus alba
- Quercus macrocarpa
- Quercus rubra
- Betula papyrifera
- Pinus Banksiana
- Celtis occidentalis
- Catalpa speciosa
- Abies balsamea
- Picea glauca
- Larix laricina
- Thuja occidentalis
- Betula papyrifera

Woodland Seed Mix

- Woodland Edge Mix: Shooting Star Native Seed Supply

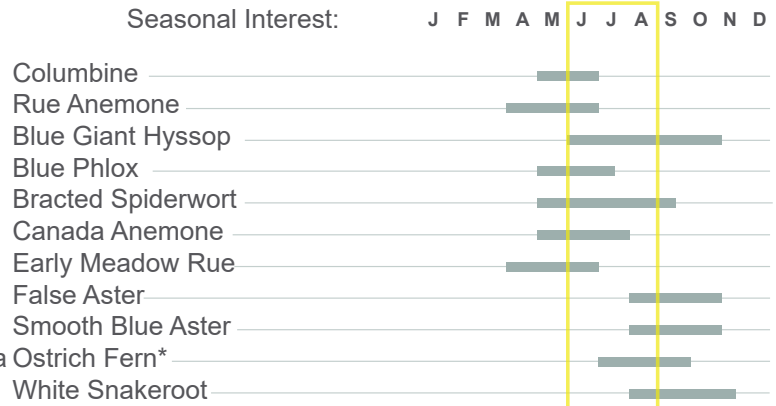
Seasonal Interest: J F M A M J J A S O N D



SUMMER
GROWING
SEASON

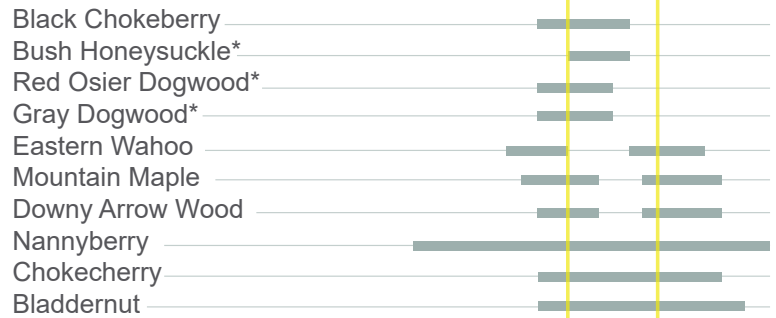
Woodland Perennials / Grasses

- Aquilegia canadensis
- Thalictrum thalictroides
- Agastache foeniculum
- Phlox divaricata var. laphamii
- Tradescantia bracteata
- Anemone canadensis
- Thalictrum dioicum
- Boltonia asteroides
- Symphyotrichum laeve
- Matteuccia struthiopteris var. pensylvanica
- Ageratina altissima



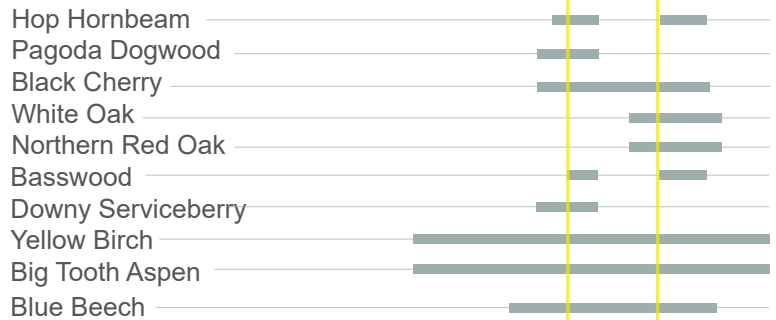
Woodland Shrubs

- Aronia melanocarpa
- Diervilla lonicera
- Cornus sericea
- Cornus racemosa
- Euonymus atropurpureus
- Acer spicatum
- Viburnum rafinesquianum
- Viburnum lentago
- Prunus virginiana
- Staphylea trifolia



Woodland Trees

- Ostrya virginiana
- Cornus alternifolia
- Prunus serotina
- Quercus alba
- Quercus rubra
- Tilia americana
- Amelanchier arborea
- Betula alleghaniensis
- Populus grandidentata
- Carpinus caroliniana



SUMMER
GROWING
SEASON

Note: Perennials and shrubs in this category are suitable for large unmaintained areas of mass plantings due to their competitive nature. All species in this category will require increased thinning and pruning if planted in manicured areas.

