

Roseville Parks Natural Resources Management Master Plan

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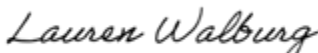


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Executive Summary

The 2024 Parks and Recreation Natural Resources Management Plan serves as a springboard for the City's next decade of natural resources management. This plan establishes the current-status of Roseville's natural resources, outlines guiding principles and approaches, and provides a list of impactful future projects. Engaging residents was also a central focus, ensuring alignment with the community's values and vision.

Vision, Goals, and Policies

High-level vision, goals, and policies were updated as part of this project to guide the city's natural resources management work. Policies were updated or added with input from a citizen Technical Advisory Committee to provide more specific expectations for accomplishing each goal.

Vision: Our vision for the future of Natural Resources Management in Roseville Parks is to create accessible, educational, and peaceful natural areas that foster a deep connection with nature. We aim to preserve and restore native plants and habitats, maintain biodiversity, and implement sustainable practices to combat emerging environmental challenges. By establishing connected corridors and unique natural experiences, we will ensure our parks remain healthy, beautiful, and biologically diverse spaces for all residents to enjoy.

Goal 1: Preserve, restore, and maintain significant natural resources, lakes, ponds, wetlands, open spaces, wooded areas, wildlife habitats, and trees as integral aspects of the parks system.

Goal 2: Promote community involvement in natural resources management.

Goal 3: Prioritize both short-term and long-term natural resource management planning and collaboration with partners.

2024 Park Natural Area Field Assessments

Park natural area field assessments conducted in late spring and early summer 2024 indicated that Roseville has made remarkable progress over the last decade on Goal 1, with the most notable strides in upland areas. Positive signs of desirable management and restoration outcomes included sparse cover by invasive shrubs and relatively high native plant cover in many areas. Both conditions are important indicators of more stable, resilient, and sustainable plant communities, higher quality wildlife habitat, and better water resource protection.

Some field observations indicated that more management and restoration effort is needed. While native plant cover was relatively high for many upland management units, species richness was often low. Nonnative, invasive plants (trees, shrubs, and/or herbaceous species) still provide the dominant vegetation cover in some areas, including in park wetlands. Wetlands and waterbodies continue to be



plagued by invasive plants, altered hydrology, fluctuating water levels, excessive nutrients, and other disturbances.

Restoration and Management Recommendations

Several high-level restoration and management recommendations are provided in this plan for sustaining past gains and continuing to improve park natural resources. These include continuing or enhancing current efforts, adding on-the-ground activities, involving volunteers in more ways, conducting focused planning for forest stewardship, and increasing city staffing to meet the needs of forest planning and the volunteer stewardship network. Many of the recommendations are immediately actionable based on existing city resources. Others are actions to implement within the next 5 years. Longer-term planning is recommended for addressing improvements to wetland and aquatic resources in park natural areas.

A detailed project list was developed to identify, prioritize, and guide very specific management and restoration activities for each park management unit over the next 5 or more years. The project list details management activities, along with specific objectives, timing, labor, supply/equipment needs, and cost estimates for each activity. The list will serve as a go-to for involving volunteers and pursuing grant funding for near-term implementation. The project list should be reviewed and updated at least annually to reflect progress made on achieving management objectives.

Volunteer Stewardship Program

In order to effectively manage the wide array of natural areas throughout Roseville, the City has implemented a Stewardship program that allows volunteers, staff and contractors to contribute in an organized, planned manner. This structure allows residents and other park users to get involved in the preservation of their natural spaces, while also ensuring that the work that has been completed as part of the Natural Resources Restoration program is maintained in the long-term. Continuation and expansion of this program will continue to be an integral part of achieving a successful Natural Resources Management Plan.



Acronyms / Abbreviations

BMP	Best Management Practice
DNR	Department of Natural Resources
EDRR	Early Detection and Rapid Response
IPM	Invasive Plant Management
NRM	Natural Resources Management
NRR	Natural Resources Restoration (Parks Renewal Program component)
PRP	Parks Renewal Program
TAC	Technical Advisory Committee



1 Introduction

The City of Roseville's Parks and Recreation Department is proud to present the updated Natural Resources Management Master Plan. This plan builds on the foundation that was initially established in 2000 with Roseville's first Natural Resources Management Plan, refined in 2014 with the Parks Natural Areas Maintenance Practices Manual and ultimately executed through the 2014 - 2023 Natural Resources Renewal Program.

In the past 25 years, Roseville has made significant strides in restoring and maintaining a diverse range of natural areas, including prairies, wetlands, savannas, and forests. This program has supported not only the preservation of native species and habitats but has also provided accessible, beautiful spaces for community connection and recreation.

This 2024 update reaffirms our dedication to managing these natural resources with both a scientific and community-oriented approach. Guided by updated goals and policies, and informed by extensive field assessments and public input, this plan is designed to address the evolving ecological challenges and opportunities in Roseville. Key areas of focus include continued invasive species management, habitat restoration, climate resilience, and the expansion of volunteer stewardship initiatives. The updated plan also introduces a project list detailing prioritized actions for each park area, ensuring a practical roadmap for the next decade and beyond.

As we look to 2025 and beyond, new challenges such as density, biological pests, and climate change will increasingly put pressure on our community's natural resources. Concurrently, societal pressures such as increased mental health challenges, technological addiction, and increased social isolation make it more important than ever that Roseville's residents and visitors have access to the documented health benefits that high quality natural resources provide.

As Roseville moves forward, we remain committed to adaptive management, utilizing the latest ecological science to guide decisions, monitor outcomes, and adjust practices as necessary. By engaging residents, experts, and partners, we aim to foster a deeper connection with Roseville's natural spaces, preserving these valuable resources for current and future generations.

Matthew L. Johnson
Parks and Recreation Director
November 8, 2024



1.1 Parks Renewal Program

In 2010, the citizens of Roseville approved by vote for the City to issue bonds for the purpose of undertaking a Parks Renewal Program (PRP). This \$19.1M effort involved updating and refurbishing park infrastructure, including features such as play structures, parking lots, buildings and similar. The PRP included a \$1.5 million Natural Resources Restoration (NRR) for the restoration of natural areas and natural resource features within Roseville's parks.

The PRP NRR effort actively managed natural resources restoration projects in a variety of natural areas from 2014 to 2023, including prairie/savanna, native forest, mixed hardwood forest, wetlands, in-lake management, shoreline restoration and similar. The purpose of the PRP was to provide an initial focused effort to restore park natural areas and improve their overall quality to the point where those areas could be maintained with consistent, but less intense, effort into the future.

A Roseville Parks Natural Areas Best Maintenance Practices manual (hereafter "2014 BMP Manual") was developed in 2014 to provide a summary of natural areas management approaches, tools, and techniques that were intended to maintain or improve the overall quality of natural areas in Roseville's parks following the initial restoration effort provided by the PRP. The manual recommended maintenance activities based on thoughtful application of existing scientific knowledge about restoration ecology, knowledge of current conditions in Roseville's parks and known influential factors as of 2014, as well as anticipated post-restoration conditions after PRP implementation.

The 2014 BMP Manual highlighted key principles in ecological restoration that were adapted from a report on *Ecological Restoration for Protected Areas: Principles, Guidelines and Best Practices* by the International Union for the Conservation of Nature (Keenleyside *et al.* 2012). Those key principles are as relevant in 2024 as they were a decade ago. They are highlighted again here to underscore the numerous ways in which Roseville successfully applied those ecological restoration principles through PRP implementation and intends to apply them going forward.

Successful ecological restoration strives to achieve the principles of being **Effective**, **Efficient**, and **Engaging**:

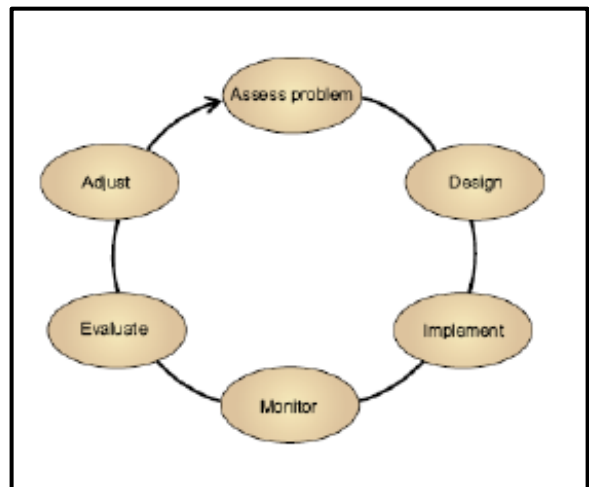
- **Effective** ecological restoration for protected areas is restoration that maintains or improves the values of a protected area.
 - Identifying when restoration is the best option.
 - Re-establishing ecosystem structure, function and composition.
 - Maximizing the contribution of restoration actions by enhancing resilience (e.g., to climate change).
 - Restoring connectivity within and beyond the boundaries of protected areas.



- Encouraging and re-establishing traditional cultural values and practices that contribute to the ecological, social and cultural sustainability of the protected area and its surroundings.
 - Using research and monitoring, including from traditional ecological knowledge, to maximize restoration success.
- **Efficient** ecological restoration for protected areas is restoration that maximizes beneficial outcomes while minimizing costs in time, resources, and effort.
 - Consider restoration goals and objectives from system-wide to neighborhood scales, as well as interactions with resources outside of the city.
 - Ensure long-term capacity and support for maintenance and monitoring of natural areas restoration by the City.
 - Contribute to multiple ecosystem service benefits such as improved water and air quality, improved resilience from changes in climate and other disturbances, increased recreational and educational opportunities, and others.
 - Integrate and coordinate with policies and programming of other responsible agencies, nongovernmental groups and other potential partners.
- **Engaging** ecological restoration for protected areas is restoration that collaborates with partners and stakeholders, promotes participation, and enhances visitor experience.
 - Collaborate with residents, volunteers, corporations, watersheds, county conservation agencies, universities, and other partners/stakeholders in planning, implementation, and evaluation.
 - Learn collaboratively and build capacity in support of continued engagement in ecological restoration initiatives.
 - Communicate effectively to support the overall ecological restoration process.
 - Provide experiential opportunities through hands-on restoration and passive recreation in managed natural areas that strengthens the sense of connection with and stewardship of City parks and open space natural areas.



Adaptive Management is also a key concept in natural areas management and a key approach to ecosystem restoration that is described in detail in the 2014 BMP Manual. Adaptive management recognizes uncertainties, embraces multiple problem-solving strategies, and allows for adjustments to be made along the way. By combining research and active management, adaptive management allows the lessons from current work to be applied to future projects. Essentially, adaptive management utilizes periodic monitoring as feedback to guide adjustments in tools, techniques, and timing used in the restoration process in any particular area. *Adaptive management centers on the six-step process shown at right.*



As part of implementation of the Parks Renewal Program, Roseville used an adaptive management approach for park natural areas. The City (1) **assessed** the conditions of natural resources in Roseville's parks (2002 and 2014), (2) **designed** a project list to address restoration and management needs using the ecological restoration principles described above, (3) **implemented** the projects (also using the ecological restoration principles and guidance in the 2014 BMP Manual, and (4) **monitored** results (involving researchers and citizen scientists in the process).

In 2024, Roseville pursued the next steps in the adaptive management process to: (5) **re-evaluate** the conditions of park natural resources post-PRP implementation, and (6) **adjust** (and re-prioritize) restoration efforts as needed based on those evaluations.

1.2 2024 Natural Resources Management Master Planning Overview

As the PRP NRR projects and funding ended in 2023, the City initiated a planning process to update a Master Plan in 2024 for Natural Resources Management (NRM) in Roseville parks going forward. One of three key objectives for the NRM planning process was to update the vision, goals, and policies for park system-wide natural resources management (summarized in Chapters 2 and 3).

A second objective for the 2024 planning process, in keeping with Roseville's adaptive management approach, was to understand current conditions in each park natural area (summarized in Chapter 4). Field assessments, primarily focused on vegetation quality and composition, were conducted in late spring/early summer 2024 to inform development of an updated NRM Project List. The format of the PRP 2013 NRM Project List was determined to be a successful tool for planning and implementation, so the 2024 effort built upon the content and organization of that document. Development of the 2024 NRM



Project List is summarized in Chapter 5. The City intends to use the project list to prioritize, budget, and implement management and ecological restoration efforts over the next 5-10 years.

A third objective for the 2024 planning process was to support and expand upon community involvement in park natural resources stewardship. This included considering ways to support, grow, and enhance the existing Volunteer Stewardship Program. For example, special attention was to be given during the 2024 field assessments and project planning process to identifying projects and specific activities well-suited for volunteers. As such, specific activities for volunteers were incorporated into the NRM Project List (Chapter 5). Ideas for growth and enhancement of the Volunteer Stewardship Program that were contributed by the TAC and supplemented by City staff and Stantec are summarized in Chapter 6.

Lastly, Chapter 7 provides high-level ecological restoration and management recommendations for the City of Roseville based upon the updated vision, goals, and policies, the results of the NRM field assessments, and the 2024 NRM Project List. Many of the recommendations re-emphasize or build upon the natural area maintenance practices described in the 2014 BMP Manual.

2 Technical Advisory Committee (TAC)

A Technical Advisory Committee (TAC) was formed to guide the Natural Resources Management (NRM) Master Plan update and to provide high-level community input on the direction of future NRM in Roseville. The TAC was formed through an open application process, with the city opting to select all 18 applicants to be part of the TAC process. The purpose of the TAC was to brainstorm and vet ideas at three key intervals throughout the planning process.

The first TAC meeting was held in April 2024. The agenda for the meeting included an introduction to the NRM planning process, a discussion of roles and responsibilities for the TAC, and a discussion of high-level goals for natural resources management in Roseville. The TAC was also given the opportunity to provide input on the park field assessment process to be conducted as part of development of an updated NRM Project List. All meeting presentations and summaries can be found in **Appendix A**.

The second TAC meeting occurred in July 2024 and focused on refining the vision, goals, and strategies for park NRM, as well as refinement of the NRM Project List. This TAC meeting included two breakout groups to gain more input on those topics. Additionally, The TAC was presented with a summary of the park field assessments. The outcomes of this TAC meeting included refinements to the vision, goals and policies as well as the 2024 NRM Project List.

The third TAC meeting was held in September 2024 and focused on finalizing the vision, goals and policies, as well as a discussion of the future of the volunteer program. The TAC specifically discussed elements that work well, and elements to improve with the volunteer program. The outcomes of this TAC included suggestions for the volunteer program and further revisions to the vision, goals, and policies.



Roseville Parks and Recreation staff would like to explicitly thank the Technical Advisory Committee who volunteered their time, knowledge and energy to the successful creation of the 2024 Natural Resources Management Plan.

3 Vision, Goals, and Policies

The TAC, City and consultant staff created and revised a high-level vision, goals, and policies to guide the city's Natural Resources Management work. The intent is that these will be adopted and used as high-level guidance for day-to-day decision-making.

3.1 Vision

Our vision for the future of Natural Resources Management in Roseville Parks is to create accessible, educational, and peaceful natural areas that foster a deep connection with nature. We aim to preserve and restore native plants and habitats, maintain biodiversity, and implement sustainable practices to combat emerging environmental challenges. By establishing connected corridors and unique natural experiences, we will ensure our parks remain healthy, beautiful, and biologically diverse spaces for all residents to enjoy.

3.2 Goals and Policies

The goals and policies offer more specificity than the vision on how Roseville will conduct Natural Resources Management, direct the volunteer program, and further plan and develop key partnerships. The goals and policies can be used to create a more detailed work plan to guide day-to-day work. The 2024 NRM Project List will serve as a key component of that work plan.

Goal 1: Preserve, restore, and maintain significant natural resources, lakes, ponds, wetlands, open spaces, wooded areas, wildlife habitats, and trees as integral aspects of the parks system.

Policy 1.1: Encourage dedication and acquisition of parks, open spaces, and trails in new development and redevelopment areas; especially those that preserve natural resources and/or adjacent to other natural areas, thereby providing corridors for wildlife and contiguous habitat.

Policy 1.2: Preserve and restore natural open and wooded areas in the Roseville park system.

Policy 1.3: Take an integrated approach to natural resources management based on current ecological restoration science that considers available tools (i.e., prevention, physical, biological, cultural and chemical) and factors such as cost, impact on natural resources, and maintenance objectives. Tools, timing and methods of natural resources management shall be applied responsibly, with attention to improving natural areas while minimizing adverse impacts on the environment, wildlife, and public health.



Roseville Parks Natural Resources Management Master Plan

3 Vision, Goals, and Policies

Policy 1.4: Support a robust forestry management program to ensure that Roseville has an aesthetically pleasing and environmentally critical tree population in its parks, open spaces, boulevards, and other City property. Proactively manage the community's public tree population as a vital natural resource by periodically performing condition assessment and inventory and pro-active planning and execution of planting, care and /or diseased tree removal.

Policy 1.5: Promote biodiversity and native vegetation over nonnative/invasive vegetation. Where possible without adversely impacting site use, identify opportunities to utilize low maintenance native vegetation, as opposed to traditional "turf."

Policy 1.6: Balance park use and park activities with the protection and restoration of natural habitat.

Policy 1.7: Protect parks and natural spaces by addressing issues of encroachment, including alteration of park spaces without permit and modification of public lands for personal use.

Policy 1.8: Integrate climate resilience into all aspects of natural resources management planning by implementing sustainable practices and species management that is cognizant of a warming world, and anticipates and incorporates future climate conditions.

Policy 1.9: Conduct maintenance practices with guidance from the 2014 Parks Natural Areas Maintenance Practices document, or subsequent update to this document.

Goal 2: Promote community involvement in natural resources management.

Policy 2.1: Develop and implement strategies that allow the community to be involved in data management including photo monitoring, crowd source data collection and others.

Policy 2.2: Provide community environmental education programs to increase the community's awareness, understanding, and appreciation of natural areas, including the importance of natural habitats and native landscaping in public and private spaces.

Policy 2.3: Develop programs and systems that allow for volunteerism for natural resource management and education for all ages and abilities, including students, scout groups, adopt-a-park and others.

Policy 2.4: Provide dedicated staff support and funding to enhancing the natural resources program including programming, events, and volunteer opportunities.

Policy 2.5: The current scope of the City's natural resources work is on City-owned property. Where practical, develop methods (including education, resources, and links to funding opportunities) to empower private residents to improve their natural spaces.



Roseville Parks Natural Resources Management Master Plan

3 Vision, Goals, and Policies

Goal 3: Prioritize both short-term and long-term natural resource management planning and collaboration with partners.

Policy 3.1: Create, adopt, and use Natural Resources Management Plans to preserve, restore, and manage the significant natural resources in the park system.

Policy 3.2: Periodically review and update the Natural Resources Management Manual including assessing status of benchmarks, reviewing goals and policies, and methodology.

Policy 3.3: Develop and update the Natural Resources Program project list at least every ten years, with regular interim review of the list. Ensure that sufficient funds are available for execution of necessary work through grants, CIP and operating funds.

Policy 3.4: Prioritize projects on the Natural Resources Program project list using a stacked benefits approach based primarily on the following criteria: quality of existing natural communities, restoration potential, ecological connectivity, sustainability, social equity, funding options, potential efficiencies, volunteer stewardship opportunities, and urgency related to maintaining and building upon past project gains and investments.

Policy 3.5: Cooperate with the three watershed districts with jurisdiction over parks in Roseville to effect water quality improvement projects within parks, and to create landscapes that are sensitive to stormwater management goals for park lands. Work with the watershed districts to add features to parks that help park users appreciate the water quality improvements, focusing on features such as overlooks or seating areas that take advantage of view to surface water features, with educational and interpretive signage aimed at creating a better understanding of the need for attending to water quality in our parks and in the community. Work with the watershed districts to create park-like environments surrounding water quality improvement projects and stormwater management basins in non-park areas that are accessible to Roseville residents and the community's working population.



4 Park Field Assessment Results

Park field assessment methods are detailed in **Appendix B**. Key field assessment results and summary observations are provided in this chapter. Each result is paired with a performance indicator statement describing the degree of progress Roseville has made over the last decade towards achieving Goal 1.

Goal 1: Preserve, restore, and maintain significant natural resources, lakes, ponds, wetlands, open spaces, wooded areas, wildlife habitats, and trees as integral aspects of the parks system.

Performance indicators are categorized as having a (1) positive trend, (2) needing improvement, or (3) as an NRM planning consideration. “Positive trend” indicators suggest that Roseville has made good progress towards restoring and maintaining park natural areas. Examples of positive trends for NRM include reduced invasive shrub cover and increased native ground cover in many parks and management units.

Some of the assessment results indicate continued need for improvement. The “needs improvement” indicator suggests that continued effort, and potentially more intense effort and increased resources, are needed to achieve desired outcomes. For example, increased and sustained effort and resources are needed to address some of the herbaceous invasive plant infestations (such as celandine at Reservoir Woods).

Lastly, a “planning consideration” statement is included where field observations indicated that more comprehensive planning is needed to address larger-scale or system-wide natural resources management challenges going forward. Examples include restoring and maintaining diverse wetlands and planning for forest regeneration and invasive tree removal. Planning considerations were also noted for smaller scale challenges that can be addressed at the project site-specific scale when the City is detailing plans for implementation. Some of those site-specific planning needs and resources may come with an upfront additional cost but are critical for sustainable restoration outcomes.



Most of Roseville's park natural areas show clear positive impacts from past and ongoing management efforts to control invasive shrubs.

Woodland and forest communities that have had five or more years of consistent effort to control invasive shrubs often had open understories with commonly occurring native shrubs, saplings, and seedlings, with only rare or scattered occurrences of invasive shrubs (buckthorn, honeysuckle, and others). Following invasive shrub removal, native shrubs have been re-establishing and providing better wildlife habitat and native saplings are better poised for canopy regeneration.

- **Positive Trend:** Where consistent management of woody invasive shrubs in Roseville's parks has occurred in management units over multiple years, the City has been effective in nearly eradicating them.



Oak woodland with native ground cover at Reservoir Woods (May 17, 2024)

Nonnative, invasive shrubs were present in over 80% of management units, however, invasive shrub cover is sparse in many of those units.

Common buckthorn was the most frequently occurring invasive shrub. Others included Tartarian honeysuckle, burning bush, and Siberian pea shrub. Glossy buckthorn was abundant within a few wetlands with floating peat mats at Acorn, Reservoir Woods, and the Harriet Alexander Nature Center.

- **Positive Trend:** Ongoing effort is needed to continue managing and reducing invasive shrub cover. Deploying a strategy of Early Detection and Rapid Response (EDRR) will help prevent seed production and spread within parks and curb re-colonization from off-site seed sources.

Materion Park (May 16, 2024)
with sparse invasive shrub cover



Nonnative, invasive pests and pathogens are impacting the forest canopy in most wooded management units.

Green ash trees that have been infested by Emerald Ash Borer (EAB) are dead or dying at most parks. Elm trees have died due to Dutch elm disease; a disease that will continue to impact the remaining elms in wooded management units over time. Oaks are declining in some parks as a result of age and/or disease, including at Reservoir Woods, which has the largest extent of remnant oak woodland and savanna in the park system.

- **Planning Consideration:** A forest management plan is needed to develop a comprehensive approach for managing removals of invasive trees, diseased trees, and standing dead trees (snags) and reducing accumulation of down dead wood. Planning is also needed to proactively guide regeneration of desirable trees through silvicultural practices such as selectively thinning natural regeneration, managing pests and pathogens where feasible, and supplemental planting.



Nonnative, invasive trees are present in over 65% of wooded management units.

Nonnative, invasive trees, including Siberian elm, white mulberry, black locust, Amur maple, Amur corktree, and white poplar occur in the park natural areas. For some management units, invasive trees were the dominant canopy cover. The invasive trees were also present as seedlings and saplings in woodland/forest understories and in open habitats.

- **Needs Improvement:** Invasive trees are occupying space where native trees could be providing significantly higher quality habitat for wildlife, enhancing biodiversity, and contributing to greater public benefits. Additionally, the invasive trees are seed sources for spread within and beyond park boundaries.

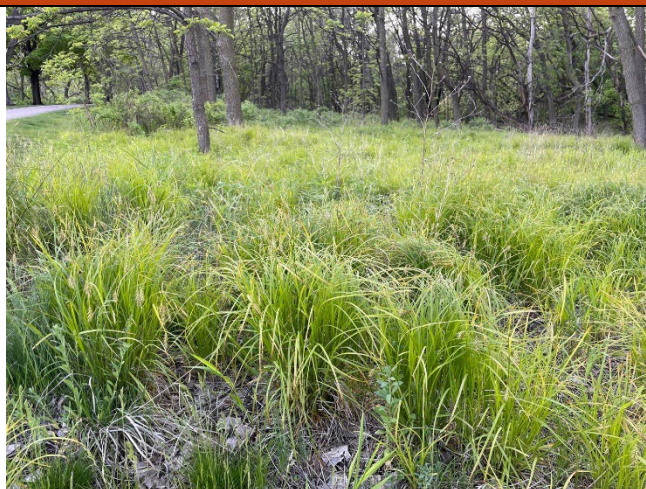
*Canopy cover by invasive black locust at
Cottontail Park (May 13, 2024)*



Managed upland areas were showing signs of natural regeneration by woody and herbaceous species, such as self-sowing and spreading.

- **Positive Trend:** Plant communities are gaining the resilience they need for surviving (and thriving) through periodic disturbances, changing weather patterns, and Minnesota's changing climate, among other factors.

*Sprengel's sedge at **Willow Pond Park**
(May 16, 2024)*



Seeded and planted native herbaceous species (grasses and wildflowers) have established in all of the vegetation cover types, with the planted species comprising over 75% of the ground cover in many of the management units.

- **Positive Trend:** Seeding and planting have been effective (and necessary) ways to increase plant diversity and plant community resilience. Very few native herbaceous species are otherwise present within or nearby to re-colonize park natural areas following invasive plant removal.



*Native wildflowers and grasses at **Central Park** (at left, July 5, 2024)
and **Langton Lake Park** (at right, September 15, 2024)*

Nonnative, invasive herbaceous plants were present in all management units. Invasive plant ground cover was variable, ranging from sparse to over 75%.

Over 25 nonnative, invasive herbaceous species occur in the park natural areas. The most prevalent species were creeping Charlie, burdock, garlic mustard, Canada thistle, purple loosestrife, nonnative cattails, and reed canary grass. Other species that were not as common, but were locally abundant in some parks, included Japanese hedge parsley, celandine, dame's rocket, yellow archangel, and mock strawberry. Japanese knotweed was observed at two parks.

Where high herbaceous invasive plant cover was observed, the invasives have displaced native plants, degraded wildlife habitat, and disrupted the beneficial, functional roles that native plants have in soil health, soil erosion control, water infiltration, nutrient cycling and retention, and more.

- **Needs Improvement:** Ongoing and increased invasive plant management is still needed where herbaceous invasive plant cover was still high in 2024. Species that are on the Minnesota Noxious Weed List should be considered a priority.
- **Planning Consideration:** Effective invasive plant management will require repeated efforts to re-establish native plant cover through seeding and planting after invasive plant removal is conducted in most treatment areas.



*Burdock at **Oasis Park** (June 10, 2024)*

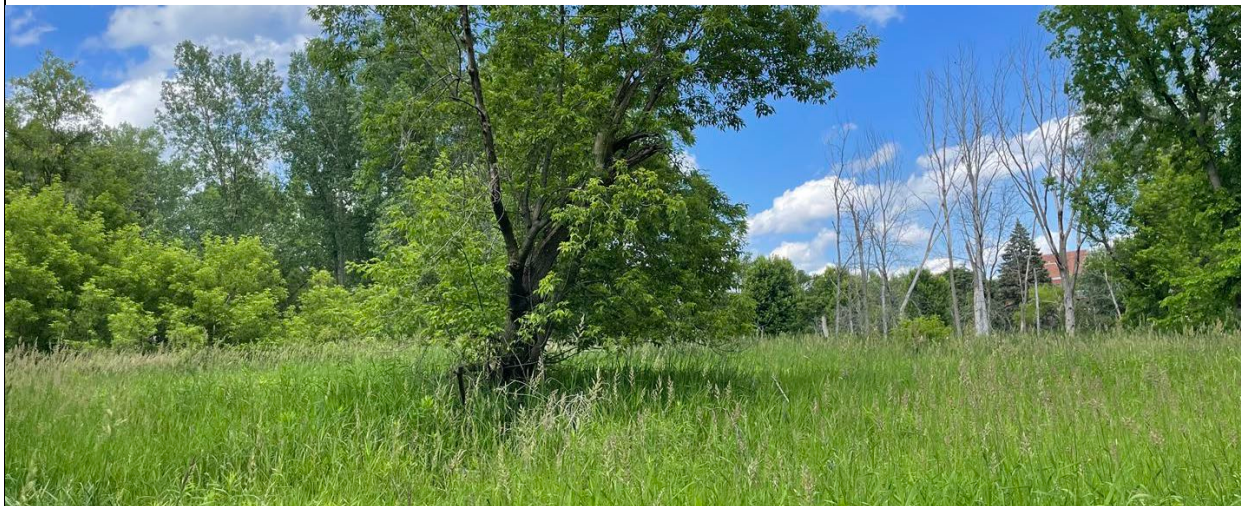
Wetlands and waterbodies in Roseville's park natural areas continue to be plagued by invasive plants, altered hydrology, fluctuating water levels, excessive nutrients, and other disturbances.

Wetlands and pond/lake shorelines were typically dominated by invasive plants, such as reed canary grass, nonnative cattails, purple loosestrife, and/or glossy buckthorn, that thrive with disturbance, altered hydrology, and high nutrient availability. Native sandbar willow was also contributing to low plant community diversity in some management units.

- **Needs Improvement:** The prevalence of invasive plants in park wetland and shoreline habitats indicates that effort is still needed to restore native plant cover and address site-specific, as well as park system-wide challenges, that undermine wetland restoration project sustainability. Higher quality native plant cover is needed for wetland health, biodiversity, protecting water quality, and sustaining high quality near-shore habitat that is critical for many vulnerable wildlife species.

Past efforts to plant native species along pond and lake shorelines have often been initially successful. However, few plantings have survived long term due to ill-opportune water level rises from stormwater flow into the waterbodies before the plants were of sufficient size to withstand inundation.

- **Planning Considerations:** Significant stormwater and watershed-level issues need to be addressed before meaningful efforts can be made to improve and sustain higher quality wetland and shoreline plant communities.



Wetland at Villa Park (June 11, 2024)



A few native and nonnative animals, sometimes in combination, are contributing to perpetuation of invasive plant cover and limiting development of high quality native plant cover and wildlife habitat within some of the park management units.

Detrimental impacts of a few native wildlife species were observed where those species are concentrated due to fragmented habitat available in Roseville's urban landscape context. Examples include white-tailed deer browse and Canada goose grazing and excrement on shorelines.

- **Planning Considerations:** Restoration efforts should continue to plan for wildlife depredation of installed/seeded plant materials as well as depredation of natural regeneration in established plant communities. Projects may need to account for resources required to install and maintain wildlife deterrents, for example, or increase seeding and planting rates (or conduct multiple seed rains) in order to establish and sustain site-specific restorations in some park natural areas.



Langton Lake Park (May 14, 2024)

Exotic earthworm impacts were observed in all wooded management units. There are currently no methods available for removing them once they have invaded, but they have profound impacts on native and adventive forests (including those within Roseville's park system). Earthworm infestations create limitations for restoring healthy forests.

- **Planning Consideration:** Earthworms create inhospitable seed bed environments by consuming leaf litter and moving organic matter deeper into the soil where it is less accessible to the rooting zones of forest plants. The loss of leaf litter can also result in higher soil temperatures and lower soil moisture that can thwart seed germination and seedling survival. Earthworms decrease soil nutrient availability as well.
- As earthworms reduce ground layer cover, the scattered, deeper-rooted plants that remain are often targets for deer browse which further decimates the remaining plant community.
- Low native ground layer cover and bare soils can leave natural areas more susceptible to invasive plants such as buckthorn, garlic mustard, burdock, Japanese hedge parsley, and other disturbance-dependent weeds.

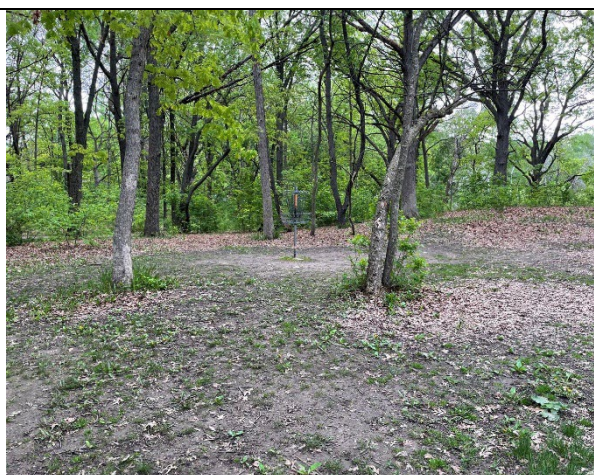
Several human activities are contributing to perpetuation of invasive plant cover and limiting development of high-quality native plant cover and wildlife habitat within some of the park management units.

Human activities causing detrimental impacts were alterations to vegetation and topography, creation and use of unauthorized trails by pedestrians or bikers, recreational activities such as frisbee golf, yard waste dumping, neighbor encroachments for lawn, landscaping, or gardening, and erosion caused by off-site stormwater runoff.

- **Needs Improvement:** Ongoing communications are needed to inform park users and park neighbors about appropriate park uses, along with enforcement of existing policies as needed.
- **Planning Consideration:** Additional conversations are needed to address encroachment, recreational activities, and off-site factors that appear to be incompatible with natural resources management goals and policies related to preservation and restoration in a few select parks.



Valley Park (May 13, 2024)



Acorn Park (May 13, 2024)

5 2024 Natural Resources Management Project List

Following the field assessments, a project list was developed to include each park management unit (MU) and MU-specific information. The project list is provided in **Appendix E**. For each MU, the list includes the vegetation community type, acres, summary comments on current conditions, estimates for native ground cover and invasive species cover, recommended management activities, target species for management, proposed natural resources management objectives to achieve by 2030 for each management activity, implementation considerations (labor, equip/tools/supplies, training/license needs, activity timing), and cost estimates.

The proposed NRM objectives assume continued pursuit of the desired future outcomes described for each major natural area type (native plant community or novel plant assemblage) in the 2014 BMP Manual. The desired future conditions or restoration targets were described in the 2014 BMP Manual in terms of 10-year and 100-year goals. The goals considered the 2014 existing conditions and available resources at that time for restoration implementation. The document also recommended specific maintenance practices and monitoring activities for each natural area community type.

For woodland/forest management units with canopy cover dominated by bur oak, northern pin oak, and/or white oak, for example, the MN DNR NPC description for Southern Dry-Mesic Oak (Maple) Woodland (FDs37) was recommended as a reference system for restoring similar composition, structure, and natural disturbance processes to those community types.

The proposed NRM objectives for each management unit activity focus in large part on invasive plant management (IPM). IPM objectives include reducing percent cover or preventing seed production. **Appendix D** provides a summary table of invasive plant species that were observed in Roseville parks in 2024 along with proposed high-level management goals (such as eradication, suppression, or containment/exclusion).

The other primary activities recommended for most management units are native seeding and/or planting. Native seeding and planting objectives strive for increasing native ground cover to over 75% within each management unit as well as increasing species richness. Both of those variables are known to be good indicators for high-quality wildlife habitat, plant community resilience, and long-term sustainability.

