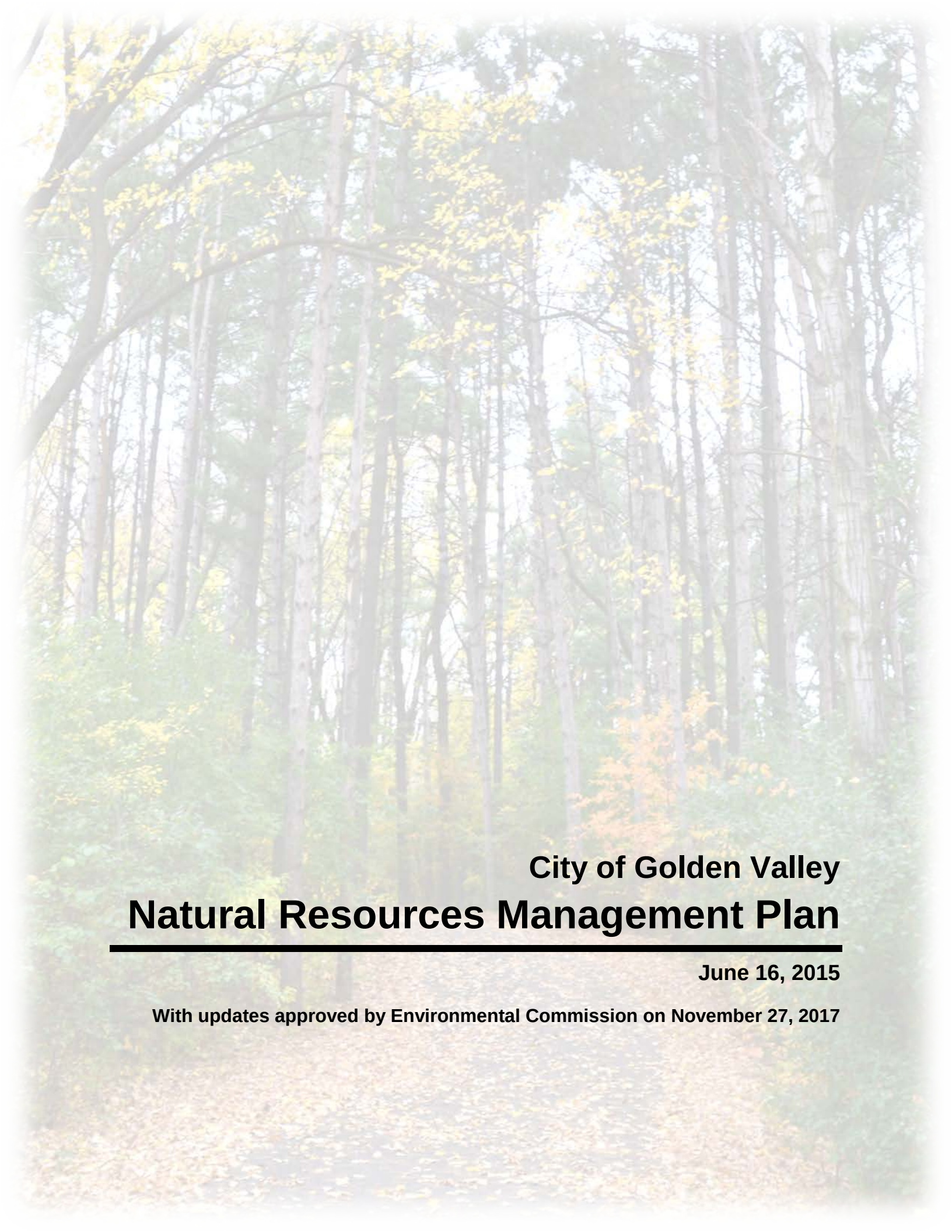
Appendix 6B

Parks and Natural Resources

Natural Resources Management Plan

210 pages



City of Golden Valley

Natural Resources Management Plan

June 16, 2015

With updates approved by Environmental Commission on November 27, 2017

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Section 1: Introduction

Why is it so important for Golden Valley to plan for and manage its natural resources? Because the benefits of being surrounded by a healthy natural environment are many. They include a clean and abundant supply of groundwater, surface water; clean air to breathe; and a healthy mix of terrestrial and aquatic habitats, such as forests, prairies, and wetlands. These features are necessary to promote a vibrant and diverse human, animal and plant community. Although not always visible, but every bit as important, is their contribution to the quality of life enjoyed by Golden Valley residents.

While natural resources are part of what makes up the urban environment of the City – both public and private - those publicly owned spaces that have been identified as Nature Areas, Nature Preserves, Greenbelts, and Open Spaces will be the primary focus of this Natural Resources Management Plan (NRMP).

An overarching goal of this plan is to provide the City and the community with natural resources management information, i.e., how to rid one's property of buckthorn, etc., volunteer opportunities (nature area clean-up), and inspiration (public outreach) with the hope of creating a public-private partnership to care for all of the green and natural areas within the city - regardless of ownership.

Purpose of the Plan

The purpose of the NRMP is to guide decision makers and staff on how to best manage Golden Valley's natural resources (water, land, vegetation, and wildlife) based on the community's vision, goals, objectives, and policies. It will help determine what actions could best be taken to help preserve, protect, restore, and enhance the City of Golden Valley's nature areas, green corridors, and open spaces.

Planning Process

The City of Golden Valley hired Short Elliott Hendrickson, Inc. (SEH) in 2014 to work with the Environmental Commission, the Open Space and Recreation Commission, City staff, and the public to prepare the Natural Resources Management Plan (NRMP). Planning efforts began by reviewing related planning documents including the updated Natural Resources Inventory and Parks and Land Use sections of the City's 2008 Comprehensive Plan. A community survey was

also developed requesting input from residents on the existing nature areas and on their future desires and needs.

The Plan includes goals, objectives, policies, natural resource management recommendations, specific nature area management action plans, and an implementation program identifying specific and achievable projects, include priorities, timelines and responsibilities.

Plan Approach

The planning process goes well beyond reacting to problems after they occur and, for the purposes of this Plan, the following action steps define the general approach to developing the plan:

1. Assess the current condition of natural resources based on the 2013 Natural Resources Inventory Update.
2. Review related planning and natural resource management efforts
3. Garner public input on Golden Valley's natural resources including condition and use of nature areas and open spaces.
4. Identify issues and needs based on Public, Environmental and Open Space and Recreation Commissions, Nature Area evaluations, and City staff knowledge.
5. Establish realistic, attainable, and affordable goals, objectives, and policies.
6. Develop a process to implement those goals, objectives, and policies. Develop management strategies and action plans for specific nature areas, based on an Adaptive Management model for achieving goals and objectives.
7. Identify opportunities to provide natural resource education and community involvement, including volunteer opportunities.
8. Identify partnerships and grant opportunities to help the City achieve its natural resource objectives.

2013 Natural Resources Inventory Update

Golden Valley's desire to develop a natural resources management plan is not a new idea. The impetus began back in the late 1990s with a discussion among residents, City staff and the Environmental Commission, which had been established by the City Council. The results of that dialogue resulted in a list of natural resource based needs for the City. The needs included:

- Controlling nuisance (invasive) vegetation in wetland and upland plant communities within the city.
- Identifying restorable ecological communities on city property.
- Identifying potential green space and greenways.
- Inventorying rare or uncommon plant species.
- Conducting a wetland quality assessment.

It was decided at that time the implementation of management plans and management strategies would be the best approach to solving these identified issues. To begin the planning process, it was determined that the City's natural resources needed to be inventoried.

Fortunately for Golden Valley, the 1990's was the beginning of a collaborative effort to complete vegetative mapping of the entire Twin Cities Metro Area. Participants included the Metropolitan Council (Met Council), the Minnesota Department of Natural Resources (MNDNR), and county and city governments. Coinciding with this effort was work done by the MNDNR to develop a new vegetative and land use mapping system known as the Minnesota Land Cover Classification System (MLCCS). This method was to be used statewide, and while completed in portions, it integrated and standardized land use classifications for more effective and efficient use.

In 2001, by recommendation of the City's Environmental Commission, the City Council issued a resolution to prepare a natural resources inventory. Golden Valley participated in the MNDNR "Metro Greenways Planning Grant" that required a 50 percent match from the City. The following year, the City commissioned SEH to complete a natural resources inventory throughout the city, using the MLCCS classification system.

An update of the natural resources inventory was completed in 2013, and followed the same methodologies and land use definitions of the 2002 inventory. High resolution 2013 aerial photographs were used to review changes to land use in the 10 years between the two surveys. The two primary purposes were to track the gain or loss of natural areas, and the change in percentage of invasive species present.

In general, the changes made to the inventory were relatively minor. A total of 73.69 acres of land changed classification, and of that roughly half were clarifications that could be made using better resolution on the 2013 aerial photographs. The changes constitute a little over 1% of the

land area of Golden Valley. A summary of some of the more significant changes are summarized below.

Area 1 – General Mills: The General Mills Corporation completed a major expansion of their corporate center. This expansion resulted in an increase of new buildings and parking lot, and a reduction of forested habitat.

Area 2 – General Mills Nature Preserve: The City of Golden Valley completed the construction of a wetland bank, which added emergent marsh, native prairie, and expanded the floodplain of Bassett Creek.

Area 3 – Residential Development: Several small residential developments occurred. Most notable is the development of the wooded ridge between Twin and Sweeney Lakes.

Area 4 – New Storm Water Ponds: Through completion of the City's Pavement Management Program, the City added several storm water ponds for additional water quality treatment.

Both the 2002 and 2013 inventories both reviewed the cover of invasive species within the nature areas, open spaces, and parks. Of particular interest was the percentage cover of buckthorn, although coverage of reed canary grass, purple loosestrife, smooth brome grass, and crown vetch were also measured. Between 2002 and 2013, the overall coverage of invasive species has not changed significantly. Buckthorn, for example, is still prevalent, and can be found throughout the city. Management efforts, however, have demonstrated improvements. Decreasing density can be verified in areas where active management of buckthorn has occurred. Where management has not occurred, some areas are relatively unchanged, or buckthorn density has increased. Specific changes are discussed in the individual nature area descriptions, but the overall message is that effective control takes a dedicated program, many hours of implementation, and is most effective when coordinated at a large scale.

Review of Related Plans, Studies and Programs

A number of planning and management efforts related to natural resources have taken place within the city of Golden Valley and surrounding area within recent years. This document builds upon the work done by Golden Valley and other groups and governmental entities. It is important to understand that this body of work serve as working documents. As such, the intent of this plan is to complement, not conflict, with information found within these key documents.

The following is a summary of the natural resource-related policies, goals, and studies used in development of the NRMP.

Envision Golden Valley, *A Shared Vision for Golden Valley's Future* (2002): A Visioning Guide produced by the City of Golden Valley and the Golden Valley Rotary that summarized input from the city's residents to create a shared vision on topics such as development, transportation, community engagement, environment, recreation, and government. The vision of the NRMP is based in part upon the environmental section of this guide.

City of Golden Valley Comprehensive Plan 2008-2018 (2008): A decennial update to its (1999) comprehensive plan produced by the City. The Plan contains natural resource related chapters including Parks (Chapter 6) and Surface Water (Chapter 10). While a Natural Resources Chapter was not included in this update, a brief section discussing the Nature Areas and Preserves of the city including objectives and policies was included in the Parks Chapter of the comprehensive Plan.

Emerald Ash Borer Management Plan (2010): The plan was produced in 2010 and updated by the City of Golden Valley in 2012 to outline Golden Valley's objectives and approaches to be used to meet current and anticipated impact of the Emerald Ash Borer (EAB) on the City's urban forest resource. The plan is also to be used as a pest management blueprint for staff and residents to follow.

***A Sustainable Vegetation Management Plan for Golden Valley* (2012):** A report produced by University of Minnesota students in cooperation with the City of Golden Valley and the College of Food, Agricultural and Nature Resources. The study addressed options for sustainable management of the City's natural resources with the overall goal of creating a plan that would increase aesthetic and ecological benefits throughout the parks, ponds, and golf course, while lowering maintenance costs. Students presented their ideas and recommendations to the Environmental and Open Space and Recreation Commissions, City Council, and staff. One recommendation was the development of a Natural Resources Management Plan (NRMP), which the Environmental Commission included as the top priority in its 2013 work plan.

City of Golden Valley, MN, *Natural Resources Inventory & Minnesota Land Cover Classification System Mapping*, Hennepin County Department of Environmental Services (2008): A city-wide inventory and Minnesota Land Cover Classification System mapping of

Golden Valley's natural resources prepared by Hennepin County. The inventory includes a natural resource inventory, results, and management recommendations. The Hennepin County inventory is similar to what was prepared by the City of Golden Valley in 2002.

Bassett Creek Watershed Management Commission (BCWMC) ***Watershed Management Plan*** (2004): The plan provides information on climate and precipitation, topography, soils, geology and groundwater resources, land use and public utilities, surface water resource information, natural communities and rare species, and pollutant sources in the Bassett Creek Watershed. The plan also outlines issues, goals and policies related to water quality, flooding and rate control, erosion and sediment control, stream restoration, wetland management, groundwater, public ditches, and public involvement and information.

Bottineau Light Rail Transit Corridor (LRT) and Station: A proposed dedicated transit way that would extend from downtown Minneapolis to northern Brooklyn Park. The line would travel through Golden Valley along the Burlington Northern Sante Fe Railroad Corridor. Also proposed are potentially two LRT stations planned for Golden Valley – one at Plymouth Avenue and one at Golden Valley Road. While there is an opportunity to create a gateway into Golden Valley along the corridor, there is concern how its development would impact the natural resources along the corridor, particularly in the Mary Hills Nature Area.

Sochacki Park/Mary Hills/Rice Lake Nature Area Initiative: A 2014 initiative between Three Rivers Park District, and the cities of Robbinsdale and Golden Valley to explore opportunities for creating a joint partnership parks complex. The complex made up of Robbinsdale's Sochacki Park and Golden Valley's Mary Hills and Rice Lake Nature Areas would provide a range of natural resource based activities including additional trail connections between Sochacki Park, Mary Hills and Rice Lake Nature Areas, and to the future Crystal Lake and Bassett Creek Regional Trails. Proposed projects would also include water quality improvement and invasive species management, an increased vegetative buffer adjacent to the propose Bottineau LRT, and an off-leash dog exercise area.

Theodore Wirth Park Master Plan: A Master Plan for Theodore Wirth Regional Park is being developed by the Minneapolis Park and Recreation Board, with adoption planned for 2015. The focus of the plan is two-fold. The first is to protect and enhance Wirth Park's unique natural and ecological resources and the second is ensure that Wirth Park's natural resources will be a catalyst for recreational and visitor experiences.

Public Participation

Community input is key to natural resource management planning including the management of the city's nature areas. Understanding the needs, desires and concerns help to determine future priorities, such as, vegetative management and provisions for amenities within the nature areas such as trails, benches along the trails, water access, habitat education signs, and pet clean-up systems.

Project Committee Meetings

The overall design and execution of the natural resources planning process relied on monthly Environmental Commission meetings and joint meetings with the Open Space and Recreation Commission that were open to the public and meetings with City staff. Meetings focused on the planning process, issues and opportunities, planning element updates and reviews.

Community Survey

To help inform the planning process, the City of Golden Valley developed an on-line Natural Resources Survey. The purpose was to obtain input from citizens regarding Golden Valley's natural resources, nature areas, and open spaces early on in the process. Questions asked ranged from which nature areas/open spaces do people visit and why to user satisfaction with the quality of the nature areas. Questions also asked what could be changed to improve the nature areas and what was felt to be most effective in protecting them. The survey also asked if responders would be interested in volunteer opportunities related to maintaining and enhancing Golden Valley's nature areas.

Organization of the Plan

The Natural Resources Management Plan is presented in six sections with accompanying appendices and is described as follows:

Introduction: Describes the Plan's purpose, planning process, approach, 2013 Natural Resources Inventory Update summary, related planning, study and program efforts, public participation, and organization and use of the Plan.

Background: Provides a summary of Golden Valley's regional setting and natural history including geology, geomorphology, soils, hydrology, pre-settlement vegetation, existing land

cover conditions, current natural resource management practices and natural resource related public outreach and education programs.

Goals, Objectives, and Policies: Provides a planning and management framework including the formulation of a vision statement, along with goals, objectives and policies based on current conditions and issues and needs identified by the Environmental and Open Space and Recreation Commissions, city staff, and public input.

Issues and Needs: Provides a summary of key issues and opportunities related to the overall condition and management of Golden Valley's natural resources. This section also provides a summary of issues and opportunities pertaining to the nature areas, green corridors, and open spaces in the city. Issue analyses and needs assessments are based on results of the 2002 Natural Resources Inventory and 2013 update, review of related planning studies, meetings with City commissions and staff, community survey and site evaluations.

Natural Resource Management Strategies: Provides a series of prioritized recommendations for each city-maintained nature area including vegetation management, restoration, enhancement and site amenity improvements such as signs, trails, benches, fences, etc. Also includes recommendations for more general management strategies that can be applied across all nature areas and open spaces in the City.

Implementation: Provides guidance for maintaining accountability, monitoring activities, procuring funding, developing procedures and regulations, and community education and involvement.

Appendices: Provides supplemental material.

Use of the Plan

The Natural Resources Management Plan presents a vision for the future management of Golden Valley's natural resources and a framework for community action. The Plan is derived through public input and is based on the community vision, goals, objectives and policies. City Council, commission members, staff, other governmental entities, organization or any citizen interested in the city's vision for managing its natural resources, particularly Golden Valley's Nature Areas will find this document useful for understanding the goals, objectives and policies

guiding land acquisition, improvements and maintenance. City staff will use this document to establish priorities and annual work plans for natural resource related projects.

Section 2: Background

Introduction

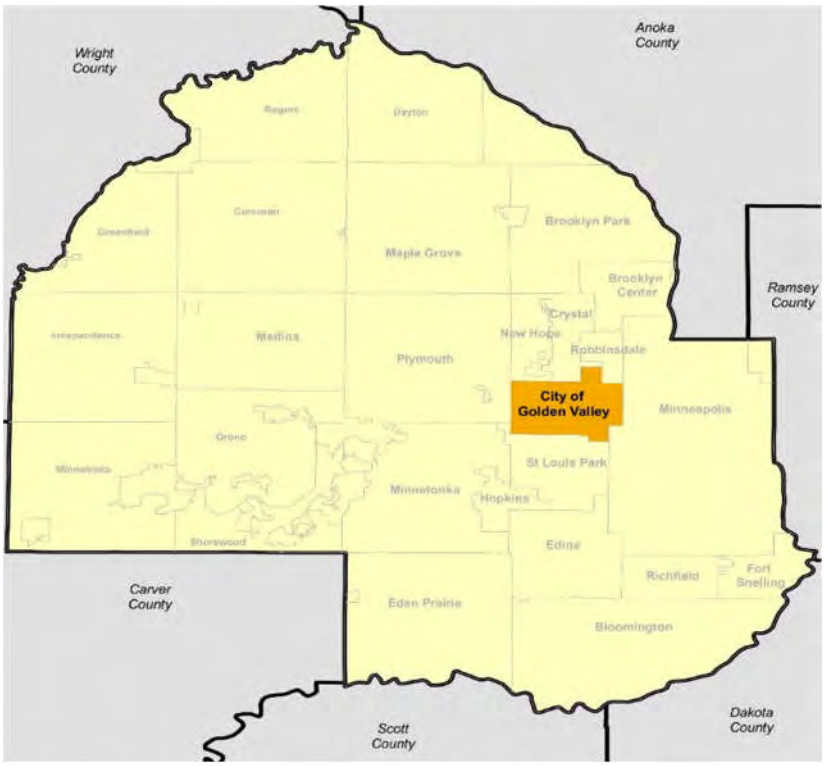
This section provides a background information related to Golden Valley's location within the Twin Cities Metro Area. It also provides a brief discussion of the natural conditions found below, within, and at the surface of the city's landscape. This includes topics on geology, hydrology, soils, pre-European settlement vegetation, wildlife and existing land use.

Since the plan is intended to guide natural resource management practices including public outreach and education programs and funding procurement, this section also includes a discussion of existing management efforts.

Location

The City of Golden Valley is a well-established first ring suburb located in Hennepin County (Figure 2.1). It is bordered by the cities of New Hope, Crystal, and Robbinsdale to the north, Minneapolis to the east, St. Louis Park to the south and west and Plymouth to the west.

Figure 2.1: Location Map



Natural Resources

The City of Golden Valley contains a rich stock of natural resources that contribute to the community's character, health and quality of life. Preservation, conservation and enhancement of these resources are critical to the community.

The City's natural resources include air, water, and land, and a range of soil types including those that are suitable for woodland, forest and native prairie management and enhancement, native plant communities, diverse wildlife, and a number of lakes, streams, and wetlands.

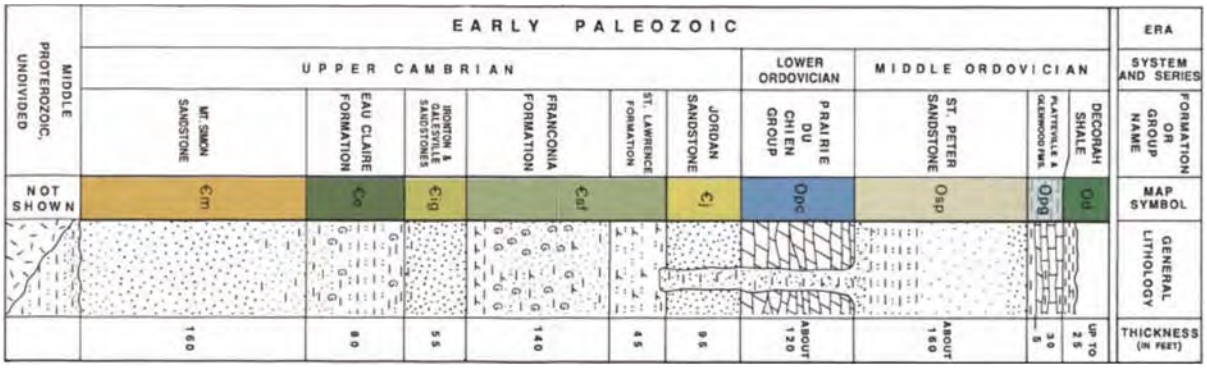
To gain a better understanding of Golden Valley's natural resources, a brief discussion of resources that that lie below the ground (geological features), in the ground (soil characteristic) and on the ground (water bodies, streams and wetlands, and vegetation) are included in this section.

Bedrock Geology

Below everything that is visible at the surface of the earth is a continuous, complex layer of solid rock known as "bedrock". Typically, bedrock is covered by water, ice, snow, soil, loose sediments, vegetation and man-made structures. Bedrock is seen at the surface of the landscape as "outcrops," and occasionally observed as road cuts or through excavation. It is the bedrock materials that provide insight into the history of the earth. It also helps to define the structural character of the landscape and provides the beautiful scenic views when exposed as can be seen driving along the Mississippi and Minnesota Rivers.

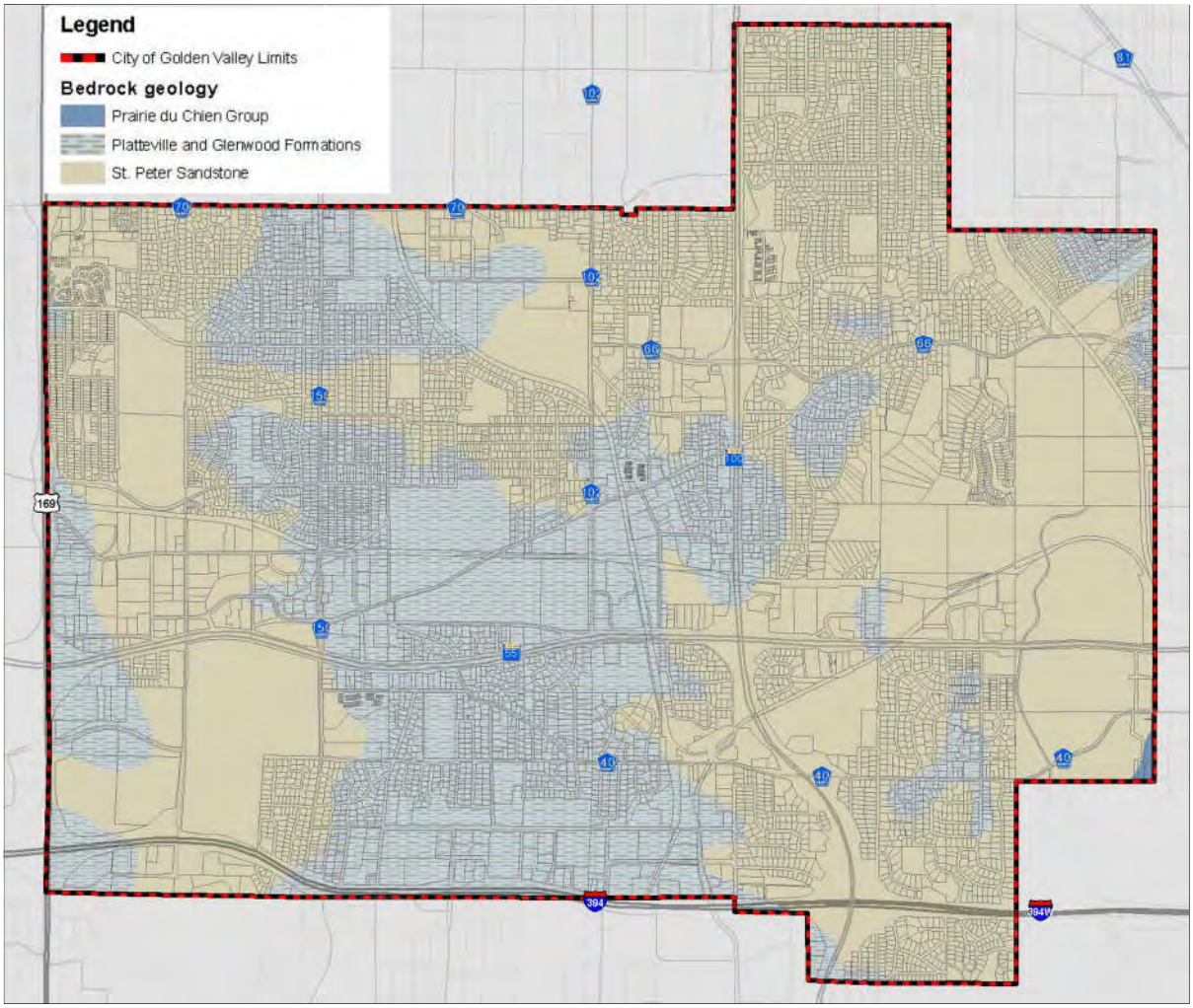
Figure 2.2 shows the bedrock underlying the majority of Golden Valley to consist of St. Peter Sandstone, a soft pure quartz sand layer sandwiched between the Prairie du Chien group, (hard limestone/dolomite) and Platteville & Glenwood formations (finer grained and softer limestone).

Figure 2.2: Geologic Profile



Source: Geologic Atlas of Hennepin County, Minnesota

Figure 2.3: Bedrock Geology



Platteville and Glenwood Formations

The Platteville bedrock formation is composed of fine-grained limestone containing thin partings of shale and underlain by a thin layer of green, sandy shale of the Glenwood Formation. These formations range in thickness between 5 and 30 feet.

St. Peter Sandstone

St. Peter Sandstone is composed of fine- to medium-grained quartz sandstone towards the upper half of the layer and multi-colored beds of mudstone, siltstone, and shale with very coarse sandstone embedded within. This layer's average thickness is about 150 feet.

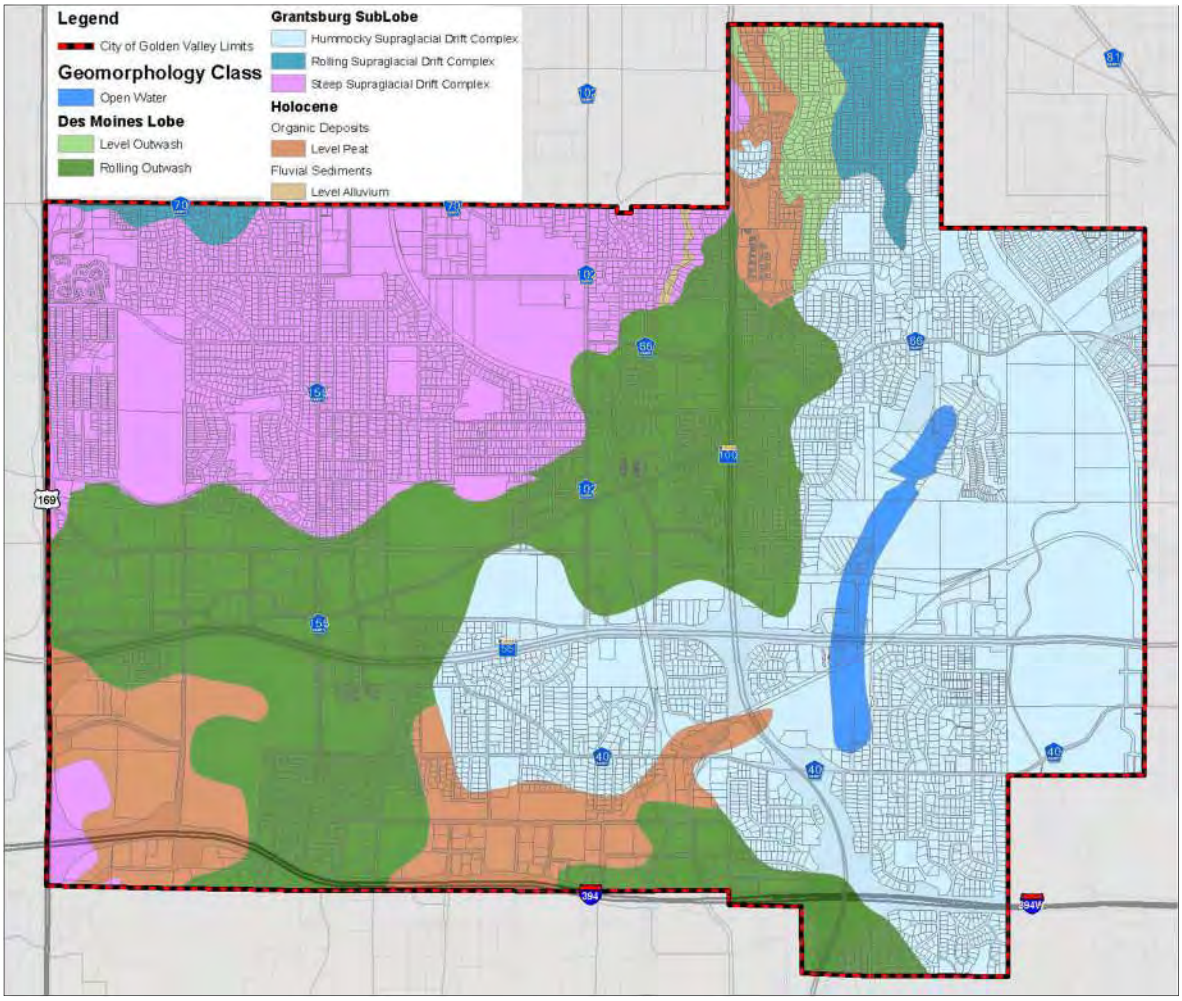
Prairie du Chien Group

This bedrock unit is a dolomite that tends to vary a great deal in thickness because its top layer is highly erodible. However, its average thickness is about 120 feet.

Surficial Geology

As with most of Minnesota, the Golden Valley landscape was formed by continental glaciers that covered large portions of Minnesota through multiple advances and retreats. . The movement of the advancing glaciers, followed by periods of melting, create a topography of gently rolling to steep hills, wetlands, and lakes. The glaciers are named by the various lobes, and the extent that they advanced. Golden Valley includes material left behind from the Des Moines and Grantsburg advances. Holocene deposits are those that formed after the glaciers had retreated, and include accumulation of organic material in extensive wetlands, and material placed by flowing water. The surficial deposits associated with the most recent glacial and post glacial periods are identified in Figure 2.4.

Figure 2.4: Surficial Geology

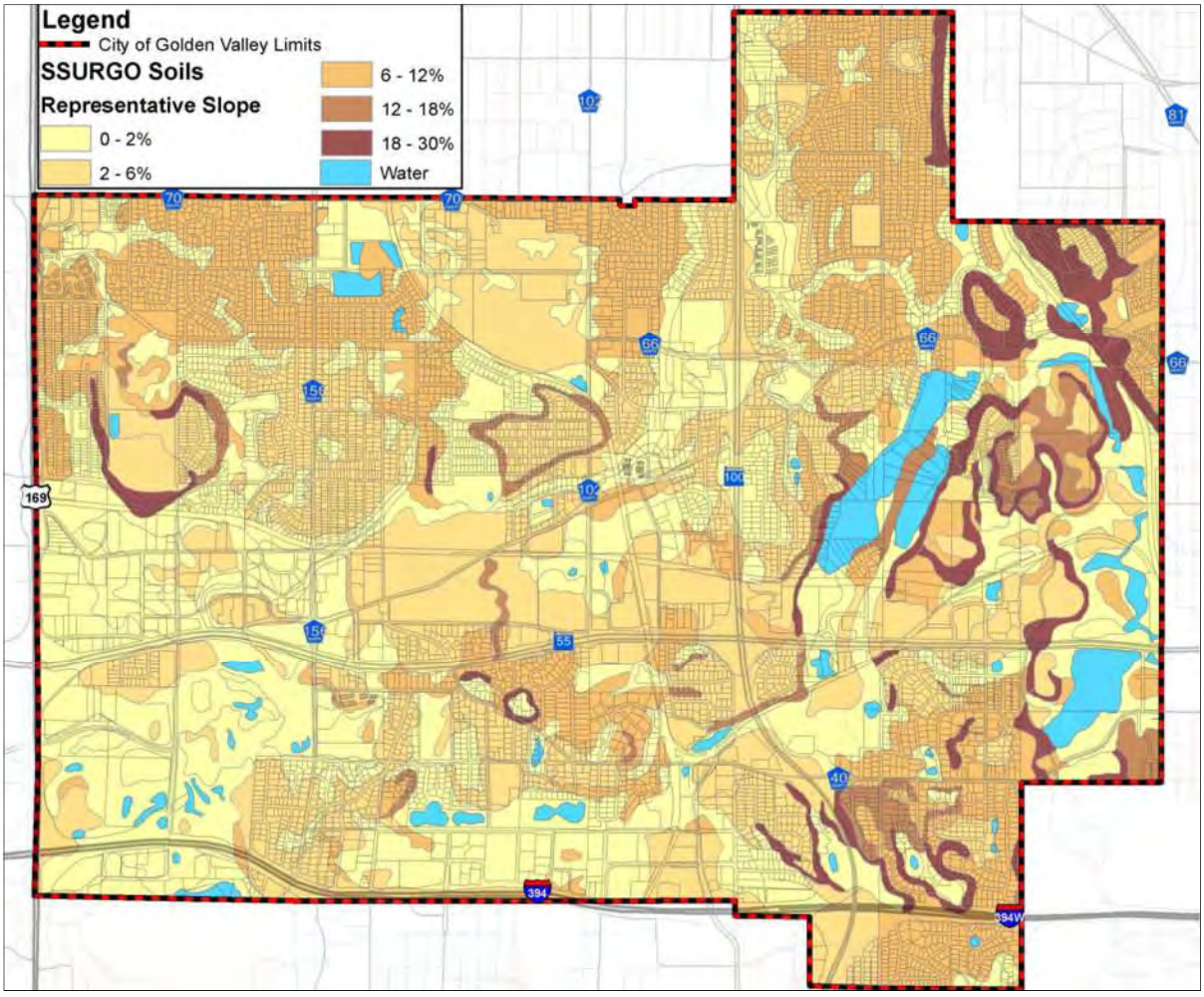


Slopes

Identifying steep slopes within the city are important because they typically limit the amount, type, and location of development. However, they also provide opportunities for open space conservation and wildlife habitat enhancement, as this may be the most suitable land use for areas that are too steep to be developed.

Golden Valley is predominantly characterized by slopes ranging between 2 to 12% (Figure 2.5). The steepest slopes (18-30%) occur primarily on the eastern edge of the city with a larger area concentration near the northeast corner just north and east of Mary Hills Nature Area. The only area on the west side of the city with steep slopes is located just south of General Mills Research Nature Area.

Figure 2.5: Slopes



Soils and Soil Textures

Approximately half of the soils within the City are mapped as Urban Land, which indicates that it has been disturbed through cut and fill activities, or has been replaced with other material and is not the soil that originally formed in that location. Where native soils remain, they tend to be composed of loam (an equal mixture of sands, silts, and clays) or coarser material (sandy loam, loamy sand, and loamy fine sand). This reflects the glacial origination of the soils, and the subsequent deposition of materials following glacial retreat. Muck soils are present along historic waterways and older wetland complexes.

Figure 2.6: Soil Texture

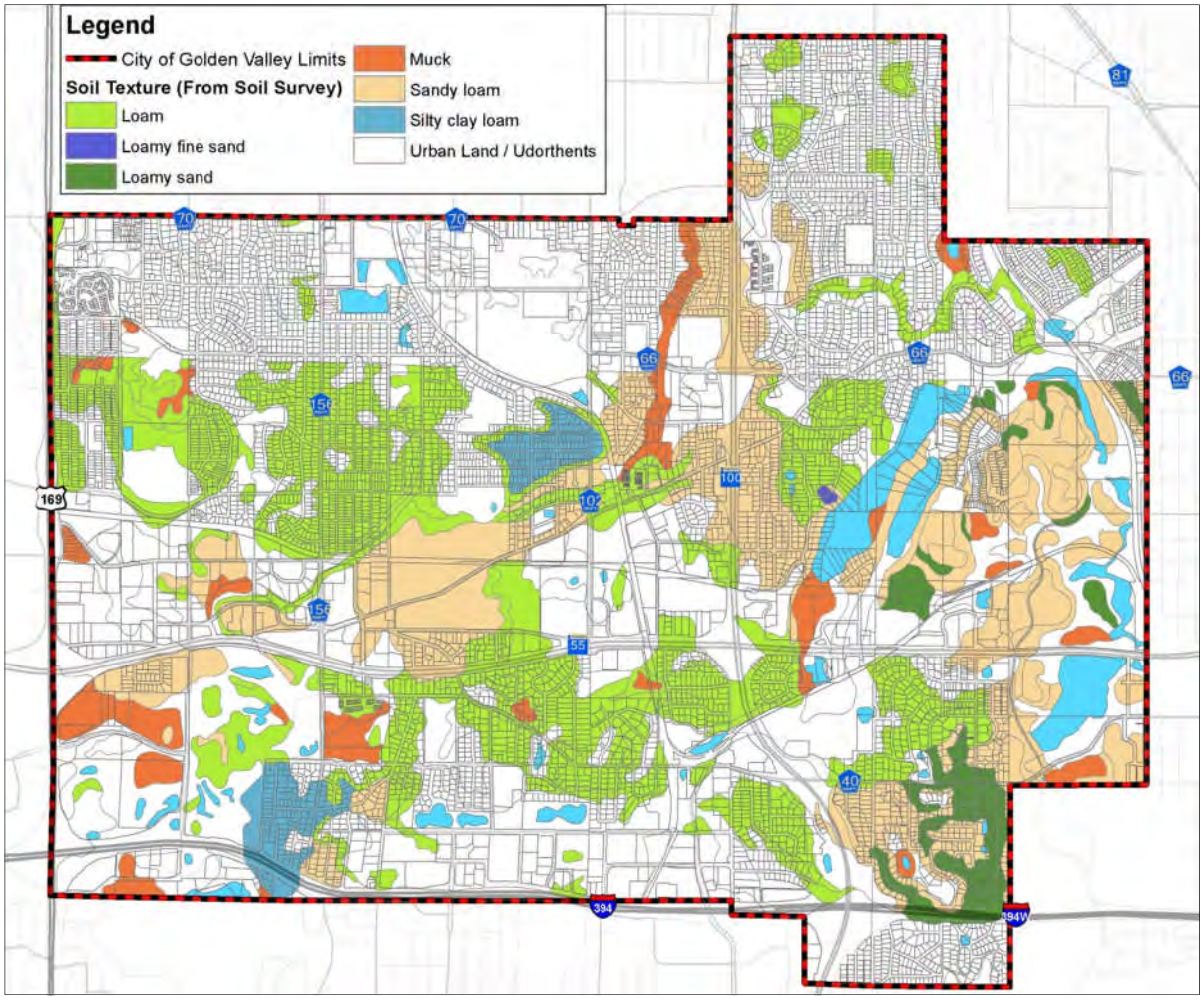
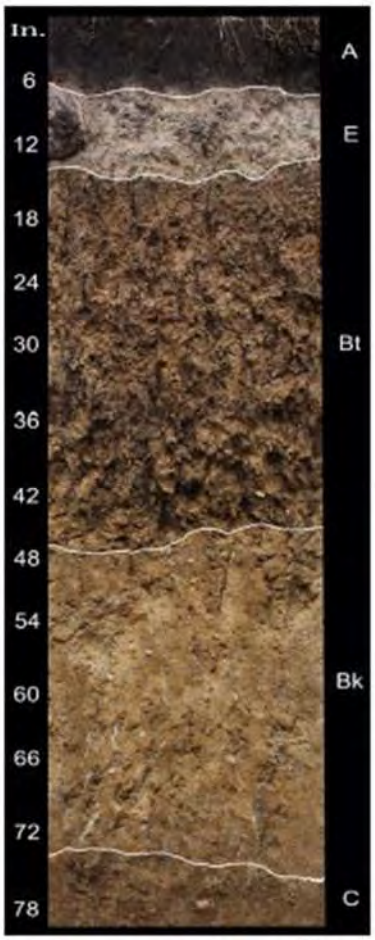


Figure 2.7: Lester Series Soil Profile



- Very dark grayish brown loam surface
- Light brownish gray loam Elluvial 'E' horizon
- Brown loam and clay loam Illuvial 'Bt' (argillic) horizon
- Yellowish brown clay loam and loam subsoil's

Source: The Minnesota Association of Professional Soil Scientists

Hydrology

Watersheds and Surficial Hydrology

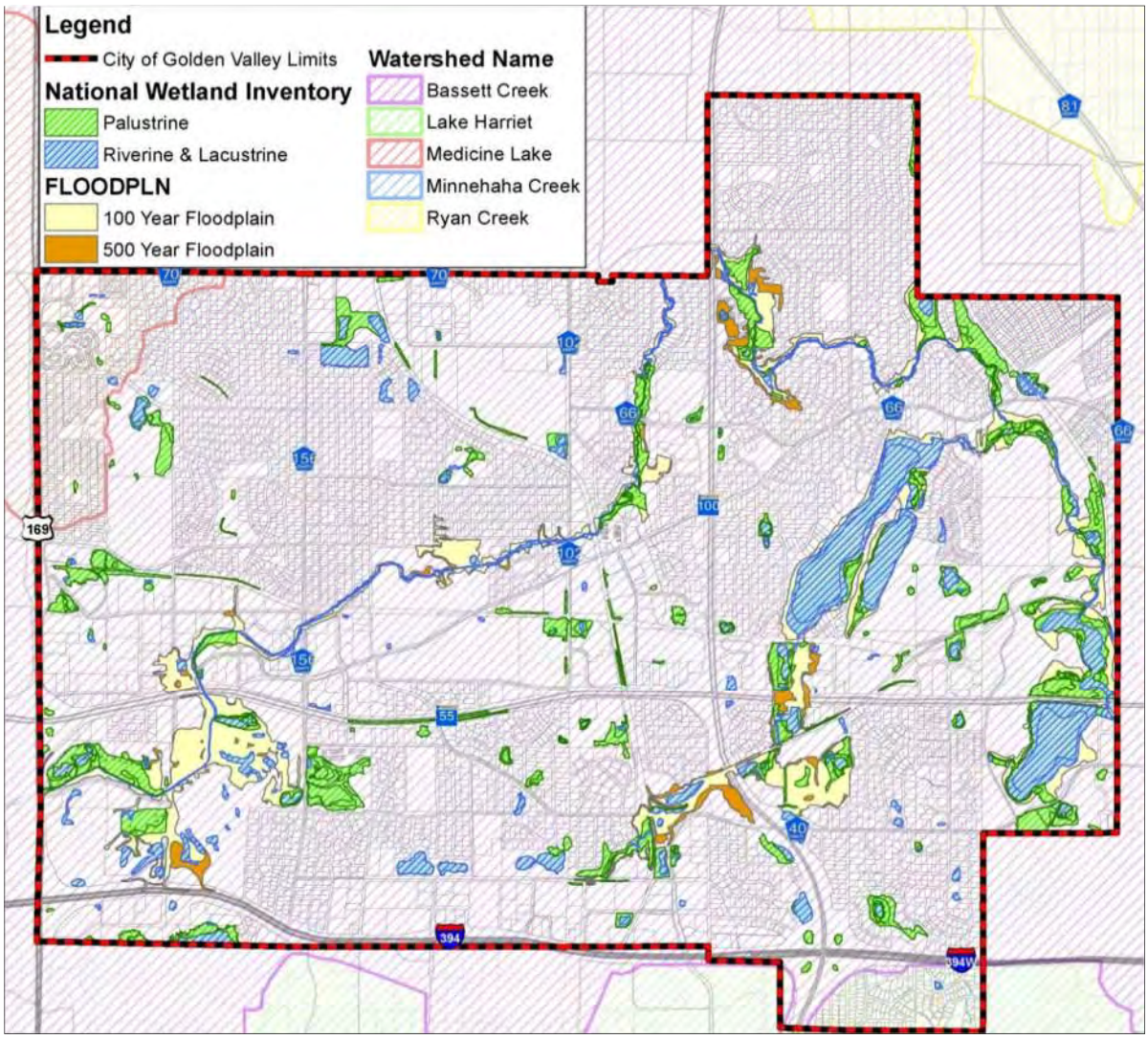
The primary waterway within Golden Valley is Bassett Creek, which has a large watershed encompassing more than 40 square miles within the cities of Crystal, Golden Valley, Medicine Lake, Minneapolis, Minnetonka, New Hope, Plymouth, Robbinsdale and St. Louis Park. The Bassett Creek watershed includes the main branch of Bassett Creek, which originates at the outlet of Medicine Lake, and the Sweeney Lake branch of Bassett Creek, which flows through Sweeney Lake, and joins the main stem within Theodore Wirth Park (Figure 2.8).

In a small portion of the city, generally located southeast of I394 and Highway 100, is a 93 acre area that is part of the Minnehaha Creek watershed. Both Bassett Creek and Minnehaha Creek drain into the Mississippi River.

Golden Valley's water resources include Bassett Creek, smaller streams and tributaries to Bassett Creek, Sweeney, Twin, and Wirth Lakes, and wetlands (Figure 2.8).

Floodplains are important ecological features, as they are the primary interface between the aquatic and terrestrial habitats. Floodplains tend to be seasonal wetlands, and areas that are protected from development and encroachment, as they allow a safe place for seasonal flooding, which protects homes, businesses, and infrastructure. Floodplains are based on the elevation of water that is expected to occur within a defined frequency of occurrence. From a regulatory standpoint, floodplains are defined as the elevation of water for precipitation events to occur on a frequency of every 100 and 500 years. These two designated floodplains have been identified on Figure 2.8.

Figure 2.8: Watersheds, Water Resources, and Floodplains



Pre-European settlement Vegetative

Prior to European settlement, native prairie, oak woodlands and savannas, marshes, floodplain forests, and woodlands were the dominant plant communities in Golden Valley. After settlement, and prior to the establishment of the City Charter, the majority of the landscape was cultivated farmland and open fields, with remnant wetland and wet prairies (Figure 2.9). At the scale these maps were made, smaller lakes were generally not included, although Sweeney, Twin, and Wirth lakes were certainly present historically.

