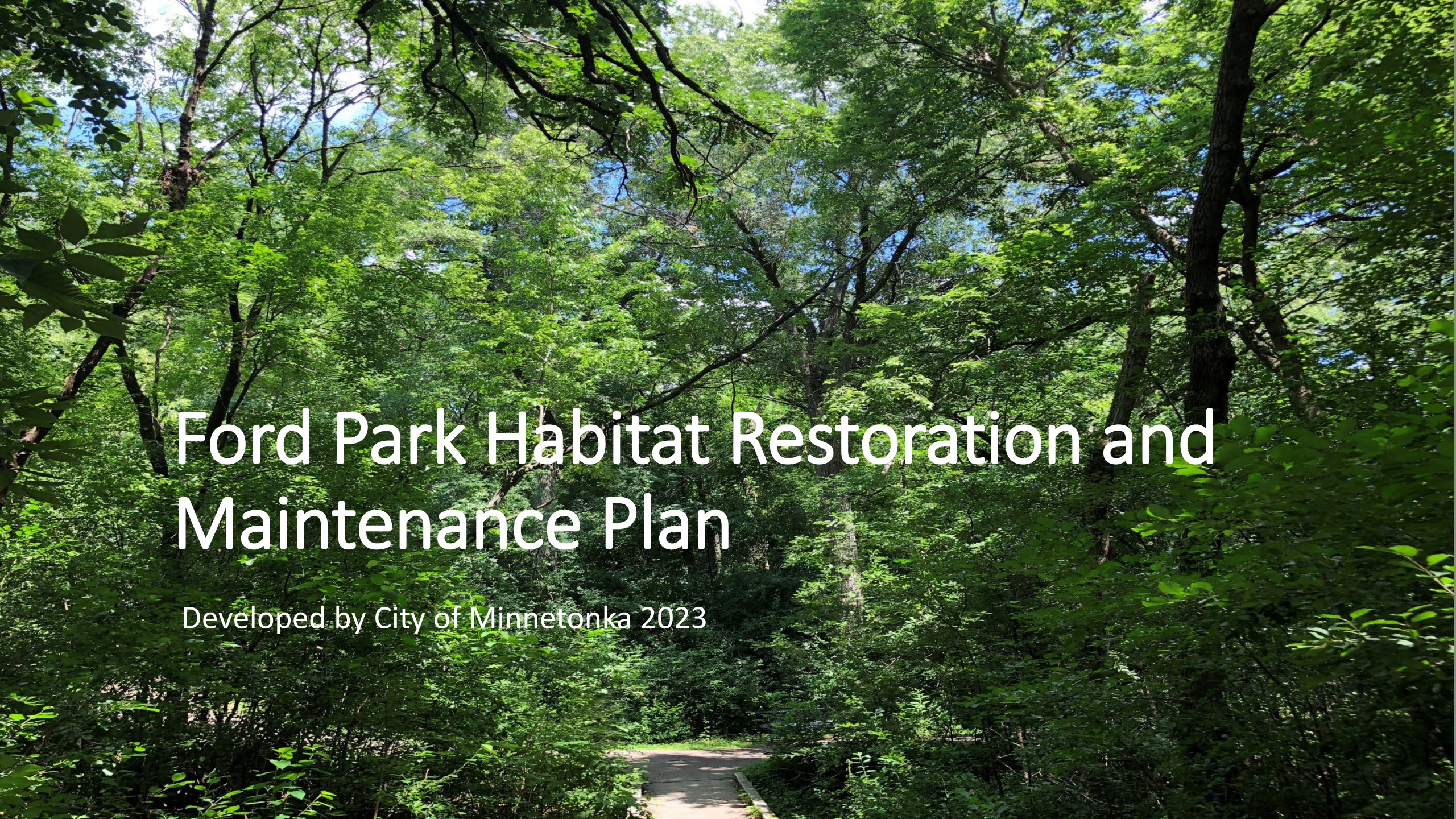