Proposed NRM objectives are informed by the conditions observed in 2024 while considering what would be feasible progress to make within a 5-year timeframe. Feasibility depends on whether the management activities are implemented at the recommended frequency and are integrated with the other proposed activities for the MU. The MU and activity-specific objectives were developed based on the consultant ecologists' experiences with ecological restoration, park-specific knowledge of site responses to restoration activities over the last decade, and knowledge of Roseville's existing NRM program and resources, including the Volunteer Stewardship Program, and the frequent, active engagement of volunteers from other organizations and businesses/corporations in NRM implementation.

As noted above, each MU is included in the 2024 NRM Project List. However, management actions were not recommended for all MUs. Some of the MUs were assigned a low priority rank for near-term



management so detailed activity planning was not conducted for those units. A low priority rank was typically assigned for an MU if significant ongoing disturbance factors were observed in 2024 and/or otherwise known from past management experience and community knowledge. MUs were also assigned low priority ranks if there were other known landscape/watershed-level challenges that would require more detailed planning and partnerships to implement cost-effective restoration and sustainable outcomes. For example, cattail marsh units that are dominated by nonnative cattail were often assigned a low priority for management due to landscape/watershed-level challenges and the inability to correct external negative influences such as nutrient loading, excessive water level fluctuation and similar to these systems.

The ranking criteria used to prioritize MUs within each park were substantially the same as the criteria used for the 2013 PRP Project List. The criteria are incorporated in Policy 3.4. They include consideration of the quality of existing natural communities, restoration potential, ecological connectivity, sustainability, social equity, funding options, potential efficiencies, volunteer stewardship opportunities, and urgency related to maintaining and building upon past project gains and investments. The City plans to pursue projects and management actions that provide stacked benefits (meet several of the criteria) when deciding on allocations of limited resources.

6 Volunteer Stewardship Program

The volunteer stewardship program is a crucial aspect to accomplishing the goals of the NRM program in Roseville. During the NRM Master Plan process, the Technical Advisory Committee was asked to weigh in on the stewardship program and describe any potential improvements or considerations for the future of the program. Generally, the TAC was interested in methods to expand the reach of the program including promoting activities and “NRM successes” on social media and other platforms. TAC members were also interested in how to



involve youth more in the volunteer program with ideas ranging from interns to scout projects, to forming better relationships with schools and teachers for class education and volunteer opportunities. Inspiring the next generation of leaders in this work was a key theme of the discussion.



Roseville Parks Natural Resources Management Master Plan

6 Volunteer Stewardship Program

Another key theme was the role the volunteer program could play in furthering education about NRM in Roseville. Generally, TAC members felt that educational opportunities for the general public could help to further the goals of NRM in Roseville. Ideas ranged from online trainings, promotion and education about specific NRM activities that can be done during crucial seasonal timeframes, as well as education for private property owners about invasive species (such as buckthorn). The TAC acknowledged that many of the threats to NRM in Roseville are created by a lack of awareness/knowledge by the general public (encroachment, spread of invasives, active park use activities, etc.)



A full list of the ideas and questions shared by the TAC is included below, including specific actions the city could take to improve the volunteer stewardship program:

- Could there be evening events, in addition to Saturday mornings? *City staff response: Yes, part of the idea in hiring another staff person is to have more bandwidth for these events. The thought is to have 2 monthly events, one on Saturday mornings and one as a potential evening event.*
- Could there be an interactive map on the city's website that shows active NRM projects and volunteer opportunities?
- There should be more intentional student outreach, maybe connections formed with teachers at the high school. This could lead to "research opportunities" – to be part of the curriculum in some way, as well as volunteer attraction. *City staff noted that they have established contacts at Roseville's High School and a Montessori School. Students in AP classes, which are complete by mid-May, might be able to help with late spring NRM projects.*
- The U of MN and Macalester College currently use some sites in Roseville as research opportunities and/or as part of ecology course field learning.
- Roseville should try to train younger people to be volunteer leaders. In this way, it would make it easier to attract other younger volunteers. For example, Scouts.
- Could there be online trainings available – could be outreach to residents and volunteers? For example, what is buckthorn, why we care about it, and how to remove it?
- Roseville can do a better job of having meaningful volunteer projects and showing before & after. *City staff response: The project list will help with this – providing a more detailed plan for short-, medium-, and long-term projects.*
- Roseville has information on volunteers that come only once. Retaining these volunteers can be difficult, as usually they come out for events only.
- The focus of the volunteer program has been on public land only. There may be an opportunity to approach private landowners and offer to help. Private landowners would need to volunteer or have some skin in the game as well. The city could offer expertise and resources.
- Could the city work with the Humphrey School to get access to research on how to attract and retain volunteers?
- City should keep up-to-date with social media platforms – many young people don't use Facebook anymore.
- Could the city offer food at volunteer events?



7 Restoration and Management Recommendations

Ecological restoration and management recommendations provided in this chapter are higher level and were guided by application of the updated goals and policies articulated in Chapter 3. Site- and MU-specific management recommendations are provided 2024 Natural Resources Management Project List table included with this report as **Appendix E**.

As noted previously, the recommendations herein substantially re-emphasize and build upon natural area best management practices that were included in the 2014 BMP Manual; they are still relevant and applicable to NRM in Roseville parks in 2024 and going forward. The 2024 recommendations were informed by awareness of existing conditions, consideration of available resources, and on-going recognition that there are natural resource conditions in Roseville's park natural areas that are influenced by factors beyond the community's control.

These higher-level recommendations range from ideas that are actionable today, given the City's available resources, experience with NRM, and robust volunteer stewardship program (Section 7.1), to ideas that should be considered for near-term implementation within the next 5 years (Section 7.2), and lastly, to actions that will require additional planning, coordination, and collaboration with partners and other organizations to further scope and bring to fruition in the future (Section 7.3).

7.1 On-going Actionable Management Efforts

7.1.1 **Consider all available potential tools and resources when determining management strategies for both invasive plants and native plant communities.**

Using combinations of restoration and management tools, along with strategically timing and sequencing multiple activities, will help maximize desirable outcomes.

7.1.2 **Manage invasive species in all vegetation layers, including the canopy.**

Reducing invasive tree cover will require development of a forest management plan to address the scale of invasive tree management needed at some parks. The requisite planning for tree removal is included below as a near-term management recommendation.

Refer to recommendations for species-specific management goals (see **Appendix D**) and adjust goals, as well as tools and techniques, as needed for specific parks and management units as invasive plant populations change over time.

Preventing the spread of invasive plants and animals should be a major theme when educating City staff and the public about invasive species. Maintenance and recreational activities, as well as park visitors, often contribute to the introduction and spread of invasive



species in park natural areas by transporting weed seeds or contaminated soil on equipment, footwear, clothing, pets, bike tires, etc.

Anticipate that despite monitoring and actions to prevent the spread of invasive plants, additional nonnative, invasive species (not currently known to occur in Roseville parks) may become established in the future and will need to be promptly addressed.

7.1.3 Utilize an Early Detection and Rapid Response (EDRR) strategy to prevent initial establishment and re-colonization by invasive plants.

EDRR involves frequent scouting to detect and eliminate infestations while they are still small.

This is especially important in management units where significant progress has been made towards restoring native plant cover. Eliminating invasives quickly can help maintain vigor and spread by the restored vegetation and enable it to become less prone to invasion over time.

Frequent scouting will also help detect additional nonnative, invasive species that do not currently occur in Roseville parks but have potential to establish in the future. Watch-list species include black swallow wort, cut leaf teasel, common teasel, Grecian foxglove, and poison hemlock.

Detecting and treating small invasive plant populations provides the most cost-effective and efficient way for Roseville to maintain quality park natural areas.

7.1.4 Continue reducing herbaceous invasive plant cover by using methods that take advantage of plant biology, ecology, and vulnerable stages in the growth, flowering, and seed production by target species.

Utilize multiple methods to address herbaceous invasive plant populations. This may mean treatment of a target species multiple times with different methods during a single growing season. For example, second-year flowering plants of garlic mustard can be pulled in the spring, while first-year rosettes can be spot sprayed in the fall. Both efforts help reduce annual seed production and deplete the soil seedbank. When used in combination, they have the potential for producing faster outcomes, especially when further combined with native seeding.

Seek the most up to date information available on the ecology and effective control methods for target invasive plant species. Researchers and practitioners (including volunteers and private landowners) are continually sharing new information about invasive plant biology and best practices for control. Remain receptive to new strategies and approaches.



7.1.5 Strive to minimize disturbances to native plant communities during management activities (including mowing trailsides) through appropriate selection of tools, timing, and targeting that is scaled properly to the scope of the problem.

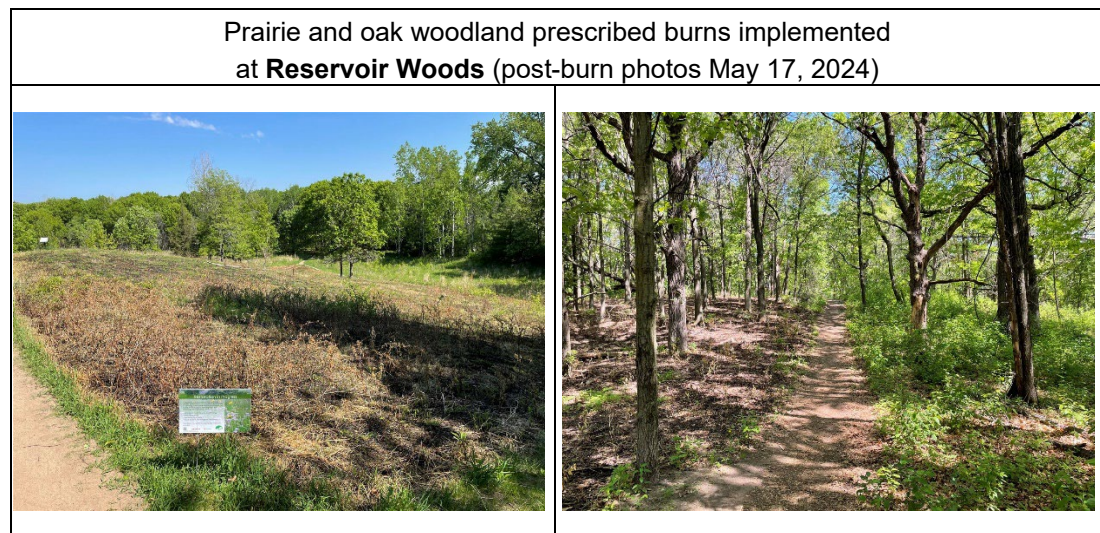
Examples of proper scaling would be choosing to hand pull a few invasive plants instead of mowing several square feet, or spot spraying a few invasive plants instead of broadcast spraying.

Limiting disturbance to native plants, during the process of invasive plant removal, allows the desirable plants to thrive and consume the aboveground and belowground space left behind after weeds are removed. Using methods (such as hand pulling) to minimize disturbance may not always be the cheapest in the short-term, but they will provide best value (good outcomes and cost-savings) in the long-term. Volunteers can enable use of proper scaling of management methods by reducing short-term labor costs. Volunteer help needs to be consistent enough to manage the scope of the task over time and space (such as controlling an invasive plant population over several years).

7.1.6 Re-introduce natural disturbances such as fire or surrogates for grazing (mowing/haying), whenever possible, for maintaining native plant communities.

Natural disturbance regimes are especially important for prairie and savanna management units but are also necessary for sustaining healthy oak woodland management units.

Provide ongoing educational opportunities for Roseville residents to learn about the importance of periodic “good” disturbances for the fire-dependent plant communities in their parks. Just as park lawns need to be mowed, for example, the prairie, oak savanna, and oak woodland natural areas need to be burned, albeit far less frequently than the lawn mowing.



7.1.7 Continue to frequently seed and plant in park natural areas to increase native plant cover and further enhance biodiversity, resilience, and long-term sustainability.

Dedicate an annual budget for buying native seed for supplemental or enrichment seeding. Involve volunteers in dispersing seeds each spring and fall, and potentially in late winter/early spring on snow.

Consider a “Weed and Seed” approach for replacing invasives with desirable vegetation. For example, provide site-appropriate native seed mixes to volunteers who help with hand-pulling invasive plants on their own--and to those who lead groups--so that they can plant the seed where they are removing the invasives. Seeding the soil disturbed by hand pulling should provide good seed soil contact, which can then be followed by some foot trampling to further incorporate the seed. Ask volunteers for their help with monitoring seeded sites for native plant establishment and reporting on results.

Train and enable volunteers to spread desirable native plants within and between parks through a “Pick and Throw” approach. Several seeded native plants have established extremely well and at several parks. Develop a seed harvesting calendar for the target species, provide paper bags, clippers, and guidance on determining ripe seeds, where the harvested seed may be collected, and where it should be sown. A harvest rhythm will quickly develop and can be tied to more structured monthly volunteer events then as well—just as buckthorn removal developed a rhythm with the volunteer stewardship program. Have volunteers maintain a log of their pick and throw activities and ask them to monitor their seeded sites for establishment and report on results.

7.1.8 Promptly address and enforce encroachment issues that undermine goals and policies.

The City should continue with concerted efforts to determine where encroachment is occurring and address concerns through the City’s code enforcement process.

7.1.9 Continue partnering with Ramsey County Parks to survey white-tail deer, conduct planning for, and actively manage the deer population.

7.1.10 Continue to pursue grant funding to leverage City funds.

The City has a successful track record of applying for grant funding to accomplish water/natural resources projects within parks. Implementation of projects identified in the NRM will be benefited by securing grant funds.



7.2 Near-term Actions to Implement within 5 Years

7.2.1 **Deploy resources as consistently as possible for invasive plant management over a time period of at least 5 years in each management unit.**

Consistent invasive plant management can effectively eliminate weed seed contributions to soil seed banks, deplete the soil seed banks over time, and minimize seed bank recruits.

7.2.2 **Keep invasive woody plant cover low and prevent seed production through frequent pulses of relatively low intensity management effort.**

For example, plan to sweep through all upland MUs at least once every 2 to 3 years for invasive shrub and tree sapling control. Create and tailor a plant ID guide for volunteers to understand which species need to be detected and removed from Roseville parks. Engage volunteers to cut and stump treat larger stems or pull seedlings. If sweeps are conducted often enough, invasive woody plants can be prevented from producing seed and will remain small enough that cut stems can be cut and left to decompose on site with no further handling. Smaller MUs could be adopted by individuals (especially neighbors) who may be able to commit to scouting and treatment on an annual basis.

7.2.3 **Develop a comprehensive plan for management and restoration of native forest canopy cover within forested park natural area management units.**

This planning effort could include adopting some of the same approaches used for addressing invasive trees, pests, pathogens, natural decline, planting, and other issues in manicured portions of parks and in other public spaces in Roseville. Management methods in natural areas, however, will need to consider site sensitivity, accessibility, ground layer conditions and quality, water resources, wildlife, changing climate, and other factors.

7.2.4 **Forestry and natural resources staffing**

Successful implementation of the NRM as well as the City's ongoing day-to-day forestry and natural resources activities will be best accomplished through having a staff person dedicated to these tasks. Such a staff person could also assist with the volunteer stewardship network (immediately below)

7.2.5 **Volunteer stewardship network staffing**

Over the course of the last approximately ten years, Roseville has established a remarkably robust volunteer program that is largely focused on parks natural resources projects. The program has grown to the point that keeping volunteers motivated and engaged will be best accomplished by having a staff person (identified in recommendation above) with skills specific to natural resources to plan for and work with volunteers. Sustaining volunteer



enthusiasm, amount of accomplished work, and potential future growth of the volunteer stewardship network depends on having a natural resources person on staff at the City.

7.3 Long-term Planning

7.3.1 **Continue partnering with other City departments (i.e., engineering/water resources), watersheds, and other agencies with water resource management authority to encourage, plan for, and implement sustainable water resource and wetland restoration projects that support the goal of restoring and maintaining quality water resources and aquatic habitats.**

Wetland and water resources are tied to watersheds, stormwater management systems, and administrative systems that extend far beyond park boundaries. Addressing some of the stressors that are impacting wetland and water resources in Roseville's parks will require more in-depth analysis of management and restoration needs and broader conversations and coordination to develop and implement effective solutions.

8 Information Sources

Bonestroo. 2002. Roseville Parks Natural Resources Management Plan. Roseville Parks and Recreation Department, 59 pp.

Keenleyside, K.A., N. Dudley, S. Cairns, C.M. Hall, and S. Stolton. 2012. *Ecological Restoration for Protected Areas: Principles, Guidelines and Best Practices*. Gland, Switzerland: IUCN. x + 120pp.

City of Roseville, LHB Inc., Cornejo Consulting. 2010. Roseville Parks and Recreation System Master Plan. 123 pp.

Stantec Consulting Services Inc. 2014. Parks Natural Areas Maintenance Practices [“2014 BMP Manual”]. Roseville Parks and Recreation Department, 59 pp.

Zimmerman, C., M. Jordan, G. Sargis, H. Smith, K. Schwager. 2011. *An Invasive Plant Management Decision Tool*. Version 1.1. The Nature Conservancy, Arlington, Virginia. 43 pp.



Appendices



Appendix A TAC Meeting Minutes

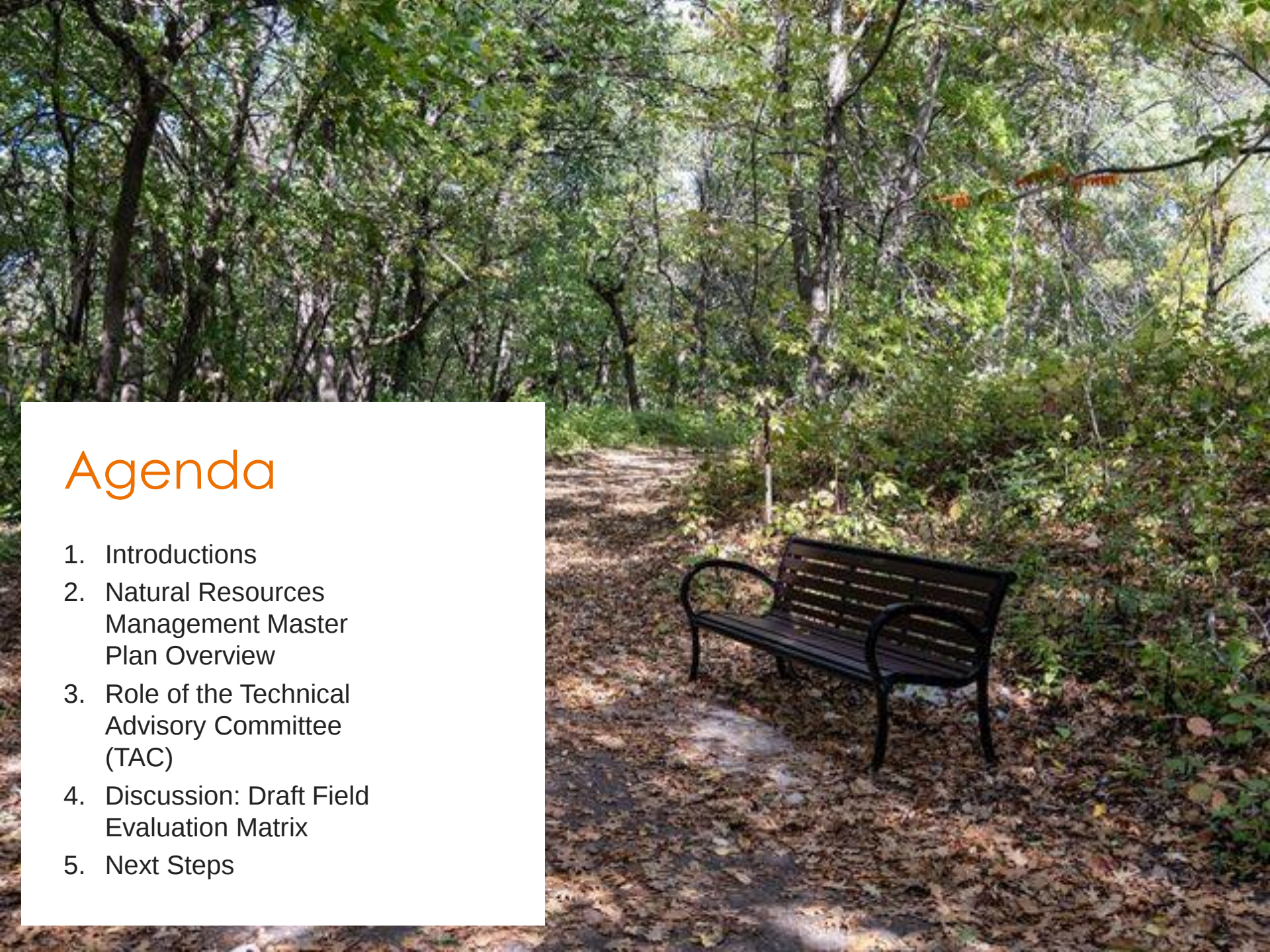




City of Roseville
Natural Resources
Management Master Plan

TAC Meeting #1



A photograph of a forest path with a wooden bench, serving as a background for the slide. The path is covered in fallen leaves, and the bench is made of dark wood. The forest is dense with trees and foliage, some showing early autumn colors.

Agenda

1. Introductions
2. Natural Resources Management Master Plan Overview
3. Role of the Technical Advisory Committee (TAC)
4. Discussion: Draft Field Evaluation Matrix
5. Next Steps

Introductions



Tell us about yourself...

- 1. Name**
- 2. Connection to the City of Roseville**
- 3. Reason for joining the committee**

Project Information

Past Natural Resources Management Plans

- 2002 Natural Resources Management Plan
 - Inventory and management recommendations for 5 city parks: Acorn, Central, Langton Lake, Reservoir Woods and Villa
- 2014 Natural Resources Management Plan Update
 - Expanded and updated inventory and prioritized list of natural resources projects



Updating Roseville's Park System Master Plan: Kickstarting Natural Resources Component

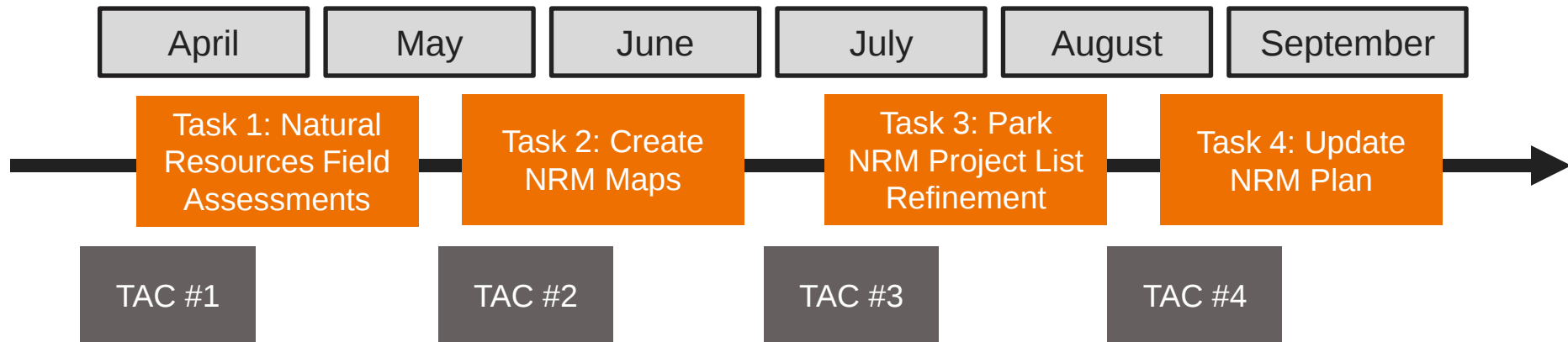


Goals for Natural Resources Management (NRM) Master Plan Update



- Compile existing natural resource management needs in park natural areas
- Set tangible goals for NRM over a 5-10 year timeframe
- Provide updated prioritized list of potential NRM activities
- Provide cost estimates for park project/activity implementation and long-term maintenance
- Identify reasonable benchmarks for measuring NRM progress
- Support community and volunteer stewardship
- Support pursuit of grant funding for NRM implementation

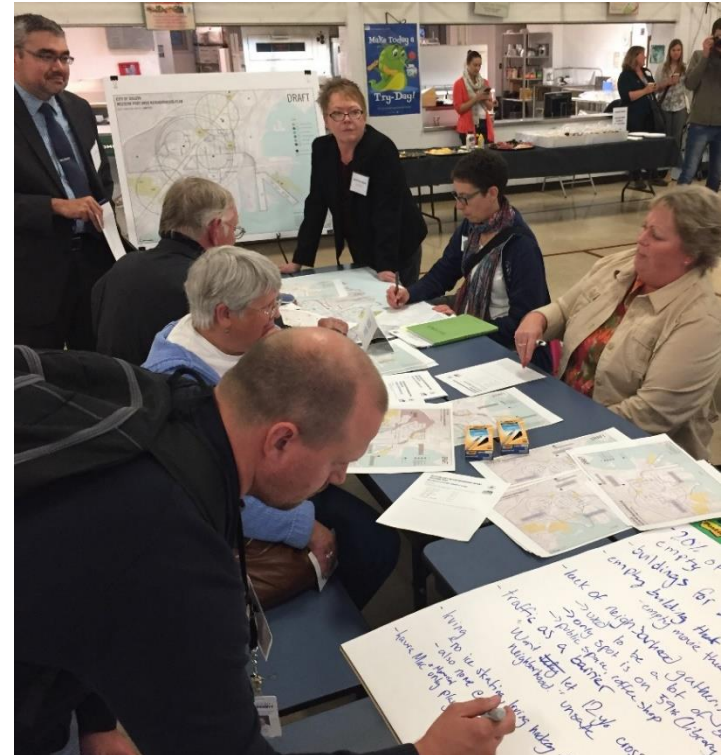
NRM Master Plan Process



Role of Technical Advisory Committee

Role of Technical Advisory Committee (TAC)

- Provide input on draft Natural Resources Management Plan materials
- Advise city staff on community perspective to natural resources management
- Review field investigations and provide input on goals for next 5-10 years
- Spread the word about ongoing volunteer opportunities
- Understand that the TAC is an advisory committee to city staff, city commissions and City Council



Discussion: Draft Field Evaluation Matrix

NRM Field Assessment Matrix

	D	E	F	G	H	I	J	K	L	M	N	O
		SITE	Management Unit (MU)	Community Type	AC	LF	Management Activity	Target Invasive Species (IS)	Approx. 2024 IS cover	2030 NRM Goal?	Volunteers	C
1												
2		EXAMPLE PARK	EXAMPLE PARK UNIT (U1)	Mesic Prairie Restoration	5.00		Invasive woody cut/treat- 2x in 5 yrs	Buckthorn, Siberian elm	<5%	<1% woody IS cover, no fruiting	x	
3					5.00		Dormant mow - 1x	N/A	N/A	1x		
4					5.00		Spot invasive weed treatment - 2x/yr for 3 yrs	Spotted knapweed, Canada thistle	5-10%	<5% herbaceous IS cover	x	
5					5.00		Prescribed burn - 1x	N/A	N/A	1x		
6					5.00		Enrichment seeding (forbs) - 1x	N/A	N/A	Increase species richness	x	
7												
8												
9	1	ACORN	AC-U1, AC-U2, AC-U3	Woodland/Forest Restoration	25.00							
10	1	ACORN	AC-W2	Wetland Restoration	0.25							
11	1	ACORN	Between disc golf fairways	Prairie Reconstruction	2.00							
12	1	ACORN	AC-W5	Wetland Restoration	5.00							
13	1	ACORN	AC-W1	Wetland Restoration	4.00							
14	2	APPLEWOOD	W/F	Woodland/Forest Restoration	0.23							
15	3	APPLEWOOD OVERLOOK	PS	Prairie/Savanna	0.68							
16	4	AUTUMN GROVE	W/F	Woodland/Forest Restoration	0.60							
17	5	CENTRAL PARK DALE EAST	CP-U5	Prairie Reconstruction	0.30							

Field Assessments +

Ready Accessibility: Investigate

Display Settings

100%

Questions

- When considering future natural resources management in Roseville parks, what high level goals would you like the city to prioritize?
- Are there any parks or areas that are of specific interest?
- Are there management activities you would prioritize? Any you would deprioritize?
- What would you like to see for measurable NRM objectives over the next 5 years? In 10 years?
- What types of vegetation info would you like to see gathered this spring to measure NRM outcomes?
- Thinking about the volunteer program, are there issues or types of activities that you wish were prioritized more? Less?
- What types of activities seem to garner the most interest and participation from volunteers for park projects?
- What else should we be aware of as we do the field inventory?

Next Steps

Next Steps

- April/May: Natural Resources Field Assessments
- May/June: TAC Meeting #2





Thank you!

Roseville Natural Resources Plan Update
Technical Advisory Committee – Meeting #1
April 3, 2024 - 6:30 – 8pm
Lexington Park

Group introductions

The program to date was summarized including budget, scope, volunteer engagement and perceived results.

For next steps, Larissa (Stantec) will conduct field inventories. The rubric was discussed at this meeting (more below).

The goal of the TAC is to review information related to the Natural Resources Management Plan and forthcoming inventory and project list, and provide feedback to staff and the consultants. There is the possibility to provide feedback beyond this scope, but it would likely be included as an addendum to the report.

A question was raised about what technological tools are being used: currently Stantec uses iNaturalist, EDDMapS (invasive species mapping application) Map, and eBird to supplement field observations. Stantec plans to continue to use these tools. The public can sign up for a free account on the apps and submit data for the parks. The committee member asked if there was a way to distribute what tools will be used and make sure that the information available for a park is up to date (for example, for invasive plant presence/distribution).

It was suggested that Stantec hear specific feedback from TAC members, who know specific parks well, as part of this analysis. It was later stated that staff would try to provide a brief form or survey monkey tool that TAC members can use submit this park specific information to Stantec.

One TAC member asked if Larissa would bring TAC members into the field when doing some analysis. This can likely be accommodated on a limited basis, but Larissa's time and efficiency is important, so it will have to be on a select basis. Staff discussed using a sign-up form.

Several General Comments and Ideas Were Suggested:

- Acknowledge that Roseville is a destination and its parks are well loved and used, and this can be in conflict with Natural Resource conservation (examples include roots stomped, prairies with walking paths beaten through them, etc.).
- One member suggested that the City develop a "toolbox" of ready-made projects for scouts looking to do work.
- A committee member recommended that the City expand its volunteer reach to schools, by developing Natural Resources Programming that engages the students.
- Several committee members recommended that the City set a goal of identifying opportunities to move away from mowed turf when possible.
- Several committee members encouraged more butterfly pollinators and/or bee lawns in parks, including reduced herbicide application.
- It was suggested that the city should provide outreach to private property that is adjacent to public property that has been managed.

Roseville Natural Resources Plan Update
Technical Advisory Committee – Meeting #1
April 3, 2024 - 6:30 – 8pm
Lexington Park

- Collaborate with watersheds, county and other natural resources stakeholder.
- One committee member mentioned concern over erosion in Reservoir Woods Park.
- Paul (Stantec) stated that the City should strive for “diverse, stable, and resilient” resources.
- Ensuring climate resilience was discussed as a high priority “plan for 2070, not 1980”
- One member recommended that the City consider somehow addressing forestry in non-maintained areas (the City’s forestry plan currently only involves maintained spaces).
- Suggestion to convey priority invasive species list to volunteers so they can help identify/map locations in the parks.
- Suggestion to note presence/absence/prevalence of ash as a component of canopy cover in park natural areas as the field assessment is done.
- As part of park project/activity list prioritization process, define the criteria used for the ranking process.

Staff member Johnson suggested that many of these general comments can be brought into three buckets, which should be refined through future TAC meetings:

- Long-term Natural Resources Goals and Principles
- The Volunteer Natural Resources Program
- Development of a mid-range project list

Future meetings will attempt to work distinctly in the three buckets.

Stantec showed the rubric that was to be used for analysis, and there was general agreement that it would be effective. The primary concern was over how the data would be used, and prioritized. Stantec stated that the data will be shared at the next TAC meeting and use to inform conversations around an update of the plan.

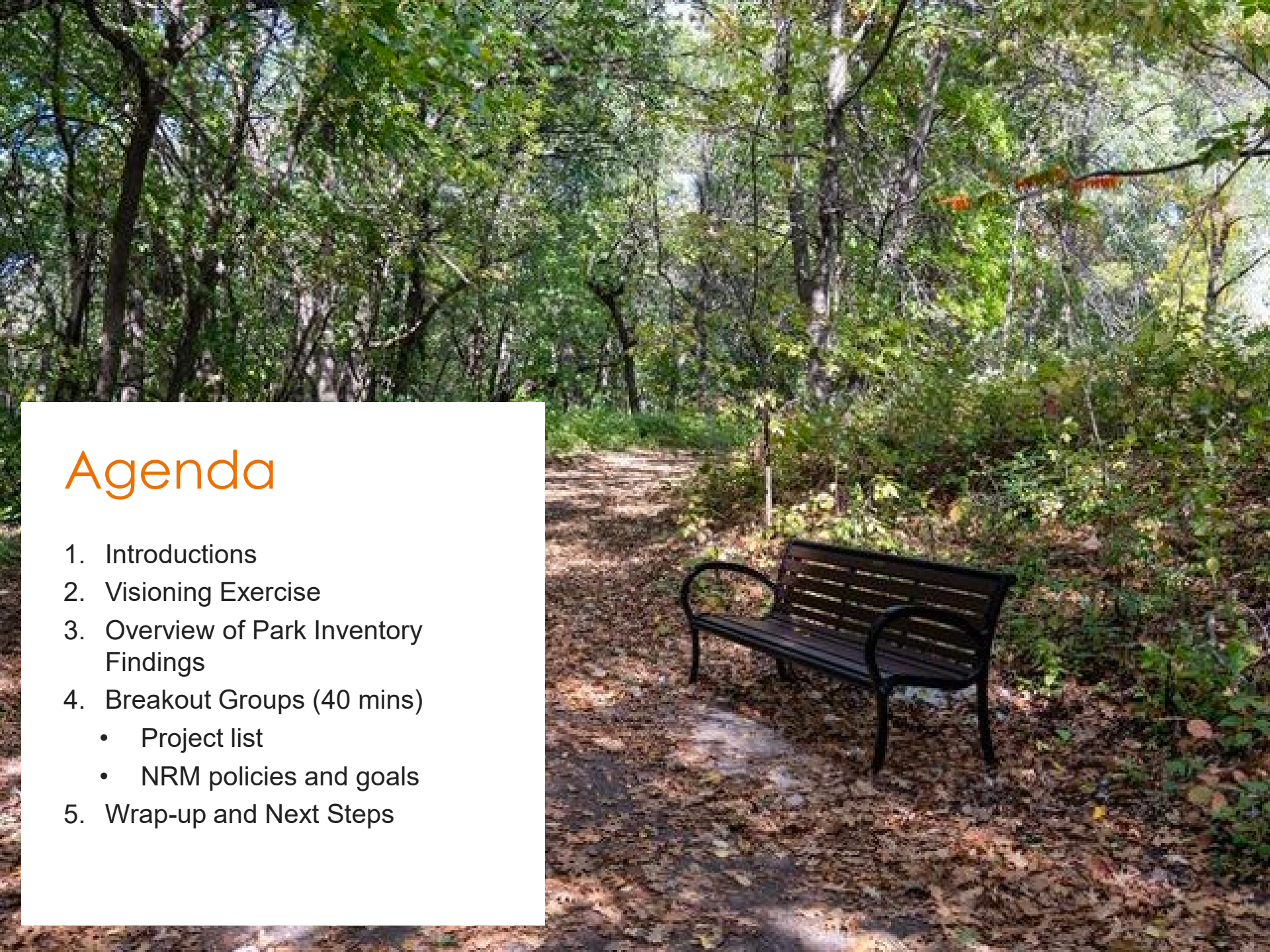
Committee members asked that the current 2014 Natural Resources Plan be sent out.