Figure 2.9 Pre-European Settlement Land Cover

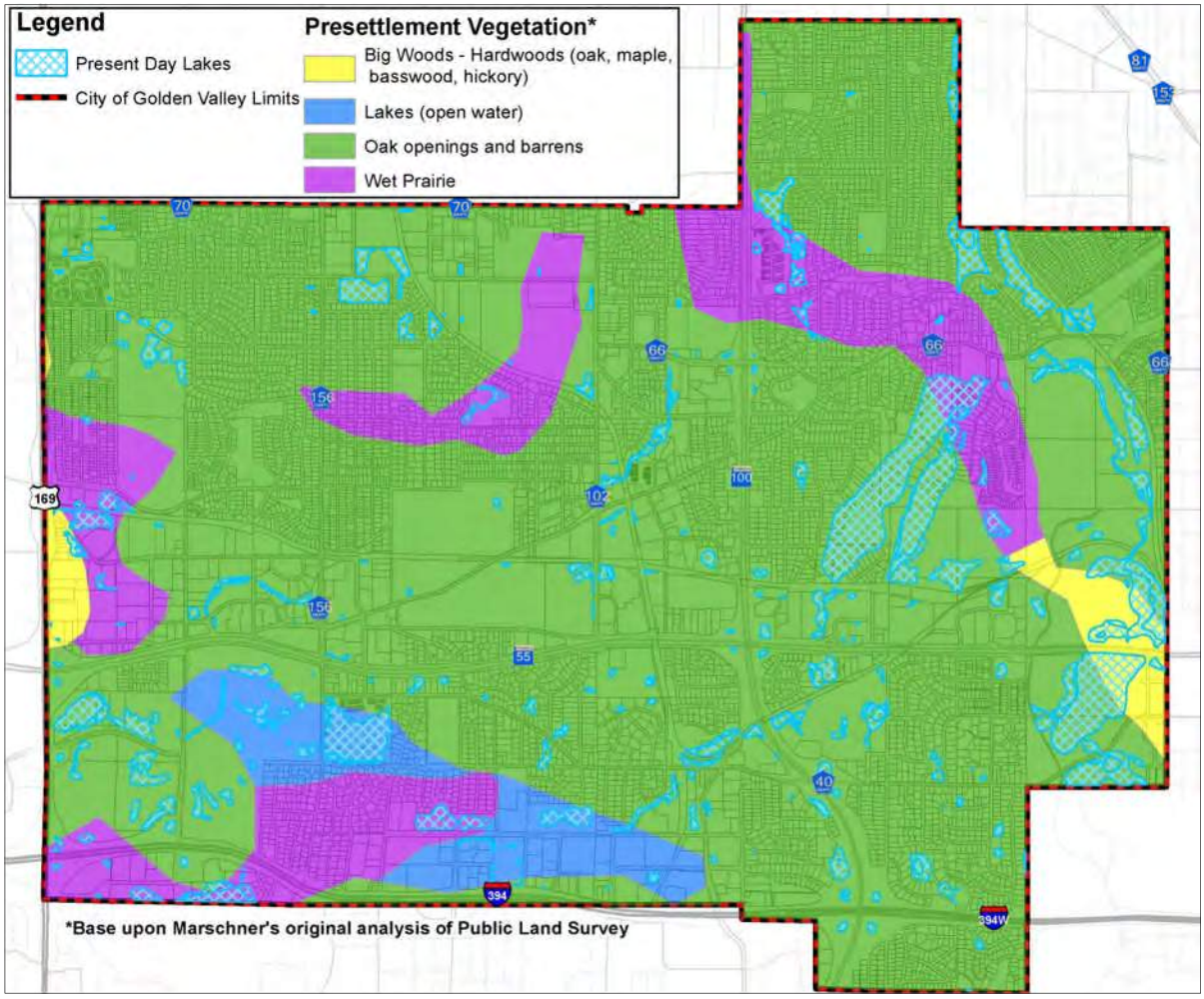


Table 2.1 shows a breakdown of land cover types by total acres and percent. Historically, the land was primarily covered by oak openings and barrens with remnants of Big Woods and Wet Prairie land covers.

Table 2.1 Distribution of Land Cover Acres		
Pre European Vegetation	**Acres**	**Percent of Total**
Oak openings and barrens	5,377	80%
Wet Prairie	921	13%
Lakes (open water)	304	5%
Big Woods - Hardwoods (oak, maple, basswood, hickory)	145	2%
TOTAL ACRES	6,747	100%

Wildlife

The City of Golden Valley lies in a region of historic suburban growth and is a mature first ring suburb. The city contains a mixture of primarily single family residential development, in conjunction with concentrations of retail, industrial, and corporate offices. Open spaces and nature areas are present throughout the community, and much like the lots and boulevards, are dominated by mature trees.

The City of Golden Valley provides great opportunity for watching wildlife. Common animals that can be seen in Golden Valley are typical urban species, including numerous songbirds, small mammals, deer, and fish. Species such as deer, Canada geese, waterfowl, squirrels, rabbits, coyote, raccoons, turkey, and skunks have increased in this area since these animals do well around moderate human development. Other species have declined for the same reasons. Management recommendations for wildlife in the city are provided below. In general, appropriate management of the open spaces will help improve populations of desirable native animals and improve citizen relationships with wildlife in general. Wildlife can become nuisance, when they are overpopulated, or degrade the natural areas or property. Education on wildlife, and management is essential for positive results.

The Natural Heritage Information System database is used by the state of Minnesota to track occurrences of rare plants and animals, and unique or critical habitats. Within Golden Valley, a tamarack swamp located in Theodore Wirth Park is identified, for example. Occurrences of rare plants have occurred, but the only recent occurrence is that of dwarf trout lilies which are transplanted individuals located within the Wirth Park. Rare animals have been observed, including trumpeter swans (*Cygnus buccinator*), Blanding's turtle (*Emydoidea blandingii*), and bullfrog (*Lithobates catesbeianus*), which have been observed in the aquatic habitats near Wirth Park. Peregrine falcons (*Falco peregrinus*) have been observed within Golden Valley, although they do not nest within the city limits.

Preservation of high quality natural areas will provide spaces for wildlife, which in turn provides opportunities for residents to observe wildlife. A positive correlation exists between the size and quality of the habitat, and the populations and quality of the associated wildlife.

Section 3: Goals, Objectives, and Policies

Articulating a community natural resources vision is an important first step to creating goals, objectives, and policies which will support and bring the communal vision to life. While the vision provides a detailed expression of the community's aspirations for the future of Golden Valley's natural resources, the goals, objectives, and policies provide direction for natural resource policy and decision making in the future. Specifically each can be defined as:

Goals: General statements of desired outcomes of the community that can be assessed whether progress has been made in achieving them.

Objectives: More specific statements that are a subset of a goal and provide measureable strategies.

Policies: Are "operational" action statements that a community should or will undertake to meet the goals and objectives.

Vision Statement

> *Golden Valley is a beautiful, healthy city that preserves its balance of natural and urban spaces where residents, government, businesses, and developers work together to preserve, protect, restore and enhance the community's natural resources.*

Goals, Objectives and Policies

Goal 1: Protect, Preserve, Restore, Enhance and Acquire Natural Areas and Open Space

Rationale: A community needs to provide and maintain high quality natural resources through its management and acquisition of natural areas and open spaces, which can provide healthy wildlife habitats, nature-oriented recreation and educational experiences, and heightened quality of life for residents.

Objectives

- Preserve and protect natural areas and open spaces to maintain and attract desired wildlife species and provide “non-developed green space” for community residents.
- Obtain high quality ecologically diverse land for preservation, conservation, and enhancement.
- Apply an adaptive natural resources management approach to protection, preservation, enhancement, and acquisition of the City’s natural areas and open spaces.
- Restore degraded forest, woodland, grassland, and wetland habitats.
- Preserve existing wetlands within the city, and protect them from development.
- Adequately buffer high quality natural areas and open spaces to protect wildlife habitat and water quality.
- Provide passive and nature-oriented recreational opportunities within the Nature Areas and Greenbelt Corridors.
- Balance the need of providing quality public open space for current and future residents with best use of the land.

Policies

- The City shall develop criteria for identifying and prioritizing natural areas and open spaces for protection, restoration, enhancement, and acquisition to ensure preservation of desired habitats, which support unique plant and animal species.
- The City shall continue to engage in cooperative efforts with Metropolitan Parks Commission, Minnesota Department of Natural Resources, and the US Fish and Wildlife Service to protect and preserve endangered and threatened plant and animal species.
- The City shall enforce no-net loss of wetlands within jurisdictional limits through administration of the Minnesota Wetlands Conservation Act.
- The City should continue to specify native plants, and native plant materials for projects located on City property.
- The City should develop master plans for high priority nature areas, as budget allows.
- The City should develop and adopt Sign and Amenity Design Guidelines to provide for Nature Area identification and wayfinding, along with visual and design continuity between Nature Areas.

- The City should use an Adaptive Natural Resource Management approach on publicly-owned open space and Nature Areas that includes program monitoring and evaluation within its framework.
- The City should update natural resource related ordinances to protect nature areas and open spaces from intentional or unintentional personal use.
- The City should use of Best Management Practices to improve the effectiveness of natural resource management.
- The City should protect nature areas and open spaces from unnecessary encroachment or damage from neighboring properties.
- The City should use site planning, construction, and maintenance techniques on publicly owned lands to minimize negative impacts to the natural environment.

Definition: *Wildlife habitat:* physical environmental factors, including but not limited to vegetation needed for species survival and reproduction.

Goal 2: Control Existing and Emerging Invasive Plant Species, Pests and Diseases

Rationale: As native plant communities have been greatly impacted or destroyed through cultivation or development, they have been increasingly replaced by invasive non-native plants. Also challenging for natural resource management has been the introduction of pest-related diseases, e.g., oak wilt, Dutch elm disease, and anticipated pests, i.e., emerald ash borer. Recognition of the problem and identification of the non-native plant species, pests, and diseases are essential to controlling, eradicating, or stopping their spread and associated destruction they cause

Objectives

- Eradicate the occurrence of invasive species within high quality habitats.
- Control the spread of invasive species in low to moderate quality habitats.
- Prevent, control, and anticipate the spread of pest infestations and disease of susceptible plant species.

Policies

- The City should educate private property owners on how to protect and maintain natural resources on their property
- The City should create and adopt a Buckthorn Management Program

- The City shall continue to take a proactive approach in efforts to identify and monitor existing and anticipated threats of disease and insect infestations in a timely manner.
- The City should create and adopt a City Shade Tree Pest and Disease Management Program.

Goal 3: Protect and Manage Wildlife

Rationale: As communities develop, wildlife habitat is lost or can become degraded. Wildlife, like humans, depend on three primal components – water, food, and cover to survive and will take great risks to attain them. Learning to balance the need to protect and conserve urban wildlife, while not contributing to their over-population and demise, is essential to a friendly and meaningful co-existence.

Objectives

- Control and deter growth of nuisance wildlife populations.
- Educate private property owners on ways to attract, protect, and conserve desired wildlife species
- Educate private property owners on ways to deter nuisance wildlife, e.g., removal of wildlife food, water or cover sources, habitat modification, etc.

Policies

- The City shall use the most humane and effective management approach to controlling over-population of nuisance wildlife.
- The City should provide educational materials, City website access, and workshop opportunities on ways to attract beneficial or desired wildlife and deter nuisance wildlife.

Goal 4: Provide Access and Connectivity

Rationale: Visual and physical access to Nature Areas and useable open spaces are necessary for residents and visitors to readily enjoy the benefits of these areas. Contiguous linear open space corridors also provide for the movement of urban wildlife and native plant communities.

Objectives

- Provide easy/controlled access to and within the City of Golden Valley Nature Areas and open spaces
- Provide controlled access to water bodies within the nature areas
- Provide contiguous linear corridors between patches of open space and natural areas to provide for movement of wildlife and native plant communities.

Policies

- The City should evaluate visual and physical accessibility to and within Nature Areas.
- The City shall maintain and develop natural corridors to foster eco-system continuity and provide connections to parks and open space.
- The City should provide, maintain, and develop public access to water bodies within Nature Areas.

Goal 5: Maintain and Monitor Natural Resources

Rationale:

Objectives

- Plan for realistic time frames when scheduling maintenance work.
- Provide adequate and well-trained maintenance personnel.
- Periodically survey conditions within each Nature Area in order for staff managers to effectively and efficiently schedule routine maintenance projects.
- Gather data on what has been successful, and what has not. Employ adaptive management strategies to refine the implementation of the management plan.

Policies

- The City should respond in a timely manner to current and future natural resource based conditions and issues.
- The City should consider periodic training of maintenance personal on current natural resources Best Management Practices.
- Update the natural resource inventory every ten years, and incorporate findings into management plan.

Goal 6: Support and Provide Public Outreach and Education

Rationale: Building public support through outreach measures and education is essential to implementing a successful natural resource management plan. Raising awareness of nature areas, and the importance of wildlife within a community, is crucial to developing a strong sense of stewardship among residents. A community that is well-informed on natural resource issues will be more likely to support decisions to protect, preserve, restore, and enhance natural resources within the City.

Objectives

- Protect the City's natural resources through public outreach and education.

- Instill in property owners the desire and knowledge of restoring and maintaining natural resources on their property.
- Increase awareness about similarities and differences between nature areas and active recreation parks.

Policies

- The City should employ a range of social media (website, newsletters, Facebook, Twitter, ect.) tools to inform and educate the public about the City's natural resources, nature areas and stewardship and volunteer opportunities within the City.

- The City should develop volunteer programs that will encourage community members to care for their naturals resources while providing them additional hands-on experience.

- The City should provide educational opportunities and information on how to protect, restore, enhance, and maintain natural resources on their property using a range of outreach tools.

Goal 7: Foster Partnerships and Inter-governmental Cooperation

Rationale: Working with private and public partners including state, county, adjacent communities, land owners on natural resource-related projects may result in cost and information-sharing opportunities.

Objectives

- Develop strong partnerships on natural resource related preservation, protection, restoration and enhancement projects that may multi-jurisdictional or regional benefits
- Maintain regulatory authority at the local level while recognizing the role of other local, state and federal entities and complying with specified programs and requirements.

Policies

- The City shall collaborate with other agencies, communities and organizations on natural resource based projects that will provide a multi-jurisdictional, regional, or state benefit.

Section 4: Issues and Needs

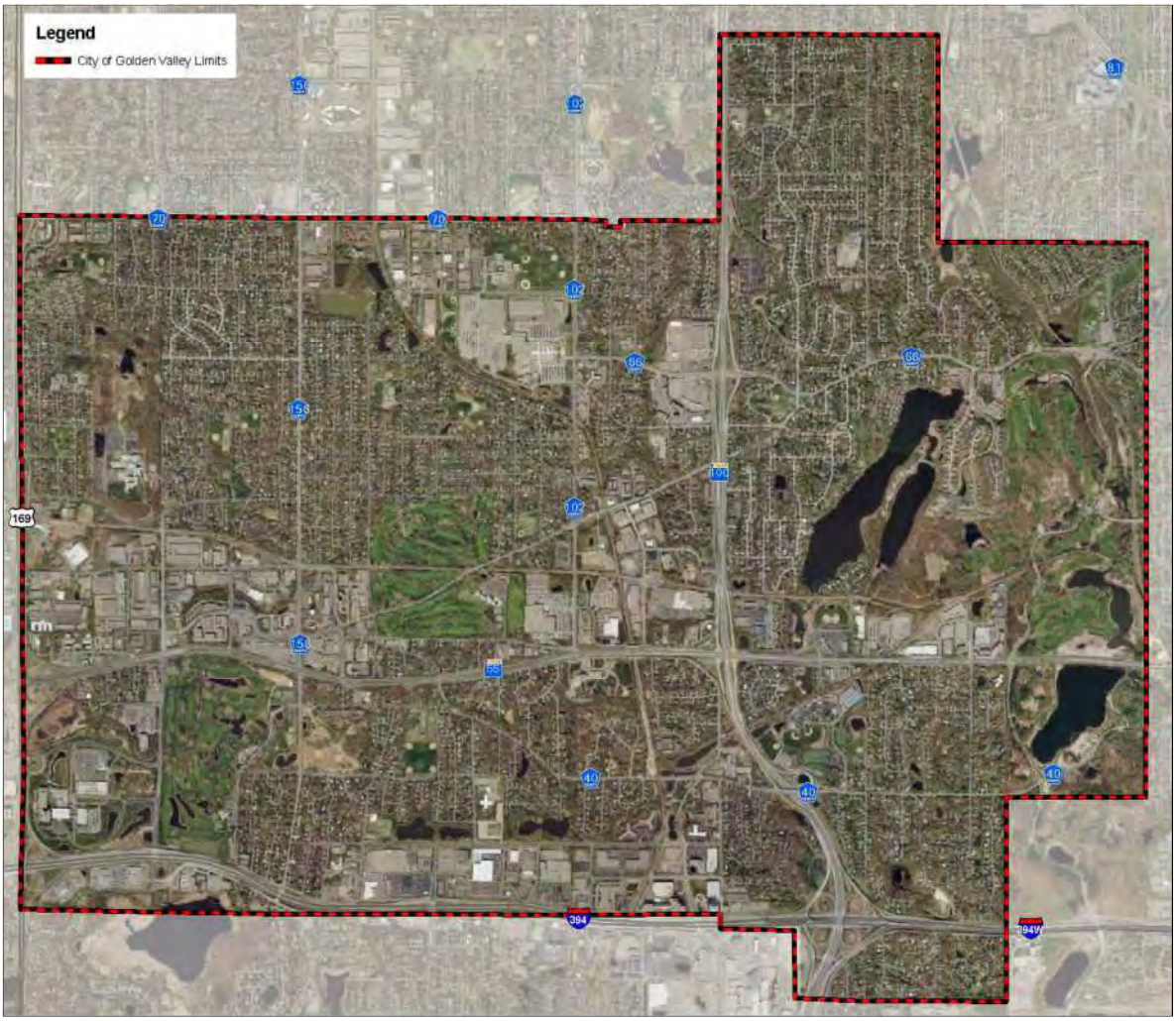
To understand and anticipate Golden Valley's current and future natural resource planning and management needs, it is important to review the existing natural resource conditions within the City. These conditions include existing land use patterns, land cover, nature areas and open spaces, invasive plant species, current management practices and programs, public outreach and education programs, and partnerships related to natural resources.

Land Use Patterns

Figure 4.1 shows an aerial photograph of Golden Valley. According to the 2008 Comprehensive Plan, the predominant land use pattern in the city is residential (48%), followed by 25% cover under the combination of institutional/recreational land use, which includes the City's schools, open spaces, golf courses, and parks. Undeveloped areas, which include designated Nature Areas, open space, and wetlands, total 3%, with open water bodies comprising an additional 3%.

City-owned and managed Nature Areas, the focus of this management plan, comprise approximately 2.3% of the total land cover within the city limits. Additional areas within the city that provide natural areas, but are not owned by the city include: General Mills Research Nature Area (57 acres), owned and managed by General Mills; Theodore Wirth Regional Park (759 acres), with portions located in Golden Valley and Minneapolis but managed by the Minneapolis Park and Recreation Board; and Westwood Hills Nature Center (160 acres), which has a small portion within Golden Valley, but is primarily owned and managed by the City of St. Louis Park.

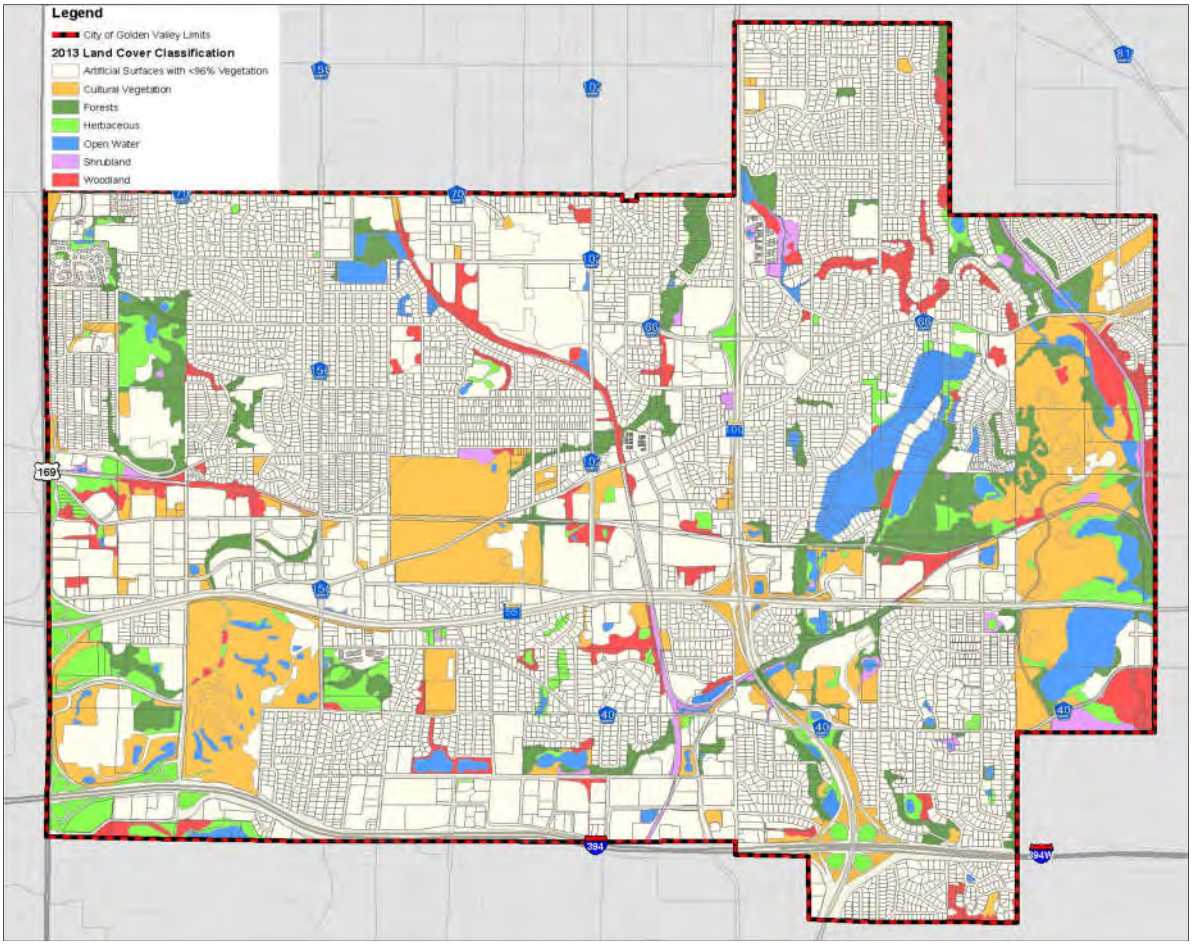
Figure 4.1: 2012 Aerial Photograph



Land Cover

Land cover (Figure 4.2), unlike land use, which is based on function (how the land is being used), is a determination of the physical characteristics, which can be observed from the ground or through remote sensing. Land cover includes naturally occurring or planted vegetation, aquatic resources, forested areas, and areas that have been developed (buildings, roads, bridges, etc.).

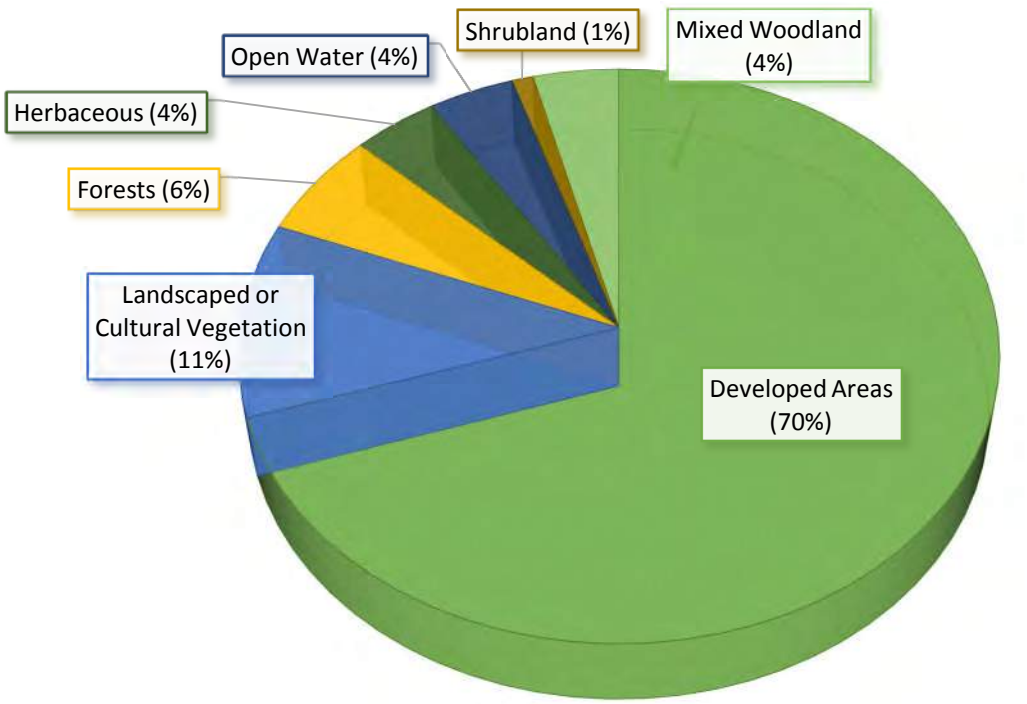
Figure 4.2: 2013 Land Cover



The 2013 land cover map is based on an update of the 2002 Natural Resources Inventory. The categories have been defined based on a land cover classification system developed by the Minnesota Department of Natural Resources (MNDNR).

Figure 4.3 shows land cover type by acres. Total land cover is approximately 10.6 square miles or 6,754 acres. Developed areas, which may be partially vegetated, comprise about 70% of the land cover, while forests and woodlands comprise 10%, and open grasslands and prairies 4%. Shrublands contribute to least amount of land cover, with an approximate 1% distribution. Overall, developed land and cultural (non-native) vegetation encompass about 81% of Golden Valley's land cover while native-dominated plant communities comprise about 19%. This value is relatively constant over the past few decades, although a goal of the city is to increase the quantity and quality of these natural areas.

Figure 4.3 Land Cover Type by Acres



Alterations to the natural environment initially through agriculture, and more recently through the residential and commercial development, have altered the majority of historic land cover. Most of the native vegetation has been generally replaced with turf grass, landscaping, and hard surfaces (structures, parking lots and roadways).

Nature Areas and Open Spaces

Nature areas and open spaces are public lands set aside by the City of Golden Valley for preservation of natural resources, and in many cases for flood storage. These areas provide for passive recreation, visual aesthetics, protection of natural resources, and buffering for water quality improvements. These areas may include trail corridors, areas for wildlife viewing, and other passive recreation uses.

The nature areas and open spaces differ from parks. Parks are typically dedicated to active recreation opportunities such as sports fields and playgrounds. Golden Valley's adopted definition by ordinance of a park is as follows: "An open space with natural vegetation and

landscaping, which may include recreational facilities, designed to serve recreation needs of the residents of the community."

Figure 4.4 shows existing Nature Areas and Open Spaces. Other areas shown on the map include trail/walkway easements, City parks, golf courses, and campuses, schools, and other governmental entities open spaces.

Figure 4.4 Existing Nature Areas and Open Spaces

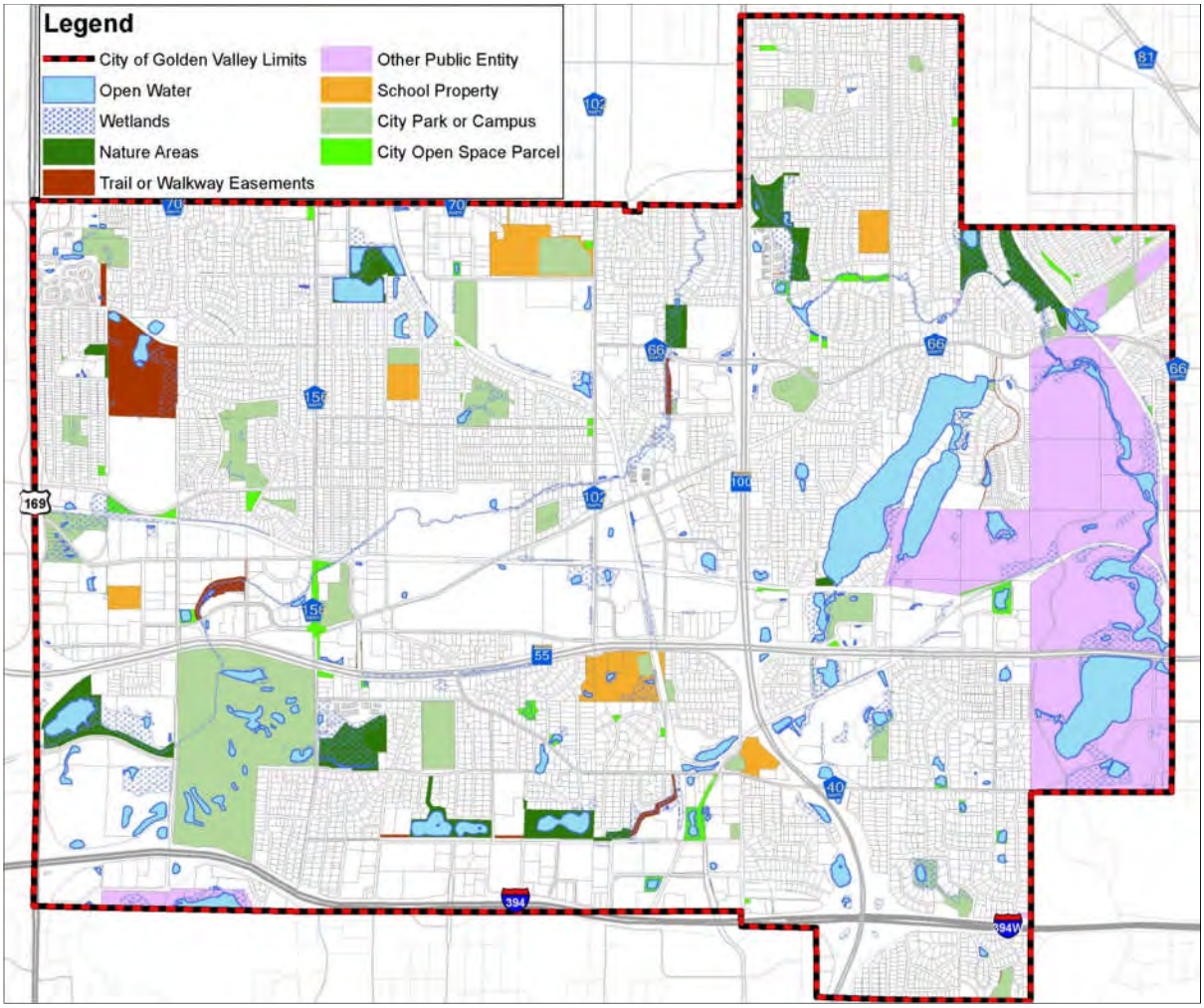
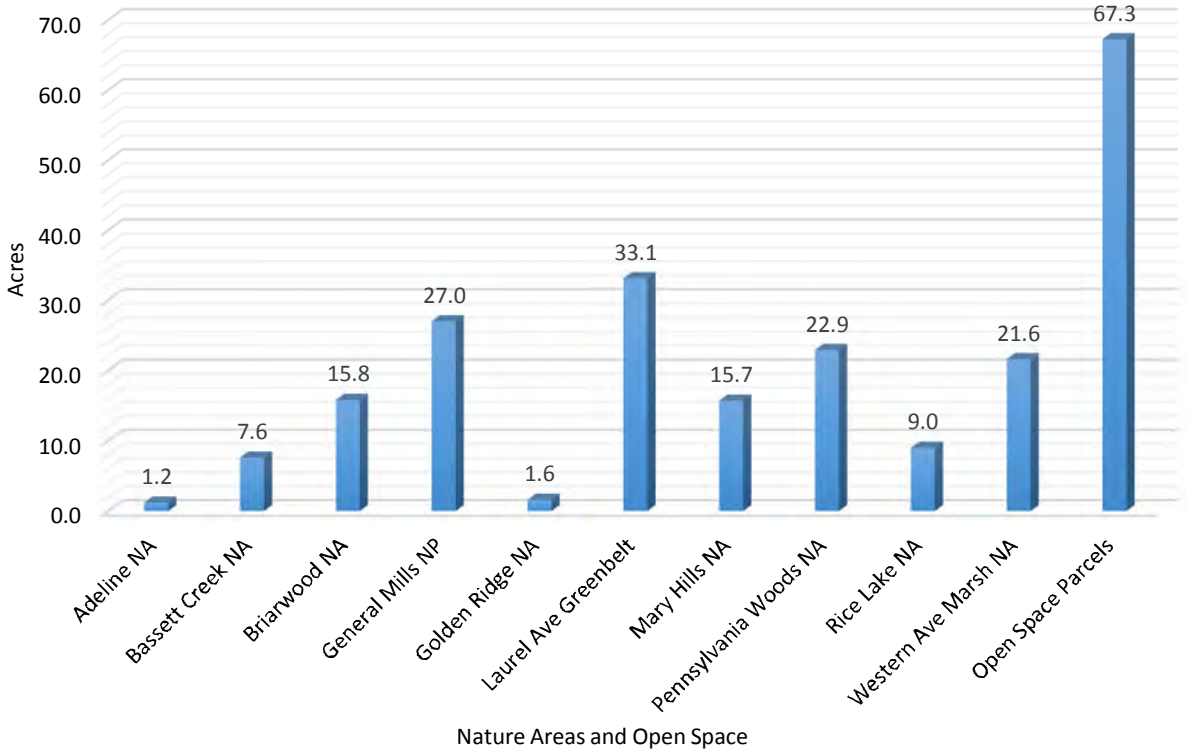


Figure 4.5 lists Golden Valley's nature areas, nature preserves, and greenbelts by acres. The four largest nature areas in the system include Laurel Avenue Greenbelt, General Mills Nature Preserve, Pennsylvania Woods, and Western Avenue Marsh. Together, these four areas comprise 67% of the nature area's total acres.

Figure 4.5 Nature Area and Open Spaces Area (acres)



Following are more detailed descriptions of each of the categories shown on Figures 4.4 and 4.5.

Nature Areas: Golden Valley's Nature Areas are relatively large blocks of undeveloped land that have been set aside by the City and managed with a minimal maintenance approach to preserve their natural habitats.

Nature Preserves: A Nature Preserve is a protected area that is considered important as a habitat for wildlife, flora, fauna or other special features of interest such as unique geological features. The General Mills Nature Preserve is the only one located within the City. The land that comprises the Preserve was donated to the City by General Mills. The Preserve area was developed as wetlands for wetland banking and flood storage purposes. It was protected with a conservation easement through the Minnesota Land Trust and is preserved in perpetuity as a nature area.

Greenbelts: Greenbelts, also referred to as greenways, are linear features that may either bypass or intentionally transect urban areas. Greenbelts usually protect higher quality linear

open space, such as along rivers and streams, or are un-developable, such as floodplain, wetland, storm water ponds, etc. The Laurel Avenue Greenbelt is the representative feature within Golden Valley, and is a linear open space area along Laurel Avenue, that serves to buffer the adjacent low and medium density residential areas from the business uses south of Laurel. The greenbelt is comprised of a series of ponds with perimeter woodlands and routinely maintained turf grass immediately adjacent to Laurel Avenue.

Parks, Campuses, Golf Courses, and schools: Parks include Golden Valley's community and neighborhood parks while campuses describe other public property such as city hall, fire stations, and maintenance facilities. Golden Valley currently has nine Community Parks and ten Neighborhood Parks (as described in Chapter 6 in the Golden Valley 2008-2018 Comprehensive Plan). The City boasts three regulation golf courses: the City-owned Brookview public golf course; the public golf course in Theodore Wirth Regional Park; and the private Golden Valley Golf and Country Club. Schools within the city also contain open spaces for both active and passive recreational opportunities, although many of the schools are privately owned.

Easements: Recreation and trail or walkway easements in Golden Valley allow public access to private property for the purpose of trail use by the community and maintenance by the City which may include trail construction and repair, mowing along the trails, and tree trimming. Occasionally, the easement areas also include sweeping and snow removal programs. The General Mills Research Nature Area is a 57-acre nature area, which is not owned by the City, but is accessible to residents through a partnership with General Mills. A network of trails through wooded, grass and shrub land areas provide views of ponds and wildlife. The City of Golden Valley provides mowing along the trail edges 2-3 times a year.

Other Governmental Entity: Other entity owned or managed areas include: Theodore Wirth Regional Park and Westwood Hills Nature Center.

- *Theodore Wirth Regional Park:* The 759-acre park contains over 500 acres within the City of Golden Valley, but is managed and maintained by the Minneapolis Park and Recreation Board. A number of natural resource based opportunities exist within the park including those that take advantage of trails through woodlands, ponds and wetlands, the Quaking Bog, Wirth Lake, Twin Lake, and Bassett Creek. It is also home to the Eloise Butler Wildflower Garden, and the Wirth Golf Club.
- *Westwood Hills Nature Center:* Westwood Hills is 160-acre nature center located just south of I-394 and east of Highway 169. Approximately 20.79 acres of the park

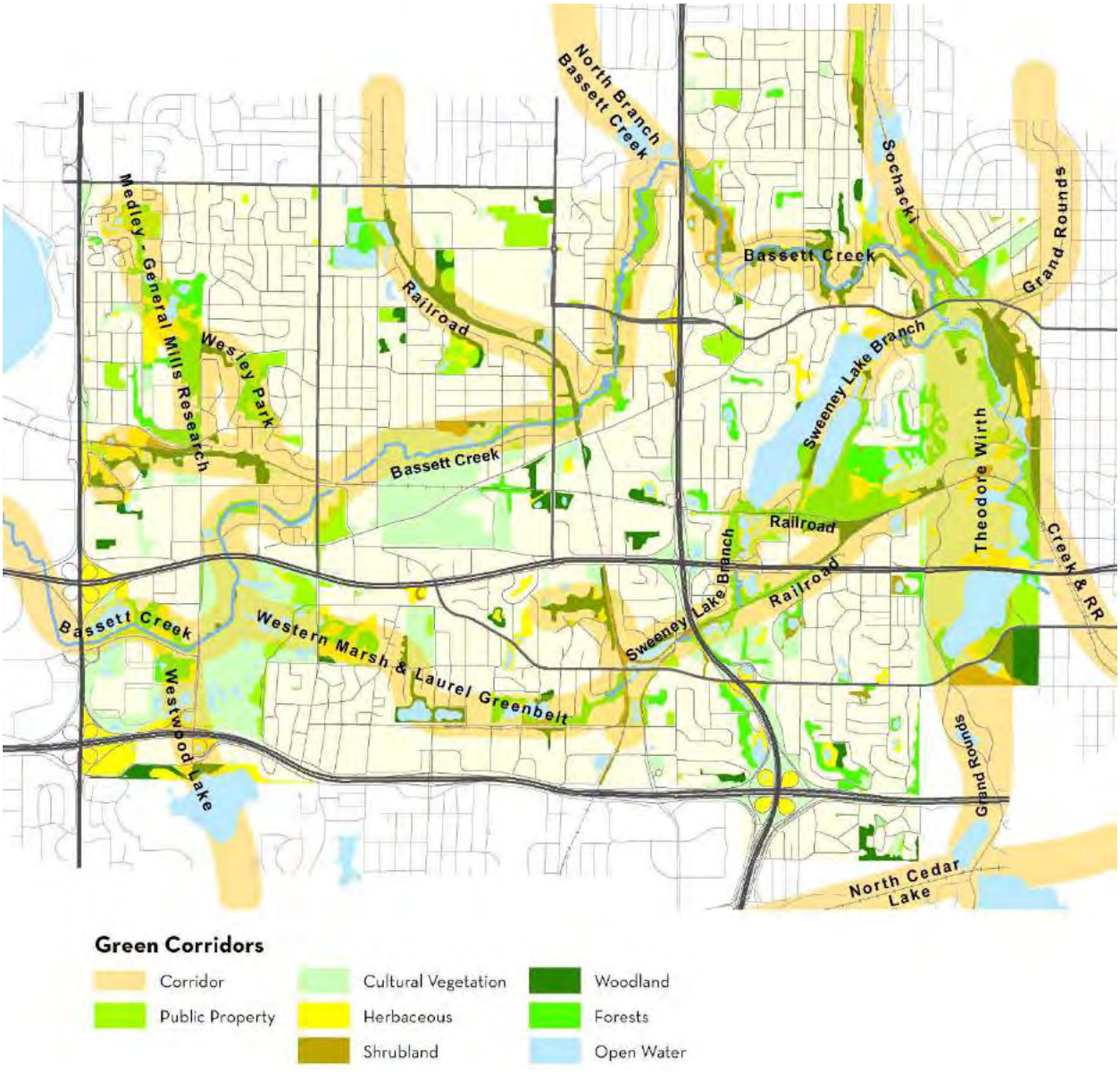
are within the Golden Valley city limits. Wood chip and boardwalk trails traverse through the property and around Westwood Lake. Access to the property, including the Interpretive Center, is provided through the City of St. Louis Park.

City Open Space Parcels: Golden Valley has 132 unique pieces of property that can be categorized into open space parcels, highway turnback property, or unimproved rights-of-way. Of those areas, it was recommended by the Environmental Commission that about one third be "preserved as open space" due to their size, location, or ecological importance. The primary land covers in these areas include turf, trees, mixed vegetation, and stormwater pond native vegetation buffers. Some of the open spaces include water resources such as ponds, wetlands and streams. In many Open Space parcels, there has been a history of public investment in natural, structural, or recreational elements.

Green Corridors

When land cover types are overlaid atop an existing land use map it becomes evident that many natural or "green corridors" have emerged as the City has developed. These green corridors tend to follow streams, floodplains, railroads, and large tracts of public and private land and provide many opportunities for humans, wildlife, and plants to connect and move throughout the community. The green corridors are a patchwork of public and private lands and the various land covers within these undeveloped spaces play an important role in providing critical habitat, protecting larger ecosystems, and providing recreational opportunities. Although these corridors were not part of a formal plan or vision, they could be enhanced or expanded in the future, or at a minimum used as a guide to assist in making decisions regarding individual open space parcels, new development and dedication of park land, and trail planning. The map below shows the green corridors that are present within Golden Valley.

Figure 4.6: Green Corridors



Amenities

Nature Areas typically provide opportunities for preservation, conservation, or enhancement of natural resources, sometimes referred to as “natural amenities”, such as forests, woodlands, grasslands/prairies, or wetlands while also providing more passive structural amenities. Structural amenities are provided to increase user satisfaction, and can include paved and natural surface trails, boardwalks, overlooks, benches, fences, retaining walls; entry, way-finding and educational signage, native plant and wildlife viewing opportunities, waste receptacles for trash and pet droppings, etc.

Natural Resource-Related Ordinances and Standards

1. ***Tree Preservation*:** An adopted city code (See Section 4.32 of Golden Valley City Code) written to "protect, preserve, and enhance the natural environment of the community and to encourage a resourceful and prudent approach to the development, redevelopment and alteration of trees in wooded areas."

2. ***Animal Waste*:** An adopted city code (See Section 10.33 of Golden Valley City Code) written to promote immediate animal waste removal from public or private property).

3. ***Feeding of Deer:*** An adopted city code (See Section 10.34 in Golden Valley City Code) written to control intentional public feeding of deer within the City.

4. ***Shade Tree Diseases:*** An adopted city code (See Section 10.50 of Golden Valley City Code) written to protect the health of trees within the city limits from tree diseases and pests. This includes the prevention and spread of these type of conditions.

5. ***Lawn Maintenance:*** An adopted city code (See Section 10.51 of Golden Valley City Code) written to establish minimum standards for lawn maintenance and allow for alternative diverse vegetation types such as those defined as "Native Vegetation" within the ordinance.

6. ***Application of Fertilizers and Pesticides:*** An adopted city code (See Section 10.52) of Golden Valley City Code written to regulate the amount of lawn fertilizer and other chemicals entering the "lakes and streams" as a result of storm water runoff or other causes.

7. ***Regulating the Use of Coal Tar-Based Sealer Products:*** An adopted city code (See Section 10.54 of the Golden Valley City Code) written to regulate the use of sealer products within Golden Valley in order to protect, restore, and preserve the quality of its waters.

8. ***Public Sites and Open Spaces:*** An adopted city code (See Section 12.30) written in the Subdivision Code to require a reasonable portion of a plat or subdivision to be

dedicated for public use as parks, playgrounds, public open space or stormwater holding areas or ponds.

9. ***Landscape Standards:*** A policy document prepared by the City of Golden Valley to establish minimum standards relative to landscaping, buffering, and screening where required as part of the development process.

10. ***Stormwater Management:*** An adopted city code (See section 4.31 of the Golden Valley City Code) written to regulate land development and land disturbance activities resulting from erosion and site runoff.

11. ***Floodplain Management:*** An adopted city code (See section 11.60 of the Golden Valley City Code) written to provide an overlay district defining the floodplain of Bassett Creek and tributaries, and regulate activities within that overlay.

12. ***Shoreland Management:*** An adopted city code (See section 11.65 of the Golden Valley City Code) written to define and limit what is allowed to occur within the shoreland zones of Public Waters within the city limits.

13. ***Planned Unit Development:*** In reviewing planned unit development projects, the City enforces design standards for preservation and protection of resources, wetland buffers, and set back requirements.

Natural Resource Management and Maintenance

Golden Valley is a mature community, and its natural resource management needs must be considered in light of the age and successional state of the natural resources. For example, maintenance of a mature, fully canopied hardwood forest may differ from a young forest with scattered trees, and considerably less shading of the understory.

Planning for healthy and ecological diverse open spaces, like nature areas, can also provide a beautiful image of the community. This is especially true after a native plant restoration is completed, or new facilities and amenities are installed. However, it is the long-term care of the resources that exhibits a City's commitment to providing natural places and experiences that adds to the quality of life for its residents.

Managing natural resources for quality of life is enhanced when there is a sustainable management approach that balances the need to restore, enhance, and protect the natural resources with the need to provide passive recreational opportunities for the user, such as trails and other amenities.

Sustainable design and maintenance is any practice that protects and enhances natural resources while providing a realistic expectation for outcomes based on pre-defined goals, existing conditions and measureable changes, and available resources, which may be both physical and financial.

The City of Golden Valley has a long history of employing sustainable design into public improvement projects. For example, the City manages its storm water ponds using a sustainable management approach. This approach has been used in Hampshire and Brookview Parks where native vegetative buffers enhance water quality and provide benefits to wildlife habitat, pollinators, water resource education opportunities, and decreased maintenance efforts. The sustainable approach balances the potentially greater costs of initial installation with an overall long term reduction in costs and efforts as these naturalized areas require less mowing and maintenance, watering, and specialized care.

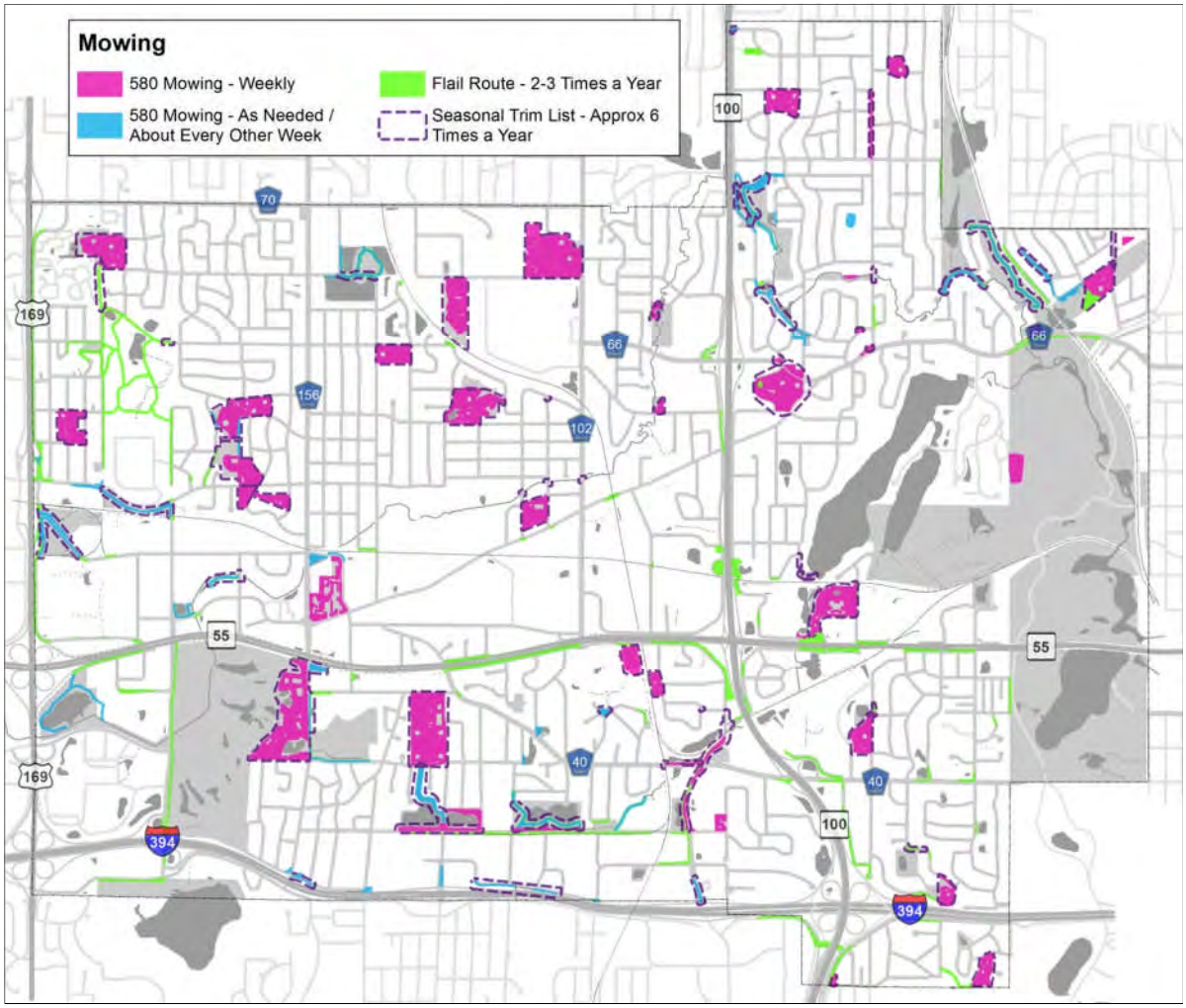
Nature Area Management and Maintenance Responsibilities

Park Maintenance, which is within the Physical Development Department, is responsible for the day-to-day and on-going operations of the City's Nature Areas and open space. There is currently one supervisor, one crew leader, one assistant forester, and five maintenance staff.