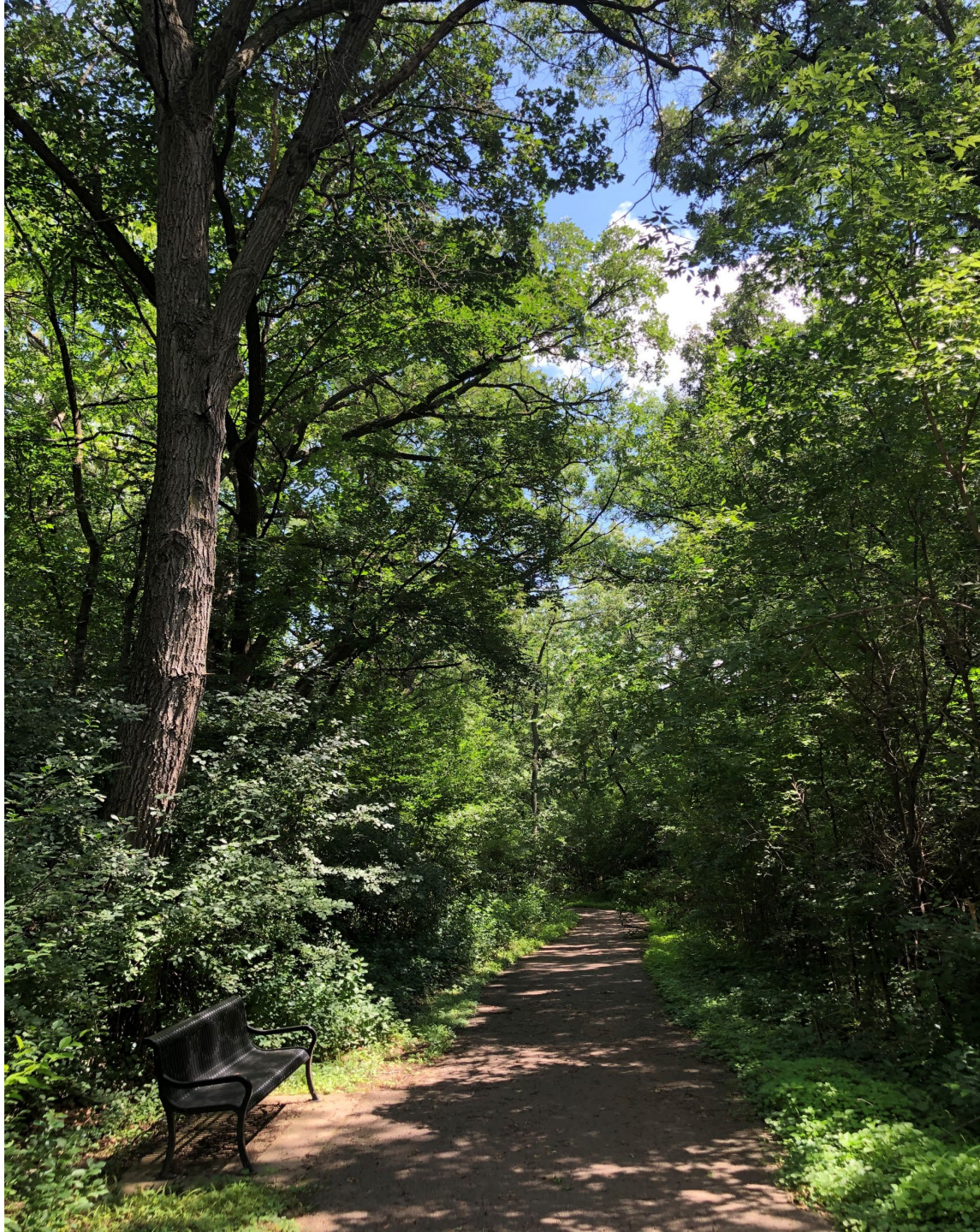


