



Natural Resources Prioritization and Management Strategies for Bloomington Parks

(Outside the Minnesota River Valley)

July 2022, Prepared for the City of Bloomington by Barr Engineering Co.

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1 Introduction

Bloomington is fortunate to have an extensive park system with significant natural areas. In the past natural areas required little maintenance, yet now we understand that they need to be actively maintained to retain and improve their ecological integrity. Many external forces are degrading these natural areas, including invasive species, over browsing, heavy human use, and climate change. If left unmanaged they will continue to lose ecological function and biodiversity.

This study was initiated through the Bloomington Park System Master Plan with the purpose of guiding the investment of staff time and budget. It prioritizes the ecological communities' management in Bloomington parks (excluding those parks within the Minnesota River valley which have already been planned), to rank the parks for management priority, and to present management strategies for the top ranked parks.

Currently, the Bloomington Parks Operations and Management Plan is being implemented by the Bloomington Maintenance Division. It establishes overall maintenance standards for each Bloomington park.

1.1 Process of Determining Natural Resources Management Priority

The process of assessing Bloomington parks for natural resources management priority began with developing GIS maps for each park from existing Minnesota Land Cover Classification System (MLCCS) data depicting natural community (type) and ecological quality ranking. Next, a physical examination of each park was conducted by Barr Engineering Co. ecologists during the fall of 2021. Digital MLCCS maps were consulted during this walkthrough to confirm existing ecological conditions.

With this data, Barr ecologists worked with Bloomington natural resources staff and the Lands Stewardship Committee to develop project goals and to develop the Parks Management Priorities Rubric (Table 1) which scores park attributes to sort for management priority. Restoration strategies and target plant communities for the top nine ranked parks were then developed. Lastly, budgets were developed for both restoration and management activities for the top nine ranked parks (Table 6).

1.2 Goals

Goals for this work were developed first, by building upon the goals of the *MN River Valley Natural and Cultural System Plan* (2018), and second, through discussions with Bloomington natural resources staff and the Land Stewardship Committee. The goals for natural resources prioritization and management strategies for Bloomington public land includes:

1. Maintain and enhance existing ecological community restoration/management accomplishments.

2. Increase the thoroughness and acreage of natural areas restoration and management.
3. Increase the quality of natural areas to increase biodiversity.
4. Foster the growth of desirable native species.
5. Improve connectivity between natural areas.
6. Reintroduce beneficial natural disturbances.
7. Provide engagement, awareness, and participation opportunities.



Nine Mile Creek in Central Park

2 Bloomington Public Land Natural History and Current Conditions

2.1 Natural History

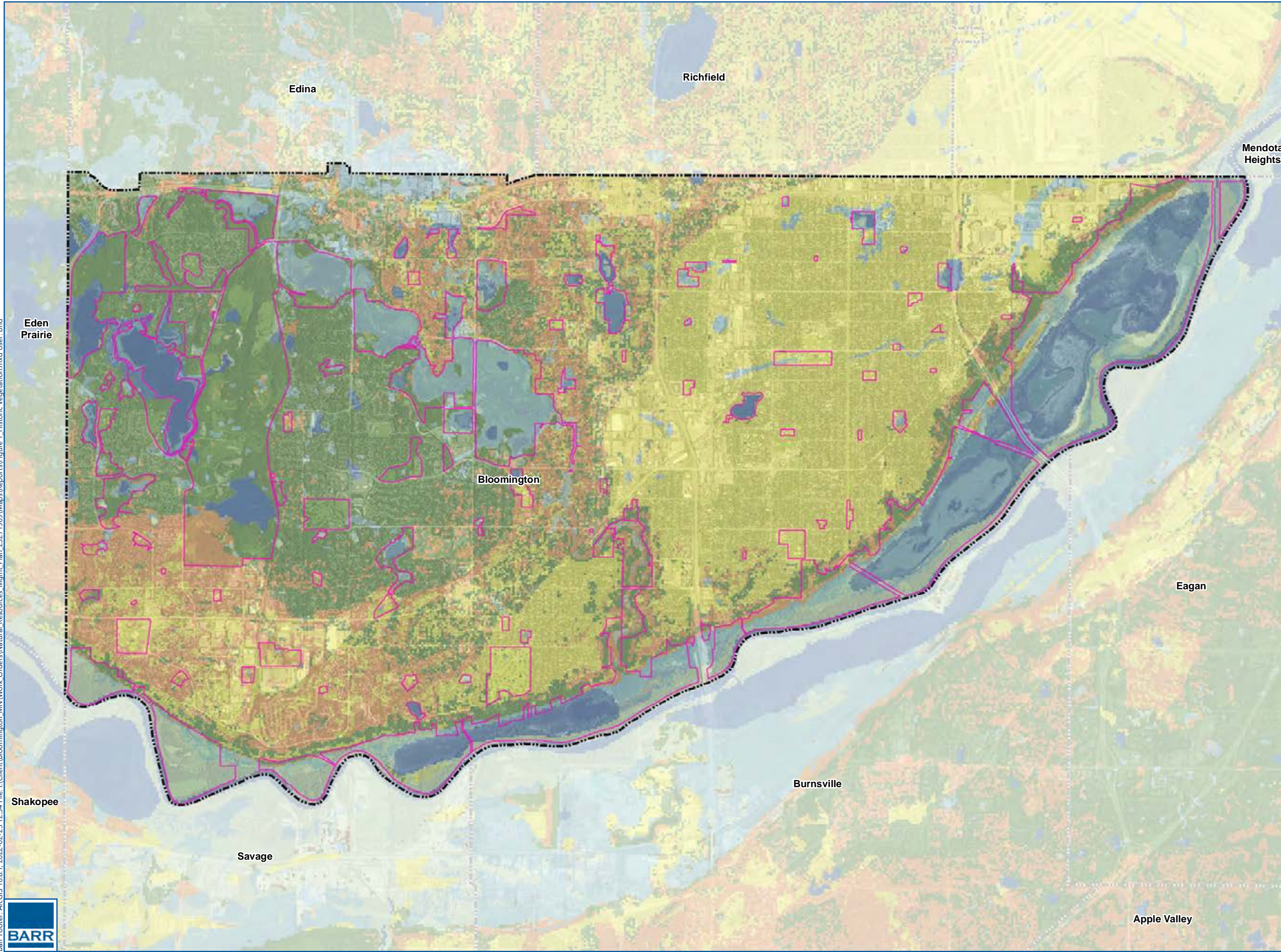
Historic Vegetation











Understanding the pre-European settlement ecological communities of Bloomington provides clues as to what best can be restored in Bloomington parks. Figure 1 depicts the historic plant communities of Bloomington. It was derived from the MN DNR's Historical Vegetation Model (VEGMOD) which is a high-resolution statistical model of vegetation at the time of the original Public Land Survey of Minnesota (approximately 1848). A detailed description of the ecological communities on the map can be found in Section 3.2 of the *MN River Valley Natural and Cultural Systems Plan* (2018).

Historic Land Use

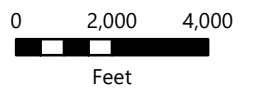
An excellent description of the progression of land use/alterations from pre-settlement times to the present is contained in Section 2.3 of the *MN River Valley Natural and Cultural Systems Plan* (2018). In summary, alterations to park land occurred as follows:

1. Original European settlers (1840s), in what today is Bloomington, cleared trees and plowed land to create cultivated fields. Other lands were altered by tree harvesting, by cattle and horse grazing, and by the draining of wetlands to create tillable land. This resulted in the destruction of many native plants, the alteration of ecological function and processes (such as the elimination of fire), as well as significant alteration to the soil and natural hydrology of Bloomington.
2. Residential development further impacted the land as farming was phased out the process of excavation, building, and paving. Stormwater runoff conditions were altered, soils were further degraded, and vegetation cleared. Islands of natural areas in parks remained.
3. During the second half of the 20th century, invasive species began to establish. These species are especially successful on lands that have been altered through agricultural and suburban development. An explosion of deer populations and the introduction of non-native earthworms further altered natural communities.



-  City of Bloomington Park
-  Bloomington Municipal Boundary
-  Municipal Boundary
- Historic Vegetation Potential Classes**
-  Deciduous Forest
-  Deciduous Savanna
-  Deciduous Woodland
-  Permanent Wetlands
-  Prairie
-  Seasonal Wetlands
-  Surface Water

Data Source: MnModel
Historical Vegetation Model,
MN DNR, 2018



Historic Plant Communities

FIGURE 1



2.2 Current Conditions

To visually depict data used to prioritize park natural area management several maps were developed (discussed below).

City-Owned Lands (Parks)

Figure 2 shows all City of Bloomington parks that are addressed in this plan excluding the MN River valley parks addressed in the *MN River Valley Natural and Cultural Systems Plan* (2018).

Current Land Cover Types on Public Land

A 2007 inventory of Bloomington land cover types (Figure 3) and an assessment of the ecological quality of those communities (Figure 4) were developed using the Minnesota Land Cover Classifications System (MLCCS) developed by the MN DNR.

Habitat quality rankings are defined as follows:

- A – Highest quality natural community. No disturbances, and natural processes intact.
- B – Good quality natural community. Natural processes are intact but shows signs of past human impacts. Low levels of exotics.
- C – Moderate condition natural community with obvious past disturbance but is still clearly recognizable as a native community. Not dominated by weedy species in any layer.
- D – Poor condition of a natural community. Includes some natives but is dominated by nonnatives and/or has been widely disturbed and altered.

Conservation Corridors

Conservation corridors have been designated by the MN DNR in 2003 as a strategy for accelerating and enhancing habitat protection and restoration in the Minneapolis-St. Paul metro area. Corridors identified on Figure 5 shows high-priority focus areas where habitat protection would be most valuable to accommodate species movement.

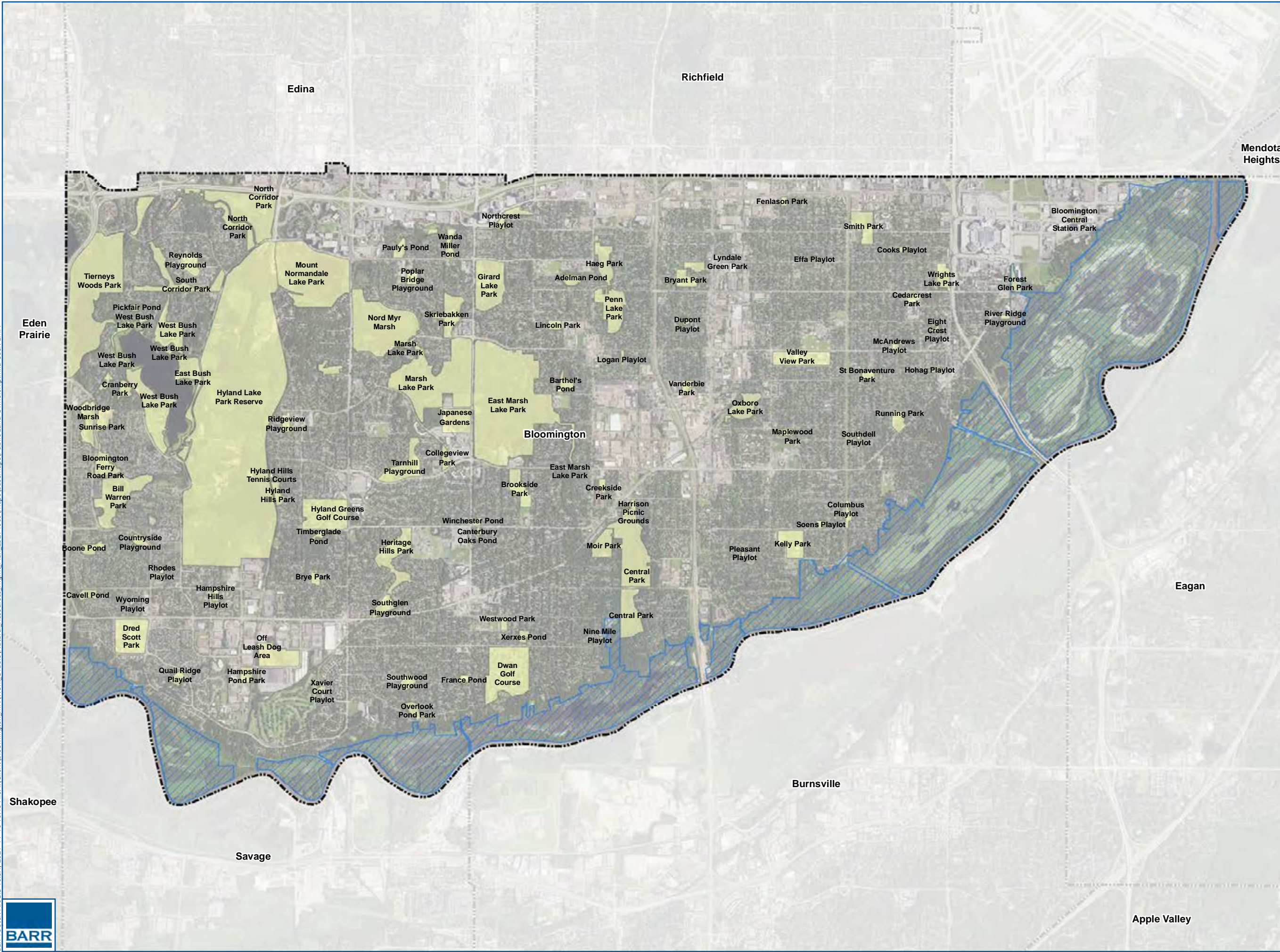
Population Vulnerability





Human population vulnerability is included in the Prioritization Rubric (Table 1) as an attribute to provide a scoring advantage to parks within disadvantaged neighborhoods. For purposes here, the Hennepin County climate change vulnerability map is utilized because it effectively maps populations to 14 variables that identify disadvantaged communities. The Hennepin County population vulnerability map (Figure 6. focused to Bloomington) was developed by Hennepin County as part of their 2021 climate vulnerability assessment. Climate change vulnerability is defined as a function of exposure to climate hazards, sensitivity of a system or population to these hazards, and capacity of a system or population to adapt or cope with the adverse effects. Residents of Hennepin County are vulnerable to the impacts of climate change depending on social, economic, and demographic variables.

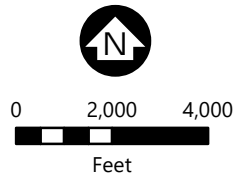
To help assess the influence of social determinants of health on climate change vulnerability, the composite map was developed using 14 social, demographic, and economic variables. The map was developed by assigning composite scores per census tract for each equally weighted variable and then computing a composite score. The higher the value, the greater the population's vulnerability to climate change. Scores are classified into four groupings, with the highest scores (i.e., highest vulnerability) in dark blue.

The 14 demographic variables considered for the composite population vulnerability map include:

1. Asthma Hospitalization Rates
2. COPD Hospitalization Rates
3. Households with No Vehicle
4. Limited English Proficiency
5. Median Household Income
6. No High School Degree
7. People of Color
8. Population 5 and Under
9. Population below 185% Poverty Threshold
10. Population Density
11. Population over 65
12. Population with Any Disability
13. Renter Housing Units
14. Unemployment Rate



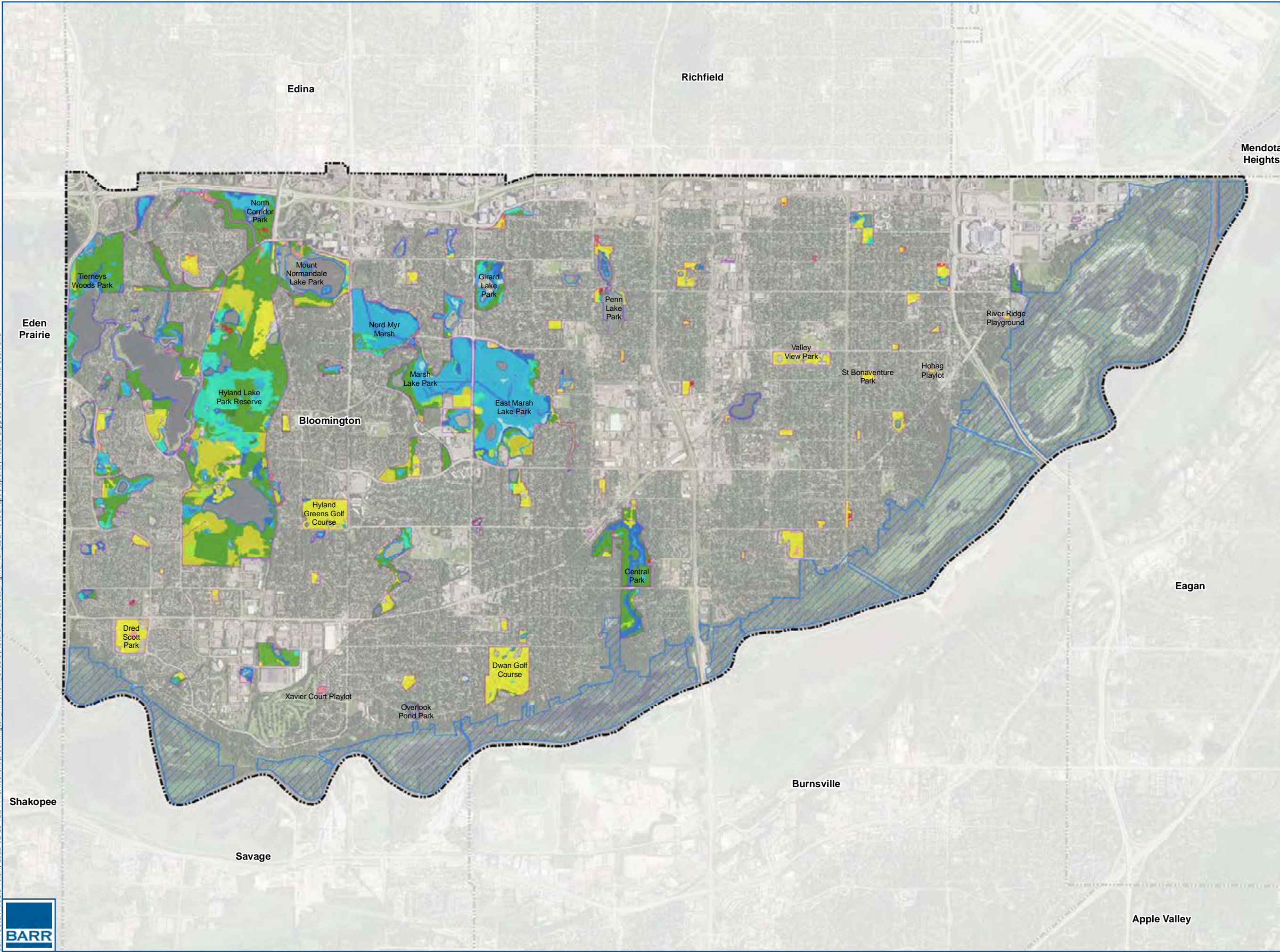
-  Minnesota River Valley Park
-  Bloomington Park Outside of Minnesota River Valley
-  Bloomington Municipal Boundary
-  Municipal Boundary



**City of Bloomington
Parks**

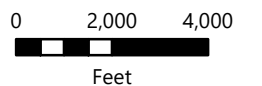
FIGURE 2





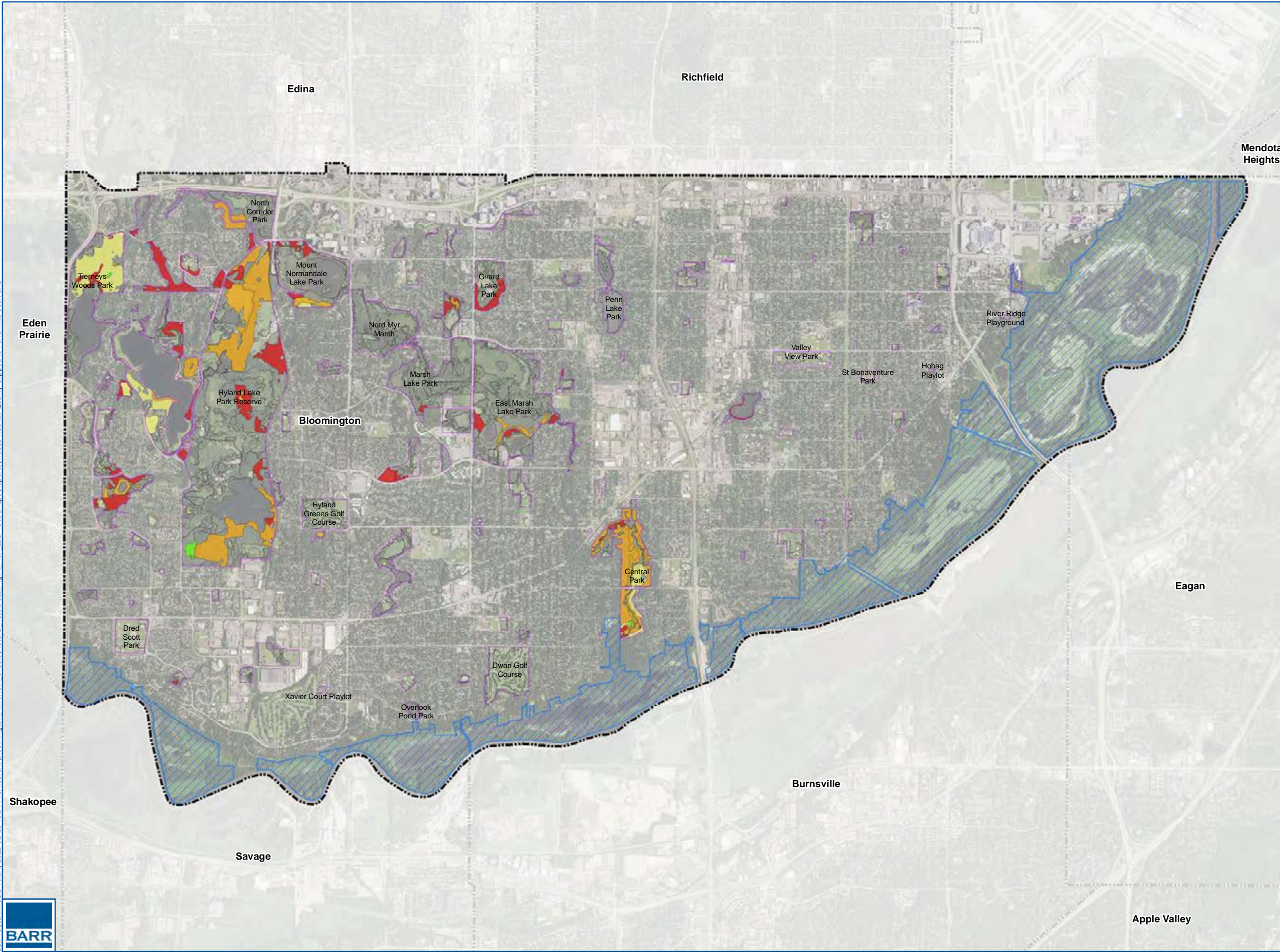
- Minnesota River Valley Park
- Bloomington Park Outside of Minnesota River Valley
- Bloomington Municipal Boundary
- Municipal Boundary
- Land Cover Types**
- 11-25% Impervious
- 26-50% Impervious
- 5-10% Impervious
- 51-75% Impervious
- 76-100% Impervious
- Agricultural Land
- Dry Tall Grasses
- Forest
- Lichen Scrubland
- Maintained Tall Grass
- Mud Flat
- Open Water
- Rock Outcrop
- Short Grasses
- Shrubland
- Tall Grasses
- Tree Plantation
- Wetland Emergent Veg.
- Wetland Forest
- Wetland Open Water
- Wetland Shrubs