The primary tasks performed by Park Maintenance staff include maintenance along trails within the nature areas and easements, such as mowing, pruning, and relocation or removal of hazardous and downed trees. Trail maintenance is also completed, and includes paving, repair, sweeping, and in some cases, snow removal. Buckthorn and other invasive plant species removal may also be performed by City staff, however, due to the invasive nature of these plants, additional resources are needed to successfully control or reduce their impact on Golden Valley's natural resources.

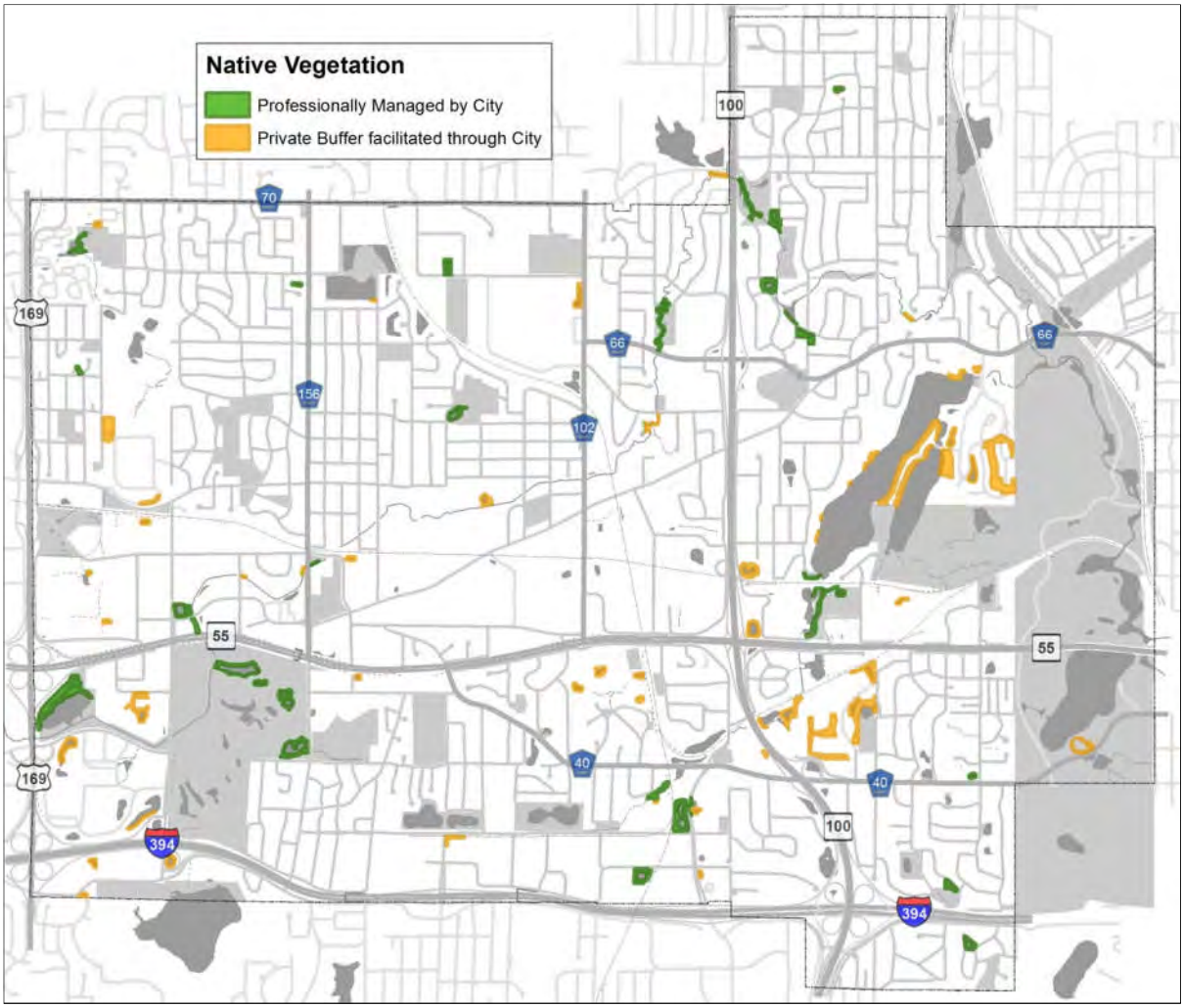
Figure 4.7 shows a general mowing and maintenance plan for nature areas and open spaces. The majority of mowing is on a weekly basis, but is concentrated on parks and open spaces that are used primarily for active recreation. Within the Nature Areas, mowing may also be weekly, but tends to be associated with trail maintenance.

Figure 4.7 General Mowing Schedule for Parks, Nature Areas and Open Spaces



The City of Golden Valley also contracts with specialized professional consultants for the establishment and maintenance of naturalized areas when additional expertise is required. This is typically associated with naturalized storm water pond buffers, but can include portions of right-of-way and natural areas where a native restoration project has been completed. For example, the Briarwood Nature Area has a small prairie restoration and a stream bank stabilization project that are being maintained by a professional contractor. Figure 4.8 shows where Vegetated Buffers have been established.

Figure 4.8 Native Vegetation



As part of the City's Adopt-a-Park program, volunteers help to ensure the nature areas remain free from litter and retain their natural beauty.

Invasive Plant Species

While Golden Valley has been proactive in controlling invasive plant species, many natural areas including the City's Nature Areas and Open Spaces have become infested with non-native plants including European buckthorn, and garlic mustard, in the woodlands, reed canary grass, giant reed grass, and purple loosestrife in the wetlands, and spotted knapweed and leafy spurge in the grasslands. Refer to *2013 Natural Resources Inventory Update* for more details regarding Invasive Species and the Urban Forestry page of the City of Golden Valley's website www.goldenvalleymn.gov.

Figure 4.9 Invasive Species

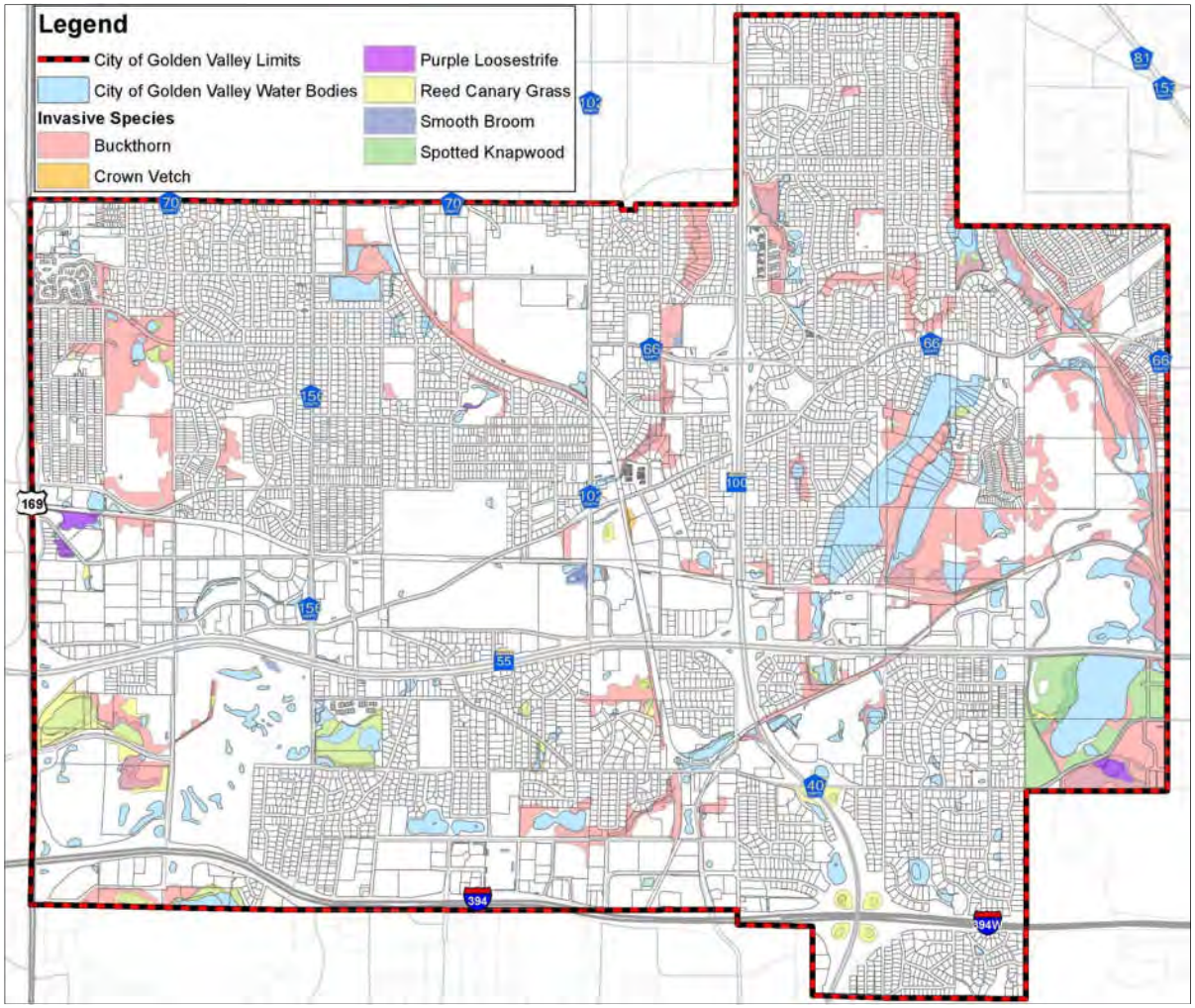


Table 4.1 identifies the acres that are dominated by invasive species. City-wide, buckthorn is the most prevalent invasive, followed by reed canary grass, and spotted knapweed. While buckthorn is found in many wooded areas of the City, reed canary grass can be found around a number of wetland complexes, and spotted knapweed primarily found around Wirth Lake in the southeast corner of the city. Crown vetch is limited to one area of railroad embankment, which is not located on city property, but is part of a greenway corridor. Other species are present but in smaller numbers including oriental bittersweet and wild parsnip.

Although aquatic invasive species have not been identified as an immediate concern in Golden Valley's water resources, euasian water milfoil is found in Wirth Lake and is managed by the MPRB in accordance with the Minnesota DNR.

Table 4.1 Invasive Plant Species by Acres

Type	Acres
Buckthorn	543
Reed canary grass	84
Spotted knapweed	56
Purple loosestrife	11
Smooth brome	5
Crown vetch	2

Pests

Gypsy Moths: These moths are considered by many experts to be the single most destructive pest of trees and shrubs. While first present in Golden Valley in 2001, none have been found in the area since pesticide treatment by the Minnesota Department of Agriculture in 2002.

Emerald Ash Borer (EAB): Although not present in Golden Valley at this time, it is anticipated that the Emerald Ash Borer will threaten the City's Ash trees in the future. To meet the challenge, the City began developing an Emerald Ash Borer (EAB) Management Plan in 2010 and updated it in 2012. The plan outlines Golden Valley's objectives and approaches to meet current and anticipated impact of the EAB on the community's urban forest and woodland resources. The intent was to provide City Staff and the community with a dynamic pest management guide that could be easily updated as new pest management technology evolves.

Tree Diseases

Dutch Elm and Oak Wilt: These are two tree diseases that are caused by fungi carried by an insect from tree to tree. Once the fungus takes hold, it grows rapidly in the water-conducting vessels of the entire tree. The vessels clog and the tree eventually dies. Once a tree becomes infected, it can be a source of fungi for transmission to healthy trees. Both diseases are a continuing problem within the Golden Valley urban forest. Over the past years, Golden Valley has experienced losses to Dutch Elm disease and is continuing a comprehensive sanitation program to keeping annual losses to a minimum.

Public Outreach and Education

Building public support for nature conservation and natural resource protection including invasive species management is essential to managing a community's resources. Especially when, in most cases, there is no physical barrier between public and private property. Public outreach and education can help raise awareness of natural areas and wildlife, and the importance of the natural environment to the community and its overall quality of life.

Public Outreach

The City of Golden Valley uses a number of means to provide information to the residents of Golden Valley including:

- ***CityNews* publication:** A 16-page bi-monthly publication, produced by the City of Golden Valley and mailed to all residents. The publication is designed to provide a range of topics to the City's general population, an audience that varies by age, education, and level of interest in City government. Natural resource-related topics have included: native vegetation, rain gardens and water quality, spring brush pick up and fall leaf drop-off programs, public improvements such as stream restorations, emerald ash borer, nature area and natural resource partnerships, development of Natural Resources Management Plans, identification and management of invasive species (Buckthorn, garlic mustard, Reed canary grass, Spotted knapweed, Leafy spurge), and others.

- **Cable Channel 16/Northwest Community TV:** The City of Golden Valley partners with Northwest Community Television (NWCT) to bring Golden Valley residents a wide variety of programming that features information about local government, community activities, and events. The channel also highlights special features which include natural resource topics such as the Golden Valley Natural Resources Management Plan that aired in September 2014.

- **City Website:** Educational information related to natural resources is provided on the City's website that cover topics such as native landscaping and rain gardens, value of urban trees, tree diseases and, pests, tree management tips for homeowners,

Natural Resource-Related Education

While the City of Golden Valley does not have a naturalist on staff, nor any community hosted programs devoted to active or social environmental education, it does partner with the City of St. Louis Park's Westwood Hills Nature Center to provide environmental education programs like "Tuesday Turtles", an interactive nature learning opportunity for ages 4-5 along with other nature-oriented educational programs for all ages including:

- Science and Reading
- Puppet Story Time
- Games and Adventure
- Fall Color Paddle on Westwood Lake
- Honey Harvest

Discussions have also occurred to collaborate with the Three Rivers Park District to provide educational opportunities and programming in the Rice Lake and Mary Hills Nature Areas.

Stewardship/Public Service Volunteer Programs

Stewardship/public service programs provide an opportunity for community members to become actively involved in the care of Golden Valley's natural resources or areas and include through volunteering:

Storm Drain Inlet Stenciling Program: Education component of the Surface Water Management Plan that helps to prevent pollutants from entering the street storm drains by soliciting volunteers to paint a fish symbol and text "Dump No Waste" near storm drains.

Storm Drain Outlet Program: Storm drain adoption program near lakes, ponds, or streams with outlet basins whereby the City works with volunteers to report back any operation, maintenance concerns, or presence of illicit discharges.

Adopt-a-Park: Public service program that enables volunteers to help keep Golden Valley's parks and nature areas clean and beautiful. While the main focus of this program is picking up litter, volunteers can help City staff by identifying safety hazards, and communicating any issues that arise within the park or nature area.

Buckthorn Busting: Public service program related to the Adopt-a-Park in which residents can provide buckthorn removal within designated areas.

Lilac Planting and Maintenance: Local program, where volunteers plant or provide care and maintenance for planted lilac shrubs located throughout the City,

Partnerships

Minnesota Department of Natural Resources (MNDNR): Golden Valley partnered with the MNDNR, the Metropolitan Council (Met Council), and Hennepin County to complete vegetative community mapping from 1990s through 2002. Grants have also been awarded to the City from the MNDNR for shoreland buffers and tree plantings.

Hennepin County Natural Resources Partnership: In 2014, Hennepin County started the Hennepin County Natural Resources Partnership to provide a forum for a more holistic and collaborative approach to managing and protecting our land and water resources. Partners include cities, watersheds, and agencies and organizations involved with or interested in natural resources management and protection.

Metropolitan Council (Met Council): Besides partnering with Met Council on the Golden Valley Natural Resources Inventory, the City works with the Met Council for the completion of the Comprehensive Plan, which includes a natural resource planning component.

Adjacent Communities: Golden Valley has been involved in a number of partnerships related to parks and nature areas. Community Partners include: Minneapolis (Theodore Wirth Regional Park); St. Louis Park (Westwood Hills Nature Center); and Robbinsdale (Sochacki, Mary Hills, Rice Lake Nature Area joint powers agreement).

Three Rivers Park District: Golden Valley has partnered with Three Rivers District in recent years on a number of projects including the Bassett Creek Regional Trail Master Plan, the construction of the Luce Line Regional Trail, and the Sochacki Park joint powers agreement, among other initiatives.

Bassett Creek Watershed Management Commission: Golden Valley has partnered with Bassett Creek Watershed Management Commission on a number of restoration projects including Bassett Creek streambank stabilization in Briarwood Nature Area and Bassett Creek Nature Area, and water quality improvement projects throughout the city. The City and the BCWMC also collaborate to establish water quality and erosion control standards related to development.

General Mills: Golden Valley has also been part of public-private partnerships including the General Mills Research Nature Area. While the nature area is owned by General Mills, Golden Valley maintains the trails, including mowing and tree pruning along the edges.

Board of Water and Soil Resources (BWSR): The BWSR holds conservation easements over wetland banks located within the Golden Valley Nature Preserve and Minnaqua Wetland.

Other partnerships include:

- **Tree Trust** - a Minnesota non-profit organization with programs committed to helping to protect and advocate for the urban tree canopy state-wide while offering employment training programs to youths and adults. Volunteers assisted the City in planting shade trees as a way to begin preparing for potential threats from the emerald ash borer. Projects have also been completed within several nature areas, including a tree planting project in Briarwood Nature Area in 2010.

- **Minnesota Land Trust** – a Minnesota non-profit conservation organization that works with communities and landowners to protect and enhance land through a number of ways including conservation easements. The City worked with the Minnesota Land Trust to establish a permanent easement on a portion of land donated by General Mills to create what is now the General Mills Nature Preserve.

- **Hennepin County Sentencing to Service** – this correctional program provides manual labor, which can include work on natural resource-related projects, including buckthorn removal, vegetation maintenance around storm water ponds, and litter and debris cleanup in nature areas and open spaces.

Community Input

Equally important to understanding the existing conditions of the natural resource system, current management and maintenance strategies, and public outreach and education approaches and partnerships, is the understanding of community issues and concerns, needs and desires. The quality of a city's natural resources impacts the quality of life of its people.

Listening to those who develop policies (Commission Members), those who currently manage the City's natural resources (City Staff) including nature areas and open spaces, and those who

appreciate or use the system (citizens, users) is a critical step in the planning process. The wealth of input provided helps to determine future priorities for the preservation, conservation, improvement and management of nature areas and open spaces.

Project Steering Committee

The natural resources management planning process was guided jointly by Golden Valley's Environmental Commission and the Open Space & Recreation Commission. Both Commissions met early in the process to discuss goals and objectives of the plan and issues regarding the City's natural resources. Issues, concerns and opportunities identified included:

- *Bottineau Light Rail Corridor and Station* – its impacts and its opportunity as a gateway to Golden Valley.
- *Theodore Wirth Park Master Plan* – compatibility between the updated plan and Golden Valley's Natural Resource Management Plan.
- *Buckthorn Management Plan* – need for City endorsement and approval of a buckthorn management plan that would also provide education and management strategies for community residents. This would be similar to one that has been developed by the City for stormwater pond vegetative buffering.
- *Natural Resource Management* – need to create a plan that will guide opportunities for preservation (particularly Mary Hills Nature Area and General Mills Nature Preserve), protection and enhancement.
- *Sweeney Lake* – identify additional opportunities that would help to improve the water quality of the lake (would complement the existing Surface Water Management Plan).
- *Future Threats by Invasive Plant Species, and Climate Change* – provide management strategies that will be cognizant and adaptive to dealing with unknown threats.
- *Greenbelts* – preservation and enhancement of Dakota, Brunswick and Laurel Avenue.
- *Wildlife and Insects* – management (nuisance wildlife species control – Canada geese and Deer) and habitat enhancement for wildlife and insect species, i.e. pollinators.

- *Community Natural Resource Outreach and Education* – implementing or revising existing programs and creating and implementing new ones to increase community stewardship of Golden Valley's natural resources.

- *Inter-agency Cooperation* – identify ways to communicate goals and policies of the Natural Resources Management Plan to other agencies in order to achieve positive results.

- *Funding* – identify additional sources of funding to support natural resource project implementation.

Following the February 2014 Joint EC and OS&R Commission meeting, monthly meetings were held with the Environmental Commission between July and October, all of which were open to the public. The meetings provided an opportunity to share project progress and receive guidance. Drafts of the Natural Resources Management Plan were presented at joint meetings in November 2014 and in February 2015 to both Commissions.

Natural Resources Community Survey

Because natural resources within a community are most often experienced by visiting Nature Areas, the Environmental Commission prepared a Natural Resources Survey as part of the planning process. An introduction of the survey and an on-line link was published in the City's September/October Newsletter. The non-statistical survey was administered on the City's Website between September 30th and November 7th. Forty-three (43) members of the community responded. The survey sought information from the public on a number of natural resources and open space topics including use, preference, and reason for visiting nature areas, overall satisfaction and natural resource protection. The following highlights the general findings of the survey:

Question #1: When asked which nature areas (permitted multiple responses) in Golden have the respondents visited, the top four answers among the 43 included: Bassett Creek Nature Area (24 checks) in first place; General Mills Nature Preserve and Mary Hills Nature Area (each receiving 20 checks) in second place; and General Mills Research Nature Area, a nature area within Golden Valley but not owned by the city received 18 checks. The Nature Area receiving the least number of visits was Golden Ridge, having received 5 checks. Those responding to "other" included natural areas within Wesley Park, Janalyn

Pond, Theodore Wirth Park, Bassett Creek itself, personal backyard adjacent to railroad corridor, etc.

Question #2: When asked which nature area is considered a favorite and why, most frequent answers by the 32 respondents included (in alphabetical order):

- *Bassett Creek Nature Area* – close proximity to home, kayaking,
- *Briarwood Nature Area* – close proximity to home, is beautiful, creek restoration, trails, wildlife viewing, provides connection to other parks
- **General Mills Areas* – quiet, native plant restorations, bird houses, pond to observe wildlife
- General Mills Nature Preserve – close proximity to home, walking
- General Mills Research Nature Area – close proximity to home, large enough for significant walking experience, large enough to support diverse flora and fauna, paths easy to walk on, safe for dogs, variety of topography, multiple habitats
- *Laurel Avenue Greenbelt* - nice size, close to residential neighborhood, good year round walking, water present
- *Mary Hills Nature Area* – close proximity to home, connects to Robbindale's, Sochacki Park, peaceful, forested, mushrooms, private and tucked away, lots of wildlife, fairly large, still feels "wild", great dog walking, diverse walking/biking trails, biking, off-road biking, skiing
- *Pennsylvania Woods Nature Area* – close proximity to home, destination for biking, dog can swim in pond
- *Rice Lake Nature Area* – close proximity to home, mixed habitats, quiet, skiing, lake, long dock, walking paths
- *Westwood Hills Nature Center* – natural path and beautiful site,

*Not specified as to which General Mills nature area

Other areas mentioned include Luce Line Trail because it is long and interesting, James Ford Bell Nature Area.

Question #3: When asked why a nature area is generally visited, the answers showed that exercise was the top reason for visiting, followed by view nature and wildlife, then relaxation. Education was reported least in the responses.

Question #4: When asked about satisfaction of the quality of Golden Valley's Nature Areas and Open Spaces, the answers showed that the majority were satisfied or very satisfied while some were dissatisfied.

When asked to explain their answers, many reasons were given but typical answers for being satisfied included:

- The quantity, beauty and proximity of nature areas, green, wild and open spaces within the City
- The walking trails, ponds, trees, and wildlife
- One of the reasons for living in Golden Valley, nice amenities so close to downtown
- Provides diversification to asphalt and commercial space, and alternative to parks

The following provide typical reasons for respondents not being satisfied with the quality of Golden Valley's Nature Areas and Open Spaces:

- Need for larger sized nature areas and more of them
- Need for increased/better buckthorn control, removing buckthorn would open it up, improve views, and make it feel more safe
- Need of additional effort/funding to protect natural areas from invasive species (buckthorn, purple loosestrife, garlic mustard, etc.)
- Concern about the future of Mary Hills Nature Area due to light rail transit
- Need for additional amenities, e.g., benches along trails within nature areas for resting and wildlife viewing, additional waste/recycle containers in Nature Areas, additional trails
- Need for better maintenance of trails, particularly snow removal in the winter
- Need for more native vegetation and less mowed areas and weeds, makes Golden Valley more desirable
- Algae growth in ponds

Question #5: When asked what should be done to improve Golden Valley's nature areas and open spaces, the following suggestions were offered:

Access	Make Bassett Creek more accessible and navigable
Education	Educate citizens on buckthorn identification and removal practices; create a volunteer program to help educate public on invasive species

	Educate on use of pesticides, herbicides, other chemicals
	Educate on air quality, burning, and recreational fires
Funding	Seek grants to help community control buckthorn
Invasive Species	Remove buckthorn and garlic mustard prior to restoration of woodlands; remove reed canary grass prior to restoration of wetland/shoreland
Maintenance	Add mulch or rock to non-paved trails to make them less muddy during rain and snow
	Eliminate use of pesticides and herbicides
	Remove snow berms from trail entrances
	Make accessible year round with predictable snow removal schedule
Marketing and Signage	Market the Nature Areas and include identifying and way finding signage to and within Nature Areas
Nature Area Amenities	Install pet waste stations at nature area entrances
	Provide additional benches along trails
	Provide toilets in parking areas
Partnerships	Increase partnerships, like Three Rivers Park District to help protect and preserve natural resources and mitigate against invasive species
Pets	Enforce leash and dog waste pick-up for dogs; trails can be un-walkable in the spring
Protection	Protect more natural areas and open spaces within the City
	Add more nature areas to the system
Recreation	Create dog parks and community gardens
	Add zip line to Mary Hills Nature Area
Restoration	Improve soil to sustain native vegetation; place collected residential leaf debris on woodland floor (to regenerate soil)
	Add pollinator or edible plants to enhance landscapes or native plant restoration sites
	Decrease mowed areas and increase native plantings similar to what has been done in Brookview Park
	Restore un-used ball fields or large areas of open space within

	parks to native vegetation
Trails	Complete trail loops with mileage and connections to other trails and streets, create paths for birding
	Construct more trails
	Have a mix of paved and natural surface trails
Wildlife Habitat	Increase attention to wildlife habitat; retain downed trees if not hazard
Wildlife Management	Control deer population

Question #6: When asked about the ways to protect Golden Valley's natural resources, the results showed that responders felt the most effective way to protect Golden Valley's natural resources would be to acquire land or easements and the least effective way would be to provide financial or other incentives.
Chosen from following list: Education; Laws and regulations; Volunteer conservation/protection; Financial or other incentives; Acquisition of land or easements, education seems to be important to those responding to the question:

Acquisition of Land or Easements	There is ample opportunity for the city to purchase private land in the city for green and open spaces
	There is no more land in Golden Valley for parks or nature areas
	Forces the land to be saved for park use
Education	Citizens need to understand the importance of good conservation
	Many are unaware of nature areas, marketing them will make residents more aware of them; organize tours of them
	Education is required to control buckthorn on private property
	Some people will always abuse a nature area but most will not if they know/understand the purpose
	Without on-going education of the younger generation, the best plans in the world will not protect natural resources

	Education, including exposure to nature, is the key to developing interest in people for these areas and for continued usage plus encouraging volunteers to work in them
	Education should go hand in hand with laws and regulations
Laws and Regulations	Have laws and regulations in place and not sure what could modified to greater effect
	We need authority to show citizens that it is important to preserve environmental integrity
	Regulations are required to control buckthorn on private property
	Laws and regulations need to be in place so the efforts of education and conservation/protection have some teeth
	Laws and regulations are in place but need to be tweaked from time to time
Volunteer Conservation/Protection	Having natural areas in City ownership gives permanence, using volunteers (adopt a park) gets folks directly involved
	Volunteers are essential because city cannot afford to maintain
	Without “ordinary citizen involvement”, the best plans in the world will not protect natural resources
	Volunteers need to be armed with education in order to change people’s minds about protecting natural resources
	Getting people involved is great but only a handful ever volunteer for anything
Financial/Other Incentives	Financial incentives work wonders
	People won’t just do what is right unless they benefit from it directly

Section 5: Management Strategies

Introduction

The management strategies for natural resources presented in this section are based on an adaptive natural resources management approach. Adaptive management is the process of simultaneous managing and learning about natural resources, and t is used in situations where you have resources that are responsive to management activities, but acknowledges that outcomes have some uncertainty. The process follows a sequence of application, outcome measurement, adjustment based on what has been learned, and modified reapplication. This dynamic approach allows for greater flexibility, and over time, a focused approach that will provide results in a more efficient and effective manner.

Management Strategies

Management strategies are typically employed for the resource that is desired to be maintained or improved, and tend to be specific for each resource. The following sections outline specific management strategies for the resources present within Golden Valley.

Water Resources (Streams, Lakes, Ponds and Wetlands)

The City of Golden Valley has an abundance of water resources, and has placed an emphasis on protecting and enhancing water quality while also managing water quantity. Existing plans provide these protections, including the Comprehensive Plan, Storm Water Pollution Prevention Plan, the requirements of the Bassett Creek Watershed Management Commission and Minnehaha Creek Watershed District, and their respective watershed management plans.

Bassett Creek is the primary waterway through the City, and includes the Main Stem, which originates at the outlet of Medicine Lake, and the Sweeney Branch, which is located within the southern portion of the City and flows through Sweeney Lake. The two streams have a combined length of approximately nine miles within Golden Valley. Other waterways and ditches are also present within the City but tend to be small, unnamed, drainageways, overflows, or ditches. While some of these waterways have naturalized, they are not recognized as traditional aquatic resources.

Primary lakes within the City include Sweeney, Twin, and Wirth Lake. Sweeney and Twin are recreational lakes, and have partially developed shorelines. Most of the undeveloped shorelines lie within Theodore Wirth Park which is owned by the Minneapolis Park and Recreation Board. Wirth Lake is a natural environment lake, and is within Theodore Wirth Park. In addition to the lakes, there are numerous wetlands, ponds, and smaller water features. Constructed storm water ponds are also numerous aquatic features, and many have been naturalized to provide a wide range of functions beyond storm water treatment.

Management Strategies

1. Maintain shoreland zone and setbacks for aquatic resources. When possible, establish native vegetation buffers to further protect the resources.
2. Manage Bassett Creek as a natural watercourse, which includes allowance of flooding where no damage would occur, allow stream meander where no harm is present, and allow instream habitat in the form of hard substrate and woody vegetation to persist as long as it does not aggravate flooding potential.
3. Naturalize storm water ponds through use of native vegetation buffers, planting of trees and shrubs, and use of multi-cell designs to provide habitat diversity.
4. Complete wetland replacement within the City limits, when feasible.

Native Forests

Historically, land cover in Golden Valley was dominated by woodlands and native prairie. While the majority of the prairies are gone, remnants of those old forests, or similar communities to what was historically present, remain in some of the nature areas and preserves. In general, three types of forests were historically present within Golden Valley.

Oak savanna: Oak savannahs are fire dependent communities dominated by few, but mature, bur oak trees with a native prairie understory. As fires would naturally occur, young trees and shrubs would not survive, while the older, fire resistant, trees and grasses would persist. In the absence of fires, these communities have grown to include these older mature trees, but have been become overgrown with pioneer species such as aspen and box elder. With the increased canopy, the forest floor becomes densely shaded, and the prairie grasses no longer persist. Many of the wooded portions of the city, including those now used for residential development, contain some very old bur oak trees, which were likely part of a historic oak savanna.

Big woods: Where fire was less likely to occur, forests dominated by sugar maple, basswood, and elm dominated. These woods tended to be closed canopy, but allowed openings for oaks, ash, ironwood, and bitternut hickory to co-exist. The heavily shaded forest floor supported a diverse assemblage of spring ephemeral wildflowers and ferns. Buckthorn invasion has taken a heavy toll on these communities, and has changed the ecology of the big woods ecosystem. Remnant big woods communities are rare, and no longer remain in Golden Valley, although portions of Pennsylvania Woods and some privately owned properties have similar communities, and are a close representation.

Floodplain forest: Although not nearly as extensive as what is present along major rivers and waterways, Bassett Creek has an associated floodplain community, which provides a transitional habitat from wetland to upland. Historically, the floodplain forests were dominated by flood tolerant species such as silver maple and cottonwood. These species remain today, but lesser quality species such as box elder and black willow have increased in abundance. These species grow fast, tend to be weaker, and have shallow root systems, which makes them prone to storm damage and becoming uprooted.

Management Strategies

1. Protect high quality areas, and communities indicative of pre-settlement conditions
2. Manage forest health to maintain representative oak savanna, big woods, and floodplain forest communities.
3. Restore and re-establish oak savanna, big woods, and floodplain forest communities.
4. Where hazardous to human health and safety or property, remove fallen trees, otherwise allow natural processes to occur uninterrupted. An exception to this may be tree removal following large storm events, where widespread cleanup may be required.
5. Encourage private property owners to diversify tree plantings, use native species, and monitor for invasive species.

Cultivated and Landscaped Vegetation

Through development, much of the native vegetation that was historically present has been modified. These modifications include removal of native habitats, encroachment into natural areas, and replacement of native species with lawns, gardens, boulevards, and ornamental or non-native species. While native species can be found, concentrated areas are less common, and intact natural communities are particularly rare. Although not indicative of historic

conditions, a modified landscape can continue to provide ecological value. Vegetation on private property is managed by property owners, consistent with City Code, but can utilize an approach to allow a naturalized habitat to persist, and provide ecological functions and values to be enhanced, while maintaining the desired aesthetic and functional components.

Management Strategies

1. No vegetation identified by the State of Minnesota as a noxious weed or invasive species shall be allowed to be intentionally planted within the City. Ornamental plantings are allowed, but it is encouraged to use native species to the extent practicable.
2. When possible, planted communities should mimic what was historically present prior to settlement.
3. Existing plant communities that may not be representative of pre-settlement communities, but still provide ecological value (e.g. pine plantation in Golden Ridge) are allowed.
4. Diversification of species is encouraged.
5. Specialized vegetation plots for pollinators (birds, bees and butterflies) are also encouraged as they provide a specific ecological function, and can be used for educational purposes to highlight contemporary environmental concerns.

Wildlife

The City of Golden Valley provides great opportunity for watching wildlife. Common animals that can be seen in Golden Valley are typical urban species, including numerous songbirds, small mammals, and deer. Species such as deer, Canada geese, raccoon, turkey, and skunks have increased in population since these animals do well around moderate human development. Species that are less tolerant of humans have declined in abundance, or are no longer present within the City. Management recommendations for wildlife in the city are provided below. In general, appropriate management of the nature areas will help improve populations of desirable native animals, and improve citizen relationships with wildlife in general.

Preservation of high quality natural areas will provide spaces for wildlife, which in turn provides opportunities for residents to observe wildlife. A positive correlation exists between the size and quality of the habitat, and the populations and quality of the associated wildlife. In general desirable wildlife will benefit from other recommendations in this plan. Diverse forests, prairies,

and wetlands will improve habitat for many native animals. Provision of larger areas will support a greater number of wildlife species, and a larger population in general.

Nuisance Wildlife

Wildlife can become nuisance, when they are overpopulated, degrade the natural areas, or damage public and private property. Education on wildlife and wildlife management is essential to understanding the cause of these interactions, and how to manage the resources to minimize negative interactions.

Deer: Deer are numerous within the City of Golden Valley, as abundant habitat is present, and there are few threats to them to naturally control the population. Deer are viewed both positively and negatively, depending on experience and relationship with the animals. When overly abundant, deer can be detrimental to both native and planted vegetation, and can damage private property. Deer are currently managed in accordance with the City's Deer Management Plan. In addition, feeding of deer is prohibited by City Code.

Coyote: Coyote populations are increasing rapidly in metropolitan areas. As scavengers, coyote will eat anything they can find, which can include pets. Management of coyote may require professional trapping or relocation if populations are sufficient to provide a human health hazard. Effective measures for reducing populations in residential areas can also include hazing and avoiding feeding animals in general. It is anticipated that coyote will be an increasingly important species to manage as populations continue to increase, and negative interactions also increase.

Turkey: Wild turkey were extirpated (no longer present) in Minnesota following settlement. In the early 1970's, wild turkey were relocated to southeast Minnesota, and have become one of the most successful projects the MNDNR has developed. Currently, wild turkey are widespread, throughout the state, including populations within urban areas. With the lack of predators, the urban turkey has few threats, and behaviorally differs from the more elusive rural cousins. Turkeys that have acclimated to living around humans can be problematic. The primary means of avoiding conflict with turkeys is to avoid feeding them and establishing areas where they become comfortable around humans. Long-term management of wild turkeys within urban areas is to provide a less inviting habitat. If populations remain too large, a permit can be obtained from the State of Minnesota to physically remove turkeys.

Canada geese: Geese are a nuisance on manicured lawns and when fed regularly will become permanent features. Direct population impact measures such as physical removal may be effective, although relocation can be difficult, and humane disposal is generally not accepted. Hazing, physical barriers, and chemical irritants can be effective for a time, but geese may acclimate to it. The best means for control are to discourage them by removing or reducing their preferred habitat.

Buffering water bodies with native vegetation barriers is perhaps the best technique for managing geese. It also provides habitat for other birds and helps water quality in lakes and streams. Maintaining native vegetation around all open water and creating buffers greater than 25 feet wide will be most effective. Establishing these may be difficult if geese are already using the area, though temporary wildlife fencing (snow fences) will help. This practice will deter geese from congregating and using the site.

Raccoons: Raccoons are present within the City, but because they are nocturnal (active at night) they may be rarely seen. Raccoons have adapted to living in urban areas and around people, and can become a nuisance. Raccoon damage is a common occurrence to structures, particularly as females search for nesting areas. Gardens and plantings can also be damaged, as raccoons will raid them for food. Raccoon management is primarily focused on habitat modification where attractants such as food and habitat are denied, and there is less incentive for raccoon to persist within an area. Exclusions like screening off potential dens, such as chimneys and under porches can be effective, but have to be maintained. Fencing is generally not effective, as they can climb and are nimble enough to even undo latches. Live trapping and relocation is also effective, but is best done by professionals as a trapped raccoon can be dangerous to handle.

Skunks: Skunks are nocturnal and hunt for food during the night. Food for skunks includes insects, small mammals, worms, vegetation, and where humans are present, pet food, bird food, and garbage. Skunks are undesirable in large numbers due to their protective scent, and the potential to carry rabies. Habitat modification and exclusions are the preferred method of control. Professional pest management may be required if skunks are problematic around a residence.

Muskrats: In general, muskrats are aquatic and have little interaction with humans. These small animals, however, can become problematic when they overpopulate storm water ponds, where they can block outlet structures, and interfere with vegetation management to construct their lodges. The primary problem of muskrats is their tendency to burrow into the banks of ponds and streams, which can cause erosion, destabilize the banks, and cause the systems to leak if they damage the perimeter walls. They can be a serious problem on golf courses, where they can cause significant economic damages. Occasionally, trapping to maintain smaller populations may be required, and is generally not harmful to the muskrat populations.

Human Encroachment

Living next to a Nature Area or a City-owned open space can provide the resident a unique opportunity to access and enjoy the natural resources that are in close proximity to them. Because there often is no fence, markers, or indication that the property is owned by the City, it is often difficult to know where private property ends and public property begins. When homeowners expand their yards into nature areas, parks, or publicly owned open space, it becomes an encroachment. One encroachment may seem trivial, but multiple encroachments can have significant impacts on the natural resources. The most common encroachment activities include:

- Removal of vegetation
- Planting vegetation of any type
- Mowing
- Dumping of trash, yard waste, other debris
- Constructing various types of structures, including sheds, fire pits, and play structures
- Composting
- Collection and storage of firewood

These type of activities can seriously impact a nature area or open space by:

- Destroying or damaging wetlands, mature trees, and native vegetation
- Spreading invasive plant species
- Threatening wildlife and/or their habitats
- Negatively impacting aesthetics and user experience within the nature area

Management Strategies

Encroachment may be intentional or unintentional, therefore management should start with education and identification of where property boundaries are located. This may include providing information to adjacent property owners, identification of boundaries with placards or other indicators, or placement of permanent monuments.

The following are potential management strategies that may be employed to deter encroachment.

1. Provide mapping of nature areas, open spaces, and city parcels on the City website so residents can research their property limits, and ownership of adjacent parcels.
2. Initiate an educational campaign through website, media, fliers, etc to inform residents of the extent of the problem and seek voluntary compliance.
3. Direct contact with property owners through mailing or site visits.
4. The City may identify the property lines, and place markers to indicate their locations.
5. If compliance is not achieved, the City may consider means of enforcement, such as fines.

Invasive Pests and Species

Invasive pests and species are already present in Golden Valley and the threat of new and emerging species will undoubtedly always be a concern. While it is not possible to predict and prepare for every threat, the City must be willing to adapt its strategies, policies, and financial resources to address the future threats that the City feels are deserving of being addressed. The City will work with the Minnesota Department of Agriculture, DNR, and other entities to verify these threats and ensure that its response is appropriate.

Specific Nature Area and Open Space Management Strategies/Recommendations

Nature Areas

Management Priorities

Within each nature area, specific natural resource improvement opportunities have been identified. These are unique to each area, and identify which priority actions could be considered for that particular area. The priority is based on the following descriptions.

> **High Priority**: Opportunities for projects that are required to protect critical resources that are in imminent harm if improvements are not made in a timely manner.
>
> **Medium Priority:** Opportunities that are important to protect a resource, but provide less benefit than high priority, or opportunities to protect a resource that is under no imminent threat.
>
> **Low Priority:** Opportunities that are still valuable, but would primarily enhance existing resources that are already of good quality, and are not under imminent threat.

Open Spaces (City-owned open space parcels)

Management Priorities

It is understood that each of these parcels is unique and may need to be further assessed based on previous and current use of the parcel. Generally, Open Space parcels are intended to be left in a natural state, but exceptions may be made where the parcels have been historically managed or maintained in a more manicured state. Management priority is generally less than Nature Areas, although goals of invasive species management, establishment of native vegetation, and enhancement of natural resources remain for all natural areas within the City.

> **High Priority**: Opportunities for open space parcels that are being considered for inclusion as future nature areas, or adjacent to nature areas, and include areas required to protect or buffer a critical resource.
>
> **Medium Priority:** Opportunities that are of direct benefit to the open space parcel, but also provide enhancement of adjacent areas. These provide less benefit than high priority, or opportunities to protect a resource that is under no imminent threat.
>
> **Low Priority:** Opportunities that are still valuable, but would primarily enhance existing resources.

Amenities

While healthy and beautiful native vegetation communities may be seen as natural amenities within a nature area, other amenities or structural elements are typically provided to enhance the user experience. These amenities may include trails; bridges; entrance signage, wayfinding, educational or interpretive and enforcement signage; boardwalks, observation decks; waste and recycling receptacles, pet waste systems, benches, gates, bollards or fencing; duck, bird or butterfly houses, etc. All of these amenities provide an opportunity for visitors to be part of the natural experience, not just viewing it from the perimeter.

Entrance signage can add to the overall aesthetics of a nature area or a park by providing information on the area, and to confirm that the area is intended to be publically used. The general design theme of a nature area entrance may range from one that reflects a more “rustic” or “earthy” appearance similar to those constructed by the National Park Service during the 1930’s to a more contemporary theme that balances the contemporary urban context with the natural landscape. Materials may include wood, recycled wood, plastic or composite products, stone, granite boulders, metal, iron, etc. but still should reflect the idea of a “natural landscape” and not an urban plaza or streetscape.

Most importantly, whatever design and materials are agreed upon by a community should be used throughout the Nature Area system. To celebrate the unique identity of a nature area, preserve, or greenbelt, the key structural elements (particularly benches and signs) should be of a different, yet complementary, design palette (different objects that fit well together) than those used in the active park settings. Establishment of consistent themes for parks, Nature Areas, and Open Space signage and amenities will allow users to visually distinguish between the types of recreational places.

Nature Area Signs and Amenity Design Guidelines

Although not necessarily site specific, general wayfinding signs can also be provided throughout the City. These signs will orient and navigate the visitors to each of the nature area sites, and will serve as points that tie all of the nature areas together as one system. The City may want to develop and adopt design guidelines for general entrance and wayfinding signs and specific nature area signs and amenities.

Nature Area Amenity Management Priorities

In order to determine the importance of amenity improvements or installations within the Nature Areas, three priority categories have been created and are defined as follows:

> **High Priority:** Projects that will improve visibility, safety, cleanliness and the use of the nature area. They include, entry signage and benches where none exists, interpretive and/or wayfinding signage at key areas within the nature area, pet waste disposal stations, and recycling receptacles. It may also include constructing or relocating hard or natural surface trails for better access, safety, or accessibility.
>
> **Medium Priority:** Projects that will improve the aesthetics of the nature area and improve the use and understanding of the nature area.
>
> **Low Priority:** Projects that will enhance the beauty and functionality of the nature area but are not of immediate concern. They include installing new entry signs and benches in nature areas or replacing existing signs and benches that need replacement. As these amenities reach their life expectancy, the City should replace with amenities approved in an adopted *Nature Area & Open Space Wayfinding and Amenity Design Guidelines.*

Nature Areas and Open Space Plan

Not only does the Natural Resources Management Plan provide strategies and recommendations on how to manage and maintain the existing natural resources within the City, but it is also a forward planning document that guides the expansion of existing nature areas and development of potential future nature areas.

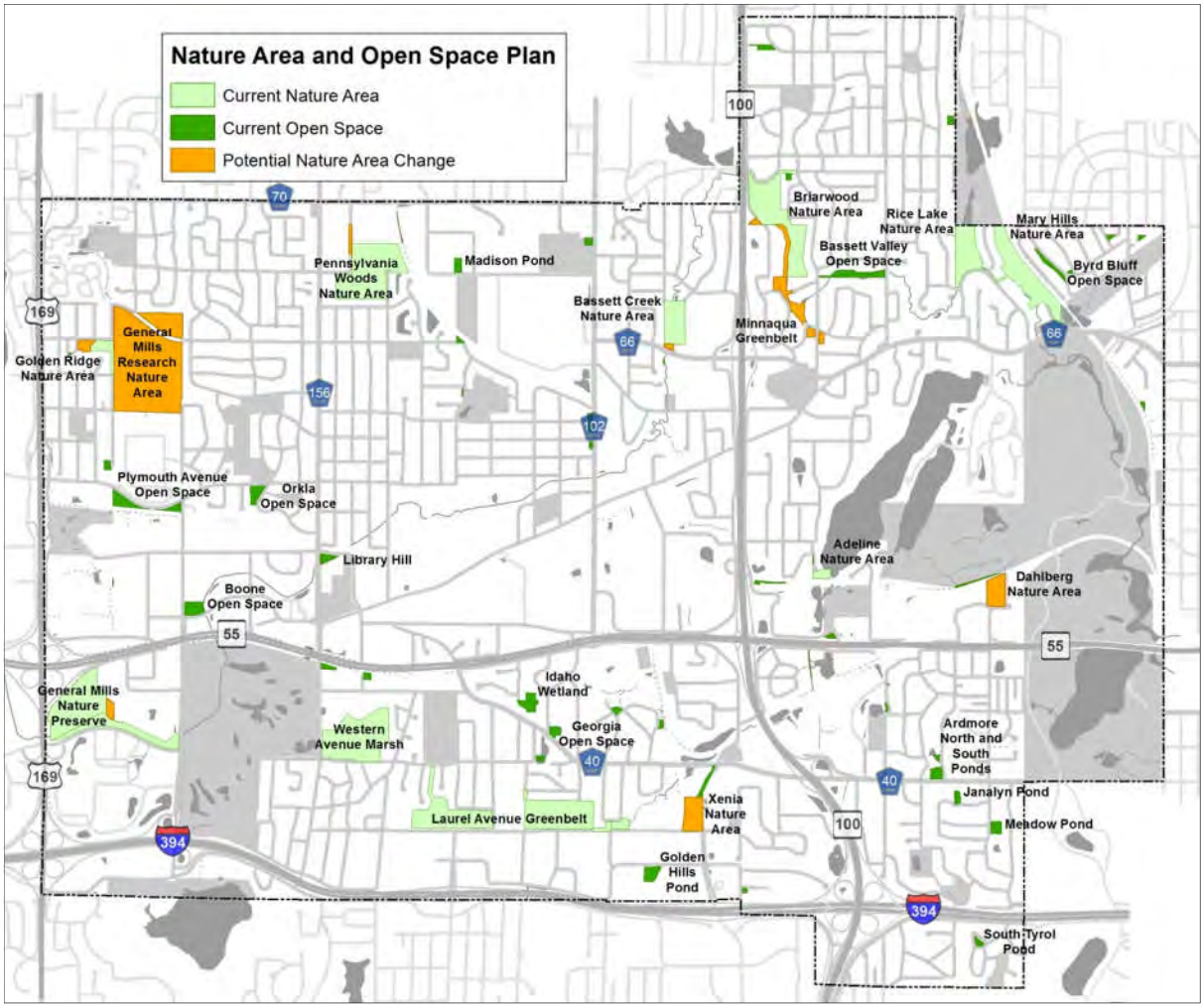
The Nature Areas and Open Space Plan (Figure 5.1) builds upon the existing nature areas and open spaces within the City. It also reflects the community vision, goals and objectives that were developed during the development of this plan. It draws upon previous and related planning studies as described in Section 1 and community input discussed in Section 4 relating to “increasing the size of existing nature areas”, and to “protecting natural resources by acquiring land or easements”.