City of Roseville
Natural Resources
Management Master Plan

TAC Meeting #2



A photograph of a park path with a bench and trees. The path is covered in fallen leaves, and a black metal bench is positioned on the right side. The background is filled with dense green trees and foliage.

Agenda

1. Introductions
2. Visioning Exercise
3. Overview of Park Inventory Findings
4. Breakout Groups (40 mins)
 - Project list
 - NRM policies and goals
5. Wrap-up and Next Steps

Visioning Exercise

Six-Word Story

Setup: Ernest Hemingway was famous for his 6-Word Story contest, an exercise in creativity while providing telling information about a thought or experience.

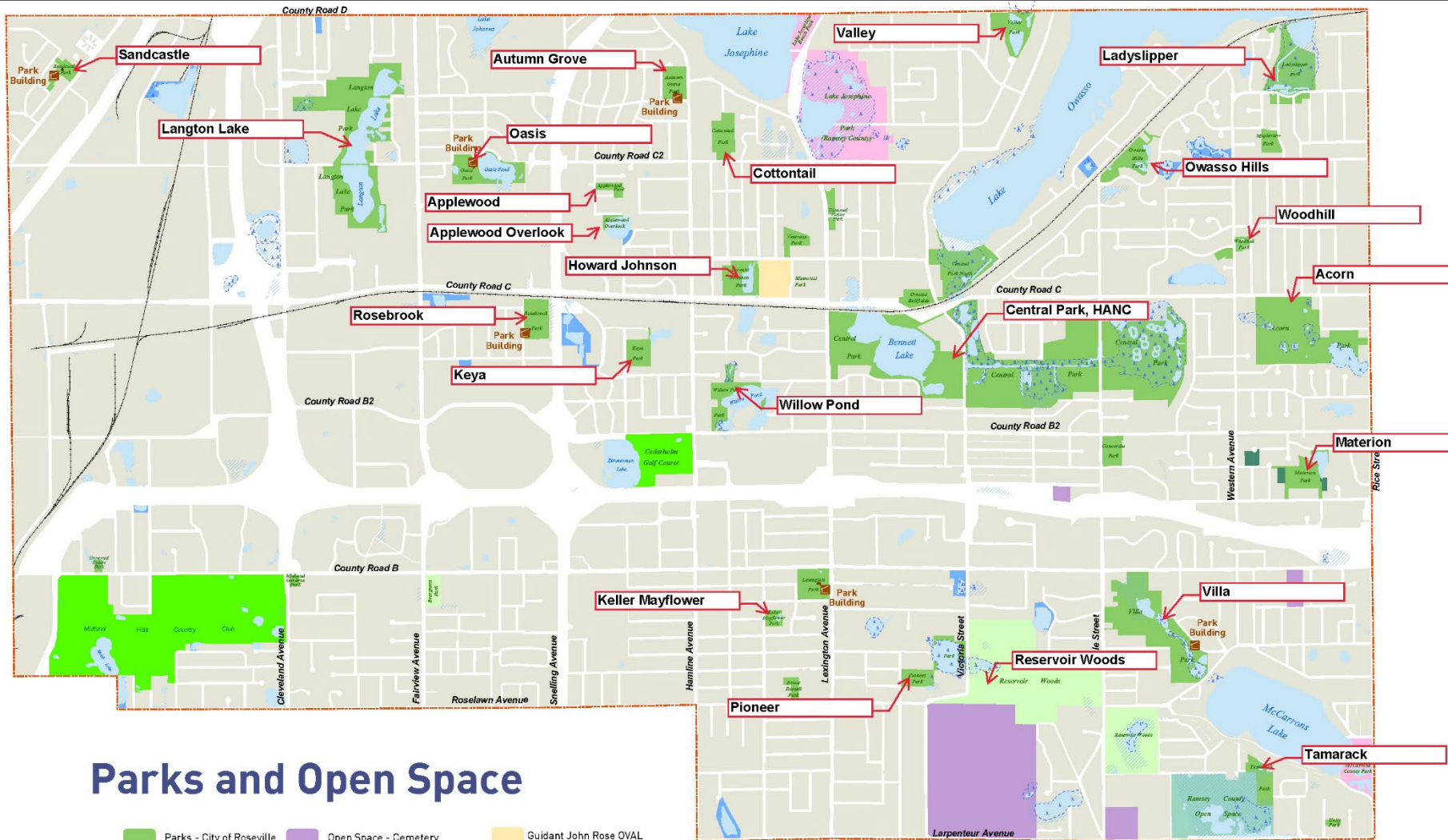
Prompt: If you were to write a 6-Word Story about your vision for the future of Natural Resources Management in Roseville Parks, what would you say?

Instructions: Take 2-3 minutes to write your six-word story. Once you're done, take a few minutes to share and discuss with your table.

Outcome: We would like to collect your six-word stories and we will use them to create an overall vision statement to be discussed at our next meeting.

Overview of Park Inventory Findings

Parks in Field Inventory



Parks and Open Space

- | | | |
|---|--|---|
| Parks - City of Roseville | Open Space - Cemetery | Guidant John Rose OVAL |
| Parks - Leased | Open Space - City Other Uses | National Wetlands Inventory |
| Parks - Ramsey County | Open Space - County | Other Water Features |
| Golf Courses | Open Space - Water Pondering | Railroad |

Data Sources
 Ramsey County GIS Base Map (12/5/2023)
 City of Roseville Parks and Recreation
 City of Roseville Community Development
 DNR Wetlands Data 1994
 For further information regarding the contents of this map contact:
 Community Development Department
 2646 Chate Center Dr, Roseville MN 55113

Disclaimer
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TAC Member Survey – THANK YOU!

- 8 respondents

Survey included 5 questions:

How often do you typically visit this park each year?

What would be your top natural resource management priorities for this park for the next 5 years?

Are there specific areas within the park that should receive priority for natural resource management?

What would you like to see for measurable natural resource management outcomes for this park over the next 5 years?

What types of natural resources management and monitoring activities would be a good fit for volunteers at this park?

TAC Member Survey – Summary

Top Natural Resource Management Priorities

Young buckthorn control

Trail edge cleanup

Erosion

Soil compaction

Control invasives and preserve natives

Keep mowers clean to prevent spread of invasives along trails

Maintain orchard and all trees (Central Park Dale West)

Maintain areas of open water in wetlands for waterfowl

Manage shorelines

TAC Member Survey

Top Natural Resource Management Priorities (continued)

Reduce runoff into waterbodies

Increase acreage of natural plantings along lakeshore (Central Park Lexington)

Reduce chemical use

Prairie restoration (Owasso Hills)

Add more signage to guide proper recreational use (Reservoir Woods)

Trail maintenance to halt erosion (Reservoir Woods)

Promote oak regeneration

Prescribed burns in oak woods and prairie (Reservoir Woods)

TAC Member Survey

Measurable Outcomes

Bird surveys

Oak seedling survival

Recovery of understory vegetation

Removal of all invasive species

More natives planted (Reservoir Woods)

Trail erosion is stopped, trail usage more regulated (Reservoir Woods)

TAC Member Survey

NRM Activities for Volunteers

Invasives removal & weeding

Water quality monitoring

Frog survey

Bird survey

Planting

Engage high school students (Willow Pond)

Field Inventory Overview



- 30 park units (several for Central Park)
 - 103 management units (<0.1 – 25 acres)
 - About 340 acres assessed overall
-
- Vegetation metrics used for setting 5-year NRM objectives:
 - % Native Ground Cover
 - % Woody Invasives Cover
 - % Herbaceous Invasives Cover

Field Inventory Overview

Cover Type	Acres	% Total NRM Area	Number of Management Units (MUs)	Notes
Woodland/Forest	125	37	41	Lowland hardwoods
Oak Woodland/ Lowland Forest	65	19	12	Mix of remnant oak woodland & lowland hardwoods
Oak Woodland	28	8	3	Remnant oak woodland
Prairie/Savanna	17	5	6	Primarily at Reservoir Woods
Prairie	4	1	7	Planted; 3 MUs at Acorn
Wetland	97	28	23	Limited edge assessment
Shoreline	3	1	7	Primarily Bennett Lake, Villa
Pond Buffer	3	1	4	Howard Johnson, others
Garden	<0.25	<0.5	1	HANC memorial garden

Example Park Map – Management Units

- Oak Woodland
- Prairie/Savanna
- Wetland
- Pond Buffer



Example Owasso Hills Park MU Activity List

Management Unit (MU) Map Label	Community Type	AC	2024 Approx. % Native Ground Cover	2024 Management Unit Summary Comments	2024 Stantec Within-Park Priority Rank (High, Med, Low)	2024 MU Priority Rank Comments	Management Activity	Target Species	2024 Approx. Invasive Species (IS) Cover	Proposed 2030 NRM Objectives	Volunteers	Contract	Activity Timing
OW	Oak Woodland Restoration	2.64	<25%	Bur and pin oaks w/ lowland hardwood canopy; dying EAB ash; occasional invasive shrubs ranging from re-sprouts to old growth buckthorn at north end; weedy ground layer w/ poor native plant species richness/cover. Manage towards Oak Woodland.	High	Remnant plant community; legacy oaks; sustain gains & continue NRM progress							
OW	Oak Woodland Restoration	2.64					Invasive tree removal - 1x	white mulberry, buckthorn, amur maple	<10%	No invasive trees		x	winter
OW	Oak Woodland Restoration	2.64					Invasive shrub removal by hand - 2-3x	buckthorn, honeysuckle	25-50%	No stems with basal diameter >1/4"; no fruiting plants	x		dormant seasons
OW	Oak Woodland Restoration	2.64					Invasive brush foliar treatment for re-sprouts - 2x	buckthorn, honeysuckle	25-50%	<10% woody invasives cover		x	fall
OW	Oak Woodland Restoration	2.64					Herbicide spot treat invasive weeds - annually	burdock, butter and eggs, cypress spurge, creeping Charlie, reed canary grass, Kentucky bluegrass, garlic mustard, catnip	>25%	<25%		x	growing season
OW	Oak Woodland Restoration	2.64					Native seeding - 2x	woodland/savanna mix		>75% native ground cover	x	x	variable
PB	Pond Buffer	0.50	<25%	Dominated by nonnative plants such as reed canary grass, burdock, Canada thistle; few scattered native plants.	Low	Low quality; low sustainability due to water level fluctuation; high effort							

- MU Community Type, Acres
- Approx. 2024 % Native Ground Cover
- MU Summary Comments
- Management Activities
- Target Species
- Approx. 2024 % Invasives Cover
- Proposed 2024 NRM Objectives
- Volunteer/Contract, Activity Timing

Stressors/Challenges for Roseville Park Natural Resources

- Invasive species
- Ground disturbances & erosion (trails, recreational uses, wildlife)
- Encroachment (trails, lawn waste, gardening, structures, storage)
- Hydrology alterations, extreme fluctuations
- Nutrient loading
- Lack of native propagules and plant species richness to respond quickly to disturbances
- Lack of natural disturbance regimes (such as fire)

Overview of Vegetation Quality

Native Ground Cover Category	Acres	% Total
>75%	138	50
50-75%	38	14
25-50%	68	25
<25%	33	11
Total	277	100

- Native species richness varies
- Seeded species are present (providing over 75% cover at some parks)
- Low native cover in many wetlands due to nonnative cattails and reed canary grass



Starry Solomon's Seal
Langton Lake Park

Native Ground Cover



Native Seeded & Planted Species Establishment

- At least 3 dozen species
- Prairie, woodland, wetland, and shoreline cover types
- Woodlands with wild ryes (silky, bottlebrush, Canada), bergamot, and brown-eyed Susan
 - Occasional hyssops, early sunflower, foxglove beardtongue, figwort, golden Alexander, and others
- Shoreline establishment park and context dependent
 - Primarily due to stormwater fluctuations, prolonged inundation, other disturbances (wildlife, people)
- Planted trees — bur oak, northern red oak, Kentucky coffee tree

Examples of Woodland Desired Future
Conditions















Status of Invasive Species

Herbaceous Invasive Species – 25+ species

Annual (1)

Japanese hedge parsley (*Torilis japonica*)

Biennials (6)

Garlic mustard (*Alliaria petiolata*)

Celandine (*Chelidonium majus*)

Bull thistle (*Cirsium vulgare*)

Mullein (*Verbascum thapsus*)

Dame's rocket (*Hesperis matronalis*)

Sweetclovers (*Melilotus* spp.)

Perennials (17+)

Burdock (*Arctium* spp.)

Hoary alyssum (*Berteroa incana*)

Creeping bellflower (*Campanula rapunculoides*)

Spotted knapweed (*Centaurea stoebe*)

Canada thistle (*Cirsium arvense*)

Creeping Charlie (*Glechoma hederacea*)

Cypress spurge (*Euphorbia cyparissias*)

Daylily (*Hemerocallis fulva*)

- Different levels of effort will be required for control, per species, depending upon scale of infestation, treatment method(s), site context, among other factors
- **Species most frequently encountered are highlighted in orange.**

Perennials

Yellow archangel (*Lamium galeobdolon*)

Motherwort (*Leonurus cardiaca*)

Butter-and-eggs (*Linaria vulgaris*)

Bird's-foot trefoil (*Lotus corniculata*)

Purple loosestrife (*Lythrum salicaria*)

Reed canary grass (*Phalaris arundinacea*)

Mock strawberry (*Potentilla indica*)

Japanese knotweed (*Reynoutria japonica*)

Curly dock (*Rumex crispus*)

Crown vetch (*Securigera varia*)

Herbaceous Invasive Species

Mock strawberry
Villa Park

Garlic mustard



Herbaceous Invasive Species



Japanese knotweed
Central Park



Creeping Charlie
Valley Park

Woody Invasive Species – 12+ species

Shrubs (5)

Siberian pea shrub (*Caragana arborescens*)

Burning bush (*Euonymous cf alatus*)

Glossy buckthorn (*Frangula alnus*)

Honeysuckle (*Lonicera spp.*)

Common buckthorn (*Rhamnus cathartica*)

Trees (6)

Amur maple (*Acer ginnala*)

Norway maple (*Acer platanoides*)

White mulberry (*Morus alba*)

White poplar (*Populus alba*)

Black locust (*Robinia pseudoacacia*)

Siberian elm (*Ulmus pumila*)

Vine (1)

Periwinkle (*Vinca minor*) – Materion Park

- Species most frequently encountered are highlighted in orange.
- Generally dormant season control methods.
- **Invasive tree removal, EAB ash mortality, oak wilt at some parks will require forest successional planning.**



**Disturbance & Nutrient Loading Perpetuate
Invasive Species**

Nutrient additions from lawn waste dumping



Park vegetation and topography alteration



Wildlife grazing & nutrient loading



Expanding trail disturbance



Recreational activities that promote trampling



Neighborhood trail access



Unofficial trails



Off-site runoff causing erosion within parks



Breakout Groups

Breakout Groups

Group 1: Learn more information about the inventory findings and the natural resources management (NRM) project list. Opportunity for input on project prioritization.

Group 2: Review past NRM goals and objectives. Discuss high-level priorities for the next 10 years, which will become updated policies and goals to be reviewed at the next meeting.

Instructions: We will split the group in half for the breakouts and spend about 20 minutes with each group. We will switch breakouts half-way through so that everyone has a chance to participate in each topic.

Next Steps

Next Steps

- September – TAC Meeting #3
 - Topic – the HOW of Natural Resources Management
 - Review draft NRM plan including vision, policies and goals, revised project list.
 - Discuss future of volunteer program.
- October/November – NRM plan adopted by City Council



Thank you!

TAC Meeting #2
July 17, 2023 – 6:30pm
Meeting Minutes

Meeting Intro

- Matt Johnson (City of Roseville Parks and Recreation Director) gave an intro the TAC meeting. He discussed the process to date, and the agenda for the day, as well as anticipated next steps.

Visioning Exercise

Lauren Walburg (Stantec) introduced a visioning exercise to help the city create a vision for the future of NRM in Roseville. The summary of the exercise and TAC attendee responses are included below:

Prompt: Ernest Hemingway was famous for his 6-Word Story contest, an exercise in creativity while providing telling information about a thought or experience.

If you were to write a 6-Word Story about your vision for the future of Natural Resources Management in Roseville Parks, what would you say?

TAC Attendee Responses:

- Natural areas that people interact with
- Meandering through accessible, educational, peaceful forests & prairies
- Preserve and plan more native plants
- Current and future, function and aesthetics
- Restore, improve, maintain flora, fauna and water
- Highly unique naturalized resources and experiences
- Community with natural beauty for all
- Connected corridors supportive of biodiversity and wildlife
- Sustainable NRMP to combat emerging problems
- Achieve rich native biodiversity to enjoy
- Protect, restore so natural resources flourish
- A healthy, beautiful, biologically diverse space for residents and nature

At the meeting, TAC attendees shared major themes from their six word stories with the group:

- Sustainable NRP to combat emerging problems
- Natural beauty
- Biodiversity
- Restore/protect/educate
- Unique
- Climate resilience

Field Inventory Summary

- Larissa Mottl (Stantec), provided an overview of the field inventory. The presentation with this information is included as an attachment to this meeting summary.

TAC Meeting #2
July 17, 2023 – 6:30pm
Meeting Minutes

Breakout Group 1: Goals and Policies

Existing goals and policies from the current NRM plan were shared with participants, along with a list of proposed topics assembled by Stantec and city staff. TAC attendees were asked to respond to the following questions:

The following Natural Resources Management goal and policies are from the 2010 Park and Recreation Master Plan. First, consider if these are still relevant, or if there are any updates needed?

Based on feedback received in meeting one, City and Stantec staff have developed a list of additional considerations for goals and/or policies which could help the city reach the next level in Natural Resources Management, or address known issues not covered by the goals above. Help us refine and add to this list.

TAC attendees offered the following input:

- General agreement with existing goals and policies, but a need to expand and clarify:
 - Consensus that strength should be added to Goal 7: preserve and restore
- Agreement that policy of reforestation (7.3) shall not conflict with prairie restoration/NRR
 - One participant mentioned that current research indicates reforestation may not be the most effective strategy to combat climate change
- Include use of “aggressive” in policy 7.2
 - Policy should call out specific tactics including:
 - Upland buffers
 - No-mow zones
 - Fire
 - Annual decompaction
 - Increase buffer size around wetlands, lessen mowing
- Prairie savannah called out explicitly as an area of protection, the way urban forest is.
- Consider addressing foraging (some desire protection, some equity impacts to aggressive about it).
- Strong desire for a policy that specifically calls out climate change
- Some conversation about use of plant species native to warmer climates, but also not wanting to introduce more non-natives. No real consensus.
- Include wetland and storm land management
- Consider a goal or policy of education and possibly assisting properties outside of the City.
- A desire for more events, more opportunity to get involved, more education
- A recommendation to incorporate NRR training into adopt-a-park
- Desire for the resources necessary to better plan/measure/benchmark and continue to strengthen community engagement in the program
- Be willing to try experimental methods of removals of invasive. An example is the burdock. If we go remove the seed heads will it eradicate the problem instead of treating.
- Prioritizing projects is great but we need to prioritize capital and human investment. Make sure we have funding and that we have a dedicated person to manage the program.
- Be responsible with chemical use, if it’s something that can be done manually we should try that.

TAC Meeting #2
July 17, 2023 – 6:30pm
Meeting Minutes

- Look at bee lawns.
- Alternative methods for communicating volunteer opportunities – especially those geared towards attracting more young people.
- Additional creative signage re: impacts of going off-trail.
- Designated green areas for play (with signage)

Breakout Group 2: Management Recommendations

Discussion was intended to garner feedback on by-site management recommendations table provided to attendees prior to/at TAC meeting. Below are topics that group members brought up.

Group #1

- General comment – Can City increase collaboration with owners and/or operators of road/railroad/utility rights-of-way to restore native vegetation and habitats in those corridors, particularly where the corridors connect Roseville Parks natural areas.
- Ranking Criteria – Consider invasives in ranking criteria (response – while invasives was not considered as a separate category for ranking criteria, it was considered within the Sustainability category).

Group #2

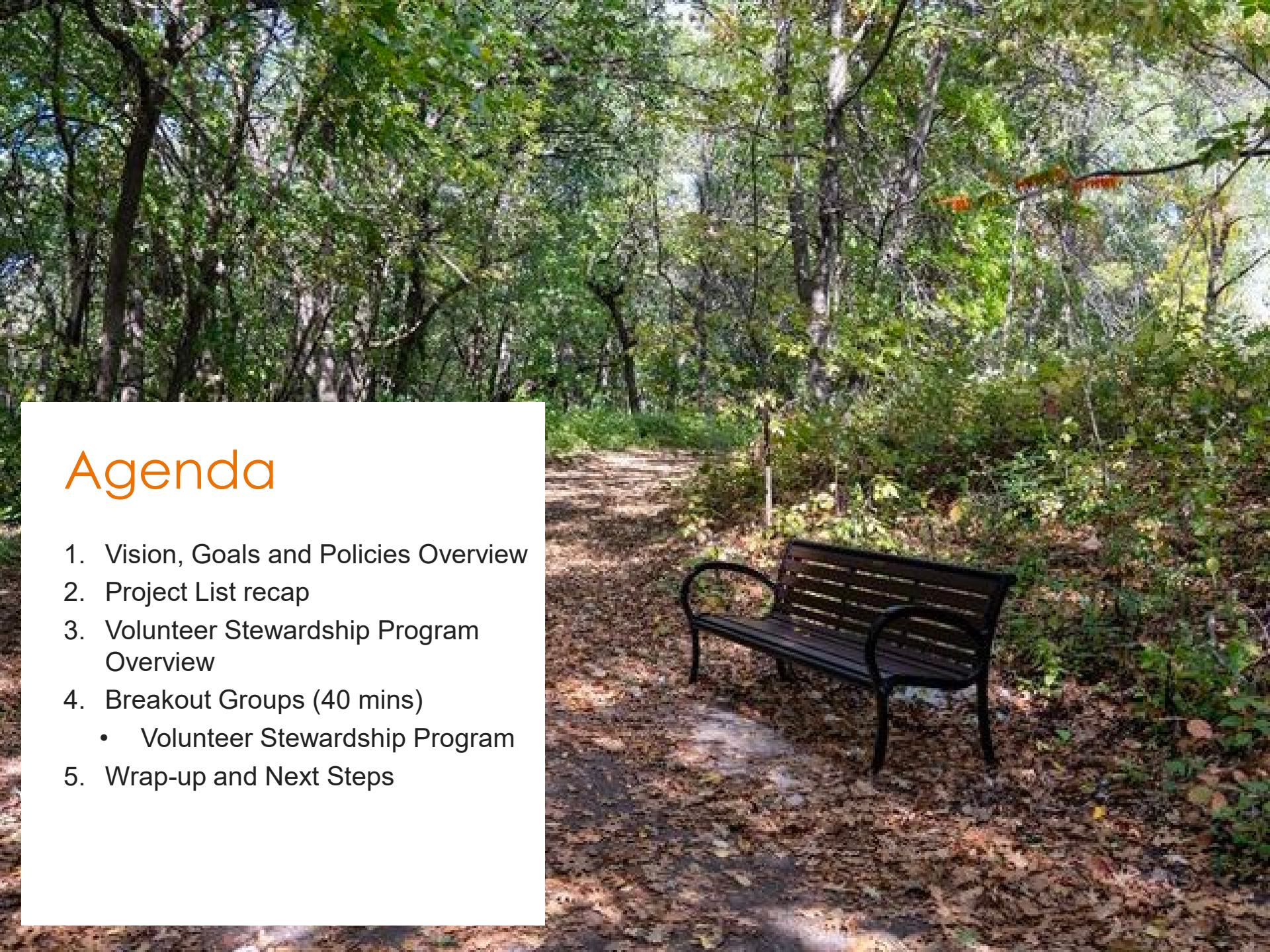
- Recommended adding column to table that provides person-hours needed to complete particular task, in addition to listing cost for a particular activity.
- Increase buffers to water features and natural areas (less mowing).
- Why remove downed woody debris from natural areas in parks? (response – removal of downed woody debris recommended specifically in units planned for management with prescribed fire and/or where it would result in improved safety/efficacy/efficiency to complete work).



City of Roseville
Natural Resources
Management Master Plan

TAC Meeting #3



A photograph of a forest path with a bench. The path is covered in fallen leaves and leads into a dense forest of tall trees with green foliage. A dark metal bench is positioned on the right side of the path, facing away from the viewer. The scene is brightly lit, suggesting a sunny day.

Agenda

1. Vision, Goals and Policies Overview
2. Project List recap
3. Volunteer Stewardship Program Overview
4. Breakout Groups (40 mins)
 - Volunteer Stewardship Program
5. Wrap-up and Next Steps

Vision

Six-Word Story – Last TAC Meeting

Prompt: If you were to write a 6-Word Story about your vision for the future of Natural Resources Management in Roseville Parks, what would you say?

Outcome: We would like to collect your six-word stories and we will use them to create an overall vision statement to be discussed at our next meeting.

Six-Word Stories

- Natural areas that people interact with
- Meandering through accessible, educational, peaceful forests & prairies
- Preserve and plan more native plants
- Current and future, function and aesthetics
- Restore, improve, maintain flora, fauna and water
- Highly unique naturalized resources and experiences
- Community with natural beauty for all
- Connected corridors supportive of biodiversity and wildlife
- Sustainable NRMP to combat emerging problems
- Achieve rich native biodiversity to enjoy
- Protect, restore so natural resources flourish
- A healthy, beautiful, biologically diverse space for residents and nature

Draft Vision

Our vision for the future of Natural Resources Management in Roseville Parks is to create accessible, educational, and peaceful natural areas that foster a deep connection with nature. We aim to preserve and restore native plants, maintain biodiversity, and implement sustainable practices to combat emerging environmental challenges. By establishing connected corridors and unique natural experiences, we will ensure our parks remain healthy, beautiful, and biologically diverse spaces for all residents to enjoy.

Revised Goals and Policies

Goal 1: Preserve and restore significant natural resources, lakes, ponds, wetlands, open spaces, wooded areas, wildlife habitats, and trees as integral aspects of the parks system

Policy 1.1: Encourage **dedication of parks, open spaces, and trails** in new development and redevelopment areas, especially those that preserve significant natural resources and/or adjacent to the subject site.

Policy 1.2: Preserve natural wooded areas and implement an aggressive reforestation and forestry management program in developed and highly-maintained areas to ensure that Roseville has a substantial aesthetically pleasing and environmentally critical tree population in its parks, open spaces, boulevards, and other City property. **Proactively manage the community's public tree population** as a vital natural resource by periodically conducting condition assessment, inventory, pro-active planning and execution.

Policy 1.3 Preserve and restore prairie/savanna areas.

Policy 1.4: Where possible without adversely impacting site use, identify opportunities to **utilize low maintenance native vegetation**, as opposed to traditional "turf."

Policy 1.5: Promote biodiversity and native vegetation over nonnative/invasive vegetation.

Goal 1: Preserve and restore significant natural resources, lakes, ponds, wetlands, open spaces, wooded areas, wildlife habitats, and trees as integral aspects of the parks system

Policy 1.6: Create landscape improvements and design parks to **enhance opportunities for wildlife**, where those improvements and facilities are not in conflict with other park uses or activities. Direct particular attention to the creation of wildlife habitat in parks, where wildlife would not be compromised by park use activities.

Policy 1.7: Protect parks and natural spaces by aggressively addressing issues of **encroachment** including alteration of park spaces without permit and encroaching onto public lands for personal use.

Policy 1.8: Balance active park uses with natural resources management. Consider mechanisms for addressing park use activities and values that are currently undermining Natural Resources Management policies related to preservation and restoration of significant natural resources.

Policy 1.9: Integrate **climate resilience** into all aspects of natural resources management planning by implementing sustainable practices and species management that is cognizant of a warming world, and anticipates and incorporates future climate conditions.

Policy 1.10: Conduct maintenance practices with guidance from the **2014 Parks Natural Areas Maintenance Practices document**, or subsequent update to this document.

Goal 1: Preserve and restore significant natural resources, lakes, ponds, wetlands, open spaces, wooded areas, wildlife habitats, and trees as integral aspects of the parks system

Policy 1.11: Take an **integrated approach** to natural resources management based on **current ecological restoration science** that considers available tools (i.e., prevention, physical, biological, cultural and chemical) and factors such as cost, impact on natural resources, and maintenance objectives. Tools, timing and methods of natural resources management shall be applied responsibly, with attention to **improving natural areas while minimizing adverse impacts on the environment, wildlife, and public health.**

Goal 2: Promote community involvement in natural resources management

Policy 2.1: Develop and implement strategies that allow the community to be involved in **data management** including photo monitoring, crowd source data collection and others.

Policy 2.2: Provide community **environmental education programs** to increase the community's awareness, understanding, and appreciation of natural areas, including the importance of natural habitats and native landscaping in public and private spaces.

Policy 2.3: Develop structures that allow for **volunteerism** for natural resource management and **education for all ages and abilities**, including students, scout groups, adopt-a-park and others.

Policy 2.4: Provide **dedicated staff support and funding** to enhancing the natural resources program including programming, events, and volunteer opportunities.

Policy 2.5: The current scope of the City's natural resources work is on City-owned property. Where practical, develop methods (including education, resources, and links to funding opportunities) to **empower private residents to improve their natural spaces**.

Goal 3: Prioritize both short-term and long-term natural resource management planning and collaboration with partners

Policy 3.1: Create, adopt, and use Natural Resources Management Plans to preserve, restore, and manage the significant natural resources in the park system.

Policy 3.2: Periodically **review and update** the Natural Resources Management Manual including assessing status of benchmarks, reviewing goals and policies, and methodology.

Policy 3.3: Develop and update the Natural Resources Program project list at least every ten years. Ensure that sufficient funds are available for execution of necessary work through grants, CIP and operating funds.

Policy 3.4: Prioritize projects on the Natural Resources Program project list using a **stacked benefits approach** based primarily on the following criteria: quality of existing natural communities, restoration potential, ecological connectivity, sustainability, social equity, funding options, potential efficiencies, volunteer stewardship opportunities, and urgency related to maintaining and building upon past project gains and investments.

Goal 3: Prioritize both short-term and long-term natural resource management planning and collaboration with partners

Policy 3.5: Cooperate with the **three watershed districts** with jurisdiction over parks in Roseville to effect **water quality improvement projects** within parks, and to create landscapes that are sensitive to **stormwater management goals** for park lands.

Work with the watershed districts to add features to parks that help park users appreciate the water quality improvements, focusing on features such as overlooks or seating areas that take advantage of **view to surface water features**, with **educational and interpretive signage** aimed at creating a better understanding of the need for attending to water quality in our parks and in the community. Work with the watershed districts to create park-like environments surrounding water quality improvement projects and stormwater management basins in non-park areas that are accessible to Roseville residents and the community's working population.

Project List Recap



Project List Updates - since July TAC meeting

- Updated target species lists for control
 - Removed some species, shifted others to hand pull activity
- Incorporated weed seed removal (burdock) as a specific activity
- Added high level cost estimates
- Added management unit for Sandcastle Park
- Eliminated conifer removal in prairie unit at Villa

Langton Lake Park – Woodland/Forest Unit – mid-June 2024



Langton Lake Park – Woodland/Forest Unit – mid-Sept 2024



Volunteer Stewardship Program

September 16, 2024



NATURAL RESOURCES PROGRAM



Natural Resources Event Types

- Staff/contractor led third Saturday events
- Volunteer led events
- Other staff led volunteer work
 - Arboretum Green Team
 - Adopt-a-Park volunteers
 - business groups
 - community service volunteers
 - Eagle Scout and Gold Award projects
 - informal – self-guided

Goals of the Natural Resources project

- **Comprehensive Parks Plan**

- **Vision**

- ***Environmental Stewardship.*** We envision our parks as an opportunity to care for our wild places and creatures, where we have been entrusted to manage a resource so future generations benefit from the spirit of nature, and where nature is extended to the experience of every park visitor.

- **Goals & Policies**

- ***Natural resources management.*** Preserve significant natural resources, lakes, ponds, wetlands, open spaces, wooded areas, wildlife habitats, and trees as integral aspects of the parks system.

- **Outcomes**

- Preserve natural assets and significant environmental features...
 - Foster environmental awareness and promote and manage the presence of wildlife and wild places.

- **Long-term View**

- ***Environmental Stewardship.*** We envision parks as opportunities to care for our wild places and creatures, where we have been entrusted with a resource that must be managed and cared for so that future generations will benefit from the spirit of nature, its function, and its regenerative qualities, and where nature is extended to the experience of every park visitor.

NATURAL RESOURCES PROGRAM



PROJECT

How a staff led project is started

1. Master Plan
2. Staff
3. Resident recommendation
4. Ecologist
5. Approached by a group or business

How a volunteer led project is started

1. Approached by a volunteer leader or captain.
2. Resident recommendation
3. Staff
4. Master Plan
5. Ecologist

Volunteer Program

- Changes since the 2014 adoption:
- We have trended away from the Sector Leader/ Constellation Captain model.
- We have added more flexibility to our natural resources program to meet the needs of volunteers



Staff Responsibilities

- setting boundaries and safety oversight
- providing support and needed tools
- establishing (and/or providing guidance and approval of) project priorities for volunteer work groups
- approving projects put forth by volunteers, assuring that all projects make sense within the context of the overall plan
- WAIVERS



New Vision For Program

- Continue areas of program that are working well
- Increase staff led events to two a month
- Increase volunteer led events
- Increase capacity to run additional events by having a dedicated staff member



What's Working

- Our number of volunteer hours continue to grow year after year
- We have a strong volunteer leadership base
- We have increased flexibility and added supports for volunteers
- We have support of council



What Needs Improvement

- We need to increase staff capacity to grow the program
- We need short, medium, and long term planning of events and projects
- Recruitment assistance for additional volunteers to carry out the plans



Discussion

Breakout Groups

Breakout Groups

Groups 1 & 2: Discuss the Volunteer Stewardship Program:

- What is currently working well, what isn't working, and what opportunities are there for the future of the program?
- Ideas for volunteer recruitment/promotion?
- How can this group help?
- Training Ideas?

Next Steps

Next Steps

- Draft NRM Plan Update including TAC input
- October – Parks Commission review NRM Plan Update
- November – City Council review NRM Plan Update



Thank you!