Data Source: Minnesota Land Cover Classification System (MLCCS), MnDNR








Existing Land Cover Types Within Bloomington Parks
FIGURE 3

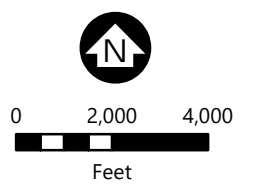




-  Minnesota River Valley Park
-  Bloomington Park Outside of Minnesota River Valley
-  Bloomington Municipal Boundary
-  Municipal Boundary

- Habitat Quality**
-  No Designation - Not ranked by DNR
 -  A - Highest quality natural community, no disturbances, and natural processes intact
 -  B - Good quality natural community. Natural processes are intact but shows signs of past human impacts. Low levels of exotics
 -  C - Moderate condition natural community with obvious past disturbance but is still clearly recognizable as a native community. Not dominated by weedy species in any layer
 -  D - Poor condition of a natural community. Includes some natives but is dominated by nonnatives and/or has been widely disturbed and altered

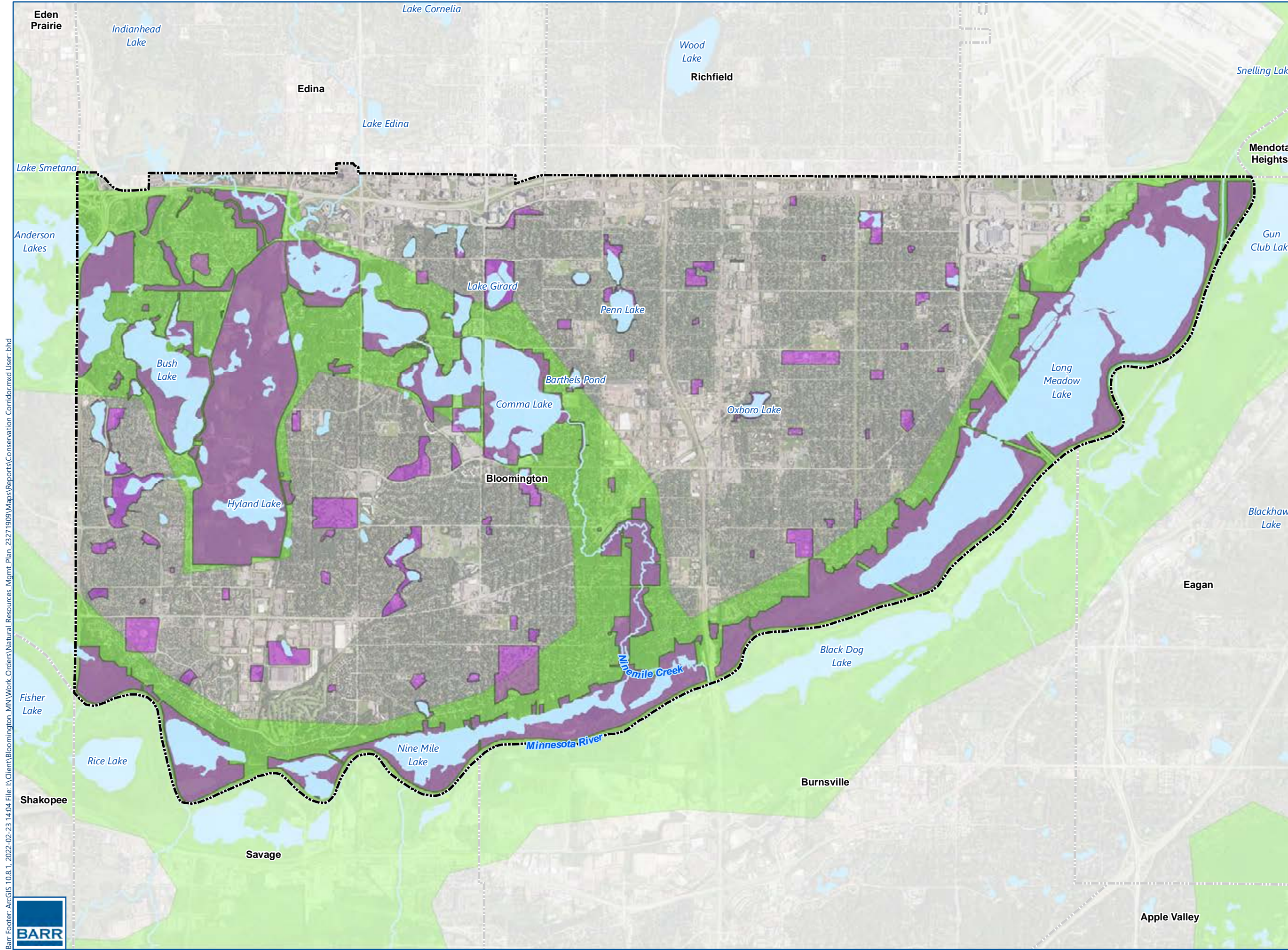
Habitat Quality Ranking Data Source: Minnesota Land Cover Classification System (MLCCS), MnDNR 2007








Existing Habitat Quality Within Bloomington Parks

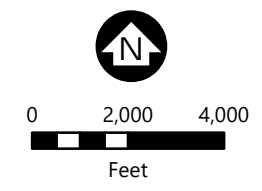
FIGURE 4





-  Bloomington Municipal Boundary
-  Municipal Boundary
-  City of Bloomington Park
-  Conservation Corridors
-  Lakes, Ponds, and Rivers

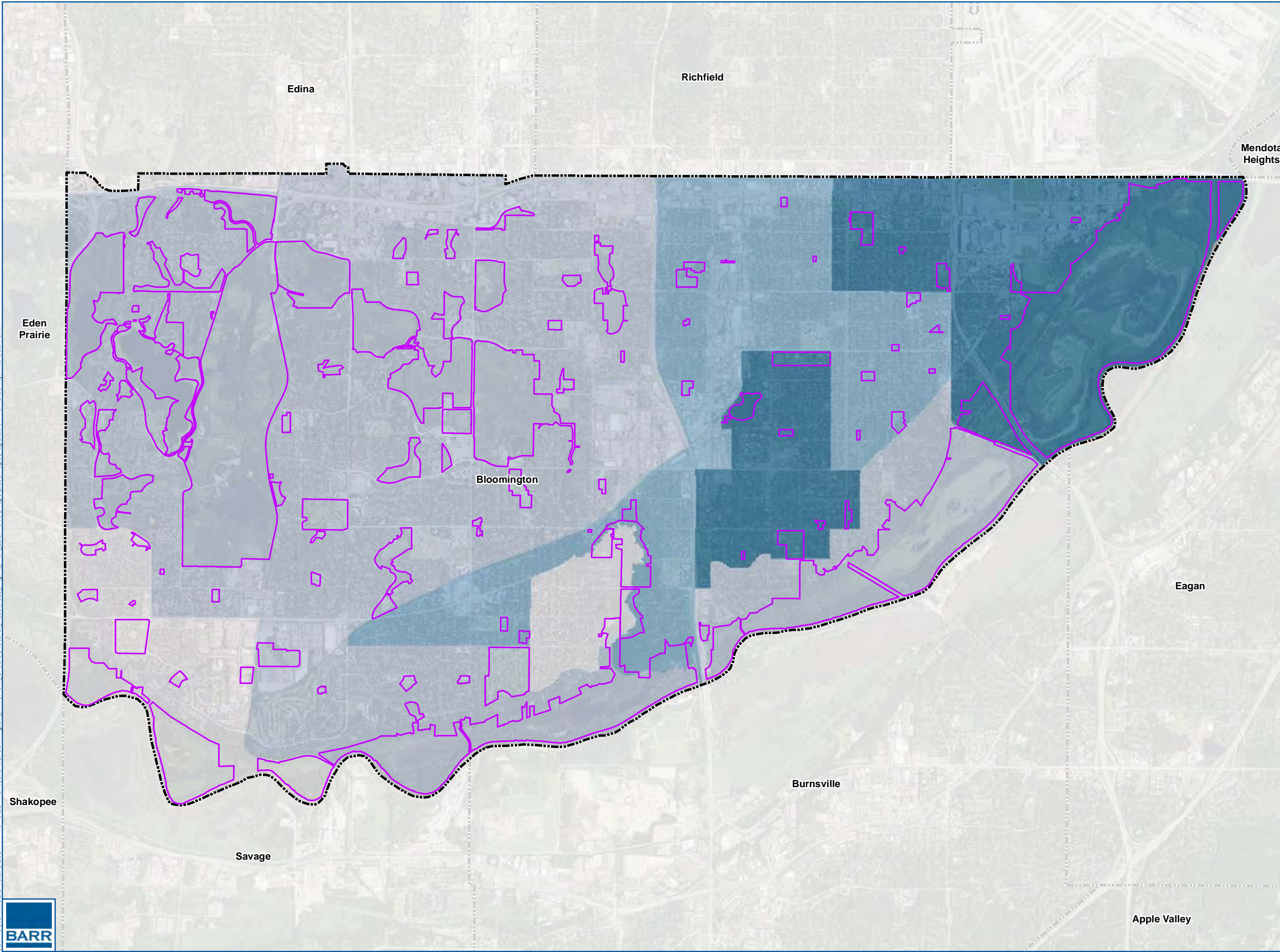
Data Source: Metro Conservation Corridors, MnDNR, 2015



Conservation Corridors

FIGURE 5





Bloomington Municipal Boundary
 Municipal Boundary
 Park
Population Vulnerability Composite Score
 15 - 50 least vulnerable
 51 - 85
 86 - 125
 126 - 245 most vulnerable

Data Source: Hennepin County Climate Vulnerability Assessment, 2021

0 2,000 4,000
 Feet

Population Vulnerability
FIGURE 6



3 Natural Resources Management Priorities

This section presents natural communities management priorities and management strategies for Bloomington parks. Implementation of these strategies will allow managers to effectively utilize funds, and to focus on the protection of the most ecologically significant sites first. Note that only parks that contain natural areas are ranked. City parks such as playgrounds and ball fields are not ranked.

A scoring method for resource prioritization was utilized. Eight criteria were developed to rank priorities (see Section 3.1 below). Each Bloomington Park was scored with each criteria (see Table 1). Figure 7 maps the priority parks.

All rankings were based on the conditions of parks and natural communities at the time of this report. Each park was ranked with the following eight criteria:

3.1 Prioritization and Ranking Criteria

Ecological Quality of Natural Area (based on MN DNR MLCCS data):

- 0 - Dominated by altered/non-native plant communities (nothing higher than Ecological Quality of C found within park)
- 1 - Moderate natural communities present (Ecological Quality of B found within park)
- 2 - High ecological quality (Ecological Quality of A found within park)

Size of Natural Area within Site (not including open water or cattail wetland):

- 0 - 0-1 acres
- 1 - 1-10 acres
- 2 - 10+ acres

Located within a MN DNR Conservation Corridor:

- 0 - Park Not Located within MN DNR Metro Conservation Corridor
- 1 - Park Located within Metro Conservation Corridor

Presence of Rare Natural Feature:

- 0 - None
- 1 - Unique, intact ecological community to City of Bloomington (ex. bog, fen, tamarack swamp, sugar maple/basswood forest)
- 2 - Rare NHIS* feature found within park (preservation needed to prevent loss or degradation, example - Blandings turtle, kitten-tails, rusty-patched bumblebee) (observed since 1990) (vertebrate, invertebrate, rare community, vascular plant, non-vascular plant/fungus, animal assemblage, geologic) (*Information from the MN DNR Natural Heritage Information System (NHIS).

Located within Vulnerable Population Area (Hennepin County designation):

- 0 - Least vulnerable (0-85 score on the Henn. Co Population Vulnerability Composite Score)
- 1 - Moderately vulnerable (86-125 score on the Henn. Co Population Vulnerability Composite Score)
- 2 - Most vulnerable (126-245 score on the Henn. Co Population Vulnerability Composite Score)

Public Access and Use:

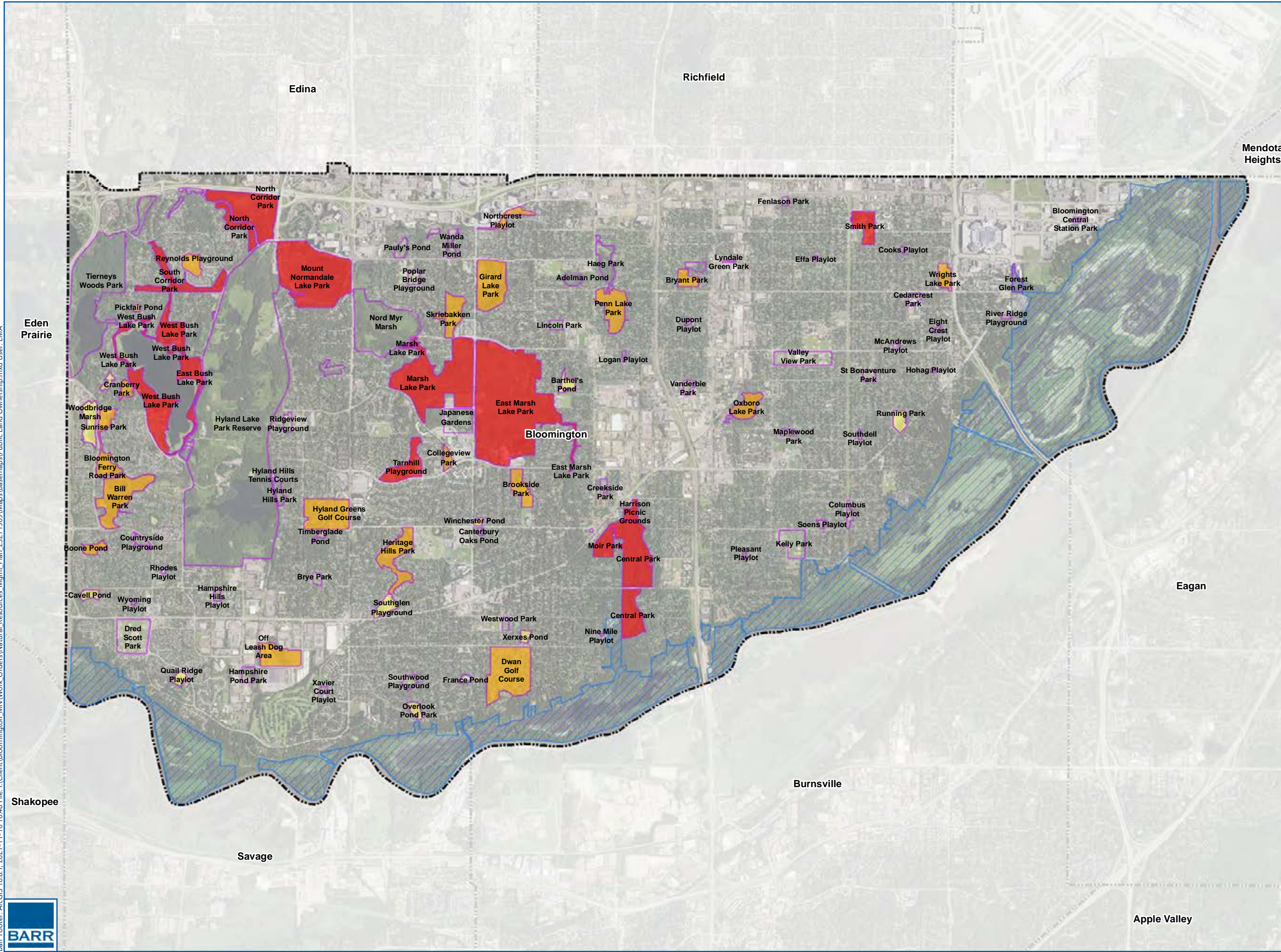
- 0 - Natural areas not easily visible or accessible to public
- 1 - Natural areas accessible but are not highly visited or park is dominated by cultural or recreational land cover
- 2 - Natural areas are highly visited





Improvement/Expansion of Existing Management Efforts:




- 0 - No restoration efforts currently occurring within park
- 1 - Evidence of previous restoration efforts but no current restoration activities or in restoration rotation
- 2 - Restoration ongoing or detailed plans for restoration exist for the park

Volunteer Participation within park:

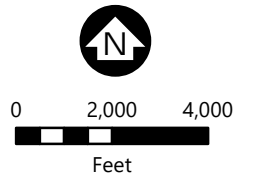
- 0 - No active participation or lapsed volunteers
- 1 - Periodic involvement/participation
- 2 - Consistent volunteer work within park



-  Minnesota River Valley Park
-  Bloomington Park Outside of Minnesota River Valley
-  Bloomington Municipal Boundary
-  Municipal Boundary

- Priority Rank**
-  High
 -  Medium
 -  Low

Note: Parks with no priority rank contain little or no significant natural areas to restore or maintain.



Priority Parks for Natural Resources Management

FIGURE 7



3.2 Park Prioritization for Natural Resources Management

Table 1 shows the prioritization scoring for each park.

Table 1 Park Prioritization for Natural Resources Management

Park Priority	Park or Natural Area	Ecological Quality of Natural Area	Size of Natural Area within Site	Located within DNR Conservation Corridor	Presence of rare natural feature	Located within Vulnerable Population Area	Public Access and Use	Improvement/Expansion of Existing Management Efforts	Volunteer participation within park	Score
High	Central, Moir, and Harrison Park	2	2	1	2	1	2	1	0	11
High	Bush Lake Park (East and West)	2	2	1	2	0	1	2	1	11
High	Marsh Lake Park (9 Mile Creek Park, East and West)	1	2	1	2	0	1	1	0	8
High	Normandale Lake Park	1	2	1	0	0	2	2	0	8
High	North Corridor Park	0	2	1	2	0	1	2	0	8
High	Tarnhill Playgrounds	2	2	0	0	0	2	1	1	8
High	Nord Myr Marsh	2	2	1	1	0	1	1	0	8
High	South Corridor Park	0	2	1	0	0	2	2	0	7
High	Smith Park	1	1	0	0	2	2	1	0	7
Medium	Girard Lake Park	0	2	1	0	0	2	1	0	6
Medium	Bill Warren Park & Bloomington Ferry	2	2	0	0	0	1	1	0	6

Park Priority	Park or Natural Area	Ecological Quality of Natural Area	Size of Natural Area within Site	Located within DNR Conservation Corridor	Presence of rare natural feature	Located within Vulnerable Population Area	Public Access and Use	Improvement/Expansion of Existing Management Efforts	Volunteer participation within park	Score
Medium	Cranberry Park, Sunrise Park, & Corridor Between	1	2	1	1	0	0	0	1	6
Medium	Northcrest Playground	1	1	0	0	0	2	1	0	5
Medium	Heritage Hills Park	1	2	0	0	0	1	1	0	5
Medium	Reynolds Playground	1	1	1	0	0	1	1	0	5
Medium	Wright's Lake Park	2	0	0	0	2	0	1	0	5
Medium	Bryant Park	1	1	0	0	1	1	1	0	5
Medium	Skriebakken Park	0	2	1	0	0	0	0	1	4
Medium	Boone Pond	2	1	0	0	0	0	1	0	4
Medium	Off-Lease Dog Area	0	0	0	2	0	1	0	0	3
Medium	Dwan Golf Course	0	1	1	0	0	0	1	0	3
Medium	Collegeview Park	1	1	0	0	0	1	0	0	3
Medium	Penn Lake Park	0	1	0	0	0	1	1	0	3
Medium	Oxboro Lake Park	0	1	0	0	2	0	0	0	3
Medium	Hyland Greens Golf Course	0	1	1	0	0	1	0	0	3
Medium	Brookside Park	0	0	1	0	0	1	0	1	3
Low	Overlook Pond	0	1	1	0	0	0	0	0	2
Low	Veness Pond	0	1	1	0	0	0	0	0	2

Park Priority	Park or Natural Area	Ecological Quality of Natural Area	Size of Natural Area within Site	Located within DNR Conservation Corridor	Presence of rare natural feature	Located within Vulnerable Population Area	Public Access and Use	Improvement/Expansion of Existing Management Efforts	Volunteer participation within park	Score
Low	Running Park	0	0	0	0	1	1	0	0	2
Low	Southglen Playground	0	1	0	0	0	1	0	0	2
Low	Winchester Pond	0	1	0	0	0	0	0	1	2
Low	Woodbridge Marsh	0	1	0	0	0	0	0	0	1
Low	Barthel's Pond	0	0	1	0	0	0	0	0	1
Low	Xerxes Pond	0	0	0	0	1	0	0	0	1
Low	Cavell Pond	0	1	0	0	0	0	0	0	1
Low	Pickfair Pond	0	0	1	0	0	0	0	0	1
Low	Quail Ridge Playlot	0	1	0	0	0	0	0		1

*Overall Score	Park
7+	High Priority/Active Restoration/High Involvement
3-6	Medium Priority/Intermittent Restoration/Intermittent involvement or opportunities Exist
1-2	Low Priority/Little to no restoration/Low or no volunteer involvement

3.3 Partners that manage park natural areas in Bloomington

Bloomington is grateful to partnering agencies that assist with the management of natural areas within Bloomington parks.