Nature Areas

The following nature areas could be expanded in size in the future, through partnership, agreement, easement, or acquisition, as opportunities arise:

- **Bassett Creek Nature Area** – The existing trail on the south side of the Bassett Creek Nature Area near Duluth Street is accessed through property owned by a public consortium of local governments (LOGIS). Formalizing an agreement or easement with the property owner could provide assurance that the trail access will remain publically available into perpetuity.
- **Briarwood Nature Area**
    - Consider potential expansion as floodprone properties become available in the future.
    - Adjacent lands to the west are privately owned and social trails are used by the public to access Briarwood Nature Area and to connect to public trails in the area. Agreements or easements could be established to provide more formal trail access and connections to nearby public trails.
- **General Mills Research Nature Area** – The City currently maintains a network of paved trails in this area made possible by an easement agreement with General Mills. In the future, if there is an opportunity to facilitate dedicating portions of this property to the public for permanent open space, it would be a beneficial addition to the City's nature area system.
- **General Mills Nature Preserve** – Existing trails currently pass through privately owned property east of the nature preserve. Working with the property owner to formalize the current arrangement by agreement or easement could provide permanent public access and use of the trails and a clear understanding of future maintenance responsibilities.
- **Golden Ridge Nature Area** – The natural area to the west is currently owned by Hennepin County, and natural area to the east is currently owned by General Mills. Explore partnership or other arrangements with these entities to ensure these areas will remain undeveloped, in a natural state, and as part of the City's natural resource system.
- **Pennsylvania Woods Nature Area** – In the future, if additional flood storage can be created west and north of this nature area through redevelopment or construction of public improvement projects, there may be opportunities to expand the nature area with additional water resources, trails, open space, and native vegetation.

Figure 5.1 Nature Area and Open Space Plan



Open Spaces

High Priority (Conversion to Nature Area)

The following Open Space Parcels have the potential to be elevated to a Nature Area status based on size/scale, use, and the amenities and public investment present:

- **Minnaqua Greenbelt** (4.81 acres)
  The Minnaqua Greenbelt is located south of Briarwood Nature Area, and is similar to the Laurel Avenue Greenbelt, in that it is several parcels connected by trails and green space. The four parcels in the greenbelt include the Minnaqua Wetland parcel (a wetland bank under conservation easement), the Minnaqua Pond parcel (a pond constructed along Basset Creek), and the Regent and Westbend Parcels (which contain wet

meadow and wet prairie habitats). The vegetation within these parcels is professionally managed to maintain a high quality native environment.
The four parcels and public rights-of-way have trails, benches, entrance and educational signage, and other amenities to provide a positive user experience. In many ways, the Minnaqua Greenbelt is functionally a Nature Area, and formal inclusion may assist in providing additional resources to ensure it continues to be a high quality asset. There is potential to expand this nature area if floodprone properties adjacent to the greenbelt become available in the future.

- **Xenia Nature Area** (5.24 acres)
  The Xenia Nature Area is a parcel that contains a regional storm water treatment pond, bench, educational signage, chimney swift house (by permit/maintenance agreement), sidewalks and trails, a wetland mitigation area, median plantings/streetscape, and professional native vegetation management. Inclusion as a Nature Area would reflect the existing public investment and usage and help to ensure sustained management in the future.

- **Dahlberg Nature Area** (4.51 acres)
  The Dahlberg nature area is adjacent to Wirth Park and contains a regional stormwater treatment pond, woods and wetlands, and is used to host occasional public events in the southern area along Meadow Lane. It is immediately west of the Animal Humane Society facility. There is potential to add benches, signage, formal trails, and provide vegetation management. Resources for amenities and future enhancements could be better leveraged if this area were identified and managed as a Nature Area.

Medium Priority (Continue to Manage as Open Space)

The following open space parcels have some public investments present, but fewer amenities than the Nature Areas or the Open Space parcels proposed to be Nature Areas described above, and are generally smaller in size. Therefore, it is recommended to keep these categorized as Open Space Parcels, and assign names to reflect the public investment present in these spaces. Signage could be used to designate these areas, and encourage public education and awareness.

- **Boone Open Space (710 Boone Avenue)**: The Boone Open Space is adjacent to Bassett Creek and contains a flood storage pond, flood levee & lift station, professional native vegetation management, adjacent sidewalks, and a paved maintenance access to lift station. There is an opportunity for educational signage describing the City's flood mitigation efforts.

- **Golden Hills Pond (6075 Golden Hills Drive)**: The Golden Hills parcel contains a regional stormwater treatment pond, adjacent sidewalk, receives professional native vegetation management, and has a significant retaining wall. There is an opportunity for educational signage.

- **Madison Pond (7100 Sandburg Road)**: Madison Pond is a small water quality and rate control pond, which receives professional native vegetation management.
- **Library Hill (950 Winnetka Avenue North)**: The Library Hill parcel is located near the City Hall campus and the Library adjacent to Bassett Creek. This site was included in a recent streambank stabilization project. It receives native vegetation management, contains a boulder plaque for the Golden Valley Federated Women's Club, has a sidewalk on the north, streetscape on the west, and provides the opportunity for a scenic overlook with bench and educational signage.
- **South Tyrol Pond (1345 Tyrol Trail)**: South Tyrol Pond is a small property that receives professional native vegetation management, and contains educational signs, plantings, and landscaping with boulders.

Low Priority (Consider Maintaining and Investing in Open Spaces)

The following open space parcels have generally not received significant investment or amenities, but may provide significant ecological and water resource value, and have the potential for enhanced vegetation management, and possibly amenities such as benches, signage, natural surface trails, etc. should the opportunities arise in the future. Therefore, it is recommended to keep these categorized as Open Space Parcels, and reflect their ecological and water resource importance by assigning names, and consider additional improvements as resources allow.

- **Ardmore North and South Ponds** (Ardmore & Glenwood)
- **Bassett Valley –** (Outlot along Bassett Creek between Regent and Noble)
- **Byrd Bluff – (**Steep wooded bluff along Byrd Avenue, platted as park land)
- **Georgia Open Space** (Georgia & Glenwood)
- **Idaho Wetland** (Idaho Avenue between Highway 55 & Glenwood)
- **Janalyn Pond** (Janalyn Circle)
- **Meadow Pond** (Meadow & Glencrest)
- **Orkla Open Space** (1250 Orkla Drive, former "tree farm" property)
- **Plymouth Avenue Open Space** (west of Boone, between Luce Line Trail and Railroad)

Adeline Nature Area

Location: 910 Adeline Lane
Size: 1.2 Acres

Description

The Adeline Nature Area is located at the south end of the Adeline Lane cul-de -sac on Sweeney Lake; it is accessible from Adeline Lane. Although a relatively small nature area, Adeline offers a number of amenities including an inscribed stone boulder entry sign, stone benches, a single hard surface trail leading to a composite decking boardwalk and overlook seating area with kayak/canoe access to Sweeney Lake.

The south side of the nature area abuts the railroad, which is a barrier to entering the park from any other locations. The railroad through the city provides a corridor for wildlife passage, and Adeline Nature Area is served by this connection. The rail is an impediment to access, however, and separates the nature area from Schaper Park, and the amenities located there. The remainder of the park abuts private property or Sweeney Lake.

From a natural resource perspective, the park is dominated by woods. Although lower quality species dominate, the woods are appropriate, and provide a habitat along the lake for a wide variety of urban wildlife and songbirds.

Forest and Woodlands

Adeline Nature Area is densely wooded, with a mixture of hardwood species including box elder, green ash, and cottonwood. Overall, the woods are relatively mature, but have been disturbed, which is reflected in a dominance of lower quality species. Soils within the park include areas of cut and fill, which encourages the establishment of these lesser quality species. A shrub layer is present, but is dominated by common buckthorn.

Aquatic Resources

Sweeney Lake is located within the park, and is the resource highlight. The portion of Sweeney Lake within the nature area is shallow, seasonally vegetated with floating leaved vegetation, and prone to algal blooms. Schaper Pond is located on the south side of the railroad, and discharges into Sweeney Lake near the Adeline Nature Area.

Wetlands

Hardwood swamp wetland is present along Sweeney Lake. This wetland is dominated by box elder trees and some reed canary grass where sufficient light is present. The wetland is located on a small terrace along the lake, and hydrology is provided by a high water table, although some seepage wetland is also present, and was likely historically more prevalent.

Prairie and Grassland

Adeline Nature Area has no significant areas of prairie or grassland.

Invasive Species

The dominance of disturbed woods provide ideal conditions for common buckthorn to thrive. Common buckthorn is a dominant species throughout the park. Density of buckthorn has increased since 2003.

Within the fringe of Sweeny Lake, reed canary grass and purple loosestrife are present, but density has not been quantified due to the small portion within the Nature Area and connectivity to Sweeney Lake.

Table 5.1 Invasive Species Cover Percent Change 2003-2013			
Description	%Cover2003	% Cover 2013	% Change
Common Buckthorn	40	65	+25

Site Recommendations

Natural Resources

Manage buckthorn (high priority)

Buckthorn is prevalent throughout the park, and is mixed ages. Buckthorn removal is a priority, although diligence is required, as there are significant buckthorn populations adjacent to the nature area, and given the small size, effective removal would be difficult for extended periods of time before buckthorn would again encroach.

Enhance the quality of the woods (medium priority)

An opportunity to selectively remove some of the less desirable box elder trees, and replant with a mixture of oak, maple, and basswood trees would provide a shift towards a more desirable, and historically present community. This phase approach could be done over an extended period of time, so that the change was gradual, and did not affect the aesthetics of the lake.

Amenities

Improve visual access (high priority)

Improve vantage point to observe Sweeney Lake by removing tree limbs and brush near boardwalk overlook.

Upgrade entry sign (high)

Adeline Nature Area currently has a boulder entry sign similar to the ones that are located within the General Mills Nature Preserve. Many of the other nature areas either have no sign or one of several different styles used by the City. The boulder sign should be reviewed as a potential design type as the City develops a recommended “Sign and Site Amenity Design Guidelines for Golden Valley Nature Areas and Open Spaces.”

Install interpretive sign (medium)

There are opportunities to educate the user on a number of topics including wildlife habitat, water quality protection of Sweeney Lake and buckthorn removal and native woodland restoration.

Upgrade bench (medium)
Several styles of benches are found within the nature area. Flat-topped pieces of architectural cut stone, found on site, have been used as benches at the entrance and along the trail. While these are unique to Adeline and could continue to be used, placing a bench near the entry and on the overlook consistent with an approved bench style for nature areas would provide visual continuity within the nature area system and also strengthen user distinction that Adeline is a Nature Area.

Improve physical access (low priority)
Currently, Adeline Nature Area is accessed by one location. Consistent with the City's Comprehensive Plan, long term plans should consider connecting the nature area to the Schaper Park complex located on the south side of the railroad tracks. This would also provide access to the Luce Line Regional Trail. In addition, the City should review the accessibility of the trail and provide landing areas, if necessary, consistent with ADA guidelines.

Install trash/recyclable receptacle (low)
The trash receptacle is one of the first amenities viewed upon entering the nature area. As such, it should not only provide maintenance functionality and efficiency but should also be attractive and reflect the image of the Adeline Nature Area.

Table 5.2 Adeline Nature Area Improvement Priorities

Priority	Management Type	Description	Action	Qty	Unit	Unit Cost	Cost Opinion
High	Upland woods and hardwood swamp	Low quality hardwoods	Remove/control Buckthorn	1	Acre	$4,000	$4,000
Medium	Upland woods and hardwood swamp	Forest health, diversity	Remove undesirable trees, establish native woodland communities	1	Acre	$5,000	$5,000
High	Amenity	Entry sign design continuity throughout nature area system	Install entry signs	1	Each	$5,000	$5,000
Medium	Amenity	Bench design continuity throughout nature area system	Install new benches at entry and on deck overlook	3	Each	$1,500	$4,500
Medium	Amenity/Visual Access	Sweeney Lake View	Remove view obstructing tree	1	LS	$1,000	$1,000

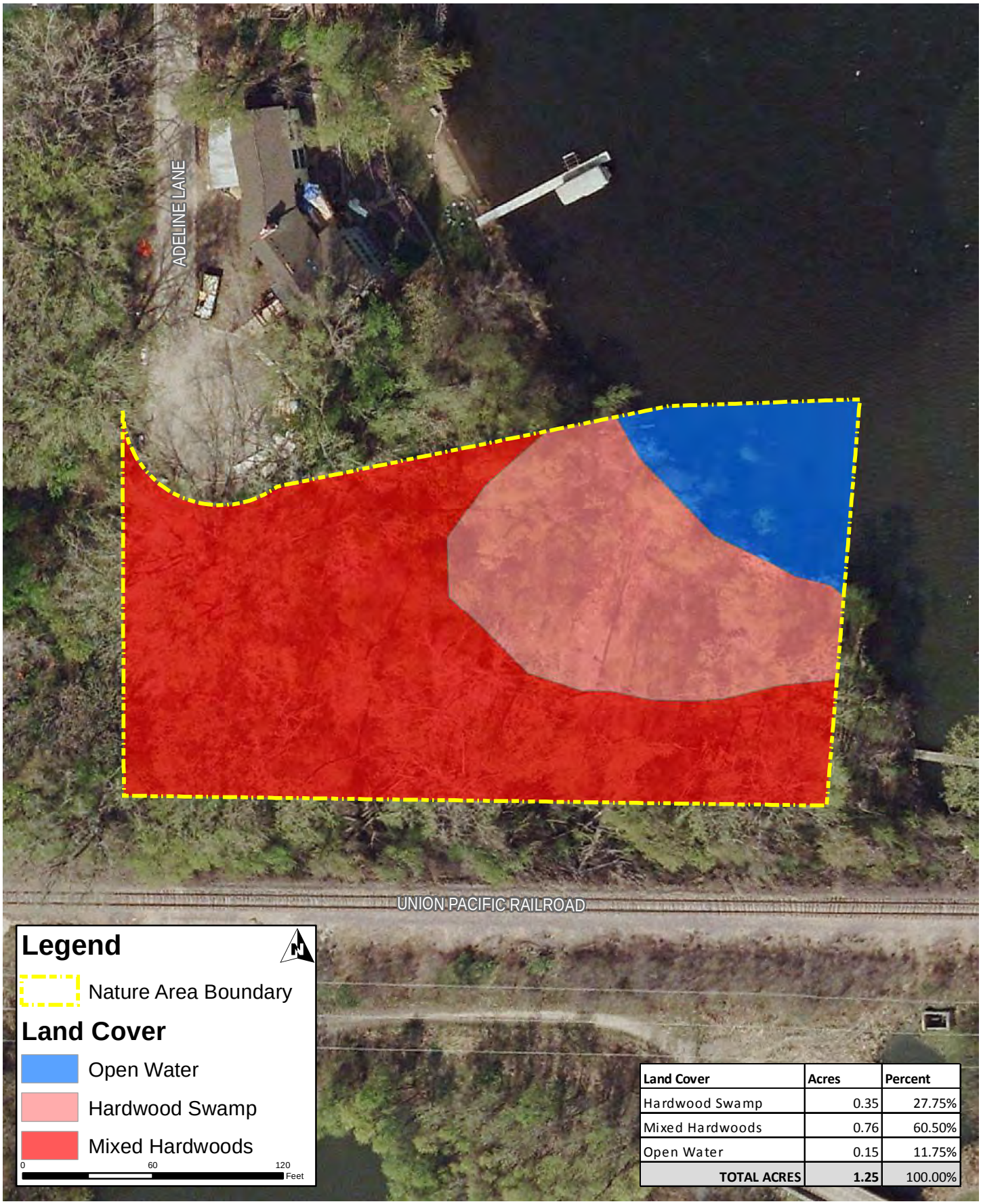
			limbs and shrubs				
Low	Amenity	Natural resources education; interpretive sign continuity throughout nature area system	Install interpretive sign	1	Each	*$3,000	$3,000
Low	Amenity	Trash/recyclable receptacle design continuity throughout nature area system	Install waste/ recycle trash receptacle at entry	1	Each	$2,000	$2,000
Low	Amenity/Trail Access	Access to Schaper Park	Install tunnel under the Union Pacific railroad tracks	1	LS		*$500,000
Low	Amenity		Install post and cable barrier		LS		

*Does not include design fees

Adeline Nature Area- 2012 Aerial

Golden Valley Natural Resources Management Plan

FIGURE 5.2



Land Cover	Acres	Percent
Hardwood Swamp	0.35	27.75%
Mixed Hardwoods	0.76	60.50%
Open Water	0.15	11.75%
TOTAL ACRES	**1.25**	100.00%

Adeline Nature Area- Land Cover
Golden Valley Natural Resources Management Plan

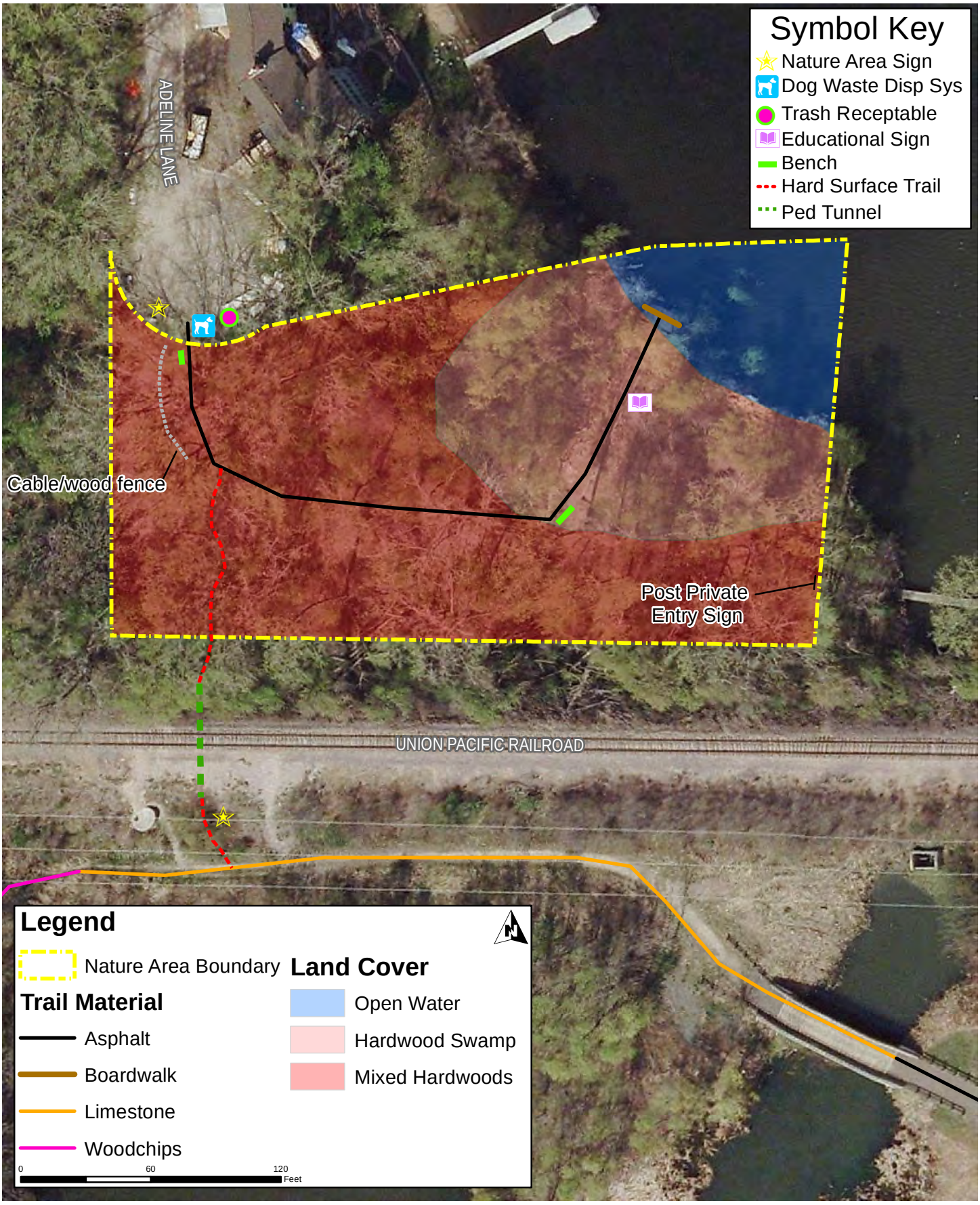
FIGURE 5.3

Adeline Nature Area- Invasive Species
Golden Valley Natural Resources Management Plan

FIGURE 5.4

Adeline Nature Area- Existing Amenities
Golden Valley Natural Resources Management Plan

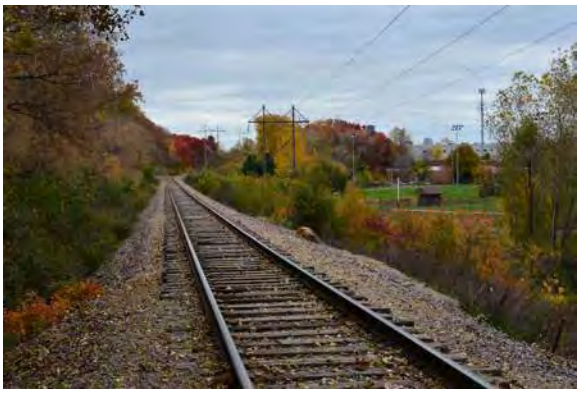
FIGURE 5.5



Adeline Nature Area- Concept Plan
Golden Valley Natural Resources Management Plan

FIGURE 5.6


NO
MOTOR
VEHICLES



Bassett Creek Nature Area

Location: 2130 Zane Avenue
Nature Area Size: 7.61 Acres

Description

Bassett Creek Nature Area is a medium sized nature area that is centrally located, and provides a great connection between neighborhoods and commercial areas. It is located between residential neighborhoods on the north end near Vale Crest Road and Zane Avenue, and commercial areas on the south end along Duluth Street. The west side of the park abuts residential homes, while the east side is adjacent to a Minnesota Department of Transportation truck station and an office building.

While the nature area is not considered large, it provides an important function by serving as a natural corridor along Bassett Creek, which is one of the primary features within the nature area. The adjacent uplands contain numerous specimen oak trees, and are a great example of the historic hardwood forests that were present in Golden Valley prior to settlement.

The Bassett Creek Nature Area is separated by Bassett Creek, which flows from south to north through the nature area. It is Bassett Creek Nature Area's primary feature. Much of the Bassett Creek shoreline has been stabilized for erosion control. A storm water pond is partially located within the park on the north side. This pond treats water from Vale Crest Road prior to discharge into Bassett Creek. Access at the north side of the nature area is from Vale Crest Road or Zane Avenue. From Duluth Street, the park can be entered through a single trail and stairway. At the top of the stairway, the trail splits into an upper and lower segment, which joins at the north side to make small loop. The lower trail segment provides several vantage points in close proximity of the creek. The upper trail takes a higher path along the wooded area, and has views of the nature area, but also runs along a fenced property line. A picnic area is present on the northwest side of the park, and contains regularly mowed lawn and a few park amenities including as waste receptacle, picnic table, and educational sign. Bassett Creek separates the picnic area from the rest of the Nature Area.

Forest and Woodlands

The majority of Bassett Creek Nature Area is wooded. Along Bassett Creek, the woods are floodplain forest, dominated by mature box elder, silver maple, green ash, and American elm

trees. The eastern half of the park is located in a natural bluff, which is dominated by several very old bur oak trees, and other native hardwoods. The top of the bluff area is sparser, but also contains about 50% cover of native and nonnative hardwoods. The western portion of the park contains a number of large oak trees, and may also be part of an oak savanna along the edge of the historic floodplain.

Buckthorn is prevalent along the bluff, and up to the edges of the creek, but is generally composed of younger individuals, and is at a relatively low density.

Aquatic Resources

Bassett Creek flows through the park, and is visible from numerous vantage points. The creek has been protected with a combination of stone and native vegetation to provide bank stability and erosion control. The channel also splits within the nature area to provide a small hardwood swamp island.

Wetlands

There is wetland along Bassett Creek, which is composed of a wooded swamp as part of the floodplain. The wetland floods during storm events, and is also near the water table, which assists in inhibiting buckthorn establishment. On the north side of the park, near the picnic area, there is an area that lacks trees and has developed into a shrub swamp. This is a moderate quality area for the composition of the vegetation, but it provides for diversity in habitat, and the dense shrubs protect the banks and slow down flows during flood events.

Prairie and Grassland

In addition to the wooded portions of the park, there are areas of prairie on the north side, associated with the creek and a berm around the storm water pond. The areas were planted recently and are currently being managed and maintained by a native landscaping company to ensure their success.

The eastern portion of the park, at the top of the bluff, contains approximately 50% cover by mixed grassland species, approximately half is composed of native species.

Invasive Species

Within the nature area, the woods include a large percentage of common buckthorn, particularly on the slopes along Bassett Creek. Buckthorn density has increased since the 2004 inventory.

Reed canary grass is also present along the creek, but is mixed with native species, and is limited due to shading from large trees and shrubs.

Table 5.3 Invasive Species Cover Percent Change 2003-2013			
Description	%Cover2003	% Cover 2013	% Change
Common Buckthorn	30	50	+20

Site Recommendations

Natural Resources

Manage buckthorn (high priority)

Buckthorn is prevalent along the east bank of the creek and within the wooded areas. It is a relatively young age of buckthorn, but numerous small individuals are present. The native understory remains present, which provides an opportunity for both management of buckthorn, and encouragement of a native assemblage which is discourage buckthorn establishment.

Enhance the hardwood uplands (medium priority)

The wooded slope between the two trail levels contains numerous mature oak trees, and some younger desirable hardwoods. In conjunction with buckthorn removal, the hardwood uplands could be enhanced through selective removal and reestablishment of more desirable species. Currently, there is insufficient age structure to allow replacement of the largest trees when they die of natural causes. A balanced age class would ensure that this high quality wooded area remains healthy.

Stabilize erosion along bluff (Medium Priority)

Stormwater runoff and erosion along the wooded bluffs in the Nature Area have formed several small channels, some of which have been stabilized through placement of concrete. These areas can be stabilized by diverting the concentrated flows that are causing the erosion, and reestablishing and revegetating the slopes, which will also improve the visual appeal.

Reestablish oak savanna (low priority)

The southeast portion of the park, near the upper trail, contains an area that is a mixture of grassland and small hardwood trees. Several bur oak trees are present, but most of the trees

are of lesser quality. It is possible to remove some of the undesirable trees, and establish an area of prairie with fewer oak trees, and manage a small area of oak savanna.

Amenities

Install entry signs (high priority)
Bassett Creek Nature Area has no entry signs. Signs should be installed at each of the main entrances using approved style type. This would be particularly beneficial on the south side, as Duluth Street provides high visibility, even if access is limited.

Install pet waste disposal system (high priority)
Bassett Creek Nature Area should include waste disposal systems for their dogs; one at each main entry. This not only keeps the park clean and attractive but it helps to maintain the water quality of Bassett Creek.

Improve physical access (high priority)
One of the primary deficiencies of the Bassett Creek Nature Area is that it is not easily accessible from one side of Bassett Creek to the other and has an existing trail system that may limit use by people with disabilities. The trail system should be improved to allow greater user access. This may include rerouting the lower trail to avoid having to use the steep stairs, and allow greater opportunity to access the creek and the Nature Area. The City should continue to work with MnDOT to improve drainage and runoff into the Nature Area.

Improve visual access (high priority)
Another deficiency of the Bassett Creek Nature Area is that it is visible from only a few public areas, and is potentially overlooked due to lack of recognition that the area is there and public use in encouraged. More formal trailheads on the north side both from Zane Avenue and Vale Crest Road and from Duluth Street on the south side would help to make the nature area more visible. This can be done by installing entry signs and other trailhead amenities (See specific amenity options above.)

Upgrade bench (medium priority)
The bench within the nature area on the Duluth side of the nature area is functional but worn and should be replaced. An additional bench should be installed on the north side. Both should adhere with an approved bench style for nature areas. This would provide visual continuity

within the nature area system and also strengthen user distinction that Bassett Creek is a nature area versus a recreational park.

Install trash/recyclable receptacle (medium priority)

The trash receptacle is one of the first amenities viewed upon entering the nature area. As such, it should not only provide maintenance functionality and efficiency but should also be attractive and reflect the image of the Bassett Creek Nature Area. They should be located within the nature area; one on the north side on Zane Ave North and the other at Vale Crest Road and one at the Duluth Street Entry.

Install interpretive sign (low)

There are opportunities to educate the user on a number of topics including wildlife habitat, water quality protection of Bassett Creek and buckthorn removal and native woodland restoration.

Table 5.4 Bassett Creek Nature Area Improvement Priorities

Priority (H, M, L)	Management Type	Description	Action	Qty	Unit	Unit Cost	Cost Opinion
High	Floodplain forest, and adjacent slopes	Mixed hardwoods	Remove/control buckthorn	5	Acre	$2,000	$10,000
Medium	Mixed hard woods, east side	Forest health, diversity	Remove undesirable trees, establish mixed age-class of oak trees	4	Acre	$2,500	$10,000
Medium	Erosion Control	Restore eroded slope	Regrade erosional channels along the bluff and address concrete fill	0.10	Acre	$20,000	$2,000
Low	Forestry	Restore native community	Reestablish oak savanna	4	Acre	$5,000	$20,000
High	Amenity	Entry sign design continuity through nature area system and make nature area more visible to the public	Install signs at entry points	3	Each	$5,000	$15,000
High	Amenity/Trail Access	Improve physical access	Formalize public use of trail across LOGIS				NA

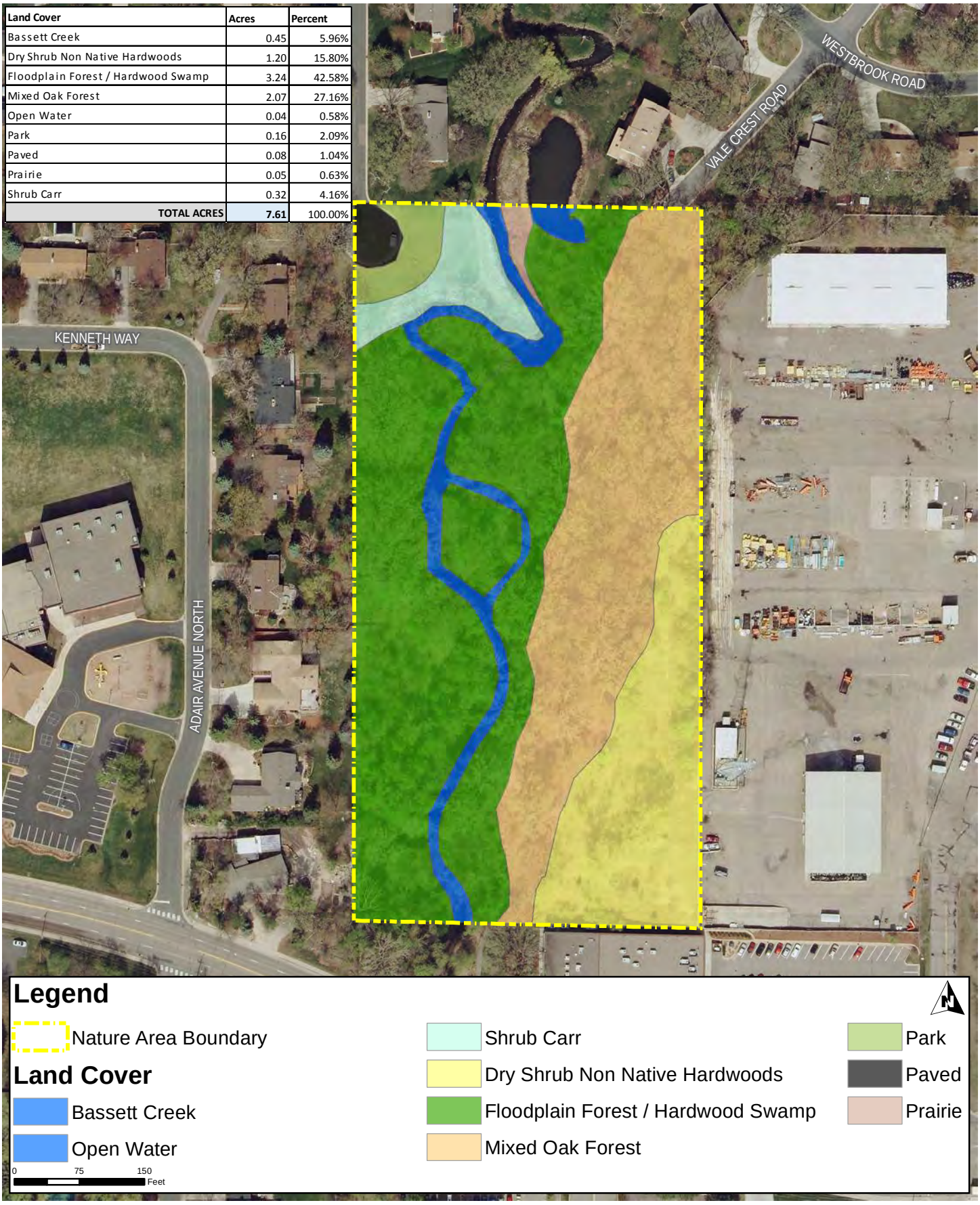
			property at Duluth St entrance through easement/agreement				
High	Amenity/Trail Access	Improve physical access	Reroute lower trail, consider pavement improvements	500	Linear Feet	$125	$70,000*
Medium	Amenity	Natural resources education; design continuity throughout nature area system	Install additional interpretive sign along the creek	1	Each	*$3,000	$3,000
Medium	Amenity	Bench design continuity throughout nature area system	Install new benches along the trail at appropriate intervals or at key viewpoints	4	Each	$1,500	$6,000
Medium	Amenity	Trash/recyclable receptacle design continuity throughout nature area system	Install waste/ recyclable trash receptacle at entries	3	Each	$2,000	$6,000
Medium	Amenity	Pet waste disposal system at key access point	Install new pet waste disposal system	3	Each	$600	$1,800

*Does not include design fees

Basset Creek Nature Area - 2012 Aerial
Golden Valley Natural Resources Management Plan

FIGURE 5.7

Land Cover	Acres	Percent
Bassett Creek	0.45	5.96%
Dry Shrub Non Native Hardwoods	1.20	15.80%
Floodplain Forest / Hardwood Swamp	3.24	42.58%
Mixed Oak Forest	2.07	27.16%
Open Water	0.04	0.58%
Park	0.16	2.09%
Paved	0.08	1.04%
Prairie	0.05	0.63%
Shrub Carr	0.32	4.16%
TOTAL ACRES	**7.61**	100.00%

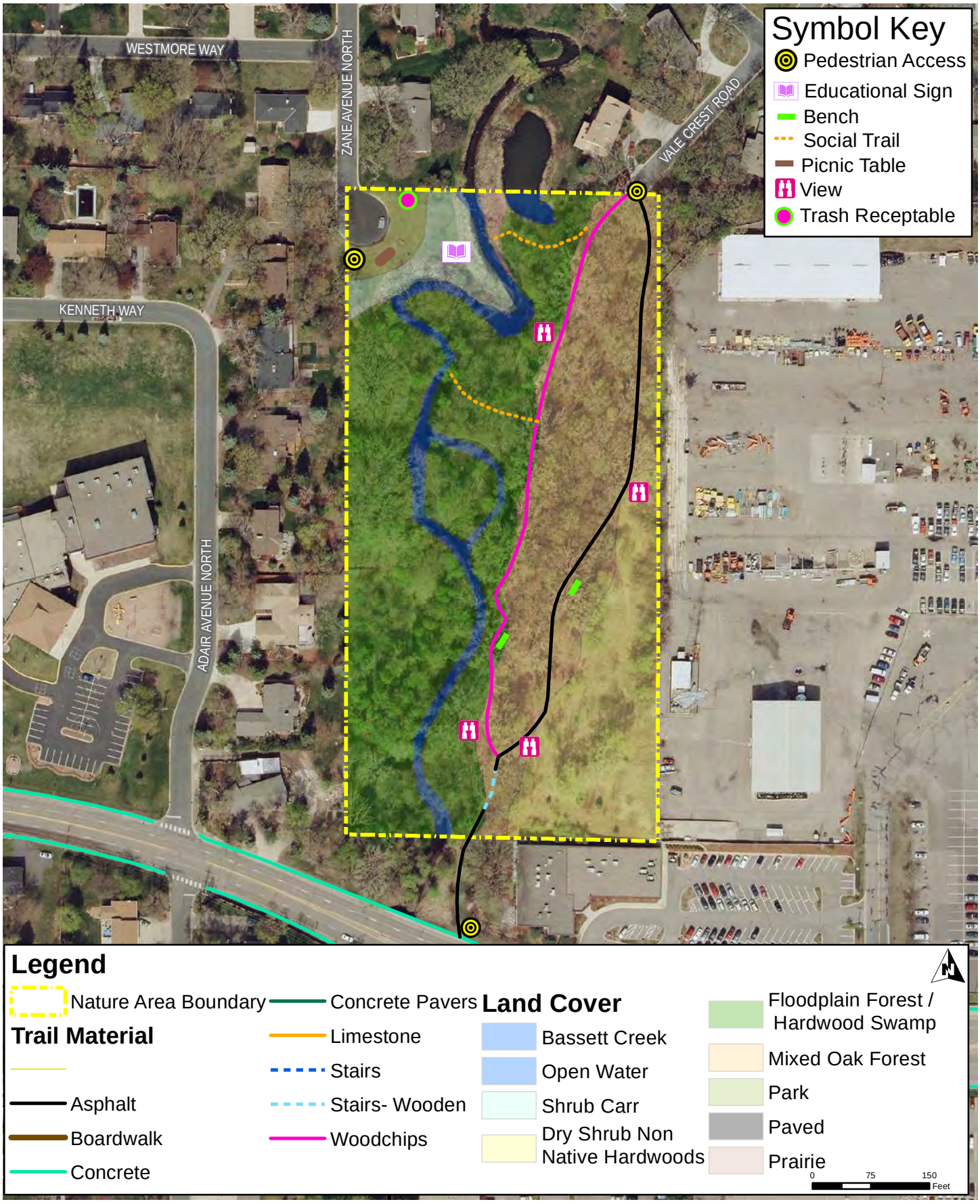


Basset Creek Nature Area - Land Cover
Golden Valley Natural Resources Management Plan

FIGURE 5.8

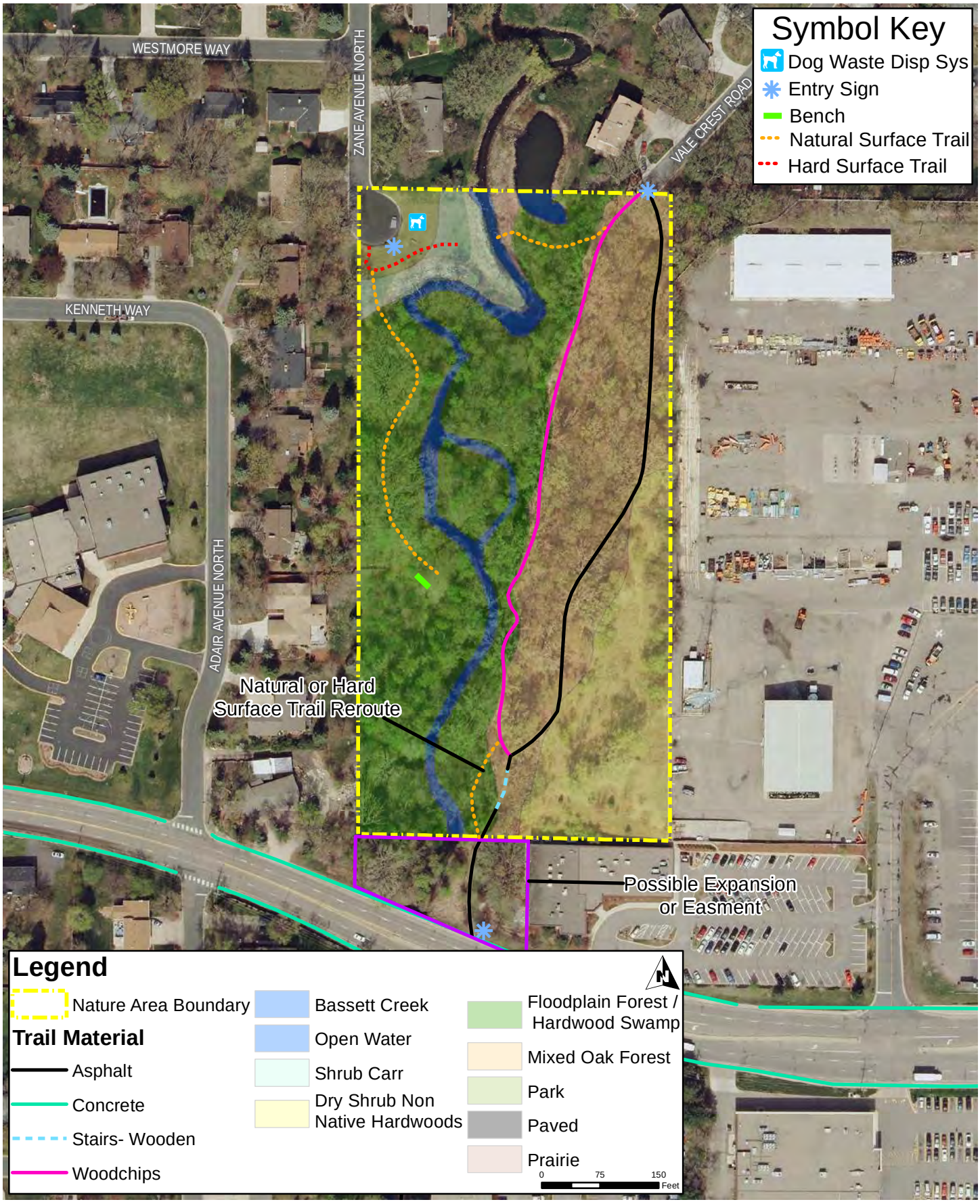
Basset Creek Nature Area - Invasive Speices
Golden Valley Natural Resources Management Plan

FIGURE 5.9



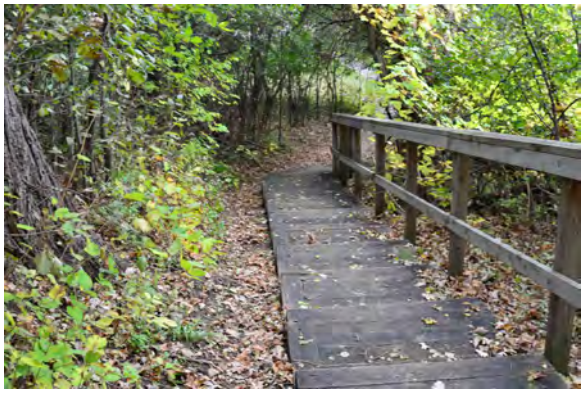
Bassett Creek Nature Area - Existing Amenities
Golden Valley Natural Resources Management Plan

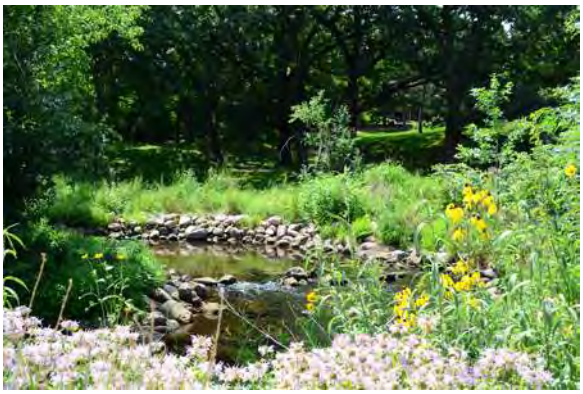
FIGURE 5.10

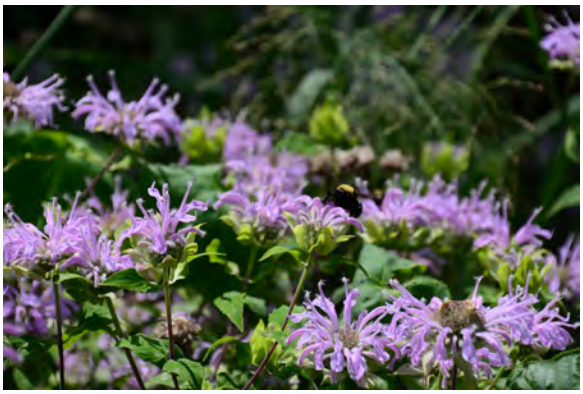


Bassett Creek Nature Area - Concept Plan
Golden Valley Natural Resources Management Plan

FIGURE 5.11







Briarwood Nature Area

Location: 2600 Unity Avenue North
Nature Area Size: 20.06 Acres

Description

Briarwood Nature Area is located within a residential neighborhood in the northernmost portion of the City. Bassett Creek runs along the west side of the nature area, and large portions of the site is floodplain and used for flood storage. There is a mix of coniferous and deciduous trees within the nature area. The terrain is relatively level for walking. City trails and social trails connect to the surrounding neighborhoods, particularly the multi-family residential area located on the southwest side.

Three storm water ponds are present within the nature area, and treat runoff from outside the nature area boundary. The ponds have been naturalized, which allows the primary function of water quality treatment to remain, but adds native vegetation as a buffer component.

Forest and Woodlands

Forest and woodland communities are present throughout the Briarwood Nature Area, and are a dominant land cover type. The woods on the northern portion of the site are a mixture of hardwood trees composed of green ash, box elder, maple, basswood, and oak. The trees are mixed ages, and are secondary growth. Buckthorn is very high density.

The far southern portion of the site contains a floodplain forest, which transitions to wetland as the area nears Bassett Creek. Hardwoods such as box elder and cottonwood are prevalent in this area.

Floodplain forest habitat is also present along Bassett Creek, including as assemblage of large cottonwood trees, mixed with American elm, green ash, and box elder. This appears to be a fragment of a historically larger community.

Wetlands

Wetland are present in association with Bassett Creek, and include the previously described floodplain forest, and areas along the creek are wet meadow habitat. Reed canary grass is a dominant species within these wet meadow habitats.

Aquatic Resources

Bassett Creek flows through the Briarwood Nature Area and is the primary aquatic resource. Bank stabilization projects have been completed in this area, with portions of riprap and bioengineered banks present. Live dogwood stakes and willow wattles (bundles of willow shrubs anchored into the stream banks) have also been used to stabilize the banks, and establish rapid establishment of vegetation. A riffle section of the creek is present near the pedestrian bridge over the creek and the eastern entrance provides a very scenic view of these resources.

Prairie and Grassland

Native prairie is present around the storm water treatment ponds. The northwest storm water pond is located in a shadier area, and is subject to ongoing establishment. This is a MnDOT pond and is not part of the City's annual contract for native vegetation management. The pond located on the east side of the nature area is maintained by the City's native landscape contractor and is located in an open area with few trees, which is more conducive to prairie conditions and consequently the vegetation is more established.

Grassland is present within the southeast portion of the site, and is essentially overgrown field, not prairie.

Invasive Species

Invasive species are present within the Nature Area, and include both upland and wetland habitats. Buckthorn is the primary species of concern, and some control has been attempted within the nature area previously. Buckthorn density is very high in the northern third of the nature area, where buckthorn is so dense it is difficult to even access the area. Buckthorn density decreases as you go south, and as it gets wetter, is general not a concern. Buckthorn density is light under the hardwood trees in the south, and effective control may be able to keep them at low density, although a 10% increase has been observed since the 2003 inventory.

Reed canary grass is dominant within the wet meadow habitats along Bassett Creek, and with the creek regularly supplying new seeds, it is unlikely that this area will be controlled without extensive and diligent management.

Table 5.5 Invasive Species Cover Percent Change 2003-2013

Description	%Cover2003	% Cover 2013	% Change
Common Buckthorn – NE woods	60	85	+25
Common Buckthorn – Central floodplain forest	60	50	-10
Common Buckthorn – Southern woods	30	40	+10

Site Recommendations

The Briarwood Nature Area contains a variety of habitats, and a number of recommendations can be made to improve the ecological health of this area.