Ford Park Habitat Restoration and Maintenance Plan

Developed by City of Minnetonka 2023

Purpose of this Document

- To present a habitat restoration and maintenance proposal for Ford Park.
- To serve as a public information tool.
- To describe detailed restoration strategies.
- To be a planning and management tool for Minnetonka natural resources staff.
- To serve as an assessment snapshot in-time and to evaluate future restoration activities.



Notes from Park Assessment

- The majority of the forest in Ford Park is mixed oak woodland and the over-story is dominated by mature white and red oak trees. These mature oak trees are slowly dying and creating gaps in the canopy (due to drought or excess rain seasons, compounded by disease and Insect outbreaks such as oak wilt and two-lined chestnut borer). There is minimal oak regeneration occurring due to intense light and space competition predominantly from buckthorn. However, there is sporadic natural regeneration of boxelder, American and Siberian elm, and black cherry. These species will one day dominate the forest canopy if forest restoration does not occur.
- Buckthorn removal will be at the core of creating the conditions for a future mixed oak woodland in Ford Park. Buckthorn stems dominate the entire understory and shrub layers of the wooded space, creating minimal light and space for natural regeneration of native species. Buckthorn will be removed by a combination of forestry mowing and herbicide applications, and then ongoing herbicide maintenance.
- Once the buckthorn is removed, trees and shrubs can be planted to create a multi-layered forest canopy. The goal is to plant a mixed oak woodland much more diverse than what you see today. Thus, more adaptive and resilient to a changing climate and offering greater ecosystem services. Natural regeneration will be encouraged by thinning less desirable trees such as boxelder and elm, therefore creating ideal light conditions for oak regeneration. Even further, woodland seed mixes will be laid to diversify the forest floor, decrease erosion, and inhibit invasive species.
- The two acre vacant parcel is a degraded prairie dominated by smooth brome. The smooth brome will be removed and an oak/hickory savannah will be installed. Native seed will be laid for diverse grasses, forbs, and shrubs. Climate adaptive species such as oak and hickory will be sporadically planted.
- There is an ephemeral creek that leads to a degraded wetland that would benefit from restoration. The goal will be to restore this riparian habitat to its natural state utilizing seed mixes and planting trees, including the control of invasive species. Additionally, flood tolerant trees such as tamarack, bald cypress, and white cedar can be planted to create habitat and create screening for nearby residents from Hwy 169.

Target Ecological Communities

Target ecological communities are the plant communities for which restoration is directed.

Why do we develop and map target ecological communities?

It is important to set goals (in this case target ecological communities) in order to efficiently direct work. Target ecological communities have been determined by assessing the following:

- Growing conditions including soil type, topography, aspect, moisture levels, light levels, existing vegetation, invasive species, existing wildlife and extent of browsing, and extent of human disturbances
- Ecological communities at the time of European settlement (approximately 1848) as mapped by the MN DNR
- Contextual influences such as neighboring land uses, climate change, invasive species, regulations, budget, and staffing

Experienced foresters have evaluated the above listed information and determine which communities will best thrive under current conditions and with the resources available for their management. A process called adaptive management will be implemented as restoration proceeds to allow for management flexibility. Then, initial restoration actions are taken. Observations are then made as to the communities' reaction, and appropriate next steps are determined. The target community is kept in mind through this process, and if necessary, the target can be shifted.