Table 2 Partners Assisting with Park Management

Park	Partners Assisting with Park Management*
Central, Moir, Harrison PG Parks	NMCWD
Bush Lake Park (East and West)	BL Ikes, NMCWD, Met Council
Marsh Lake Park (9 Mile Creek Park, East and West)	NMCWD
Normandale Lake Park	NMCWD, Met Council
North Corridor Park	NMCWD, Met Council
Tarnhill Playgrounds	NMCWD, Met Council
Nord Myr Marsh	NMCWD
South Corridor Park	NMCWD
Smith Park	RPBCWD
Girard Lake Park	NMCWD
Bill Warren Park, Bloomington Ferry	NMCWD
Cranberry Park, Sunrise Park, & Corridor Between	RPBCWD
Northcrest Playground	LMNWMO
Heritage Hills Park	NMCWD
Reynolds Playground	RPBCWD
Wright's Lake Park	LMNWMO
Skriebakken Park	NMCWD, RPBCWD
Boone Pond	NMCWD
Off-Lease Dog Area	RPBCWD
Dwan Golf Course	LMNWMO
Collegeview Park	NMCWD
Penn Lake Park	NMCWD
Oxboro Lake Park	NMCWD
Hyland Greens Golf Course	RPBCWD
Brookside Park	NMCWD
Overlook Pond	LMNWMO
Veness Pond	RPBCWD

*** Abbreviations**

Bush Lake Isaac Walton League	BL Ikes
Lower MN Watershed Management Organization	LMNWMO
Metropolitan Council	Met Council
Nine Mile Creek Watershed District	NMCWD
Riley Purgatory Bluff-Creek Watershed District	RPBCWD

4 Natural Resources Management Strategies for Top Ranked Parks

The following management strategies maps are developed for individual Bloomington parks with a vegetation management priority score of 7 or greater (Table 1). These strategies are for planning and management prioritization purposes. Detailed restoration and maintenance plans should be developed for each park with specific direction on techniques, phasing, and budgets for regeneration and maintenance efforts.

Management Strategies have been developed for the following parks:

- Bush Lake Park (East and West)
- Central, Moir, Harrison Parks
- Marsh Lake Park (9 Mile Creek Park, East and West)
- Nord Myr Marsh
- Normandale Lake Park
- North Corridor Park
- South Corridor Park
- Smith Park
- Tarnhill Playgrounds

Figures for each park include:

- **Existing Land Cover Types:** Developed from the 2007 MLCCS data.
- **Habitat Quality:** Also developed from the 2007 MLCCS data.
- **Target Plant Communities:** Recommended native plant communities for restoration (goals) based on historic plant communities, management goals, and existing site conditions (vegetation, slope, aspect, soil, sunlight, and past disturbance).
- **Restoration Strategy:** Site specific strategies for phasing and prioritizing restoration efforts based on existing plant community, ecological quality, current restoration efforts, site access, habitat size, and adjacencies to areas of high ecological quality and ongoing management activities.

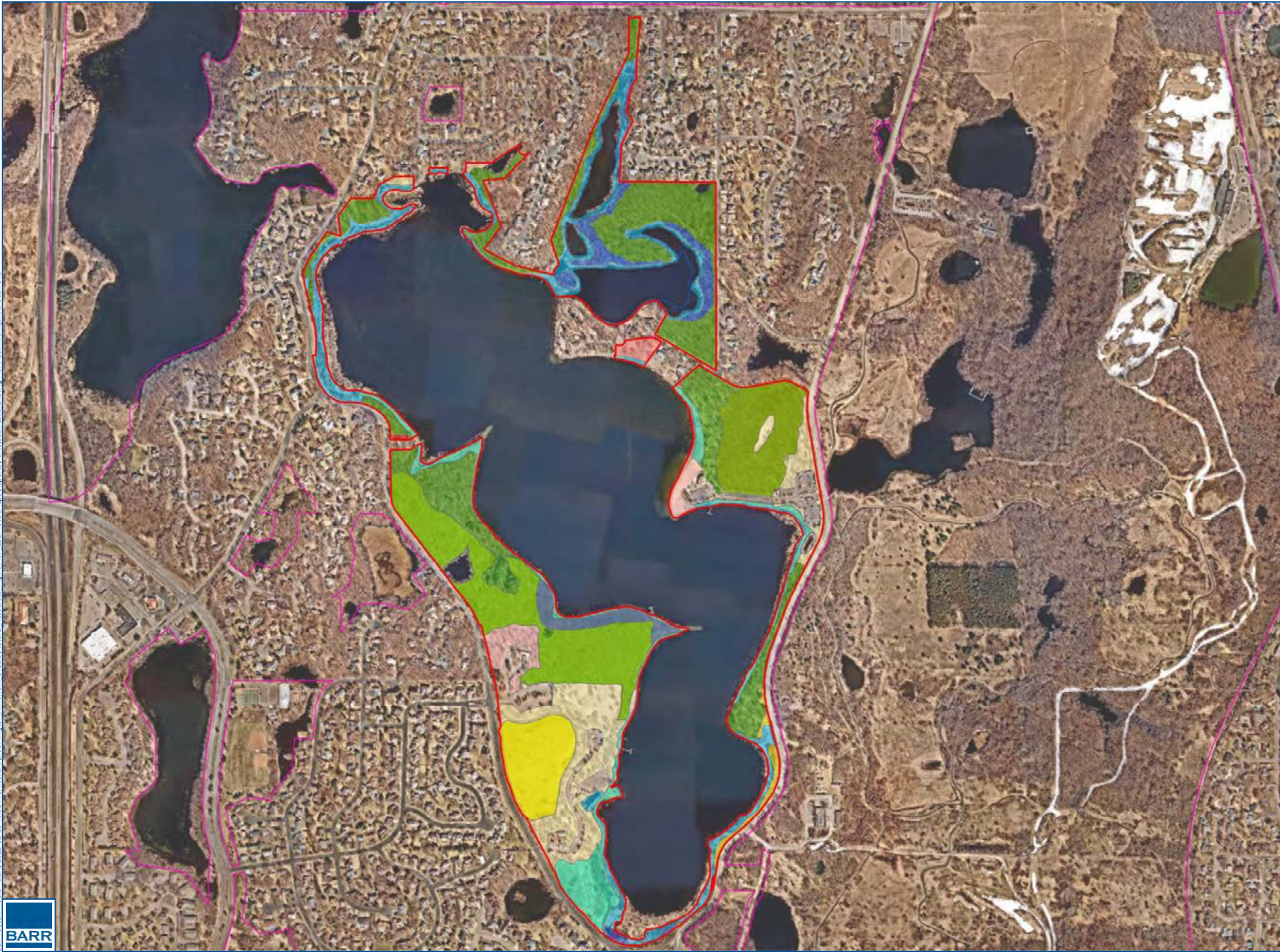
4.1 Bush Lake Park (East and West)

The following Bush Lake Park figures include:

- **Existing Land Cover Types:** Developed from the 2007 MLCCS data.
- **Habitat Quality:** Also developed from the 2007 MLCCS data.
- **Target Plant Communities:** Recommended native plant communities for restoration (goals) based on historic plant communities, management goals, and existing site conditions (vegetation, slope, aspect, soil, sunlight, and past disturbance).
- **Restoration Strategy:** Site specific strategies for phasing and prioritizing restoration efforts based on existing plant community, ecological quality, current restoration efforts, site access, habitat size, and adjacencies to areas of high ecological quality and ongoing management activities.

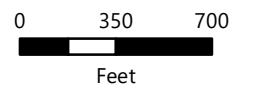


Bush Lake Park

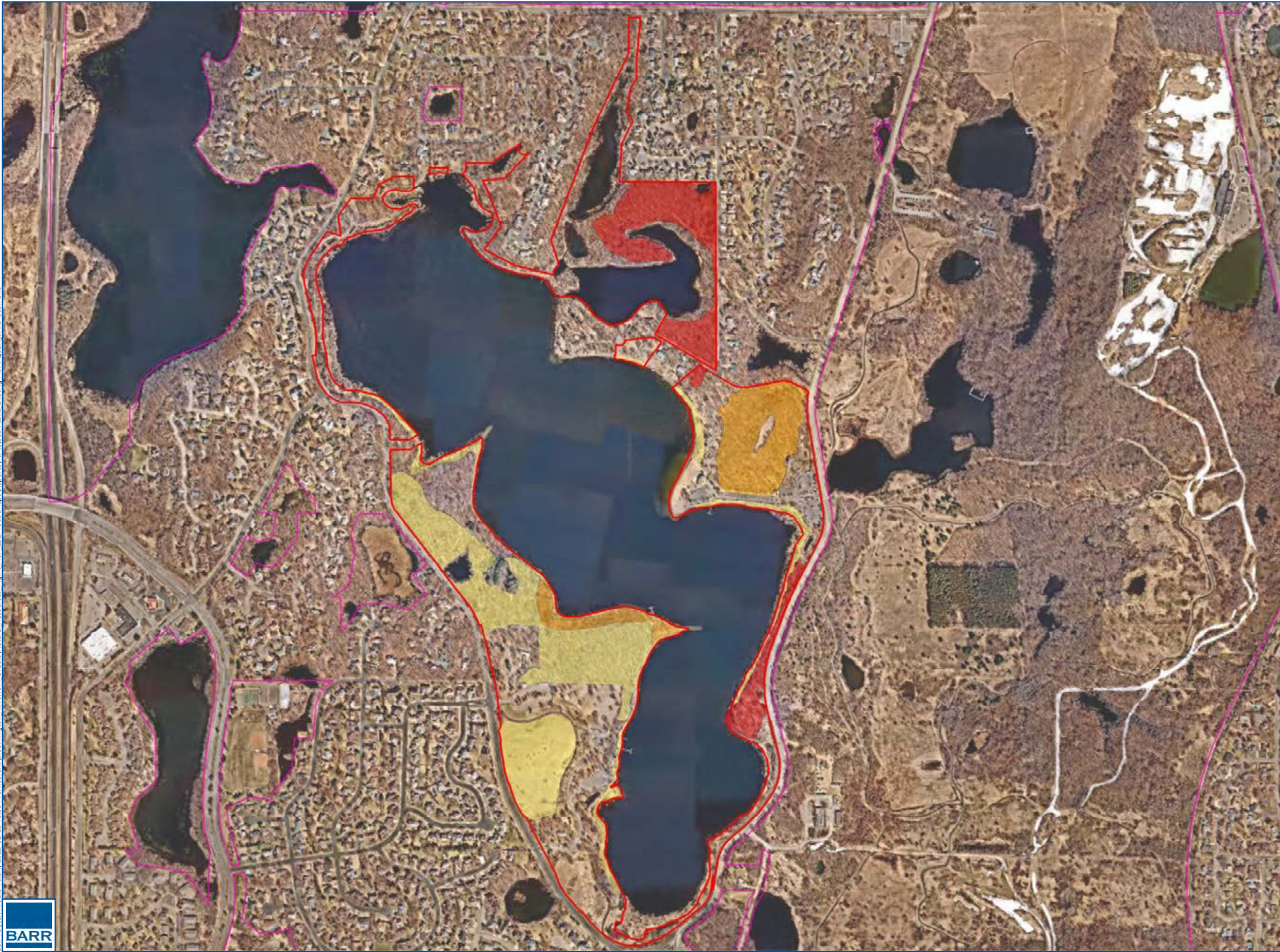


- City of Bloomington Park
- City of Bloomington Park
- Land Cover Types**
- 11-25% Impervious
- 26-50% Impervious
- 5-10% Impervious
- 76-100% Impervious
- Forest
- Maintained Tall Grass
- Open Water
- Short Grasses
- Tall Grasses
- Tree Plantation
- Wetland Emergent Veg.
- Wetland Forest
- Wetland Open Water

Data Source: Minnesota Land Cover Classification System (MLCCS), MnDNR 2007



**Bush Lake
Existing Land
Cover Types**

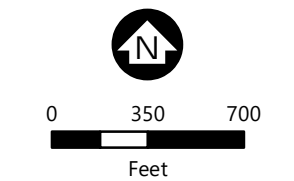


- Bush Lake Park
- City of Bloomington Park

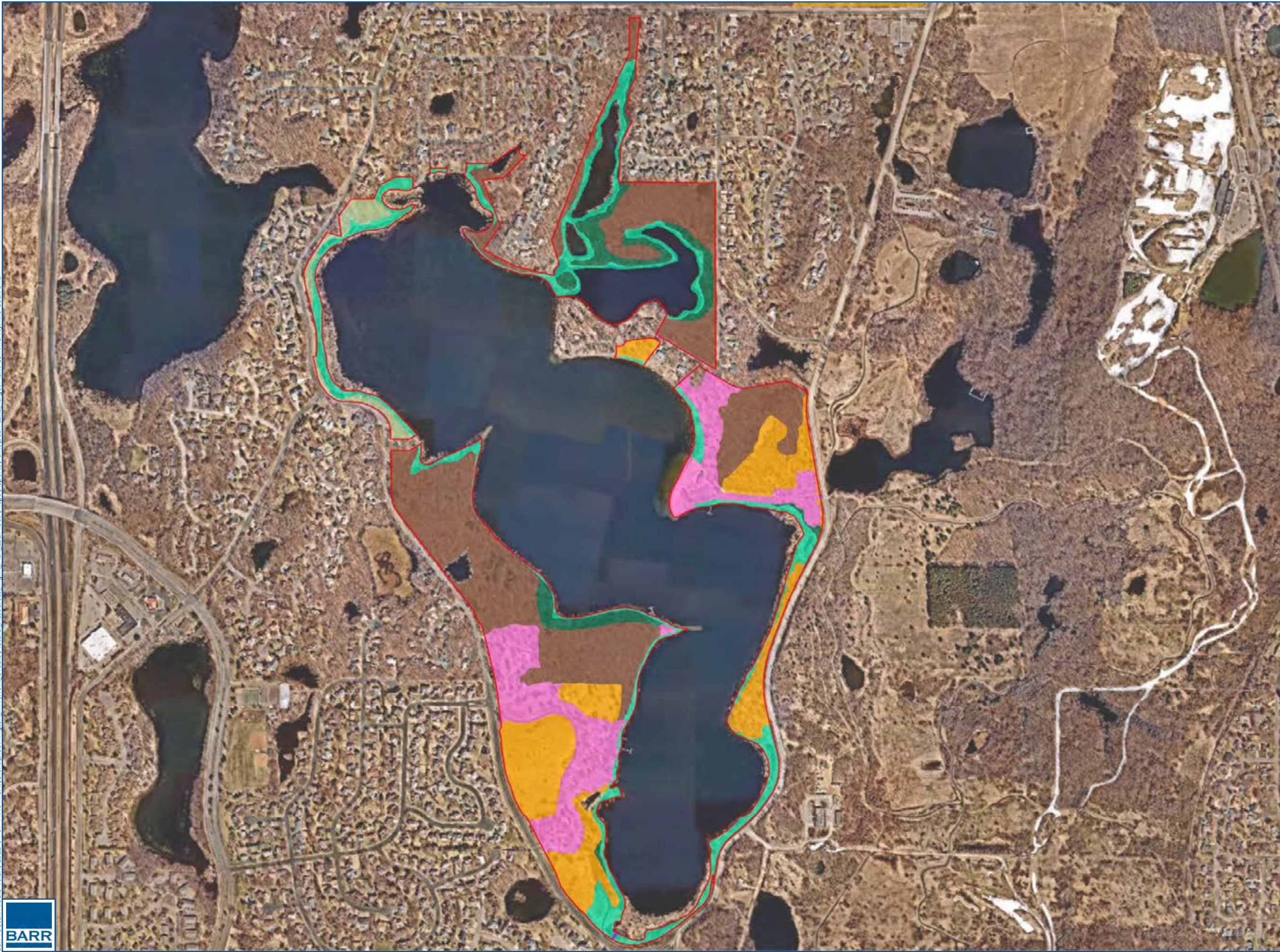
Habitat Quality

- No Designation - Not ranked by DNR
- B - Good quality natural community. Natural processes are intact but shows signs of past human impacts. Low levels of exotics
- C - Moderate condition natural community with obvious past disturbance but is still clearly recognizable as a native community. Not dominated by weedy species in any layer
- D - Poor condition of a natural community. Includes some natives but is dominated by nonnatives and/or has been widely disturbed and altered

Habitat Quality Ranking Data
Source: Minnesota Land Cover Classification System (MLCCS), MnDNR 2007



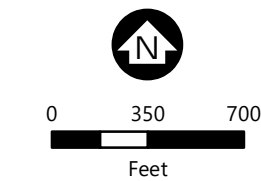
**Bush Lake
Habitat Quality**

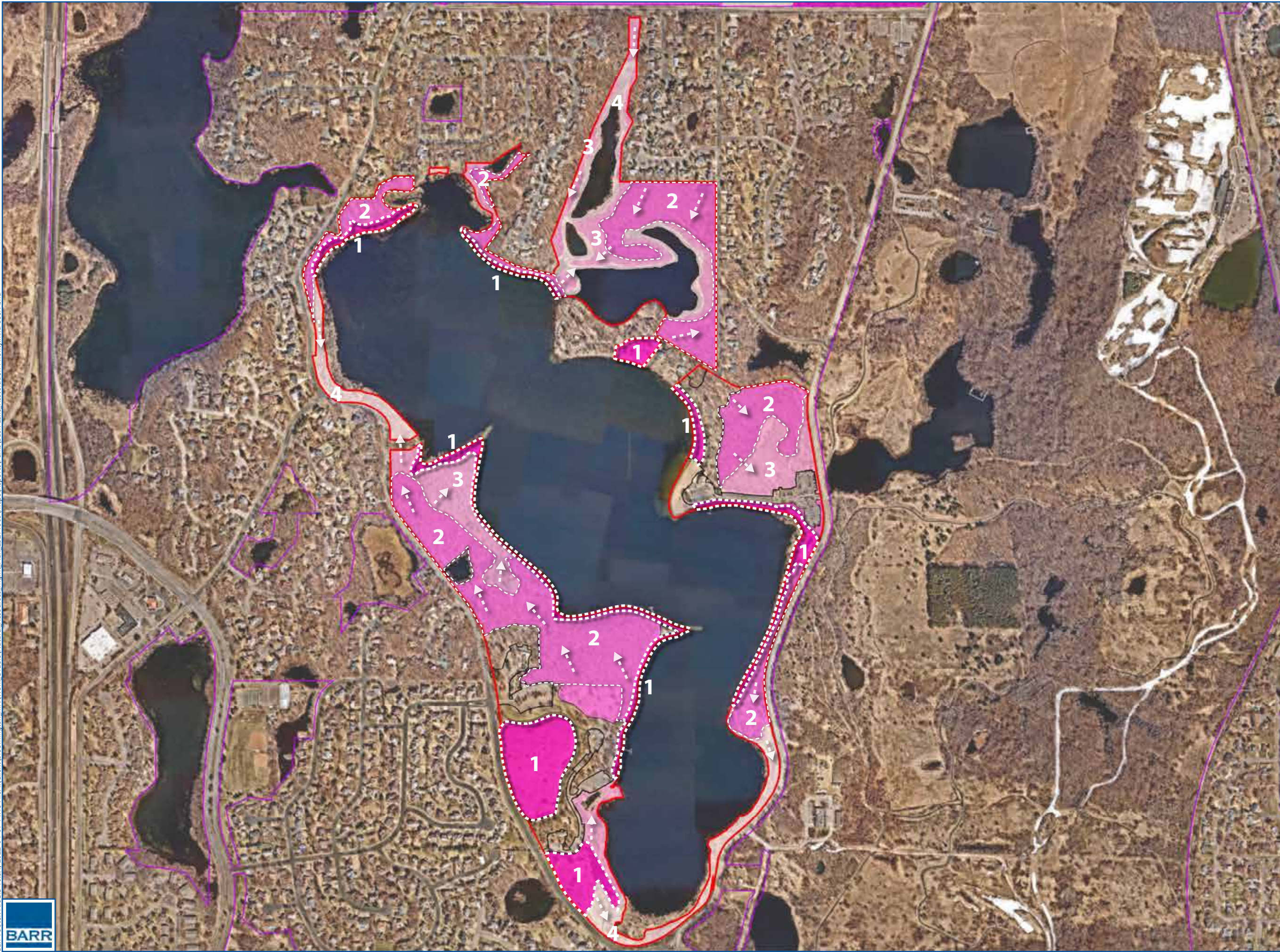



- Bush Lake Park
- City of Bloomington Park

- Target Plant Community**
- Cultural
- Floodplain Forest
- Mesic Prairie/Wet Meadow
- Mesic Hardwood Forest
- Oak Forest
- Oak Savanna

Target communities are recommended native plant communities for restoration (a goal) based on management goals, historic plant communities, and existing site conditions (slope, aspect, soil, sunlight, past disturbance, and existing species).