Natural Resources

Manage buckthorn (high priority)

Buckthorn is present within the Nature Area, and some areas have the greatest density within the City. Removal of buckthorn within the park would be a significant undertaking, but would transform this area if it could be controlled.

Maintain high quality wetland buffer and native prairie (high priority)

Exiting buffer around the storm water ponds should be maintained. Prairie can be expanded upon by extending the prairie around the southern pond to the south and east and doubling the area of prairie within the nature area.

Enhance the wooded upland and floodplain forests (medium priority)
The floodplain forest and upland woods contain many mature species, including some of the oldest trees within the City. The health of the woods would be enhanced if some of the box elder were removed and replace with a diverse assemblage of native tree species.

Amenities

Install entry signs (high)
Briarwood Nature Area has one entry sign along Unity Avenue North. Signs should be installed at each of the main entrances, including the access off of Dawnview Terrace using approved style type.

Install pet waste disposal system (high)
Briarwood Nature Area should include waste disposal systems for their dogs; one at each main entry. This not only keeps the park clean and attractive but it helps to maintain the water quality of Bassett Creek.

Improve physical and visual access (high)
While there is easy access to the nature area, there could be additional access provided by formalizing public use of the trails by possibly obtaining a trail easement for connections on the southern end of the nature area off of Unity Avenue. Connection could also be made to the proposed Minnaqua Greenbelt to the south. Improve vantage points to observe Bassett Creek, and possibly identify canoe or kayak access to the creek.

Upgrade bench (medium)
The benches within the nature area are functional but when time comes to replace, they should adhere to an approved bench style for nature areas. This would provide visual continuity within the nature area system and also strengthen user distinction that Briarwood is a Nature Area.

Install educational sign (low)
Briarwood Nature Area has educational sign near Bassett Creek bridge that describes the creek bank restoration project. Additional signs may be added that discusses habitats and wildlife that can be found in the nature area along with trail distance.

Install interpretive sign (low)
In addition to the interpretive sign near the Bassett Creek pedestrian bridge. There are other opportunities to educate the user on a number of topics including wildlife habitat, buckthorn removal and native prairie and woodland restoration.

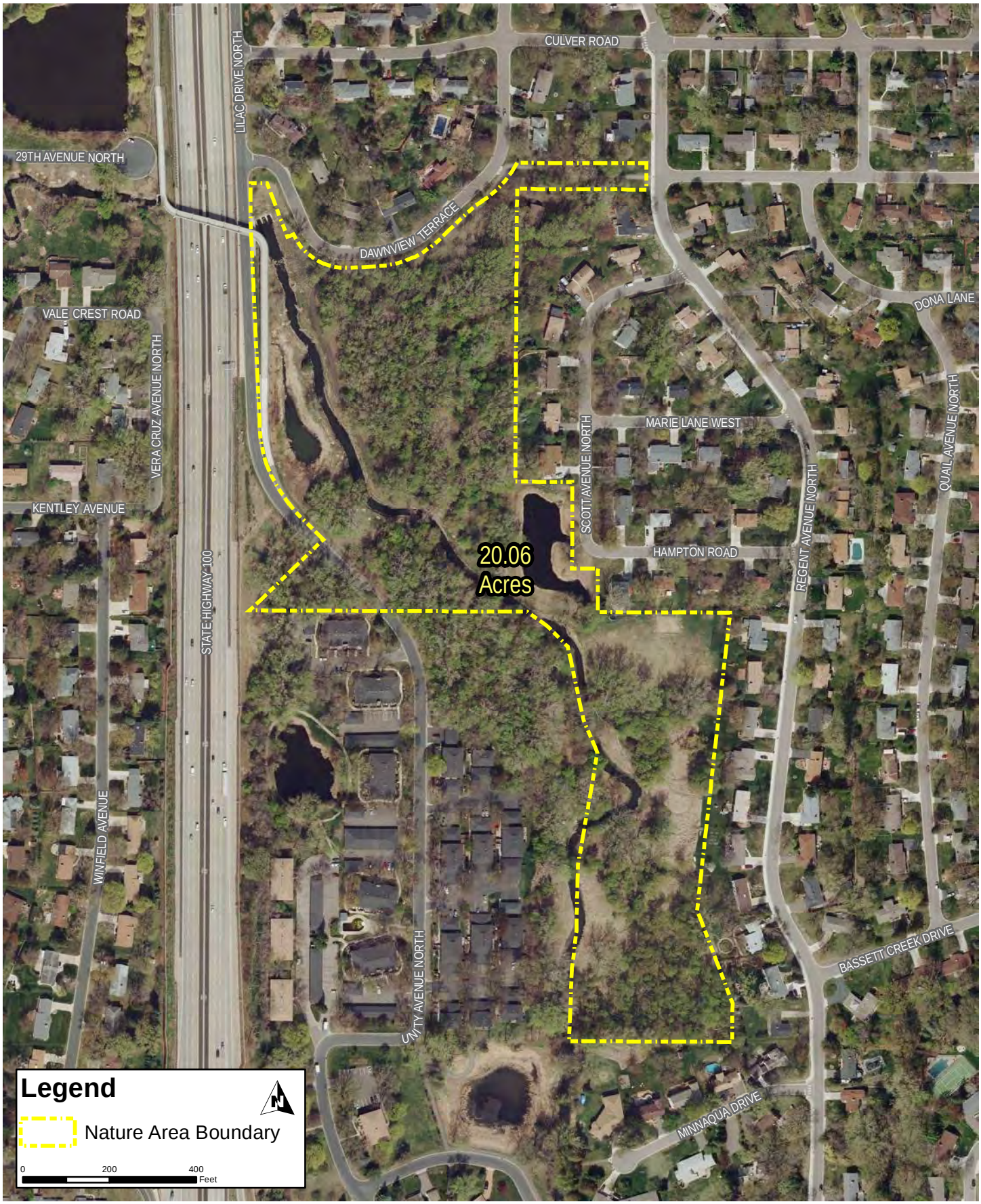
Upgrade trash Receptacle (low)

The trash receptacle is one of the first amenities viewed upon entering the nature area. As such, it should not only provide maintenance functionality and efficiency but should also be attractive and reflect the image of the Briarwood Nature Area. Three should be located within the park; one on the north side on Unity Avenue on north central side of nature area, one on the southern side off of Unity Avenue and the other at Dawnview Terrace.

Table 5.6 Briarwood Nature Area Improvement Priorities

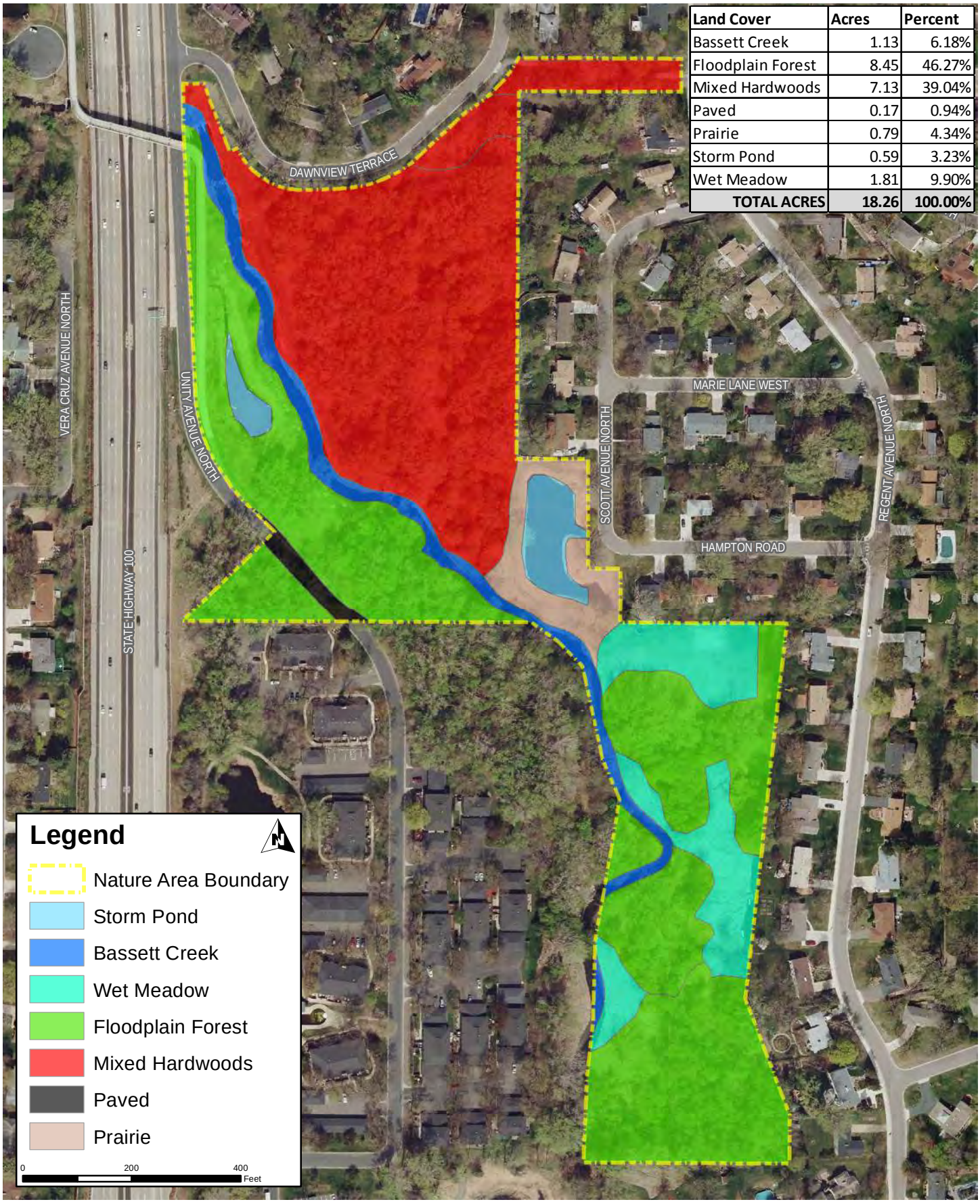
Priority	Management Type	Description	Action	Qty	Unit	Unit Cost	Cost Opinion
High	Upland woods	Buckthorn management	Remove buckthorn	12	Acre	$2,500	$30,000
Medium	Native prairie	High quality native prairie	Controlled burns, herbicide applications, periodic reseeding	5	Acre	$5.000	$25.000
Medium	Upland woods and floodplain forest	Forest health	Remove damaged trees, plant younger and more diverse trees	5	Acre	$2,000	$10,000
High	Amenity/Access	Physical access	Obtain easements or complete land exchange to formalize social trails as formal access points	1	Each	$10,000	$10,000
High	Amenity/Access	Physical access	Extend trail, pavement improvements	750	LF	125	$95,000
Medium	Amenity	Bench design continuity throughout nature area system	Install benches at regular intervals or at key viewpoints	4	Each	$1,500	$6,000
Low	Amenity	Trash/recyclable receptacle design throughout nature area system	Install waste/ recycle trash receptacle at entries	3	Each	$2,000	$6,000
High	Amenity	Entry sign design continuity throughout nature area system	Install sign at entries	3	Each	$5,000	$15,000
High	Amenity	Pet waste disposal system at key access point	Install pet waste disposal system at entries	3	Each	$600	$1,800
Low	Amenity	Natural resources education; design	Install additional interpretive signs	2	Each	*$3,000	$6,000

		continuity throughout nature area system	along trail				
Low	Amenity/Access	Physical access	Identify and construct canoe access				$5,000



Briarwood Nature Area - 2012 Aerial
Golden Valley Natural Resources Management Plan

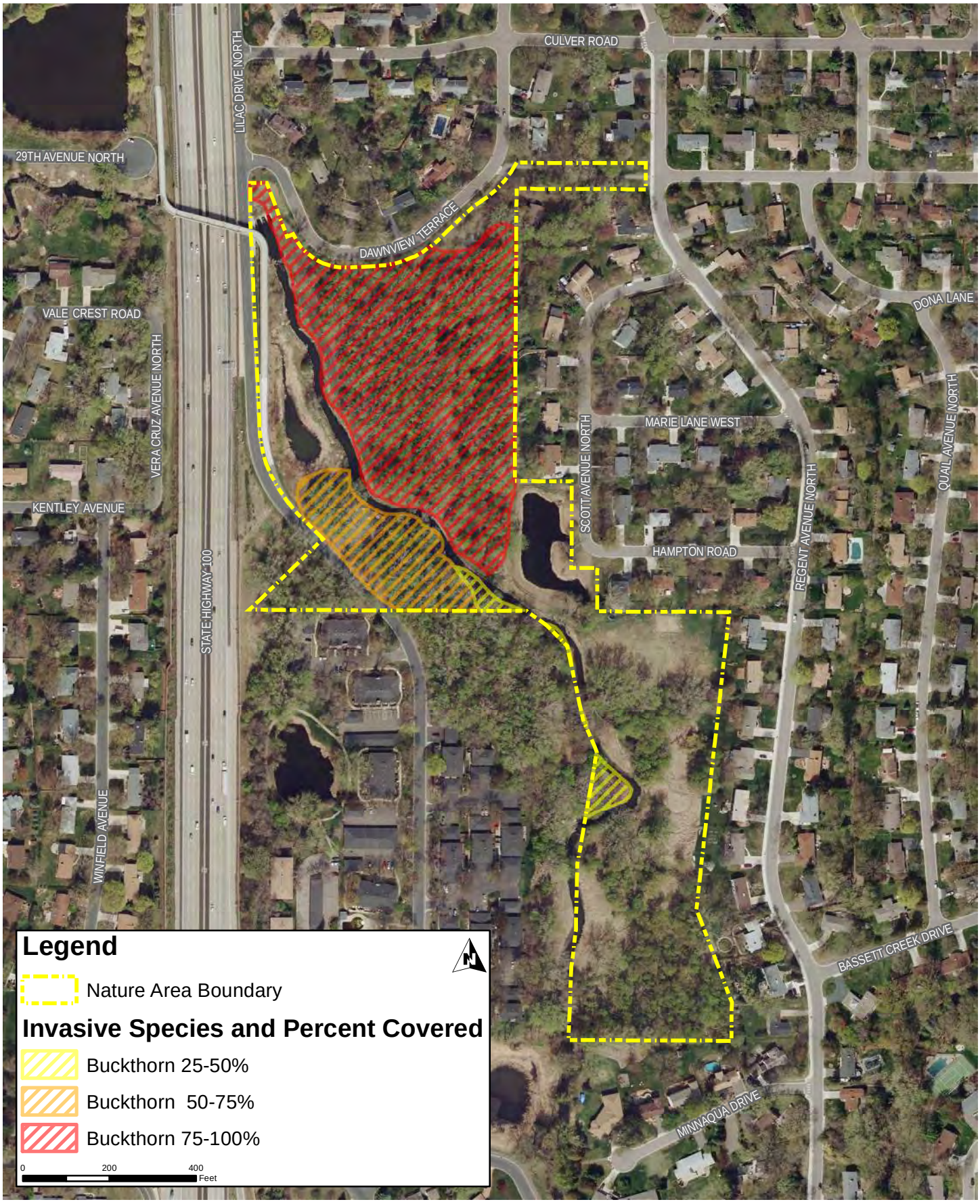
FIGURE 5.12



Land Cover	Acres	Percent
Bassett Creek	1.13	6.18%
Floodplain Forest	8.45	46.27%
Mixed Hardwoods	7.13	39.04%
Paved	0.17	0.94%
Prairie	0.79	4.34%
Storm Pond	0.59	3.23%
Wet Meadow	1.81	9.90%
TOTAL ACRES	**18.26**	**100.00%**

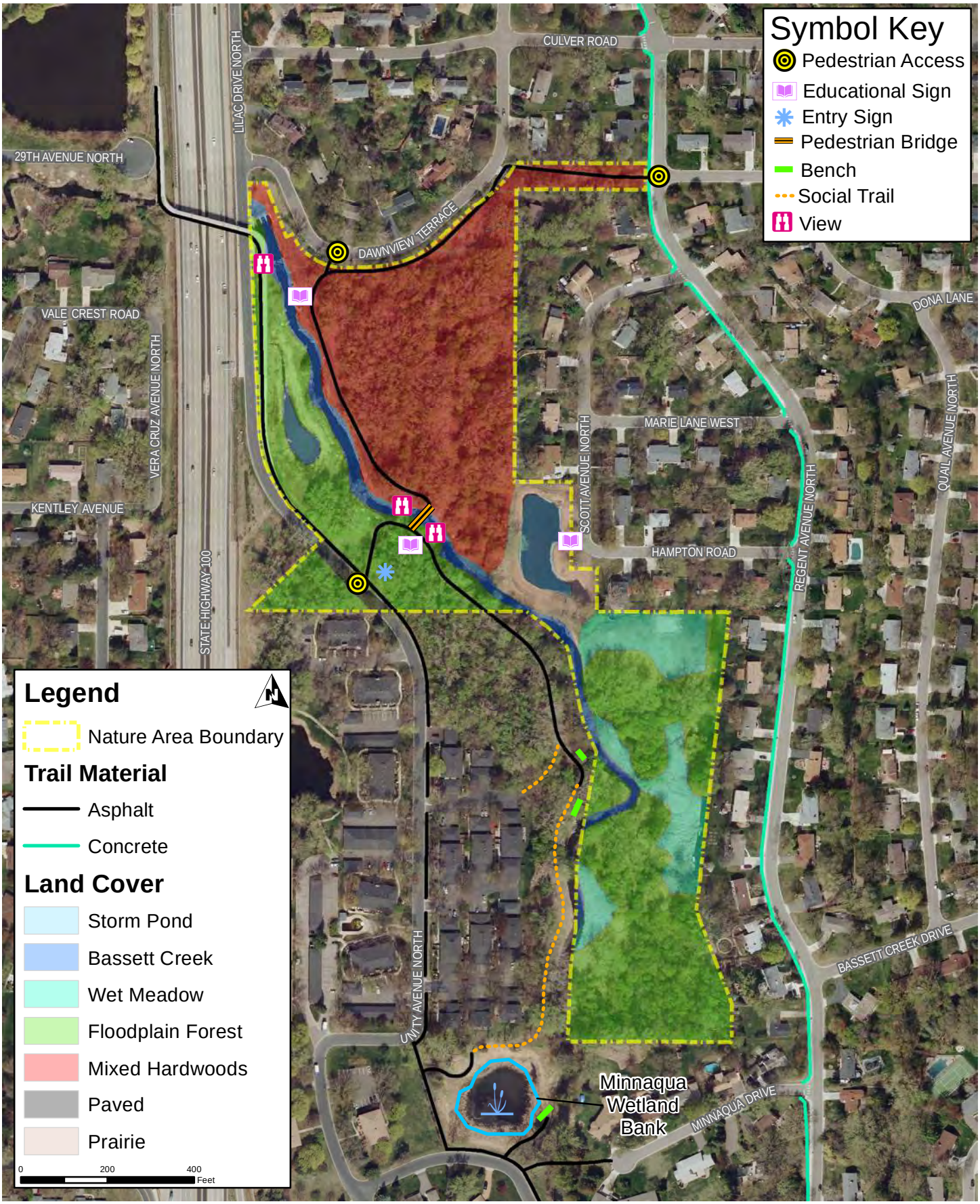
Briarwood Nature Area- Land Cover
Golden Valley Natural Resources Management Plan

FIGURE 5.13



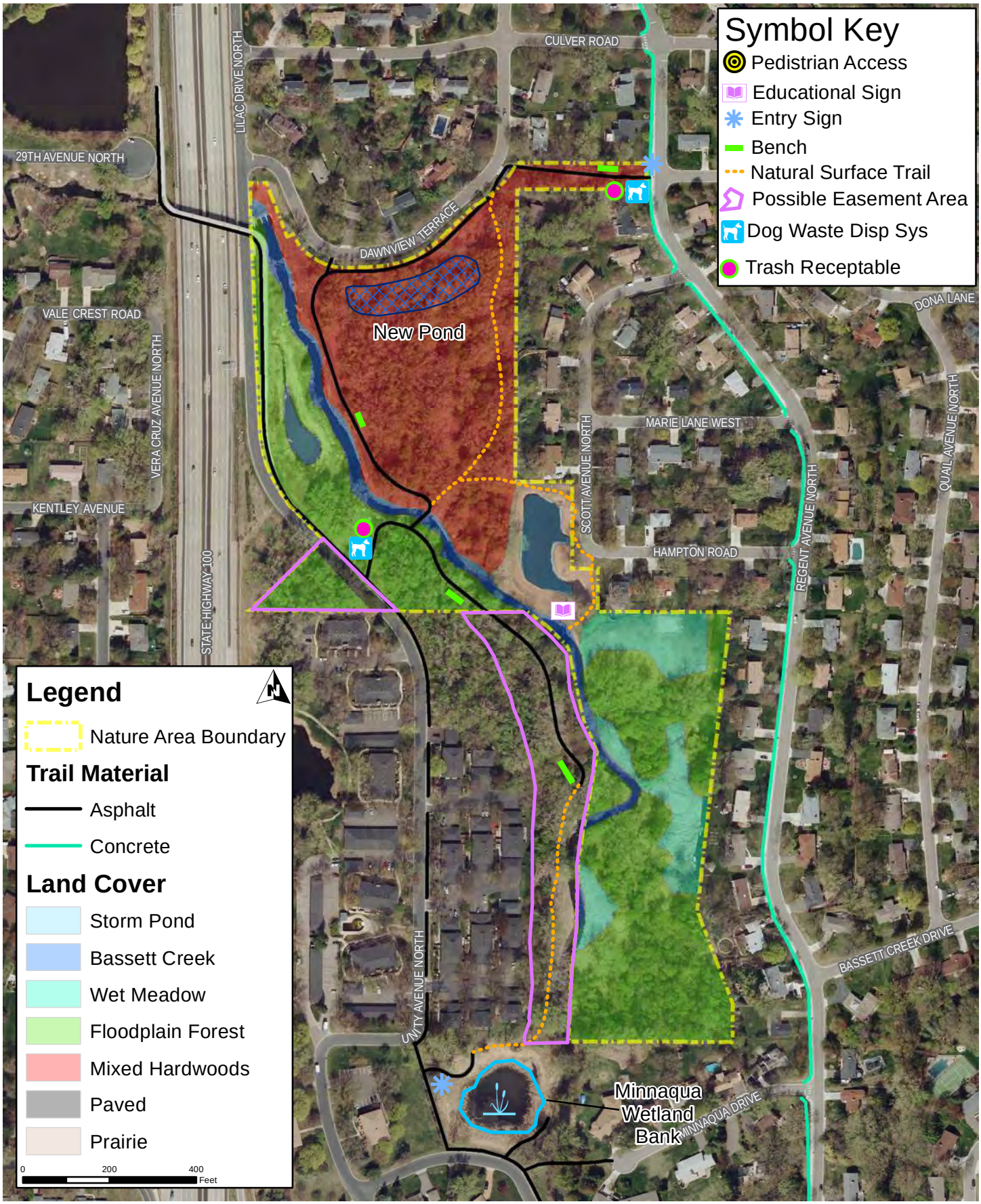
Briarwood Nature Area - Invasive Species
Golden Valley Natural Resources Management Plan

FIGURE 5.14



Briarwood Nature Areas - Existing Amenities
Golden Valley Natural Resources Management Plan

FIGURE 5.15



Briarwood Nature Areas - Concept Plan
Golden Valley Natural Resources Management Plan

FIGURE 5.16


BRIARWOOD
NATURE AREA


BRIARWOOD
NATURE AREA
GOLDEN
VALLEY


Bassett Creek Restoration

General Mills Nature Preserve

Location: 9201 Olson Memorial Highway, 8900 Betty Crocker Drive

Nature Area Size: 26.64 Acres

Description

General Mills Nature Preserve is located on the southwestern corner of the city east of Highway 169 and north of Betty Crocker Drive. Access is from both Betty Crocker Drive and Olson Memorial Highway South Frontage Road. A looped trail system exists within the nature preserve. The preserve is a mix of manicured parkland, upland buffer composed of native prairie, and wetland. The wetland portion is restored wetland, which has been enrolled as a wetland bank for the City of Golden Valley. Bassett Creek runs along the south side of the preserve.

Forest and Woodlands

Forest and woodland communities are present in two areas within the Preserve. The primary wooded portion lies along Bassett Creek, and is composed of floodplain forest. This is composed of mature trees including box elder, silver maple, basswood, and oaks. This is likely a mixture of remnant trees that were along the creek prior to development, and those that have grown in the last 50 years. The second area is located in the northeast portion of the Preserve, which is composed of mixed upland hardwoods, including several basswood and oak trees.

Wetlands

The Preserve is centered on a created wetland, which is composed of cattail-dominated shallow marsh. A wet meadow fringe is also present, although it has an abundance of reed canary grass. Floodplain forest is present along Bassett Creek for the entire length through the Preserve.

Aquatic Resources

Bassett Creek flows through the Preserve, and is present along the entire southern boundary. This portion of Bassett Creek has been historically ditched and straightened, but retains a small naturalized floodplain. Two bridges cross Bassett Creek, and are part of the trail system that passes though the Preserve.

Wetlands

Wetland is the dominate feature of the General Mills Nature Preserve, as the site was designated a wetland bank. The majority of the wetland is composed of shallow marsh, which is dominated by cattails and shallow open water. A wide emergent wetland fringe is also present, which includes a mixture of native species, but is dominated by reed canary grass. The wetlands are large, and dominate the site. They also connect to Bassett Creek floodplain, and provide for additional flood storage. The existing floodplain is likely smaller than was historically present, but remains an important resource.

Prairie and Grassland

The entire north side of the Preserve is composed of a native buffer that was established during the wetland creation, and is part of the wetland bank. The buffer is dominated by native prairie, which has been maintained to be a high quality grassland. Several spruce trees have been planted within the buffer for aesthetic purposes. A trail system crosses through the prairie.

Invasive Species

Invasive species are present within the preserve, and are primarily wetland related. Reed canary grass is a primary invasive species of concern, as it has the potential to spread and dominate the site. Control is difficult, as periodic flooding will continuously bring new seed into the site. Buckthorn is present, and is a potential concern within the wooded portions of the preserve. Buckthorn control is possible if adjacent properties are also managed.

Table 5.7 Invasive Species Cover Percent Change 2003-2013

Description	%Cover2003	% Cover 2013	% Change
Common Buckthorn – Along Bassett Creek	70	50	-20
Reed Canary Grass – Wet Meadow	100	100	No change

Site Recommendations

Natural Resources

Because the majority of the Preserve is composed of a wetland bank, or associated with Bassett Creek, there are several requirements already in place to protect these resources and maintain a minimal level of vegetative quality. The primary recommendation is to maintain the quality of the wetland bank, in part because that is a requirement of the crediting, and the deed of restrictions and covenants already placed upon the property.

Maintain high quality wetland bank (high priority)
The wetland within the preserve is required to be dominated by native species, and periodically the site will require control of invasive species, and encouragement of native species to prosper.

Maintain high quality wetland buffer and native prairie (high priority)
In establishing the upland buffer, and high quality native prairie has been created along the north side of the site. Maintenance should be continued to ensure that this area remains high quality.

Enhance the wooded upland and floodplain forests (medium)
The floodplain forest and upland woods contain many mature species, including some of the oldest trees within the City. The health of the woods would be enhanced if younger trees could be planted to offset the eventual loss of some of the older trees.

Manage buckthorn (low priority)
Buckthorn is present within the preserve, but is localized. Management of buckthorn would require management on adjacent properties in order to be effective.

Amenities

Little needs to be done with the amenities in the nature preserve at this time; they tend to be functional and in good condition. Entry boulder signs are used at the two main access points to the nature area. These could remain as unique features as this is the only Nature Preserve in Golden Valley. The City may want to evaluate the condition of the benches, signs and other amenities as they wear and replace according to City approved Sign and Amenity Design Guidelines recommended earlier in this section.

Improve physical access (high)
The eastern leg of the loop trail is located on adjacent private property, but has been utilized by the public for years. Discussions should occur that lead to formalizing this arrangement through easement or agreement.

Install pet waste disposal system (high)

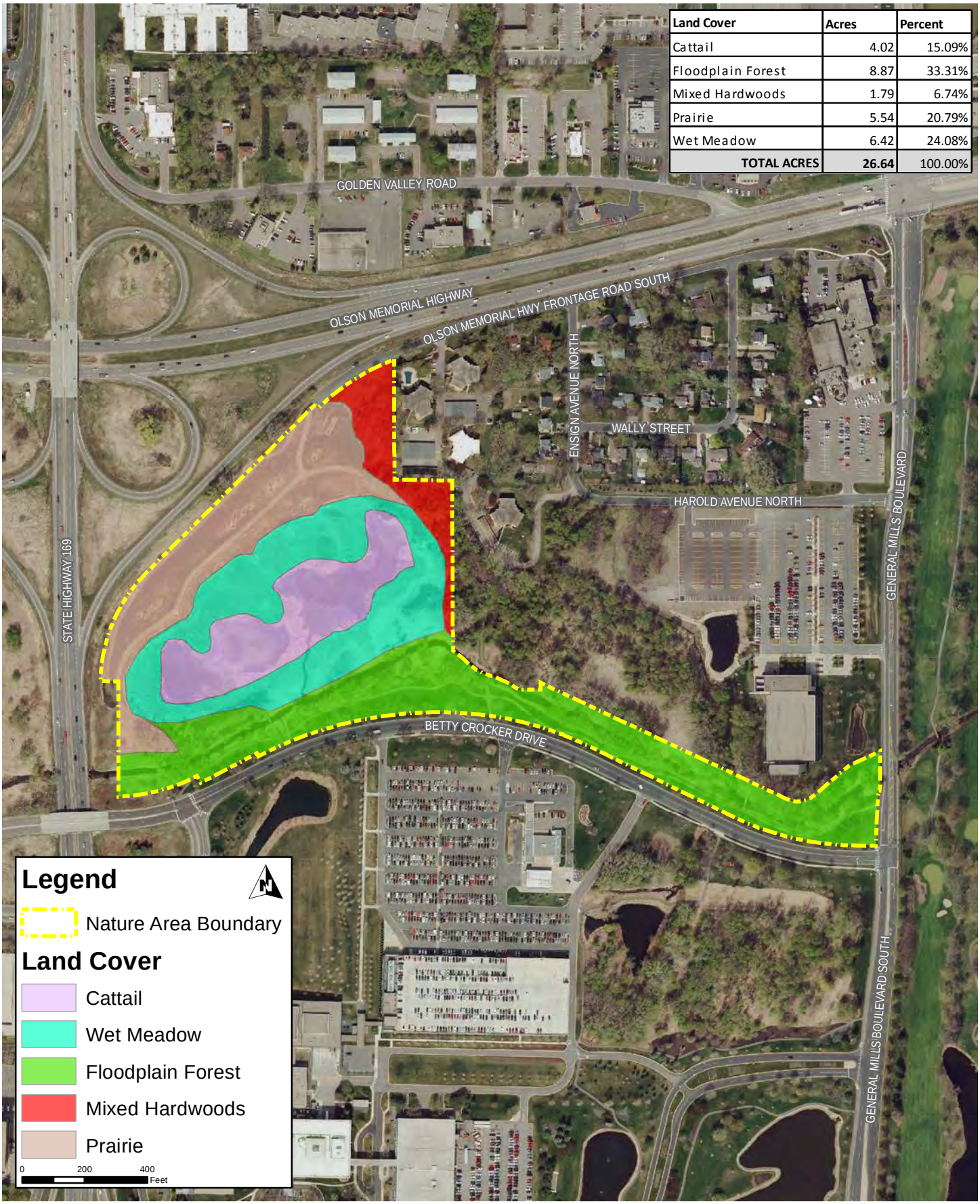
General Mills Nature Preserve should include waste disposal systems for dogs; one at each main entry. This not only keeps the park clean and attractive but it helps to maintain the water quality of Bassett Creek.

Table 5.8 General Mills Nature Preserve Improvement Priorities

Priority (H, M, L)	Management Type/Area	Description	Action	Qty	Unit	Unit Cost	Cost Opinion
High	Wetland bank	Shallow and emergent marsh	Reed canary grass control	20	Acre	$1,750	$35,000
High	Upland buffer	Maintain high quality native prairie	Controlled burns, herbicide applications, periodic reseeding	6	Acre	$3,500	$21,000
Low	Upland woods	Manage buckthorn	Remove buckthorn	3	Acre	$3,500	$10,500
Low	Upland woods and floodplain forest	Encourage forest health	Remove damaged trees, plant younger and more diverse trees	5	Acre	$2,000	$10,000
High	Amenity	Improve physical access	Explore formalizing agreement or easement for public trail use with adjacent owner				N/A
High	Amenity	Provide dog walkers with pet waste disposal system at key access point	Install new pet waste disposal system	2	Each	$600	$1,200
Low	Amenity	Maintain existing trail systems	Repair and replace trail system as part of regular maintenance	0.5	Miles	$10,000	$5,000

General Mills Nature Preserve - 2012 Aerial
Golden Valley Natural Resources Management Plan

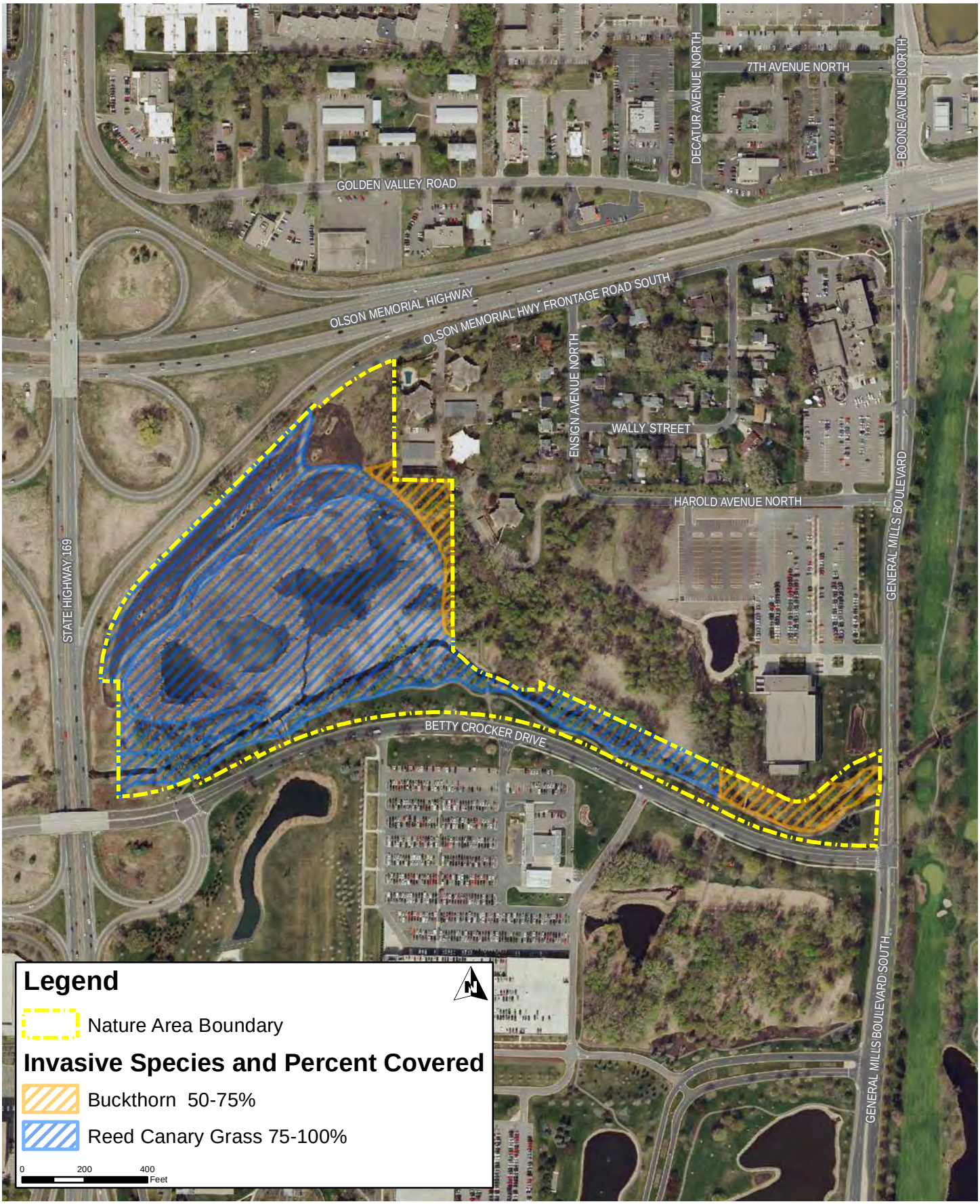
FIGURE 5.17



Land Cover	Acres	Percent
Cattail	4.02	15.09%
Floodplain Forest	8.87	33.31%
Mixed Hardwoods	1.79	6.74%
Prairie	5.54	20.79%
Wet Meadow	6.42	24.08%
TOTAL ACRES	**26.64**	100.00%

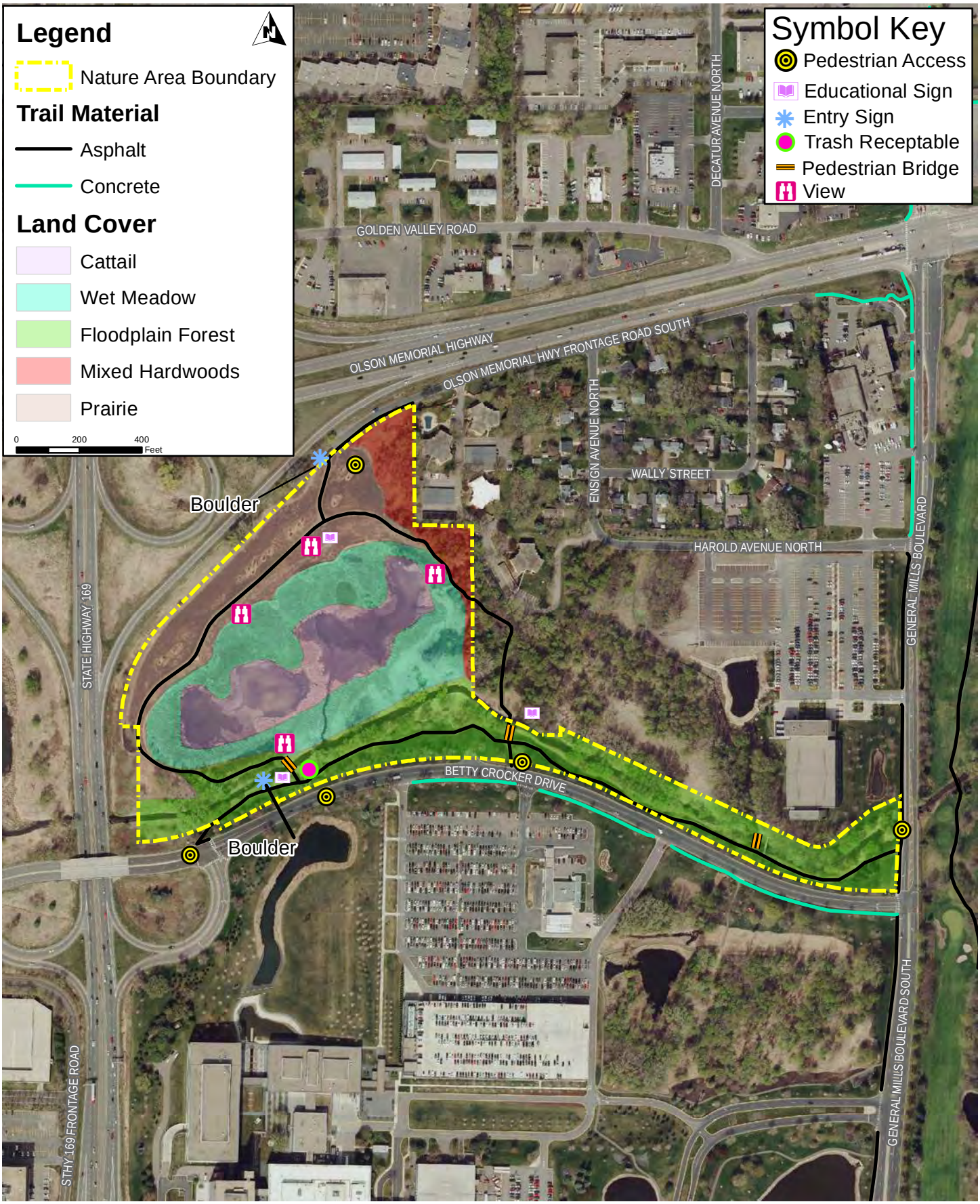
General Mills Nature Preserve- Land Cover
Golden Valley Natural Resources Management Plan

FIGURE 5.18



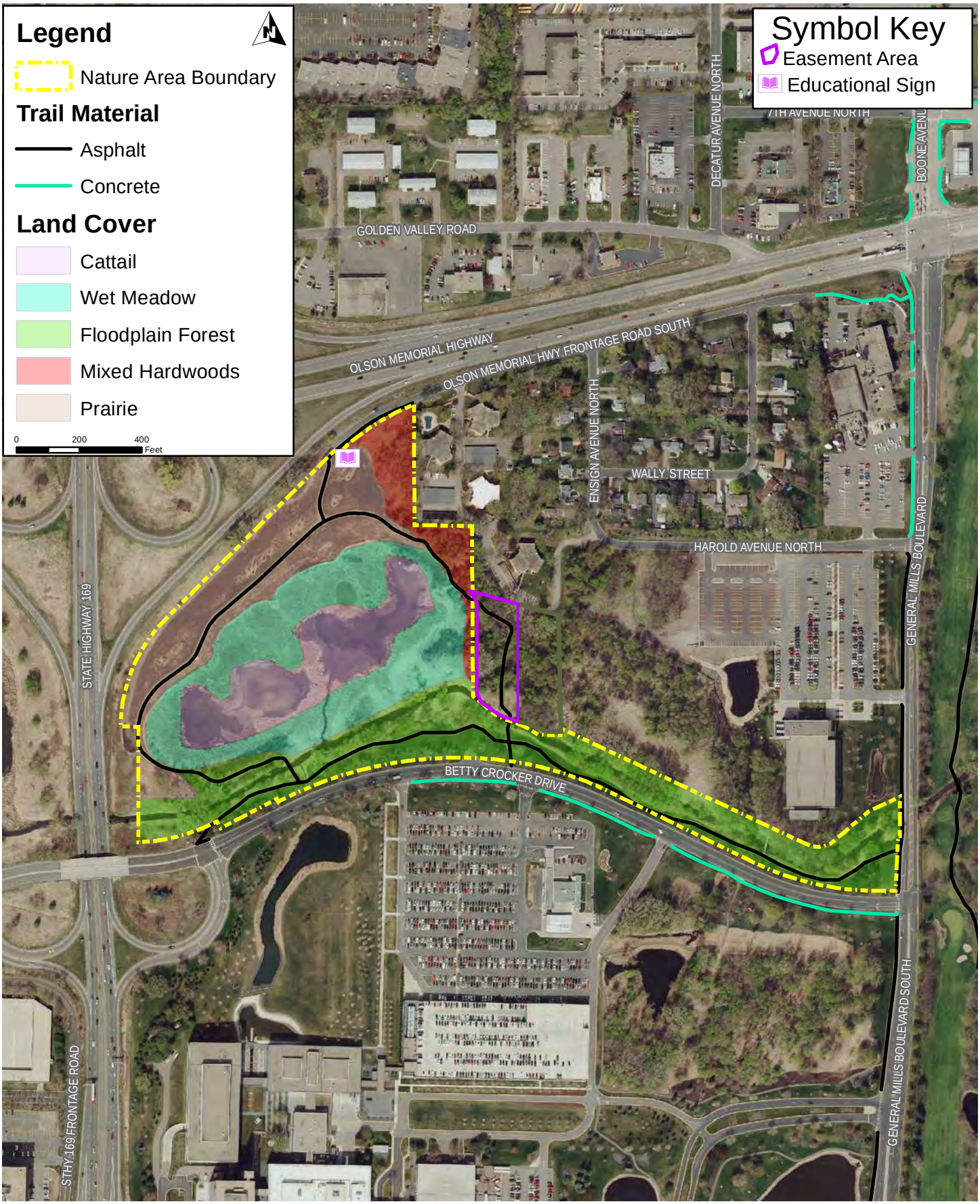
General Mills Nature Preserve- Invasive Species
Golden Valley Natural Resources Management Plan

FIGURE 5.19



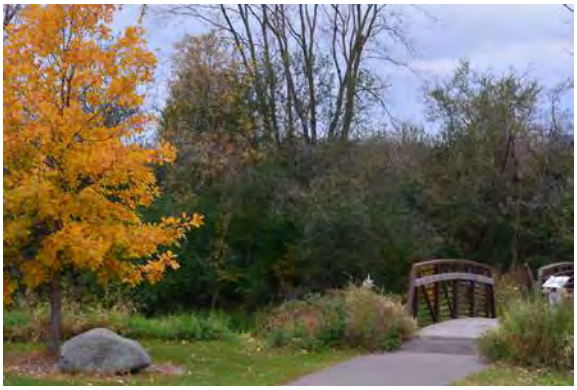
General Mills Nature Preserve- Existing Amenitites
Golden Valley Natural Resources Management Plan

FIGURE 5.20



General Mills Nature Preserve- Concept Plan
Golden Valley Natural Resources Management Plan

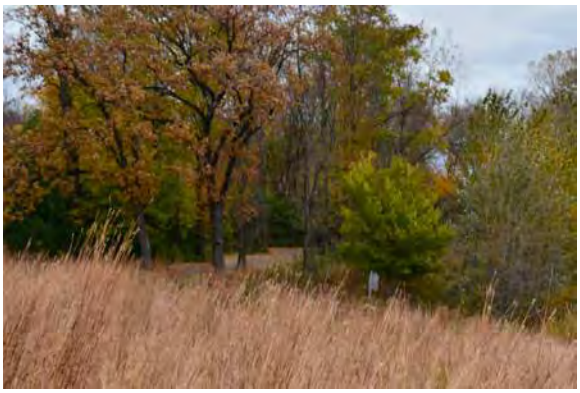
FIGURE 5.21




GENERAL MILLS
NATURE PRESERVE


WELCOME TO
GOLDEN VALLEY
PARKS


GENERAL MILLS
NATURE PRESERVE
19 acres donated by General Mills, Inc
to the City of Golden Valley
2004




SHORELINE PLANTING

Golden Ridge Nature Area

Location: Earl Street & Flag Avenue North

Nature Area Size: 2.51 Acres

Description

Golden Ridge Nature Area is located within a residential neighborhood on the northwest corner of Golden Valley with trail connections to General Mills Research Nature Area and adjacent neighborhoods. The nature area is relatively small, and contains mostly wooded habitats with a mix of deciduous trees and shrubs and coniferous trees. The landscape is rolling with upland and lowland areas.

Forest and Woodlands

The majority of the land cover at the Golden Ridge Nature Area is wooded. The majority of the trees are mixed hardwoods including aspen, green ash, box elder and a few oak trees. A band of white and red pine crosses through the nature area, and may be a remnant of a pine plantation.

Wetlands

No wetlands are present within the Golden Ridge Nature Area

Aquatic Resources

No aquatic resources are present within the Golden Ridge Nature Area

Prairie and Grassland

The southern entrance to the nature area contains some areas of overgrown non-native grasses, but there is no prairie present within the nature area.

Invasive Species

Buckthorn density is very high within the wooded portion of the nature area, and has doubled in density over the past 10 years. It is now greater than half of the land cover, and will likely continue to expand in density if left uncontrolled.

Table 5.9 Invasive Species Cover Percent Change 2003-2013			
Description	%Cover2003	% Cover 2013	% Change
Common Buckthorn	30	60	+30

Site Recommendations

Natural Resources

Manage buckthorn (high)
Buckthorn is present within the nature area, and some areas are of the greatest density within the City. Removal of buckthorn within the park would be a significant undertaking, but would transform this area if it could be controlled.

Manage and enhance forest and woodlands (medium)
Continue to manage and enhance the woodlands by removing undesirable species and planting new trees, including the proliferation of the unique area of mixed pines.

Amenities

Install entry signs (high)
Golden Ridge Nature Area has no entry signs. Signs should be at least installed at each of the main entrances, including the access off of Earl Street and Flag Avenue North using approved style type.

Install pet waste disposal system (high)
Golden Ridge Nature Area should include waste disposal systems for their dogs; one at each main entry. This keeps the nature area clean, healthy and attractive.

Expand Nature Area (medium)
Explore the opportunity to expand the Nature Area through agreement or easement on adjacent Hennepin County property, and through the dedication of land or perpetual easement from General Mills, as opportunities arise or development occurs.

Install bench (medium)
There are no benches located within the nature area. Installing two benches along each of the main trail segments within the park would provide the trail user with a place to rest or simply enjoy the natural surroundings.