EDIBLE

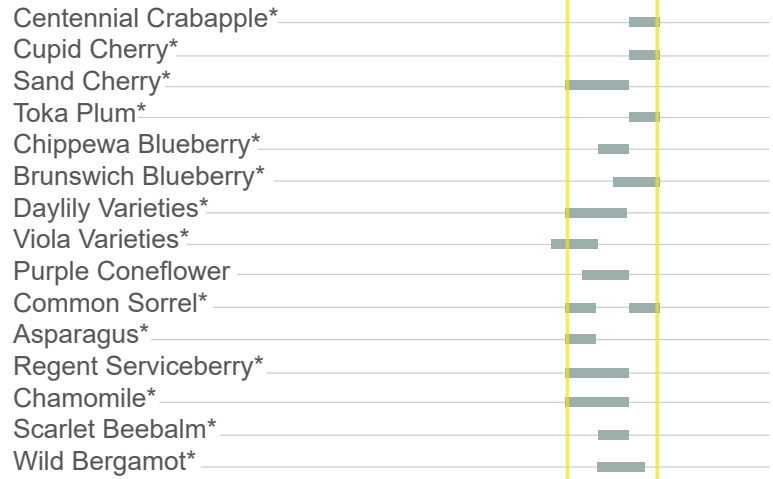
Perennials / Shrubs / Vines / Trees

Early Harvest (May - August)

- Malus 'Centennial'
- Prunus x cerasus 'Cupid'
- Prunus pumilla
- Prunus 'Toka'
- Vaccinium 'Chippewa'
- Vaccinium angustifolium
- Hemerocallis sp.
- Viola sp.
- Echinacea purpurea
- Rumex acetosa
- Asparagus officinalis
- Amelanchier alnifolia 'Regent'
- Matricaria recutita
- Monarda didyma
- Monarda fistulosa

Harvest Month:

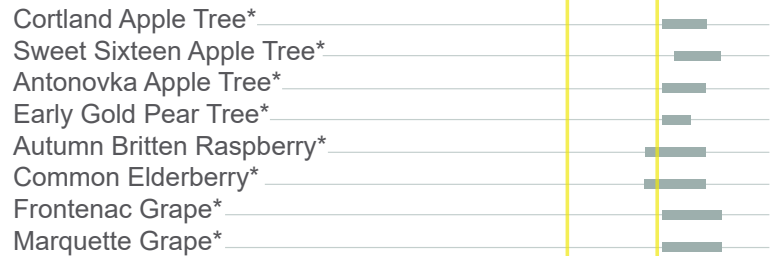
J F M A M J J A S O N D



Perennials / Shrubs / Vines / Trees

Late Harvest (August - October)

- Malus domestica 'Cortland'
- Malus 'Sweet Sixteen'
- Malus pumila 'Antonovka'
- Pyrus ussuriensis 'Early Gold'
- Rubus 'Autumn Britten'
- Sambucus canadensis
- Vitis 'Frontenac'
- Vitis 'Marquette'



SUMMER
GROWING
SEASON

Note: All species in this category may produce edible bearing fruit, flowers, stems, foliage, and/or berries during specified harvest times. Not all parts of plants listed are edible and may need to be indicated accordingly in public spaces.

Maintenance

Native Grass and Forb Seed Mixes

Once established, hand pull or spot treat weeds. Controlled burning on a 3-5 year rotation, alternating spring and fall if possible. Haying on a 3-5 year rotation in late summer or early fall. Alternate with burning (or may substitute for burning). Burning two years in a row will clean up 'rough-looking' sites.

Perennials / Grasses

Perennials with required maintenance include deadheading post bloom and spring cleanup of dead debris as necessary. Divide daylilies and hostas as needed. Ornamental grass species provide winter interest and do best when trimmed during spring cleanup. Competitive species such as Ostrich Fern, Bee Balm, and Common Sorrel should be thinned as necessary. Peony varieties may need staking.

Shrubs

Annual maintenance for all shrubs as necessary includes removal of dead wood, stubs, suckers, old or crossing stems, and pruning back to thin for desired shape during the dormant season of late winter or early spring.

In the manicured planting category only, shear deciduous or evergreen hedges after bloom during the summer. This is appropriate for the following: Honeysuckle, Spirea, GrowLow Sumac, Arborvitae, Lilac, and Potentilla.

Native plantings may be pruned as necessary to allow natural shrub formation.

Rejuvenation Pruning: Cutting stems back to 6"-10" above the ground during the dormant season of late winter or early spring. This is appropriate for the following: Honeysuckle, Shrub Hydrangea, Dogwood, and Willow.

Renewal Pruning: Thinning or removing older stems occasionally when dormant (to allow new stem growth). This is appropriate for the following: Dogwood, Forsythia, Lilac, Ninebark, and Viburnum.