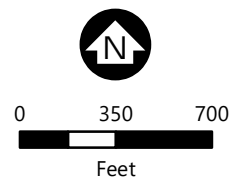




-  Bush Lake Park
 -  City of Bloomington Park
- Restoration Priority**
-  High
 -  Medium
 -  Low
 -  Lowest
 -  NA (Cultural or Open Water)

- Restoration Phasing**
- 1 - Restoration efforts begin in these areas to protect highest quality natural communities.
 - 2 - Second priority for restoration. Move restoration efforts to these areas once phase 1 restoration efforts are complete. Continue maintaining phase 1 to retain restoration success.
 - 3 - Expand restoration to these areas as resources allow. It is critical to maintain previously restored areas.
 - 4 - Last priority for restoration due to the extent of degradation.

Restoration Priority Note: Site specific strategy for phasing and prioritizing restoration efforts based on existing plant community, ecological quality, current restoration efforts, site access, habitat size, and adjacencies to areas of high ecological quality and ongoing management activities.



**Bush Lake
Restoration Priority
and Phasing**

4.2 Central, Moir, Harrison Parks

The following Central, Moir, and Harrison Parks figures include:

- **Existing Land Cover Types:** Developed from the 2007 MLCCS data.
- **Habitat Quality:** Also developed from the 2007 MLCCS data.
- **Target Plant Communities:** Recommended native plant communities for restoration (goals) based on historic plant communities, management goals, and existing site conditions (vegetation, slope, aspect, soil, sunlight, and past disturbance).
- **Restoration Strategy:** Site specific strategies for phasing and prioritizing restoration efforts based on existing plant community, ecological quality, current restoration efforts, site access, habitat size, and adjacencies to areas of high ecological quality and ongoing management activities.



Central Park



City of Bloomington Park

Land Cover Types

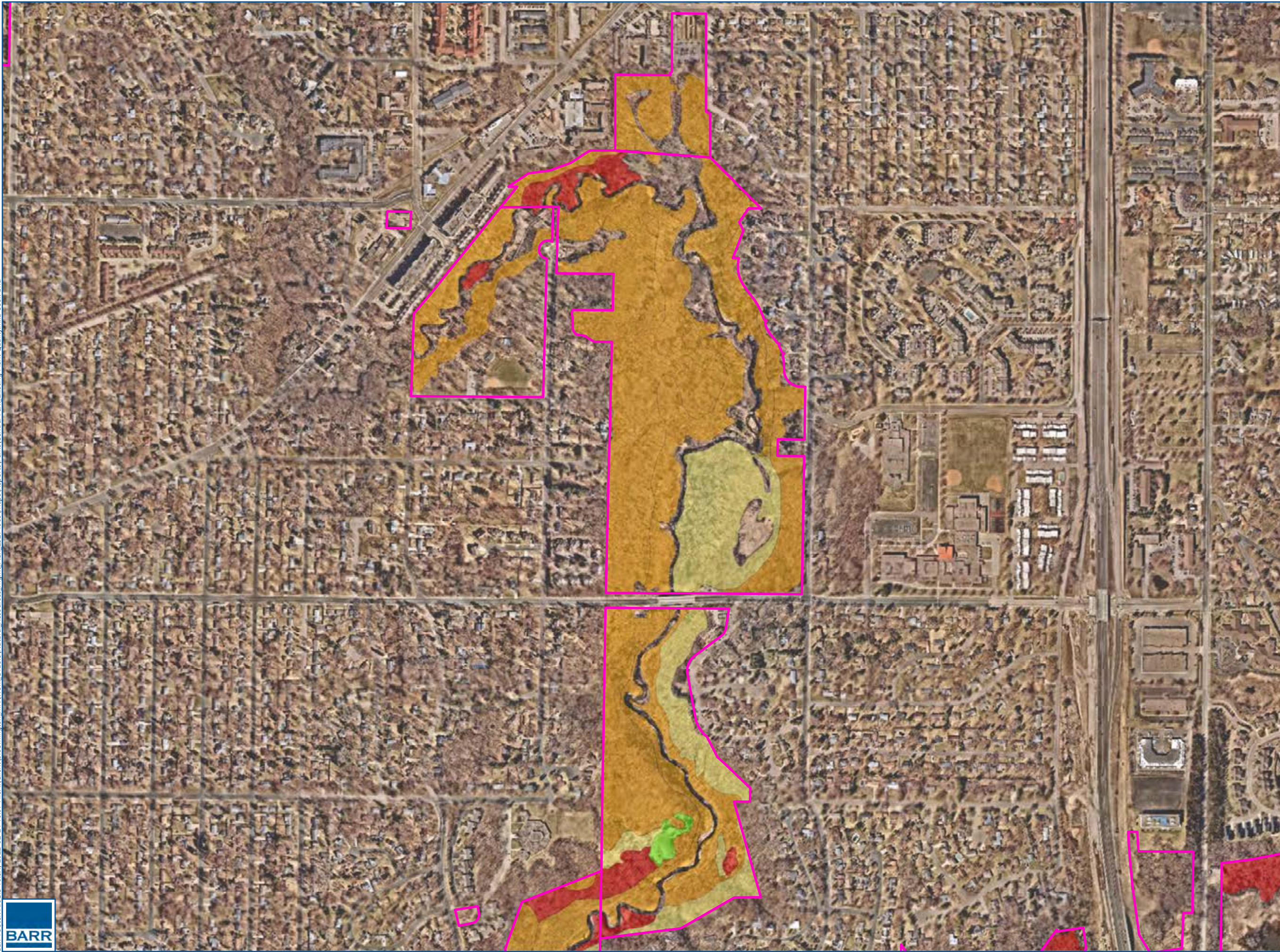
- 26-50% Impervious
- 5-10% Impervious
- 76-100% Impervious
- Dry Tall Grasses
- Forest
- Maintained Tall Grass
- Open Water
- Short Grasses
- Tall Grasses
- Tree Plantation
- Wetland Emergent Veg.
- Wetland Forest

Data Source: Minnesota Land Cover Classification System (MLCCS), MnDNR 2007



0 300 600
Feet

Central, Moir,
and Harrison Park
Existing Land
Cover Types

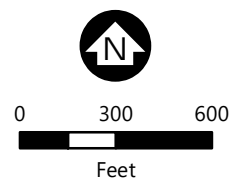


City of Bloomington Park

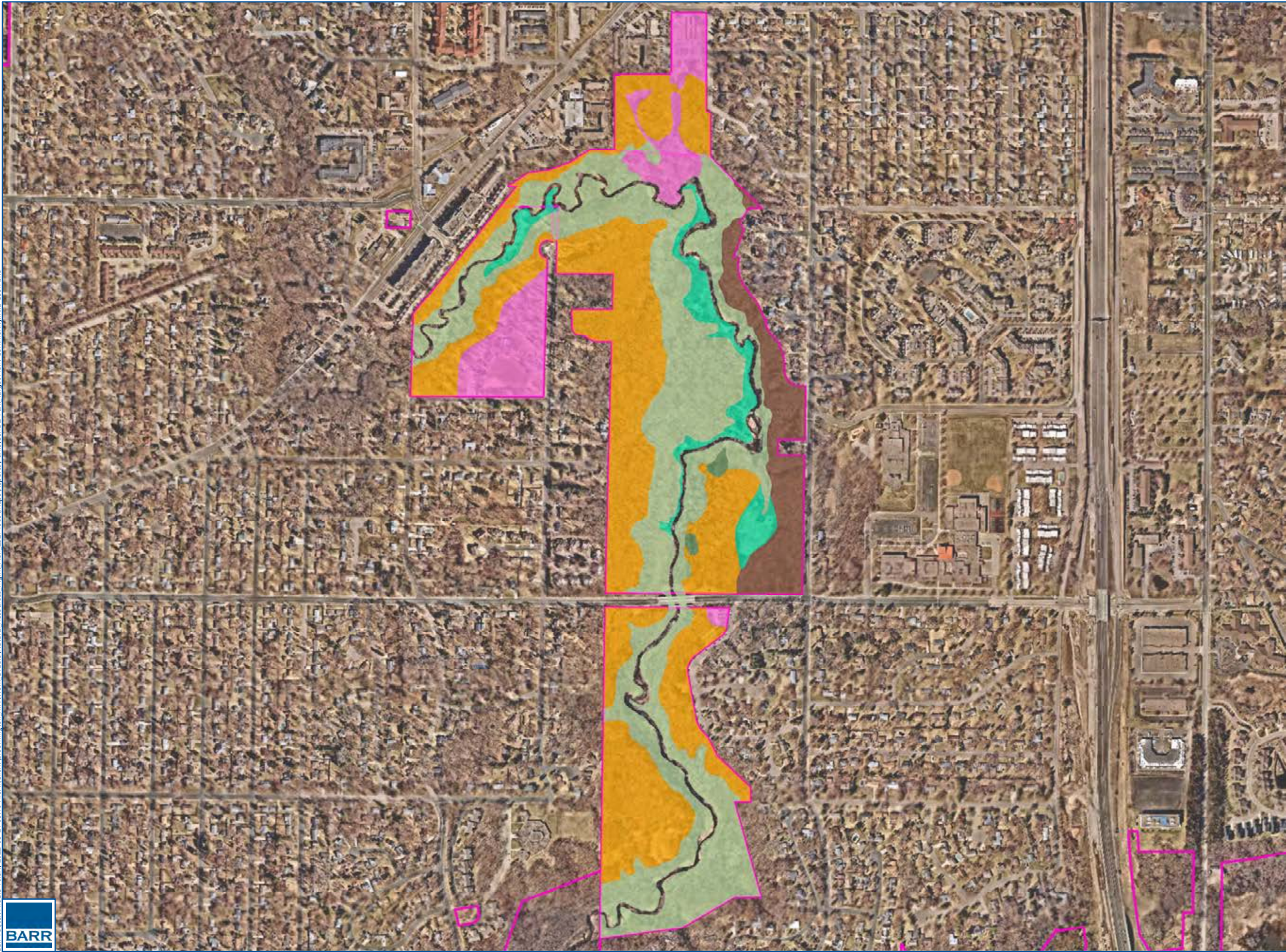
Habitat Quality

- No Designation - Not ranked by DNR
- A - Highest quality natural community, no disturbances, and natural processes intact
- B - Good quality natural community. Natural processes are intact but shows signs of past human impacts. Low levels of exotics
- C - Moderate condition natural community with obvious past disturbance but is still clearly recognizable as a native community. Not dominated by weedy species in any layer
- D - Poor condition of a natural community. Includes some natives but is dominated by nonnatives and/or has been widely disturbed and altered

Habitat Quality Ranking Data Source: Minnesota Land Cover Classification System (MLCCS), MnDNR 2007



**Central, Moir, and Harrison Park
Habitat Quality**



 City of Bloomington Park

Target Plant Community

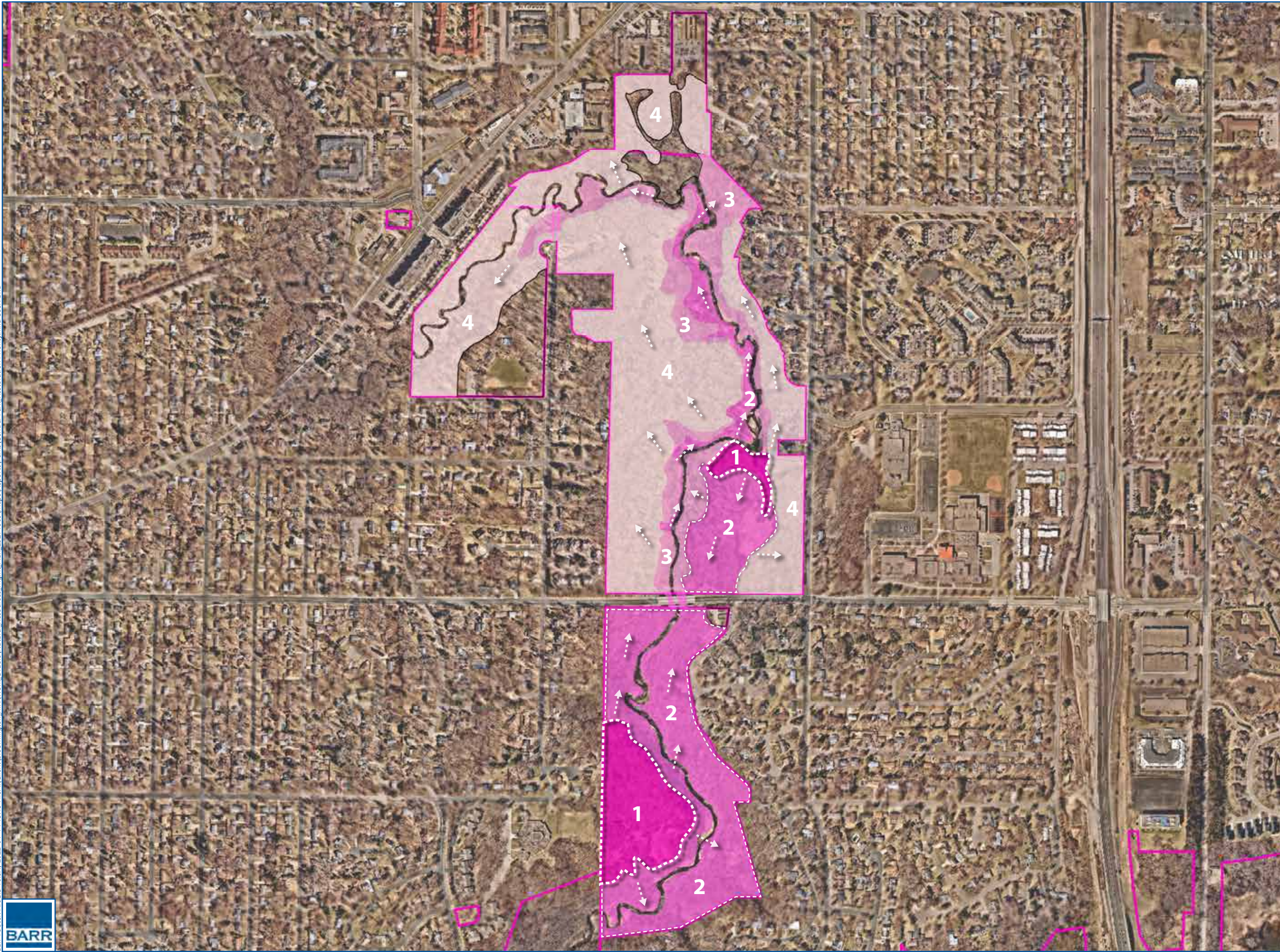
-  Black Ash Swamp Seepage
-  Cultural
-  Mesic Hardwood Forest
-  Mesic Prairie
-  Oak Forest
-  Oak Savanna

Target communities are recommended native plant communities for restoration (a goal) based on management goals, historic plant communities, and existing site conditions (slope, aspect, soil, sunlight, past disturbance, and existing species).



0 300 600
Feet

**Central, Moir,
and Harrison Park
Target Plant Community**



City of Bloomington Park

Restoration Priority

- High
- Medium
- Low
- Lowest
- NA (Cultural or Open Water)

Restoration Phasing

- 1 - Restoration efforts begin in these areas to protect highest quality natural communities.
- 2 - Second priority for restoration. Move restoration efforts to these areas once phase 1 restoration efforts are complete. Continue maintaining phase 1 to retain restoration success.
- 3 - Expand restoration to these areas as resources allow. It is critical to maintain previously restored areas.
- 4 - Last priority for restoration due to the extent of degradation.

Restoration Priority Note: Site specific strategy for phasing and prioritizing restoration efforts based on existing plant community, ecological quality, current restoration efforts, site access, habitat size, and adjacencies to areas of high ecological quality and ongoing management activities.



0 300 600
Feet

**Central, Moir,
and Harrison Park
Restoration Priority
and Phasing**

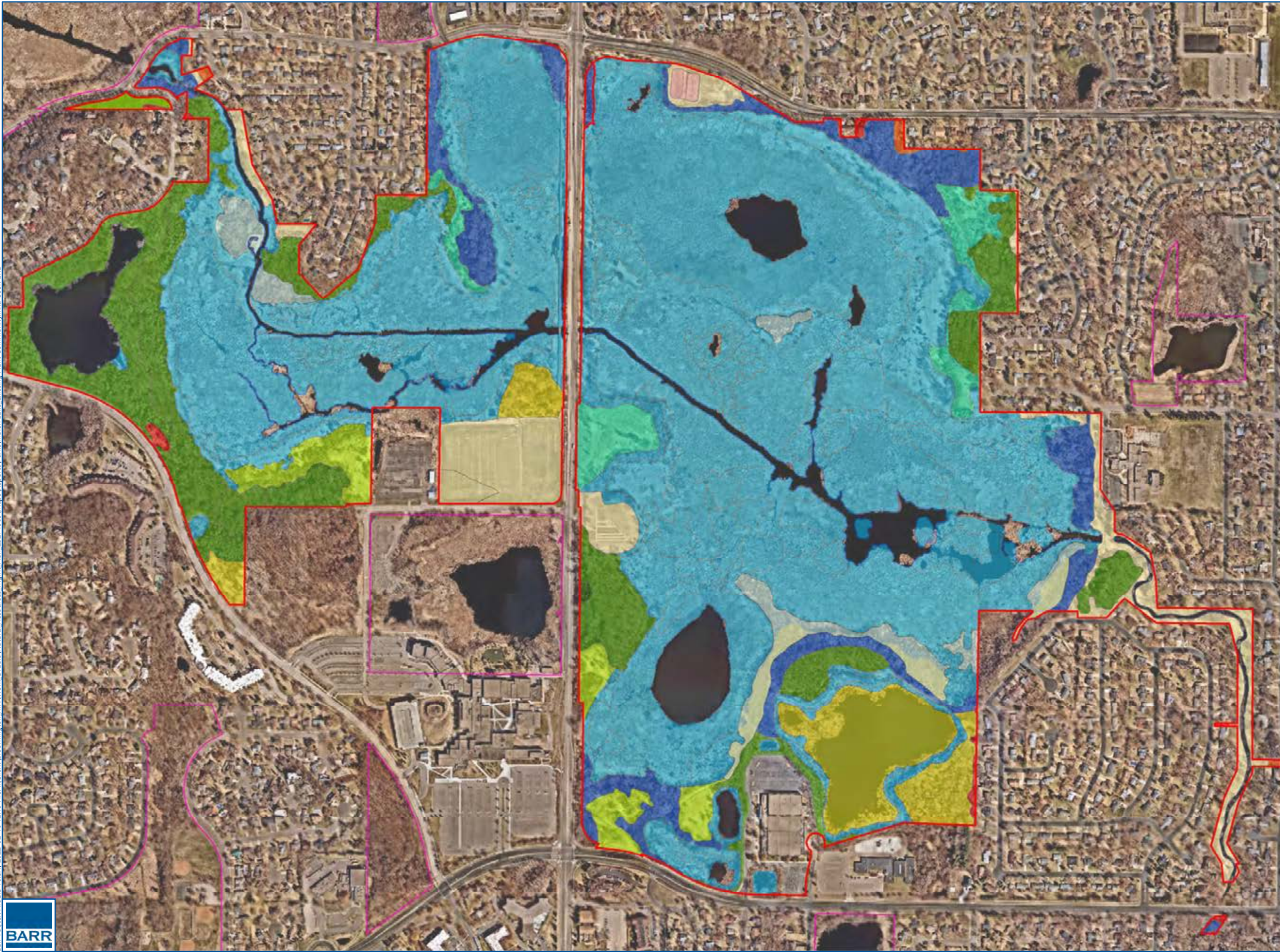
4.3 Marsh Lake Park (9 Mile Creek Park, East and West)

The following Marsh Lake Park figures include:

- **Existing Land Cover Types:** Developed from the 2007 MLCCS data.
- **Habitat Quality:** Also developed from the 2007 MLCCS data.
- **Target Plant Communities:** Recommended native plant communities for restoration (goals) based on historic plant communities, management goals, and existing site conditions (vegetation, slope, aspect, soil, sunlight, and past disturbance).
- **Restoration Strategy:** Site specific strategies for phasing and prioritizing restoration efforts based on existing plant community, ecological quality, current restoration efforts, site access, habitat size, and adjacencies to areas of high ecological quality and ongoing management activities.