TAC Meeting #3
September 18, 2023 – 6:30pm
Meeting Minutes

Vision, Goals and Policies Recap

- Lauren Walburg (Stantec) gave an overview of the vision, goals and policies document, highlighting places where TAC input influenced the direction of the document.
- TAC Members gave the following feedback on the vision, goals, and policies:
- Vision: “Maintain biodiversity” is great, but there could be verbiage added re: wildlife. A couple options discussed include “maintain biodiversity, flora and fauna” or “restore native plants and habitats, maintain biodiversity...”
- Vision: A more intentional inclusion of the volunteer program in the vision would make it stronger. A couple options discussed include “help people connect with/ encourage responsibility to the land” or “aim to provide stewardship opportunities”
- Goal 1: Consider modifying to “Preserve, restore and maintain significant natural resources...”
- Policy 1.1: Consider modifying to “Encourage dedication and acquisition of parks...” to clarify that park acquisition is a priority.
- Policy 1.1: Consider deleting “significant”
- Policy 1.2 & 1.3: Consider combining and rewording these policies to separate out preserving & restoring natural areas from the forestry management components. An option for Policy 1.2 could be “Preserve and restore natural wooded and prairie/savanna areas.” Consider adding lakes & wetlands to this policy.
- Policy 1.2 & 1.3: An option focused on forestry management could be “Implement an aggressive reforestation and forestry management program in developed and highly maintained areas to ensure that Roseville has a substantial aesthetically pleasing and environmentally critical tree population in its parks, open spaces, boulevards, and other City property. Proactively manage the community’s public tree population as a vital natural resource by periodically conducting condition assessment, inventory, proactive planning and execution.”
- Policy 1.11: Consider moving to be Policy 1.1 as this one is important and helpful for framing
- General: Where do we discuss conflicts between use and protection of parks – ex) salting in Reservoir Woods in the winter months. This is encompassed in Policy 1.8. The City also has a fix-it-form, but TAC members are encouraged to call with issues like this.
- General: Consider either consolidating the policies under Goal 1 so that there are fewer, or split Goal 1 into two different goals. Goal 1 could be split based on policies that talk about “preserve” and “restore.”
- Policy 2.3: Consider changing the word “structures,” could be procedures or something else.
- Policy 3.3: Consider changing project list review to be more often than every 10 years. Could this be 5 years? Or could we add language about having a regular review of the project list (but not a full update)?
- Policy 3.5: Could we add the cemetery, etc. to this policy? The City manages this land from an NRM perspective (through a long lease), so probably not necessary.
- General: Need to address how city NRM and parks staff work with public works.

Project List Recap

- Larissa Mottl (Stantec), updated the group on changes that have been made to the project list since the last (July) TAC meeting. These include changes based on TAC member input, as well as project cost estimates.

TAC Meeting #3
September 18, 2023 – 6:30pm
Meeting Minutes

- One idea from the TAC included outreach from the city (maybe the newsletter) to residents at certain times of the year with reminders on how to manage invasive species – ex) Burdock.
- Another idea was more celebration of business and other volunteer groups – ex) photos on the website/social media, more storytelling etc. This could be done much more effectively with a new natural resources management staff (bandwidth is an issue currently).

Volunteer Program

- Jim Taylor and Rachel Boggs (City of Roseville) gave a brief presentation and overview of the volunteer program. The TAC was then asked to provide input on the volunteer program and provided the following ideas:
- Could there be evening events, in addition to Saturday mornings? Yes, part of the idea in hiring another staff person is to have more bandwidth for these events. The thought is to have 2 monthly events, one on Saturday mornings and one as a potential evening event.
- Could there be an interactive map on the city's website that shows active NRM projects and volunteer opportunities?
- There should be more intentional student outreach, maybe connections formed with teachers at the high school. This could lead to "research opportunities" – to be part of the curriculum in some way, as well as volunteer attraction.
- The U of M currently uses some sites in Roseville as research opportunities/curriculum.
- Roseville should try to train younger people to be volunteer leaders. In this way, it would make it easier to attract other younger volunteers. Ex) Boy/girl scouts.
- Could there be online trainings available – could be outreach to residents and volunteers? Ex) What is Buckthorn and how to remove?
- Roseville can do a better job of having meaningful volunteer projects and showing before & after. The project list will help with this – more of a plan on short, medium and long term projects.
- Roseville has information on volunteers that come only once. Retaining these volunteers can be difficult, as usually they come out for events only.
- The focus of the volunteer program has been on public land only. There may be an opportunity to approach private landowners and offer to help. Private landowners would need to volunteer or have some skin in the game as well. The city could offer expertise and resources.
- Could the city work with the Humphrey School to get access to research on how to attract volunteers?
- City should keep up-to-date with social media platforms – many young people don't use Facebook anymore.
- Could the city offer food at volunteer events?

Appendix B Field Assessment Methods

As part of the adaptive management re-evaluation step, Roseville parks with natural areas were visited by a Stantec ecologist in mid-May through early July 2024. A total of about 335 acres were inventoried and assessed for current conditions and ecological restoration and management needs.

Assessments were made based primarily on the vegetation characteristics within management units (MUs) mapped for each park. Most of the MUs are areas that were mapped for the 2013 Roseville Park Renewal Program and have had some degree of ecological restoration over the last 10 years. Some parks have only one MU, while others have several. MUs range in size from <0.1 acre (such as an educational garden at the Harriet Alexander Nature Center) to 25 acres. Some adjustments and additions were made to MUs for the 2024 assessment to refine vegetation cover type goals and to add areas for future restoration effort. MUs were also refined to represent small enough areas that could be reasonably characterized for existing conditions and for setting feasible management objectives. The MUs are important features for City staff, volunteers, community members, partners, contractors, and others to understand and communicate about past site-specific management along with ongoing and planned future efforts.

A desired future cover type was assigned to each MU to indicate the type of plant community (habitat) or plant communities desirable to maintain or restore within the MU. The 2014 BMP Manual includes descriptions of the major cover types that were identified for Roseville parks as of 2014. The same cover types were used for the 2024 assessments with only a few modifications to select MUs to reflect changes in restoration potential.

Ten vegetation cover types used for the 2024 assessment are summarized in **Table 1**. The most common vegetation cover types are Woodland/Forest, mixed Oak Woodland/Lowland Forest, and Wetlands. **Table 2** provides a cross-walk between the general vegetation cover type assignments and Native Plant Communities (NPCs) defined by the MN Department of Natural Resources (DNR). The DNR's descriptions for NPCs can be used to define very specific objectives for the park vegetation cover types, such as vegetation structure and composition and for re-introduction of important historic natural disturbances (such as fire). Weblinks to descriptions of the DNR NPCs included in **Table 2** are provided in **Appendix C**.



Roseville Parks Natural Resources Management Master Plan
Appendix B Field Assessment Methods

Table 1. Vegetation Cover Types

Vegetation Cover Type	Acres	Number of Management Units	Percent of 2024 Assessment Area
Woodland/Forest	125	41	37
Oak Woodland/Lowland Forest	65	12	19
Oak Woodland	28	3	8
Savanna, Prairie/Savanna	17	6	5
Prairie	4	7	1
Wetlands	91	23	27
Shoreline	3	7	1
Pond Buffer	3	4	1
Educational Garden*	<0.25	1	<0.5
Totals	335	104	100

*Harriet Alexander Nature Center Memorial Garden

Table 2. Vegetation Cover Type cross-walk with DNR Native Plant Communities

Vegetation Cover Type	Target DNR Native Plant Communities
Woodland/Forest	Novel plant assemblage, no DNR NPC equivalent*
Oak Woodland/Lowland Forest	Southern Dry-Mesic Oak (Maple) Woodland (FDs37) Southern Terrace Forest (FFs59)
Oak Woodland	Southern Dry-Mesic Oak (Maple) Woodland (FDs37)
Savanna, Prairie/Savanna	Southern Dry Savanna (UPs14) Southern Mesic Savanna (UPs24)
Prairie	Southern Mesic Prairie (UPs23)
Wetland	Northern Wet Meadow (WMn82) Southern Seepage Meadow/Carr (WMs83) Northern Mixed Cattail Marsh (MRn83)
Shoreline	Northern Wet Meadow (WMn82) Inland Lake Sand/Gravel/Cobble Shore (LKi32) Inland Lake Clay/Mud Shore (LKi54)
Pond Buffer	Southern Terrace Forest (FFs59) Northern Wet Meadow (WMn82) Northern Mixed Cattail Marsh (MRn83)

*See 2014 BMP Manual for a description of the “novel” mixed nonnative/native hardwood forests in Roseville that are represented by the “Woodland/Forest” cover type and a description of the novel restoration target community.



Roseville Parks Natural Resources Management Master Plan

Appendix B Field Assessment Methods

Field assessment for each MU involved recording a plant species list for each vegetation layer, such as canopy, subcanopy, shrub, and ground layers in forest communities. The Stantec ecologist also noted information on the following:

- approximate native ground cover (such as <25%, 26-50%, 51-75%, >75%),
- approximate invasive plant abundance and/or cover,
- evidence of past management effort (such as establishment of seeded species, condition of planted trees, status/distribution of invasive shrub growth),
- presence and species of diseased/dying/dead trees,
- management and restoration opportunities,
- encroachment by invasive garden plants and/or landscaping from neighboring properties, and
- types of disturbances that appeared to be undermining vegetation cover and quality (such as bike use off designated paved trails, trampling from recreational activities, yard waste dumping, and so on).



Appendix C DNR Native Plant Community Weblinks

Southern Dry-Mesic Oak (Maple) Woodland (FDs37)

https://files.dnr.state.mn.us/natural_resources/npc/fire_dependent_forest/fds37.pdf

Southern Terrace Forest (FFs59)

https://files.dnr.state.mn.us/natural_resources/npc/floodplain_forest/ffs59.pdf

Southern Dry Savanna (UPs14)

https://files.dnr.state.mn.us/natural_resources/npc/upland_prairie/ups14.pdf

Southern Mesic Savanna (UPs24)

https://files.dnr.state.mn.us/natural_resources/npc/upland_prairie/ups24.pdf

Southern Mesic Prairie (UPs23)

https://files.dnr.state.mn.us/natural_resources/npc/upland_prairie/ups23.pdf

Northern Wet Meadow (WMn82)

https://files.dnr.state.mn.us/natural_resources/npc/wet_meadow_carr/wmn82.pdf

Southern Seepage Meadow/Carr (WMs83)

https://files.dnr.state.mn.us/natural_resources/npc/wet_meadow_carr/wms83.pdf

Northern Mixed Cattail Marsh (MRn83)

https://files.dnr.state.mn.us/natural_resources/npc/marsh/mrn83.pdf

Inland Lake Sand/Gravel/Cobble Shore (LKi32)

https://files.dnr.state.mn.us/natural_resources/npc/lake_shore/lki32.pdf

Inland Lake Clay/Mud Shore (LKi54)

https://files.dnr.state.mn.us/natural_resources/npc/lake_shore/lki54.pdf



Appendix D Invasive Species Treatment Goals

Invasive plant species observed in Roseville Parks during the 2024 field assessments are listed in a table below. In addition to the plant species, the table includes the plant species growth form (herbaceous annual, biennial, perennial; woody vine; shrub; or tree), MN Noxious Weed List status, and proposed management goal.

Recommended management goals are provided for each species to aid in prioritizing control efforts and selecting management tools and techniques. The management goals follow three invasive plant management (IPM) strategies described in *An Invasive Plant Management Decision Tool* developed by The Nature Conservancy (TNC) (Zimmerman *et al.* 2011). The three control strategies are eradication, containment/exclusion, and suppression. The following are the TNC definitions in Zimmerman *et al.* (2011) for the three control strategies (management goals):

“The goal of **eradication** is to eliminate all individuals and the seed bank from an area with the low likelihood of needing to address the species again in the future.

A **containment/exclusion** project aims to prevent infestations of invasive species from spreading to un-infested areas.

The goal of a **suppression** project is to reduce an invasive plant population in size, abundance, and/or reproductive output below the threshold needed to maintain a species or ecological process. Suppression is only feasible at the local scale due to resource constraints.”

The TNC decision tool further identifies four potential outcomes that may result from establishing the above IPM goals for a specific project. The project may: (1) proceed with implementation of the strategy, because the project is determined to have a high probability of success and good conservation value, (2) not proceed until sustainable funding is secured for ongoing implementation of a control strategy, (3) not proceed in the short-term until more research can be done to determine feasibility or conservation value, or (4) not proceed at all because control is not feasible or warranted.

The 2024 NRM Project List, as noted in Chapter 5, assigns objectives to achieve by 2030 for invasive plant cover for each park management unit. The objectives consider numerous factors, such as landscape context, as well as site-specific and species-specific variables that influence the feasibility of achieving eradication, containment/exclusion, or suppression as IPM goals. Those factors were all considered when assigning general IPM goals for the invasive species observed in Roseville’s parks. Additional park-specific management goals may be needed based on variation in infestation levels among parks where a given species is present.



Roseville Parks Natural Resources Management Master Plan
Appendix D Invasive Species Treatment Goals

Table 3. Invasive plants observed in Roseville park natural areas in 2024

Species	Common Name	Growth Form	MN Noxious Weed Status*	Treatment Goal
<i>Torilis japonica</i>	Japanese hedge parsley	annual/biennial		suppression
<i>Alliaria petiolata</i>	garlic mustard	biennial	Restricted (2013)	suppression
<i>Chelidonium majus</i>	celandine	biennial		suppression
<i>Cirsium vulgare</i>	bull thistle	biennial		eradication
<i>Daucus carota</i>	wild carrot	biennial		disturbance reduction
<i>Hesperis matronalis</i>	dame's rocket	biennial/short-lived perennial		eradication
<i>Arctium species</i>	burdock	perennial		eradication
<i>Berteroia incana</i>	hoary alyssum	perennial		eradication
<i>Campanula rapunculoides</i>	creeping bellflower	perennial		eradication
<i>Centaurea stoebe</i>	spotted knapweed	perennial	Prohibited Control (2001)	suppression/containment
<i>Cirsium arvense</i>	Canada thistle	perennial	Prohibited Control (1872)	suppression
<i>Convallaria majalis</i>	European lily-of-the-valley	perennial		eradication
<i>Glechoma hederacea</i>	creeping Charlie	perennial		suppression/containment
<i>Euphorbia cyparissias</i>	cypress spurge	perennial		eradication
<i>Hemerocallis fulva</i>	daylily	perennial		eradication
<i>Lamium galeobdolon</i>	yellow archangel	perennial		suppression/containment
<i>Linaria vulgaris</i>	butter and eggs (yellow toadflax)	perennial		eradication
<i>Lotus corniculatus</i>	bird's-foot trefoil	perennial		suppression
<i>Lythrum salicaria</i>	purple loosestrife	perennial	Prohibited Control (1992)	containment
<i>Phalaris arundinacea</i>	reed canary grass	perennial		suppression/containment
<i>Potentilla indica</i>	mock strawberry	perennial		containment
<i>Reynoutria japonica</i>	Japanese knotweed	perennial	Prohibited Control (2014)	eradication
<i>Securigera varia</i>	crown vetch	perennial	Restricted (2017)	suppression/containment
<i>Caragana arborescens</i>	Siberian pea shrub	shrub	Restricted (2020)	eradication
<i>Euonymus alatus</i>	burning bush	shrub	Restricted (2020)	eradication
<i>Frangula alnus</i>	glossy buckthorn	shrub	Restricted (1999)	suppression
<i>Lonicera tatarica</i>	Tartarian honeysuckle	shrub	Restricted (2017)	eradication
<i>Rhamnus cathartica</i>	common buckthorn	shrub	Restricted (1999)	suppression



Roseville Parks Natural Resources Management Master Plan
Appendix D Invasive Species Treatment Goals

Species	Common Name	Growth Form	MN Noxious Weed Status*	Treatment Goal
<i>Acer ginnala</i>	amur maple	tree	Specially Regulated (2016)	eradication
<i>Acre platanoides</i>	Norway maple	tree	Specially Regulated (2020)	eradication
<i>Morus alba</i>	white mulberry	tree		eradication
<i>Populus alba</i>	white poplar	tree		eradication
<i>Robinia pseudoacacia</i>	black locust	tree	Restricted (2017)	eradication
<i>Ulmus pumila</i>	Siberian elm	tree		eradication
<i>Phellodendron amurense</i>	Amur corktree	tree	Specially Regulated (2023)	eradication
<i>Vinca minor</i>	periwinkle	woody vine		eradication

*The year listed in parenthesis is the year the species was added to the Minnesota Noxious Weed List. The following weblink provides definitions for each listing category.

<https://www.mda.state.mn.us/plants-insects/minnesota-noxious-weed-list>

A MN Noxious Weed List Fact Sheet is available at this weblink:

<https://www.mda.state.mn.us/sites/default/files/docs/2023-01/2023NoxiousWeedListFactsheet.pdf>



Appendix E 2024 Natural Resources Management Project List



PARK	Management Unit (MU) Map Label	Community Type	AC	2024 Approx. % Native Ground Cover	2024 Management Unit Summary Comments	2024 Stantec Within-Park Priority Rank (High, Med, Low)	2024 MU Priority Rank Comments	Management Activity	Target Species	2024 Approx. Invasive Species (IS) Cover	Proposed 2030 NRM Objectives	Volunteers	Contract	Activity Timing	Equip, Tools, Supply Needs	Special Training / License Needs		Unit	Quantity	Est. Cost/ Unit	Est. Cost/ Year
ACORN	OW/LF1	Oak Woodland & Lowland Forest Restoration	7.74	25-50%	Lowland hardwoods; some oak, including old growth savanna white oak ; amur maple present; buckthorn cover higher in SW corner; significant disk golf disturbance; evidence of seeded forbs and grasses.	Med	Disturbance factors must be addressed to sustain any NRM effort														
ACORN	OW/LF1	Oak Woodland & Lowland Forest Restoration	7.74					Invasive tree removal - 1x	amur maple		No invasive trees in canopy/understory		x	winter	Chainsaw; heavy equipment for woody debris transport; wood chipper	Training: Chainsaw, Trailing, Hauling, Load/Unload		LS	7.74		
ACORN	OW/LF1	Oak Woodland & Lowland Forest Restoration	7.74					Woody invasives removal by hand - annually	buckthorn, Siberian pea shrub	<25%	<10% woody invasive shrub cover	x		dormant seasons	Loppers/hand saws; herbicide daubers with herbicide, indicator dye	Training: Dormant woody plant ID		Acre	7.74	\$500	\$3,870
ACORN	OW/LF1	Oak Woodland & Lowland Forest Restoration	7.74					Invasive brush foliar treatment for re-sprouts/seedlings - annually	buckthorn, Siberian pea shrub, amur maple	<25%	<10% woody invasive shrub cover		x	fall	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	7.74	\$445	\$3,444
ACORN	OW/LF1	Oak Woodland & Lowland Forest Restoration	7.74					Herbicide spot invasive weed treatment - annually	burdock, creeping Charlie, lawn weed areas	25-50%	<25% herbaceous invasive weed cover		x	growing season	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	7.74	\$175	\$1,355
ACORN	OW/LF1	Oak Woodland & Lowland Forest Restoration	7.74					Hand-pull weeds	Japanese hedge parsley, garlic mustard	<5%	Prevent seed production	x		growing season	Gloves, safety glasses	Training: Plant ID		Acre	7.74	\$250	\$1,935
ACORN	OW/LF1	Oak Woodland & Lowland Forest Restoration	7.74					Hand seed removal - annually	burdock		Prevent seed production	x		fall	Gloves, safety glasses, bags	Training: Plant ID		Acre	7.74	\$0	\$0
ACORN	OW/LF1	Oak Woodland & Lowland Forest Restoration	7.74					Native seeding—including site prep in disk golf areas	native woodland edge/savanna mix		>75% native ground cover; increase species richness		x	variable	Herbicide application equip/tools/supplies; mowing equipment	Training/License: MN Pesticide Applicator License; Pesticide handling; Mowing equipment		Acre	7.74	\$1,500	\$11,610
ACORN	OW/LF2	Oak Woodland & Lowland Forest Restoration	0.64	25-50%	Pin oak, white oak , cottonwood canopy; dead ash; boxelder, black cherry under; ash, black cherry common in shrub layer; buckthorn rare; native ground cover, w/ rare occurrences of garlic mustard, burdock, butter and eggs; needs more native ground cover & species richness.	Low	Smallest W/F unit														
ACORN	OW/LF2	Woodland/Forest Restoration	0.64					Woody invasives removal by hand - 1-2x	buckthorn	<5%	<1% woody invasive shrub cover	x		dormant seasons	Loppers/hand saws; herbicide daubers with herbicide, indicator dye	Training: Plant ID		LS	1.00	\$850	\$850
ACORN	OW/LF2	Woodland/Forest Restoration	0.64					Thin native saplings in understory by hand - 1x	black cherry, ash		Increase understory light for native ground cover	x		dormant seasons	Loppers/hand saws; herbicide daubers with herbicide, indicator dye	Training: Plant ID, Herbicide application		LS	1.00	\$850	\$850
ACORN	OW/LF2	Woodland/Forest Restoration	0.64					Invasive brush foliar treatment for re-sprouts/seedlings - annually	buckthorn		<1% woody invasive shrub cover		x	fall	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	0.64	\$450	\$288
ACORN	OW/LF2	Woodland/Forest Restoration	0.64					Hand-pull weeds	garlic mustard	<5%	Prevent seed production annually for 5 years	x		spring	Gloves, safety glasses	Training: Plant ID		Acre	0.64	\$500	\$320
ACORN	OW/LF2	Woodland/Forest Restoration	0.64					Hand seed removal - annually	burdock		Prevent seed production annually for 5 years	x		fall	Gloves, safety glasses, bags	Training: Plant ID		Acre	0.64	\$0	\$0
ACORN	OW/LF2	Woodland/Forest Restoration	0.64					Herbicide spot treat invasive weeds - annually	burdock, butter and eggs	<5%	<5% herbaceous invasives cover		x	growing season	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	0.64	\$350	\$224

PARK	Management Unit (MU) Map Label	Community Type	AC	2024 Approx. % Native Ground Cover	2024 Management Unit Summary Comments	2024 Stantec Within-Park Priority Rank (High, Med, Low)	2024 MU Priority Rank Comments	Management Activity	Target Species	2024 Approx. Invasive Species (IS) Cover	Proposed 2030 NRM Objectives	Volunteers	Contract	Activity Timing	Equip, Tools, Supply Needs	Special Training / License Needs		Unit	Quantity	Est. Cost/ Unit	Est. Cost/ Year
ACORN	OW/LF2	Woodland/Forest Restoration	0.64					Native seeding - 2-3x	native woodland mix		>75% native ground cover; increase species richness	x	x	variable	Seed mix, seed mix filler, buckets for hand seeding	Seed mix design		LS	1.00	\$650	\$650
ACORN	OW/LF3	Oak Woodland & Lowland Forest Restoration	15.85	25-50%	Bur oak canopy w/ white oak, cottonwood, boxelder, quaking aspen, big-tooth aspen, few basswood, silver maple; boxelder, silver maple under; dead ash; rich shrub layer; few patchy buckthorn; few honeysuckle; native ground cover variable in cover and species richness; several mowed areas and significant disk golf trampling/disturbance w/in this unit.	High	Remnant & highest quality W/F MU in park; high restoration potential; high sustainability with disturbance reduction														
ACORN	OW/LF3	Oak Woodland & Lowland Forest Restoration	15.85					Woody invasives removal by hand - annually	buckthorn, honeysuckle	<10%	<5% woody invasives cover	x		dormant seasons	Loppers/hand saws; herbicide daubers with herbicide, indicator dye	Training: Plant ID		Acre	15.85	\$500	\$7,925
ACORN	OW/LF3	Oak Woodland & Lowland Forest Restoration	15.85					Invasive brush foliar treatment for re-sprouts/seedlings - annually	buckthorn, honeysuckle	<10%	<5% woody invasives cover		x	fall	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	15.85	\$450	\$7,133
ACORN	OW/LF3	Oak Woodland & Lowland Forest Restoration	15.85					Herbicide spot treat invasive weeds - annually	burdock, creeping Charlie, garlic mustard rosettes, butter and eggs	<25%	<10% herbaceous invasive weed cover		x	growing season	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	15.85	\$350	\$5,548
ACORN	OW/LF3	Oak Woodland & Lowland Forest Restoration	15.85					Hand-pull weeds, cut thistle flowering stems - annually	garlic mustard, Japanese hedge parsley, motherwort; bull thistle	<10%	Seed production prevented annually for 5 years	x		growing season	Gloves, safety glasses; hand tool for chopping thistle stems	Training: Plant ID		Acre	15.85	\$350	\$5,548
ACORN	OW/LF3	Oak Woodland & Lowland Forest Restoration	15.85					Hand seed removal - annually	burdock		Seed production prevented annually for 5 years	x		fall	Gloves, safety glasses, bags	Training: Plant ID		Acre	15.85	\$0	\$0
ACORN	OW/LF3	Oak Woodland & Lowland Forest Restoration	15.85					Native seeding - 3-4x	native woodland edge/savanna mix		>75% native ground cover; increase species richness	x	x	variable	Seed mix, seed mix filler, buckets for hand seeding	Seed mix design		Acre	15.85	\$850	\$13,473
ACORN	OW/LF3	Oak Woodland & Lowland Forest Restoration	15.85					Prescribed burn - 1x	native woodland		1 RxB implemented		x	dormant seasons	RxB equip, specialized Personal Protective Equipment	Training: RxB		LS	1.00	\$8,500	\$8,500
ACORN	P1, P2, P3	Prairie Reconstruction	0.64	P1: >75% P2: 50-75% P3: 25-50%	Native prairie cover varies between the three prairie islands; need to reduce herbaceous weed cover; remove tree saplings; burn to invigorate existing prairie veg; interseed grasses or grass/forb mix in P2 and P3.	High	Moderate quality; low effort; good grant funding options											Acre	0.64		
ACORN	P1, P2, P3	Prairie Reconstruction	0.64					Herbicide spot treat invasive weeds - annually	Red clover, dandelion, plantain, burdock, butter and eggs, tansy, orchard grass, kentucky bluegrass, other nonnative cool season grasses	25-75%	<10% cover		x	growing season	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	0.64	\$350	\$224
ACORN	P1, P2, P3	Prairie Reconstruction	0.64					Hand-pull weeds	mullein	Few scattered plants	0 plants	x		growing season	Gloves, safety glasses	Training: Plant ID		Acre	0.64	\$500	\$320

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ACORN	P1, P2, P3	Prairie Reconstruction	0.64					Hand seed removal - annually	burdock		Seed production prevented annually for 5 years	x		fall	Gloves, safety glasses, bags	Training: Plant ID		Acre	0.64	\$0	\$0
ACORN	P1, P2, P3	Prairie Reconstruction	0.64					Invasive woody hand cut/treat- annually	All non-oak trees; white mulberry, boxelder	<1%	0 non-oak trees	x		any time	Loppers, herbicide daubers, glyphosate herbicide w/ indicator dye			Acre	0.64	\$500	\$320
ACORN	P1, P2, P3	Prairie Reconstruction	0.64					Prescribed burn - 1x	N/A	N/A	1x		x	fall or spring	RxB equip, specialized Personal Protective Equipment	Training: RxB		Acre	0.64	\$2,000	\$1,280
ACORN	P1, P2, P3	Prairie Reconstruction	0.64					Supplemental seeding - 1-2x	N/A	N/A	>75% native prairie cover across all 3 units; increased species richness	x	x	variable	Seed mix, seed mix filler, buckets for hand seeding	Seed mix design		Acre	0.64	\$850	\$544
ACORN	WL1	Wetland Restoration	1.35	??	Dense purple loosestrife	Low	Low quality; high effort	Plan for future intensive vegetative restoration w/ other wetlands in park.			TBD							Acre	1.35		
ACORN	WL2	Wetland Restoration	0.44	<25%	Cattail marsh; reed canary grass; silver maple spalings; few glossy buckthorn around perimeter; low priority for management?	Low	Low quality; high effort due to current high disturbance levels	Woody invasives removal by hand - annually	buckthorn		<1% woody invasive shrub cover			dormant seasons	Loppers/hand saws; herbicide daubers with aquatic-approved herbicide, indicator dye			Acre	0.44		
ACORN	WL3	Wetland Restoration	0.37	<25%	Wetland (disk golf pond); disturbed frequently by golfers wading in for disks; consider course re-route. Reed canary grass dominated emergent zone w/ native shrubs.	Low	Low quality; high effort	Re-route frisbee golf course to prevent disturbance?	native vegetation, pond life, breeding frogs/toads									Acre	0.37		
ACORN	WL5	Wetland Restoration	3.60	25-50%	Seepage wetland w/ boardwalk; purple loosestrife, glossy buckthorn present; raise outlet elevation to improve hydrology	Med	Moderate quality; high restoration potential; moderate effort; high sustainability (invasive brush)	Invasive woody cut/treat- annually	glossy & common buckthorn	<25%	<5% woody invasives cover		x	winter	Brush saws/loppers/hand saws; aquatic-safe herbicide, indicator dye, herbicide daubers	Training for work on ice; brush saw		Acre	3.60		
ACORN	WL7	Wetland Restoration	0.49	<50%	Forested wetland; dense creeping Charlie cover, reed canary grass.	Low	Low quality; high effort; low sustainability	Native seeding 2-3x	native grasses/sedges		>50% native ground cover	x	x	variable	Seed mix, seed mix filler, buckets for hand seeding	Seed mix design		Acre	0.49		
ACORN	WL9	Wetland Restoration	1.43	<25%	Cattails, reed canary grass dominated.	Low	Low quality; high effort; low sustainability	Plan for future intensive vegetative restoration w/ other wetlands in park?										Acre	1.43		
ACORN	WL10	Wetland Restoration	0.29	<10%	Reed canary grass dominated, w/ ash, boxelder seedlings; few native plants.	Low	Low quality; high effort; low sustainability	Plan for future intensive vegetative restoration w/ other wetlands in park?										Acre	0.29		
ACORN	WL10	Wetland Restoration	0.29					Herbicide spot treat invasive weeds - annually	Canada thistle, crown vetch, burdock	>75%	<10% herbaceous invasive weed cover		x	growing season	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	0.29	\$1,000	\$290
ACORN	WL10	Wetland Restoration	0.29					Hand seed removal - annually	burdock		Prevent seed production annually for 5 years	x		fall	Clippers, gloves, safety glasses, bags	Training: Plant ID		Acre	0.29	\$0	\$0
ACORN	WL11	Wetland Restoration	0.13	>50%	Vernal pond; silver maple seedlings; down dead wood.	Low	Low quality; high effort; low sustainability											Acre	0.13		
ACORN	WL11	Wetland Restoration	0.13					Herbicide spot invasive weed treatment - annually	reed canary grass, Canada thistle	<10%			x	growing season	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	0.13	\$1,000	\$130
ACORN	WL11	Wetland Restoration	0.13					Native seeding - 2-3x	forest floodplain mix	>75%	>75% native ground cover around perimeter	x	x	variable	Seed mix, seed mix filler, buckets for hand seeding	Seed mix design		LS	1.00	\$550	\$550

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APPLEWOOD	W/F	Woodland/Forest Restoration	0.26	<10%	Boxelder, walnut canopy, with cottonwood, bur oak, red maple, spruce; boxelder understory; over dozen dead 6" ash; understory dense shade from boxelder; bare ground except for canopy openings at north end; downed dead wood; burdock thick along west edge, and in canopy opening; overall poor condition.	High	Social equity (sparse walkable natural resources access in neighborhood); will require high effort for small unit											Acre	0.26		
APPLEWOOD	W/F	Woodland/Forest Restoration	0.26					Invasive tree, dead ash, dead down wood, boxelder understory removal - 1x	white mulberry, Siberian elm, boxelder, dead ash		No invasive trees in canopy or undrestory; dead ash removed; boxelder thinned to increase understory light		x	winter	Chainsaw; heavy equipment for woody debris transport; wood chipper	Training: Chainsaw, Trailing, Hauling, Load/Unload		LS	0.26		
APPLEWOOD	W/F	Woodland/Forest Restoration	0.26					Woody invasives removal by hand - 1x	buckthorn, white mulberry, honeysuckle		No stems with basal diameter >1/4"	x		dormant seasons	Brush saws; Loppers/hand saws; herbicide daubers with herbicide, indicator dye	Training: Dormant woody plant ID		Acre	0.26	\$3,500	\$910
APPLEWOOD	W/F	Woodland/Forest Restoration	0.26					Invasive brush foliar treatment for re-sprouts/seedlings - annually	buckthorn, white mulberry, honeysuckle		<1% invasive brush cover		x	fall	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	0.26	\$1,500	\$390
APPLEWOOD	W/F	Woodland/Forest Restoration	0.26					Hand pull herbaceous weeds - annually	garlic mustard, motherwort		<1% herbaceous invasives cover	x		growing season	Gloves, safety glasses	Training: Plant ID		Acre	0.26	\$1,000	\$260
APPLEWOOD	W/F	Woodland/Forest Restoration	0.26					Herbicide spot treat invasive weeds - 2x	motherwort, burdock, other broadleaf weeds		<1% broadleaf weed cover		x	growing season	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	0.26	\$1,500	\$390
APPLEWOOD	W/F	Woodland/Forest Restoration	0.26					Hand seed removal - annually	burdock		Prevent seed production annually for 5 years	x		fall	Clippers, gloves, safety glasses, bags	Training: Plant ID		Acre	0.26	\$0	\$0
APPLEWOOD	W/F	Woodland/Forest Restoration	0.26					Native seeding - 2-3x	woodland edge mix		>75% native ground cover	x	x	variable	Seed mix, seed mix filler, buckets for hand seeding	Seed mix design		LS	1.00	\$1,500	\$1,500
APPLEWOOD	W/F	Woodland/Forest Restoration	0.26					Tree planting - 1x	oaks		Fill in canopy gaps at north end	x	x	spring/fall				Acre	0.26	\$2,000	\$520
APPLEWOOD OVERLOOK	PS	Prairie/ Savanna	0.72	25-50%	Cottonwood canopy w/ occasional spruce, river birch, silver maple; invasive Russian olive, Siberian elm; invasive shrubs/saplings rare; ground cover dominated by nonnative plants, especially in prairie along north side of pond; dead down trees south arm.	High	Social equity (sparse walkable natural resources access in neighborhood); will require high effort for small unit											Acre	0.72		
APPLEWOOD OVERLOOK	PS	Prairie/ Savanna	0.72					Invasive tree, dead ash, dying aspen, down dead wood removal - 1x	Russian olive, Siberian elm, down dead wood, dead or dying ash and aspen	<10%	No invasive trees, down dead trees, snags		x	winter	Chainsaw; heavy equipment for woody debris transport; wood chipper	Training: Chainsaw, Trailing, Hauling, Load/Unload		LS	0.72		
APPLEWOOD OVERLOOK	PS	Prairie/Savanna	0.72					Woody invasives removal by hand - 1x	buckthorn, white mulberry, honeysuckle; saplings in prairie planting	<10%	No stems with basal diameter >1/4"; no fruiting plants	x		dormant seasons	Brush saws; Loppers/hand saws; herbicide daubers with herbicide, indicator dye	Training: Dormant woody plant ID		Acre	0.72	\$1,500	\$1,080
APPLEWOOD OVERLOOK	PS	Prairie/Savanna	0.72					Invasive brush foliar treatment for re-sprouts/seedlings - 2x	buckthorn, white mulberry, honeysuckle	<10%	<1% woody invasives cover		x	fall	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	0.72	\$1,500	\$1,080