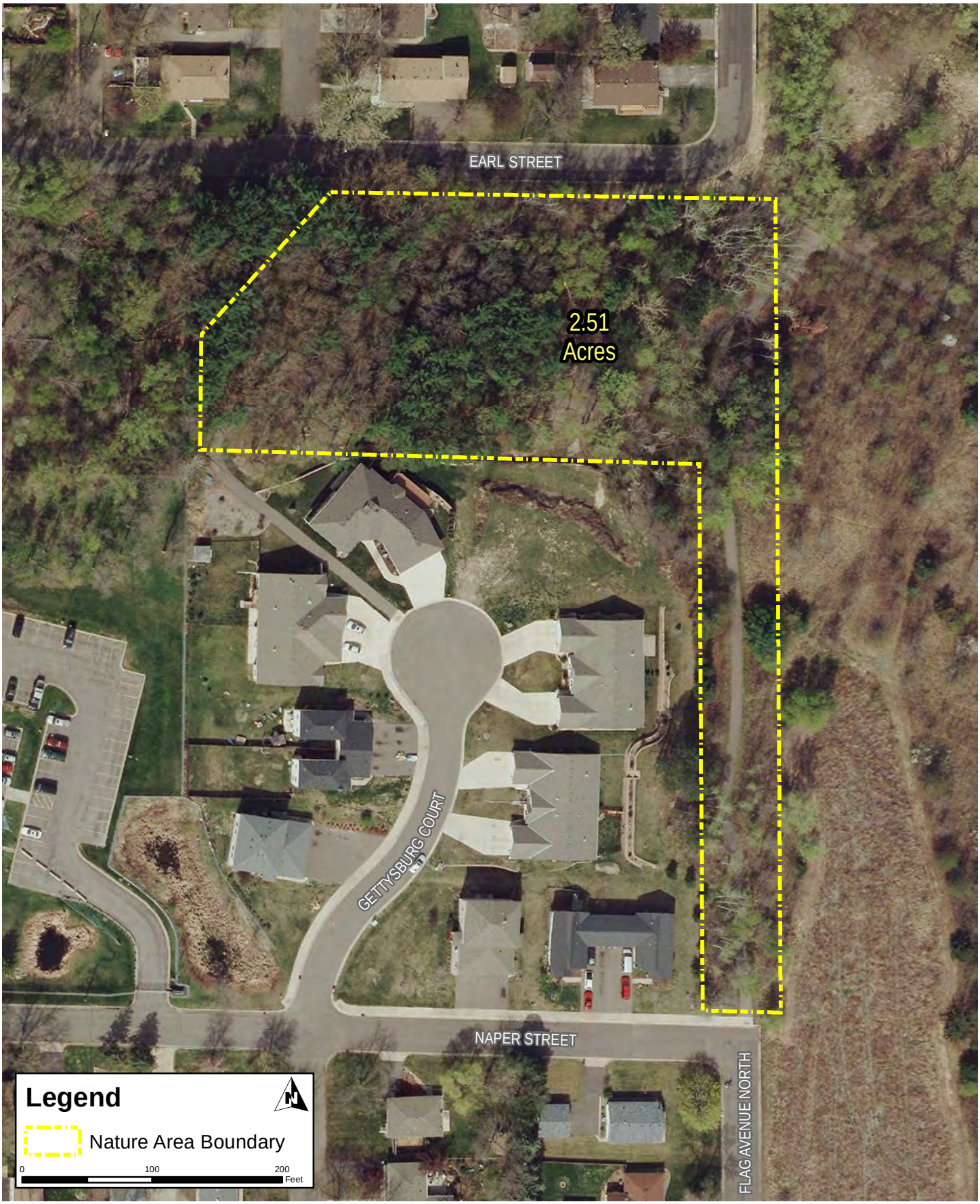
Install interpretive sign (low)
Golden Ridge Nature Area is unique in that it has a planted stand of mixed pines in the heart of the site. Providing an interpretive sign near the stand would provide the user with an interesting history of the site.

Upgrade trash Receptacle (low)

The trash receptacle is one of the first amenities viewed upon entering the nature area. As such, it should not only provide maintenance functionality and efficiency but should also be attractive and reflect the image of the both Golden Ridge and General Mills Research Nature Area. At least two should be should be located within the nature area; one off of Earl Street and one off of Flag Avenue North.

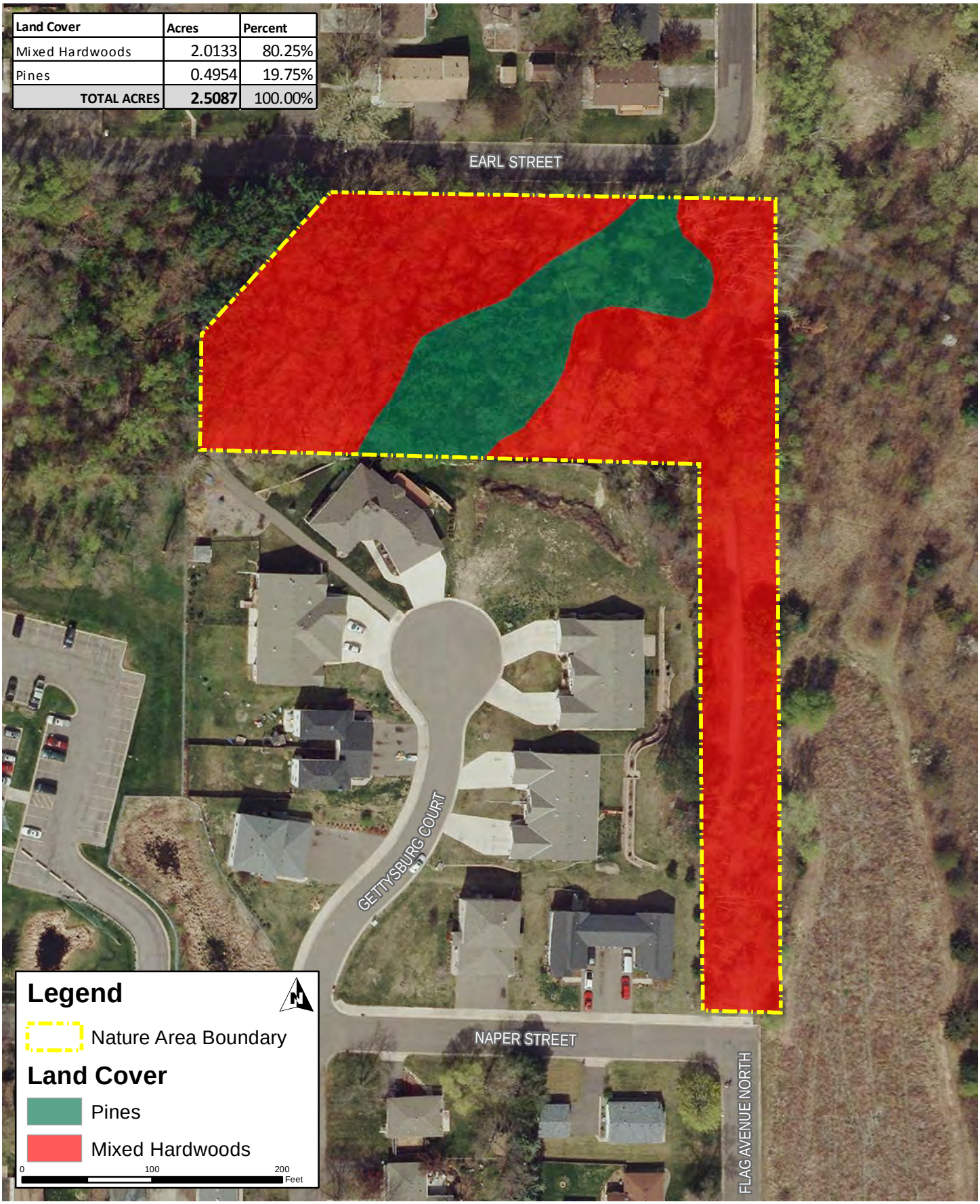
Table 5.10 Golden Ridge Nature Area Improvement Priorities

Priority (H, M, L)	Management Type	Description	Action	Qty	Unit	Unit Cost	Cost Opinion
High	Upland woods	Buckthorn management	Remove buckthorn	2	Acre	$4,000	$8,000
Medium	Upland woods	Forest management	Manage and enhance woodlands, remove undesirable trees and plant new, including mixed pine area	2	Acre	$4,000	$8,000
Medium	Access	Expand the Nature Area	Obtain agreement, easement or property	N/A	N/A	TBD	TBD
Medium	Amenity	Continuity of entry sign design through nature area system	Install new sign at entry locations	3	Each	$5,000	$15,000
Medium	Amenity	Naturals resources education	Install interpretive sign along the trail within the conifer plantation	1	Each	$3,000	$3,000
Medium	Amenity	Continuity of bench design through nature area system	Install new benches along two main trails	2	Each	$1,500	$3,000
Low	Amenity	Continuity of trash receptacle design throughout nature area system	Install new waste/ recycle trash receptacle at entry	2	Each	$2,000	$4,000
Low	Amenity	Pet waste disposal system at key access point	Install new pet waste disposal system	2	Each	$600	$1,200



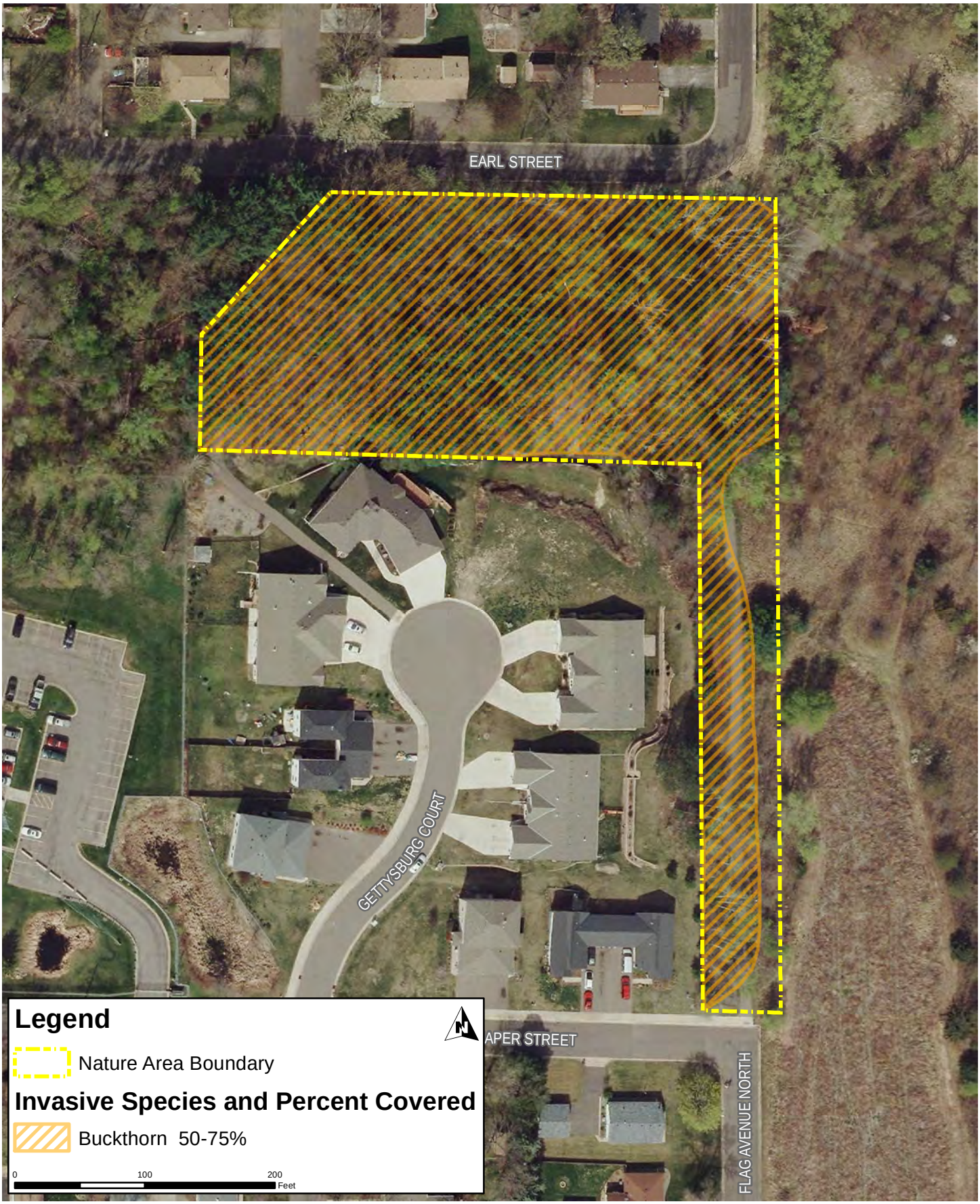
Golden Ridge Nature Area - 2012 Aerial
Golden Valley Natural Resources Management Plan

FIGURE 5.22



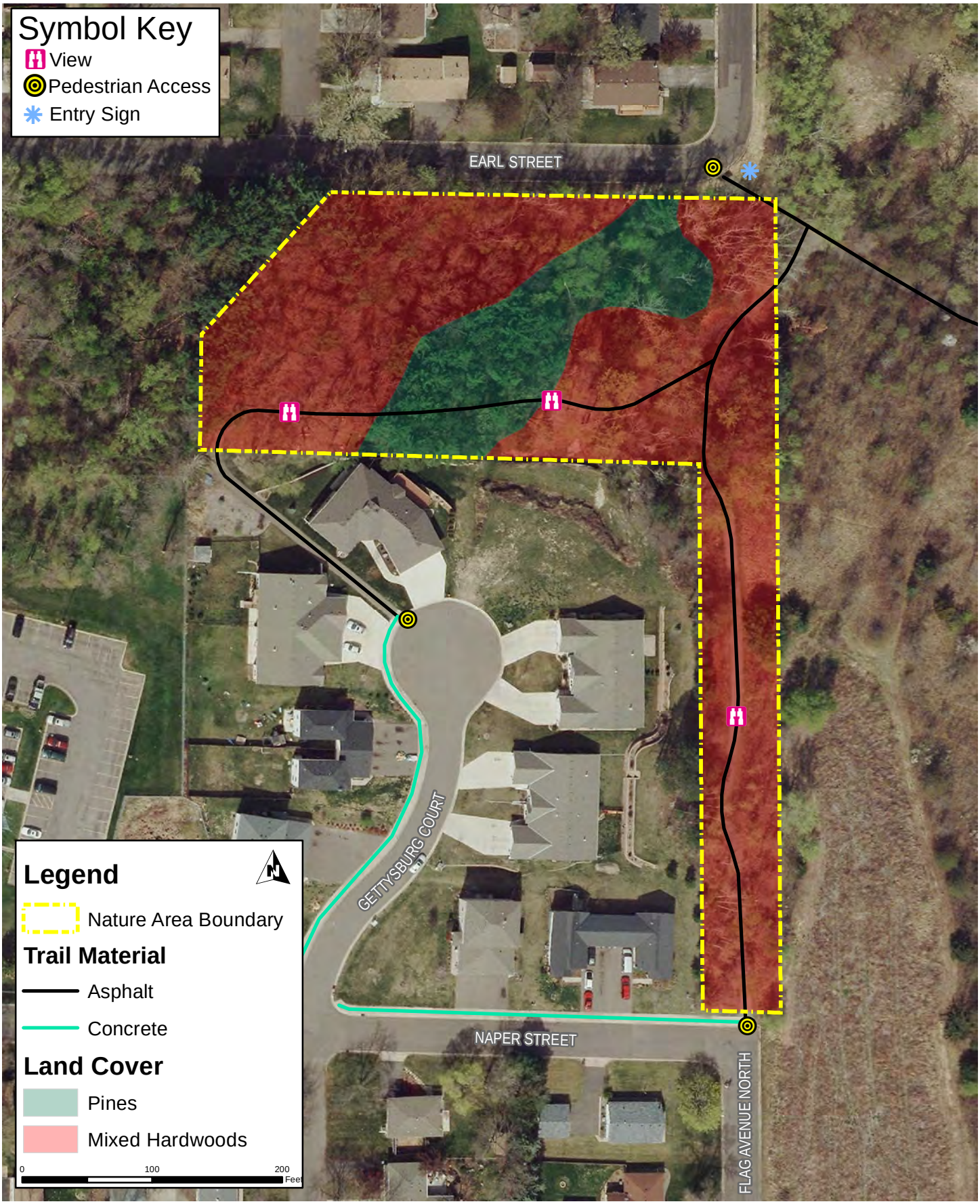
Golden Ridge Nature Area- Land Cover
Golden Valley Natural Resources Management Plan

FIGURE 5.23



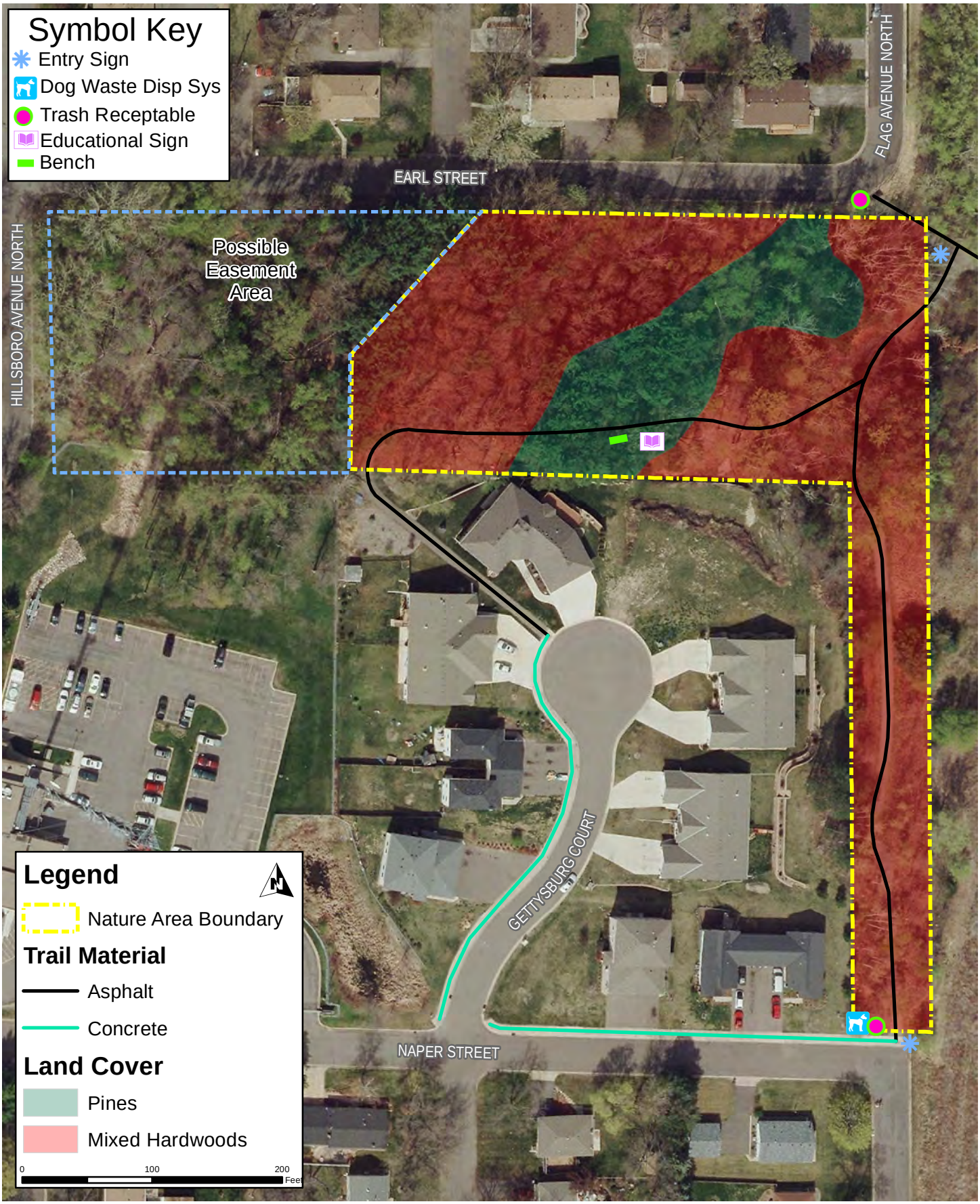
Golden Ridge Nature Area- Invasive Speices
Golden Valley Natural Resources Management Plan

FIGURE 5.24



Golden Ridge Nature Area- Existing Amenities
Golden Valley Natural Resources Management Plan

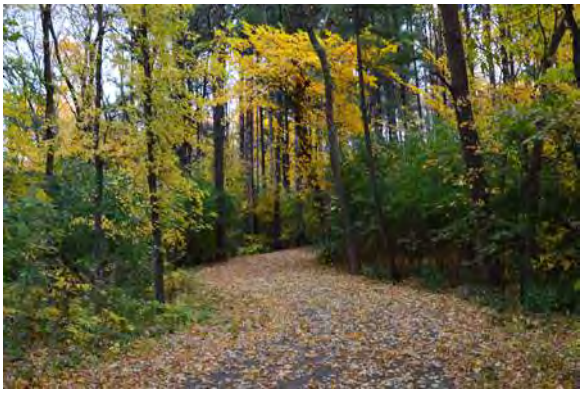
FIGURE 5.25



Golden Ridge Nature Area- Concept Plan
Golden Valley Natural Resources Management Plan

FIGURE 5.26


WELCOME TO THE
GENERAL MILLS NATURE
AREA
MINIMUM



Laurel Avenue Greenbelt

Location: 6900 and 7100 Laurel Avenue South

Nature Area Size: 33.1 Acres

Description

The Laurel Avenue Greenbelt is located on the south side of the City along Laurel Avenue. The nature area contains three distinct areas; East and West Ring ponds (14.54 acres), the central Cortlawn Pond (17.27 acres), and a smaller Dakota/Brunswick Avenue area (1.30 acres). The greenbelt is located within a variety of land uses including residential, commercial/retail, light industrial, and rail corridors. There are trail connections to surrounding neighborhoods.

Forest and Woodlands

The majority of the land cover within the Laurel Avenue Greenbelt is wooded. The majority of the trees are mixed hardwoods including green ash, maple, basswood, and oaks in upland areas, and cottonwood and box elder along the wetter pond edges.

Wetlands

Wetland is present within the Laurel Avenue Greenbelt as three large ponds. These are deep water habitat, and have very little to no wetland fringe. These ponds were constructed for flood storage and rate control purposes, and not as natural features, although they have been naturalized and provide many important wetland functions.

Aquatic Resources

Although classified as wetland, the three large ponds within the Greenbelt are an aquatic resource, constructed for flood control and rate control purposes in the late 1970's. The two western ponds each have a small wooded island.

Prairie and Grassland

Along the trails and adjacent Laurel Avenue are areas of maintained turf grasses, but no areas of native prairie are present.

Invasive Species

Buckthorn density is generally low overall within the Laurel Avenue Greenbelt, and densities of buckthorn have decreased since the 2003 inventory was completed. Dense pockets of buckthorn remain present, however, as portions of the greenbelt have seen an overall decrease.

Table 5.11 Invasive Species Cover Percent Change 2003-2013			
Description	%Cover2003	% Cover 2013	% Change
Common Buckthorn – Ring Ponds	0	0	No change
Common Buckthorn – Cortlawn Pond, west side	60	45	-15
Common Buckthorn – Cortlawn Pond, east side	60	30	-30
Common Buckthorn – Dakota/Brunswick	60	30	-30

Site Recommendations

Recommendations related to natural resources apply to all of three areas.

Natural Resources

Manage buckthorn (high)

Buckthorn is present within the nature area, but is at relatively lower density that other natural areas overall. Where present, it is dense, which provides a good management target to lower the overall density, and concentrate in localized portions of the greenbelt. Maintaining a low density would be an ongoing goal for this area.

Complete tree inventory (low)

The City completed an inventory of public trees in active parks and boulevards around 2010; however, the inventory did not extend into nature areas. The original landscaping and planting plan for the areas immediately adjacent to the Laurel Avenue Greenbelt ponds is on file. This plan, as well as field inventory and observation should assist in making future decisions about vegetation and tree management. The inventory should be reviewed when completed and management should focus on planting appropriate native species when actions are taken.

Amenities

Amenity recommendations for the three Laurel Avenue Greenbelt areas (Ring Ponds, Cortlawn Pond and Dakota/Brunswick Avenue area) will be discussed separately, however there is a common consideration to formalize 600 feet of six foot wide natural surface trails ($12,000) or eight foot wide paved trails ($30,000).

<u>East and West Ring Ponds</u>

Install entry signs (high)

No signs exist to this area. Signs (3) should be installed at each of the entrances at Western Avenue, Louisiana South and Colonial Road, and Laurel and Pennsylvania (within open space easement).

Install pet waste disposal system (high)
The Ring Ponds area of the Laurel Avenue Greenbelt include pet waste disposal systems; one at each of the access points. This not only keeps the park clean and attractive but it helps to maintain the water quality of the ponds.

Install educational sign (medium)
Install sign that describes the history of the area and the pond project.

Install benches (medium)
Install/replace four new benches along the trail that follow City approved bench style standards.

Install trash/recyclable receptacle (low)
Install three new trash receptacles that follow approved trash receptacle standards near each of the signs (see locations above)

Cortlawn Pond
Install entry signs (high)
No signs exist to this area. Signs should be installed at each of the entrances.

Install pet waste disposal system (high)
The ring pond area of the Laurel Avenue Greenbelt include pet waste disposal systems; one at each of the access points. This not only keeps the park clean and attractive but it helps to maintain the water quality of the ponds.

Install educational sign (medium)
Install sign that describes the history of the area and the pond project.

Install benches (medium)
Install four new benches along the trail that follow City approved bench style standards.

Install trash Receptacle (low)
Install three new trash receptacles that follow approved trash receptacle standards near each of the signs (see locations above)

Install canoe access (low)
The ponds are of sufficient size to allow limited recreational use via canoe, provided an access is available.

Dakota Brunswick Avenue Area
Install entry signs (high)

No signs exist to this area. Signs should be installed at each entrance to the greenbelt.

Table 5.12 Laurel Avenue Greenbelt Improvement Priorities							
Priority (H, M, L)	**Management Type**	**Description**	**Action**	**Qty**	**Unit**	**Unit Cost**	**Cost Opinion**
Ring, Cortlawn, and Brunswick/Dakota Areas – Natural Resources Improvements							
High	Upland woods	Buckthorn Infestation	Remove buckthorn	2	Acre	$4,000	$8,000
Low	Forest Health	Data Collections	Tree Inventory	33	Acre	$200	$6,600
Ring, Cortlawn, and Brunswick/Dakota Areas – Amenity Improvements							
High	Amenity	Entry sign design continuity through nature area system	Install sign at entries	5	Each	$5,000	$25,000
High	Amenity	Pet waste disposal system at key access point	Install pet waste disposal system	5	Each	$600	$3,000
Medium	Amenity	Bench design throughout nature area system	Install benches along the trail at regular intervals or at key viewpoints	8	Each	$1,500	$12,000
Low	Amenity	Natural resources education; design continuity throughout nature area system	Install interpretive sign along trail at key vantage points	3	Each	$3,000	$9,000
Low	Amenity	Trash/recyclable receptacle design throughout nature area system	Install waste/ recycle trash receptacle at entry	3	Each	$2,000	$6,000
Low	Amenity/Access	Trail access/extension	Natural surface trail, consider pavement improvements (6')	600	LF	$200	$12,000
Low	Amenity/Access	Trail access/extension	Paved trail improvements	600	LF	$500	$30,000
~~Low~~	~~Amenity/Access~~	~~Recreation~~	~~Install canoe access~~	~~2~~	~~Each~~	~~$5,000~~	~~$10,000~~

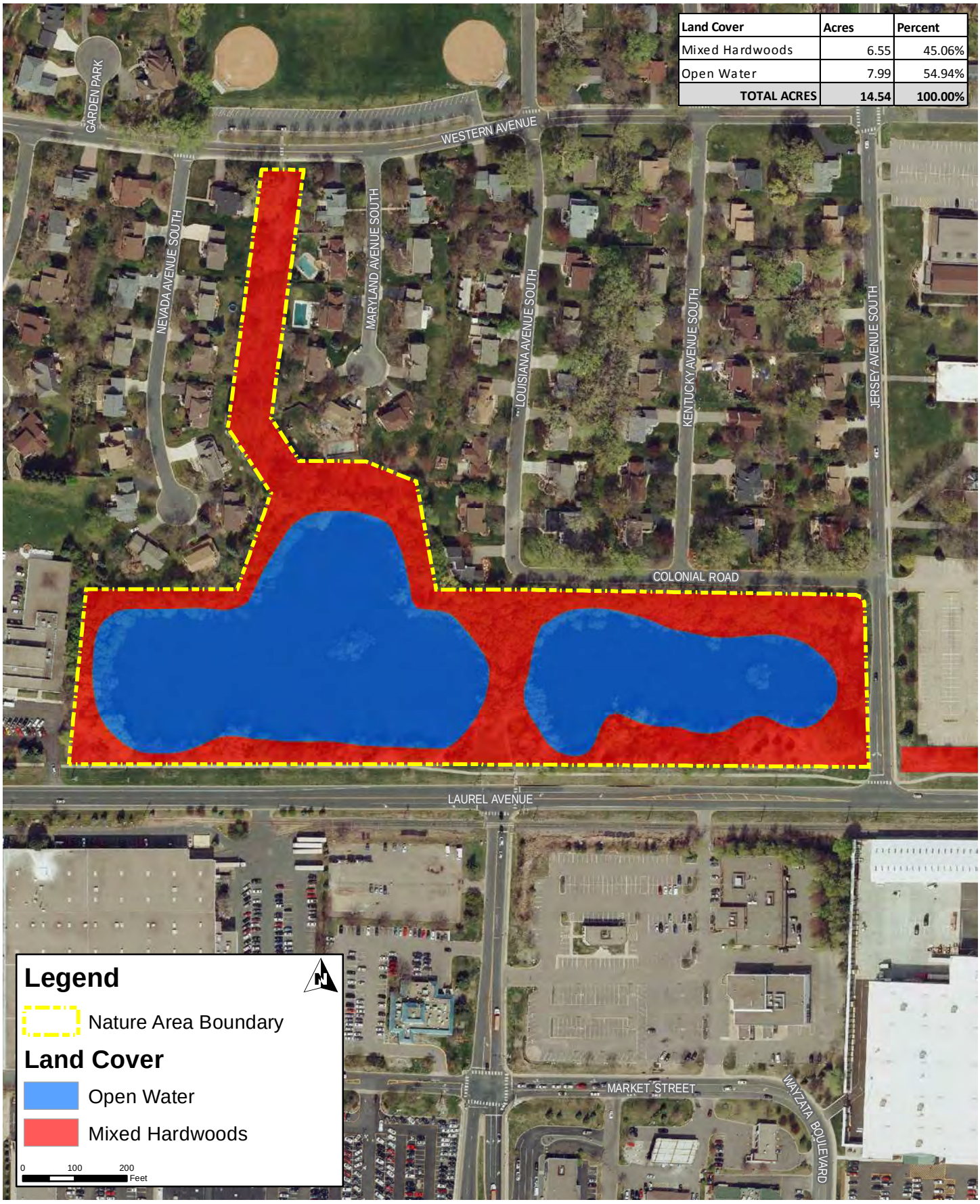
Deleted in 2017 by EC

Laurel Avenue Greenbelt- 2012 Aerial
Golden Valley Natural Resources Management Plan

FIGURE 5.27

Laurel Avenue Greenbelt Ring Ponds- 2012 Aerial
Golden Valley Natural Resources Management Plan

FIGURE 5.28

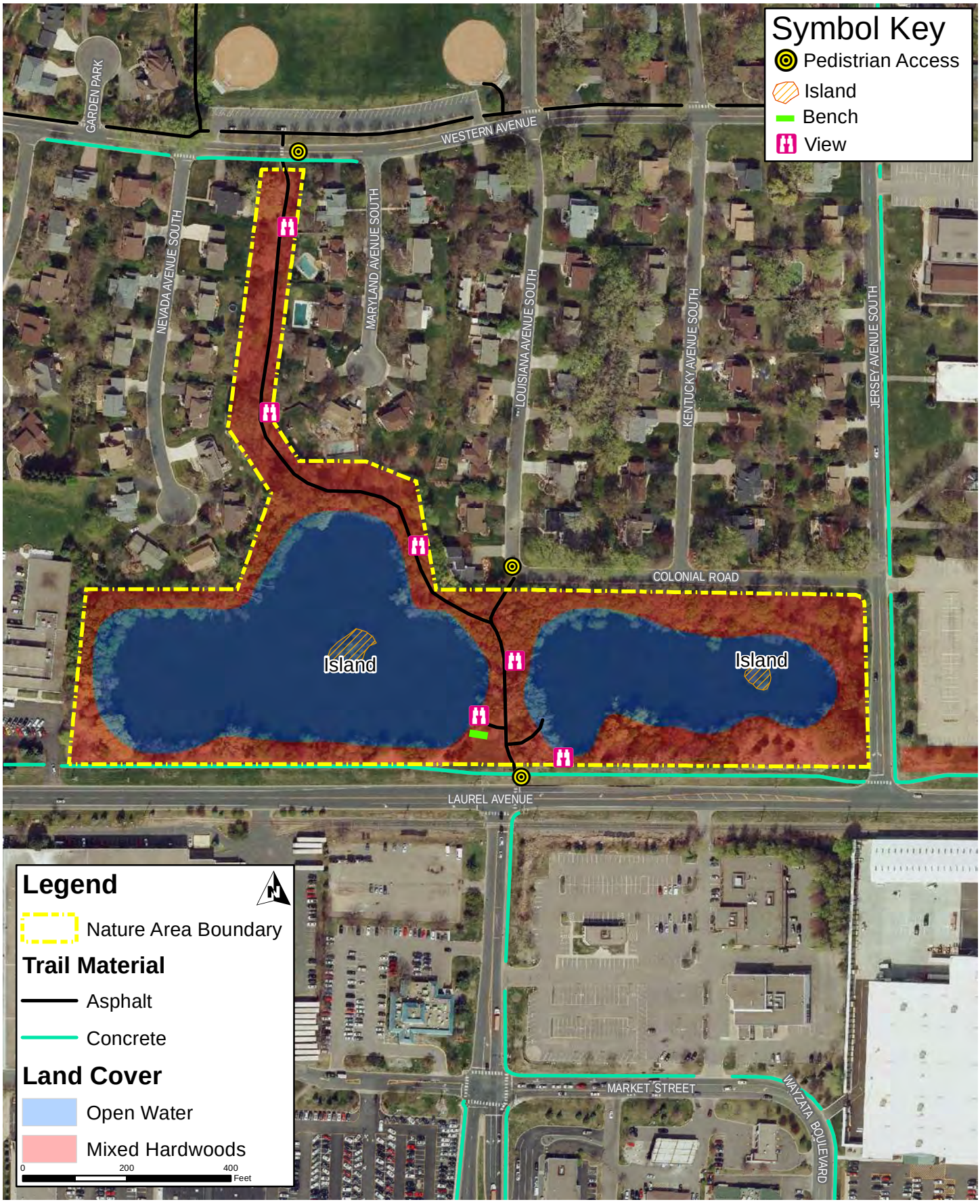


Laurel Avenue Greenbelt Ring Ponds- Land Cover
Golden Valley Natural Resources Management Plan

FIGURE 5.29

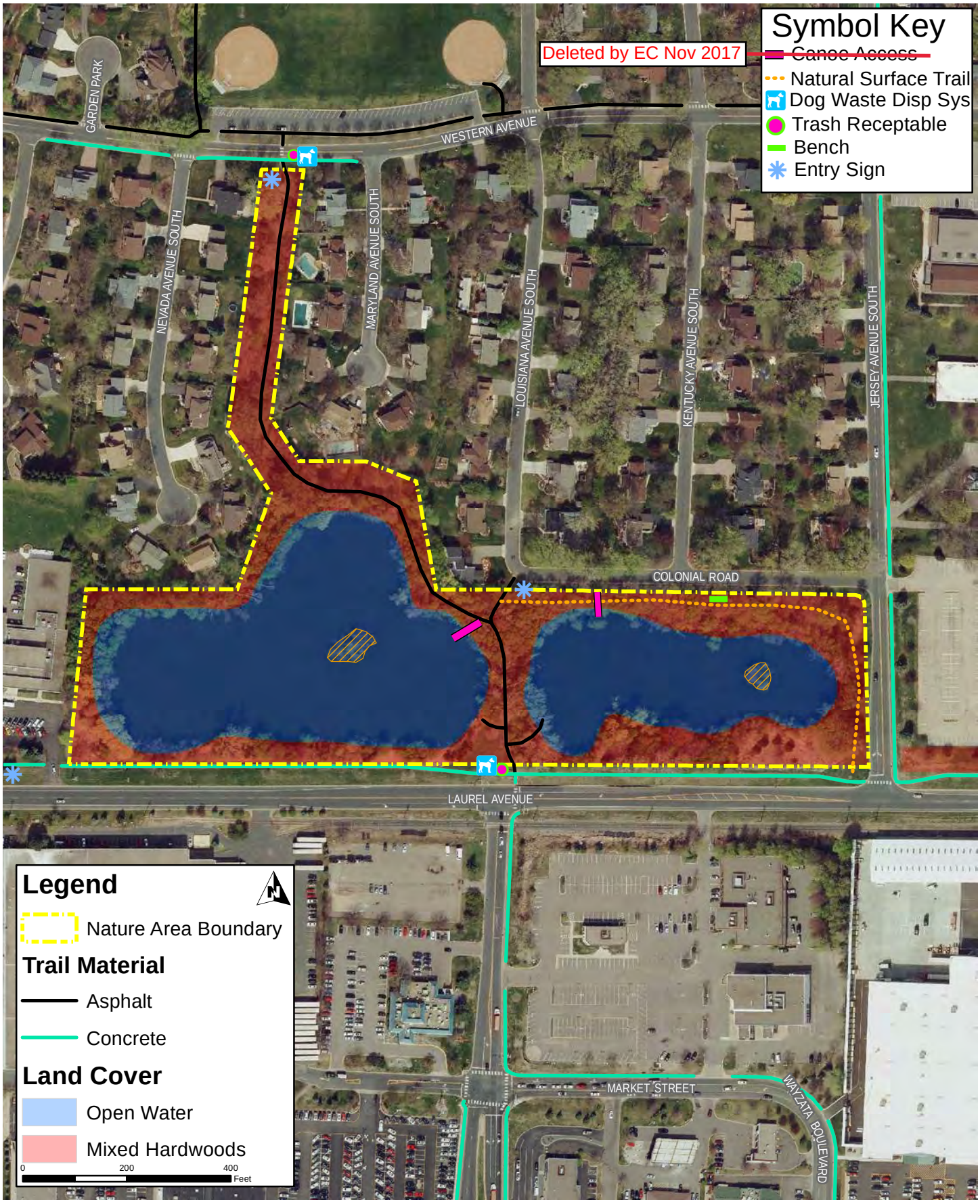
Laurel Avenue Greenbelt Ring Ponds- Invasive Species
Golden Valley Natural Resources Management Plan

FIGURE 5.30



Laurel Avenue Greenbelt Ring Ponds- Existing Amenities
Golden Valley Natural Resources Management Plan

FIGURE 5.31

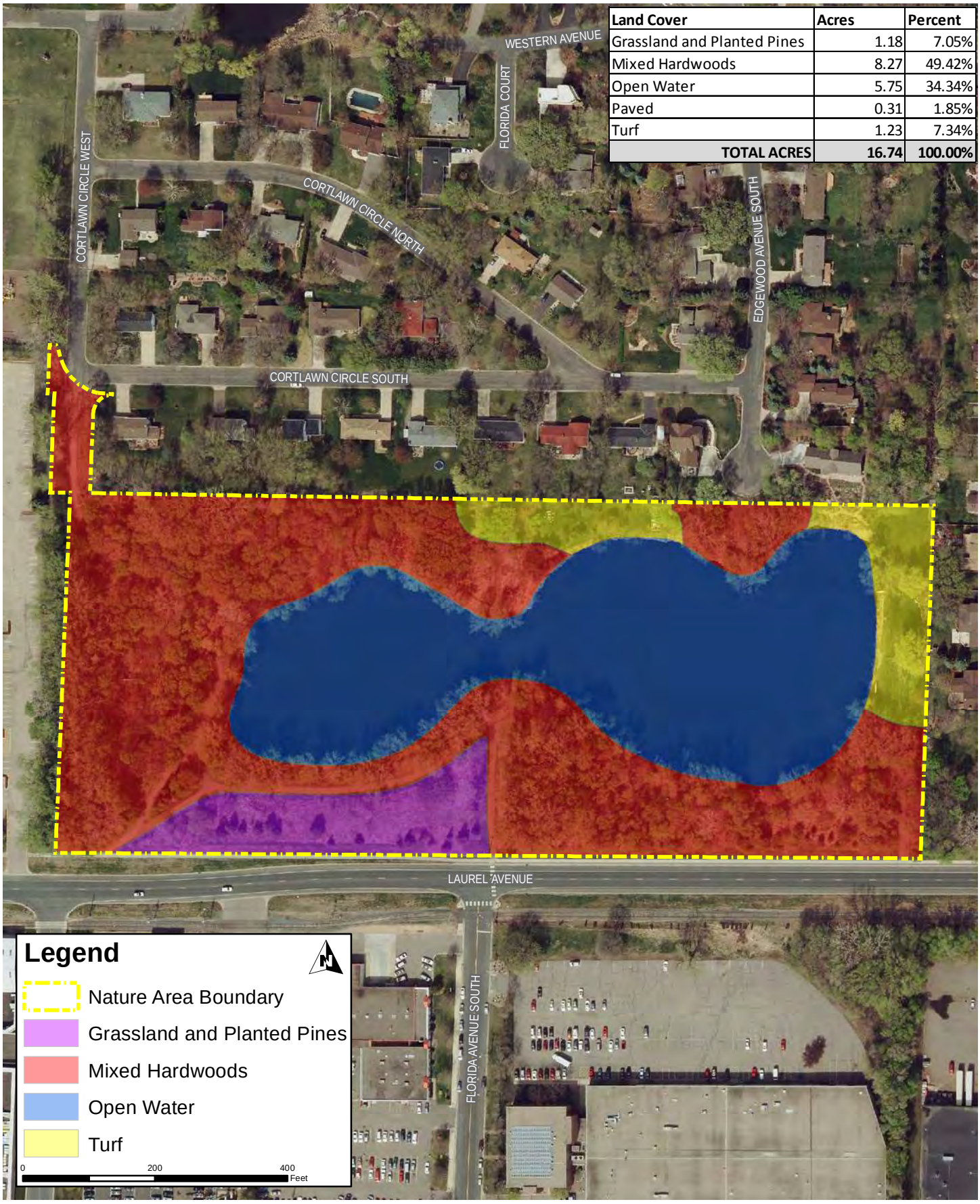


Laurel Avenye Greenbelt Ring Ponds- Concept Plan
Golden Valley Natural Resources Management Plan

FIGURE 5.32

Laurel Avenue Greenbelt Cortlawn Pond - 2012 Aerial
Golden Valley Natural Resources Management Plan

FIGURE 5.33



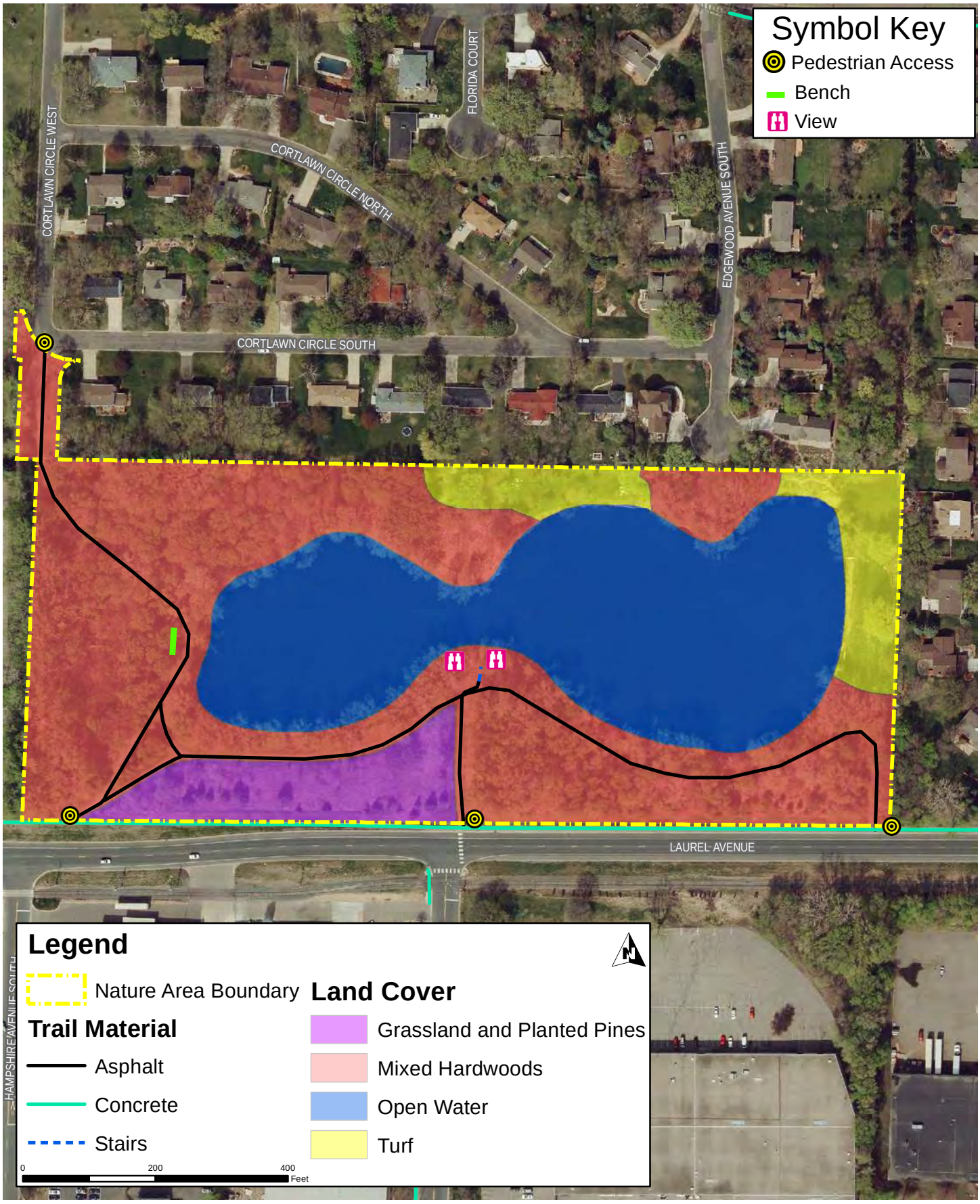
Land Cover	Acres	Percent
Grassland and Planted Pines	1.18	7.05%
Mixed Hardwoods	8.27	49.42%
Open Water	5.75	34.34%
Paved	0.31	1.85%
Turf	1.23	7.34%
TOTAL ACRES	**16.74**	**100.00%**

Laurel Avenue Greenbelt Cortlawn Pond- Land Cover
Golden Valley Natural Resources Management Plan