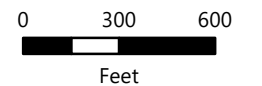


Marsh Lake



- Marsh Lake Park
- City of Bloomington Park
- Land Cover Types**
- 26-50% Impervious
- 5-10% Impervious
- 51-75% Impervious
- 76-100% Impervious
- Dry Tall Grasses
- Forest
- Maintained Tall Grass
- Open Water
- Short Grasses
- Shrubland
- Tall Grasses
- Tree Plantation
- Wetland Emergent Veg.
- Wetland Forest
- Wetland Open Water
- Wetland Shrubs



Data Source: Minnesota Land Cover Classification System (MLCCS), MnDNR 2007







**Marsh Lake Park
Existing Land
Cover Types**





 Marsh Lake Park
 City of Bloomington Park

Habitat Quality

-  No Designation - Not ranked by DNR
-  B - Good quality natural community. Natural processes are intact but shows signs of past human impacts. Low levels of exotics
-  C - Moderate condition natural community with obvious past disturbance but is still clearly recognizable as a native community. Not dominated by weedy species in any layer
-  D - Poor condition of a natural community. Includes some natives but is dominated by nonnatives and/or has been widely disturbed and altered

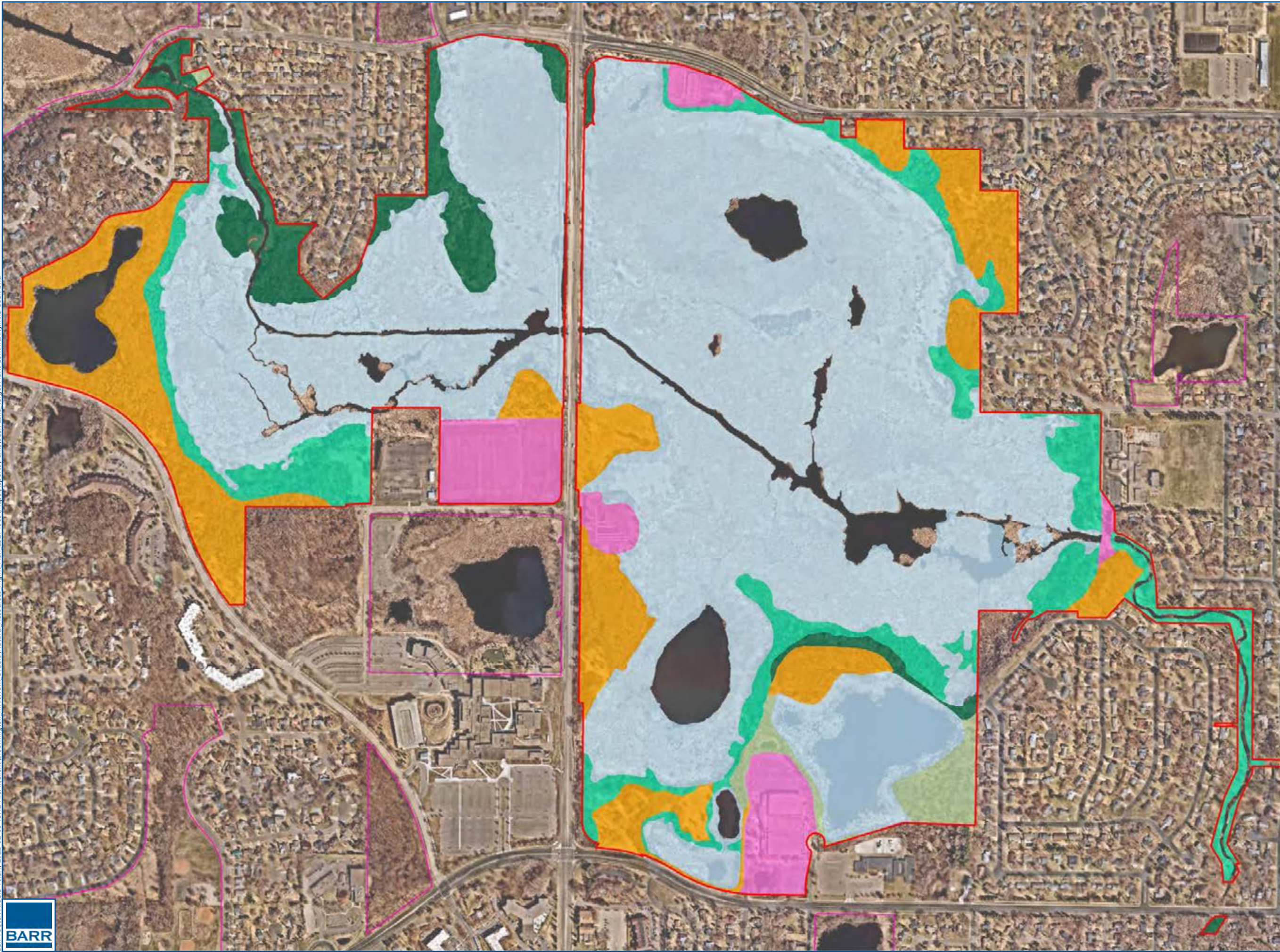
Habitat Quality Ranking Data
Source: Minnesota Land Cover Classification System (MLCCS), MnDNR 2007



0 300 600
Feet

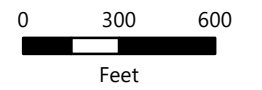
**Marsh Lake Park
Habitat Quality**





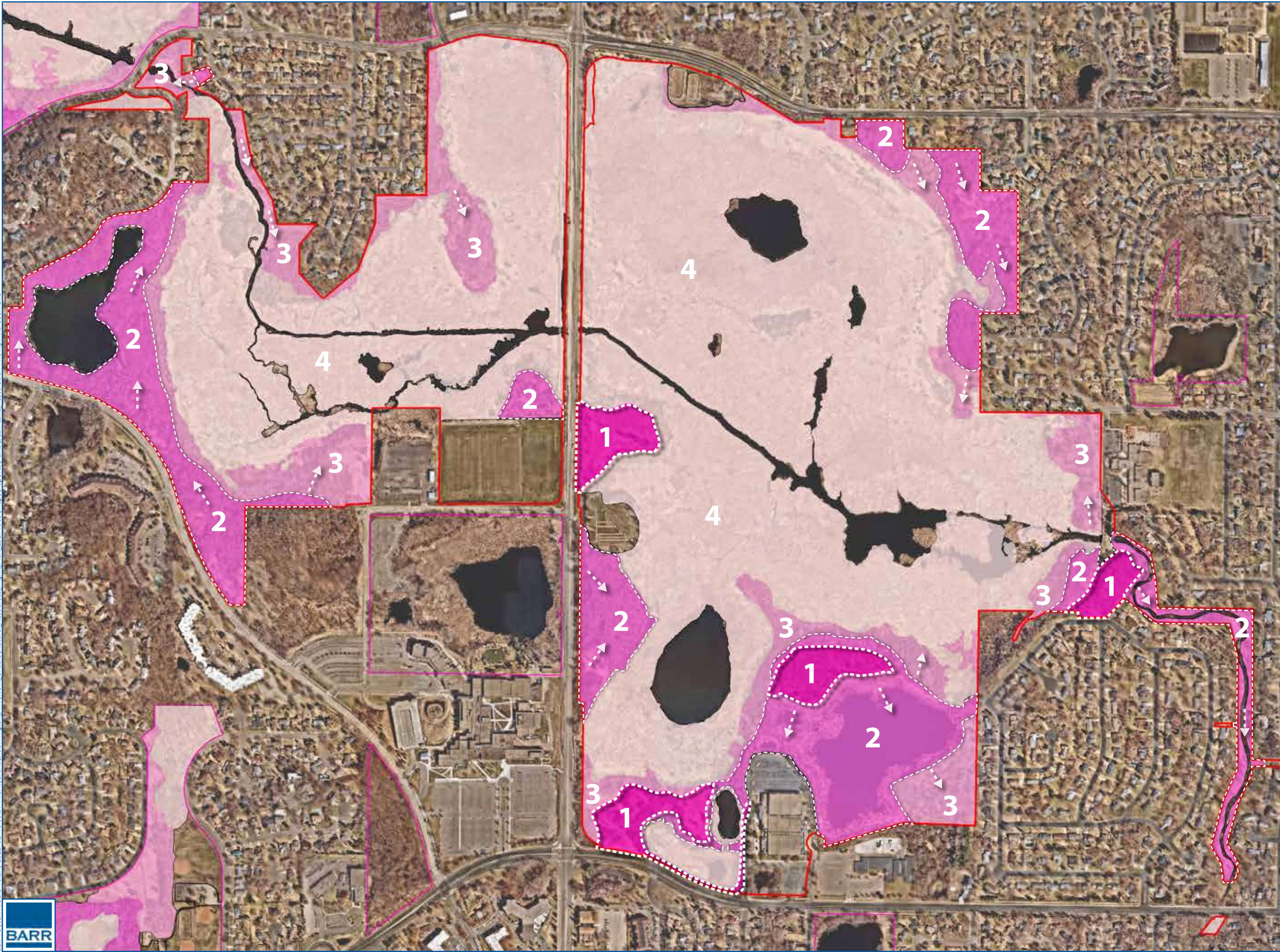
- Marsh Lake Park
- City of Bloomington Park
- Target Plant Community**
- Cultural
- Floodplain Forest
- Emergent Wetland
- Mesic Prairie/Wet Meadow
- Mesic Hardwood Forest
- Oak Savanna

Target communities are recommended native plant communities for restoration (a goal) based on management goals, historic plant communities, and existing site conditions (slope, aspect, soil, sunlight, past disturbance, and existing species).



**Marsh Lake Park
Target Plant Community**





Marsh Lake Park

City of Bloomington Park

Restoration Priority

High

Medium

Low

Lowest

NA (Cultural or Open Water)

Restoration Phasing

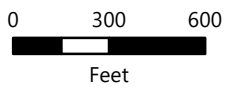
1 - Restoration efforts begin in these areas to protect highest quality natural communities.

2 - Second priority for restoration. Move restoration efforts to these areas once phase 1 restoration efforts are complete. Continue maintaining phase 1 to retain restoration success.

3 - Expand restoration to these areas as resources allow. It is critical to maintain previously restored areas.

4 - Last priority for restoration due to the extent of degradation.

Restoration Priority Note: Site specific strategy for phasing and prioritizing restoration efforts based on existing plant community, ecological quality, current restoration efforts, site access, habitat size, and adjacencies to areas of high ecological quality and ongoing management activities.



**Marsh Lake
Restoration Priority
and Phasing**



4.4 Nord Myr Marsh

The following Nord Myr Marsh Park figures include:

- **Existing Land Cover Types:** Developed from the 2007 MLCCS data.
- **Habitat Quality:** Also developed from the 2007 MLCCS data.
- **Target Plant Communities:** Recommended native plant communities for restoration (goals) based on historic plant communities, management goals, and existing site conditions (vegetation, slope, aspect, soil, sunlight, and past disturbance).
- **Restoration Strategy:** Site specific strategies for phasing and prioritizing restoration efforts based on existing plant community, ecological quality, current restoration efforts, site access, habitat size, and adjacencies to areas of high ecological quality and ongoing management activities.

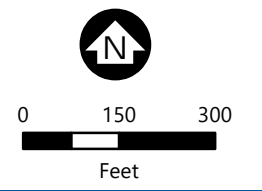


Nord Myr Park








- Nord Myr Marsh
- City of Bloomington Park
- Land Cover Types**
- 26-50% Impervious
- 51-75% Impervious
- 76-100% Impervious
- Forest
- Maintained Tall Grass
- Open Water
- Short Grasses
- Wetland Emergent Veg.
- Wetland Forest
- Wetland Open Water

Data Source: Minnesota Land Cover Classification System (MLCCS), MnDNR 2007

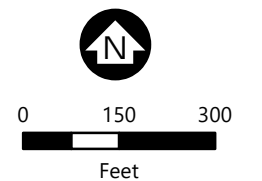


**Nord Myr Marsh
Existing Land
Cover Types**



-  Nord Myr Marsh
 -  City of Bloomington Park
- Habitat Quality**
-  No Designation - Not ranked by DNR
 -  B- Good quality natural community. Natural processes are intact but shows signs of past human impacts. Low levels of exotics
 -  D - Poor condition of a natural community. Includes some natives but is dominated by nonnatives and/or has been widely disturbed and altered

Habitat Quality Ranking Data
Source: Minnesota Land Cover Classification System (MLCCS), MnDNR 2007

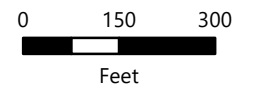


**Nord Myr Marsh
Habitat Quality**

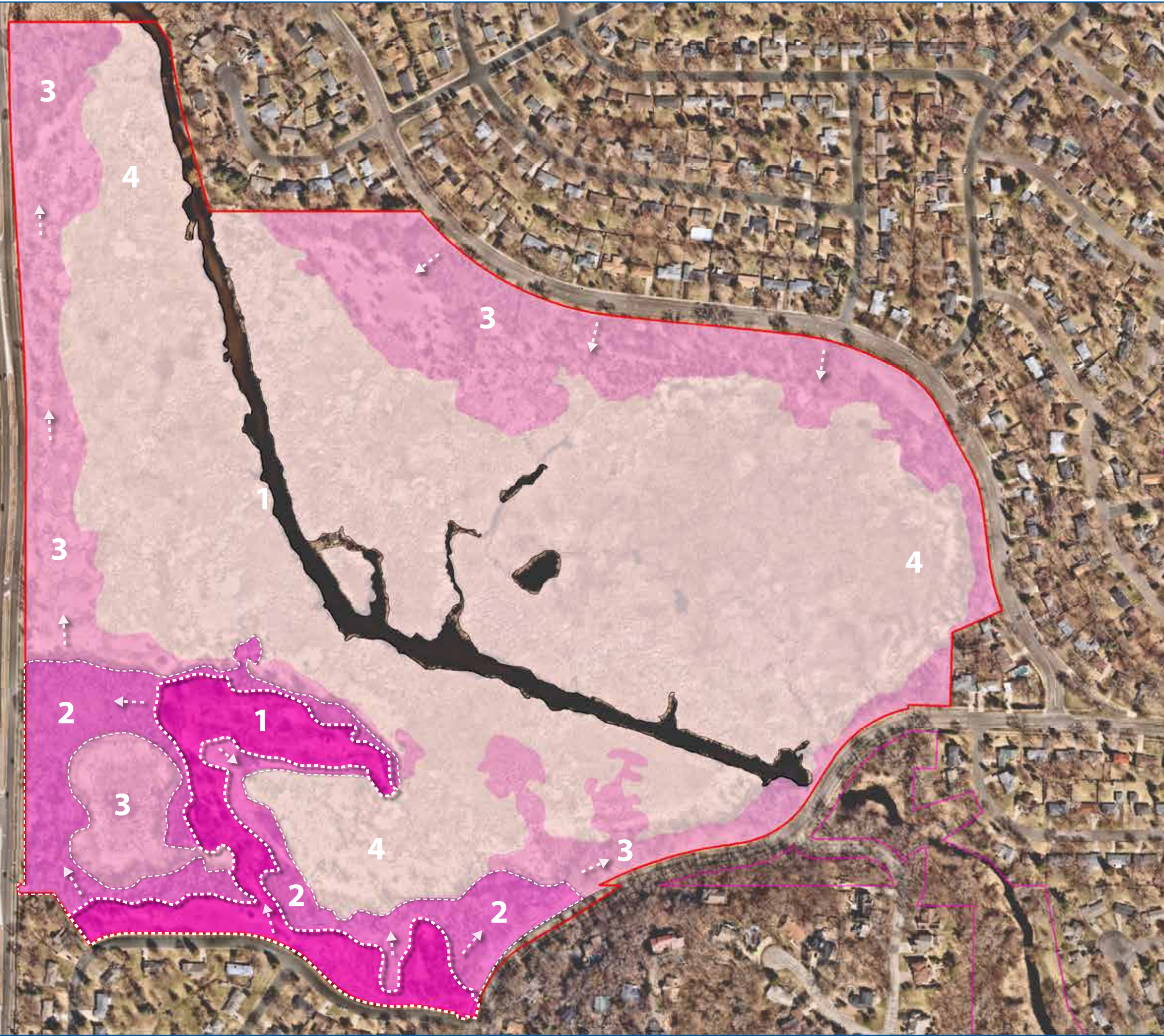


- Nord Myr Marsh
- City of Bloomington Park
- Target Plant Community**
- Cultural
- Floodplain Forest
- Emergent Wetland
- Mesic Prairie/Wet Meadow
- Mesic Hardwood Forest
- Oak Savanna

Target communities are recommended native plant communities for restoration (a goal) based on management goals, historic plant communities, and existing site conditions (slope, aspect, soil, sunlight, past disturbance, and existing species).



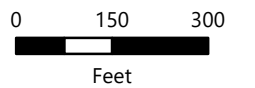
**Nord Myr Marsh
Target Plant Community**



- Nord Myr Marsh
 - City of Bloomington Park
- Restoration Priority**
- High
 - Medium
 - Low
 - Lowest
 - NA (Cultural or Open Water)

- Restoration Phasing**
- 1 - Restoration efforts begin in these areas to protect highest quality natural communities.
 - 2 - Second priority for restoration. Move restoration efforts to these areas once phase 1 restoration efforts are complete. Continue maintaining phase 1 to retain restoration success.
 - 3 - Expand restoration to these areas as resources allow. It is critical to maintain previously restored areas.
 - 4 - Last priority for restoration due to the extent of degradation.

Restoration Priority Note: Site specific strategy for phasing and prioritizing restoration efforts based on existing plant community, ecological quality, current restoration efforts, site access, habitat size, and adjacencies to areas of high ecological quality and ongoing management activities.



**Nord Myr Marsh
Restoration Priority
and Phasing**

4.5 Normandale Lake Park

The following Normandale Lake Park figures include:

- **Existing Land Cover Types:** Developed from the 2007 MLCCS data.
- **Habitat Quality:** Also developed from the 2007 MLCCS data.
- **Target Plant Communities:** Recommended native plant communities for restoration (goals) based on historic plant communities, management goals, and existing site conditions (vegetation, slope, aspect, soil, sunlight, and past disturbance).
- **Restoration Strategy:** Site specific strategies for phasing and prioritizing restoration efforts based on existing plant community, ecological quality, current restoration efforts, site access, habitat size, and adjacencies to areas of high ecological quality and ongoing management activities.



Normandale Lake Park



- Normandale Lake Park
- City of Bloomington Park
- Land Cover Types**
- 11-25% Impervious
- 26-50% Impervious
- 51-75% Impervious
- 76-100% Impervious
- Forest
- Maintained Tall Grass
- Open Water
- Short Grasses
- Tall Grasses
- Tree Plantation
- Wetland Emergent Veg.
- Wetland Forest
- Wetland Open Water
- Wetland Shrubs

Data Source: Minnesota Land Cover Classification System (MLCCS), MnDNR 2007





0 150 300
Feet

**Normandale Lake Park
Existing Land
Cover Types**








 Normandale Lake Park


 City of Bloomington Park

Habitat Quality

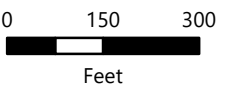
 No Designation - Not ranked by DNR

 B - Good quality natural community. Natural processes are intact but shows signs of past human impacts. Low levels of exotics

 C - Moderate condition natural community with obvious past disturbance but is still clearly recognizable as a native community. Not dominated by weedy species in any layer

 D - Poor condition of a natural community. Includes some natives but is dominated by nonnatives and/or has been widely disturbed and altered



Habitat Quality Ranking Data
Source: Minnesota Land Cover Classification System (MLCCS), MnDNR 2007



**Normandale Lake Park
Habitat Quality**



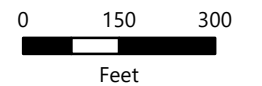


-  Normandale Lake Park
-  City of Bloomington Park

Target Plant Community

-  Cultural
-  Mesic Prairie/Wet Meadow
-  Mesic Hardwood Forest
-  Oak Savanna

Target communities are recommended native plant communities for restoration (a goal) based on management goals, historic plant communities, and existing site conditions (slope, aspect, soil, sunlight, past disturbance, and existing species).



**Normandale Lake Park
Target Plant Community**





Normandale Lake Park

City of Bloomington Park

Restoration Priority

High

Medium

Low

Lowest

NA (Cultural or Open Water)

Restoration Phasing

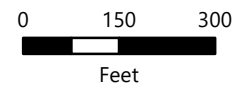
1 - Restoration efforts begin in these areas to protect highest quality natural communities.

2 - Second priority for restoration. Move restoration efforts to these areas once phase 1 restoration efforts are complete. Continue maintaining phase 1 to retain restoration success.

3 - Expand restoration to these areas as resources allow. It is critical to maintain previously restored areas.

4 - Last priority for restoration due to the extent of degradation.

Restoration Priority Note: Site specific strategy for phasing and prioritizing restoration efforts based on existing plant community, ecological quality, current restoration efforts, site access, habitat size, and adjacencies to areas of high ecological quality and ongoing management activities.



**Normandale Lake Park
Restoration Priority
and Phasing**



4.6 North Corridor Park

The following North Corridor figures include:

- **Existing Land Cover Types:** Developed from the 2007 MLCCS data.
- **Habitat Quality:** Also developed from the 2007 MLCCS data.
- **Target Plant Communities:** Recommended native plant communities for restoration (goals) based on historic plant communities, management goals, and existing site conditions (vegetation, slope, aspect, soil, sunlight, and past disturbance).
- **Restoration Strategy:** Site specific strategies for phasing and prioritizing restoration efforts based on existing plant community, ecological quality, current restoration efforts, site access, habitat size, and adjacencies to areas of high ecological quality and ongoing management activities.