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APPLEWOOD OVERLOOK	PS	Prairie/Savanna	0.72					Herbicide spot treat invasive weeds - annually	burdock, crown vetch, curly dock, Canada thistle, common St. Johnswort	25-50%	<5% herbaceous invasives cover		x	growing season	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	0.72	\$950	\$684
APPLEWOOD OVERLOOK	PS	Prairie/Savanna	0.72					Hand pull invasive herbaceous weeds - annually	hoary alyssum, bull thistle, mullein, sweetclover	<10%	<1%; few scattered plants	x		growing season	Gloves, safety glasses	Training: Plant ID		Acre	0.72	\$3,000	\$2,160
APPLEWOOD OVERLOOK	PS	Prairie/Savanna	0.72					Hand seed removal - annually	burdock		Prevent seed production annually for 5 years	x		fall	Gloves, safety glasses, bags	Training: Plant ID		Acre	0.72	\$0	\$0
APPLEWOOD OVERLOOK	PS	Prairie/Savanna	0.72					Site prep spray/mow for native seeding -1-2x	nonnative ground cover				x	growing season	Backpack sprayers, herbicide, indicator dye; mowing equipment	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID; Mowing Equipment Operation; Trailingering		LS	1.00	\$1,500	\$1,500
APPLEWOOD OVERLOOK	PS	Prairie/Savanna	0.72					Native seeding - 2-3x	prairie/savanna seed mixes		>75% native ground cover	x	x	variable	Seed mix, seed mix filler, buckets for hand seeding	Seed mix design		LS	1.00	\$850	\$850
APPLEWOOD OVERLOOK	PS	Prairie/Savanna	0.72					Grow-in spot mowing/weed control for seeded areas	weeds		>75% native ground cover		x	growing season	Backpack sprayers, herbicide, indicator dye; mowing equipment	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID; Mowing Equipment Operation; Trailingering		LS	1.00	\$750	\$750
AUTUMN GROVE	W/F	Woodland/Forest Restoration	0.29	<10%	Narrow wooded strip along Hamline Ave w/ very low utility lines; boxelder, black walnut, spruce, silver maple, hackberry, American elm canopy; several mulberry; dead ash present; woody debris & stump sprouts south end; large buckthorn and white mulberry growing up into utility line; needs native ground layer seeding; expand native ground cover west into lawn to create buffer.	High	Social equity (sparse walkable natural resources access in neighborhood); will require high effort for small unit											Acre	0.29		
AUTUMN GROVE	W/F	Woodland/Forest Restoration	0.29					Woody invasives removal by hand - 1x	buckthorn, mulberry, Siberian elm	>90%	No stems with basal diameter >1/4"; no fruiting plants		x	dormant seasons	Chainsaw/brush saw; herbicide, indicator dye, herbicide daubers	Training: training and safety plan for work next to road & under utility line		LS	1.00	\$2,500	\$2,500
AUTUMN GROVE	W/F	Woodland/Forest Restoration	0.29					Invasive brush foliar treatment for re-sprouts/seedlings - 3x	buckthorn, mulberry, Siberian elm	50-75%	<1% woody invasives cover		x	fall	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	0.29	\$2,100	\$609
AUTUMN GROVE	W/F	Woodland/Forest Restoration	0.29					Herbicide spot treat invasive weeds - annually	broadleaf weeds	<10%	<1% herbaceous invasives cover		x	growing season	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	0.29	\$1,500	\$435
AUTUMN GROVE	W/F	Woodland/Forest Restoration	0.29					Native grass seeding - 2x	woodland species		>75% cover by native grasses	x	x	variable	Seed mix, seed mix filler, buckets for hand seeding	Seed mix design		LS	1.00	\$450	\$450
AUTUMN GROVE	W/F	Woodland/Forest Restoration	0.29					Native forb seeding - 2x	woodland edge species		>25% cover by native forbs	x	x	variable	Seed mix, seed mix filler, buckets for hand seeding	Seed mix design		LS	1.00	\$850	\$850
CENTRAL PARK DALE EAST	P1 (CP-U5)	Prairie Reconstruction	0.14	50-75%	HANC prairie: Needs dormant brush mow, RxB, spot weed treatments for burdock, curly dock, supplemental seeding.	High	Role in environmental education & interpretation											Acre	0.14		
CENTRAL PARK DALE EAST	P1 (CP-U5)	Prairie Reconstruction	0.14					Dormant brush mow for brush suppression - 2-3x	native shrubs		Mechanical brush suppression conducted at least 2x		x	dormant seasons	Specialized mowing equipment (walk-behind brush mower)	Training: Mowing Equipment Operation; Trailingering		Acre	0.14	\$5,000	\$700

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CENTRAL PARK DALE EAST	P1 (CP-U5)	Prairie Reconstruction	0.14					Prescribed burn - 1x			1 prescribed burn implemented		x	dormant seasons	RxB equip, specialized Personal Protective Equipment	Training: RxB		EA	1.00	\$2,100	\$2,100
CENTRAL PARK DALE EAST	P1 (CP-U5)	Prairie Reconstruction	0.14					Herbicide spot treat invasive weeds - annually	burdock, curly dock		<5% herbaceous invasives cover		x	growing season	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	0.14	\$4,000	\$560
CENTRAL PARK DALE EAST	P1 (CP-U5)	Prairie Reconstruction	0.14					Hand seed removal - annually	burdock		Prevent seed production annually for 5 years	x		fall	Gloves, safety glasses, bags	Training: Plant ID		Acre	0.14	\$0	\$0
CENTRAL PARK DALE EAST	P1 (CP-U5)	Prairie Reconstruction	0.14					Native seeding - 1-2x	mesic prairie mix		>75% native ground cover	x	x	variable	Seed mix, seed mix filler, buckets for hand seeding	Seed mix design		Acre	0.14	\$3,500	\$490
CENTRAL PARK DALE EAST	OW/LF1	Oak Woodland & Lowland Forest Restoration	9.03	50-75%	HANC woodland: Canopy cover mix of oak, lowland hardwoods, planted conifers; scattered invasive shrub follow-up; spot treat herbaceous invasives; long-term canopy management planning needed (dead oaks in SE corner, dead conifers near HANC, canopy gaps); more groundlayer seeding; invasive tree removal.	High	Remnant plant community; high quality, restoration potential, and sustainability; role in environmental education											Acre	9.03		
CENTRAL PARK DALE EAST	OW/LF1	Oak Woodland & Lowland Forest Restoration	9.03					Canopy successional planning & tree planting			Forest management plan		x					Acre	9.03		
CENTRAL PARK DALE EAST	OW/LF1	Oak Woodland & Lowland Forest Restoration	9.03					Herbicide spot treat invasive weeds - annually	burdock, Canada thistle, garlic mustard, creeping Charlie, motherwort, reed canary grass, daylily	50-75%	<25% herbaceous invasive weed cover		x	growing season	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	9.03	\$350	\$3,161
CENTRAL PARK DALE EAST	OW/LF1	Oak Woodland & Lowland Forest Restoration	9.03					Hand pull weeds - annually	garlic mustard, motherwort, dame's rocket, hairy vetch		Prevent seed production annually for 5 years	x		growing season	Gloves, safety glasses, bags	Training: Plant ID		Acre	9.03	\$1,000	\$9,030
CENTRAL PARK DALE EAST	OW/LF1	Oak Woodland & Lowland Forest Restoration	9.03					Hand seed removal - annually	burdock		Prevent seed production annually for 5 years	x		fall	Gloves, safety glasses, bags	Training: Plant ID		Acre	9.03	\$0	\$0
CENTRAL PARK DALE EAST	OW/LF1	Oak Woodland & Lowland Forest Restoration	9.03					Invasive brush foliar treatment for re-sprouts/seedlings - annually	buckthorn, glossy buckthorn, white mulberry, honeysuckle	<5%	<1% woody invasive shrub cover; no fruiting plants		x	fall	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	9.03	\$650	\$5,870
CENTRAL PARK DALE EAST	OW/LF1	Oak Woodland & Lowland Forest Restoration	9.03					Native seeding - 2-3x	woodland mix		>75% native ground cover; increase species richness	x	x	variable	Seed mix, seed mix filler, buckets for hand seeding	Seed mix design		Acre	9.03	\$850	\$7,676
CENTRAL PARK DALE EAST	W/F2	Woodland/Forest Restoration	1.28	25-50%	HANC woodland: Lowland hardwoods w/ cottonwood, basswood, American elm; glossy buckthorn along shoreline; encroachment issues.	Med	Moderate quality; moderate sustainability											Acre	1.28		
CENTRAL PARK DALE EAST	W/F2	Woodland/Forest Restoration	1.28					Herbicide spot treat invasive weeds - annually	burdock, celandine, garlic mustard	25-50%	<10% herbaceous invasive weed cover		x	growing season	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	1.28	\$750	\$960
CENTRAL PARK DALE EAST	W/F2	Woodland/Forest Restoration	1.28					Hand seed removal - annually	burdock		Prevent seed production annually for 5 years	x		fall	Gloves, safety glasses, bags	Training: Plant ID		Acre	1.28	\$0	\$0
CENTRAL PARK DALE EAST	W/F2	Woodland/Forest Restoration	1.28					Native seeding - 2-3x	woodland mix		>75% native ground cover; increase species richness	x	x	variable	Seed mix, seed mix filler, buckets for hand seeding	Seed mix design		Acre	1.28	\$850	\$1,088
CENTRAL PARK DALE EAST	W/F2	Woodland/Forest Restoration	1.28					Invasive brush foliar treatment for re-sprouts/seedlings - annually	buckthorn, glossy buckthorn		<1% woody invasive shrub cover; no fruiting plants		x	fall	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	1.28	\$650	\$832

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CENTRAL PARK DALE EAST	W/F3 - Compost Facility	Woodland/Forest Restoration	1.20	<25%	Lowland hardwood canopy, occasional willow; buckthorn cover >75%, few honeysuckle; needs follow-up buckthorn brush mow and ground layer seeding.	High	Wetland buffer											Acre	1.20		
CENTRAL PARK DALE EAST	W/F3 - Compost Facility	Woodland/Forest Restoration	1.20					Forestry mow woody invasives - 1x	buckthorn, honeysuckle	>75%	<10% woody invasive shrub cover		x	dormant seasons	Specialized mowing equipment (walk-behind brush mower or skidsteer forestry mower)	Training: Mowing Equipment Operation; Trailing		Acre	1.20	\$2,000	\$2,400
CENTRAL PARK DALE EAST	W/F3 - Compost Facility	Woodland/Forest Restoration	1.20					Invasive brush foliar treatment for re-sprouts/seedlings - annually after forestry mow	buckthorn, honeysuckle	>75%	<10% woody invasive shrub cover		x	fall	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	1.20	\$650	\$780
CENTRAL PARK DALE EAST	W/F3 - Compost Facility	Woodland/Forest Restoration	1.20					Herbicide spot treat invasive weeds - annually	burdock		<5% herbaceous invasive weed cover		x	growing season	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	1.20	\$750	\$900
CENTRAL PARK DALE EAST	W/F3 - Compost Facility	Woodland/Forest Restoration	1.20					Native seeding - 2-3x	woodland edge mix		>75% native ground cover	x	x	variable	Seed mix, seed mix filler, buckets for hand seeding	Seed mix design		Acre	1.20	\$850	\$1,020
CENTRAL PARK DALE EAST	WL1	Wetland Restoration	36.35	>75%	HANC wetland: needs glossy buckthorn (overall <25% cover), amur maple, purple loosestrife control; focus on buckthorn along boardwalk and islands to curb seed production; consider interpretative sign for shrub ID due to diversity present.	High	Maintain good quality & prevent condition decline; interpretive signs present	Woody invasives removal by hand - 1-2x	glossy buckthorn, amur maple	<25%	<5% invasive shrub cover		x	winter	Brush saws; herbicide, indicator dye, herbicide daubers	Training and safety plan for work on ice		Acre	10.00	\$5,000	\$50,000
CENTRAL PARK DALE EAST	HANC Woodland Garden	Woodland Garden		>75%	Minor weed management needed; scattered reed canary grass; 1 buckthorn, creeping bellflower.	High	Role in environmental education & interpretation	Hand weeding, spot spraying - annually	invasive shrubs & perennials	<1%	Maintain <1% invasive plant cover	x		growing season	Gloves, safety glasses	Training: Plant ID		Acre	0.00		
CENTRAL PARK DALE WEST	W/F4	Woodland/Forest Restoration	0.16	<25%	Cut/treat buckthorn (fruiting shrubs present); spot spray burdock; seed native grasses.	High	High restoration potential by volunteers											Acre	0.16		
CENTRAL PARK DALE WEST	W/F4	Woodland/Forest Restoration	0.16					Woody invasives removal by hand - 1x	buckthorn	>50%	No stems with basal diameter >1/4"; no fruiting plants	x		dormant seasons	Brush saws; Loppers/hand saws; herbicide daubers with herbicide, indicator dye	Training: Dormant woody plant ID		Acre	0.16	\$3,500	\$560
CENTRAL PARK DALE WEST	W/F4	Woodland/Forest Restoration	0.16					Invasive brush foliar treatment for re-sprouts/seedlings - annually	buckthorn, nonnative shrubs/saplings		<1% woody invasive shrub cover; no fruiting plants		x	fall	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	0.16	\$1,500	\$240
CENTRAL PARK DALE WEST	W/F4	Woodland/Forest Restoration	0.16					Herbicide spot treat invasive weeds - annually	burdock		<1% herbaceous invasives cover		x	growing season	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	0.16	\$2,500	\$400
CENTRAL PARK DALE WEST	W/F4	Woodland/Forest Restoration	0.16					Hand seed removal - annually	burdock		Prevent seed production annually for 5 years	x		fall	Gloves, safety glasses, bags	Training: Plant ID		Acre	0.16	\$0	\$0
CENTRAL PARK DALE WEST	W/F4	Woodland/Forest Restoration	0.16					Native seeding - 2-3x	woodland grasses, than forb mix		>75% native ground cover	x	x	variable	Seed mix, seed mix filler, buckets for hand seeding	Seed mix design		Acre	0.16	\$1,500	\$240

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CENTRAL PARK DALE WEST	W/F5	Woodland/Forest Restoration	1.63	25-50%	Forestry mow/brush saw buckthorn; follow-up brush foliar treatments; spot spray broadleaf weeds; remove invasive trees and plan canopy succession to native hardwoods; native seeding; NOTE: Japanese knotweed present at south end near playground area.	High	Sustain gains and continue NRM progress											Acre	1.63		
CENTRAL PARK DALE WEST	W/F5	Woodland/Forest Restoration	1.63					Invasive tree removal - 1x	Siberian elm, white poplar, white mulberry		No invasive trees		x	winter	Chainsaw; heavy equipment for woody debris transport; wood chipper	Training: Chainsaw, Trailing, Hauling, Load/Unload		LS	1.63		
CENTRAL PARK DALE WEST	W/F5	Woodland/Forest Restoration	1.63					Forestry mow woody invasives - 1x	buckthorn, honeysuckle, white mulberry	25-50%	<10% woody invasive shrub cover		x	winter	Specialized mowing equipment (walk-behind brush mower or skidsteer forestry mower)	Training: Mowing Equipment Operation; Trailing		Acre	1.63	\$2,000	\$3,260
CENTRAL PARK DALE WEST	W/F5	Woodland/Forest Restoration	1.63					Invasive brush foliar treatment for re-sprouts/seedlings - annually	buckthorn, honeysuckle, white mulberry	25-50%	<10% woody invasive shrub cover		x	late spring/fall	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	1.63	\$650	\$1,060
CENTRAL PARK DALE WEST	W/F5	Woodland/Forest Restoration	1.63					Herbicide spot treat - annually until eradicated	Japanese knotweed	1 patch	Eradicate		x	growing season	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		EA	1.00	\$450	\$450
CENTRAL PARK DALE WEST	W/F5	Woodland/Forest Restoration	1.63		ADDED 8/25/24			Hand pull weeds - annually	catnip, mullein, hoary alyssum, garlic mustard, yellow sweetclover, dame's rock; remove burdock seeds	25-50%	few scattered plants	x		growing season	Gloves, safety glasses	Training: Plant ID		Acre	1.63	\$1,200	\$1,956
CENTRAL PARK DALE WEST	W/F5	Woodland/Forest Restoration	1.63					Native seeding - 3-4x	woodland edge mix		>75% native ground cover	x	x	variable	Seed mix, seed mix filler, buckets for hand seeding	Seed mix design		Acre	1.63	\$1,500	\$2,445
CENTRAL PARK DALE WEST	W/F6	Woodland/Forest Restoration	0.87	<50%	Lowland hardwood canopy; buckthorn re-sprout management needed; cut/treat and foliar; honeysuckle, white mulberry present; spot spray broadleaf weeds; white mulberry tree removal by Dale St; native seeding.	High	Sustain gains and continue NRM progress											Acre	0.87		
CENTRAL PARK DALE WEST	W/F6	Woodland/Forest Restoration	0.87					Invasive tree removal - 1x	white mulberry		No invasive trees present.		x		Chainsaw; heavy equipment for woody debris transport; wood chipper	Training: Chainsaw, Trailing, Hauling, Load/Unload		LS	0.87		
CENTRAL PARK DALE WEST	W/F6	Woodland/Forest Restoration	0.87					Woody invasives removal by hand - 1-2x	buckthorn, honeysuckle, amur maple, ash, boxelder	<25%	No stems with basal diameter >1/4"; no fruiting plants	x			Brush saws; Loppers/hand saws; herbicide daubers with herbicide, indicator dye	Training/License: MN dormant woody plant ID		Acre	0.87	\$2,000	\$1,740
CENTRAL PARK DALE WEST	W/F6	Woodland/Forest Restoration	0.87					Invasive brush foliar treatment for re-sprouts/seedlings - annually	buckthorn, honeysuckle, amur maple, ash, boxelder		<5% woody invasive shrub cover		x		Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	0.87	\$1,200	\$1,044
CENTRAL PARK DALE WEST	W/F6	Woodland/Forest Restoration	0.87					Herbicide spot treat invasive weeds - annually	broadleaf weeds	<25%	<10% herbaceous invasive weed cover		x		Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	0.87	\$750	\$653
CENTRAL PARK DALE WEST	W/F6	Woodland/Forest Restoration	0.87					Native seeding	woodland edge mix		>75% native ground cover	x	x	variable	Seed mix, seed mix filler, buckets for hand seeding	Seed mix design		Acre	0.87	\$1,500	\$1,305

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CENTRAL PARK VICTORIA EAST	W/F7	Woodland/Forest Restoration	4.15	>75%	Lowland hardwood canopy; remove invasive trees (Siberian elm); dead ash; rare occurrences of invasive brush to cut/treat or foliar (buckthorn, white mulberry); planted trees look good; spot spray broadleaf weeds; high weed cover along NE arm by Arboretum will require intense management if desire to restore to natives; patchy native seeding otherwise needed throughout.	High	Remnant plant community; high quality, high restoration potential, and high sustainability											Acre	4.15		
CENTRAL PARK VICTORIA EAST	W/F7	Woodland/Forest Restoration	4.15					Invasive tree removal - 1x	Siberian elm		No invasive trees present.		x	winter	Chainsaw; heavy equipment for woody debris transport; wood chipper	Training: Chainsaw, Trailing, Hauling, Load/Unload		LS	4.15		
CENTRAL PARK VICTORIA EAST	W/F7	Woodland/Forest Restoration	4.15					Woody invasives removal by hand	buckthorn, honeysuckle, white mulberry	<25%	No stems with basal diameter >1/4"; no fruiting plants	x		dormant seasons	Brush saws; Loppers/hand saws; herbicide daubers with herbicide, indicator dye	Training: Dormant woody plant ID		Acre	4.15	\$850	\$3,528
CENTRAL PARK VICTORIA EAST	W/F7	Woodland/Forest Restoration	4.15					Invasive brush foliar treatment for re-sprouts/seedlings - annually	buckthorn, honeysuckle, mulberry, Siberian elm		<1% woody invasive shrub cover		x	fall	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	4.15	\$650	\$2,698
CENTRAL PARK VICTORIA EAST	W/F7	Woodland/Forest Restoration	4.15					Herbicide spot treat invasive weeds - annually	broadleaf weeds	<25%	<5% herbaceous invasive weed cover		x	growing season	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	4.15	\$350	\$1,453
CENTRAL PARK VICTORIA EAST	W/F7	Woodland/Forest Restoration	4.15					Native seeding	woodland edge mix		>75% native ground cover	x	x	variable	Seed mix, seed mix filler, buckets for hand seeding	Seed mix design		Acre	4.15	\$850	\$3,528
CENTRAL PARK VICTORIA EAST	W/F8	Woodland/Forest Restoration	1.26	25-50%	Mixed lowland hardwood/conifer canopy; dense shade; invasive brush is rare; needs undestory thinning of boxelder to establish native ground cover; spot treat broadleaf weeds; needs canopy succession planning.	Med-Low	Restoration potential hinges on canopy management; moderate sustainability due to edge effects but good volunteer project potential											Acre	1.26		
CENTRAL PARK VICTORIA EAST	W/F8	Woodland/Forest Restoration	1.26					Woody invasives removal by hand - 2-3x	buckthorn, honeysuckle, white mulberry	<25%	No stems with basal diameter >1/4"; no fruiting plants	x		dormant seasons	Brush saws; Loppers/hand saws; herbicide daubers with herbicide, indicator dye	Training: Dormant woody plant ID		Acre	1.26	\$1,800	\$2,268
CENTRAL PARK VICTORIA EAST	W/F8	Woodland/Forest Restoration	1.26					Invasive brush foliar treatment for re-sprouts/seedlings - annually	buckthorn, honeysuckle, mulberry, Siberian elm	<25%	<1% woody invasive shrub cover		x	late spring/fall	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	1.26	\$850	\$1,071
CENTRAL PARK VICTORIA EAST	W/F8	Woodland/Forest Restoration	1.26					Herbicide spot treat invasive weeds - annually, and site prep for seeding	broadleaf weeds	50-75%	<10% herbaceous invasive weed cover		x	growing season	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	1.26	\$650	\$819
CENTRAL PARK VICTORIA EAST	W/F8	Woodland/Forest Restoration	1.26					Native seeding - 2-3x	woodland edge mix		>75% diverse native ground cover	x	x	variable	Seed mix, seed mix filler, buckets for hand seeding	Seed mix design		Acre	1.26	\$850	\$1,071
CENTRAL PARK VICTORIA EAST	W/F8	Woodland/Forest Restoration	1.26					Canopy successional planning & tree planting			Forest management plan		x					Acre	1.26		
CENTRAL PARK VICTORIA EAST	W/F9	Woodland/Forest Restoration	0.29	<25%	Lowland hardwoods; needs woody and herbaceous invasives control followed by native seeding; could include native shrub planting.	Low	Low quality; low sustainability; high effort											Acre	0.29		

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CENTRAL PARK VICTORIA EAST	W/F9	Woodland/Forest Restoration	0.29					Invasive tree removal - 1x	autumn olive, Siberian elm		No invasive trees		x	winter	Chainsaw; heavy equipment for woody debris transport; wood chipper	Training: Chainsaw, Trailing, Hauling, Load/Unload		LS	0.29		
CENTRAL PARK VICTORIA EAST	W/F9	Woodland/Forest Restoration	0.29					Invasive brush foliar treatment for re-sprouts/seedlings - annually	buckthorn	50-75%	<10% woody invasive shrub cover		x	fall	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	0.29	\$2,400	\$696
CENTRAL PARK VICTORIA EAST	W/F9	Woodland/Forest Restoration	0.29					Herbicide spot treat invasive weeds - annually	bird's-foot trefoil, butter and eggs, yellow sweetclover	>50%	<25% herbaceous invasive weed cover		x	growing season	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	0.29	\$1,500	\$435
CENTRAL PARK VICTORIA EAST	W/F9	Woodland/Forest Restoration	0.29					Native seeding - 2-3x	woodland edge mix		>75% native ground cover	x	x	variable	Seed mix, seed mix filler, buckets for hand seeding	Seed mix design		LS	1.00	\$1,500	\$1,500
CENTRAL PARK VICTORIA EAST	W/F10	Woodland/Forest Restoration	0.32	<5%	Lowland hardwood canopy; follow-up brush foliar treatment to buckthorn; spot spray broadleaf weeds; native seeding.	Med	High restoration potential for low effort											Acre	0.32		
CENTRAL PARK VICTORIA EAST	W/F10	Woodland/Forest Restoration	0.32					Invasive brush foliar treatment for re-sprouts/seedlings - annually	buckthorn	25-50%	<5% woody invasive shrub cover		x	fall	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	0.32	\$3,500	\$1,120
CENTRAL PARK VICTORIA EAST	W/F10	Woodland/Forest Restoration	0.32					Herbicide spot treat invasive weeds - annually	burdock, creeping bellflower	>50%	<10% herbaceous invasive weed cover		x	growing season	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	0.32	\$1,800	\$576
CENTRAL PARK VICTORIA EAST	W/F10	Woodland/Forest Restoration	0.32					Native seeding - 2-3x	woodland mix		>75% native ground cover	x	x	variable	Seed mix, seed mix filler, buckets for hand seeding	Seed mix design		Acre	0.32	\$1,000	\$320
CENTRAL PARK LEXINGTON EAST & VICTORIA WEST	W/F11	Woodland/Forest Restoration	3.39	50-75%	East end with mowed areas, patches of buckthorn, honeysuckle, Amur maple; far west end in Lexington East park unit with bur oak canopy (and white mulberry); generally needs invasive shrub removal, some understory sapling thinning (boxelder, ash), and native ground layer seeding.	High	High restoration potential; high connectivity; good volunteer project area											Acre	3.39		
CENTRAL PARK LEXINGTON EAST & VICTORIA WEST	W/F11	Woodland/Forest Restoration	3.39					Invasive tree removal - 1x	white mulberry		No invasive trees present.		x	winter	Chainsaw; heavy equipment for woody debris transport; wood chipper	Training: Chainsaw, Trailing, Hauling, Load/Unload		LS	3.39		
CENTRAL PARK LEXINGTON EAST & VICTORIA WEST	W/F11	Woodland/Forest Restoration	3.39					Woody invasives removal and native sapling thinning by hand - 1-2x	buckthorn, honeysuckle, amur maple, ash, boxelder	<25%	No stems with basal diameter >1/4"; no fruiting plants	x		dormant seasons	Brush saws; Loppers/hand saws; herbicide daubers with herbicide, indicator dye	Training: Dormant woody plant ID		Acre	3.39	\$1,100	\$3,729
CENTRAL PARK LEXINGTON EAST & VICTORIA WEST	W/F11	Woodland/Forest Restoration	3.39					Invasive brush foliar treatment for re-sprouts/seedlings - annually	buckthorn, honeysuckle, amur maple, ash, boxelder		<5% woody invasive shrub cover		x	fall	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	3.39	\$750	\$2,543
CENTRAL PARK LEXINGTON EAST & VICTORIA WEST	W/F11	Woodland/Forest Restoration	3.39					Herbicide spot treat invasive weeds - annually	broadleaf weeds	<25%	<10% herbaceous invasive weed cover		x	growing season	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	3.39	\$650	\$2,204
CENTRAL PARK LEXINGTON EAST & VICTORIA WEST	W/F11	Woodland/Forest Restoration	3.39		ADDED 8/25/24			Hand pull weeds - annually	broadleaf weeds		Few scattered plants; prevent seed production annually	x		growing season	Gloves, safety glasses	Training: Plant ID		Acre	3.39	\$850	\$2,882
CENTRAL PARK LEXINGTON EAST & VICTORIA WEST	W/F11	Woodland/Forest Restoration	3.39					Native seeding - 2-3x	woodland edge mix		>75% native ground cover	x	x	variable	Seed mix, seed mix filler, buckets for hand seeding	Seed mix design		Acre	3.39	\$850	\$2,882

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CENTRAL PARK VICTORIA WEST	W/F 12	Woodland/Forest Restoration	0.38	>75%	Lowland hardwood canopy; scattered buckthorn resprouts, with a few to cut/treat at north end of unit; buckthorn along fenceline; burdock to spot spray; native ground cover is good (>75%) but low richness.	High	Sustain gains and continue NRM progress											Acre	0.38		
CENTRAL PARK VICTORIA WEST	W/F 12	Woodland/Forest Restoration	0.38					Woody invasives removal by hand - 1-2x	buckthorn	<10%	No stems with basal diameter >1/4"; no fruiting plants	x		dormant seasons	Brush saws; Loppers/hand saws; herbicide daubers with herbicide, indicator dye	Training: Dormant woody plant ID		Acre	0.38	\$800	\$304
CENTRAL PARK VICTORIA WEST	W/F 12	Woodland/Forest Restoration	0.38					Invasive brush foliar treatment for re-sprouts/seedlings - annually	buckthorn		<1% woody invasive shrub cover		x	fall	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	0.38	\$2,500	\$950
CENTRAL PARK VICTORIA WEST	W/F 12	Woodland/Forest Restoration	0.38					Herbicide spot treat invasive weeds - annually	burdock		<1% herbaceous invasives cover		x	growing season	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	0.38	\$2,000	\$760
CENTRAL PARK VICTORIA WEST	W/F 12	Woodland/Forest Restoration	0.38					Native seeding - 2-3x	woodland mix		Increase species richness	x	x	variable	Seed mix, seed mix filler, buckets for hand seeding	Seed mix design		Acre	0.38	\$1,500	\$570
CENTRAL PARK LEXINGTON	P/S1	Prairie/Savanna Restoration	1.86	>75%	Prairie/savanna structure with scattered native trees; good native ground cover; invasive brush cover moderate; further stabilize ground cover then pursue oak planting.	Med	Good quality; moderate restoration potential; sustain gains and continue NRM progress											Acre	1.86		
CENTRAL PARK LEXINGTON	P/S1	Prairie/Savanna Restoration	1.86					Woody invasives removal by hand - 2-3x	buckthorn	25-50%	No stems with basal diameter >1/4"; no fruiting plants	x		dormant seasons	Brush saws; Loppers/hand saws; herbicide daubers with herbicide, indicator dye	Training: Dormant woody plant ID		Acre	1.86	\$2,200	\$4,092
CENTRAL PARK LEXINGTON	P/S1	Prairie/Savanna Restoration	1.86					Invasive brush foliar treatment for re-sprouts/seedlings - annually	buckthorn	25-50%	<5% woody invasive shrub cover		x	spring/fall	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	1.86	\$750	\$1,395
CENTRAL PARK LEXINGTON	P/S1	Prairie/Savanna Restoration	1.86					Hand pull herbaceous weeds - annually	hoary alyssum, spotted knapweed, sweetclover		<5% herbaceous invasive weed cover	x		growing season	Gloves, safety glasses	Training: Plant ID		Acre	1.86	\$750	\$1,395
CENTRAL PARK LEXINGTON	P/S1	Prairie/Savanna Restoration	1.86					Herbicide spot treat invasive weeds - annually	perennial broadleaf weeds		<5% herbaceous invasive weed cover		x	growing season	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	1.86	\$450	\$837
CENTRAL PARK LEXINGTON	P/S1	Prairie/Savanna Restoration	1.86					Native seeding, time w/ prescribed burn - 2-3x	mesic savanna mix		Increased species richness	x	x	variable	Seed mix, seed mix filler, buckets for hand seeding	Seed mix design		LS	1.00	\$3,500	\$3,500
CENTRAL PARK LEXINGTON	P/S1	Prairie/Savanna Restoration	1.86					Prescribed burn - 1x			At least 1 prescribed burn implemented		x	dormant seasons	RxB equip, specialized Personal Protective Equipment	Training: RxB		Acre	1.86	\$2,500	\$4,650
CENTRAL PARK LEXINGTON	P/S1	Prairie/Savanna Restoration	1.86					Dormant brush mow to aid in brush suppression and spot weed treatment - 1-2x	invasive and native brush		At least 1 dormant mow		x	dormant seasons	Specialized mowing equipment (walk-behind brush mower or skidsteer forestry mower)	Training: Mowing Equipment Operation; Trailingering		Acre	1.86	\$350	\$651

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CENTRAL PARK VICTORIA WEST	SL4 - Frog Pond Buffer	Shoreline restoration	0.32	50-75%	Excellent diverse native ground cover in north 1/2 of unit; south 1/2 dominated by reed canary grass and thistles w/ scattered native grasses, sedges, and forbs.	High	Sustain gains and continue NRM progress											Acre	0.32		
CENTRAL PARK VICTORIA WEST	SL4 - Frog Pond Buffer	Shoreline restoration	0.32					Prescribed burn - 1x			At least 1 prescribed burn implemented		x	spring	RxB equip, specialized Personal Protective Equipment	Training: RxB		LS	1.00	\$2,080	\$2,080
CENTRAL PARK VICTORIA WEST	SL4 - Frog Pond Buffer	Shoreline restoration	0.32					Woody invasives removal by hand - annually	sweep for tree saplings		No stems with basal diameter >1/4"	x		dormant seasons	Loppers/hand saws; herbicide daubers with herbicide, indicator dye	Training: Dormant woody plant ID		Acre	0.32	\$2,500	\$800
CENTRAL PARK VICTORIA WEST	SL4 - Frog Pond Buffer	Shoreline restoration	0.32					Grass-selective spray post-burn -1-2x	nonnative cool season grasses		<5% invasive grass cover		x	spring	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	0.32	\$1,200	\$384
CENTRAL PARK VICTORIA WEST	SL4 - Frog Pond Buffer	Shoreline restoration	0.32					Native seeding, time w/ prescribed burn - 2-3x	wet meadow		>75% native ground cover	x	x	variable	Seed mix, seed mix filler, buckets for hand seeding	Seed mix design		Acre	0.32	\$3,500	\$1,120
CENTRAL PARK VICTORIA WEST	SL4 - Frog Pond Buffer	Shoreline restoration	0.32					Grow-in spot mowing/weed control for seeded areas			>75% native ground cover		x	growing season	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		LS	1.00	\$750	\$750
CENTRAL PARK VICTORIA WEST	SL4 - Frog Pond Buffer	Shoreline restoration	0.32					Herbicide spot treat invasive weeds - annually	Canada thistle, curly dock, bird's-foot trefoil, perennial sowthistle, reed canary grass		<5% herbaceous invasive broadleaf ground cover		x	growing season	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	0.32	\$1,200	\$384
CENTRAL PARK LEXINGTON	P2	Prairie Restoration	0.30	>90%	Excellent native forb cover; could use native brush suppression; very few buckthorn shrubs, white mulberry saplings; recommend removal of invasive trees (white mulberry, Siberian elm).	Med	Sustain gains and continue NRM progress; manage for economy of scale w/ adjacent P/S1 unit											Acre	0.30		
CENTRAL PARK LEXINGTON	P2	Prairie Restoration	0.30					Invasive tree removal - 1x	Siberian elm, white mulberry	2 Siberian elms; 1 white mulberry	No invasive trees present		x	winter	Chainsaw; heavy equipment for woody debris transport; wood chipper	Training: Chainsaw, Trailing, Hauling, Load/Unload		LS	0.30		
CENTRAL PARK LEXINGTON	P2	Prairie Restoration	0.30					Dormant brush mow to aid in brush suppression and spot weed treatment - 1-2x			At least 1 dormant mow		x	dormant seasons	Specialized mowing equipment (walk-behind brush mower or skidsteer forestry mower)	Training: Mowing Equipment Operation; Trailing		Acre	0.30	\$1,200	\$360
CENTRAL PARK LEXINGTON	P2	Prairie Restoration	0.30					Hand pull herbaceous weeds - annually	hoary alyssum; watch for others present in adjacent P/S1 unit	<5%	<1% herbaceous invasive broadleaf ground cover	x		growing season	Gloves, safety glasses	Training: Plant ID		Acre	0.30	\$2,000	\$600
CENTRAL PARK LEXINGTON	P2	Prairie Restoration	0.30					Herbicide spot treat invasive weeds - annually	curly dock, watch for others	<5%	<1% herbaceous invasive broadleaf ground cover		x	growing season	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	0.30	\$2,000	\$600
CENTRAL PARK LEXINGTON	P2	Prairie Restoration	0.30					Prescribed burn (RxB) - 1x			1 RxB implemented		x	dormant seasons	RxB equip, specialized Personal Protective Equipment	Training: RxB		EA	1.00	\$3,500	\$3,500
CENTRAL PARK LEXINGTON	P2	Prairie Restoration	0.30					Native seeding, especially grasses - 2-3x	mesic prairie		>75% native ground cover; increase species richness	x	x	variable	Seed mix, seed mix filler, buckets for hand seeding	Seed mix design		Acre	0.30	\$1,500	\$450