FIGURE 5.34

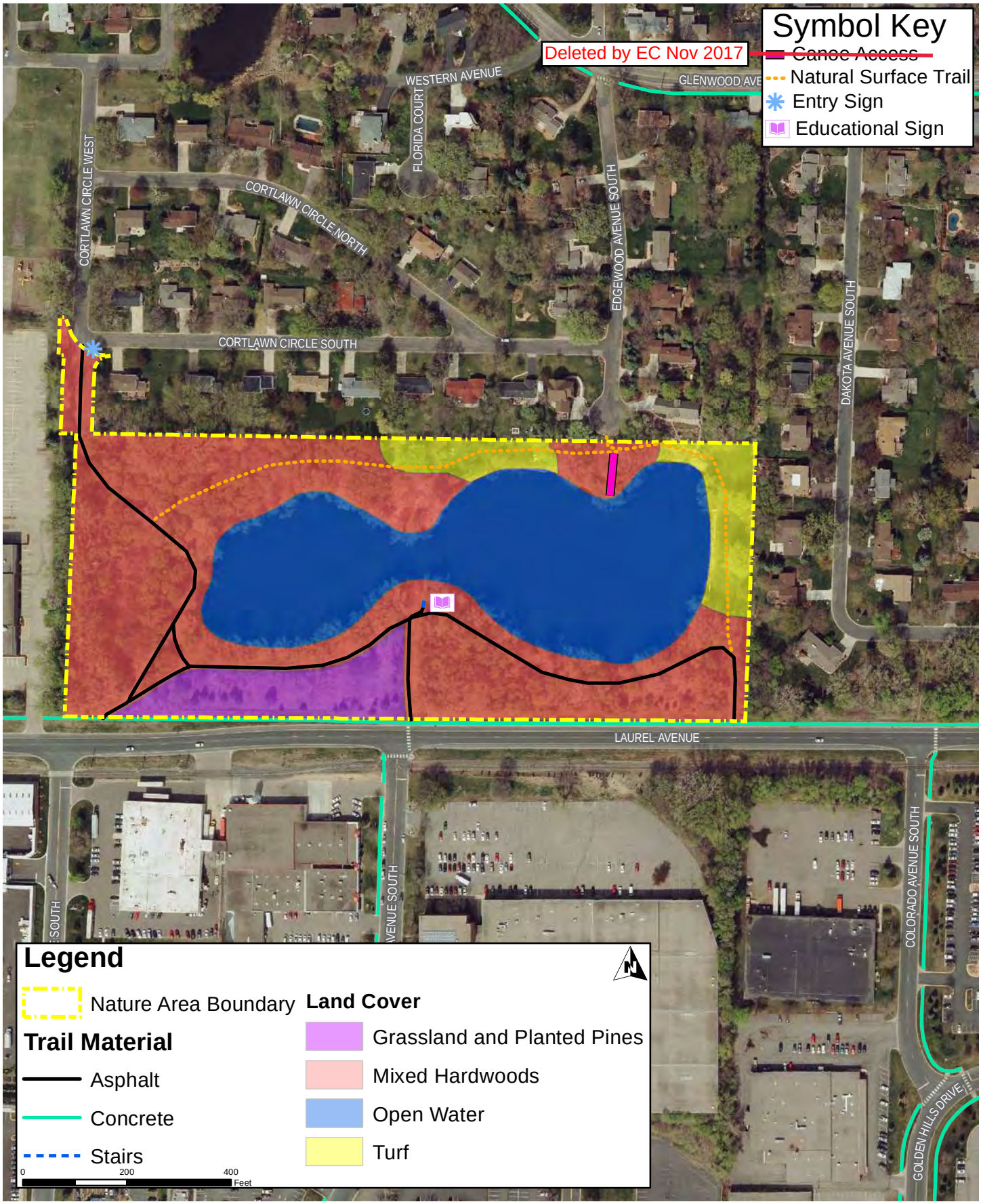
Laurel Ave Greenbelt Cortlawn- Invasive Species
Golden Valley Natural Resources Management Plan

FIGURE 5.35



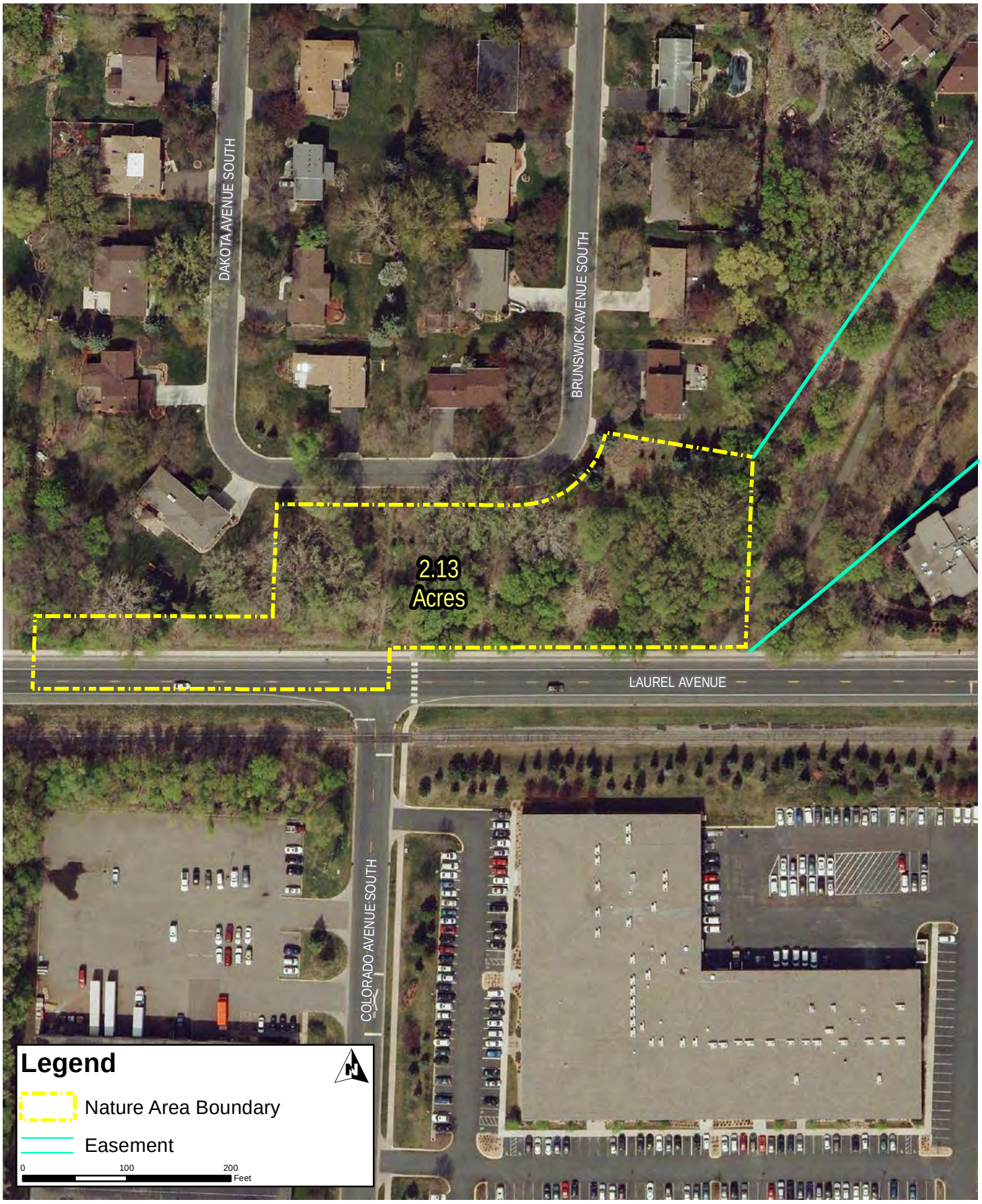
Laurel Avenue Greenbelt Cortlawn Pond- Existing Amenities
Golden Valley Natural Resources Management Plan

FIGURE 5.36



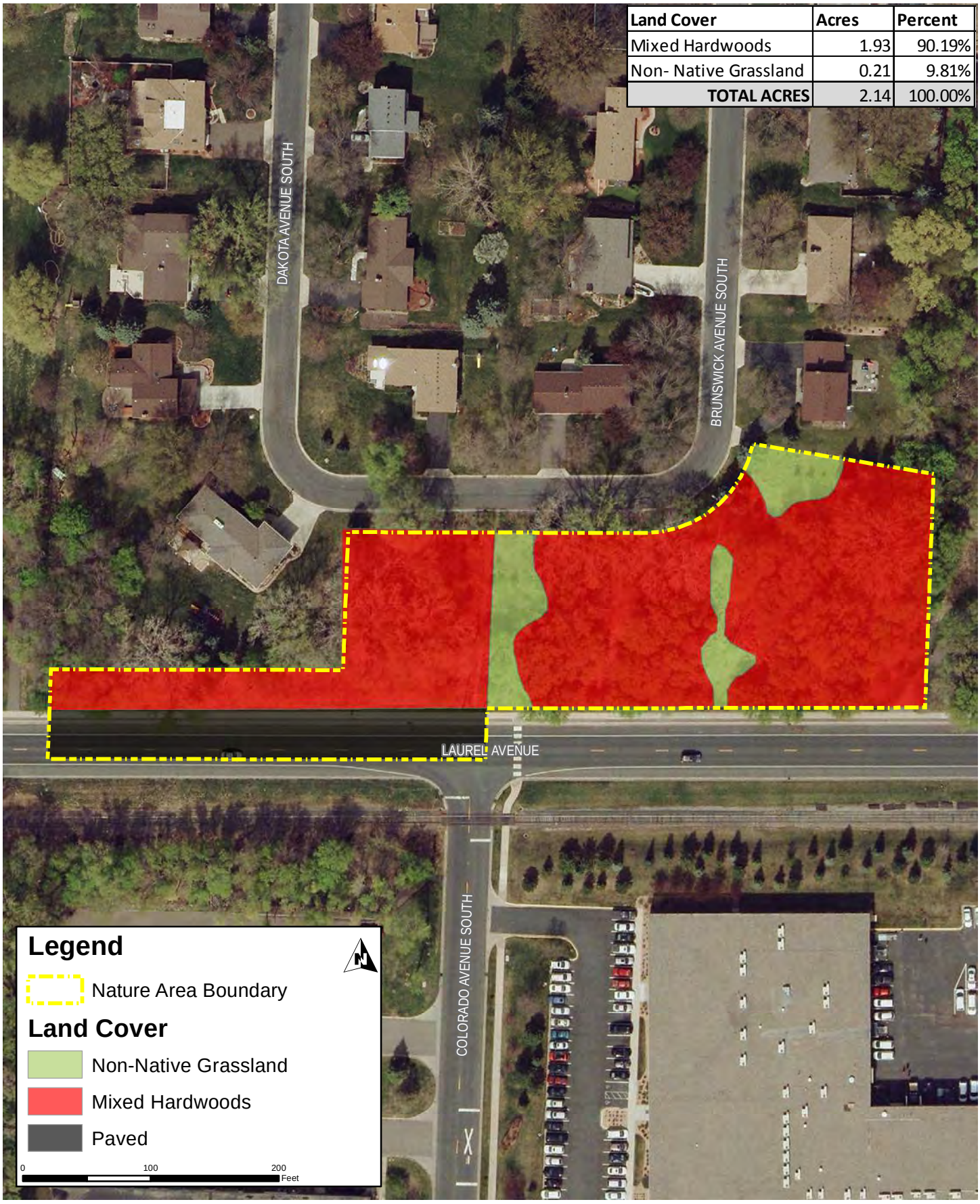
Laurel Avenue Greenbelt Cortlawn Pond- Concept Plan
Golden Valley Natural Resources Management Plan

FIGURE 5.37



Laurel Ave Greenbelt Dakota/Burnswick Area - 2012 Aerial
Golden Valley Natural Resources Management Plan

FIGURE 5.38



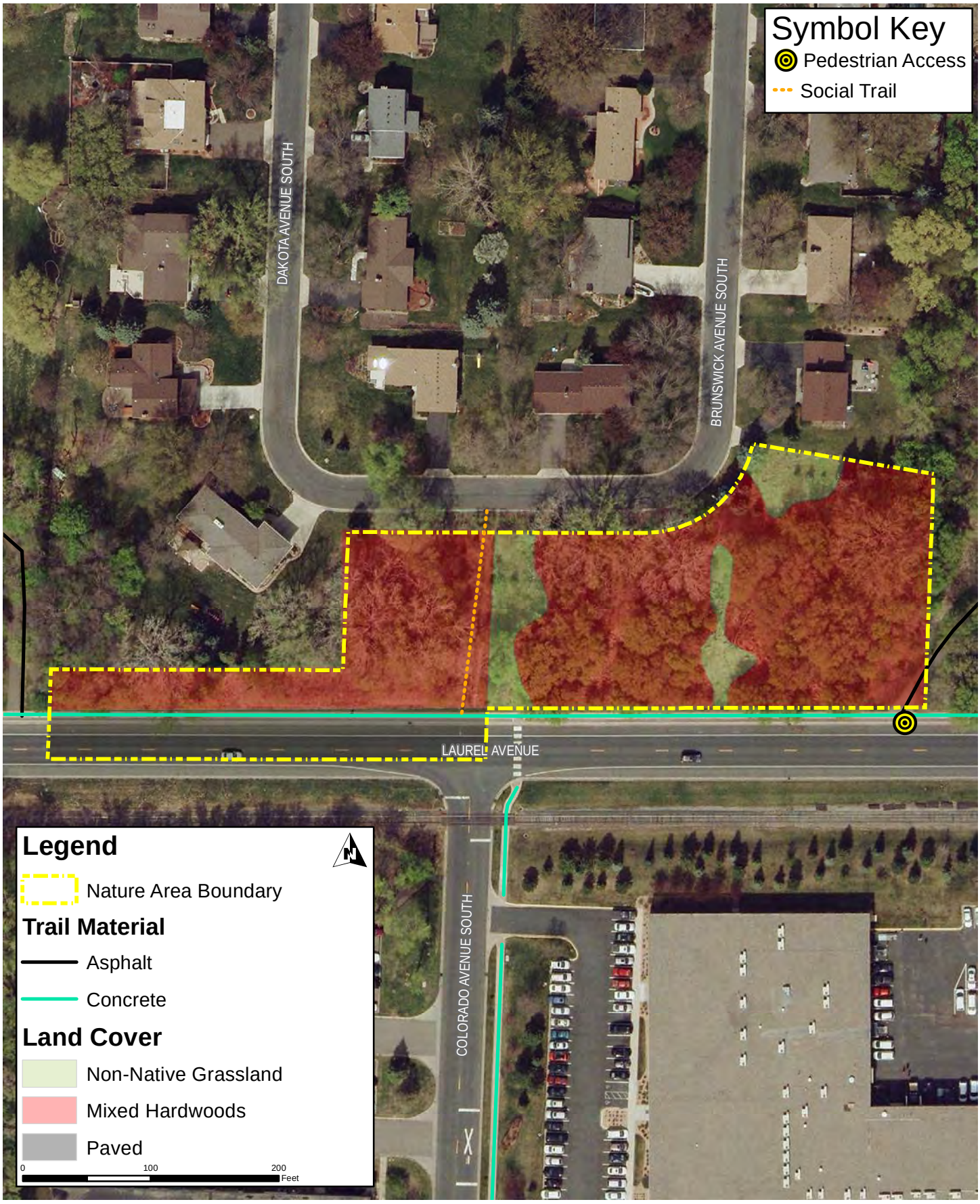
Land Cover	Acres	Percent
Mixed Hardwoods	1.93	90.19%
Non- Native Grassland	0.21	9.81%
TOTAL ACRES	2.14	100.00%

Laurel Ave Greenbelt Dakota/Brunswick Area- Land Cover
Golden Valley Natural Resources Management Plan

FIGURE 5.39

Laruel Ave Greenbelt Dakota Brunswick Area - Invasive Speices
Golden Valley Natural Resources Management Plan

FIGURE 5.40



Laurel Ave Greenbelt Dakota/ Brunswick Area - Existing Amenities
Golden Valley Natural Resources Management Plan

FIGURE 5.41

Laurel Ave Greenbelt Dakota/ Brunswick Area - Concept Plan
Golden Valley Natural Resources Management Plan

FIGURE 5.42

Mary Hills Nature Area

Location: 2190 Bonnie Lane
Size: 15.87 Acres

Description

Mary Hills Nature Area is located within a residential neighborhood in the northeast corner of the city and adjacent to railroad tracks. The nature area provides a great example of a mixed hardwood forest, with inclusions of wooded and emergent wetlands. Bassett Creek cross through the nature area, and although not publicly visible from the trails, is a significant resource.

A single trail winds through the park, and passes through the wooded upland areas with a connection to the City of Robbinsdale Sochacki Park. Many of the smaller habitats are not visible from the trail. The nature area is identified by an entry sign, has cable and wood fencing that adds to the aesthetics of the nature area. It also has picnic and seating areas along the trail.

Forest and Woodlands

Forest and woodland communities include upland woodland. Disturbed deciduous forests and woodland with mixed species canopy of cottonwood, green ash, and box elder are also widespread. Overall, the forested portions are very mixed in species, ages, and quality, and reflect a moderate level of disturbance.

Wetlands

Wetland is present within the Mary Hills Nature Area, including large areas of reed canary grass-dominated wet meadow, cattail marsh, and shrub swamps dominated by willow. Areas of hardwood swamp and floodplain forest are also present. In general, the wetlands are not accessible by from the trail system, and tend to blend in and not be noticed. The wetland is composed of common species, but is unique in the connectivity to Bassett Creek, the dominance of shrubs, and the relative diversity within a relatively small space. Mary Hills contains one of the larger shrub swamps in the City.

Aquatic Resources

Bassett Creek flows through the park, although it is not visible from the trails within the park. Bassett Creek is visible from along Bassett Creek Drive, where it also connects to the adjacent Rice Lake Nature Area. Bassett Creek is an important resource, as are the multiple wetlands and floodplain areas associated with it.

Prairie and Grassland

No areas of prairie or grassland are present within the nature area. Open areas dominated by reed canary grass are considered to be wetland.

Invasive Species

As Mary Hills Nature Area is dominated by wooded habitat, buckthorn is a primary concern. Indeed, the majority of the nature area has buckthorn, with densities ranging from relatively sparse, to impenetrable. Wetland also contain buckthorn, including the less common glossy buckthorn, which is present within the shrub swamp habitats. Reed canary grass is also present with Mary Hills, but is shade limited, so it is only dominant is the wet meadow habitats present within openings in the tree canopy.

Table 5.13 Invasive Species Cover Percent Change 2003-2013

Description	%Cover2003	% Cover 2013	% Change
Common Buckthorn	50	70	+20

Site Recommendations

Mary Hills Nature Area is a great example of a mixed hardwood forest, with inclusions of wooded and emergent wetlands. The deficiencies within the Mary Hills Nature Area are primarily related to vegetation.

Natural Resources

Manage buckthorn (high priority)

Buckthorn is prevalent throughout the park, and all areas could be managed to control this species.

Enhance the wooded upland and floodplain forests (medium)

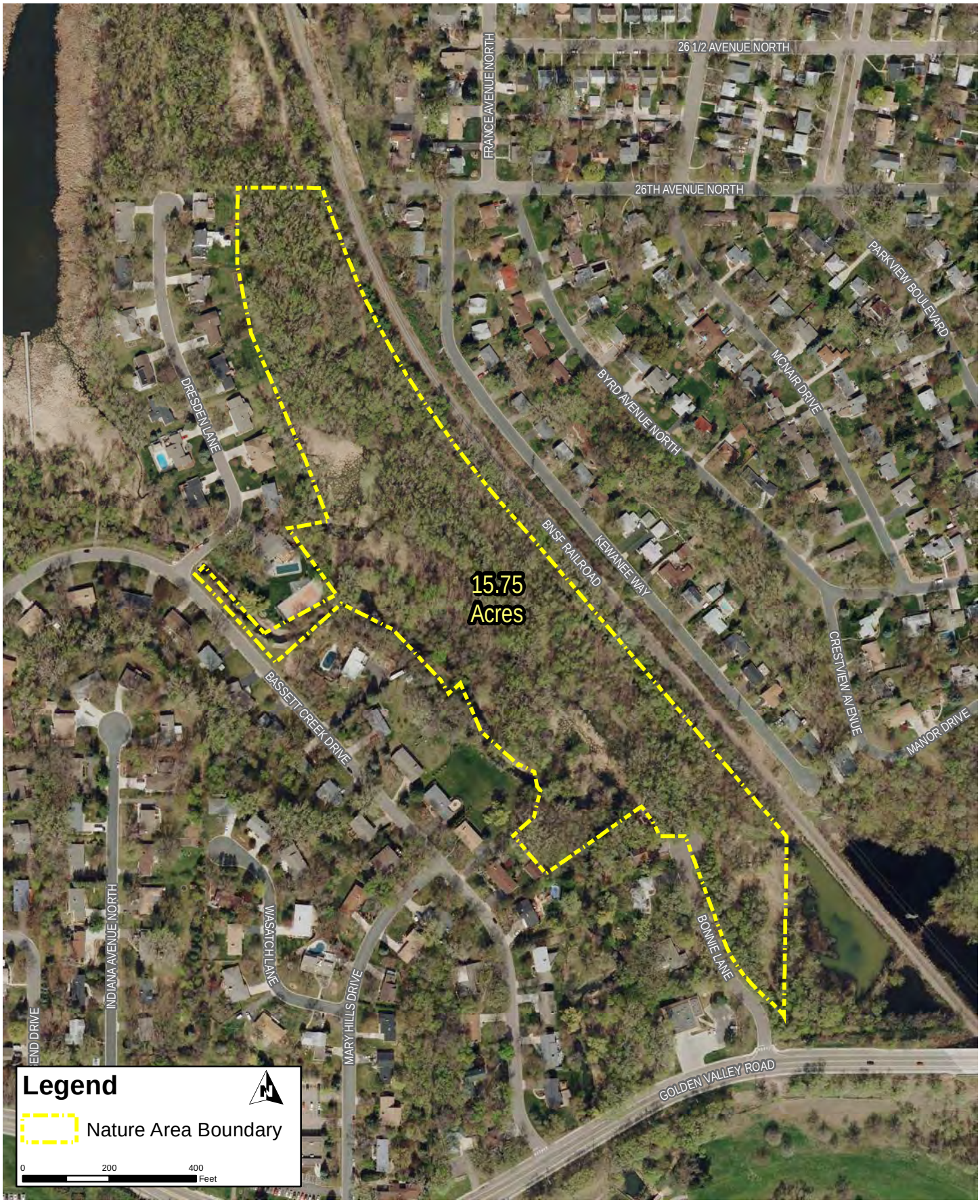
The health of the woods would be enhanced if younger trees could be planted to offset the eventual loss of some of the older trees.

Amenities

A concept plan has been developed as part of the Sochacki Park/Mary Hills/Rice Lake Nature Area, which includes collaboration between Three Rivers Park District, the City of Robbinsdale and the City of Golden Valley. This natural resource management plan should support the efforts of that collaboration. Recommendations include ensuring that pet waste is addressed, and that opportunities are provided to view Bassett Creek.

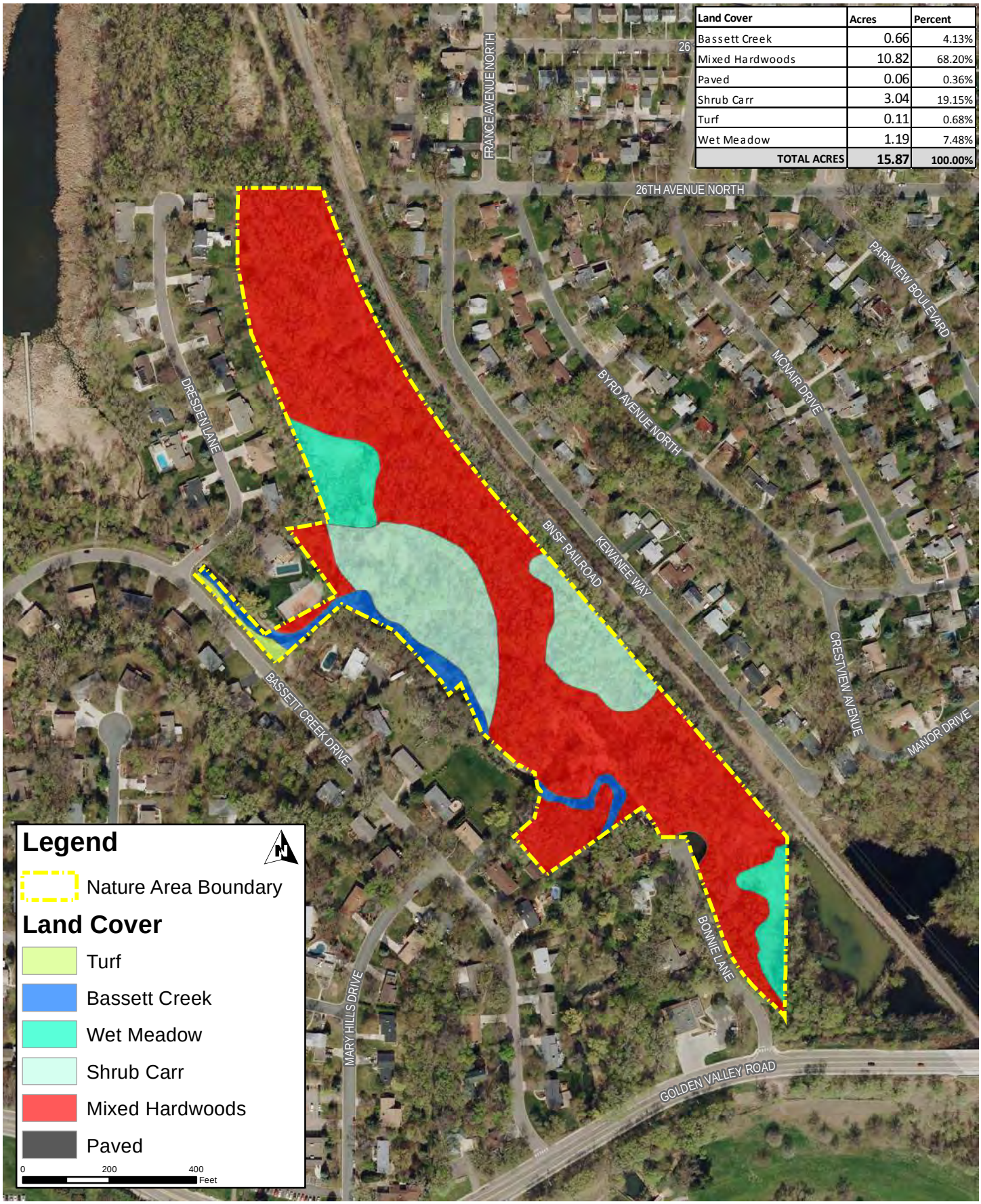
Table 5.14 Mary Hills Nature Area Improvement Priorities

Priority (H, M, L)	Management Type	Description	Action	Qty	Unit	Unit Cost	Cost Opinion
High	Wooded uplands, shrub swamp	Mixed hardwoods, shrub swamp	Buckthorn eradication/control	12	Acre	$3,500	$25,000
Medium	Upland woods and hardwood swamp	Improve forest health, diversity	Remove undesirable trees, replant with native species	6	Acre	$3,500	$20,000



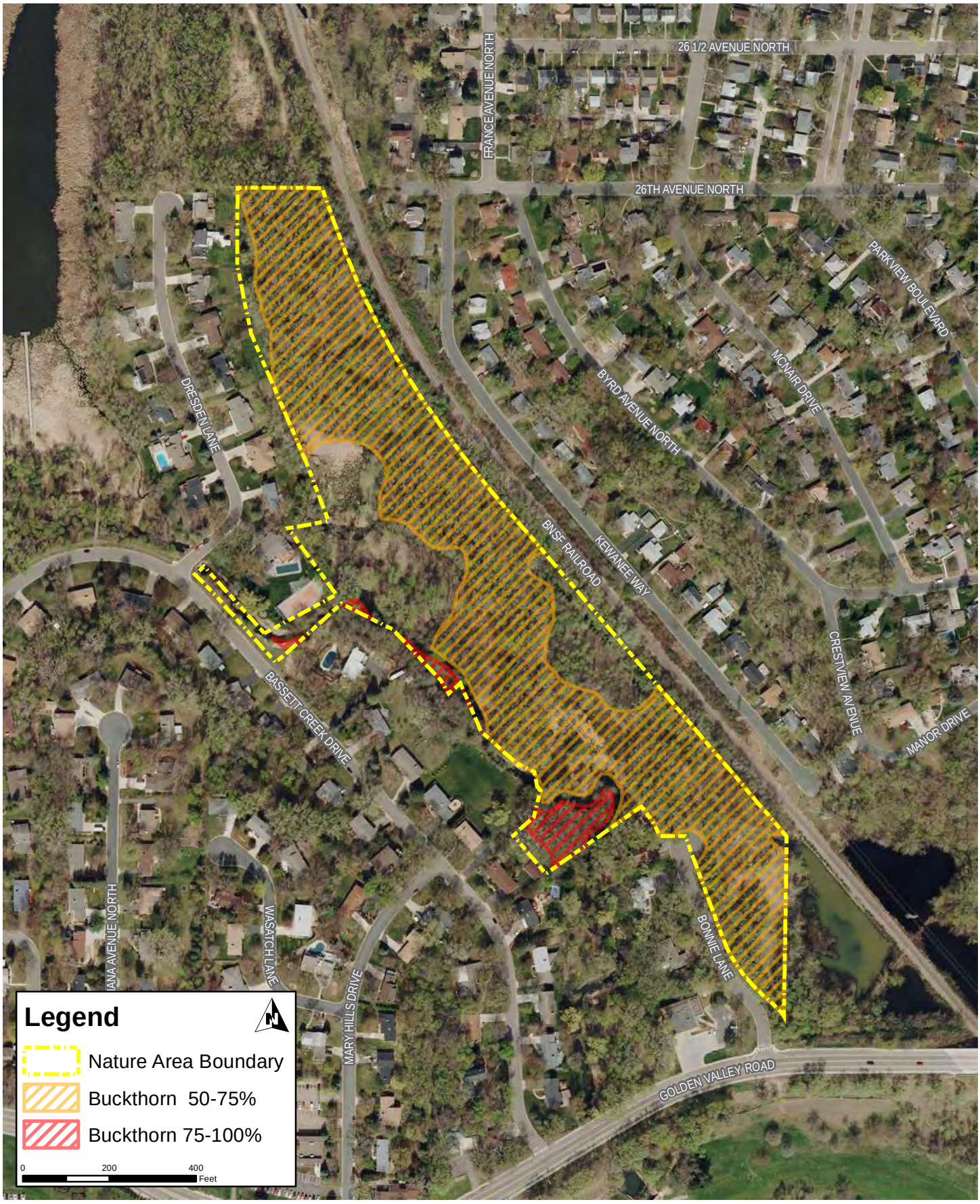
Mary Hills Nature Area- 2012 Aerial
Golden Valley Natural Resources Management Plan

FIGURE 5.43



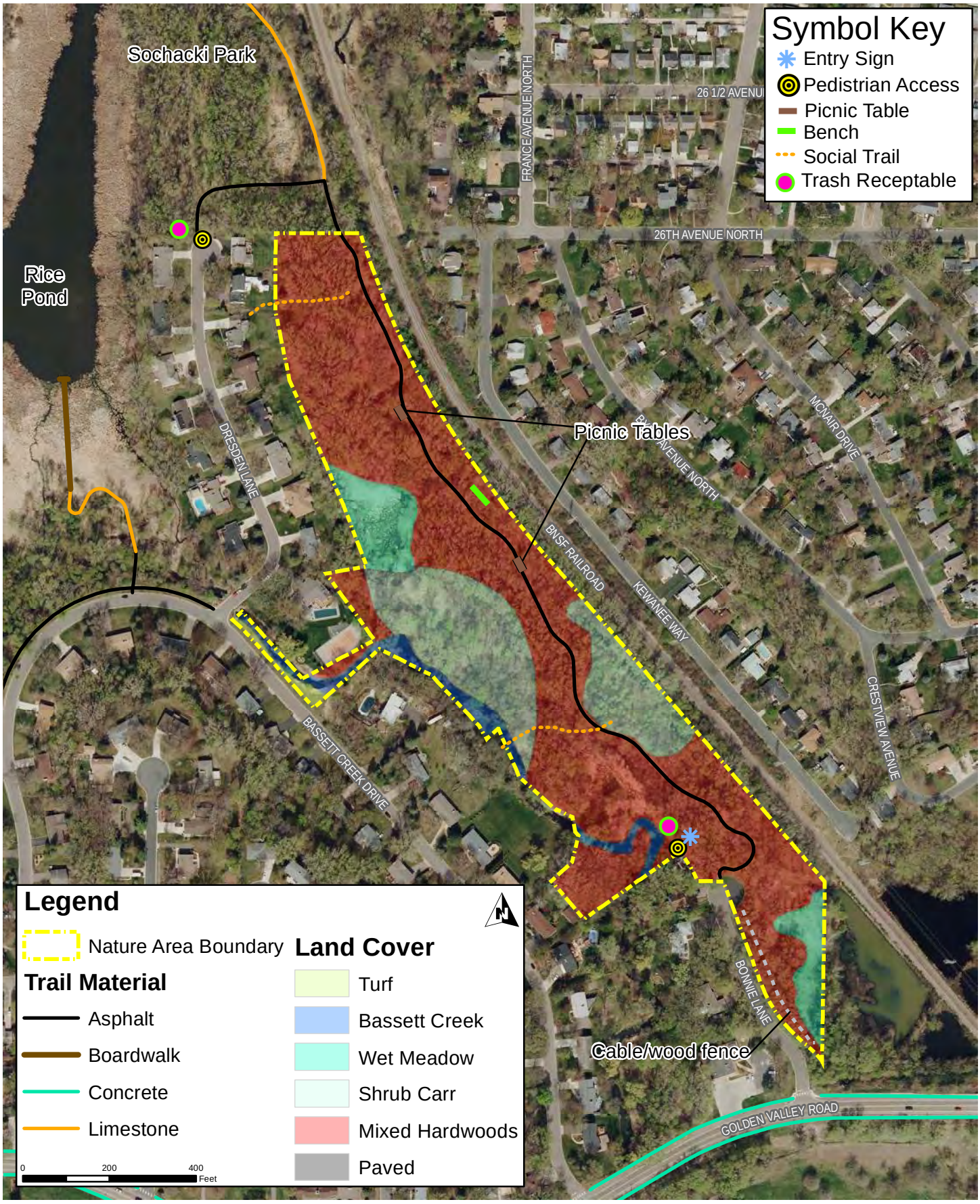
Mary Hills Nature Area- Land Cover
Golden Valley Natural Resources Management Plan

FIGURE 5.44



Mary Hills Nature Area- Invasive Species
Golden Valley Natural Resources Management Plan

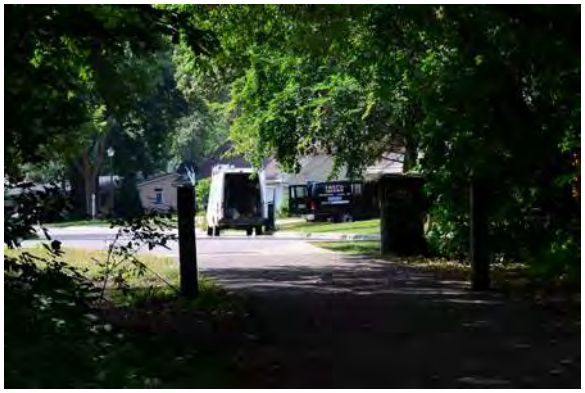
FIGURE 5.45



Mary Hills Nature Area- Existing Amenities
Golden Valley Natural Resources Management Plan

FIGURE 5.46


MARY HILLS
NATURE AREA
GOLDEN
VALLEY



Pennsylvania Woods Nature Area

Location: 2301 Rhode Island Avenue North
Nature Area Size: 22.92 Acres

Description

Pennsylvania Woods Nature Area is a primarily wooded area surrounded by three large ponds. It is located within a mix of uses including residential, office/commercial and industrial areas in the north central section of the City. An internal loop trail system connects to the adjacent residential neighborhoods.

Forest and Woodlands

The majority of land cover within the Pennsylvania Woods Nature Area is the three large ponds. The remaining portions of the site are wooded, with a mixture of green ash, box elder and oak trees. A central portion of the site contains a remnant representation of maple-basswood forest, which is of higher quality. This remnant forest is located on an elevated hill in the center of the site.

Wetlands

Wetland is present within the Pennsylvania Woods Nature Area as three large ponds, which are part of the DeCola ponds chain. These are deep water habitat, and have very little to no wetland fringe.

Aquatic Resources

Although classified as wetland, the three large ponds within the Pennsylvania Woods are an aquatic resource.

These ponds, known as DeCola Ponds A, B, and C, are part of a larger drainage system which extends into New Hope and Crystal and flows downstream into Bassett Creek. The three cities have been working collaboratively to study ongoing flood issues in the DeCola Ponds and Medicine Lake Road/Winnetka Avenue areas, and are evaluating long term flood mitigation solutions. Potential long term solutions could involve excavating portions of the upland areas immediately adjacent to the ponds to create additional flood storage; however, it is anticipated that the higher quality forest and woodland areas would remain, and that the wetland fringe areas would be restored to a higher quality ecological function and value than present.

Prairie and Grassland

No significant areas of prairie or grassland are present within the Pennsylvania Woods Nature Area

Invasive Species

Buckthorn density is moderately high within the nature area, and has increased in density since the 2003 inventory.

Table 5.15 Invasive Species Cover Percent Change 2003-2013			
Description	%Cover2003	% Cover 2013	% Change
Common Buckthorn – Maple Basswood	30	50	+20
Common Buckthorn – Mixed Deciduous Woods	40	60	+10

Site Recommendations

Natural Resources

Manage buckthorn (high)

Buckthorn is present within the nature area, but is at relatively lower density than other natural areas. Maintaining a low density would be an ongoing goal for this area.

Manage big woods (high)

The center of the Pennsylvania Woods Nature Area contains an example of the historic maple basswood forest that was present in Golden Valley prior to settlement. Maintaining this high quality area is recommended to be a priority. This would be accomplished by removing competing species, maintaining a healthy understory, and facilitating reproduction.

Amenities

Improve maintenance access (high)

Maintenance staff is responsible for inspecting, removing debris, and maintaining the outlet pipe that exits the northeast pond. There is currently an unpaved access. This access could be paved to provide a safer, more reliable route for maintenance crews while improving the aesthetics and viewing opportunities for the public.

Install pet waste disposal system (high)

Pennsylvania Woods Nature Area should include waste disposal systems for dogs; one at each main entry. This keeps the park clean and attractive and helps to maintain water quality.

Install entry signs (high)

Pennsylvania Woods Nature Area has one entry sign along 23rd Avenue North. Signs should be installed at each of the main entrances, including residential access off of Pennsylvania Avenue North using approved style type.

Install educational sign (medium)
Pennsylvania Nature Area has a significant area of woodland and open ponds. Both attract wildlife and provide excellent educational opportunities. Locate a sign at an entrance to the woodland and along a trail that provides a significant view of a pond.

Upgrade bench (medium)
There are two bench styles within the nature area. One is a heavier wooden structure and the other the more typical style currently being used in Golden Valley – simple metal and wood construction; both are relatively new and in good condition. When the time comes to replace, they should adhere with an approved bench style for nature areas. This would provide visual continuity within the nature area system and also strengthen user distinction that Pennsylvania Woods is a nature area versus a park.

Upgrade trash Receptacle (low)
The trash receptacle is one of the first amenities viewed upon entering the nature area. As such, it should not only provide maintenance functionality and efficiency but should also be attractive and reflect the image of the Pennsylvania Woods Nature Area. Two should be located within the park; one off of 23rd Avenue North and one at the Pennsylvania Avenue entrance.

Table 5.16 Pennsylvania Woods Nature Area Improvement Priorities

Priority (H, M, L)	Management Type	Description	Action	Qty	Unit	Unit Cost	Cost Opinion
High	Upland woods	Manage buckthorn	Remove buckthorn	2	Acre	$4,000	$8,000
High	Maple-basswood forest	Maintain high quality woods	Maintain maple-basswood community	3	Acre	$3,300	$10,000
High	Amenity	Improve maintenance access to the northeast pond	Pave maintenance access and provide bench and viewing area	1	Each	$8,000	$8,000
High	Amenity	Provide continuity of entry sign design through nature area system	Install new sign at entries	2	Each	$5,000	$10,000
High	Amenity	Provide dog walkers with pet waste disposal system at key access point	Install new pet waste disposal system	2	Each	$600	$1,200
Medium	Amenity	Provide natural resources educational	Install 2 types of educational signs	2	Each	$3,000	$6,000

		opportunities	(woodland/storm water)				
Medium	Amenity	Provide continuity of bench design through nature area system	Install new benches along the trail at regular intervals or at key viewpoints	4	Each	$1,500	$6,000
Low	Amenity	Provide continuity of trash/recyclable receptacle design throughout nature area system	Install new waste/ recycle trash receptacle at entry	2	Each	$2,000	$4,000

Pennsylvania Woods Nature Area- 2012 Aerial
Golden Valley Natural Resources Management Plan

FIGURE 5.47

Land Cover	Acres	Percent
Maple/Basswood Forest	2.78	12.15%
Mixed Hardwoods	6.22	27.12%
Open Water	13.42	58.56%
Paved	0.06	0.25%
Turf	0.44	1.92%
TOTAL ACRES	**22.92**	**100.00%**

Pennsylvania Woods Nature Area- Land Cover
Golden Valley Natural Resources Management Plan

FIGURE 5.48

Pennsylvania Woods Nature Area- Invasive Species
Golden Valley Natural Resources Management Plan

FIGURE 5.49

Pennsylvania Woods Nature Area- Existing Amenities
Golden Valley Natural Resources Management Plan

FIGURE 5.50

Pennsylania Woods Nature Area- Concept Plan
Golden Valley Natural Resources Management Plan

FIGURE 5.51


PENNS


THIS TRAIL
HAS BEEN
ADOPTED BY
John & Pam Goranson
Barb Osborne

Rice Lake Nature Area

Location: 4120 Bassett Creek Drive
Nature Area Size: 9.23 Acres

Description

The Rice Lake Nature Area is located along the north side of Bassett Creek Drive. The nature area is within a residential neighborhood, although the woods and wetland provide more seclusion than expected for a small urban nature area.

Access to the park is through a pedestrian bridge crossing of Bassett Creek, which flows from west to east. In this reach, Bassett Creek is within an incised channel and some bank erosion is present. The creek is bordered by mixed hardwood floodplain forest and hardwood swamp. Reed canary grass is present where there is sufficient clearing, but the understory can be sparse due to heavy shading. Tree removal would likely generate a flush of reed canary grass

Rice Lake Nature Area can be accessed by walking an aggregate path, and a boardwalk leading to a floating dock. South Rice Pond, sometimes referred to as Rice Lake, is a shallow basin, with a wide emergent marsh fringe. Small, shallow ponds and lakes like South Rice, are somewhat unique, as they are successionally proceeding from deeper open water to wetland. That natural process can be observed from the Rice Lake Nature Area, by observing the existing habitat and surrounding areas.

The Rice Lake Nature Area provides a unique opportunity to provide an unobstructed view of South Rice Pond. Because the park is dominated by wetland, access is limited to a raised trail and boardwalk.

Forest and Woodlands

The southern portion of the Rice Lake Nature Area is composed of a mixture of floodplain forest and hardwood swamp. The wooded areas include a high proportion of box elder trees, with a mix of silver maple, American elm, and green ash present.

Aquatic Resources

The Rice Lake Nature Area is within the floodplain of Bassett Creek and provides both floodway and flood storage functions that are critical to this part of the community.

Rice Lake Nature Area contains two primary aquatic features. The first is Bassett Creek, which is a connecting resource throughout the City of Golden Valley.

The second feature is South Rice Pond. South Rice does not have a fishery, as it likely freezes out on a regular basis. It does, however, support abundant waterfowl, as the habitat and isolated nature of the pond make ideal nesting habitat year round, and an important protected spot for layovers during spring and fall migration.

Wetlands

The majority of Rice Lake Nature Area is wetland, including hardwood swamp, wet meadow emergent marsh, and shallow open water. These wetlands show some signs of degradation, but are overall above average in quality, and when assessed collectively, provide a critical function for the lake and Bassett Creek, which is the receiving water from South Rice Pond.

The wetland complex surrounding open water is a diverse mixture of species, including several sedges. Pockets of high quality wetland vegetation are present.

Prairie and Grassland

Rice Lake Nature Area has no significant areas of prairie or grassland.

Invasive Species

Within the nature area, the woods include some buckthorn, but the majority is too wet to support large buckthorn populations.

In the wetlands, reed canary grass is dominant along the wooded transition, but declines in abundance as hydrology transitions from seasonal saturation to more permanent saturation and shallow inundation. Some areas of reed canary grass are thick, where it is the only species present. The survey data indicates a reduction in reed canary grass density, but this is likely a result of where the data were collected.

Purple loosestrife was not inventoried in 2003, but was likely present in low densities. In 2013 it comprised approximately 10% of the vegetative coverage in the shallow marsh habitat.

Table 5.17 Invasive Species Cover Percent Change 2003-2013

Description	%Cover 2003	% Cover 2013	% Change
Common Buckthorn	30	25	-5

Reed Canary Grass	90	50	-40
Purple Loosestrife	n/a	10	n/a

Site Recommendations

Natural Resources

Restore/stabilize eroding Bassett Creek banks (high)
Within the Rice Lake Nature Area, there is some erosion and degradation of the Bassett Creek corridor, in part due to excessive shading and erosion causing steep and exposed slopes. Consideration of tree removal to allow more sunlight, in combination with reshaping of the channel to allow additional vegetation can be considered. Use of natural materials is preferred over armoring for this reach.

Enhance aquatic vegetation (medium)
Although there are large portions of the wetland that are dominated by reed canary grass, cattails, and purple loosestrife, there is an abundance of high quality native vegetation. Management of invasive species, and encouragement of the native species, could have a profound influence on the quality of the emergent vegetation around Rice Lake.

Manage buckthorn (low priority)
Buckthorn is not present throughout the nature area, but is a dominant component where it is present.

Amenities

A concept plan has been developed as part of the Sochacki Park/Mary Hills/Rice Lake Nature Area, which includes collaboration between Three Rivers Park District, the City of Robbinsdale and the City of Golden Valley. This plan should support the efforts of that collaboration.

Maintain access (high)
One of the primary deficiencies of the Rice Lake Nature Area is that it is dominated by wetland, which limits access. The area has a single crossing of Bassett Creek, and one trail leading to the floating dock on Rice Lake. These features are in need of repair to maintain the existing access. Repairs may be needed to the Bassett Creek span, resurfacing the existing earthen trail, and to even out the transition from the trail to the floating dock sections. If expanding accessibility to allow wheelchairs is desired, more significant changes would be required.

Update entry sign (high)
A new signs should be installed at main entrance using approved style type.

Install pet waste disposal system (high)
Rice Lake Nature Area should include waste disposal systems for their dogs; one at each main entry. This not only keeps the nature area clean, healthy and attractive.

Install educational sign (low)
Rice Lake Nature Area provides a rich experience for wildlife habitat viewing. Provide education signs near the Bassett Creek bridge and one on the pond boardwalk.

Upgrade trash receptacle (low)
The trash receptacle is one of the first amenities viewed upon entering the nature area. As such, it should not only provide maintenance functionality and efficiency but should also be attractive and reflect the image of the both Rice Lake Nature Area.