North Corridor Park



- North Corridor Park
- City of Bloomington Park
- Land Cover Types**
- 11-25% Impervious
- 26-50% Impervious
- 51-75% Impervious
- 76-100% Impervious
- Forest
- Maintained Tall Grass
- Short Grasses
- Wetland Emergent Veg.
- Wetland Forest
- Wetland Open Water

Data Source: Minnesota Land Cover Classification System (MLCCS), MnDNR 2007



0 150 300
Feet

North Corridor Park
Existing Land
Cover Types



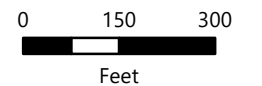


- North Corridor Park
- City of Bloomington Park

Habitat Quality

- No Designation - Not ranked by DNR
- C - Moderate condition natural community with obvious past disturbance but is still clearly recognizable as a native community. Not dominated by weedy species in any layer
- D - Poor condition of a natural community. Includes some natives but is dominated by nonnatives and/or has been widely disturbed and altered

Habitat Quality Ranking Data
Source: Minnesota Land Cover Classification System (MLCCS), MnDNR 2007



**North Corridor Park
Habitat Quality**





North Corridor Park

City of Bloomington Park

Target Plant Community

Floodplain Forest

Emergent Wetland

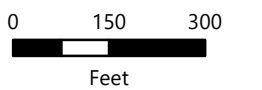
Mesic Prairie/Wet Meadow

Mesic Hardwood Forest

Oak Forest

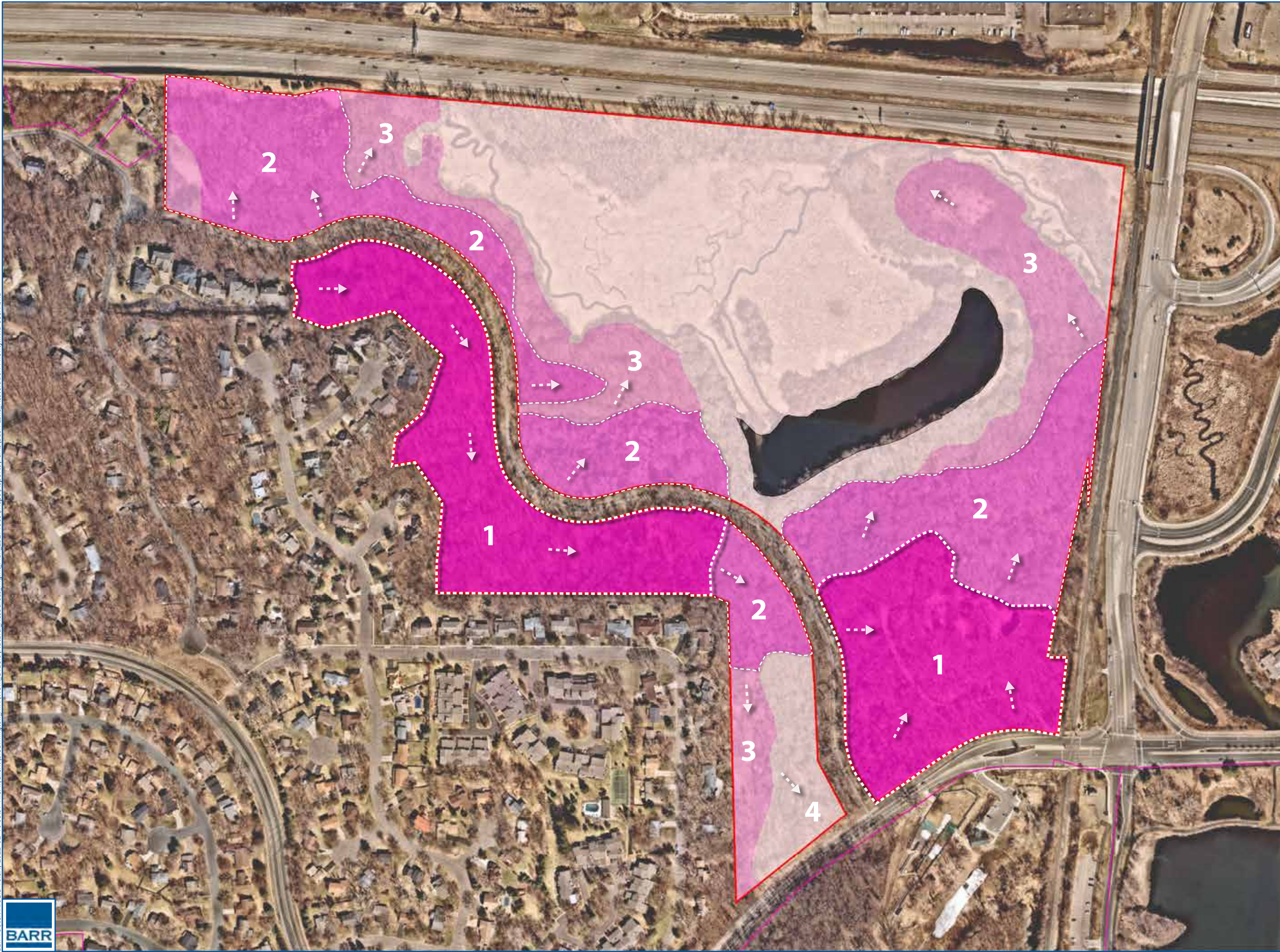
Oak Savanna

Target communities are recommended native plant communities for restoration (a goal) based on management goals, historic plant communities, and existing site conditions (slope, aspect, soil, sunlight, past disturbance, and existing species).



**North Corridor Park
Target Plant Community**



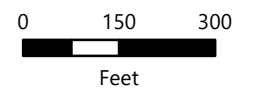


- North Corridor Park
 - City of Bloomington Park
- Restoration Priority**
- High
 - Medium
 - Low
 - Lowest
 - NA (Cultural or Open Water)

Restoration Phasing

- 1 - Restoration efforts begin in these areas to protect highest quality natural communities.
- 2 - Second priority for restoration. Move restoration efforts to these areas once phase 1 restoration efforts are complete. Continue maintaining phase 1 to retain restoration success.
- 3 - Expand restoration to these areas as resources allow. It is critical to maintain previously restored areas.
- 4 - Last priority for restoration due to the extent of degradation.

Restoration Priority Note: Site specific strategy for phasing and prioritizing restoration efforts based on existing plant community, ecological quality, current restoration efforts, site access, habitat size, and adjacencies to areas of high ecological quality and ongoing management activities.



**North Corridor Park
Restoration Priority
and Phasing**



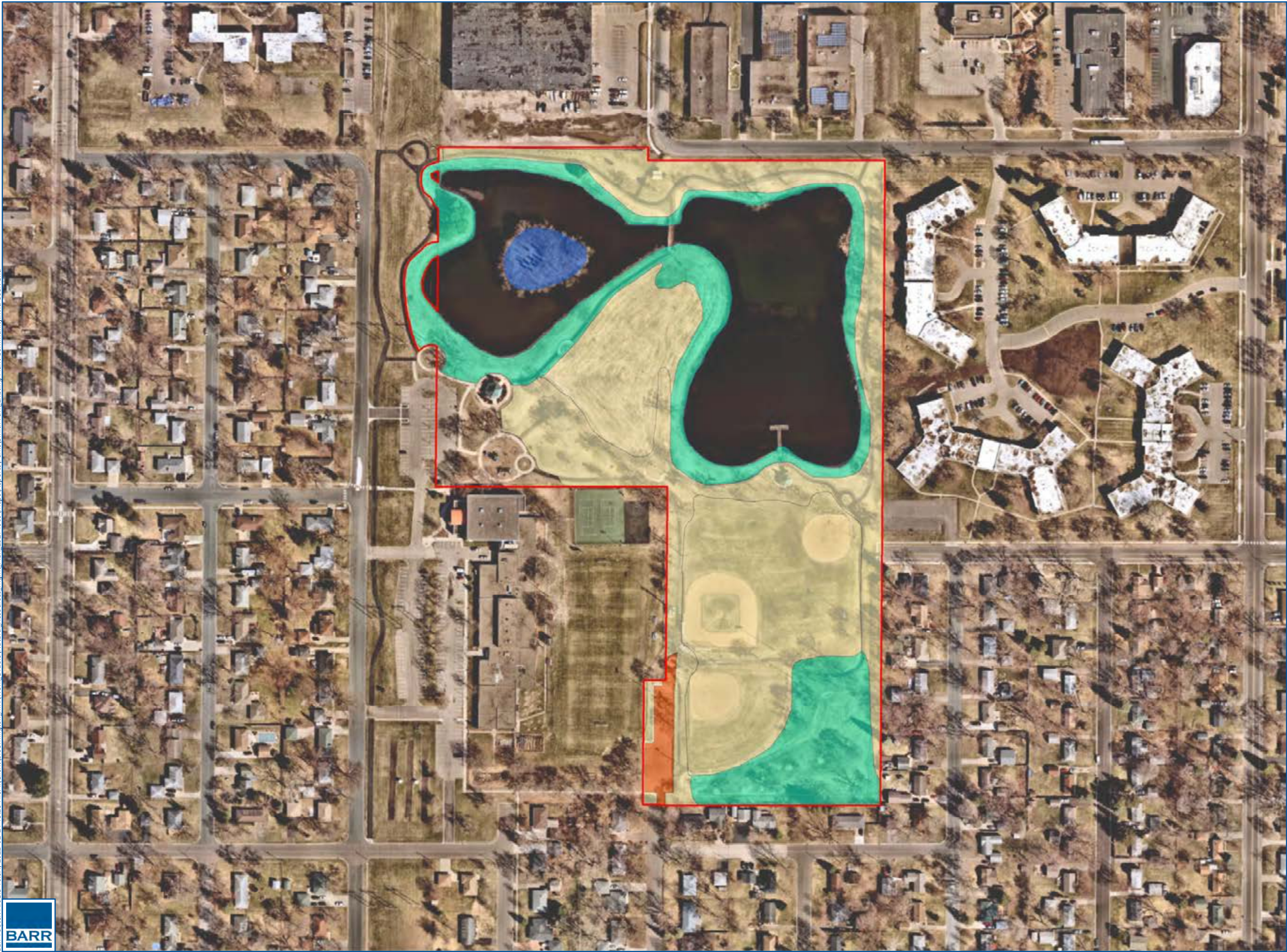
4.7 Smith Park

The following Smith Park figures include:

- **Existing Land Cover Types:** Developed from the 2007 MLCCS data.
- **Habitat Quality:** Also developed from the 2007 MLCCS data.
- **Target Plant Communities:** Recommended native plant communities for restoration (goals) based on historic plant communities, management goals, and existing site conditions (vegetation, slope, aspect, soil, sunlight, and past disturbance).
- **Restoration Strategy:** Site specific strategies for phasing and prioritizing restoration efforts based on existing plant community, ecological quality, current restoration efforts, site access, habitat size, and adjacencies to areas of high ecological quality and ongoing management activities.

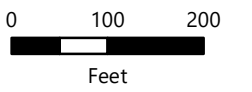


Smith Park






- Smith Park
- City of Bloomington Park
- Land Cover Types**
- 51-75% Impervious
- 76-100% Impervious
- Maintained Tall Grass
- Short Grasses
- Wetland Forest
- Wetland Open Water

Data Source: Minnesota Land Cover Classification System (MLCCS), MnDNR 2007

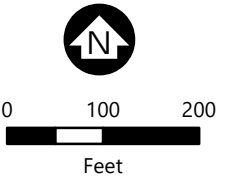


Smith Park
Existing Land
Cover Types

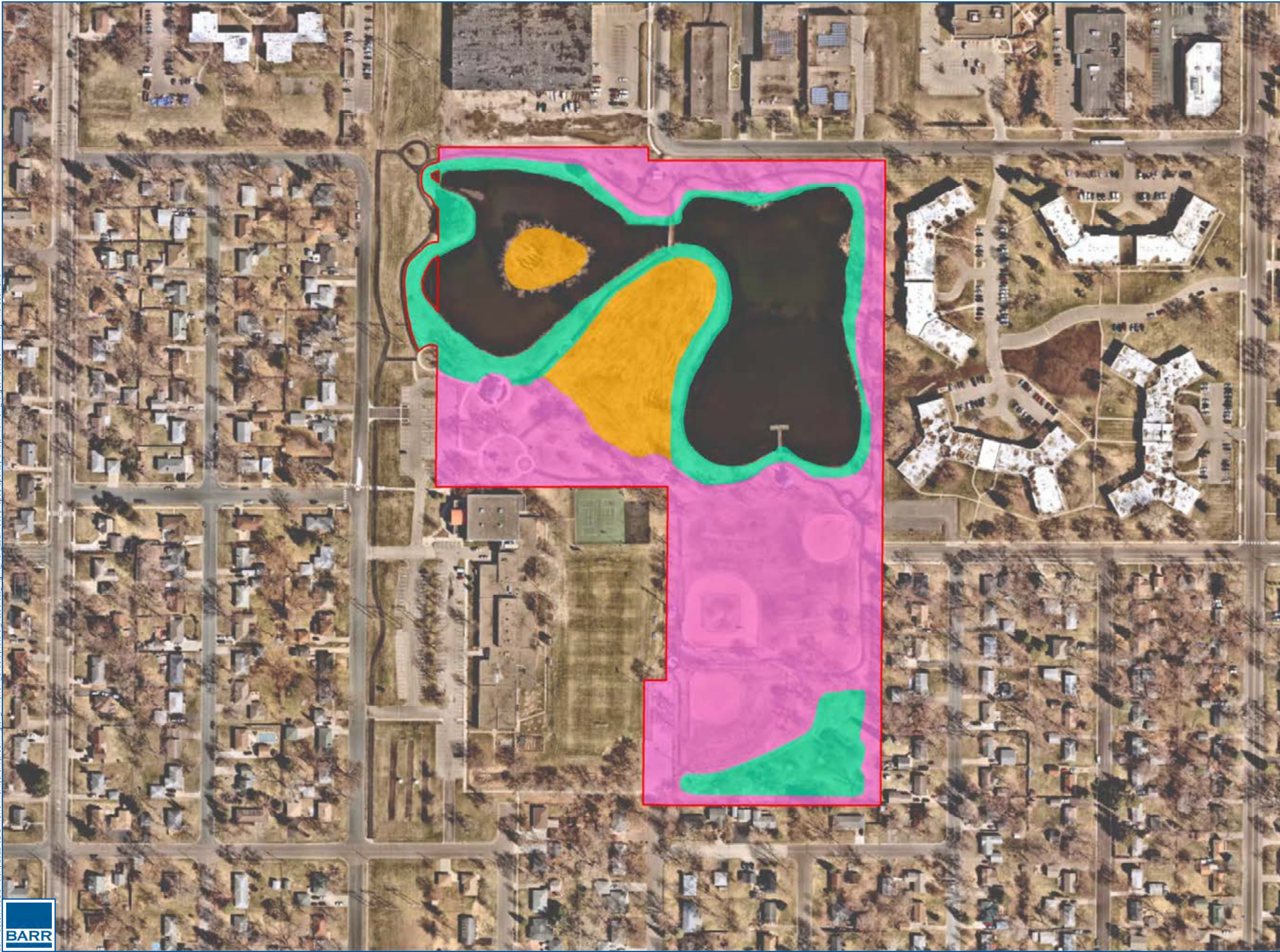







-  Smith Park
-  City of Bloomington Park
- Habitat Quality**
-  No Designation - Not ranked by DNR

Habitat Quality Ranking Data
Source: Minnesota Land Cover
Classification System
(MLCCS), MnDNR 2007

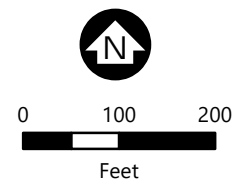


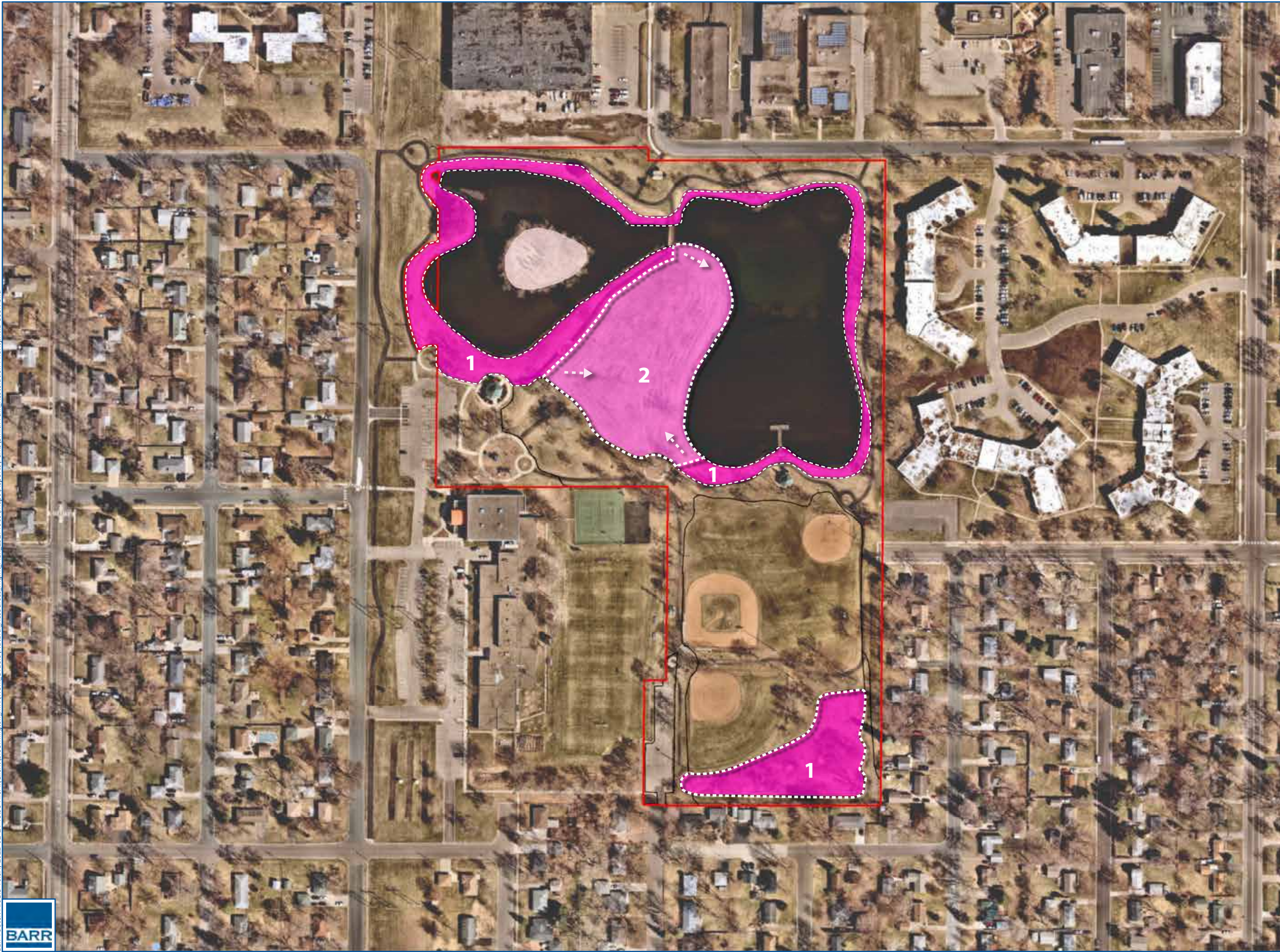
**Smith Park
Habitat Quality**



-  Smith Park
-  City of Bloomington Park
- Target Plant Community**
-  Cultural
-  Mesic Prairie/Wet Meadow
-  Oak Savanna

Target communities are recommended native plant communities for restoration (a goal based on management goals, historic plant communities, and existing site conditions (slope, aspect, soil, sunlight, past disturbance, and existing species)).

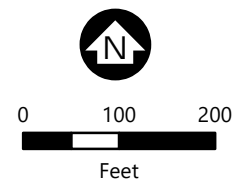




- Smith Park
 - City of Bloomington Park
- Restoration Priority**
- High
 - Medium
 - Lowest
 - NA (Cultural or Open Water)

- Restoration Phasing**
- 1 - Restoration efforts begin in these areas to protect highest quality natural communities.
 - 2 - Second priority for restoration. Move restoration efforts to these areas once phase 1 restoration efforts are complete. Continue maintaining phase 1 to retain restoration success.
 - 3 - Expand restoration to these areas as resources allow. It is critical to maintain previously restored areas.
 - 4 - Last priority for restoration due to the extent of degradation.

Restoration Priority Note: Site specific strategy for phasing and prioritizing restoration efforts based on existing plant community, ecological quality, current restoration efforts, site access, habitat size, and adjacencies to areas of high ecological quality and ongoing management activities.