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CENTRAL PARK LEXINGTON	Bennett Lake	Lake Restoration	28.00	N/A	Comments from 2013 still apply for 2024. 2013 Summary: Alum treatmeent should only be considered after other water quantity/quality projects are implemented in the watershed. Curly leaf pondweed herbicide treatment is not allowed due to MN DNR classification of lake.	??	Efforts need to be coordinated with DNR & watershed	Water quality monitoring by volunteers? Alum treatment?										Acre	28.00		
CENTRAL PARK LEXINGTON	SL	Shoreline Restoration	1.05	<25%	Reed canary grass, Canada thistle, purple loosestrife are primary weed issues along shoreline, along with native brush (sandbar willow); rare occurrences of buckthorn, few native tree seedlings, few amur maple saplings. Wooded shorelines w/ green ash, cottonwood, weeping willow, silver maple; sandbar willow common.	High	Sustain gains and continue NRM progress; good volunteer project for woody invasives control & supplemental planting											Acre	1.05		
CENTRAL PARK LEXINGTON	SL	Shoreline Restoration	1.05					Herbaceous invasive weed treatment and sweep for invasive shrubs - annually	Canada thistle, purple loosestrife, reed canary grass, sweetclovers, crown vetch, bird's-foot trefoil	50-75%	<25% herbaceous invasive weed cover		x	growing season	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	1.05	\$1,500	\$1,575
CENTRAL PARK LEXINGTON	SL	Shoreline Restoration	1.05					Woody invasives removal by hand - 2-3x	buckthorn, amur maple, tree saplings	<10%	<1% woody invasive brush cover; few scattered native tree saplings	x		dormant seasons	Loppers/hand saws; herbicide daubers with herbicide, indicator dye	Training: Dormant woody plant ID		Acre	1.05	\$1,200	\$1,260
CENTRAL PARK LEXINGTON	SL	Shoreline Restoration	1.05					Site prep for plug planting					x	variable	Combo of mowing/spot spraying equipment & supplies	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	1.05	\$750	\$788
CENTRAL PARK LEXINGTON	SL	Shoreline Restoration	1.05					Supplemental plug planting	wet meadow		Increase	x	x	variable				Acre	1.05	\$6,000	\$6,300
CENTRAL PARK VICTORIA EAST	WL3	Wetland Restoration	9.12	??	Purple loosestrife control; spot cut/treat glossy buckthorn along trail along N side.	High	Good volunteer project for woody invasives control along trail; otherwise LOW priority due to purple loosestrife & low sustainability	Woody invasives removal by	glossy buckthorn		No stems with basal diameter >1/4"; no fruiting plants				Loppers/hand saws; herbicide daubers with herbicide, indicator dye	Training: Dormant woody plant ID		Acre	9.12		

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CENTRAL PARK NORTH	CP-W8, W9, W10, W11	Wetland Restoration	9.50		Status for restoration/management unchanged in 2024. 2013 summary comments:This is a large wetland complex between CR C and Lake Owasso. Management of invasives would be the highest priority, although there would likely be limited return on investment for restoration effort (unlikely to significantly reduce purple loosestrife or reed canary grass). Best opportunity is likely through additional biocontrol release for purple loosestrife.	Low	Low quality; low restoration potential; low sustainability											Acre	9.50		
CENTRAL PARK NORTH	W/F1	Woodland/Forest Restoration	1.05	<10%	Lowland hardwood canopy; boxelder understory; old growth buckthorn & honeysuckle; down dead wood; sparse native ground cover.	Low	Poor accessibility for restoration work											Acre	1.05		
CENTRAL PARK NORTH	W/F1	Woodland/Forest Restoration	1.05					Forestry mow invasive brush, down dead wood - 1x	buckthorn, honeysuckle	>75%	<10% woody invasives cover		x	winter	Specialized mowing equipment (walk-behind brush mower or skidsteer forestry mower)	Training: Mowing Equipment Operation; Trailing		LS	1.00	\$3,200	\$3,200
CENTRAL PARK NORTH	W/F1	Woodland/Forest Restoration	1.05					Invasive brush foliar treatment for re-sprouts - 2x	buckthorn, honeysuckle	>75%	<10% woody invasives cover		x	spring/fall	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	1.05	\$950	\$998
CENTRAL PARK NORTH	W/F1	Woodland/Forest Restoration	1.05					Site prep spray nonnative ground cover	nonnative ground cover	>50%	<10% herbaceous invasive weed cover		x	growing season	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	1.05	\$550	\$578
CENTRAL PARK NORTH	W/F1	Woodland/Forest Restoration	1.05					Native seeding - 2-3x	woodland edge mix		>75% native ground cover	x	x	variable	Seed mix, seed mix filler, buckets for hand seeding	Seed mix design		Acre	1.05	\$850	\$893
CENTRAL PARK NORTH	W/F2	Woodland/Forest Restoration	2.13	<10%	Cottonwood, boxelder w/ spruce, white pine, balsam fir; few buckthorn, honeysuckle; ground cover nonnative.	Low	Poor accessibility for restoration work; potential volunteer walk-in project	Invasive brush cut/treat	buckthorn, honeysuckle			x	x		Loppers/hand saws; herbicide daubers with herbicide, indicator dye	Training: Dormant woody plant ID		Acre	2.13	\$4,000	\$8,520
CENTRAL PARK NORTH	W/F3	Woodland/Forest Restoration	2.74	<5%	Lowland hardwood canopy of cottonwood, boxelder; walnut & American elm under; buckthorn resprouts common; scattered native shrubs; sparse native ground cover.	Med	Low quality; moderate restoration potential; moderate sustainability; sustain progress in NRM											Acre	2.74		
CENTRAL PARK NORTH	W/F3	Woodland/Forest Restoration	2.74					Forestry mow invasive brush, down dead wood, where accessible - 1x	buckthorn, honeysuckle	>75%	<10% woody invasives cover		x	winter	Specialized mowing equipment (walk-behind brush mower or skidsteer forestry mower)	Training: Mowing Equipment Operation; Trailing		Acre	2.74	\$1,300	\$3,562
CENTRAL PARK NORTH	W/F3	Woodland/Forest Restoration	2.74					Invasive brush hand cut/treat - 2x	buckthorn, honeysuckle	<5%	No fruiting buckthorn	x		dormant seasons	Loppers/hand saws; herbicide daubers with herbicide, indicator dye	Training: Dormant woody plant ID		Acre	2.74	\$850	\$2,329

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CENTRAL PARK NORTH	W/F3	Woodland/Forest Restoration	2.74					Invasive brush foliar treatment for re-sprouts - 2x	buckthorn, honeysuckle	>75%	<10% woody invasives cover		x	spring/fall	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	2.74	\$650	\$1,781
CENTRAL PARK NORTH	W/F3	Woodland/Forest Restoration	2.74					Site prep spray nonnative ground cover	nonnative ground cover	>50%	<10% herbaceous invasive weed cover		x	growing season	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	2.74	\$550	\$1,507
CENTRAL PARK NORTH	W/F3	Woodland/Forest Restoration	2.74					Native seeding - 2x	woodland edge mix		>75% native ground cover	x	x	variable	Seed mix, seed mix filler, buckets for hand seeding	Seed mix design		Acre	2.74	\$850	\$2,329
COTTONTAIL	W/F	Woodland/Forest Restoration	7.83	>75%	Lowland hardwood canopy w/ dead EAB ash, 0.4-ac stand of black locust, few Norway maple, white mulberry; undestory open; follow-up buckthorn control needed; garlic mustard 50-75% seedling cover interspersed w/ natives; overall needs more buckthorn suppression, canopy management, supplemental seeding.	High	Sustain gains & continue NRM progress											Acre	7.83		
COTTONTAIL	W/F	Woodland/Forest Restoration	7.83					Invasive tree removal - 1x	black locust, Norway maple, white mulberry	<10%	No invasive trees in canopy or understory		x	winter	Chainsaw; heavy equipment for woody debris transport; wood chipper	Training: Chainsaw, Trailing, Hauling, Load/Unload		LS	7.83		
COTTONTAIL	W/F	Woodland/Forest Restoration	7.83					Invasive brush foliar treatment for re-sprouts - 2x	buckthorn, honeysuckle	10-20%	<5%		x	fall	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	7.83	\$550	\$4,307
COTTONTAIL	W/F	Woodland/Forest Restoration	7.83					Invasive brush hand cut/treat - 2x	buckthorn, honeysuckle	<5%	No fruiting buckthorn	x		dormant seasons	Loppers/hand saws; herbicide daubers with herbicide, indicator dye	Training: Dormant woody plant ID		Acre	7.83	\$650	\$5,090
COTTONTAIL	W/F	Woodland/Forest Restoration	7.83					Herbicide spot treat invasive weeds - annually	burdock, motherwort, daylily, Canada thistle, yellow archangel, garlic mustard rosettes	50-75%	<10%		x	growing season	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	7.83	\$450	\$3,524
COTTONTAIL	W/F	Woodland/Forest Restoration	7.83					Native grass/sedge seeding - 2x	woodland species		Wild ryes displace garlic mustard	x	x	spring	Seed mix, seed mix filler, buckets for hand seeding	Seed mix design		Acre	7.83	\$750	\$5,873
COTTONTAIL	W/F	Woodland/Forest Restoration	7.83					Canopy successional planning & tree planting			Forest management plan		x					Acre	7.83		\$0
EVERGREEN	W/F	Woodland/Forest Restoration	0.13		No 2024 field assessment.													Acre	0.13		
EVERGREEN	W/F	Woodland/Forest Restoration	0.13					Invasive brush hand cut/treat - 2x	invasive shrubs		No invasive brush cover	x	x	dormant seasons	Loppers/hand saws; herbicide daubers with herbicide, indicator dye	Training: Dormant woody plant ID		Acre	0.13	\$2,500	\$325

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HOWARD JOHNSON	PB	Pond Buffer	2.04	50-75%	Lowland hardwood canopy; moderate native ground cover but pervasive invasives in all veg layers; dozens dead ash & elm; few white mulberry & Norway maple in canopy; understory w/ white mulberry, buckthorn, amur maple, honeysuckle (25-50% cover); good native wild rye cover along west side; needs more understory invasives removal and native seeding; cottonwood leaf litter or bare/sparse ground cover at north end; reed canary grass & purple loosestrife along pond shoreline.	High	Sustain gains & continue NRM progress											Acre	2.04		
HOWARD JOHNSON	PB	Pond Buffer	2.04					Canopy successional planning & tree planting			Forest management plan		x					Acre	2.04		
HOWARD JOHNSON	PB	Pond Buffer	2.04					Invasive tree, dead ash removal - 1x	white mulberry, Norway maple, dead ash		No invasive trees or dead ash in canopy or understory		x	winter	Chainsaw; heavy equipment for woody debris transport; wood chipper	Training: Chainsaw, Trailing, Hauling, Load/Unload		LS	2.04		
HOWARD JOHNSON	PB	Pond Buffer	2.04					Chainsaw woody invasives removal - 1x	amur maple		No invasive trees		x	dormant seasons	Chainsaw; heavy equipment for woody debris transport; wood chipper	Training: Chainsaw, Trailing, Hauling, Load/Unload		Acre	2.04	\$1,500	\$3,060
HOWARD JOHNSON	PB	Pond Buffer	2.04					Woody invasives removal by hand - 2x	buckthorn, honeysuckle, smaller sapling amur maple, plus boxelder and green ash stump sprouts	25-50%	No stems with basal diameter >1/4"; no fruiting plants	x		dormant seasons	Loppers/hand saws; herbicide daubers with herbicide, indicator dye	Training: Dormant woody plant ID		Acre	2.04	\$1,200	\$2,448
HOWARD JOHNSON	PB	Pond Buffer	2.04					Invasive brush foliar treatment for re-sprouts - 2x	buckthorn, honeysuckle, smaller amur maple	25-50%	<5%		x	early summer / early fall	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	2.04	\$750	\$1,530
HOWARD JOHNSON	PB	Pond Buffer	2.04					Herbicide spot treat invasive weeds - annually	burdock, leafy spurge, daylily; purple loosestrife shoreline	25-50%	<10%		x		Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	2.04	\$1,200	\$2,448
HOWARD JOHNSON	PB	Pond Buffer	2.04					Hand seed removal - annually	burdock		Prevent seed production annually for 5 years	x		fall	Gloves, safety glasses, bags	Training: Plant ID		Acre	2.04	\$0	\$0
HOWARD JOHNSON	PB	Pond Buffer	2.04					Hand pull herbaceous weeds - annually	garlic mustard		Seed production prevented annually for 5 years	x		April/May	Gloves, safety glasses	Training: Plant ID		Acre	2.04	\$650	\$1,326
HOWARD JOHNSON	PB	Pond Buffer	2.04					Native seeding after herbaceous weed removal - 1-2x	woodland edge w/ forbs		>75% native ground cover	x	x	variable	Seed mix, seed mix filler, buckets for hand seeding	Seed mix design		Acre	2.04	\$1,200	\$2,448
KELLER MAYFLOWER	PB	Pond Buffer	0.28	<25%	Lowland hardwood dense canopy and understory around most of wetland w/ reed canary grass along E edge; planted spruce around edges; open up understory; plug and seed natives; plant native herbaceous buffer 20-25' into existing mowed; park adopted by neighborhood.	High	Social equity (very sparse walkable natural resources access in neighborhood); will require high effort for small unit; volunteer opportunities for planting											Acre	0.28		

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KELLER MAYFLOWER	PB	Pond Buffer	0.28					Herbicide spot treat invasive weeds - annually	creeping Charlie, lily of the valley, Canada thistle, creeping bellflower; invasive woody re-sprouts	>75%	<25%		x	growing season	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	0.28	\$1,200	\$336
KELLER MAYFLOWER	PB	Pond Buffer	0.28					Woody invasives removal by hand - 1x	buckthorn, white mulberry		No stems with basal diameter >1/4"; no fruiting plants	x		dormant seasons	Loppers/hand saws; herbicide daubers with herbicide, indicator dye	Training: Dormant woody plant ID		Acre	0.28	\$3,500	\$980
KELLER MAYFLOWER	PB	Pond Buffer	0.28					Invasive brush foliar treatment for re-sprouts - 2x	buckthorn, white mulberry		No invasive brush cover		x	fall	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	0.28	\$1,200	\$336
KELLER MAYFLOWER	PB	Pond Buffer	0.28					Thin native woody understory	silver maple, ash		Increased understory light for native ground cover establishment	x		dormant seasons	Loppers/hand saws; herbicide daubers with herbicide, indicator dye	Training: Dormant woody plant ID		Acre	0.28	\$4,500	\$1,260
KELLER MAYFLOWER	PB	Pond Buffer	0.28					Native seeding & plug planting	prairie, woodland edge, wetland emergent		>75% native ground cover; over 20 species	x	x	variable	Seed mix, seed mix filler, buckets for hand seeding; native plugs, trowels	Seed mix, plug planting design		Acre	0.28	\$15,000	\$4,200
KEYA (formerly Pocahantas)	P/S	Prairie/Savanna Restoration	1.37	>75%	Canopy patchy (25-50%) w/ walnut, boxelder; dead EAB ash north end; invasive shrubs scattered/rare; herbaceous invasives occasional throughout; native ground cover dominated by bergamot; switch from Woodland/Forest community type goal to Prairie/Savanna.	Med	Sustain gains & continue NRM progress											Acre	1.37		
KEYA (formerly Pocahantas)	P/S	Prairie/Savanna Restoration	1.37		ADDED 8/25/24: Transition canopy to oak; plan boxelder removal.			Dead EAB ash and boxelder removal - 1x	dead/dying ash		No dead/dying ash or boxelder		x	winter	Chainsaw; heavy equipment for woody debris transport; wood chipper	Training: Chainsaw, Trailing, Hauling, Load/Unload		LS	1.37		
KEYA (formerly Pocahantas)	P/S	Prairie/Savanna Restoration	1.37					Woody invasive shrub/sapling removal by hand - 2-3x	buckthorn, mulberry	<10%	No stems with basal diameter >1/4"; no fruiting plants	x		dormant seasons	Loppers/hand saws; herbicide daubers with herbicide, indicator dye	Training: Dormant woody plant ID		Acre	1.37	\$1,500	\$2,055
KEYA (formerly Pocahantas)	P/S	Prairie/Savanna Restoration	1.37					Invasive brush foliar treatment for re-sprouts - 2x	buckthorn, mulberry	<10%	<5% woody invasives cover		x	fall	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	1.37	\$750	\$1,028
KEYA (formerly Pocahantas)	P/S	Prairie/Savanna Restoration	1.37					Herbicide spot treat invasive weeds - annually	burdock, absinth sage, crown vetch		<10% herbaceous invasive weed cover		x	growing season	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	1.37	\$650	\$891
KEYA (formerly Pocahantas)	P/S	Prairie/Savanna Restoration	1.37					Hand pull invasive herbaceous weeds - annually	garlic mustard, mullein, bull thistle, hoary alyssum, motherwort		<10% herbaceous invasive weed cover	x		growing season	Gloves, safety glasses	Training: Plant ID		Acre	1.37	\$950	\$1,302
KEYA (formerly Pocahantas)	P/S	Prairie/Savanna Restoration	1.37					Site prep mow, native interseeding warm-season prairie grasses, grow-in mowing	prairie grasses		Increase native grass cover for broadleaf weed competition	x	x	variable	Seed mix, seed mix filler, buckets for hand seeding	Seed mix design		Acre	1.37	\$450	\$617
KEYA (formerly Pocahantas)	P/S	Prairie/Savanna Restoration	1.37					Tree planting & associated grow-in watering & maintenance - 1x	bur oak		Scattered trees for savanna canopy	x	x	spring	Bare root bur oak seedlings, rodent guards, fencing, water bags			LS	1.37		

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KEYA (formerly Pocahantas)	WL	Wetland Restoration	0.14	<10%	Dominated by reed canary grass.	Low	Low quality; low restoration potential; low sustainability within utility corridor											Acre	0.14		
LADYSLIPPER	WL	Wetland	10.00		Significant undertaking to manage cattails, reed canary grass, and restore natives in landscape context. No management recommendations at this time.	Low	Low quality; low restoration potential; low sustainability											Acre	10.00		
LADYSLIPPER	W/F1	Woodland/Forest Restoration	2.81		High water prevented 2024 field access; may need sweep for invasive shrubs.	??												Acre	2.81		
LADYSLIPPER	W/F2	Woodland/Forest Restoration	0.17	10-25%	Disturbed and weed dominated; scattered buckthorn, honeysuckle; low priority for ground layer restoration due to landscape context.	Low	Low quality; low restoration potential; low sustainability											Acre	0.17		
LADYSLIPPER	W/F2	Woodland/Forest Restoration	0.17					Woody invasive shrub/sapling removal by hand - 2-3x	buckthorn, honeysuckle	<25%	No invasive brush cover	x	x	dormant seasons	Loppers/hand saws; herbicide daubers with herbicide, indicator dye	Training: Dormant woody plant ID		LS	1.00	\$850	\$850
LADYSLIPPER	S	Savanna Restoration	0.45	50-75%	Old growth bur and pin oaks, plus 6" bur oaks at north end; recommending change from Woodland/Forest to Savanna community type; boxelder, green ash, Siberian elm in canopy south end; dead ash present; understory is open; buckthorn is rare; native ground cover 50-75% but very low diversity; garlic mustard common.	High	Remnant; legacy oaks; high restoration potential; sustain gains & continue NRM progress											Acre	0.45		
LADYSLIPPER	S	Savanna Restoration	0.45					Invasive tree and select native tree removal - 1x	Siberian elm, boxelder, green ash		No invasive trees present; increased understory light for native ground cover diversity		x	winter	Chainsaw; heavy equipment for woody debris transport; wood chipper	Training: Chainsaw, Trailing, Hauling, Load/Unload		LS	0.45		
LADYSLIPPER	S	Savanna Restoration	0.45					Woody invasive shrub/sapling removal by hand - 2-3x	buckthorn	<10%	No invasive brush cover	x		dormant seasons	Loppers/hand saws; herbicide daubers with herbicide, indicator dye	Training: Dormant woody plant ID		Acre	0.45	\$2,200	\$990
LADYSLIPPER	S	Savanna Restoration	0.45					Invasive brush foliar treatment for re-sprouts	buckthorn		No invasive brush cover		x	fall	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	0.45	\$1,500	\$675
LADYSLIPPER	S	Savanna Restoration	0.45					Herbicide spot treat invasive weeds - annually	Canada thistle, creeping Charlie, garlic mustard rosettes		<5% herbaceous weed cover		x	growing season	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	0.45	\$1,800	\$810
LADYSLIPPER	S	Savanna Restoration	0.45					Hand pull herbaceous weeds - annually	garlic mustard, motherwort, catnip		Garlic mustard prevented from setting seed each year	x		growing season	Gloves, safety glasses	Training: Plant ID		Acre	0.45	\$1,500	\$675
LADYSLIPPER	S	Savanna Restoration	0.45					Native grass seeding - 1x	woodland grasses		>75% native grass cover	x	x	spring	Seed mix, seed mix filler, buckets for hand seeding	Seed mix design		Acre	0.45	\$850	\$383
LADYSLIPPER	S	Savanna Restoration	0.45					Native forb seeding after broadleaf weed control - 1-2x	woodland/savanna forbs		>25% native forb cover	x	x	variable	Seed mix, seed mix filler, buckets for hand seeding	Seed mix design		Acre	0.45	\$1,500	\$675

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LANGTON LAKE	W/F1	Woodland/Forest Restoration	0.64		NOT FIELD ASSESSED in 2024 - landlocked far NW corner			Collaborate with neighbors on restoration access										Acre	0.64		
LANGTON LAKE	OWL/F2	Oak Woodland & Lowland Forest Restoration	1.27	>90%	Cottonwood, Siberian elm canopy, w/ legacy white and pin oaks ; girdled Siberian elms; open understory; rare buckthorn occurrences; excellent native ground cover; planted red oaks in great condition.	High	Remnant plant community; sustain gains & continue NRM progress											Acre	1.27		
LANGTON LAKE	OW/LF2	Oak Woodland & Lowland Forest Restoration	1.27					Invasive tree, snag, and dead downed wood removal - 1x	Siberian elm		No invasive trees		x	winter	Chainsaw; heavy equipment for woody debris transport; wood chipper	Training: Chainsaw, Trailing, Hauling, Load/Unload		LS	1.27		
LANGTON LAKE	OW/LF2	Oak Woodland & Lowland Forest Restoration	1.27					Woody invasive shrub/sapling removal by hand - annually	buckthorn	<1%	<1% invasive brush cover	x		dormant seasons	Loppers/hand saws; herbicide daubers with herbicide, indicator dye	Training: Dormant woody plant ID		Acre	1.27	\$2,200	\$2,794
LANGTON LAKE	OW/LF2	Oak Woodland & Lowland Forest Restoration	1.27					Hand pull herbaceous weeds - annually	Japanese hedge parsley	1 location	<1% herbaceous invasives cover	x		growing season	Gloves, safety glasses	Training: Plant ID		Acre	1.27	\$1,100	\$1,397
LANGTON LAKE	OW/LF2	Oak Woodland & Lowland Forest Restoration	1.27					Monitor planted red oaks for maintenance			Check at least 1x per year	x		any time				Acre	1.27	\$155	\$197
LANGTON LAKE	OW/LF2	Oak Woodland & Lowland Forest Restoration	1.27					Native seeding	woodland forbs		Increase species richness	x	x	variable	Seed mix, seed mix filler, buckets for hand seeding	Seed mix design		Acre	1.27	\$855	\$1,086
LANGTON LAKE	OW/F3-U	Oak Woodland Restoration	2.32	>75%	Siberian elm canopy w/ boxelder; boxelder under; buckthorn, Siberian elm occasional in shrub layer, few white mulberry saplings; 7 planted red oaks look good; significant standing snags and dead down wood; native ground cover >75% w/ Virginia creeper, enchanter's nightshade. Seeded species present but rare (wild rye, brown-eyed Susan). Manage towards Oak Woodland.	Med	Substantial effort for canopy restoration, but expands and connects higher quality forest cover (W/F2, W/F3-L)											Acre	2.32		
LANGTON LAKE	OW/F3-U	Oak Woodland Restoration	2.32					Invasive tree, snag, and dead downed wood removal - 1x	Siberian elm	>75%	No invasive trees		x	winter	Chainsaw; heavy equipment for woody debris transport; wood chipper	Training: Chainsaw, Trailing, Hauling, Load/Unload		LS	2.32		
LANGTON LAKE	OW/F3-U	Oak Woodland Restoration	2.32					Invasive shrub removal - forestry mow	buckthorn, honeysuckle, white mulberry, Siberian elm				x	winter	Specialized mowing equipment (walk-behind brush mower or skidsteer forestry mower)	Training: Mowing Equipment Operation; Trailing		Acre	2.32	\$950	\$2,204
LANGTON LAKE	OW/F3-U	Oak Woodland Restoration	2.32					Invasive brush foliar treatment for re-sprouts - annually after forestry mow	buckthorn, honeysuckle, white mulberry, Siberian elm		<10% invasive brush cover		x	spring/fall	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	2.32	\$750	\$1,740
LANGTON LAKE	OW/F3-U	Oak Woodland Restoration	2.32					Monitor planted oaks for maintenance			Check at least 1x per year	x		any time				Acre	2.32	\$85	\$197
LANGTON LAKE	OW/F3-U	Oak Woodland Restoration	2.32					Plant oak trees following invasive tree removal & forestry mowing	bur oak, white oak		50 trees	x	x	spring/fall				Acre	2.32	\$3,500	\$8,120
LANGTON LAKE	OW/F3-U	Oak Woodland Restoration	2.32					Herbicide spot treat invasive weeds - annually	burdock		<10% herbaceous invasive weed cover			growing season	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	2.32	\$850	\$1,972
LANGTON LAKE	OW/F3-U	Oak Woodland Restoration	2.32					Hand pull herbaceous weeds - annually	dame's rocket	<1% (west end)	Seed production prevented annually for 5 years			growing season	Gloves, safety glasses	Training: Plant ID		Acre	2.32	\$650	\$1,508

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LANGTON LAKE	OW/F3-U	Oak Woodland Restoration	2.32					Native seeding - 2-3x	woodland/savanna mix		Increased species richness	x	x	variable	Seed mix, seed mix filler, buckets for hand seeding	Seed mix design		Acre	2.32	\$850	\$1,972
LANGTON LAKE	OW/LF3-L	Oak Woodland & Lowland Forest Restoration	7.19	>75%	Cottonwood, old growth pin and white oaks in canopy, aspen; boxelder under; few dead oaks, aspen; buckthorn uncommon except few patches along W edge, honeysuckle rare; diverse ground layer forbs, needs more native grasses/sedges. Manage towards mix of Oak Woodland & Lowland Hardwoods--context dependent within unit.	High	Remnant plant community; sustain high quality & NRM gains											Acre	7.19		
LANGTON LAKE	OW/LF3-L	Oak Woodland & Lowland Forest Restoration	7.19					Thin understory boxelder - 1x	boxelder		Increase light for diverse ground layer & oak regen		x	winter	Chainsaw; heavy equipment for woody debris transport; wood chipper	Training: Chainsaw, Trailing, Hauling, Load/Unload		LS	7.19		
LANGTON LAKE	OW/LF3-L	Oak Woodland & Lowland Forest Restoration	7.19					Invasive shrub removal - forestry mow select areas west of lake/trail - 1x	buckthorn, honeysuckle	<5%			x	winter	Specialized mowing equipment (walk-behind brush mower or skidsteer forestry mower)	Training: Mowing Equipment Operation; Trailing		Acre	7.19	\$1,200	\$8,628
LANGTON LAKE	OW/LF3-L	Oak Woodland & Lowland Forest Restoration	7.19					Invasive brush foliar treatment for re-sprouts - annually after forestry mow	buckthorn, honeysuckle	<10%	<1% invasive shrub cover		x	spring/fall	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	7.19	\$650	\$4,674
LANGTON LAKE	OW/LF3-L	Oak Woodland & Lowland Forest Restoration	7.19					Woody invasive shrub/sapling removal by hand - annually	buckthorn, honeysuckle, boxelder saplings	<10%	No stems with basal diameter >1/4"; no fruiting plants	x		dormant seasons	Loppers/hand saws; herbicide daubers with herbicide, indicator dye	Training: Dormant woody plant ID		Acre	7.19	\$550	\$3,955
LANGTON LAKE	OW/LF3-L	Oak Woodland & Lowland Forest Restoration	7.19					Herbicide spot treat invasive weeds - annually	burdock, butter and eggs, Canada thistle, sowthistle, daylily; poison ivy by trail bench		<5% herbaceous invasive weed cover		x	growing season	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	7.19	\$450	\$3,236
LANGTON LAKE	OW/LF3-L	Oak Woodland & Lowland Forest Restoration	7.19					Hand pull herbaceous weeds - annually	hoary alyssum, bull thistle, mullein, garlic mustard, motherwort		<5% herbaceous invasive weed cover	x		growing season	Gloves, safety glasses	Training: Plant ID		Acre	7.19	\$550	\$3,955
LANGTON LAKE	OW/LF3-L	Oak Woodland & Lowland Forest Restoration	7.19					Native seeding - 2-3x	woodland/savanna grasses		Increase native ground cover under cottonwoods; increase species richness	x	x	variable	Seed mix, seed mix filler, buckets for hand seeding	Seed mix design		Acre	7.19	\$850	\$6,112
LANGTON LAKE	W/F4	Woodland/Forest Restoration	1.30	??	NOT FIELD ASSESSED in 2024 - landlocked far NE corner	Low	Difficult access	Collaborate with neighbors on restoration access										Acre	1.30		
LANGTON LAKE	W/F5	Woodland/Forest Restoration	0.25	50-75%	Cottonwood canopy w/ American elm, boxelder, Siberian elm below; few sapling red oaks; minor buckthorn in shrub layer; native ground cover moderate, needs more cover and species richness.	High	Sustain gains & continue NRM progress											Acre	0.25		
LANGTON LAKE	W/F5	Woodland/Forest Restoration	0.25					Woody invasive shrub/sapling removal by hand - annually	buckthorn, burning bush	<10%	<1% invasive brush cover	x		dormant seasons	Loppers/hand saws; herbicide daubers with herbicide, indicator dye	Training: Dormant woody plant ID		Acre	0.25	\$2,500	\$625
LANGTON LAKE	W/F5	Woodland/Forest Restoration	0.25					Native seeding - 2-3x	native woodland mix		>75% native ground cover	x	x	variable	Seed mix, seed mix filler, buckets for hand seeding	Seed mix design		Acre	0.25	\$1,500	\$375

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LANGTON LAKE	W/F5	Woodland/Forest Restoration	0.25					Invasive tree removal - 1x	Siberian elm		No invasive trees in canopy or understory		x	winter	Chainsaw; heavy equipment for woody debris transport; wood chipper	Training: Chainsaw, Trailing, Hauling, Load/Unload		Acre	0.25	\$5,500	\$1,375
LANGTON LAKE	W/F6	Woodland/Forest Restoration	0.45	<10%	East shoreline Siberian elm canopy, boxelder, few pin oaks under elms; white mulberry trees under utility lines & saplings within MU; dense buckthorn and honeysuckle along shoreline; upland areas at N and S ends mowed w/ creeping bellflower edges; garden plants SE corner.	Low	Low quality; low sustainability; high effort											Acre	0.45		
LANGTON LAKE	W/F6	Woodland/Forest Restoration	0.45					Invasive tree removal - 1x	Siberian elm, white mulberry		No invasive trees in canopy		x	winter	Chainsaw; heavy equipment for woody debris transport; wood chipper	Training: Chainsaw, Trailing, Hauling, Load/Unload		LS	0.45		
LANGTON LAKE	W/F6	Woodland/Forest Restoration	0.45					Woody invasive shrub/sapling removal by hand - annually	buckthorn, honeysuckle		<5% woody invasives cover		x	dormant seasons	Loppers/hand saws; herbicide daubers with herbicide, indicator dye	Training: Dormant woody plant ID		Acre	0.45	\$2,500	\$1,125
LANGTON LAKE	W/F6	Woodland/Forest Restoration	0.45					Invasive brush foliar treatment for re-sprouts	buckthorn, honeysuckle		<5% woody invasives cover		x	fall	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	0.45	\$850	\$383
LANGTON LAKE	W/F6	Woodland/Forest Restoration	0.45					Herbicide spot treat invasive weeds - annually	creeping bellflower, garden ground covers, European lily-of-the-valley	>75%	<25% herbaceous invasive weed cover		x	growing season	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	0.45	\$1,500	\$675
LANGTON LAKE	W/F6	Woodland/Forest Restoration	0.45					Native seeding - 2-3x	native woodland/savanna mix		>50% native ground cover	x	x	variable	Seed mix, seed mix filler, buckets for hand seeding	Seed mix design		Acre	0.45	\$850	\$383
LANGTON LAKE	W/F6	Woodland/Forest Restoration	0.45					Plan for tree planting	native hardwoods		Fill canopy gaps left by invasive tree removal	x	x	spring/fall				Acre	0.45		
LANGTON LAKE	OW/F7	Oak Woodland Restoration	0.30	>75%	Siberian elm canopy w/ mature pin oaks; buckthorn present; good native ground cover but scattered herbaceous weeds and invasive garden plants.	Med	Moderate quality; sustain gains & continue NRM progress											Acre	0.30		
LANGTON LAKE	OW/F7	Oak Woodland Restoration	0.30					Invasive tree removal - 1x	Siberian elm		No invasive trees in canopy		x	winter	Chainsaw; heavy equipment for woody debris transport; wood chipper	Training: Chainsaw, Trailing, Hauling, Load/Unload		LS	0.30		
LANGTON LAKE	OW/F7	Oak Woodland Restoration	0.30					Woody invasive shrub/sapling removal by hand, including along shoreline - annually	buckthorn	<25%	No invasive brush cover	x		dormant seasons	Loppers/hand saws; herbicide daubers with herbicide, indicator dye	Training: Dormant woody plant ID		Acre	0.30	\$3,500	\$1,050
LANGTON LAKE	OW/F7	Oak Woodland Restoration	0.30					Herbicide spot treat invasive weeds - annually	burdock, Canada thistle, dock, garden plants	<25%	<5% invasive herbaceous weed cover		x	growing season	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	0.30	\$1,500	\$450
LANGTON LAKE	OW/F7	Oak Woodland Restoration	0.30					Hand seed removal - annually	burdock		Prevent seed production annually for 5 years	x		fall	Gloves, safety glasses, bags	Training: Plant ID		Acre	0.30	\$0	\$0
LANGTON LAKE	OW/F7	Oak Woodland Restoration	0.30					Native seeding - 2-3x	woodland/savanna mix		Increase species richness	x	x	variable	Seed mix, seed mix filler, buckets for hand seeding	Seed mix design		Acre	0.30	\$850	\$255