Trees

All trees in manicured areas will typically require minor maintenance which includes pruning of damaged and or crossing branches. Other pruning needs may be the removal of water sprouts and suckers. The safest time to prune trees and limit susceptibility to disease, fungus, pests, etc. is during the late dormant season of February to April. The Northern Catalpa is considered a messy bloomer and may require clean up in early summer. Trees in the edible category may require pesticide prevention applications and pruning to maintain form. Fruit that drops to the ground needs to be disposed of as soon as possible to prevent fermentation.

Promoting Pollinator Habitat

Identify existing habitat, including undeveloped parcels, parks or recreational areas, and school properties that have open space available.

Protect and enhance existing habitat and create new habitat

by installing nest boxes, maintain a minimum of ¼ of area untouched as a refuge area and maintain minimal lawn areas to support recreational needs when moving or burning, and apply chemical treatment (when flowers are not in bloom, not windy, and when insects are inactive such as at night) as necessary for invasive species, safe burning practices in the fall, and overseeding.

Manage habitat while minimizing pollinator impact

by providing connectivity between vegetation areas to create corridors of perennials, shrubs, and trees that provide pollinators shelter and food as they move through the landscape. Water is also important for pollinators, so water sources (either natural or man-made) should be provided.

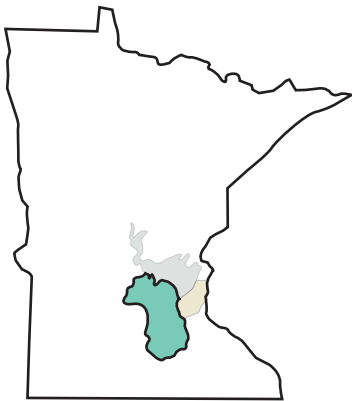
Educate the public by increasing awareness of the importance of pollinators and benefits and becoming advocates. Implement interpretive signage, and flyers.

Plant Traits Attractive to Various Pollinator Types

Plant Trait	Pollinator Type		
	Bees	Birds	Butterflies
Color	white, yellow, blue, uv	scarlet, orange, red, white	bright, including red and purple
Shape	shallow, landing platform, tubular	large funnel, strong	narrow, flat disc
Odor	fresh, mild	none	light

ECOLOGICAL REGIONS

Note: Incorporation of historical and current aptive species based on relative ecological regions were taken into consideration during species selection.



Big Woods

Mississippi Valley Outwash / Anoka Sand Plain
St. Croix Outwash Plain / Stagnation Plain

Big Woods

Presettlement Vegetation

According to the *Public Land Survey Notes* (Grimm, 1984), the order of dominant species are as follows: Elm, Basswood, Sugar Maple, Bur Oak, Ironwood, Northern Red Oak, and Aspen. However, along the western margin of the Big Woods subsection, Aspen was found as most common, followed by Bur Oak. Along the northern and southern regions, mixtures of Aspen, Red Oak, and Bur Oak were dominant with White Oak dominating the eastern margin. The boundary of the zone varied based on topography and other firebreaks.

Present Vegetation

The Minnesota Department of Natural Resources finds that 75% of the Big Woods subsection is cropland while another 5% to 10% is pasture. About 1% of the presettlement forest remains in parks and natural areas. The other 14% to 19% of the subsection is either upland forest or wetland.

Identity

The Big Woods region is known for its predominant forested ecology consisting of Elms, Basswoods, Sugar Maple, Oaks, Aspen and Ironwood. The Minnesota River runs through the middle of the subsection thus providing forested-river-terraced habitats for various species.

Concerns

As farming, urbanization and other ecological changes continue, water quality, habitat, and threatened species are the main concerns for this ecological region.

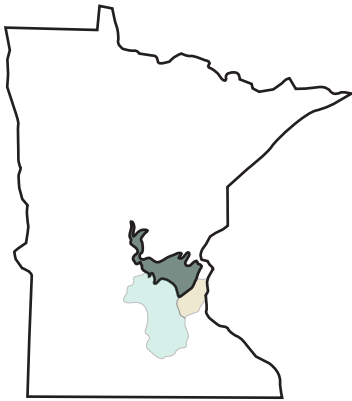
Further Information and Resources

Minnesota Department of Natural Resources (2006). *Tomorrow's Habitat for the Wild and Rare: An Action Plan for Minnesota Wildlife, Comprehensive Wildlife Conservation Strategy*. Division of Ecological Services, Minnesota Department of Natural Resources. https://files.dnr.state.mn.us/assistance/nrplanning/bigpicture/cwcs/profiles/big_woods.pdf

[dnr.state.mn.us/assistance/nrplanning/bigpicture/cwcs/profiles/big_woods.pdf](https://files.dnr.state.mn.us/assistance/nrplanning/bigpicture/cwcs/profiles/big_woods.pdf)

Grimm, E. C. (1984). Fire and other factors controlling the Big Woods vegetation of Minnesota in the mid-nineteenth century. *Ecological Monographs*, 54(3), 291-311.