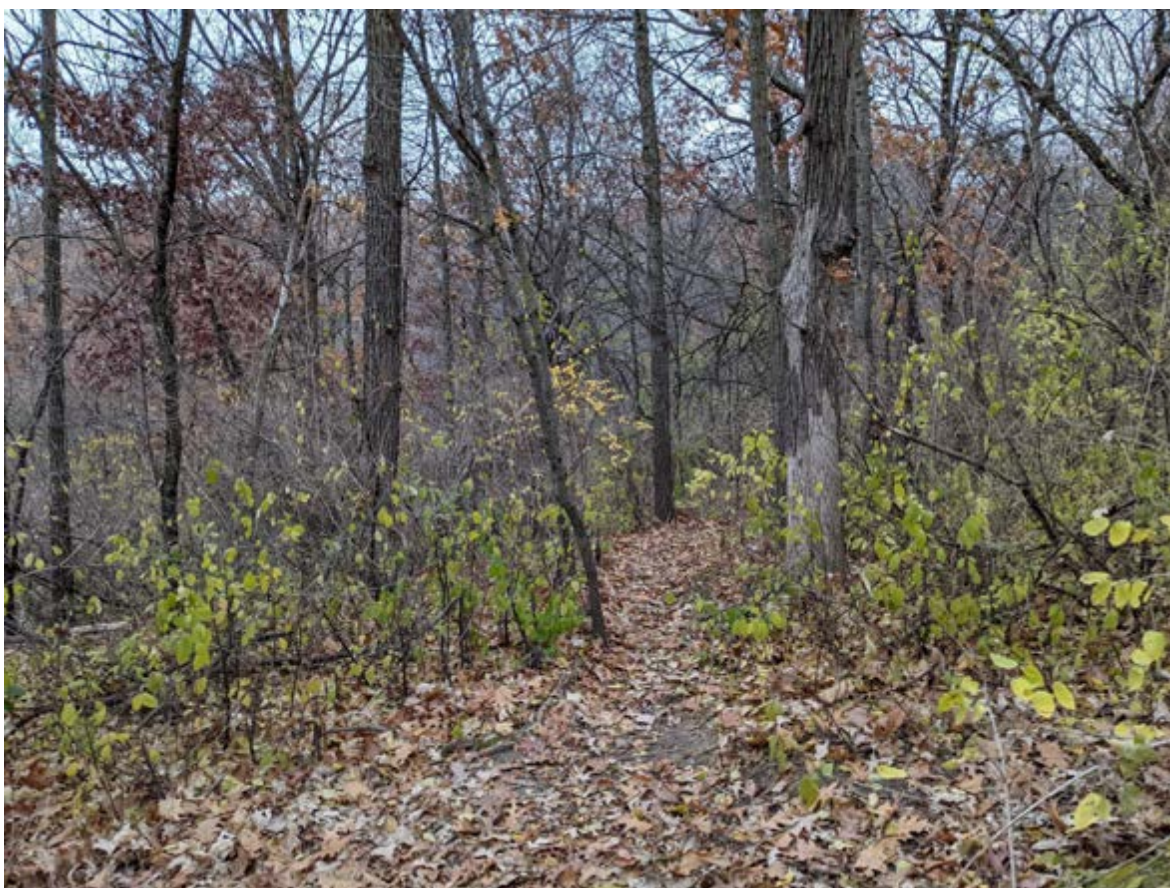


**Smith Park
Restoration Priority
and Phasing**

4.8 South Corridor Park

The following South Corridor Park figures include:

- **Existing Land Cover Types:** Developed from the 2007 MLCCS data.
- **Habitat Quality:** Also developed from the 2007 MLCCS data.
- **Target Plant Communities:** Recommended native plant communities for restoration (goals) based on historic plant communities, management goals, and existing site conditions (vegetation, slope, aspect, soil, sunlight, and past disturbance).
- **Restoration Strategy:** Site specific strategies for phasing and prioritizing restoration efforts based on existing plant community, ecological quality, current restoration efforts, site access, habitat size, and adjacencies to areas of high ecological quality and ongoing management activities.

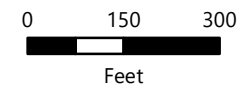


South Corridor Park



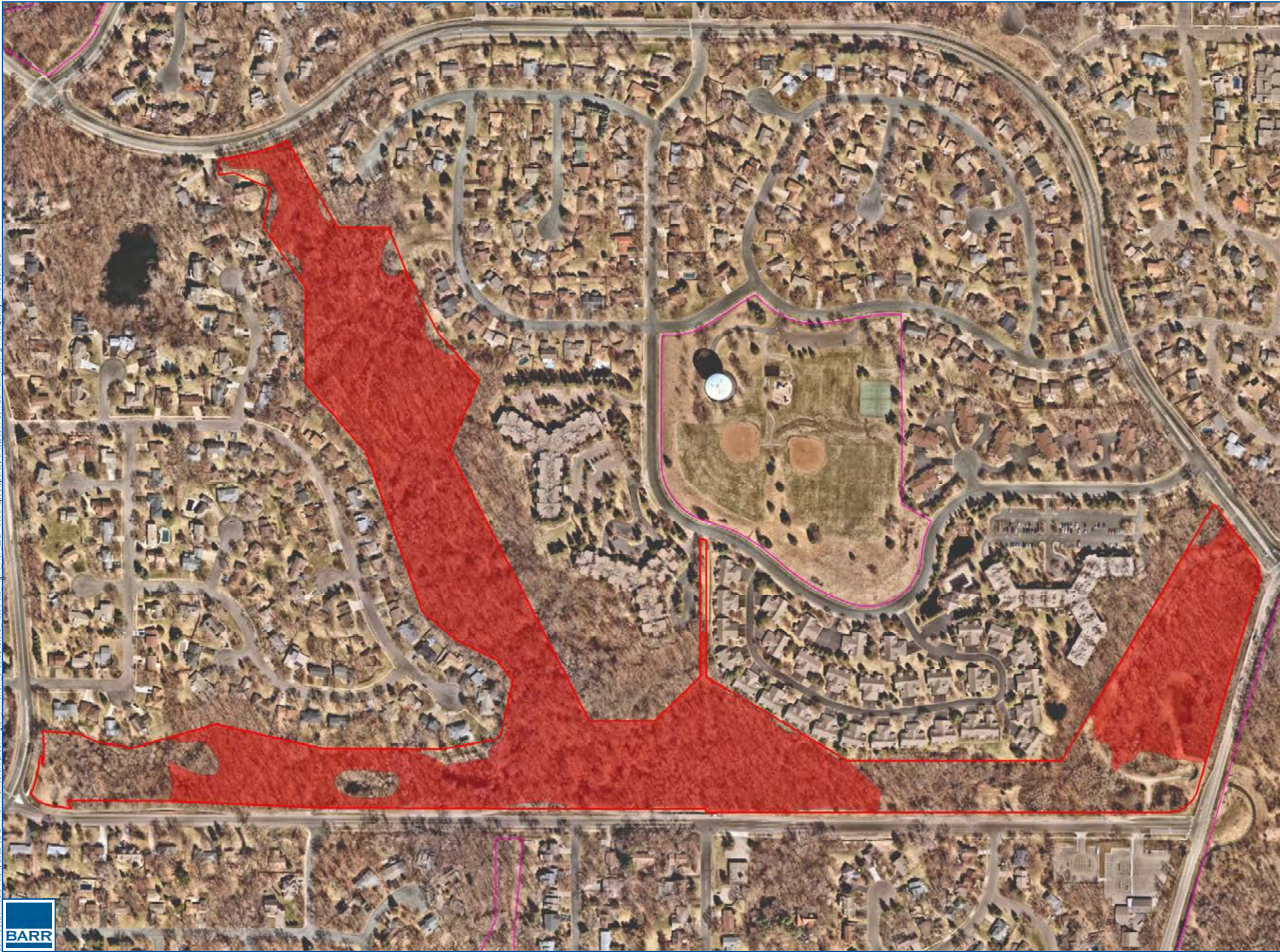
- South Corridor Park
 - City of Bloomington Park
- Land Cover Types**
- 26-50% Impervious
 - 51-75% Impervious
 - 76-100% Impervious
 - Forest
 - Short Grasses
 - Tall Grasses
 - Tree Plantation
 - Wetland Emergent Veg.



Data Source: Minnesota Land Cover Classification System (MLCCS), MnDNR 2007





**South Corridor Park
Existing Land
Cover Types**



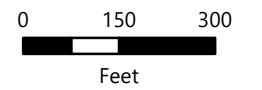


-  South Corridor Park
-  City of Bloomington Park

Habitat Quality

-  No Designation - Not ranked by DNR
-  D - Poor condition of a natural community. Includes some natives but is dominated by nonnatives and/or has been widely disturbed and altered

Habitat Quality Ranking Data
Source: Minnesota Land Cover Classification System (MLCCS), MnDNR 2007



**South Corridor Park
Habitat Quality**





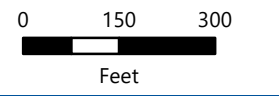
South Corridor Park

City of Bloomington Park

Target Plant Community

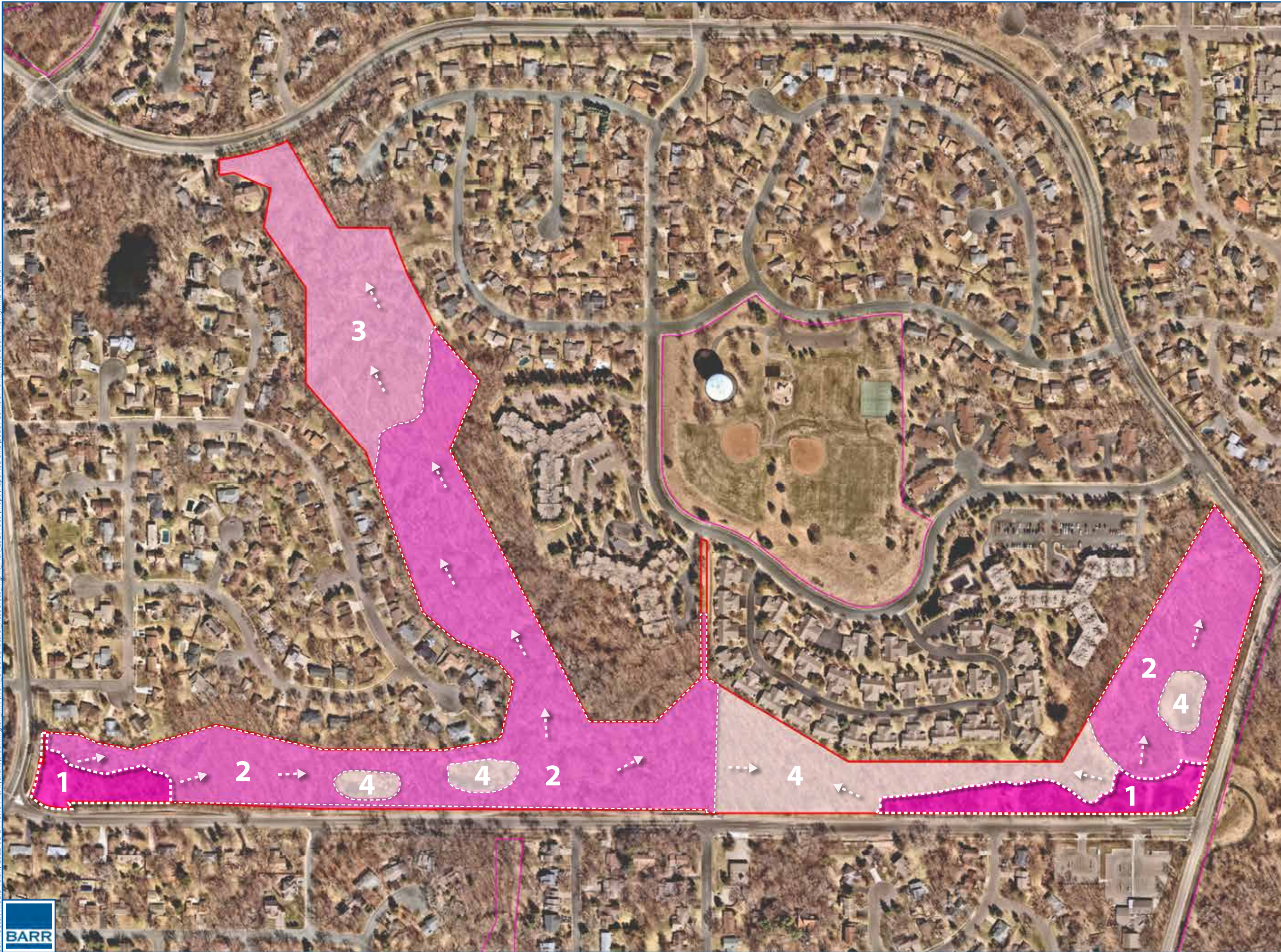
- Cultural
- Emergent Wetland
- Oak Forest
- Oak Savanna

Target communities are recommended native plant communities for restoration (a goal) based on management goals, historic plant communities, and existing site conditions (slope, aspect, soil, sunlight, past disturbance, and existing species).



South Corridor Park
Target Plant Community





- South Corridor Park
 - City of Bloomington Park
- Restoration Priority**
- High
 - Medium
 - Low
 - Lowest
 - NA (Cultural or Open Water)

Restoration Phasing

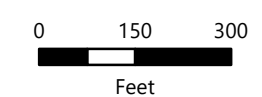
1 - Restoration efforts begin in these areas to protect highest quality natural communities.

2 - Second priority for restoration. Move restoration efforts to these areas once phase 1 restoration efforts are complete. Continue maintaining phase 1 to retain restoration success.

3 - Expand restoration to these areas as resources allow. It is critical to maintain previously restored areas.

4 - Last priority for restoration due to the extent of degradation.

Restoration Priority Note: Site specific strategy for phasing and prioritizing restoration efforts based on existing plant community, ecological quality, current restoration efforts, site access, habitat size, and adjacencies to areas of high ecological quality and ongoing management activities.



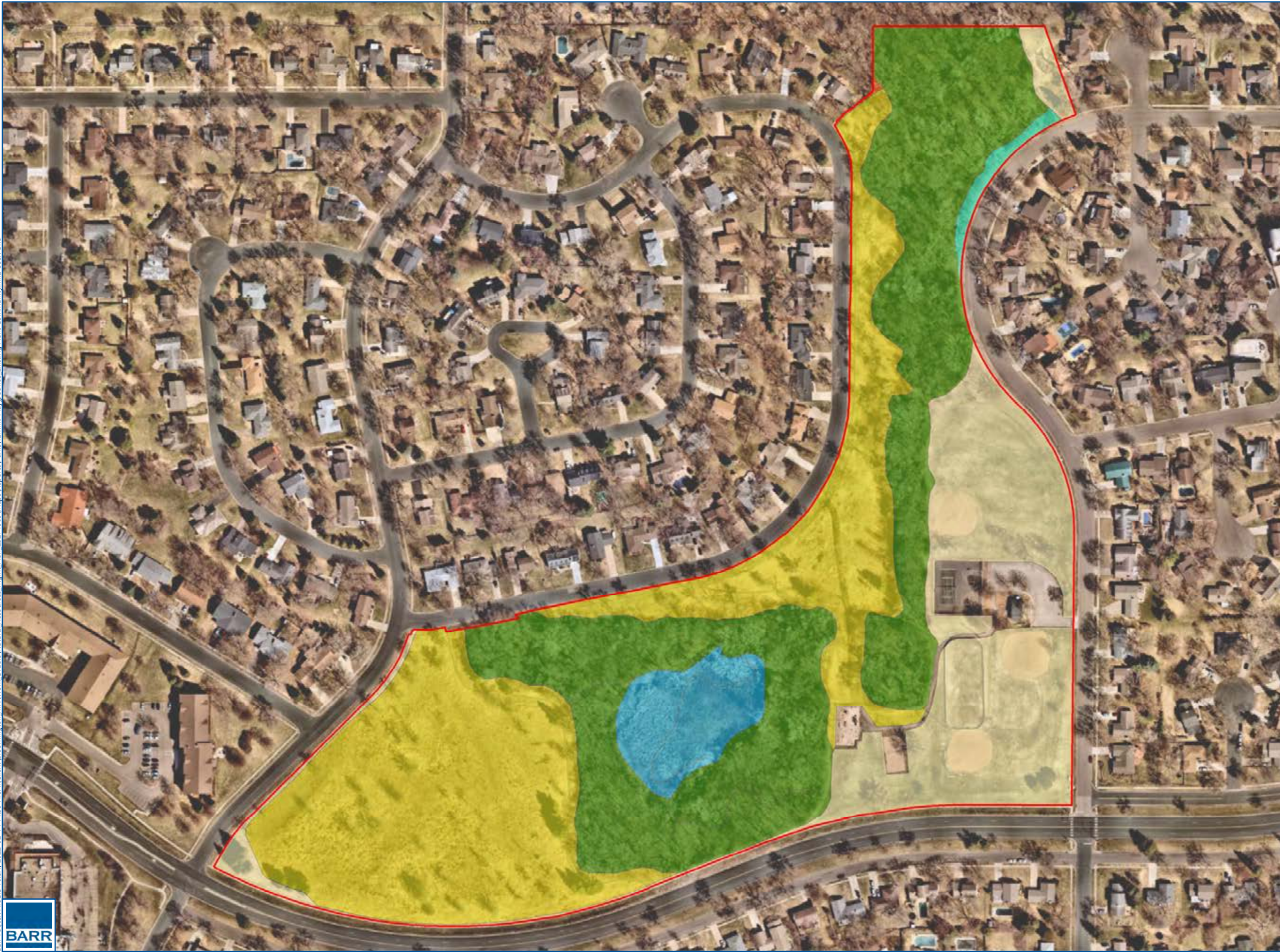
**South Corridor Park
Restoration Priority
and Phasing**



4.9 Tarnhill Playgrounds

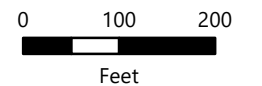
The following Tarnhill Playgrounds figures include:

- **Existing Land Cover Types:** Developed from the 2007 MLCCS data.
- **Habitat Quality:** Also developed from the 2007 MLCCS data.
- **Target Plant Communities:** Recommended native plant communities for restoration (goals) based on historic plant communities, management goals, and existing site conditions (vegetation, slope, aspect, soil, sunlight, and past disturbance).
- **Restoration Strategy:** Site specific strategies for phasing and prioritizing restoration efforts based on existing plant community, ecological quality, current restoration efforts, site access, habitat size, and adjacencies to areas of high ecological quality and ongoing management activities.



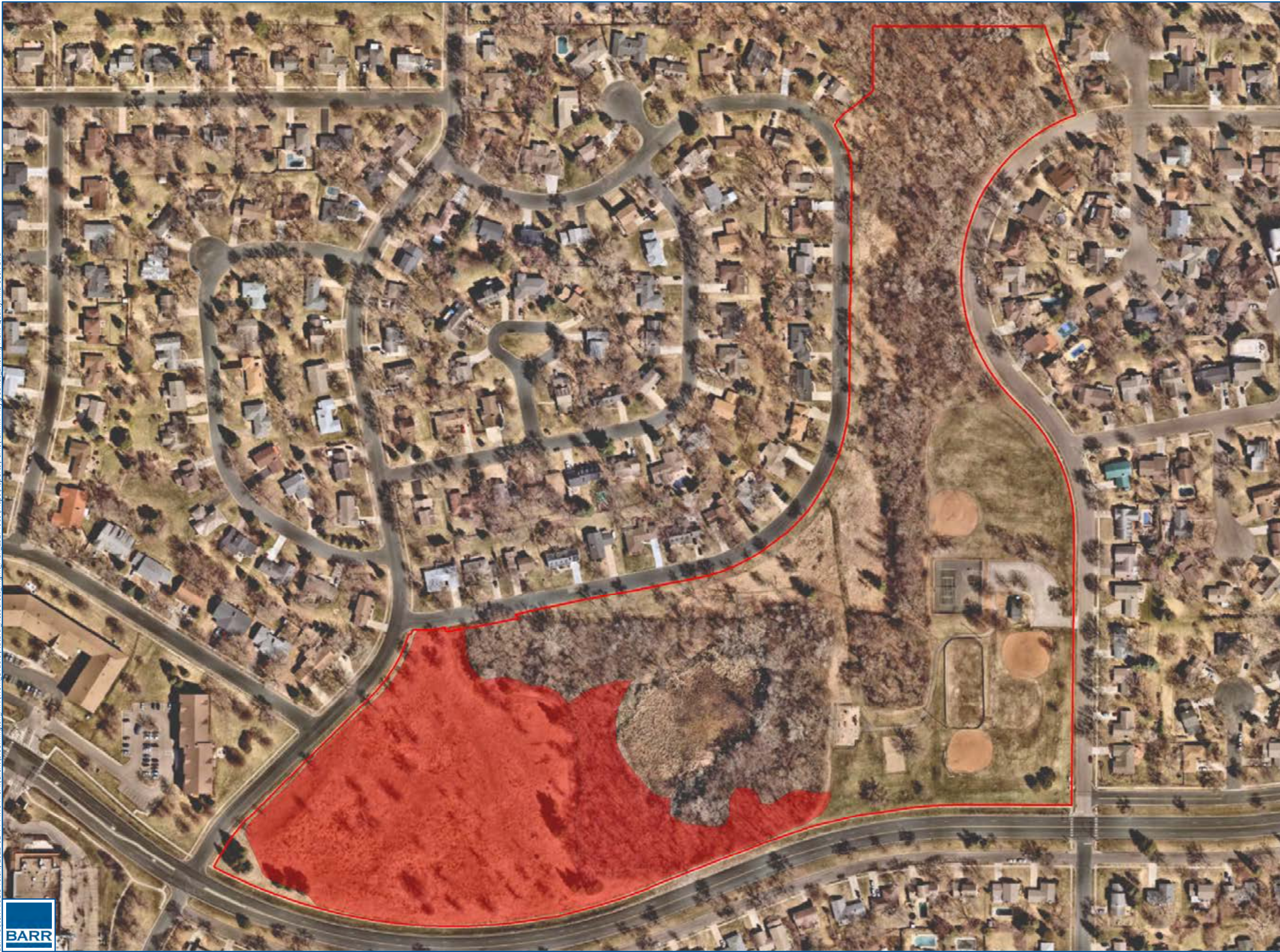
- Tarnhill Playgrounds
- City of Bloomington Park
- Land Cover Types**
- 51-75% Impervious
- 76-100% Impervious
- Forest
- Maintained Tall Grass
- Short Grasses
- Tall Grasses
- Wetland Emergent Veg.