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LANGTON LAKE	OW/LF8	Oak Woodland & Lowland Forest Restoration	8.80	25-75%	Lowland hardwoods w/ white, pin/red oaks west side of lake; invasive white mulberry, white poplar, Siberian elm in canopy; buckthorn, glossy buckthorn, white mulberry, white poplar in shrub layer; native ground cover highest west side of lake.	High	Remnant legacy oaks W side of lake; high restoration potential; sustain gains & continue NRM progress											Acre	8.80		
LANGTON LAKE	OW/LF8	Oak Woodland & Lowland Forest Restoration	8.80					Invasive tree removal - 1x	white mulberry, white poplar, Siberian elm		No invasive trees in canopy		x	winter	Chainsaw; heavy equipment for woody debris transport; wood chipper	Training: Chainsaw, Trailing, Hauling, Load/Unload		LS	8.80		
LANGTON LAKE	OW/LF8	Oak Woodland & Lowland Forest Restoration	8.80					Invasive shrub removal - forestry mow select areas - 1x	buckthorn, glossy buckthorn, white mulberry, white poplar	25-50%	forest mow at least once		x	winter	Specialized mowing equipment (walk-behind brush mower or skidsteer forestry mower)	Training: Mowing Equipment Operation; Trailing		Acre	8.80	\$950	\$8,360
LANGTON LAKE	OW/LF8	Oak Woodland & Lowland Forest Restoration	8.80		Requires hand-cut of glossy buckthorn in rocks/stormwater pond area SE corner of the lake and on steeper slopes.			Woody invasive shrub/sapling removal by hand - annually	buckthorn, glossy buckthorn, white mulberry, white poplar	25-50%	<10% woody invasives cover	x	x	dormant seasons	Loppers/hand saws; herbicide daubers with herbicide, indicator dye	Training: Dormant woody plant ID		Acre	8.80	\$850	\$7,480
LANGTON LAKE	OW/LF8	Oak Woodland & Lowland Forest Restoration	8.80					Invasive brush foliar treatment for re-sprouts - annually after forestry mow	buckthorn, glossy buckthorn, white mulberry, white poplar	25-50%	<10% woody invasives cover		x	fall	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	8.80	\$550	\$4,840
LANGTON LAKE	OW/LF8	Oak Woodland & Lowland Forest Restoration	8.80					Herbicide spot treat invasive weeds - annually	burdock, crown vetch , creeping Charlie, garlic mustard rosettes	25-50%	<10% herbaceous invasives cover		x	growing season	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	8.80	\$450	\$3,960
LANGTON LAKE	OW/LF8	Oak Woodland & Lowland Forest Restoration	8.80					Hand pull weeds - annually	motherwort, garlic mustard		Prevent seed production annually for 5 years	x		growing season	Gloves, safety glasses,	Training: Plant ID		Acre	8.80	\$0	\$0
LANGTON LAKE	OW/LF8	Oak Woodland & Lowland Forest Restoration	8.80					Hand seed removal - annually	burdock		Prevent seed production annually for 5 years	x		fall	Gloves, safety glasses, bags	Training: Plant ID		Acre	8.80	\$0	\$0
LANGTON LAKE	OW/LF8	Oak Woodland & Lowland Forest Restoration	8.80					Native seeding - 2-3x	woodland/savanna mix		Increase species richness	x	x	variable	Seed mix, seed mix filler, buckets for hand seeding	Seed mix design		Acre	8.80	\$850	\$7,480
LANGTON LAKE	W/F9	Woodland/Forest Restoration	0.33	<10%	Causway w/ lowland hardwoods; narrow shoreline strips on either side of paved trail.	Low	Low quality; low sustainability; high effort											Acre	0.33		
LANGTON LAKE	W/F9	Woodland/Forest Restoration	0.33					Woody invasive shrub/sapling removal by hand - annually	buckthorn, honeysuckle	25-50%	No stems with basal diameter >1/4"; no fruiting plants	x		dormant seasons	Loppers/hand saws; herbicide daubers with herbicide, indicator dye	Training: Dormant woody plant ID		Acre	0.33	\$2,500	\$825
LANGTON LAKE	W/F9	Woodland/Forest Restoration	0.33					Invasive brush foliar treatment for re-sprouts - annually	buckthorn, honeysuckle	25-50%	<5% invasive brush cover		x	fall	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	0.33	\$1,500	\$495
LANGTON LAKE	W/F9	Woodland/Forest Restoration	0.33					Herbicide spot treat invasive weeds - annually	crown vetch, bird's-foot trefoil	10-25%	<5% herbaceous invasives cover		x	growing season	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	0.33	\$1,500	\$495
LANGTON LAKE	W/F9	Woodland/Forest Restoration	0.33		Especially NE corner, slope to water			Native seeding - 2x	native woodland grasses/sedges		>50% native ground cover	x	x	spring	Seed mix, seed mix filler, buckets for hand seeding	Seed mix design		LS	1.00	\$850	\$850
LANGTON LAKE	W1	Wetland Restoration	0.15		No restoration recommended at this time.	Low	Low quality; low sustainability; high effort											Acre	0.15		

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LANGTON LAKE	SL	Shoreline restoration	0.18	<25%	Common and glossy buckthorn cover over 75%; dead down wood; mulberry and apple tree saplings; very narrow strip to manage between trail and lake; severely geese-grazed area by bench; groundlayer restoration not a high priority due to geese grazing.	Low	Low quality; low sustainability; high effort	Woody invasive shrub/sapling removal by hand - annually	buckthorn, glossy buckthorn	>75%	<25% woody invasives cover	x	x	dormant seasons	Loppers/hand saws; herbicide daubers with herbicide, indicator dye	Training: Dormant woody plant ID		LS	1.00	\$4,000	\$4,000
LANGTON LAKE	WL6	Wetland	1.02	<10%	Cattail marsh; not a priority for management at this time due to landscape context.	Low	Low quality; low sustainability; high effort											Acre	1.02		
LANGTON LAKE	WL7	Wetland	1.65	<10%	Cattail marsh; not a priority for management at this time due to landscape context.	Low	Low quality; low sustainability; high effort											Acre	1.65		
MATERION	OW/LF1	Oak Woodland & Lowland Forest Restoration	9.40	>75%	Hardwood/pine canopy with dead ash creating large and expanding canopy gaps, pin oak present , Siberian elm; Siberian elm in undestory; invasive shrubs rare & widely scattered except for far SE ~0.7 ac w/ saplings & up to 75% cover; good native forb ground cover throughout except for concentrations of garden invasives along west and south edges; significant down dead wood.	High	Remnant plant community; high restoration potential; sustain gains & continue NRM progress											Acre	9.40		
MATERION	OW/LF1	Oak Woodland & Lowland Forest Restoration	9.40					Planning for canopy succession and tree planting	native hardwoods		Forest management plan							Acre	9.40		
MATERION	OW/LF1	Oak Woodland & Lowland Forest Restoration	9.40					Invasive tree, dead ash, & down dead wood removal - 1x	Siberian elm, dead ash		No invasive trees; reduce snags; reduce downed dead wood		x	winter	Chainsaw; heavy equipment for woody debris transport; wood chipper	Training: Chainsaw, Trailing, Hauling, Load/Unload		LS	1.00		
MATERION	OW/LF1	Oak Woodland & Lowland Forest Restoration	9.40					Woody invasives removal by hand - 2x	Buckthorn, white mulberry, honeysuckle	<10%	No stems with basal diameter >1/4"; no fruiting plants	x		dormant seasons	Loppers/hand saws; herbicide daubers with herbicide, indicator dye	Training: Dormant woody plant ID		Acre	9.40	\$990	\$9,306
MATERION	OW/LF1	Oak Woodland & Lowland Forest Restoration	9.40					Invasive brush foliar treatment for re-sprouts - 2x	Buckthorn, white mulberry, honeysuckle	<10%	<5% invasive shrub cover		x	fall	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	9.40	\$450	\$4,230
MATERION	OW/LF1	Oak Woodland & Lowland Forest Restoration	9.40					Herbicide spot treat invasive weeds - annually	Periwinkle, creeping Charlie, Canada thistle, yellow archangel, creeping bellflower		<10% herbaceous invasive weed cover		x	growing season	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	9.40	\$550	\$5,170
MATERION	OW/LF1	Oak Woodland & Lowland Forest Restoration	9.40					Hand pull herbaceous weeds - annually	garlic mustard, celandine, hedge parsley, motherwort	<10%	<5% herbaceous invasive weed cover	x		growing season	Gloves, safety glasses	Training: Plant ID		Acre	9.40	\$550	\$5,170
MATERION	OW/LF1	Oak Woodland & Lowland Forest Restoration	9.40					Native grass/sedge seeding - 2-3x	native woodland species into garden weed areas		>50% native grass cover; grasses displace garden weeds	x	x	variable	Seed mix, seed mix filler, buckets for hand seeding	Seed mix design		Acre	9.40	\$750	\$7,050

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MATERION	OW/LF2	Oak Woodland & Lowland Forest Restoration	1.70	25-50%	Pin oak, cottonwood canopy, dead ash, occasional Siberian elm; pin oak in understory; red-berried elder common in undrestory; few buckthorn (most along north edge by cul de sac), white mulberry saplings, honeysuckle; relatively diverse native ground layer, but garlic mustard >75% and creeping Charlie common; archangel dense in west 1/2.	Med	Legacy oaks; moderate quality; sustain gains in NRM and improve quality											Acre	1.70		
MATERION	OW/LF2	Oak Woodland & Lowland Forest Restoration	1.70					Invasive tree, dead ash, understory boxelder, & downed dead wood removal - 1x	Siberian elm, understory boxelder, dead ash		No invasive trees; reduce snags; reduce downed dead wood; increase understory light for native ground cover		x	winter	Chainsaw; heavy equipment for woody debris transport; wood chipper	Training: Chainsaw, Trailing, Hauling, Load/Unload		LS	1.00		
MATERION	OW/LF2	Oak Woodland & Lowland Forest Restoration	1.70					Woody invasives removal by hand - 2x	buckthorn, honeysuckle, white mulberry	<10%	No stems with basal diameter >1/4"; no fruiting plants	x		dormant seasons	Loppers/hand saws; herbicide daubers with herbicide, indicator dye	Training: Dormant woody plant ID		Acre	1.70	\$1,200	\$2,040
MATERION	OW/LF2	Oak Woodland & Lowland Forest Restoration	1.70					Invasive brush foliar treatment for re-sprouts - 2x	buckthorn, honeysuckle, white mulberry	<10%	<5% invasive shrub cover		x	fall	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	1.70	\$750	\$1,275
MATERION	OW/LF2	Oak Woodland & Lowland Forest Restoration	1.70					Herbicide spot treat invasive weeds - annually	burdock, bull thistle, creeping Charlie, yellow archangel, daylily, garlic mustard rosettes	>75%	<25% invasive weed cover		x	growing season	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	1.70	\$850	\$1,445
MATERION	OW/LF2	Oak Woodland & Lowland Forest Restoration	1.70					Hand pull invasive herbaceous weeds - annually	garlic mustard, thistles	>75%	<25% invasive weed cover	x		growing season	Gloves, safety glasses	Training: Plant ID		Acre	1.70	\$750	\$1,275
MATERION	OW/LF2	Oak Woodland & Lowland Forest Restoration	1.70					Hand seed removal - annually	burdock		Prevent seed production annually for 5 years	x		fall	Gloves, safety glasses, bags	Training: Plant ID		Acre	1.70	\$0	\$0
MATERION	OW/LF2	Oak Woodland & Lowland Forest Restoration	1.70					Native grass/sedge seeding - 2-3x	woodland species		>75% native grass cover	x	x	variable	Seed mix, seed mix filler, buckets for hand seeding	Seed mix design		Acre	1.70	\$850	\$1,445
MATERION	OW/LF2	Oak Woodland & Lowland Forest Restoration	1.70					Native forb seeding after broadleaf weed control - 1x	woodland/savanna forbs		>25% native forb cover	x	x	variable	Seed mix, seed mix filler, buckets for hand seeding	Seed mix design		Acre	1.70	\$1,100	\$1,870
OASIS	W/F1	Woodland/Forest Restoration	1.34	50-75%	Lowland hardwood canopy, w/ amur maple, Norway maple, Russian olive; invasive shrubs uncommon; native ground cover highest along south fenceline (50-75%)	High	Sustain gains & continue NRM progress											Acre	1.34		
OASIS	W/F1	Woodland/Forest Restoration	1.34					Invasive tree, dead ash removal - 1x	amur maple, Norway maple, white mulberry, Russian olive, dead ash		No invasive trees, no dead ash snags		x	winter	Chainsaw; heavy equipment for woody debris transport; wood chipper	Training: Chainsaw, Trailing, Hauling, Load/Unload		LS	1.00		
OASIS	W/F1	Woodland/Forest Restoration	1.34					Woody invasives removal by hand - 2x	buckthorn, honeysuckle, white mulberry	<25%	No stems with basal diameter >1/4"; no fruiting plants	x		dormant seasons	Loppers/hand saws; herbicide daubers with herbicide, indicator dye	Training: Dormant woody plant ID		Acre	1.34	\$1,200	\$1,608
OASIS	W/F1	Woodland/Forest Restoration	1.34					Invasive brush foliar treatment for re-sprouts - 2x	buckthorn, honeysuckle, white mulberry		<5% invasive shrub cover		x	fall	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	1.34	\$950	\$1,273

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OASIS	W/F1	Woodland/Forest Restoration	1.34					Herbicide spot treat invasive weeds - annually	burdock, creeping Charlie, curly dock, Canada thistle, reed canary grass, yellow archangel	25-50%	<10% invasive weed cover		x	growing season	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	1.34	\$1,100	\$1,474
OASIS	W/F1	Woodland/Forest Restoration	1.34					Hand pull invasive herbaceous weeds - annually	garlic mustard, curly dock, catnip, hoary alyssum, sweetclovers, motherwort		<5% cover; few scattered plants	x		growing season	Gloves, safety glasses	Training: Plant ID		Acre	1.34	\$750	\$1,005
OASIS	W/F1	Woodland/Forest Restoration	1.34					Hand seed removal - annually	burdock		Prevent seed production annually for 5 years	x		fall	Gloves, safety glasses, bags	Training: Plant ID		Acre	1.34	\$0	\$0
OASIS	W/F1	Woodland/Forest Restoration	1.34					Native grass/sedge seeding - 2-3x	woodland species		>75% native ground cover	x	x	variable	Seed mix, seed mix filler, buckets for hand seeding	Seed mix design		Acre	1.34	\$850	\$1,139
OASIS	W/F1	Woodland/Forest Restoration	1.34					Native forb seeding after broadleaf weed control - 1-2x	woodland/savanna forbs		>25% native forb cover	x	x	variable	Seed mix, seed mix filler, buckets for hand seeding	Seed mix design		Acre	1.34	\$1,400	\$1,876
OASIS	OW/LF2	Oak Woodland & Lowland Forest Restoration	0.60	>75%	White oak, pin oak, cottonwood, black cherry, American elm, silver maple canopy; bur and white oaks in understory; buckthorn occasional, relatively open understory w/ quaking aspen saplings at north end; good native ground layer diversity & cover; significant yard waste dumping at north end--perpetuating burdock, sowthistle, garlic mustard, bull thistle in area.	High	Remnant plant community; legacy oaks; sustain and continue NRM progress											Acre	0.60		
OASIS	OW/LF2	Oak Woodland & Lowland Forest Restoration	0.60					Invasive tree removal - 1x	white mulberry	<1%; 1 individual	No invasive trees		x	winter	Chainsaw; heavy equipment for woody debris transport; wood chipper	Training: Chainsaw, Trailing, Hauling, Load/Unload		LS	1.00		
OASIS	OW/LF2	Oak Woodland & Lowland Forest Restoration	0.60					Woody invasives removal by hand - 2x	buckthorn	<5%	No stems with basal diameter >1/4"; no fruiting plants	x		dormant seasons	Loppers/hand saws; herbicide daubers with herbicide, indicator dye	Training: Dormant woody plant ID		Acre	0.60	\$1,500	\$900
OASIS	OW/LF2	Oak Woodland & Lowland Forest Restoration	0.60					Invasive brush foliar treatment for re-sprouts - 2x	buckthorn	<5%	Few scattered buckthorn seedlings		x	fall	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	0.60	\$1,800	\$1,080
OASIS	OW/LF2	Oak Woodland & Lowland Forest Restoration	0.60					Herbicide spot treat invasive weeds - annually	burdock, butter and eggs, sowthistle, curly dock, garlic mustard, bull thistle, Canada thistle, bird's-foot trefoil, white campion	<25%	<5% herbaceous invasive weed cover		x	growing season	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	0.60	\$1,800	\$1,080
OASIS	OW/LF2	Oak Woodland & Lowland Forest Restoration	0.60					Hand pull invasive herbaceous weeds - annually	garlic mustard	<10%	Few scattered herbaceous weeds			growing season	Gloves, safety glasses	Training: Plant ID		Acre	0.60	\$1,500	\$900
OASIS	OW/LF2	Oak Woodland & Lowland Forest Restoration	0.60					Hand seed removal - annually	burdock		Prevent seed production annually for 5 years	x		fall	Gloves, safety glasses, bags	Training: Plant ID		Acre	0.60	\$0	\$0
OASIS	OW/LF2	Oak Woodland & Lowland Forest Restoration	0.60					Native grass seeding - 1-2x	woodland species		Establish cover by native grasses in broadleaf weed/yard waste areas	x	x	variable	Seed mix, seed mix filler, buckets for hand seeding	Seed mix design		LS	1.00	\$850	\$850

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OASIS	W/F3	Woodland/Forest Restoration	0.45	>75%	Cottonwood, boxelder canopy w/ bur oak, few Siberian elm, one 12" black walnut; boxelder below; open understory w/ few buckthorn, except denser fruiting buckthorn along east edge by paved trail; native ground cover high, but species richness very low.	Med	Moderate quality; high restoration potential; low effort; good volunteer project											Acre	0.45		
OASIS	W/F3	Woodland/Forest Restoration	0.45					Invasive tree removal - 1x	Siberian elm		No invasive trees present		x	winter	Chainsaw; heavy equipment for woody debris transport; wood chipper	Training: Chainsaw, Trailing, Hauling, Load/Unload		LS	1.00		
OASIS	W/F3	Woodland/Forest Restoration	0.45					Woody invasives removal by hand - 2x	buckthorn	<10%	No stems with basal diameter >1/4"; no fruiting plants	x		dormant seasons	Loppers/hand saws; herbicide daubers with herbicide, indicator dye	Training: Dormant woody plant ID		Acre	0.45	\$1,800	\$810
OASIS	W/F3	Woodland/Forest Restoration	0.45					Invasive brush foliar treatment for re-sprouts - 2-3x	buckthorn	<10%	No buckthorn cover		x	fall	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	0.45	\$1,600	\$720
OASIS	W/F3	Woodland/Forest Restoration	0.45					Herbicide spot treat invasive weeds - annually	burdock, catnip, garlic mustard rosettes	25-50%	<5% herbaceous invasives cover		x	growing season	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	0.45	\$1,400	\$630
OASIS	W/F3	Woodland/Forest Restoration	0.45					Hand seed removal - annually	burdock		Prevent seed production annually for 5 years	x		fall	Gloves, safety glasses, bags	Training: Plant ID		Acre	0.45	\$0	\$0
OASIS	W/F3	Woodland/Forest Restoration	0.45					Native seeding 2x	woodland mix		>25% native forb cover	x	x	variable	Seed mix, seed mix filler, buckets for hand seeding	Seed mix design		Acre	0.45	\$850	\$383
OASIS	SL	Shoreline Restoration	0.11	50-75%	Very high native diversity and native ground cover in west 2/3 of MU; east 1/3 of MU all weedy w/ yard debris/garbage.	High	Sustain gains & continue NRM progress											Acre	0.11		
OASIS	SL	Shoreline Restoration	0.11					Herbicide spot invasive weed treatment - annually	curly dock, burdock, reed canary grass, dayflower, Canada thistle	25-50%	<25% herbaceous invasive weed cover		x	growing season	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	0.11	\$3,000	\$330
OASIS	SL	Shoreline Restoration	0.11					Hand pull invasive herbaceous weeds - annually	catnip, mortherwort, bittersweet nightshade		Few scattered plants	x		growing season	Gloves, safety glasses	Training: Plant ID		Acre	0.11	\$4,500	\$495
OASIS	SL	Shoreline Restoration	0.11					Hand seed removal - annually	burdock		Prevent seed production annually for 5 years	x		fall	Gloves, safety glasses, bags	Training: Plant ID		Acre	0.11	\$0	\$0
OASIS	SL	Shoreline Restoration	0.11					Restore east 1/3 of MU to natives; full restoration regime	same as east 1/3		>75% native ground cover and native shrubs		x	variable				LS	1.00	\$1,800	\$1,800
OASIS	SL	Shoreline Restoration	0.11					Woody invasives removal by hand - 2x	buckthorn, white mulberry, bittersweet nightshade, sandbar willow		<5% woody invasives cover	x		dormant seasons	Loppers/hand saws; herbicide daubers with herbicide, indicator dye	Training: Dormant woody plant ID		Acre	0.11	\$4,000	\$440
OWASSO HILLS	WL	Wetland Restoration	0.08	<25%	Reed canary grass dominated. Restoration would have to include reed canary grass control and reconstruction of adjacent prairie.	Low	Low quality; low sustainability; high effort	Wetland vegetation restoration?										Acre	0.08		

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OWASSO HILLS	PS	Prairie/Savanna Restoration	1.41	25-50%	Dominant cover by nonnative grasses, including reed canary grass; best prairie cover with grasses on high knob with utility pole; extensive nonnative grass control needed, RxB, and supplemental seeding													Acre	1.41		
OWASSO HILLS	PS	Prairie/Savanna Restoration	1.41					Prescribed burn (RxB) - 1x and/or dormant mow			At least 1 RxB or dormant mow		x	dormant seasons	RxB equip, specialized Personal Protective Equipment	Training: RxB		EA	1.00	\$5,400	\$5,400
OWASSO HILLS	PS	Prairie/Savanna Restoration	1.41					Grass-selective spray post-burn -1-2x	reed canary grass, brome, Kentucky bluegrass, quackgrass, etc.				x	spring/fall	Backpack an/dor UTV sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	1.41	\$500	\$705
OWASSO HILLS	PS	Prairie/Savanna Restoration	1.41					Herbicide spot treat invasive weeds - annually	crown vetch, burdock, catnip, Canada thistle, spotted knapweed, mullein	>75%	<25%		x	growing season	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	1.41	\$550	\$776
OWASSO HILLS	PS	Prairie/Savanna Restoration	1.41		ADDED 8/25/24			Hand pull weeds - annually	catnip, mullein		few scattered plants	x		growing season	Gloves, safety glasses	Training: Plant ID		Acre	1.41	\$850	\$1,199
OWASSO HILLS	PS	Prairie/Savanna Restoration	1.41					Hand seed removal - annually	burdock		Prevent seed production annually for 5 years	x		fall	Gloves, safety glasses, bags	Training: Plant ID		Acre	1.41	\$0	\$0
OWASSO HILLS	PS	Prairie/Savanna Restoration	1.41					Native seeding	mesic prairie, w/ mostly grasses & sedges		>75% native ground cover	x	x	variable	Seed mix, seed mix filler, buckets for hand seeding	Seed mix design		Acre	1.41	\$850	\$1,199
OWASSO HILLS	PS	Prairie/Savanna Restoration	1.41					Grow-in mowing - as needed post seeding					x	growing season				Acre	1.41	\$450	\$635
OWASSO HILLS	OW	Oak Woodland Restoration	2.64	<25%	Bur and pin oaks w/ lowland hardwood canopy; dying EAB ash; occasional invasive shrubs ranging from re-sprouts to old growth buckthorn at north end; weedy ground layer w/ poor native plant species richness/cover. Manage towards Oak Woodland.	High	Remnant plant community; legacy oaks; sustain gains & continue NRM progress											Acre	2.64		
OWASSO HILLS	OW	Oak Woodland Restoration	2.64					Invasive tree removal - 1x	white mulberry, buckthorn, amur maple	<10%	No invasive trees		x	winter	Chainsaw; heavy equipment for woody debris transport; wood chipper	Training: Chainsaw, Trailing, Hauling, Load/Unload		LS	1.00		
OWASSO HILLS	OW	Oak Woodland Restoration	2.64					Invasive shrub removal by hand - 2-3x	buckthorn, honeysuckle	25-50%	No stems with basal diameter >1/4"; no fruiting plants	x		dormant seasons	Loppers/hand saws; herbicide daubers with herbicide, indicator dye	Training: Dormant woody plant ID		Acre	2.64	\$950	\$2,508
OWASSO HILLS	OW	Oak Woodland Restoration	2.64					Invasive brush foliar treatment for re-sprouts - 2x	buckthorn, honeysuckle	25-50%	<10% woody invasives cover		x	fall	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	2.64	\$750	\$1,980
OWASSO HILLS	OW	Oak Woodland Restoration	2.64					Herbicide spot treat invasive weeds - annually	burdock, butter and eggs, cypress spurge, creeping Charlie, reed canary grass, Kentucky bluegrass	>25%	<25%		x	growing season	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	2.64	\$650	\$1,716
OWASSO HILLS	OW	Oak Woodland Restoration	2.64		ADDED 8/25/24			Hand pull weeds - annually	catnip, garlic mustard		few scattered plants	x		growing season	Gloves, safety glasses	Training: Plant ID		Acre	2.64	\$650	\$1,716
OWASSO HILLS	OW	Oak Woodland Restoration	2.64					Hand seed removal - annually	burdock		Prevent seed production annually for 5 years	x		fall	Gloves, safety glasses, bags	Training: Plant ID		Acre	2.64	\$0	\$0
OWASSO HILLS	OW	Oak Woodland Restoration	2.64					Native seeding - 2x	woodland/savanna mix		>75% native ground cover	x	x	variable	Seed mix, seed mix filler, buckets for hand seeding	Seed mix design		Acre	2.64	\$850	\$2,244

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OWASSO HILLS	PB	Pond Buffer	0.50	<25%	Dominated by nonnative plants such as reed canary grass, burdock, Canada thistle; few scattered native plants.	Low	Low quality; low sustainability due to water level fluctuation; high effort											Acre	0.50		
PIONEER	W/F	Woodland/Forest Restoration	1.87	<25%	Lowland hardwoods and pin oak canopy; dead ash; several Siberian elms; open understory; buckthorn mainly north and south edges; ground cover species poor with bare ground prevalent through east 1/3 of unit with worn bike trails; overall north side of unit w/ high weed cover, downed dead wood, Siberian elms in canopy and dead ash canopy gaps.	High	Low quality, high effort, but fair restoration potential and only unit within park; requires disturbance reduction.											Acre	1.87		
PIONEER	W/F	Woodland/Forest Restoration	1.87					Woody debris and invasive tree removal - 1x	dead ash, downfall, Siberian elm		No invasive trees in canopy; all dead ash snags removed; large woody debris removed		x	winter	Chainsaw; heavy equipment for woody debris transport; wood chipper	Training: Chainsaw, Trailing, Hauling, Load/Unload		LS	1.00		
PIONEER	W/F	Woodland/Forest Restoration	1.87					Invasive brush foliar treatment for re-sprouts - 2x	buckthorn, honeysuckle	<25%	<5% cover; no fruiting plants; collaborate with fenceline neighbors		x	spring/fall	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	1.87	\$750	\$1,403
PIONEER	W/F	Woodland/Forest Restoration	1.87					Herbicide spot treat invasive weeds - annually	creeping Charlie, burdock	<10%	<5%		x	growing season	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	1.87	\$950	\$1,777
PIONEER	W/F	Woodland/Forest Restoration	1.87					Hand pull herbaceous weeds - annually	garlic mustard, motherwort	<10%	<1%; few scattered plants	x		spring	Gloves, safety glasses	Training: Plant ID		Acre	1.87	\$650	\$1,216
PIONEER	W/F	Woodland/Forest Restoration	1.87					Native grass/sedge seeding - 2x	woodland species		>50% cover	x	x	spring	Seed mix, seed mix filler, buckets for hand seeding	Seed mix design		Acre	1.87	\$850	\$1,590
PIONEER	W/F	Woodland/Forest Restoration	1.87					Native forb seeding - 1x	woodland species		>25% cover	x	x	fall	Seed mix, seed mix filler, buckets for hand seeding	Seed mix design		Acre	1.87	\$850	\$1,590
RESERVOIR WOODS	OW1	Oak Woodland Restoration	13.71	>75%	Bur and pin oak dominated canopy w/ white oak, quaking aspen; black walnut in understory; native ground layer; rare occurrences of garlic mustard, Canada thistle, burdock.	High	High quality remnant; legacy oaks; high restoration potential; sustain gains & continue NRM progress											Acre	13.71		
RESERVOIR WOODS	OW1	Oak Woodland Restoration	13.71					Continue incremental thinning of second-growth pioneer , non-oak trees	Boxelder, Amur cork tree, black walnut		Reduce non-oak tree canopy cover to less than 10%		x	variable	Chainsaw; heavy equipment for woody debris transport; wood chipper	Training: Chainsaw, Trailing, Hauling, Load/Unload		Acre	13.71	\$1,475	\$20,222
RESERVOIR WOODS	OW1	Oak Woodland Restoration	13.71					Prescribed burn/dormant mow north unit - 1x	shrub suppression; increased ground layer growth/flowering		1 prescribed burn implemented		x	variable	RxB equip, specialized Personal Protective Equipment	Training: RxB		Acre	13.71	\$450	\$6,170
RESERVOIR WOODS	OW1	Oak Woodland Restoration	13.71					Hand pull herbaceous weeds - annually	garlic mustard	<5%	rare occurrences	x		growing season	Gloves, safety glasses	Training: Plant ID		Acre	13.71	\$550	\$7,541
RESERVOIR WOODS	OW1	Oak Woodland Restoration	13.71					Herbicide spot treat invasive weeds - annually	burdock, Canada thistle	<5%	rare occurrences		x	growing season	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	13.71	\$450	\$6,170
RESERVOIR WOODS	OW1	Oak Woodland Restoration	13.71					Hand seed removal - annually	burdock		Prevent seed production annually for 5 years	x		fall	Gloves, safety glasses, bags	Training: Plant ID		Acre	13.71	\$0	\$0

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RESERVOIR WOODS	OW1	Oak Woodland Restoration	13.71					Native sapling thinning to maintain open undestory	boxelder, other fire-intolerant species		Decrease shrub layer cover; thin out fire-intolerant species	x	x	dormant seasons	Loppers/hand saws; herbicide daubers with herbicide, indicator dye	Training: Dormant woody plant ID		Acre	13.71	\$250	\$3,428
RESERVOIR WOODS	OW1	Oak Woodland Restoration	13.71					Native seeding - 2-3x	mesic savanna mix		Increase species richness	x	x	variable	Seed mix, seed mix filler, buckets for hand seeding	Seed mix design		Acre	13.71	\$850	\$11,654
RESERVOIR WOODS	OW2	Oak Woodland Restoration	11.97	>75%	Oak dominated canopy, native undestory, and native ground layer.	High	High quality remnant; legacy oaks; high restoration potential; sustain gains & continue NRM progress											Acre	11.97		
RESERVOIR WOODS	OW2	Oak Woodland Restoration	11.97					Fire-intolerant tree canopy and sapling mechanical suppression	boxelder, elm		Reduce cover by fire-intolerant native trees		x	winter	Specialized mowing equipment (walk-behind brush mower or skidsteer forestry mower)	Training: Mowing Equipment Operation; Trailingering		Acre	11.97	\$450	\$5,387
RESERVOIR WOODS	OW2	Oak Woodland Restoration	11.97					Prescribed burn - 1x			At least 1 prescribed burn implemented		x	dormant seasons	RxB equip, specialized Personal Protective Equipment	Training: RxB		Acre	11.97	\$550	\$6,584
RESERVOIR WOODS	OW2	Oak Woodland Restoration	11.97					Hand pull herbaceous weeds - annually	garlic mustard, hedge parsley, bull thistle	<5%	Maintain <1% invasive brush cover	x		growing season	Gloves, safety glasses	Training: Plant ID		Acre	11.97	\$350	\$4,190
RESERVOIR WOODS	OW2	Oak Woodland Restoration	11.97					Invasive shrub and sapling removal by hand (glossy near wetland along N edge) - 1x	glossy buckthorn	<1%	Maintain <1% invasive brush cover	x		dormant seasons	Loppers/hand saws; herbicide daubers with aquatic-safe herbicide, indicator dye	Training: Dormant woody plant ID		Acre	11.97	\$450	\$5,387
RESERVOIR WOODS	OW2	Oak Woodland Restoration	11.97					Invasive brush foliar treatment for re-sprouts - annually	glossy buckthorn, common buckthorn, honeysuckle	<1%	Maintain <1% invasive brush cover		x	fall	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	11.97	\$550	\$6,584
RESERVOIR WOODS	OW2	Oak Woodland Restoration	11.97					Herbicide spot treat invasive weeds - annually	burdock, creeping Charlie	<1%	Maintain <1% herbaceous invasives cover		x	growing season	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	11.97	\$350	\$4,190
RESERVOIR WOODS	OW2	Oak Woodland Restoration	11.97					Hand seed removal - annually	burdock		Prevent seed production annually for 5 years	x		fall	Gloves, safety glasses, bags	Training: Plant ID		Acre	11.97	\$0	\$0
RESERVOIR WOODS	OW2	Oak Woodland Restoration	11.97					Native seeding - 2-3x	mesic savanna mix		Increase species richness	x	x	variable	Seed mix, seed mix filler, buckets for hand seeding	Seed mix design		Acre	11.97	\$850	\$10,175
RESERVOIR WOODS	W/F3	Woodland/Forest Restoration	24.62	<50%	Plantation unit E of tank (U3, U4, U6); Mixed hardwood, conifer canopy; significantly disturbed from storms and trail use; unit includes the legacy butternut trees; dead ash in canopy; branch forts present; native ground layer species present, but invasive forb cover is high; extensive soft surface trail network in addition to the paved trails.	Med-Low	Low quality; low sustainability unless disturbance factors are addressed; high effort & cost, but sizeable park area for wildlife habitat											Acre	24.62		
RESERVOIR WOODS	W/F3	Woodland/Forest Restoration	24.62					Herbicide spot invasive weed treatment - annually			Contain or limit expansion of invasive herbaceous species.		x	growing season	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	24.62	\$350	\$8,617
RESERVOIR WOODS	W/F3	Woodland/Forest Restoration	24.62					Hand pull herbaceous weeds - annually	celandine, Japanese hedge parsley		Contain or limit expansion of invasive herbaceous species.	x		growing season	Gloves, safety glasses	Training: Plant ID		Acre	24.62	\$400	\$9,848