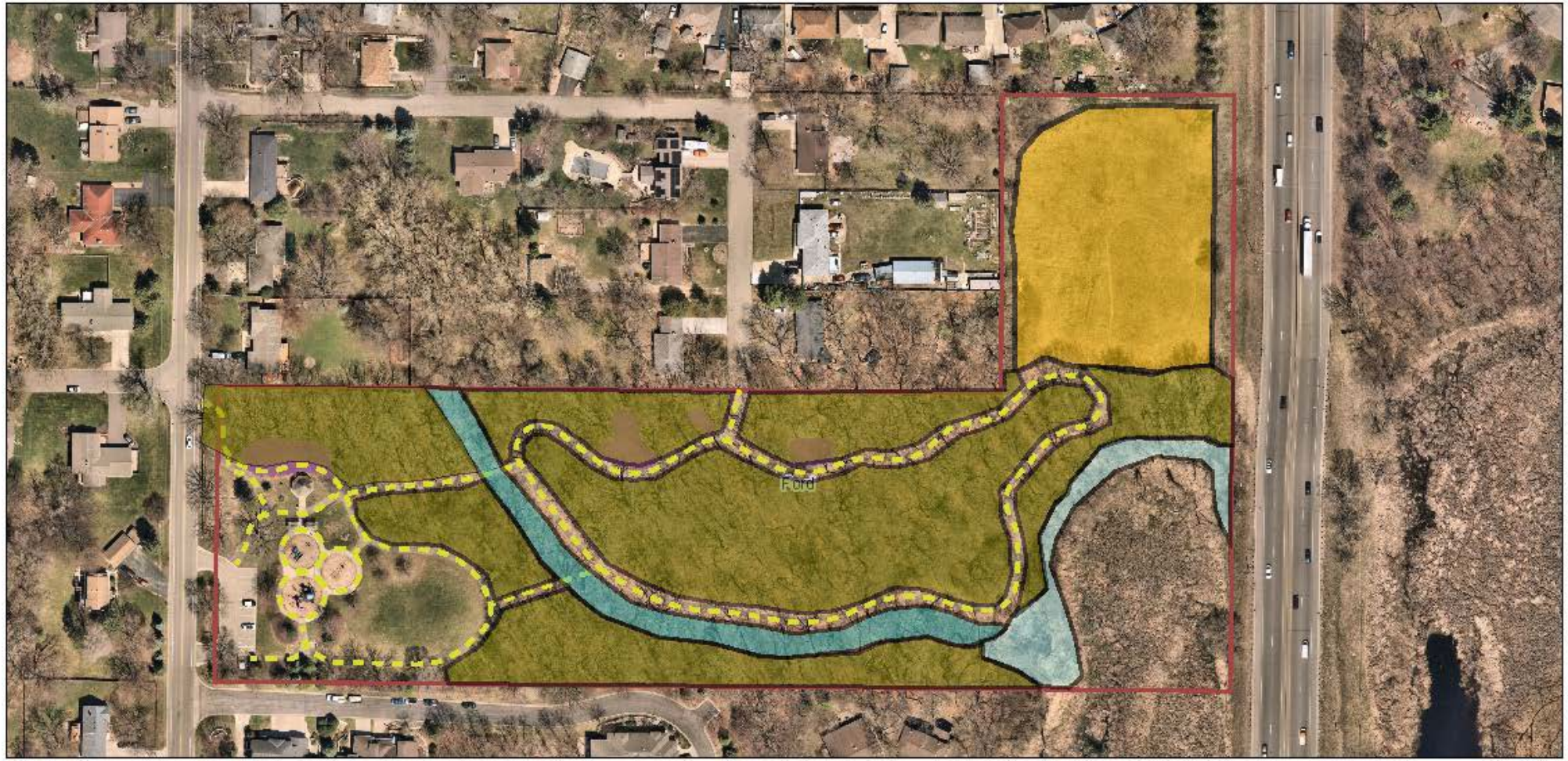
The ecological communities of Ford Park experience many impacts that challenge the establishment of a diversity of native plants and animal habitat. Primary factors influencing the park today include:

- Invasive species including but not limited to common buckthorn, garlic mustard, and Siberian elm.
- Diminishing mature oak canopy due to an increase in Insect and disease pressures.
- Changing and variable climate, which adds stress to oak trees and makes them more susceptible to insect or disease.
- Non-desirable tree population decreases light availability at the mid-story to ground level.
- Deer and earthworm browse.
- Limitations of budget and labor availability.

These impacts are mitigated for in the restoration processes described below, by park design, and through park policies.
The target communities mapped for the park are not set in stone. As regeneration processes proceed it may be determined that a different target ecological communities are appropriate.