Tester, J. R. (1995). *Minnesota's natural heritage: an ecological perspective*. U of Minnesota Press.



Big Woods

Mississippi Valley Outwash / Anoka Sand Plain

St. Croix Outwash Plain / Stagnation Plain

Mississippi Valley Outwash / Anoka Sand Plain

Presettlement Vegetation

The upland vegetation primarily consisted of oak barrens. Upland prairie formations followed the Mississippi River, as did the floodplain forest. The sandplain mainly consisted of brushland with the exception of Jack Pine along the northern margin. Boundaries of this subsection follow the extent of the Anoka Sandplain landform created by glacial outwash.

Present Vegetation

This area is abundant with sod and vegetable crops grown on drained peat areas (Department of Soil Science, University of Minnesota 1980). Oak Barrens once abundant are now less common.

Identity

The Mississippi Valley Outwash/Anoka Sand Plain region is known for its flat-sandy lake plain and terraces along the Mississippi River. Characteristics include low moraines above the outwash, small dunes, ice block depressions and tunnel

valleys. Surrounding rivers and streams are tributaries of the Mississippi. Characteristic trees include misformed Bur Oak and Northern Pin Oak. The best examples of dry oak savanna in the state of Minnesota occur in this region.

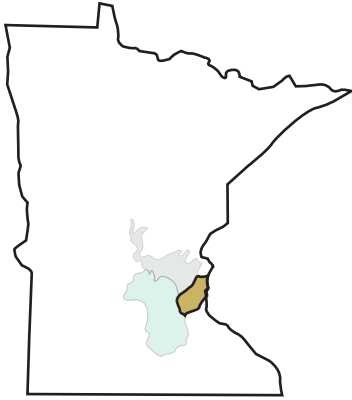
Concerns

Rapid urbanization and agricultural development in sod and vegetable crops which make up about 30% of the subsection has resulted in the loss of prairie, savanna, and drainage of peatlands.

Further Information and Resources

Minnesota Department of Natural Resources (2006). *Tomorrow's Habitat for the Wild and Rare: An Action Plan for Minnesota Wildlife*, Comprehensive Wildlife Conservation Strategy. Division of Ecological Services, Minnesota Department of Natural Resources. https://files.dnr.state.mn.us/assistance/nrplanning/bigpicture/cwcs/profiles/anoka_sand_plain.pdf

Albert, Dennis A. (1995). *Regional landscape ecosystems of Michigan, Minnesota, and Wisconsin: a working map and classification*. Gen. Tech. Rep. NC-178 St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station.



Big Woods

Mississippi Valley Outwash / Anoka Sand Plain
St. Croix Outwash Plain / Stagnation Plain

St. Croix Outwash Plain / Stagnation Plain

Presettlement Vegetation

The area belonged to oak and aspen savanna communities and areas of tallgrass prairie and maple-basswood forests. Bur oak savanna was found on moraine ridges along the western margin of the subsection, and in ravines on the eastern edge.

Present Vegetation

Urban development is the primary land use in this region with small areas of forest in the eastern portion.

Identity

This region is known for its large moraine and areas of outwash plain. The topography is rolling to steep-short slopes. The Mississippi River and its floodplain cuts through the middle of the subsection. The St. Croix River forms the eastern boundary. This region is a significant migratory corridor for birds, while unpolluted waters of the St. Croix River support species of mussels and stream fish.

Concerns

The vegetation of the St. Croix Outwash Plain/Stagnation Plain of the eastern portion is decreasing due to continued urban development. Protecting the existing wetlands has been a concern for flood control and water quality.

Further Information and Resources

Minnesota Department of Natural Resources (2006). Tomorrow's Habitat for the Wild and Rare: An Action Plan for Minnesota Wildlife, Comprehensive Wildlife Conservation Strategy. Division of Ecological Services, Minnesota Department of Natural Resources. https://files.dnr.state.mn.us/assistance/nrplanning/bigpicture/cwcs/profiles/st_paul_baldwin_plains.pdf



BREN RD E ↑
HEALTH CARE LANE →
DATA PARK DR →
BLUE CIRCLE DR →

T