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RESERVOIR WOODS	W/F3	Woodland/Forest Restoration	24.62					Native seeding - 3-4x	woodland mix		>30% native ground cover	x	x	variable	Seed mix, seed mix filler, buckets for hand seeding	Seed mix design		Acre	24.62	\$850	\$20,927
RESERVOIR WOODS	W/F3	Woodland/Forest Restoration	24.62					Disturbance management--trail restrictions for biking off paved trails			No bike disturbance			as soon as possible	signage; deterrents			Acre	24.62		
RESERVOIR WOODS	W/F4	Woodland/Forest Restoration	5.60	??	Reservoir area; needs extensive old growth invasive shrub control, native seeding, slope stabilization.	Low		Low priority for management. Will need complete restoration regime. 2024 field assessment from rim trail--no interior assessment.										Acre	5.60		
RESERVOIR WOODS	W/F4	Woodland/Forest Restoration	5.60					Native seeding/planting on slopes cleared of invasive shrubs (SE corner, north side by trail). More planning needed.	woodland mix		>75% native ground cover	x	x	variable	Seed mix, seed mix filler, buckets for hand seeding	Seed mix design		Acre	5.60		
RESERVOIR WOODS	W/F5	Woodland/Forest Restoration	17.08	>75%	(east of Dale) Mixed hardwood/conifer canopy; Siberian elm plus planted Scots pines; high native ground cover due to Virginia creeper; garlic mustard common; occasional celandine.	Med	Sustain gains & continue NRM progress; sizeable park area for wildlife habitat; provides connectivity											Acre	17.08		
RESERVOIR WOODS	W/F5	Woodland/Forest Restoration	17.08					Invasive brush foliar treatment for re-sprouts - annually	buckthorn	<5%	<1% woody invasive shrub cover		x	fall	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	17.08	\$450	\$7,686
RESERVOIR WOODS	W/F5	Woodland/Forest Restoration	17.08					Remove boxelder under oaks in SW corner	boxelder		Reduce competition with oaks; promote oak regeneration		x	winter	Chainsaw or feller buncher equipment; heavy equipment for woody debris transport; wood chipper	Training: Chainsaw, Trailing, Hauling, Load/Unload		LS	1.00		
RESERVOIR WOODS	W/F5	Woodland/Forest Restoration	17.08					Hand pull herbaceous weeds - annually	celandine, motherwort, garlic mustard	<10%	<5% herbaceous invasive weed cover	x		growing season	Gloves, safety glasses	Training: Plant ID		Acre	17.08	\$450	\$7,686
RESERVOIR WOODS	W/F5	Woodland/Forest Restoration	17.08					Herbicide spot treat invasive weeds - annually	garlic mustard rosettes		<10% herbaceous invasive weed cover		x	growing season	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	17.08	\$450	\$7,686
RESERVOIR WOODS	W/F5	Woodland/Forest Restoration	17.08					Native seeding - 3-4x	woodland edge mix		>75% native ground cover	x	x	variable	Seed mix, seed mix filler, buckets for hand seeding	Seed mix design		Acre	17.08	\$850	\$14,518
RESERVOIR WOODS	W/F6	Woodland/Forest Restoration	1.27	<25%	Cottonwood canopy edges, black locust present; occasional buckthorn; nonnative-dominated ground layer; needs reconstruction to convert to native grund layer and tree planting to fill in canopy; invasive brush removal and broadleaf spot spraying to stabilize.	Low	Low quality; low restoration potential; high effort											Acre	1.27		
RESERVOIR WOODS	W/F6	Woodland/Forest Restoration	1.27					Invasive shrub removal by hand - annually	buckthorn	<25%	No stems with basal diameter >1/4"; no fruiting plants	x		dormant seasons	Loppers/hand saws; herbicide daubers with herbicide, indicator dye	Training: Dormant woody plant ID		Acre	1.27	\$1,200	\$1,524
RESERVOIR WOODS	W/F6	Woodland/Forest Restoration	1.27					Invasive brush foliar treatment for re-sprouts - annually	buckthorn	<25%	<5% woody invasive brush cover		x	fall	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	1.27	\$850	\$1,080
RESERVOIR WOODS	W/F6	Woodland/Forest Restoration	1.27					Herbicide spot treat invasive weeds - annually	burdock, bird's-foot trefoil	<25%	<5%; few scattered plants		x	growing season	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	1.27	\$750	\$953

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RESERVOIR WOODS	W/F6	Woodland/Forest Restoration	1.27					Hand pull herbaceous weeds - annually	hedge parsley, garlic mustard, motherwort		<10% herbaceous invasive broadleaf weed cover	x		growing season	Gloves, safety glasses	Training: Plant ID		Acre	1.27	\$950	\$1,207
RESERVOIR WOODS	P/S	Prairie/Savanna Restoration	10.64	>75%	Excellent native prairie cover but continued need for brush management and herbaceous weed control.	High	Sustain gains & continue NRM progress											Acre	10.64		
RESERVOIR WOODS	P/S	Prairie/Savanna Restoration	10.64					Close trail downslope from interpretive sign and repair erosion	trail users		Trail cut filled in; >75% native ground cover; re-direct park users			as soon as possible	signage; physical deterrents			Each	1.00	\$5,500	\$5,500
RESERVOIR WOODS	P/S	Prairie/Savanna Restoration	10.64					Weed tree removal (dead/dying ash) - 1x	dead/dying green ash		No fire-intolerant trees		x	winter	Chainsaw; heavy equipment for woody debris transport; wood chipper	Training: Chainsaw, Trailing, Hauling, Load/Unload		LS	1.00		
RESERVOIR WOODS	P/S	Prairie/Savanna Restoration	10.64					Brush suppression - hand/cut treat/foiar - annually	Amur maple, buckthorn, honeysuckle	<5%	<1% woody invasives cover	x	x	dormant seasons	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	10.64	\$750	\$7,980
RESERVOIR WOODS	P/S	Prairie/Savanna Restoration	10.64					Herbicide spot treat invasive weeds - annually	crown vetch, spotted knapweed, and others	<5%	<1% herbaceous invasives cover		x	growing season	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	10.64	\$550	\$5,852
RESERVOIR WOODS	P/S	Prairie/Savanna Restoration	10.64					Hand pull herbaceous weeds - annually	hedge parsley		Eliminate seed production annually for 5 years	x		growing season	Gloves, safety glasses	Training: Plant ID		Acre	10.64	\$650	\$6,916
RESERVOIR WOODS	P/S	Prairie/Savanna Restoration	10.64					Prescribed burn and/or dormant mow - 2x			At least 1 dormant mow; at least 1 prescribed burn		x	dormant seasons	RxB equip, specialized Personal Protective Equipment	Training: RxB		Acre	10.64	\$650	\$6,916
RESERVOIR WOODS	P/S	Prairie/Savanna Restoration	10.64					Enrichment seeding and plug planting - ongoing	mesic prairie		Increased species richness	x	x	variable	Seed mix, seed mix filler, buckets for hand seeding; native plugs	Seed mix design		Acre	10.64	\$1,500	\$15,960
RESERVOIR WOODS	P	Prairie Restoration	1.88	<5%	east of Dale, north edge along Roselawn; Prairie reconstruction needed due to very low remaining native ground cover.	Low	Remnant prairie west of Dale recommended as higher priority.	Prairie reconstruction	Mesic prairie		>75% native ground cover; high forb richness for pollinators		x					LS	1.00	\$4,500	\$4,500
RESERVOIR WOODS	WL1	Shoreline Restoration	0.25	<25%	east of Dale; dominated by reed canary grass	Low	Low sustainability based on past effort; significant and frequent water level bounce from stormwater inputs.	Due to instability of water levels; shoreline restoration is likely not sustainable based on previous restoration experience.										Acre	0.25		
RESERVOIR WOODS	WL2	Wetland Restoration	2.65	50-75%	Glossy buckthorn control needed.	Med	Proximity to high quality upland; sustain and continue NRM progress											Acre	2.65		
RESERVOIR WOODS	WL2	Wetland Restoration	2.65					Invasive shrub and sapling removal by hand - 2-3x	glossy buckthorn	<25%	<5% invasive shrub cover; no fruiting plants		x	winter	Loppers/hand saws; herbicide daubers with herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID; Work on Ice		Acre	2.65	\$650	\$1,723
RESERVOIR WOODS	WL3	Wetland Restoration	6.61	>75%	Very high quality wetland, but glossy buckthorn control needed.	Med-High	Sustain high quality wetland											Acre	6.61		

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RESERVOIR WOODS	WL3	Wetland Restoration	6.61					Invasive shrub and sapling removal by hand - 2-3x	glossy buckthorn	<25%	<5% invasive shrub cover; no fruiting plants		x	winter	Loppers/hand saws; herbicide daubers with herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID; Work on Ice		Acre	6.61	\$650	\$4,297
RESERVOIR WOODS	WL4	Wetland Restoration	0.82	??	Substantial coarse woody debris; sedge shoreline; focus on enhancing upland woodland community surrounding wetland.	Low		No specific management activities recommended at this time.										Acre	0.82		
ROSEBROOK	W/F	Woodland/Forest Restoration	0.07	10-25%	Narrow strip of woodland cover along southeast boundary; could discontinue mowing and plant native woodland ground cover under tree canopy to north; Canopy mostly dead ash, occasional mountain ash, silver maple, w/ boxelder under; buckthorn common; sparse native ground cover, species poor.	Med	High effort for very small unit but offers social equity, especially if convert turf to woodland ground cover & highlight pollinator habitat											Acre	0.07		
ROSEBROOK	W/F	Woodland/Forest Restoration	0.07					Dead ash, invasive tree removal - 1x	dead ash, white mulberry		No dead ash or invasive trees		x	winter	Chainsaw; heavy equipment for woody debris transport; wood chipper	Training: Chainsaw, Trailing, Hauling, Load/Unload		LS	1.00		
ROSEBROOK	W/F	Woodland/Forest Restoration	0.07					Invasive shrub removal by hand - 1x	buckthorn, honeysuckle	50-75%	No stems with basal diameter >1/4"; no fruiting plants	x		dormant seasons	Loppers/hand saws; herbicide daubers with herbicide, indicator dye	Training: Dormant woody plant ID		Acre	0.07	\$3,500	\$245
ROSEBROOK	W/F	Woodland/Forest Restoration	0.07					Invasive brush foliar treatment for re-sprouts - 2x	buckthorn, honeysuckle	50-75%	<10%		x	fall	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	0.07	\$4,500	\$315
ROSEBROOK	W/F	Woodland/Forest Restoration	0.07					Herbicide spot treat invasive weeds - annually	burdock, motherwort, creeping charlie	<25%	<5%; few scattered plants		x	growing season	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	0.07	\$4,500	\$315
ROSEBROOK	W/F	Woodland/Forest Restoration	0.07					Hand seed removal - annually	burdock		Prevent seed production annually for 5 years	x		fall	Gloves, safety glasses, bags	Training: Plant ID		Acre	0.07	\$0	\$0
ROSEBROOK	W/F	Woodland/Forest Restoration	0.07					Native grass seeding -1-2x	woodland grasses		>75% native grass cover	x	x	spring	Seed mix, seed mix filler, buckets for hand seeding	Seed mix design		LS	1.00	\$600	\$600
ROSEBROOK	W/F	Woodland/Forest Restoration	0.07					Native forb seeding - 1x	woodland/savanna forbs		>25% native forb cover	x	x	fall	Seed mix, seed mix filler, buckets for hand seeding	Seed mix design		LS	1.00	\$600	\$600
ROSEBROOK	W/F	Woodland/Forest Restoration	0.07					Woodland groundlayer restoration (turf to natives)	woodland/savanna		Increase native ground cover	x	x	growing season	Site prep spray, mulch, native plugs/seed	Seed/planting design; MN Pesticide Applicator License; Pesticide handling;		LS	1.00	\$2,500	\$2,500
SANDCASTLE	W/F	Woodland/Forest Restoration	0.25		Wooded park edges	High	Sustain gains & continue NRM progress; good volunteer project											Acre	0.25		
SANDCASTLE	W/F	Woodland/Forest Restoration	0.25					Invasive shrub removal by hand - 1x	invasive shrubs		No stems with basal diameter >1/4"; no fruiting plants	x		dormant seasons	Loppers/hand saws; herbicide daubers with herbicide, indicator dye	Training: Dormant woody plant ID		Acre	0.25	\$6,000	\$1,500
SANDCASTLE	W/F	Woodland/Forest Restoration	0.25					Supplemental seeding	woodland edge mix		>75% native ground cover	x	x	variable	Seed mix, seed mix filler, buckets for hand seeding	Seed mix design		Acre	0.25	\$2,500	\$625

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TAMARACK	W/F	Woodland/Forest Restoration	3.85	25-50%	Lowland hardwoods dominated by cottonwood, boxelder; needs buckthorn foliar and cut/treat follow-ups, more ground layer seeding through southern 2/3 of unit, expand native ground layer buffer into mowed lawn; encroachment issues.	Med-High	Sustain gains & continue NRM progress											Acre	3.85		
TAMARACK	W/F	Woodland/Forest Restoration	3.85					Invasive tree removal throughout & downed wood in NE arm - 1x	Siberian elm, white mulberry	a few trees	No invasive trees		x	winter	Chainsaw; heavy equipment for woody debris transport; wood chipper	Training: Chainsaw, Trailing, Hauling, Load/Unload		LS	1.00		
TAMARACK	W/F	Woodland/Forest Restoration	3.85					Invasive shrub removal by hand - 1x	buckthorn, honeysuckle	50-75%	<10% woody invasives cover	x	x	dormant seasons	Loppers/hand saws; herbicide daubers with herbicide, indicator dye	Training: Dormant woody plant ID		Acre	3.85	\$1,100	\$4,235
TAMARACK	W/F	Woodland/Forest Restoration	3.85					Invasive brush foliar treatment for re-sprouts - annually	buckthorn, honeysuckle	50-75%	<10% woody invasives cover		x	fall	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	3.85	\$850	\$3,273
TAMARACK	W/F	Woodland/Forest Restoration	3.85					Herbicide spot treat invasive weeds - annually	burdock, Canada thistle, creeping Charlie	25-50%	<10% herbaceous invasives cover		x	growing season	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	3.85	\$550	\$2,118
TAMARACK	W/F	Woodland/Forest Restoration	3.85					Hand pull herbaceous weeds - annually	dame's rocket, catnip, motherwort (pull); bull thistle (cut)			x		growing season	Gloves, safety glasses	Training: Plant ID		Acre	3.85	\$750	\$2,888
TAMARACK	W/F	Woodland/Forest Restoration	3.85					Hand seed removal - annually	burdock		Prevent seed production annually for 5 years	x		fall	Gloves, safety glasses, bags	Training: Plant ID		Acre	3.85	\$0	\$0
TAMARACK	W/F	Woodland/Forest Restoration	3.85					Native seeding - 2-3x	woodland edge mix		>75% native ground cover	x	x	variable	Seed mix, seed mix filler, buckets for hand seeding; native plugs	Seed mix design		Acre	3.85	\$850	\$3,273
VALLEY	W/F	Woodland/Forest Restoration	4.89	<25%	Lowland hardwood canopy w/ few bur oaks; few invasive trees (white mulberry, white poplar, Siberian elm); invasive shrubs rare and scattered; native forbs rare; seeded wild ryes present but rare.	Med	Low quality, but moderate restoration potential; sustain gains & continue NRM progress											Acre	4.89		
VALLEY	W/F	Woodland/Forest Restoration	4.89					Invasive tree removal - 1x	white mulberry, white poplar, amur maple, Siberian elm (about dozen trees total)	<10%	No invasive trees in canopy & understory		x	winter	Chainsaw; heavy equipment for woody debris transport; wood chipper	Training: Chainsaw, Trailing, Hauling, Load/Unload		LS	1.00		
VALLEY	W/F	Woodland/Forest Restoration	4.89					Thin boxelder under cottowoods - 1x	boxelder		Increase understory light		x	winter	Chainsaw; heavy equipment for woody debris transport; wood chipper	Training: Chainsaw, Trailing, Hauling, Load/Unload		Acre	4.89	\$1,800	\$8,802
VALLEY	W/F	Woodland/Forest Restoration	4.89					Invasive shrub removal by hand - 2-3x	buckthorn, honeysuckle	<5%	<1% cover	x		dormant seasons	Loppers/hand saws; herbicide daubers with herbicide, indicator dye	Training: Dormant woody plant ID		Acre	4.89	\$800	\$3,912
VALLEY	W/F	Woodland/Forest Restoration	4.89					Herbicide spot treat invasive weeds - annually	creeping Charlie, burdock, creeping bellflower, lily-of-the-valley	50-75%	<25% cover		x	growing season	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	4.89	\$750	\$3,668

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VALLEY	W/F	Woodland/Forest Restoration	4.89					Hand pull herbaceous weeds - annually	garlic mustard, hedge parsley, motherwort	<25%	<10% cover; seed producing plants minimal	x		spring	Gloves, safety glasses	Training: Plant ID		Acre	4.89	\$750	\$3,668
VALLEY	W/F	Woodland/Forest Restoration	4.89					Hand seed removal - annually	burdock		Prevent seed production annually for 5 years	x		fall	Gloves, safety glasses, bags	Training: Plant ID		Acre	4.89	\$0	\$0
VALLEY	W/F	Woodland/Forest Restoration	4.89					Native grass/sedge seeding - 2x	woodland species		25-50% cover	x	x	sping	Seed mix, seed mix filler, buckets for hand seeding; native plugs	Seed mix design		Acre	4.89	\$850	\$4,157
VALLEY	W/F	Woodland/Forest Restoration	4.89					Native forb seeding - 1x	woodland species		25% cover	x	x	fall	Seed mix, seed mix filler, buckets for hand seeding; native plugs	Seed mix design		Acre	4.89	\$850	\$4,157
VALLEY	PB	Pond Buffer Restoration	0.35	<10%	Cover dominated by cool season, nonnative grasses; native forbs are rare except for giant goldenrod; sandbar willow cover dense at south end; few green ash saplings; re-do restoration as buffer strip and expand MU upslope to trail.	Med-Low	Low quality; moderate to low sustainability?	Mesic prairie pond buffer restoration	mesic prairie		>75% native cover							Acre	0.35		
VILLA	W/F1	Woodland/Forest Restoration	4	50-75%	Lowland hardwood cottonwood, silver maple canopy w/ few willow, walnut, and Siberian elm; boxelder subcanopy; no buckthorn noted but few Norway maple saplings; good native ground cover.	High	Remnant; sustain gains & continue NRM progress											Acre	4.00		
VILLA	W/F1	Woodland/Forest Restoration	4					Invasive tree removal - 1x	Siberian elm	<1%	No invasive trees		x	winter	Chainsaw; heavy equipment for woody debris transport; wood chipper	Training: Chainsaw, Trailing, Hauling, Load/Unload		LS	1.00		
VILLA	W/F1	Woodland/Forest Restoration	4					Invasive shrub/sapling removal by hand - 1x	buckthorn, Norway maple	<1%	Maintain <1% invasive brush cover	x		dormant seasons	Loppers/hand saws; herbicide daubers with herbicide, indicator dye	Training: Dormant woody plant ID		Acre	4.00	\$850	\$3,400
VILLA	W/F1	Woodland/Forest Restoration	4					Herbicide spot treat invasive weeds - annually	Canada thistle	??	<10% herbaceous invasive weed cover		x	growing season	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	4.00	\$650	\$2,600
VILLA	W/F1	Woodland/Forest Restoration	4					Native seeding - patchy - 1-2x	woodland mix		Gap filling	x	x	variable	Seed mix, seed mix filler, buckets for hand seeding; native plugs	Seed mix design		Acre	4.00	\$550	\$2,200
VILLA	W/F2	Woodland/Forest Restoration	1.96	>75%	Cottonwood, boxelder canopy w/ walnut, silver maple; 2 white poplar at S end; dead ash; boxelder under w/ few ash; open understory, buckthorn rare; white snake common, mix of natives but mock strawberry occasional to common.	High	Sustain gains & continue NRM progress											Acre	1.96		
VILLA	W/F2	Woodland/Forest Restoration	1.96					Invasive tree, dead ash, downed dead wood removal 1x	white poplar, dead ash, down dead wood	<1%	No invasive trees, dead ash, reduced downed wood		x	winter	Chainsaw; heavy equipment for woody debris transport; wood chipper	Training: Chainsaw, Trailing, Hauling, Load/Unload		LS	1.00		
VILLA	W/F2	Woodland/Forest Restoration	1.96					Invasive shrub/sapling removal by hand - 2x	buckthorn, white poplar saplings	<1%	No stems with basal diameter >1/4"; no fruiting plants	x		dormant seasons	Loppers/hand saws; herbicide daubers with herbicide, indicator dye	Training: Dormant woody plant ID		Acre	1.96	\$1,500	\$2,940

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VILLA	W/F2	Woodland/Forest Restoration	1.96					Invasive brush foliar treatment for re-sprouts - 2x	buckthorn, white poplar saplings	<1%	No invasive brush/tree cover		x	fall	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	1.96	\$1,500	\$2,940
VILLA	W/F2	Woodland/Forest Restoration	1.96					Herbicide spot treat invasive weeds - annually	reed canary grass (edges), Canada thistle	25-50%	<10% herbaceous invasive weed cover		x	growing season	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	1.96	\$1,200	\$2,352
VILLA	W/F2	Woodland/Forest Restoration	1.96		ADDED 8/25/24			Hand pull weeds - annually	catnip, garlic mustard, motherwort; remove seeds from burdock		only few scattered plants; seed production prevented	x		growing season	Gloves, safety glasses	Training: Plant ID		Acre	1.96	\$950	\$1,862
VILLA	W/F2	Woodland/Forest Restoration	1.96					Native seeding - patchy - 1x	woodland mix		Cover established where buckthorn treated	x	x	variable	Seed mix, seed mix filler, buckets for hand seeding; native plugs	Seed mix design		Acre	1.96	\$950	\$1,862
VILLA	W/F3	Woodland/Forest Restoration	14.10	25-75%	Lowland hardwoods, boxelder, cottonwood canopy, few spruce; savanna bur oak at far S end ; black walnut between trail and pond; boxelder under; buckthorn occasional, honeysuckle rare; native ground cover variable.	Med	Remnant plant community; sustain gains & continue NRM progress											Acre	14.10		
VILLA	W/F3	Woodland/Forest Restoration	14.10					Invasive tree removal - 1x	Siberian elm				x	winter	Chainsaw; heavy equipment for woody debris transport; wood chipper	Training: Chainsaw, Trailing, Hauling, Load/Unload		LS	1.00		
VILLA	W/F3	Woodland/Forest Restoration	14.10					Invasive shrub/sapling removal by hand - annually	buckthorn, honeysuckle	<25%	<10% woody invasive shrub cover	x	x	dormant seasons	Loppers/hand saws; herbicide daubers with herbicide, indicator dye	Training: Dormant woody plant ID		Acre	14.10	\$850	\$11,985
VILLA	W/F3	Woodland/Forest Restoration	14.10					Invasive brush foliar treatment for re-sprouts - annually	buckthorn, honeysuckle	<25%	<10% woody invasive shrub cover		x	fall	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	14.10	\$550	\$7,755
VILLA	W/F3	Woodland/Forest Restoration	14.10					Hand pull herbaceous weeds - annually	garlic mustard, motherwort; remove seeds from burdock	25-50%	<25% herbaceous invasive weed cover	x		growing season	Gloves, safety glasses	Training: Plant ID		Acre	14.10	\$550	\$7,755
VILLA	W/F3	Woodland/Forest Restoration	14.10					Native seeding - 2-3x	native woodland grasses/sedges		>75% native ground cover; increase species richness	x	x	spring	Seed mix, seed mix filler, buckets for hand seeding; native plugs	Seed mix design		Acre	14.10	\$850	\$11,985
VILLA	W/F4	Woodland/Forest Restoration	0.93	>75%	McCarron Lake buffer; white poplar canopy W end, walnut dominated w/ boxelder, few black locust; Siberian elm subcanopy; buckthorn occasional, mostly east 1/3	Med-Low	Sustain gains & continue NRM progress											Acre	0.93		
VILLA	W/F4	Woodland/Forest Restoration	0.93					Invasive tree removal - 1x	white poplar, black locust, Siberian elm	<25%	No invasive trees		x	winter	Chainsaw; heavy equipment for woody debris transport; wood chipper	Training: Chainsaw, Trailing, Hauling, Load/Unload		LS	1.00		
VILLA	W/F4	Woodland/Forest Restoration	0.93					Invasive shrub/sapling removal by hand - 2x	buckthorn, nonnative saplings	<25%	No stems with basal diameter >1/4"; no fruiting plants		x	dormant seasons	Loppers/hand saws; herbicide daubers with herbicide, indicator dye	Training: Dormant woody plant ID		Acre	0.93	\$3,000	\$2,790
VILLA	W/F4	Woodland/Forest Restoration	0.93					Invasive brush foliar treatment for re-sprouts - 2x	buckthorn	<25%	<5% invasive brush cover		x	fall	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	0.93	\$1,800	\$1,674
VILLA	W/F4	Woodland/Forest Restoration	0.93					Herbicide spot treat invasive weeds - annually	creeping Charlie, Canada thistle	25-50%	<5% herbaceous invasives cover		x	growing season	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	0.93	\$1,200	\$1,116

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VILLA	W/F4	Woodland/Forest Restoration	0.93					Hand pull or cut flowering stems of herbaceous weeds - annually	garlic mustard, motherwort	25-50%	<5% herbaceous invasives cover	x		growing season	Gloves, safety glasses	Training: Plant ID		Acre	0.93	\$1,200	\$1,116
VILLA	W/F4	Woodland/Forest Restoration	0.93					Hand seed removal - annually	burdock		Prevent seed production annually for 5 years	x		fall	Gloves, safety glasses, bags	Training: Plant ID		Acre	0.93	\$0	\$0
VILLA	W/F4	Woodland/Forest Restoration	0.93					Native seeding - 2-3x	woodland/savanna species		>75% native ground cover	x	x	variable	Seed mix, seed mix filler, buckets for hand seeding; native plugs	Seed mix design		Acre	0.93	\$850	\$791
VILLA	P	Prairie Restoration	0.92	>75%	Planted prairie with big bluestem, switchgrass, Indian grass, and prairie forbs; low species richness; burdock, sweetclover, red clover present	Med	Moderate quality; sustain gains & continue NRM progress											Acre	0.92		
VILLA	P	Prairie Restoration	0.92					Herbicide spot treat invasive weeds - annually	burdock, sweetclover, red clover				x	growing season	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	0.92	\$1,500	\$1,380
VILLA	P	Prairie Restoration	0.92					Hand seed removal - annually	burdock		Prevent seed production annually for 5 years	x		fall	Gloves, safety glasses, bags	Training: Plant ID		Acre	0.92	\$0	\$0
VILLA	P	Prairie Restoration	0.92					Prescribed burn (RxB) - post conifer removal - 1x			1 RxB implemented		x	spring or fall	RxB equip, specialized Personal Protective Equipment	Training: RxB		LS	1.00	\$3,500	\$3,500
VILLA	P	Prairie Restoration	0.92					Native seeding	mesic prairie mix		Increase pollinator forb species richness	x	x	variable	Seed mix, seed mix filler, buckets for hand seeding; native plugs	Seed mix design		LS	1.00	\$850	\$850
VILLA	P	Prairie Restoration	0.92					Grow-in mowing - as needed post seeding			Increase pollinator forb species richness		x	growing season	Specialized mowing equipment (walk-behind brush mower or skidsteer forestry mower)	Training: Mowing Equipment Operation; Trailing		EA	1.00	\$450	\$450
VILLA	SL	Shoreline Restoration	0.82	<50%	East pond shoreline; lowland hardwood canopy; needs follow-up invasive brush control; herbaceous weed control, native seeding	Med	Low quality, but sustain gains & continue NRM progress											Acre	0.82		
VILLA	SL	Shoreline Restoration	0.82					Invasive shrub/sapling removal by hand - annually	buckthorn, honeysuckle, white mulberry	50-75%	<10% woody invasive shrub cover	x		dormant seasons	Loppers/hand saws; herbicide daubers with herbicide, indicator dye	Training: Dormant woody plant ID		Acre	0.82	\$2,000	\$1,640
VILLA	SL	Shoreline Restoration	0.82					Invasive brush foliar treatment for re-sprouts	buckthorn, honeysuckle, white mulberry	50-75%	<10% woody invasive shrub cover		x	fall	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	0.82	\$1,350	\$1,107
VILLA	SL	Shoreline Restoration	0.82					Herbicide spot treat invasive weeds - annually	creeping Charlie, Canada thistle, creeping bellflower, butter and eggs	>75%	<25% herbaceous invasive weed cover		x	growing season	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	0.82	\$1,100	\$902
VILLA	SL	Shoreline Restoration	0.82					Hand pull invasive herbaceous weeds - annually	hoary alyssum, catnip, motherwort; dame's rocket; remove seeds from burdock		Few scattered plants; prevent seed production annually	x		growing season	Gloves, safety glasses	Training: Plant ID		Acre	0.82	\$800	\$656
VILLA	SL	Shoreline Restoration	0.82					Native seeding - 3-4x	native woodland mix		>75% native ground cover	x	x	variable	Seed mix, seed mix filler, buckets for hand seeding; native plugs	Seed mix design		LS	1.00	\$850	\$850
VILLA	WL1, WL2	Wetland	4.39	<10%	Dominated by reed canary grass; with cattails along east side.	Low	Low quality; limited ecological gain											Acre	4.39		

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VILLA	WL1, WL2	Wetland	4.39					Invasive brush foliar treatment for re-sprouts -2-3x	buckthorn		Maintain <1% invasive brush cover		x	fall	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	4.39	\$800	\$3,512
VILLA	WL1, WL2	Wetland	4.39					Herbicide spot treat invasive weeds - annually	Canada thistle		<10% invasive forb cover		x	growing season	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	4.39	\$500	\$2,195
VILLA	WL1, WL2	Wetland	4.39					Hand pull invasive herbaceous weeds - annually	garlic mustard, burdock seeds		Few scattered plants; prevent seed production annually	x		growing season	Gloves, safety glasses, bags	Training: Plant ID		Acre	4.39	\$0	\$0
WILLOW POND	W/F	Woodland/Forest Restoration	6.39	>75%	Lowland hardwood canopy w/ EAB ash common at north end, large stand of black locust, few white mulberry; occasional buckthorn in understory, w/ few honeysuckle, white mulberry; creeping Charlie prevalent throughout; too much garlic mustard to pull; seeded wild ryes and forbs present; needs forest canopy management & succession planning.	Med-High	Sustain gains & continue NRM progress; engage high school students/teachers in restoration process											Acre	6.39		
WILLOW POND	W/F	Woodland/Forest Restoration	6.39					Invasive tree and dead ash removal - 1x	black locust, white mulberry, ash		No invasive trees in canopy & understory; No dead/dying ash		x	winter	Chainsaw; heavy equipment for woody debris transport; wood chipper	Training: Chainsaw, Trailing, Hauling, Load/Unload		LS	1.00		
WILLOW POND	W/F	Woodland/Forest Restoration	6.39					Invasive shrub/sapling removal by hand - annually	buckthorn, honeysuckle, white mulberry	<25%	No stems with basal diameter >1/4"; no fruiting plants	x		dormant seasons	Loppers/hand saws; herbicide daubers with herbicide, indicator dye	Training: Dormant woody plant ID		Acre	6.39	\$1,000	\$6,390
WILLOW POND	W/F	Woodland/Forest Restoration	6.39					Invasive brush foliar treatment for re-sprouts - annually	buckthorn, honeysuckle, white mulberry	<25%	<5% woody invasives cover		x	fall	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	6.39	\$750	\$4,793
WILLOW POND	W/F	Woodland/Forest Restoration	6.39					Herbicide spot treat invasive weeds - annually	creeping bellflower, daylily, lily-of-the-valley		prevent seed production and further vegetative spread by other species		x	growing season	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	6.39	\$650	\$4,154
WILLOW POND	W/F	Woodland/Forest Restoration	6.39					Hand pull or cut flowering/fruiting stems of herbaceous weeds - annually	garlic mustard, dame's rocket (pull); bull thistle (cut); remove burdock seeds		Flowering/seed producing plants eliminated each year	x		growing season	Gloves, safety glasses	Training: Plant ID		Acre	6.39	\$650	\$4,154
WILLOW POND	W/F	Woodland/Forest Restoration	6.39					Native grass/sedge seeding - 1x	woodland/savanna species		Establish grasses in creeping Charlie patches	x	x	spring	Seed mix, seed mix filler, buckets for hand seeding; native plugs	Seed mix design		Acre	6.39	\$850	\$5,432
WILLOW POND	W/F	Woodland/Forest Restoration	6.39					Native forb seeding - 1x	woodland/savanna species			x	x	fall	Seed mix, seed mix filler, buckets for hand seeding; native plugs	Seed mix design		Acre	6.39	\$850	\$5,432
WILLOW POND	SL	Shoreline Restoration	0.28	>75%	Dominant cover by native plants; weedy invasives mostly at east end; few saplings, honeysuckle to remove; overall in stable condition.	High	Maintain high quality with minimal effort; interpretive sign present	Invasive shrub & native sapling removal - 2x	honeysuckle, buckthorn, green ash	<1%	No invasive shrubs; no tree saplings over 3'	x	x	dormant seasons	Loppers/hand saws; herbicide daubers with herbicide, indicator dye	Training: Dormant woody plant ID		LS	1.00	\$850	\$850

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WILLOW POND	WL	Wetland Restoration	0.88	<50%	Dominated by cattails. No management activities recommended as a priority over the next 5 years.	Low	Low quality; low sustainability; high effort											Acre	0.88		
WOODHILL	W/F1, W/F2	Woodland/Forest Restoration	1.23	25-50%	Lowland hardwoods canopy, Norway maple west of Western Ave N; occasional buckthorn, few white mulberry saplings; large buckthorn SW corner of west unit; creeping Charlie is common ground cover within units and in adjacent lawn (too extensive so treatment in units unsustainable unless the weed is addressed in the adjacent mowed areas); seed native forbs in open ground through east unit.	Med	Sustain gains & continue NRM progress, especially for east unit											Acre	1.23		
WOODHILL	W/F1, W/F2	Woodland/Forest Restoration	1.23					Invasive shrub/sapling removal by hand - 1x	buckthorn, white mulberry	<25%	No stems with basal diameter >1/4"; no fruiting plants	x		dormant seasons	Loppers/hand saws; herbicide daubers with herbicide, indicator dye	Training: Dormant woody plant ID		Acre	1.23	\$1,500	\$1,845
WOODHILL	W/F1, W/F2	Woodland/Forest Restoration	1.23					Invasive brush foliar treatment for re-sprouts - 2-3x	buckthorn, white mulberry	<25%	No invasive shrub cover		x	fall	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	1.23	\$1,200	\$1,476
WOODHILL	W/F1, W/F2	Woodland/Forest Restoration	1.23					Herbicide spot treat invasive weeds - annually	burdock, Canada thistle	>50% due to creeping Charlie	<1% cover by invasive plants (excluding creeping Charlie)		x	growing season	Backpack sprayers, herbicide, indicator dye	Training/License: MN Pesticide Applicator License; Pesticide handling; Plant ID		Acre	1.23	\$850	\$1,046
WOODHILL	W/F1, W/F2	Woodland/Forest Restoration	1.23					Hand seed removal - annually	burdock		Prevent seed production annually for 5 years	x		fall	Gloves, safety glasses, bags	Training: Plant ID		Acre	1.23	\$0	\$0
WOODHILL	W/F1, W/F2	Woodland/Forest Restoration	1.23					Native seeding - 2-3x	woodland edge mix		>50% native ground cover	x	x	variable	Seed mix, seed mix filler, buckets for hand seeding; native plugs	Seed mix design		Acre	1.23	\$850	\$1,046



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