Data Source: Minnesota Land Cover Classification System (MLCCS), MnDNR 2007




Tarnhill Playgrounds
Existing Land
Cover Types







 Tarnhill Playgrounds

 City of Bloomington Park

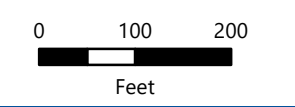
Habitat Quality

 No Designation - Not ranked by DNR

D - Poor condition of a natural community. Includes some natives but is dominated by nonnatives and/or has been widely disturbed and altered



Habitat Quality Ranking Data
Source: Minnesota Land Cover Classification System (MLCCS), MnDNR 2007




**Tarnhill Playgrounds
Habitat Quality**








 Tarnhill Playgrounds


 City of Bloomington Park

Target Plant Community

 Cultural

 Emergent Wetland

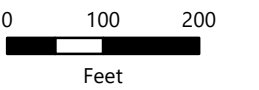
 Mesic Prairie/Wet Meadow

 Mesic Hardwood Forest

 Oak Forest

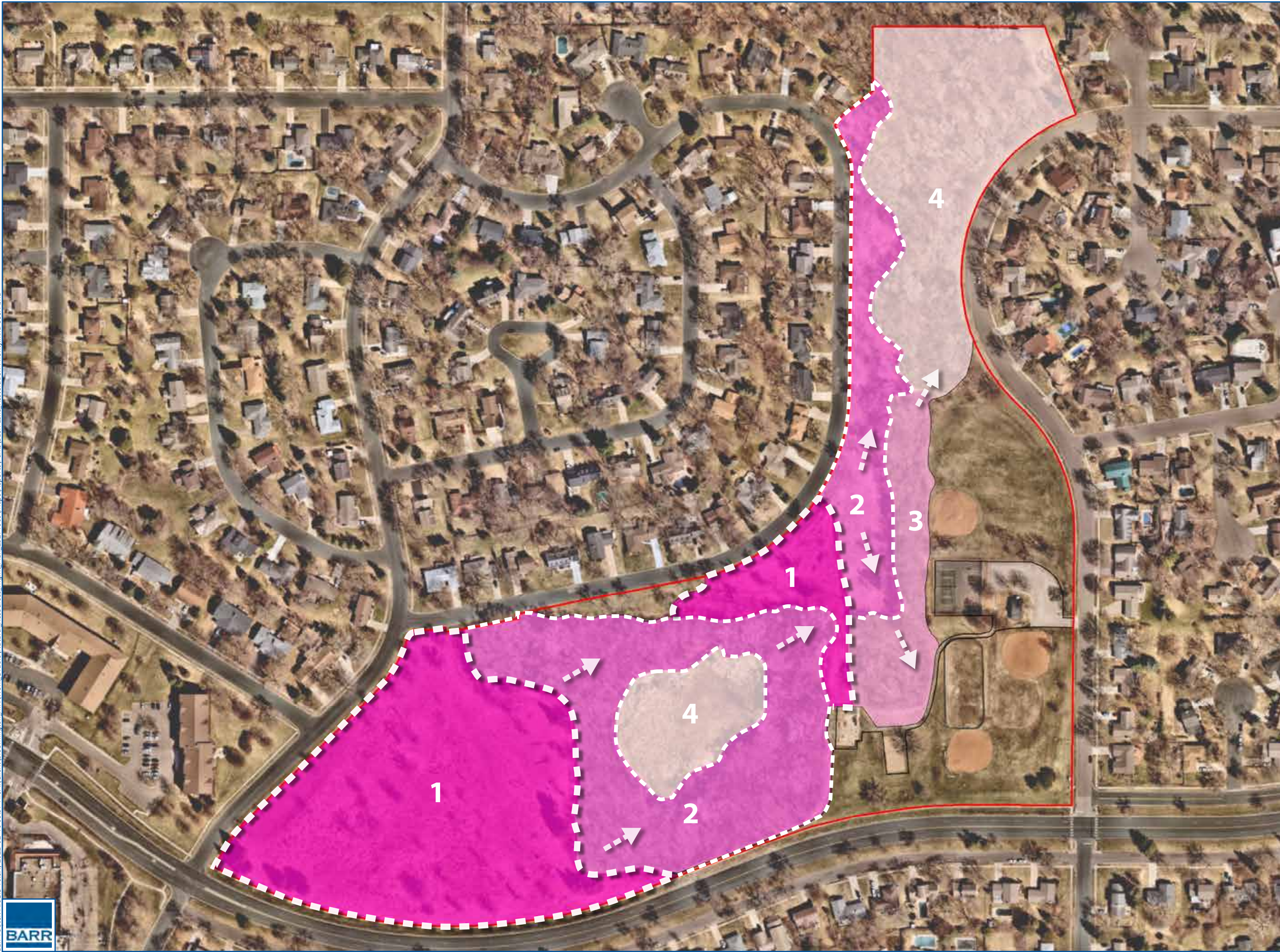
 Oak Savanna








Target communities are recommended native plant communities for restoration (a goal) based on management goals, historic plant communities, and existing site conditions (slope, aspect, soil, sunlight, past disturbance, and existing species).



**Tarnhill Playgrounds
Target Plant Community**

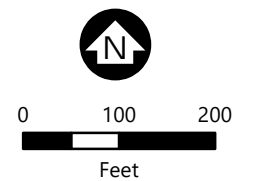




-  Tarnhill Playgrounds
 -  City of Bloomington Park
- Restoration Priority**
-  High
 -  Medium
 -  Low
 -  Lowest
 -  NA (Cultural or Open Water)

- Restoration Phasing**
- 1 - Restoration efforts begin in these areas to protect highest quality natural communities.
 - 2 - Second priority for restoration. Move restoration efforts to these areas once phase 1 restoration efforts are complete. Continue maintaining phase 1 to retain restoration success.
 - 3 - Expand restoration to these areas as resources allow. It is critical to maintain previously restored areas.
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Restoration Priority Note: Site specific strategy for phasing and prioritizing restoration efforts based on existing plant community, ecological quality, current restoration efforts, site access, habitat size, and adjacencies to areas of high ecological quality and ongoing management activities.



**Tarnhill Playgrounds
Restoration Priority
and Phasing**

5 Management Budgets for Top Priority Parks

Table 3, Table 4, and Table 5 below present estimated costs for the restoration and management of ecological communities within the 9 priority Bloomington parks. The estimates are intended to be used for planning level budgeting for the next 20 years. Restoration costs represent an average price for initial intensive invasive plant removal, site preparation, and native plant seeding. Maintenance costs represent activities such as mowing, herbicide treatment, and prescribed burning are typical in the maintenance of natural areas.

Restoration and maintenance costs were developed from costs incurred from similar projects within the region for the years 2017-2021 and are generalized for the planning purposes. Future, detailed budgeting for individual parks should be conducted as detailed restoration plans are developed.

Table 3 Restoration and Maintenance Costs

	Low	High	Average Cost
* Restoration Cost per Acre			
Prairie	\$2,000	\$4,000	\$3,000
Savanna	\$4,000	\$8,000	\$6,000
Woodland	\$2,000	\$8,000	\$5,000
Forest	\$1,000	\$3,000	\$2,000
Average Cost	\$2,250	\$5,750	\$4,000
* Maintenance Cost per Acre per Year			
Prairie	\$300	\$1,000	\$650
Savanna	\$300	\$1,300	\$800
Woodland	\$300	\$2,500	\$1,400
Forest	\$200	\$800	\$500
Average Cost	\$275	\$1,400	\$838

***Notes:**

Restoration and Maintenance Costs Reviewed and Approved by Bloomington Staff. Costs were initially developed by Barr Engineering Co. based on recent restoration projects of similar size and scale

FOR PLANNING PURPOSES ONLY : These cost ranges are for planning level design only. Costs will vary depending on construction projected size, phasing, material costs, inflation, etc..

This estimate does not include costs for survey and environmental analysis that may be necessary, permitting, design, or construction operations.

For simplistic estimation purposes, construction costs are comprised of labor and material at a 1:1 ratio. The ratio of material vs labor costs can vary greatly depending on the specific construction/maintenance activity, location, and date of construction.

Table 4 Summary Costs Per Phase

		Phase								Park Restoration and Maintenance Total (4 Phases Over 20 Years)	20+ Years	
		1 (1-5 Years)		2 (6-10 Years)		3 (11-15 Years)		4(16-20 Years)			Restore	Maintain
Park	Total Restorable Acres (not including cultural areas, open water, and cattail wetlands)	Restore	Maintain	Restore	Maintain	Restore	Maintain	Restore	Maintain		Restore	Maintain
Central, Moir, Harrison PG Park	131.2	\$130,100	\$27,700	\$130,100	\$55,401	\$130,100	\$82,640	\$130,100	\$109,880	\$796,021	\$0	\$109,880
Bush Lake Park (East and West)	134.6	\$108,500	\$38,734	\$108,500	\$58,248	\$108,500	\$80,965	\$108,500	\$103,683	\$715,630	\$0	\$103,683
Marsh Lake Park (9 Mile Creek Park, East and West)	155.1	\$144,820	\$34,614	\$144,820	\$69,228	\$144,820	\$99,549	\$144,820	\$129,871	\$912,542	\$0	\$129,871
Normandale Lake Park	47.3	\$39,280	\$11,574	\$39,280	\$23,149	\$39,280	\$31,373	\$39,280	\$39,597	\$262,813	\$0	\$39,597
North Corridor Park	90.1	\$90,070	\$18,858	\$90,070	\$37,717	\$90,070	\$56,575	\$90,070	\$75,434	\$548,864	\$0	\$75,434
Tarnhill Playgrounds	25.7	\$15,940	\$7,433	\$15,940	\$14,866	\$15,940	\$22,298	\$15,940	\$21,541	\$129,897	\$0	\$21,541
Nord Myr Marsh	46.5	\$38,870	\$11,338	\$38,870	\$22,675	\$38,870	\$34,013	\$38,870	\$38,952	\$262,458	\$0	\$38,952
South Corridor Park	41.2	\$37,630	\$9,357	\$37,630	\$18,714	\$37,630	\$28,071	\$37,630	\$34,472	\$241,133	\$0	\$34,472
Smith Park	6.6	\$5,490	\$1,618	\$5,490	\$3,237	\$5,490	\$4,855	\$5,490	\$5,536	\$37,207	\$0	\$5,536
Sub Total By Phase		\$610,700	\$161,227	\$610,700	\$303,234	\$610,700	\$440,341	\$610,700	\$558,964		\$0	\$558,964
Total By Phase		\$771,927		\$913,934		\$1,051,041		\$1,169,664		\$3,906,566	\$558,964	

Key:

Restore = Average of High and Low End Restore Cost Estimate
 Long Term Maintenance (After Phase of Restoration and Establishment Period) = Average Low End Maintenance Cost Estimate for Habitat Types

Notes:

- Cost does not account for inflation over time
- All Costs are based off of recent restoration and maintenance costs. See Cost Reference Table for additional detail

Table 5 Restoration Cost Summary

Cost to Maintain Natural Areas per Phase		
Restoration Phase	Existing and Newly Restored Acres to Maintain	Cost Estimate
1, Yrs. 1-5	193	\$161,227
2, Yrs. 6-10	362	\$303,234
3, Yrs. 11-15	526	\$440,341
4, Yrs. 16-20	667	\$558,964
Total	1,748	\$1,463,766

Cost to Restore Natural Areas per Phase		
Restoration Phase	Total Acres to Restore	Cost Estimate
1, Yrs. 1-5	153	\$610,700
2, Yrs. 6-10	153	\$610,700
3, Yrs. 11-15	153	\$610,700
4, Yrs. 16-20	153	\$610,700
Total	611	\$2,442,800

Maintenance and Restoration Combined Costs		
Restoration Phase	Acres to Restore and Maintain	Cost Estimate
1, Yrs. 1-5	345	\$771,927
2, Yrs. 6-10	515	\$913,934
3, Yrs. 11-15	678	\$1,051,041
4, Yrs. 16-20	820	\$1,169,664
Total	2,358	\$3,906,566

Notes:

All Costs are based off of recent restoration and maintenance costs. See Cost Reference Tab for additional detail.

Cost does not account for inflation over time.

6 Grant Sources

Table 6 lists a variety of grant funding sources that are available for natural resource improvement projects in Bloomington.

7 Next Steps

Two primary steps are recommended to follow this work. The first is the development of detailed regeneration plans for individual parks, and the second is the development of a Bloomington Natural Resources Master Plan as specified in the 2021 Park System Master Plan.

Individual regeneration plans for individual parks are recommended to detail the restoration and management process. Regeneration plans would include:

- Regeneration approach.
- Native vegetation establishment goals.
- Current conditions – an assessment of ecological communities; remnant native species, invasive species, soils, slope, erosion, hydrology as well as human impacts.
- Confirmation and refinement (if necessary) of the Restoration Strategies and Target Communities maps as were created for the top priority parks presented in this plan.
- Restoration methods.
- Vegetation management tasks, schedule, and phasing.
- Monitoring schedule.
- Budget.

A Bloomington Natural Resources Master Plan could include the following components:

- Goals for preservation and enhancement of all natural resources in Bloomington.
- A referral to or an expansion upon the natural history and cultural impacts to the land described in the MN River Valley Natural and Cultural Systems Plan (2018).
- An update to the 2007 MLCCS data.
- Description of the existing natural resources conditions in Bloomington.
- Description of threats to natural resources.
- Opportunities for natural resources protection and regeneration.
- Strategies for natural resources protection and regeneration.
- Recommended City programs and ordinances to address natural resources protection and enhancement.

Table 6 Grant Sources

Grant Program	Sponsor Agency	General Info	Eligibility	Link to Website	Contact Information
Forest Stewardship Program	Bear0041MN DNR	Cost share program to provide technical advice and long range planning to interested land owners. Forest stewardship plans are the outcome of the program- plans are designed to meet landowner goals while maintaining the sustainability of the land.	Financial assistance to woodland owners for completing projects to practice good forest stewardship on their land. A typical project is between 3 and 20 acres but could be smaller or larger depending on land goals.	https://www.dnr.state.mn.us/woodlands/cost-share.html	Private Forest Program Coordinator DNR Forestry 500 Lafayette Road, Box 44 St. Paul, MN 55155 (651) 259-5261
Conservation Partners Legacy Grant Program - Metro Projects	MN DNR	Grant program to restore or enhance prairies, wetlands, forests, or habitat for fish, game, or wildlife in Minnesota. Program provides competitive grants of \$5,000-\$400,000 with a 10% non-state match requirement and a total project cost cap of \$575,000. Restoration and enhancement projects will only be funded on lands in public ownership or waters designated as public waters.	Eligible applicants are limited to local, regional, state, and national non-profit organizations, including government entities. Projects must be located within the 7 county metro area or within city limits of cities with a population of 50,000 or greater (Duluth, Rochester, St. Cloud). Private individuals and for-profit organizations are not eligible to apply for these grants.	https://www.dnr.state.mn.us/grants/habitat/cpl/metro-grant-cycle.html	LSCPLGrants.DNR@state.mn.us Jessica Lee, CPL Grant Program Coordinator 651-259-5233 (St. Paul) Conservation Partners Legacy Grant MN DNR 500 Lafayette Road Box #20 St. Paul, MN 55155

Grant Program	Sponsor Agency	General Info	Eligibility	Link to Website	Contact Information
Five Star & Urban Waters Restoration Program	National Fish and Wildlife Foundation	The Five Star and Urban Waters Restoration Grant Program seeks to develop community capacity to sustain local natural resources for future generations by providing modest financial assistance to diverse local partnerships focused on improving water quality, watersheds and the species and habitats they support. Projects include a variety of ecological improvements including: wetland, riparian, forest and coastal habitat restoration; wildlife conservation; community tree canopy enhancement; and/or water quality monitoring and stormwater management; along with targeted community outreach, education and stewardship. NFWF may use a mix of public and private funding sources to support any grant made through this program and priority will be given to projects that advance water quality goals in underserved communities.	"Eligible applicants include non-profit 501(c) organizations, state government agencies, local governments, municipal governments, Indian tribes and educational institutions. Ineligible applicants include: unincorporated individuals, businesses, international organizations and U.S. Federal government agencies."	https://www.nfwf.org/apply-grant	"Chloe Elberty (All Geographies) Coordinator, Community Stewardship 202-595-2434 Chloe.Elberty@nfwf.org"

Grant Program	Sponsor Agency	General Info	Eligibility	Link to Website	Contact Information
Environmental Initiative Program	Laura Jane Musser Fund	The Fund's goal is to promote public use of open space that improves a community's quality of life and public health, while also ensuring the protection of healthy, viable and sustainable ecosystems by protecting or restoring habitat for a diversity of plant and animal species.	Nonprofit 501(c)(3) organizations, local units of government within the following states: CO, HI, MN, TX, WY.	https://musserfund.org/environmental-initiative-program/#:text=environmental%20initiative%20THE%20LAURA%20JANE%20MUSSE%20FUND%20assists,owned%20open%20spaces%2C%20while%20encouraging%20compatible%20human%20activities.	"Mary Karen Lynn-Klimenko Grants Program Manager THE LAURA JANE MUSSE FUND admin@musserfund.org 612-825-2024"

Grant Program	Sponsor Agency	General Info	Eligibility	Link to Website	Contact Information
Community Forest Bonding	MN DNR	Removal, disposal and replacement of dead or dying shade trees located on public property that are lost to forest pests or disease.	Cities, Counties and Townships, and Park and Recreation Board in cities in of the first class.	http://www.dnr.state.mn.us/grants/forestmgmt/commforestbondgrant/index.html	Ken Holman, DNR Forestry 500 Lafayette Road, Box 44 St. Paul, MN 55155 651-259-5300 ken.holman@dnr.state.mn.us
Conservation Corps Minnesota Clean Water Fund: Crew Labor	BWSR	Funds are available for Conservation Corps crew labor only for the purpose of protecting, enhancing and restoring water quality in lakes, rivers and streams and to protect groundwater and drinking water sources from degradation. Project proposals should demonstrate measurable outputs to achieve water quality objectives through the implementation of BMPs. Projects that focus on retaining water on the land through native plantings versus habitat restoration are preferred.	Counties, Cities, SWCDs, Watershed Districts and Watershed Management Organizations	http://conservationcorps.org/clean-water-funding	Brian Miller at (651) 209-9900 ext. 19 brian.miller@conservationcorps.org

Grant Program	Sponsor Agency	General Info	Eligibility	Link to Website	Contact Information
Conservation easements funding	Hennepin County	Hennepin County has funding to acquire conservation easements on the best remaining natural areas in the county and conduct habitat restoration on protected properties. Funding is also available to agricultural landowners to permanently remove certain environmentally sensitive lands from production to protect surface water and groundwater	Private land owners	https://www.hennepin.us/residents/conservation/land-protection-restoration	Kristine Maurer kristine.maurer@hennepin.us or 612-348-6570

Grant Program	Sponsor Agency	General Info	Eligibility	Link to Website	Contact Information
Metro Conservation Corridor Partnership Habitat Restoration Program	MN DNR	Great River Greening is seeking partners to implement habitat restoration on protected lands and waters, with priority given to projects that 1) protect and restore water quality (projects must include monitoring), 2) protect, restore, and enhance land and habitat, and 3) reduce the spread of invasive species along streams, rivers, and land transportation routes.	Partners can be counties, watershed districts, cities, non-profits and others within the 12-county metropolitan area. Projects must be within a mapped Metro Conservation Corridor	http://www.dnr.state.mn.us/metroconservationcorridors/index.html	For more information, please contact: Kristina Geiger, 651-917-6295 Minnesota Land Trust, kgeiger@mnland.org Bart Richardson, 651-259-5796 MnDNR, bart.richardson@state.mn.us
Monarch Butterfly and Pollinators Conservation Fund	National Fish and Wildlife Foundation	<p>Technical Assistance for Private Working Lands Funding in this category will support implementation of technical assistance to increase the number of private landowners engaged in monarch butterfly and pollinator conservation practices on working lands.</p> <p>Habitat Improvement Funding in this category will support on-the-ground work to increase the quality, quantity and connectivity of habitat for the monarch butterfly and other native insect pollinators.</p>	"Eligible applicants include nonprofit 501(c) organizations, U.S. federal government agencies, state government agencies, local governments, municipal governments, tribal governments and organizations, and educational institutions. Ineligible applicants include businesses, unincorporated individuals, and international organizations."	https://www.nfwf.org/programs/monarch-butterfly-and-pollinators-conservation-fund?activeTab=tab-1	Crystal Boyd Manager of Pollinator Programs Crystal.Boyd@nfwf.org

Grant Program	Sponsor Agency	General Info	Eligibility	Link to Website	Contact Information
Minnesota ReLeaf Program	MN DNR	Program to assist communities with planting and caring for their trees, to increase energy conservation, to reduce atmospheric carbon dioxide, and to achieve other environmental benefits.	Local units of government, nonprofit organizations, and schools.	http://www.dnr.state.mn.us/grants/forestmgmt/releaf.html	"Ken Holman, Program Coordinator DNR Forestry 500 Lafayette Road, Box 44 St. Paul, MN 55155 Phone: (651) 259-5269 E-Mail: ken.holman@dnr.state.mn.us"
Good Steward Grant	Hennepin County	Hennepin County Environment and Energy works to protect water, land, and air to conserve our natural resources for future generations. Through Good Steward Grants, Hennepin County supports landowners, businesses, government agencies, and organizations with matching grants to implement conservation practices to preserve and restore critical habitats, reduce erosion, protect groundwater, and improve water quality.	Local, state, or regional government agencies, nonprofit organizations, landowners: citizens or business owners	https://www.hennepin.us/business/work-with-hennepin-co/supplier-portal www.hennepin.us/residents/environment/natural-resources-funding	Contact the Supplier Portal Help Desk for assistance with viewing the application materials, registering, and uploading your application at 612-543-5412 (Mon-Fri, 8:00am-4:30pm) or supplierportal@hennepin.us.

Grant Program	Sponsor Agency	General Info	Eligibility	Link to Website	Contact Information
Healthy Tree Canopy Grants for Cities	Hennepin County	Healthy Tree Canopy Grants were established to help communities make positive changes in the tree canopy and engage residents in taking action to protect trees.	Cities in Hennepin County	www.hennepin.us/trees	Jen Kullgren at jen.kullgren@hennepin.us or 612-235-0744.