Target Communities

Ford Park - Target Plant Communities



April 27, 2023

Trails

Restoration Activities

City Staff, Seeding

Minnetonka Parks

Legend

Oak - Hickory Savanna

Mixed Oak Woodland

Ephemeral Stream Bed

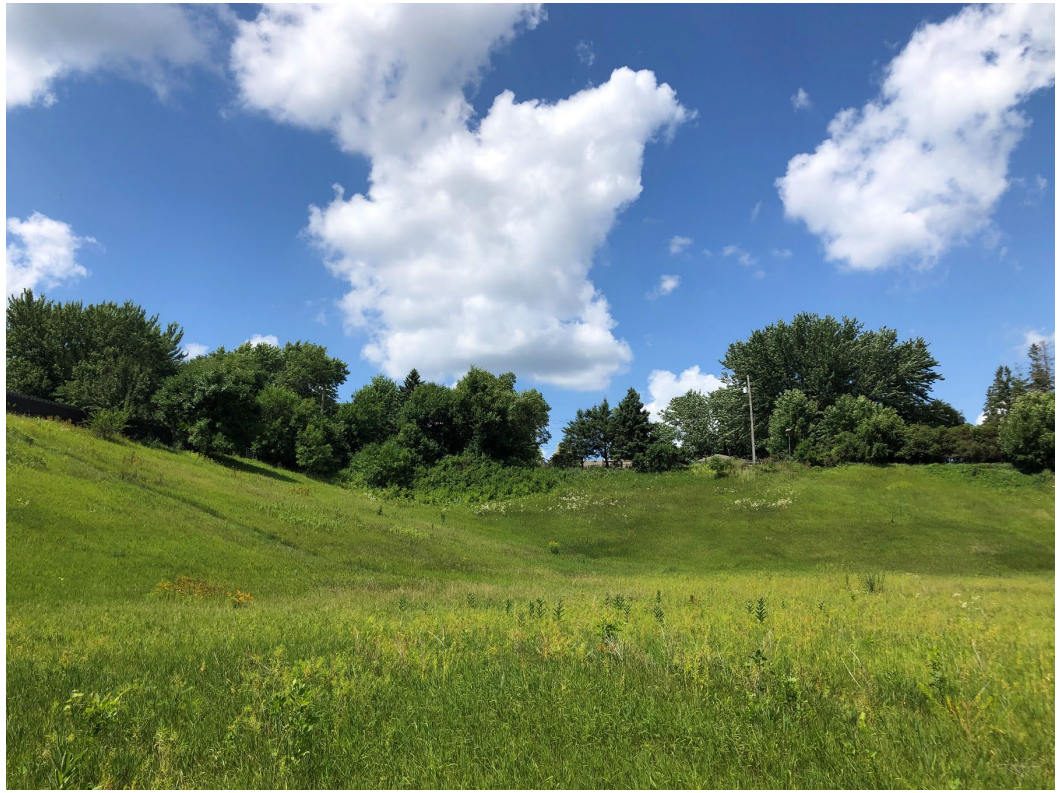
Pond Shoreline

Trail

1:1,891

0 87.5 175 350 ft

0 25 50 100 m



The following pages describe the restoration and maintenance process for each ecological community.

Mixed Oak Woodland

Goal: To regenerate the ground plain and mid-story vegetation typical of an existing oak woodland, including establishment of over-story oaks and other hardwood species with a goal of 70 - 80% canopy closure by planting a diversity of species.

Initial Regeneration

- Remove all Siberian elm, black locust, and green ash trees and treat with herbicide.
- Thin 50 - 75% of the boxelder trees, including selective thinning of American elm, over-stressed black cherry, and dead oak trees.
- Forestry mow or stump cut and herbicide treat invasive species, primarily buckthorn and some Tartarian honeysuckle.
- Overspray buckthorn re-sprouts in fall and again the following spring with herbicide, including the treatment of invasive herbaceous plants in the fall.
- Lay native seed appropriate to light and soil conditions in the fall.
- Plant trees and shrubs in spring of 2024 with five year goal of 300 – 500 stems per acre. Mortality will need to be considered and without deer protection, it is estimated to be around 50% (deer protection measures can be taken to reduce mortality at an expense of time and money).
- Overstory trees to plant: white oak, bur oak, swamp white oak, chinkapin oak, N. pin oak, bitternut hickory, shagbark hickory, sugar maple, red maple, black walnut, and American basswood. Lower to mid-story species such as American hazelnut, nannyberry, elderberry species, dogwood species, American plum, black chokeberry, witch hazel, blue beech, ironwood, eastern wahoo, serviceberry, etc.

Short-term maintenance (3 years)

- Inspect woodlands each spring and fall to determine management needs for the season.
- Water tree saplings during dry periods and assess other maintenance needs.
- Overspray buckthorn and less desirable tree re-sprouts with herbicide spray in the fall, including treating invasive herbaceous plants.
- Continue to manage the woodland for insects and disease, risk trees, and assess ground layer for ideal light conditions and make tree thinning recommendations.

Long-term maintenance (years 4+)

- Inspect the woodlands every spring to determine management needs for the year.
- Spot herbicide treatment annually or bi-annually in the fall.
- Continue to manage the woodland for insects and disease, risk trees, and assess ground layer for ideal light conditions and make tree thinning recommendations.

Oak/Hickory Savanna

Goal: To regenerate a diverse, drought tolerant, maintainable ecological community to be economically maintained through mowing and limited herbicide application.

Initial Regeneration (year 1)

- Mow smooth brome grasses followed by two herbicide treatments in two-week increments.
- Perform a light surface till and follow up with seed laying of grasses, fords, and shrubs in the fall.
- Plant oaks and hickories at about 25 trees per acre, including other climate adaptive trees and shrubs as appropriate. Tree canopy should cover no more than 20 percent of the plant community to foster light conditions for grasses, forbs, and shrubs.

Short-term maintenance (3 years)

- Inspect the savanna each spring to determine management needs for the year.
- Bi-monthly during the growing season walk the project area and spot mow or spot treat invasive species
- As necessary mow seeded areas to cut back annual weeds and assess whether or not burning is appropriate for site.
- Water trees during dry periods.
- If native cloning shrubs like sumac and wild plum cover more than 20 percent of the plant community, they may also be herbicide treated to maintain herbaceous vegetation diversity.
- **Long-term maintenance (years 4+)**
- Every spring inspect the savanna and determine management needs for the year. Twice per year walk the savanna and treat invasive species by spot mowing in the summer and spot herbicide treatment in September.
- Assess site for a sporadic burn schedule and whether or not it is appropriate.

Pond Shoreline

Goal: To regenerate a diverse floodplain ecological community with minimal invasive species.

Initial Regeneration

- Remove all Siberian elm and green ash trees and treat with herbicide.
- Remove 50 – 75% of boxelder trees, including selective thinning of American elm or other less desirable trees.
- Forestry mow or stump cut and herbicide treat invasive species, primarily buckthorn.
- Overspray buckthorn re-sprouts in fall and again the following spring with herbicide, including the treatment of invasive herbaceous plants in the fall.
- Lay native seed appropriate to light and soil conditions in the fall.
- Plant flood and drought tolerant trees and shrubs in spring of 2024, including climate adaptive trees such as tamarack, bald cypress, and northern white cedar to screen Hwy 169

Short-term maintenance (3 years)

- Inspect pond shoreline each spring and fall to determine management needs for the season.
- Water tree saplings during dry periods and assess other maintenance needs.
- Overspray buckthorn and less desirable tree re-sprouts with herbicide spray in spring and fall, including treating invasive herbaceous plants.

Long-term maintenance (years 4+)

- Inspect the shoreline every spring to determine management needs for the year.
- Spot herbicide treatment annually or bi-annually in fall.

Ephemeral Stream Bed

Goal: To regenerate and maintain a diversity of native plants with minimal invasive species.

Initial Regeneration

- Forestry mow or stump cut and herbicide treat invasive species
- Treat re-sprouts and other invasive herbaceous species throughout stream bed with herbicide in fall when area has no standing water.
- Lay seed mixes in the fall.
- Plant shrubs and trees as a seed source for species that do not readily repopulate from seed.
- Thin forest if necessary along stream bed to allow light to get to native seedlings.

Short-term maintenance (3 years)

- Inspect the stream bed each spring to determine management needs for the year.
- As necessary mow seeded areas to cut back annual weeds
- Spot treat invasive species as appropriate in fall.

Long-term maintenance (years 4+)

- Every spring inspect the stream bed to determine management needs for the year.
- Spot treat herbicide invasive plants in September annually or bi-annually.