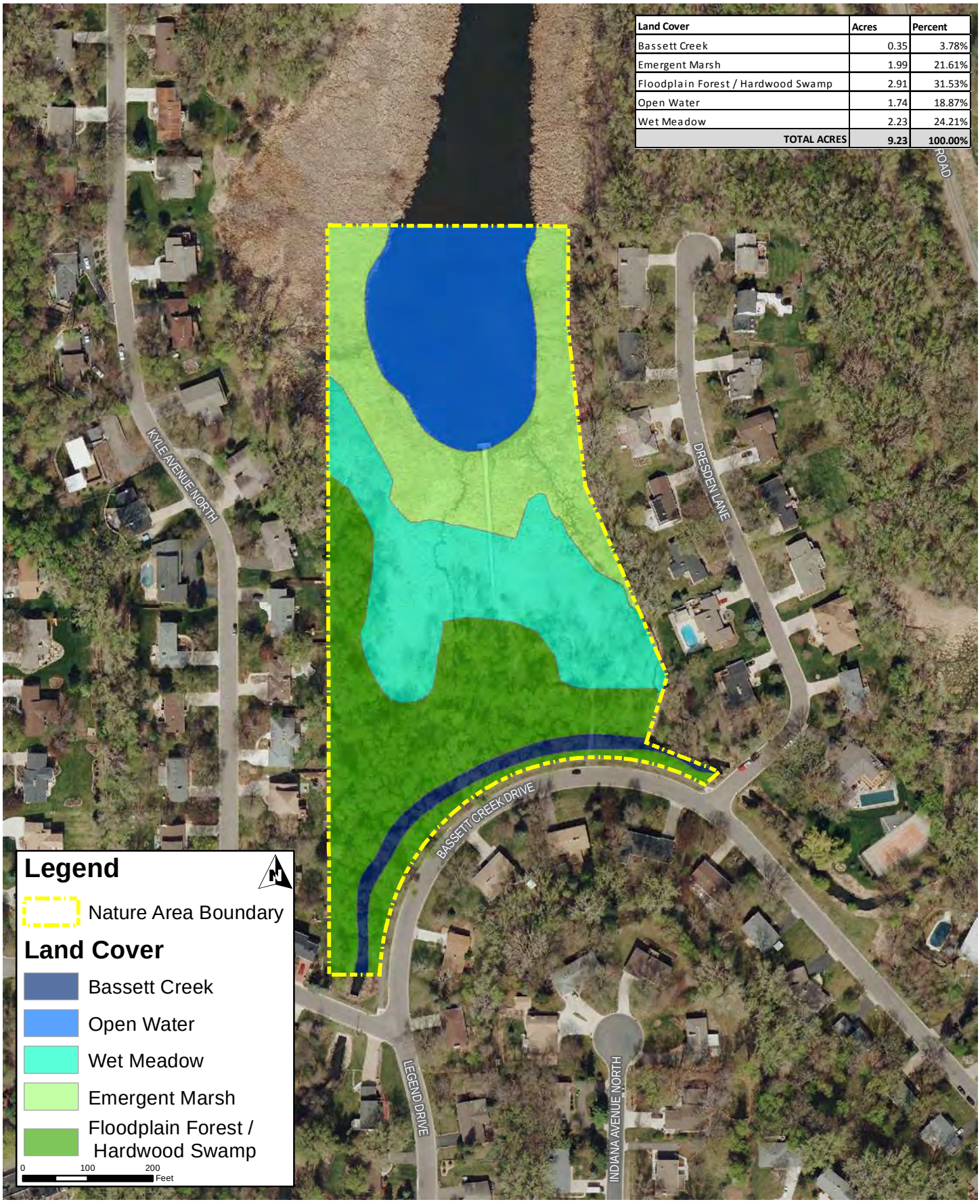
Table 5.18 Rice Lake Nature Area Improvement Priorities

Priority	Management Type	Description	Action	Qty	Unit	Unit Cost	Cost Opinion
High	Bassett Creek Improvements	Erosion control	Restore/stabilize eroding streambanks	1	LS	$75,000	$75,000 (Possible BCWMC project)
Medium	Aquatic vegetation	Manage for invasive species, and establish a high quality native sedge meadow	Herbicide reed canary grass, cattails, and purple loosestrife	2	Acre	$10,000	$20,000
Low	Upland woods and hardwood swamp	Improve forest health, diversity	Remove undesirable trees, establish native woodland communities	2	Acre	$5,000	$10,000
High	Amenity	Improve physical access	Evaluate ped bridge crossing, resurface earthen trails, repair boardwalk transition	1	LS	$30,000	$30,000 (costs significantly greater if new bridge needed)
High	Amenity	Provide continuity of entry sign design through nature area system	Install new sign at entry	1	Each	$5,000	$5,000
High	Amenity	Provide dog walkers with pet waste disposal system at key access point	Install new pet waste disposal system	1	Each	$600	$600
Medium	Amenity	Provide natural resources education	Install interpretive sign	1	Each	$3,000	$3,000
Medium	Amenity	Provide continuity of bench design through nature area system	Install new benches at entry and on deck overlook	1	Each	$2,000	$2,000
Low	Amenity	Provide continuity of	Install new waste/	1	Each	$2,000	$2,000

		trash receptacle design throughout nature area system	recycle trash receptacle at entry				
Low	Amenity	Improve physical access	Consider canoe access	1	Each	$5,000	$5,000

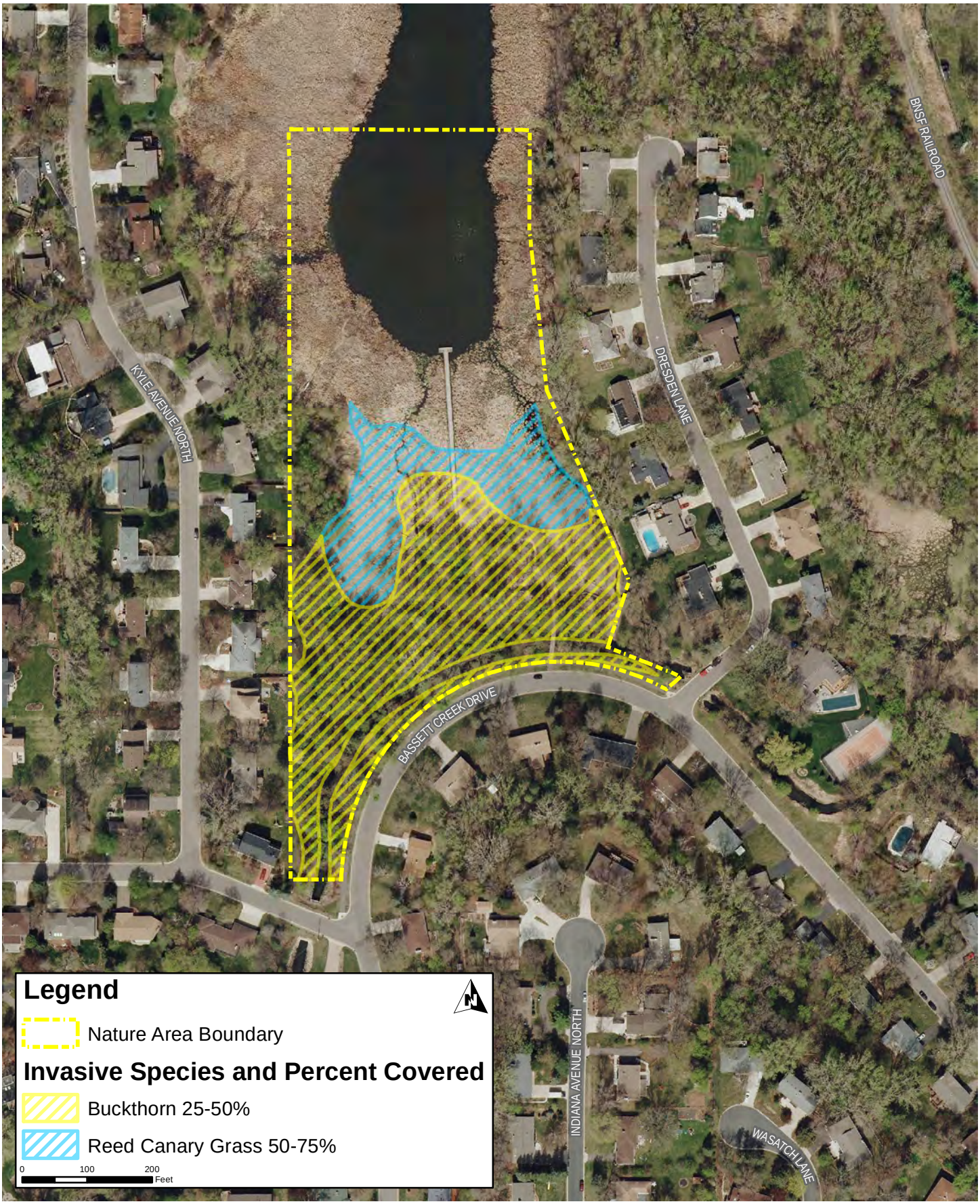
Rice Lake Nature Area - 2012 Aerial
Golden Valley Natural Resources Management Plan

FIGURE 5.52



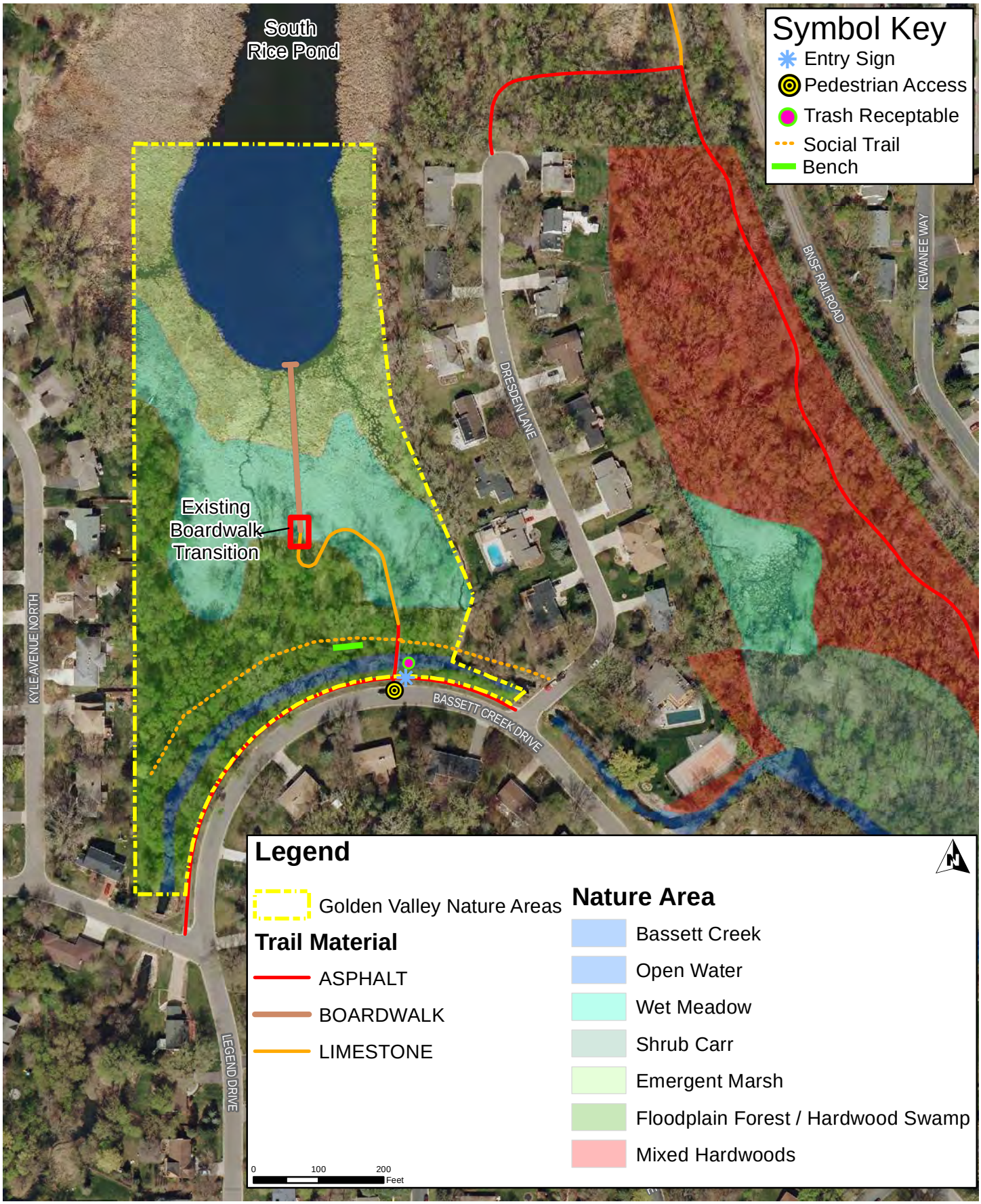
Rice Lake Nature Area- Land Cover
Golden Valley Natural Resources Management Plan

FIGURE 5.53



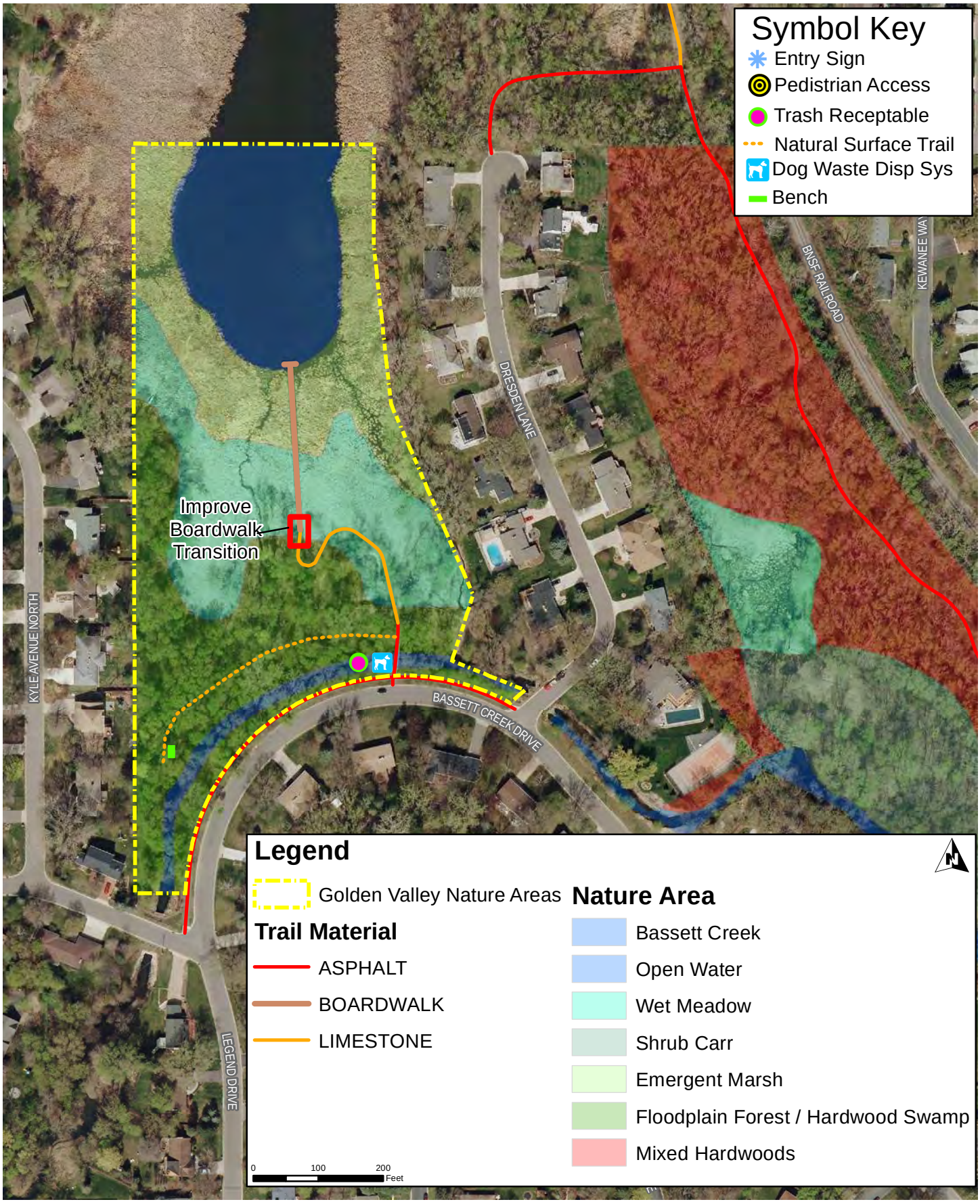
Rice Lake Nature Area- Invasive Species
Golden Valley Natural Resources Management Plan

FIGURE 5.54



Rice Lake Nature Area- Existing Amenities
Golden Valley Natural Resources Management Plan

FIGURE 5.55



Rice Lake Nature Area- Concept Plan
Golden Valley Natural Resources Management Plan

FIGURE 5.56


RICE LAKE
NATURE AREA

Western Avenue Marsh Nature Area

Location: 7600 Western Avenue

Nature Area Size: 21.65 Acres

Description

Western Avenue Marsh Nature Area is located east of Brookview Park and is surrounded by residential neighborhoods. The nature area is mostly wetland and floodplain, and access is limited; sidewalk is located along the southern edge of the marsh along Western Avenue. There are no amenities present.

Forest and Woodlands

Approximately half of the Western Avenue March Nature Area is wooded but the majority is wooded swamp, dominated by box elder and aspen trees. Wooded upland is limited to a few areas of higher ground, but is dominated by similar species.

Wetlands

The Western Avenue Marsh is a large wetland complex, and dominates the nature area. The majority of the wetland is cattail marsh, or box elder-dominated hardwood swamp. It appears that the wetland included some ditches, which have since filled in but are visible in the vegetation signatures.

Aquatic Resources

There are no specific aquatic resources present, although the size of the wetland complex could be considered a resource in itself.

Prairie and Grassland

No significant areas of prairie or grassland are present within the Western Marsh Nature Area.

Invasive Species

Reed canary grass is prevalent throughout the wet meadow portions of the wetland. By survey data, the density of reed canary grass is reduced, which appears to be related to the wetland hydrology increasing, and may be indicative of a transition to increased cattail marsh.

Purple loosestrife is also present, at approximately 10% cover within the emergent marsh habitats. Purple loosestrife was not surveyed here in 2003, but was present in low densities.

Table 5.19 Invasive Species Cover Percent Change 2003-2013			
Description	%Cover2003	% Cover 2013	% Change
Reed Canary Grass	90	70	-20
Purple Loosestrife	n/a	10	n/a

Site Recommendations

Natural Resources

The Western Marsh Nature Area is primarily a wetland and flood storage area. Specific recommendations include reed canary grass and purple loosestrife removal. Areas of wooded wetland are also present, and are dominated by less-desirable species. Selective removal of these wooded species, and planting of higher quality species could improve the quality of the wetland.

Amenities

Improve physical access (high)

No access currently exists to the Western Avenue Marsh. Without access, it is difficult to consider the Western Avenue Marsh as a Nature Area. Trail access may be possible along the eastern edge of the site from Western Avenue to Harold Avenue. This would provide a trail linkage that would cross the marsh, connecting Harold Avenue to Western Avenue. This trail extension would involve working with the adjacent property owner to gain access to Harold Avenue on the north end.

Install entry signs (high)

Currently there is only visual access to the Western Avenue Marsh Nature Area and no signs identify this area at this time. Location signs should be installed at the intersection of Winnetka Avenue and Western Avenue and at a proposed access point along the southeastern edge of the marsh.

Install pet waste disposal system (high)

Western Marsh Nature Area should include a waste disposal systems for dogs; one at the Western Avenue entry. This will keeps the trail through the nature area clean and attractive.

Install educational sign (medium)

The marsh area would provide an excellent opportunity to learn about a hardwood swamp and wet meadow habitat. Two signs could be installed; one at the corner of Winnetka and Western Avenues and the other near the wet meadow.

Install bench (low)

Install two benches; one along Western Avenue and one along a proposed trail.

Install trash/recycling receptacle (low)

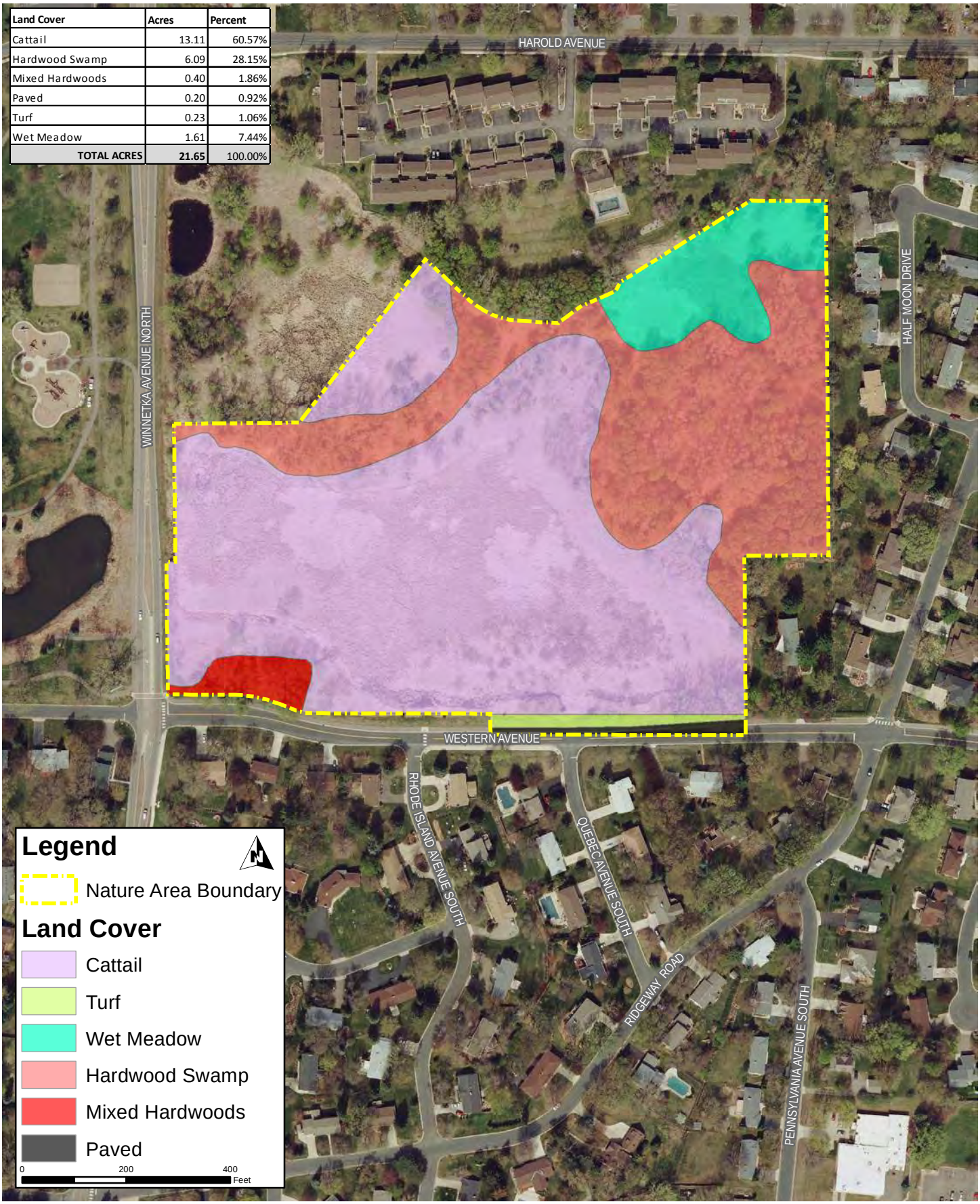
Install a trash receptacle near the proposed access point along Western Avenue.

Table 5.20 Western Avenue Marsh Nature Area Improvement Priorities

Priority	Management Type	Description	Action	Qty	Unit	Unit Cost	Cost Opinion
Medium	Upland woods and hardwood swamp	Improve forest health, diversity	Remove undesirable trees, establish native woodland communities	12	Acre	$500	$6,000
Medium	Wetland Meadow	Manage reed canary grass	Remove reed canary grass	13	Acre	$500	$6,500
High	Amenity	Provide continuity of entry sign design through nature area system	Install new sign at entry	3	Each	$5,000	$15,000
High	Amenity	Provide continuity of trash receptacle design throughout nature area system	Install new waste/ recycle trash receptacle at entry	1	Each	$2,000	$2,000
High	Amenity	Provide dog walkers with pet waste disposal system at key access point	Install new pet waste disposal system	3	Each	$600	$1,800
Medium	Amenity	Provide natural resources education	Install interpretive sign	1	Each	$3,000	$3,000
Medium	Access/Amenity	Improve access	Extend trail, pavement improvements (6' wide asphalt)	500	LF	$125	$50,000
Low	Amenity	Provide continuity of bench design through nature area system	Install new benches at entry and on deck overlook	2	Each	$1,500	$3,000

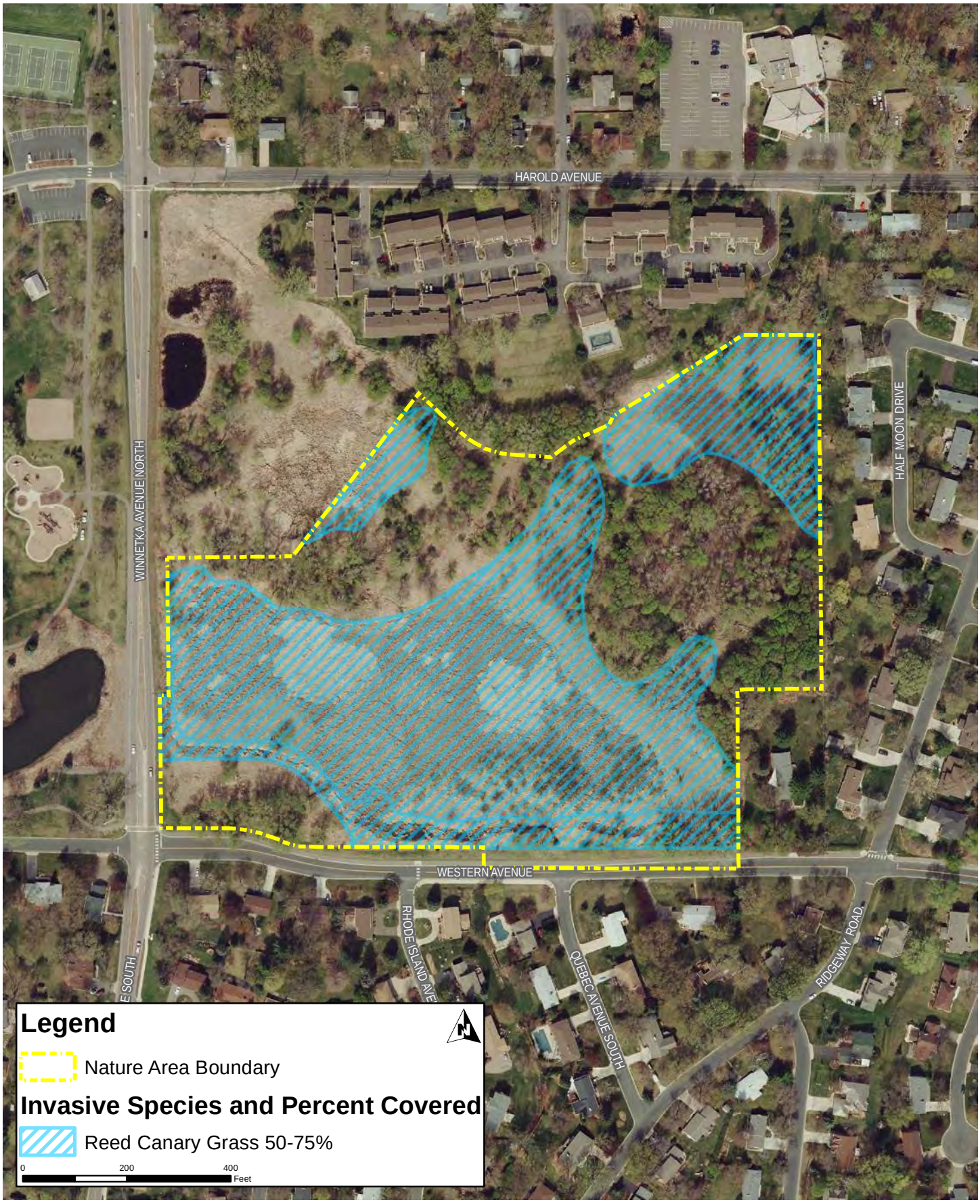
Western Avenue Marsh Nature Area- 2012 Aerial
Golden Valley Natural Resources Management Plan

FIGURE 5-57



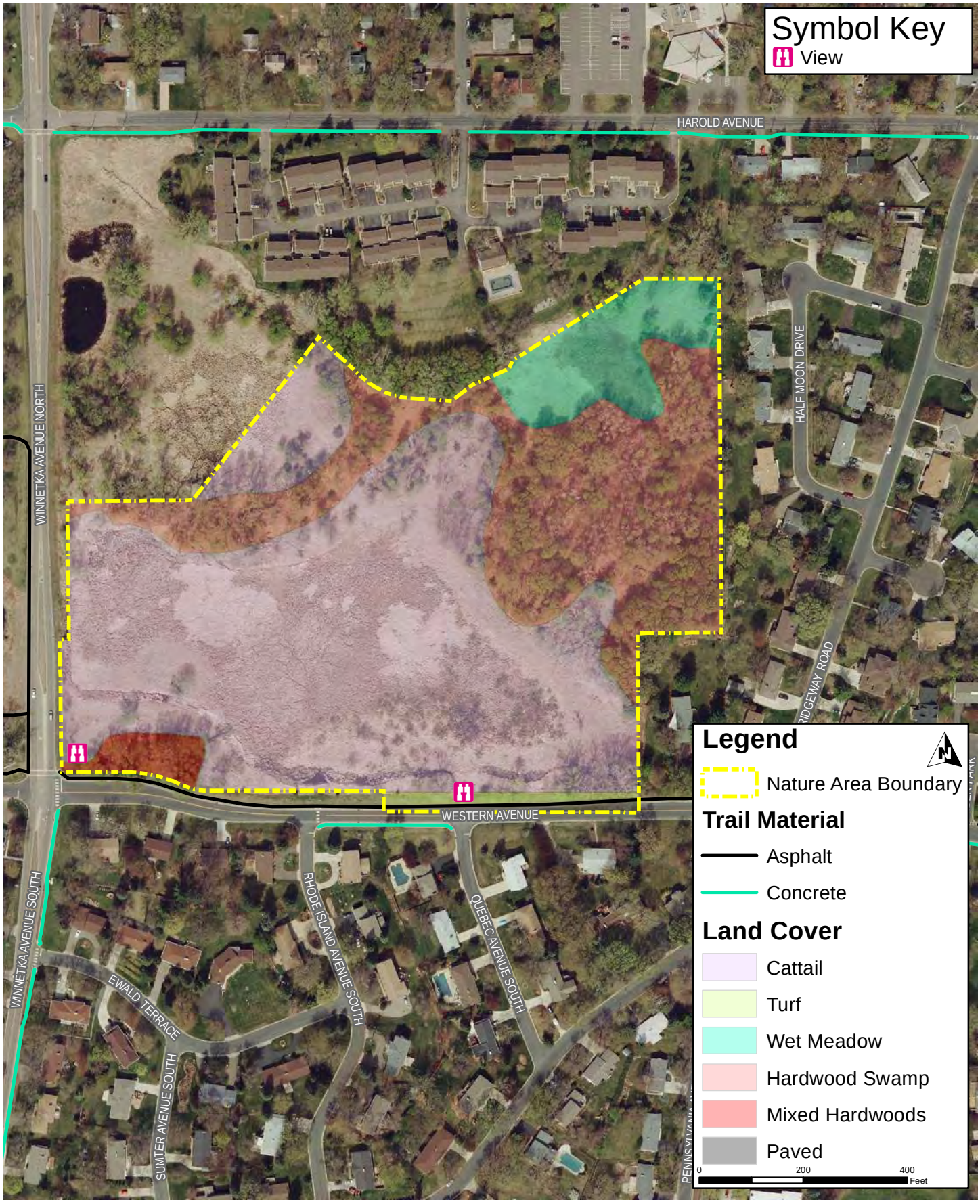
Western Avenue Marsh Nature Area- Land Cover
Golden Valley Natural Resources Management Plan

FIGURE 5.58



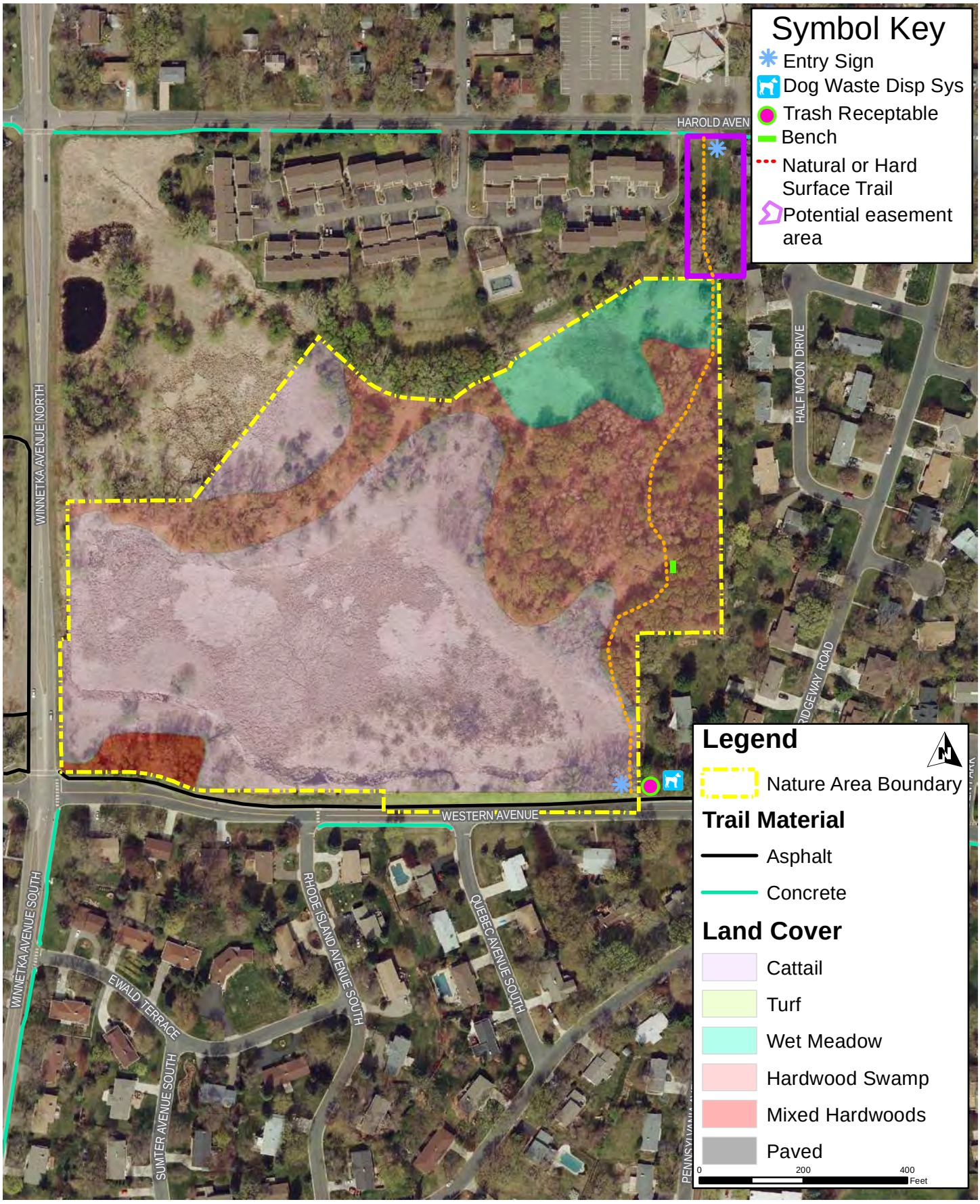
Western Avenue Marsh Nature Area- Invasive Speices
Golden Valley Natural Resources Management Plan

FIGURE 5.59



Western Avenue Marsh Nature Area- Existing Amenitites
Golden Valley Natural Resources Management Plan

FIGURE 5.60



Western Avenue Marsh Nature Area- Concept Plan
Golden Valley Natural Resources Management Plan

FIGURE 5.61

Section 6: Implementation

Introduction

The Natural Resources Management Plan, as a goal and policy guide to preserve, protect, restore, and enhance Golden Valley's natural resources has little meaning if it is not carried out with well-defined implementing programs and specific action items. This section discusses a number of implementation tools, funding sources, action items, and success criteria.

Implementation Tools

Implementation of the Plan will require obtaining resources, and providing guidance, to ensure that the implementation is completed in a timely and efficient manner. Typically, a combination of tools are used, each used where they are most effective. These may include:

Incentives: Can be used to encourage environmental stewardship on private land by rewarding sustainable natural resource practices. For developers, this may include an efficient and cost effective permitting process, and increased development opportunities (increased density, reduced setbacks, etc.). For businesses, this may include awards and public recognition, reduced business license/fee, etc. for responsible stewardship practices. For residents, this may include vouchers for native plant materials, technical assistance for restoration/enhancement of natural areas on their property, and community recognition for good stewardship.

City practices and programs: City departments share in the management of natural resources in Golden Valley through routine maintenance and best management practices such as street sweeping, storm water treatment and storm water pond maintenance, facilities cleaning, tree planting and trimming, and planting native buffers around storm water ponds. Continuing to promote these type of sound stewardship practices will ensure that Golden Valley's natural resources will remain among the community's most valued assets.

Public outreach, citizen participation and education: Natural resources are not restricted to public land as they extend across public and private properties and beyond the City limits. Getting the public involved in managing natural resources at a holistic level can be achieved through public outreach and educational programs. These can be used to solicit community input and share both positive and negative impacts to natural resources resulting from personal decisions.

The City should continue to share information through the City's website (www.goldenvalleymn.gov), newsletters, brochures, press release distribution to area newspapers, local cable TV, and other forms of social media, i.e., facebook, twitter, etc.

The City should also continue to encourage opportunities for citizen participation at all levels of the natural resource planning and implementation process. This can happen through the appointed citizen commissions and boards, attendance and participation at public meetings, and establishment of additional volunteer opportunities and programs.

A major goal of environmental and natural resources education is to help develop environmental awareness and stewardship in the community. Offering periodic community workshops on invasive species control, selecting and planting native trees and vegetation, or on creating wildlife (including pollinator) habitat, would not only provide an educational opportunity but a social venue for like-minded citizens. Other education methods may include website brochure or video downloads or airing educational videos on cable network, continuing to publish feature and educational articles in the newsletter, and hosting photographic contests specifically related to natural resources and sustainable management practices. Residents also like to come together as a community to celebrate various themes that include food, entertainment, and a cause; one theme could relate to what is of current importance, e.g., "community pollinators" or "the world of bees and butterflies".

Nature Area Expansion/Land and Easement Acquisition: The most effective method of ensuring that natural resources are managed according to City's standards is for the City to acquire easements or available land within the City to create new Nature Areas or expand existing areas if circumstances allow or opportunities arise.

While it would not be practical or economically feasible for the City to purchase and manage all natural resource areas, the City could identify the most ecologically diverse or valuable areas or corridors, prioritize them as most likely candidates, and work with consenting landowners and developers. Once acquired, the City should manage them according to adopted management practices.

Regulations/Enforcement on private and public property: Regulations/enforcement methods are often the most extensively used natural resource management tool used by city government. Common regulations include:

- **Zoning**: Primary regulatory tool used by governmental units to implement planning policies. It also assists in the protection of natural resources while accommodating compatible human uses. The City may want to consider establishing an environmental or green corridor overlay zone to protect highly valued natural resources such as Bassett Creek or the Sweeney Branch of Bassett Creek.

- **Subdivision Ordinances:** Most widely used control mechanism. The purpose of the ordinance is to safeguard the best interest of the City, the homeowner, and the developer, encourage well planned subdivisions by the establishment of design and construction criteria; to improve land records by establishing standards for surveys and plats; and protect Golden Valley's natural resources including water resources and other environmentally sensitive areas of the city.

When combined with public education on property boundaries, rules, and consequences, the effectiveness of a regulatory management tool is increased. Enforcement of regulations should be authorized by City Code, supported by the City Council, and implemented by City Staff.

Funding

Capital Improvements Program

A Capital Improvements Program (CIP) is a capital expenditure plan for a community's infrastructure and may include public buildings, streets/sidewalks/alleys, utilities and storm water systems, park and trail system and possibly the management of natural resources. The CIP may outline key natural resource related projects that the City plans to undertake in the next 5-10 years, and how they may be financed. The CIP is updated every year and anticipates projects and spending for a five year period. The City also has a biennial operating budget which is reviewed and updated every year. The approval process for the budget and CIP should include a review by the City Council to ensure consistency of the projects with other elements of the plan. It is anticipated that implementation of the NRMP may require an increase or reallocation of existing funding in the natural resource sections of the operating budget and CIP.

Park Dedication Fees

The City has a park dedication fee that is required to be paid when developing or platting property in the City. Funds from the collection of these fees could be used for natural and amenity improvements in the nature areas.

Grant Opportunities

Grants provide an important source of funding for natural resources-related projects, and are offered by federal, state, and local agencies and organizations. While funding sources and requirements are relatively fluid over time, following is a list of potential sources of natural resource funding opportunities. The selected sources are those available in 2015, and are anticipated to remain as potential sources for the foreseeable future:

Agency: ***Minnesota Department of Natural Resources***

Program: Parks and Trails Legacy Grant Program

Purpose: To provide grants to local units of government to support parks and trails of regional or statewide significance. Funding for this grant program is from the Parks and Trails Fund created by the Minnesota Legislature from the Clean Water, Land and Legacy Amendment.

Eligible projects: Include acquisition, development, improvement, and restoration of park and trail facilities of regional or statewide significance. Significance is determined by a regional setting, high quality opportunity and usage, sufficient length or connectivity to other trails, and within areas that currently lack sufficient trails. All park projects must meet requirements for perpetual outdoor recreational use.

Level of assistance: Grants are reimbursement based up to 100% of the total eligible project costs. Additional consideration in the selection process will be given to applicants that provide a non-state cash match.

Park legacy priorities: Priority for park project funding will be given to projects that address the priorities outlined in the *Parks and Trails Legacy plan*. Consideration will also be given to the design of the proposed project and existing park facilities. Project design should be compatible with the physical characteristics of the site, consistent with

generally accepted engineering and architectural design standards, in accordance with accessibility standards and minimize risk to the health and safety of users.

How to apply: Application are due in September annually. Grant application materials can be found through the programs website (http://dnr.state.mn.us/grants/recreation/pt_legacy.html)

Program: Conservation Partners Legacy Grant Program

Purpose: The Conservation Partners Legacy Grant Program funds conservation projects that restore, enhance, or protect forests, wetlands, prairies, and habitat for fish, game, and wildlife in Minnesota. Funding for the CPL grant program is from the Outdoor Heritage Fund, created by the people of Minnesota.

Eligible projects: Include projects that restore, enhance, or protect natural resources. This program funds a wide variety of project types, provided they are focused on natural resources.

Level of assistance: The Minnesota Department of Natural Resources manages this reimbursable program to provide competitive matching grants from $5,000 to $400,000 to local, regional, state, and national nonprofit organizations, including government entities.

How to apply: There are typically two funding cycles, with the initial cycle receiving application in August and decision making by the end of trhe calendar year. A second round is dependent upon availability for resources following the initial round of selection. The City is within the Metro grant cycle. Information on the program is available through the program's website (http://dnr.state.mn.us/grants/habitat/cpl/index.html).

Agency: Legislative-Citizen Commission on Minnesota Resources (LCCMR)

Program: Legislative-Citizen Commission on Minnesota Resources Grant

Purpose: To provide grants to anyone with innovative ideas for environment and natural resources projects that could provide multiple ecological and other public benefits. Funding for this grant program is from the State of Minnesota Environment and Natural Resources Trust Fund.

Eligible projects: foundational natural resources data and information, water resources, environmental education, aquatic and terrestrial invasive species, air quality, climate change, and renewable energy, methods to protect or restore land, water, and habitat

Level of assistance: The program has no specified minimum or maximum funding requests, but does tend to fund based off of innovation, environmental importance of the project, and eligibility under competing programs.

How to apply: The Request for Applications is usually initiated on the first of January of each year, and are typically due in May of the same year. Grant application materials can be found on the program's website (http://www.lccmr.leg.mn/)

Agency: Hennepin County

Program: Natural Resources Grant

- **Purpose:** To provide grant assistance to landowners, local governments and organizations for projects to preserve and restore critical corridors and wildlife habitat, reduce soil erosion and improve water quality.

- **Eligible applicants:** Hennepin County individual landowners, non-profit and non-governmental organizations, local government agencies, and businesses.

- **Eligible project examples:** Projects that implement Best Management Practices (BMPs) to restore native vegetation, reseed pastures, stabilize stream banks, restore wetlands, reduce soil erosion, reduce stormwater runoff volume, and/or increase infiltration, install grass waterways, install vegetated filter strips, construct rain gardens.

- **Level of assistance:** Up to $50,000. Maximum cost-share is 75% of total eligible project cost. Applicant is responsible for 25% of the cost of project installation. Contribution may be cash and/or in-kind contribution. Available funds may be available as a match for projects where Hennepin County is a partner.

- **How to apply:** Information, funding schedule and grant application materials can be found on the County website (http://www.hennepin.us/residents/environment/natural-resources-funding)

Inter-Governmental Cooperation

One of the key Natural Resource Management Plan implementation programs is Golden Valley's cooperation with others including federal, state, and local agencies, non-profit organizations, and adjacent local governments. The reason this is so important is because Natural Resources are not limited by jurisdictional boundaries. Planning and management issues often have regional implications that impact several jurisdictions. Coordination agreements and cooperative decisions must be made to effectively implement the City's Natural Resources Management Plan as well as to help other jurisdictions attain their goals and policies. Key partners include adjacent cities, Minneapolis Park and Recreation Board, Three Rivers Park District, Hennepin County, MnDOT, Robbinsdale and Hopkins School Districts, Perpich Center for Arts Education, Metropolitan Council

Action Items

A final step in the Natural Resources Management planning process is to set priorities for general and specific management strategies for the City's natural resources and specific Nature Areas to achieve its vision, goals, objectives and policies. Just as distinct policies can speak to a given goal, a community can select a range of action items or steps consistent with its policies – to achieve any of its goals. Reaching an understanding of which should be given the highest priority and a given timeframe is a key step in implementing the Natural Resources Management Plan.

Table 6.1 summarizes a list of critical action items to implement the Plan's policies. The action items have been assigned a priority rating of high, medium, or low and assigned a completion timeline in terms of short, medium, or long timeframe that the City should undertake to implement the Plan. Also included are action items that will need to be acted upon on an on-going basis. The recommended action items may require substantial cooperation with other agencies, local governments, interest groups, homeowners, etc. In addition, other local government and agency priorities may affect the completion of these key actions in the time frames presented.

Table 6.1 Natural Resource Implementation Action Item Matrix (update based on indiv area plans in Ch.5)						
	Priority	Short - Term (1-5 Years)	Medium-Term (6-10 Years)	Long-Term (10+ Years)	On-going	Est. Cost
General Natural Resource Improvements						
Address encroachment through education, identification, and boundary demarcation	High	X			X	$25,000
Develop communication/education plan with topics and schedule, deliver using website & new technologies	High	X				$25,000
Market nature areas, and distinguish them from active parks	Medium		X		X	$10,000
Expand certain nature areas through agreement, easement, or acquisition as opportunities arise	Medium		X		X	$5,000 to $25,000
Develop maintenance schedule for nature areas and open spaces	Medium	X				$5,000
Complete tree inventory in all nature areas and open spaces	Low		X			$20,000
Adeline Nature Area						
Remove Buckthorn	High	X			X	$4,000
Manage Woodland Health	Medium		X			$5,000
Bassett Creek Nature Area						
Remove/control buckthorn	High	X			X	$10,000
Remove undesirable trees, establish mixed age-class of oak trees	Medium		X			$10,000
Regrade erosional channels along the bluff and address concrete fill	Medium	X				$2,000
Reestablish oak savanna	Low					$20,000
Briarwood Nature Area						
Remove buckthorn	High	X			X	$30,000
Controlled burns, herbicide applications, periodic reseeding	High	X		X		$25,000
Remove damaged trees, plant younger and more diverse trees	Medium		X			$10,000
General Mills Nature Preserve						
Reed canary grass, purple loosestrife control within wetland bank	High	X			X	$35,000
Controlled burns, herbicide applications, periodic reseeding	High	X				$21,000
Remove buckthorn	Low	X			X	$10,500
Remove damaged trees, plant younger and more diverse trees	Low		X			$10,000
Golden Ridge Nature Area						
Remove buckthorn	High	X			X	$8,000
Maintain & plant younger conifers	Medium		X			$8,000

Laurel Avenue Greenbelt						
Remove buckthorn	High	X			X	$8,000
Tree Inventory	Low		X			$6,600
Mary Hills Nature Area						
Remove buckthorn	High	X			X	$25,000
Remove damaged trees, plant younger and more diverse trees	Medium		X			$20,000
Pennsylvania Woods Nature Area						
Remove buckthorn	High	X			X	$8,000
Maintain maple-basswood community, plant younger trees	Medium			X		$10,000
Rice Lake Nature Area						
Bassett Creek bank stabilization	High		X		X	$20,000
Herbicide reed canary grass, cattails, and purple loosestrife	Medium	X			X	$20,000
Remove undesirable trees, establish native woodland communities	Low	X			X	$10,000
Western Avenue Marsh						
Remove undesirable trees, establish native woodland communities	Medium		X			$6,000
Remove/control reed canary grass	Medium		X			$6,500

Note: For total management acreage estimates per strategy, see Specific Nature Area Management Plans in Chapter 5 of this document.

Table 6.2 summarizes a list of critical action items to implement the Plan's policies related to amenities. These are similarly important to the public value of the nature areas, but reflect the physical aspects of the user's experience, and less the ecological importance. Like the natural resource improvements, the amenity action items have been assigned a priority rating of high, medium, or low and assigned a completion timeline in terms of short, medium, or long timeframe that the City should undertake to implement the Plan. The majority of the major recommendations overlap the areas, and are part of a process to unify the management and use of the areas.

Table 6.2 Nature Area Amenity Improvement Action Item Matrix						
	Priority	Short - Term (1-5 Years)	Medium-Term (6-10 Years)	Long-Term (10+ Years)	On-going	Est. Cost
General Amenity Improvements						
Standardize and Install Entrance Signs throughout system	High	X			X	$100,000
Complete sign and amenity design guidelines	High	X				
Install general wayfinding and educational signage	Medium		X			
Install Trash/Recycling Receptacles	Medium	X			X	$40,000
Install Pet Waste Receptacles	Low		X		X	$20,000
Complete field assessment of open space parcels	Low		X			
Specific Nature Area Recommendations						
Adeline Nature Area						
Install benches near entrance and at dock	Medium		X			$4,500
Remove and maintain tree limbs and shrubs obstructing views	Medium	X			X	$1,000
Install interpretive sign	Low	X				$3,000
Install post and cable barrier	Low		X			
~~Install tunnel under the Union Pacific railroad tracks~~ (Deleted in 2017 by EC)	~~Low~~	-	-	~~X~~	-	~~$500,000~~
Bassett Creek Nature Area						
Reroute lower trail, pavement improvements	High	X				$70,000
Install additional interpretive sign along the creek	Medium	X				$3,000
Install new benches along the trail at appropriate intervals or at key viewpoints	Medium		X			$6,000
Briarwood Nature Area						
Obtain agreements, easements, or complete land exchange to formalize social trails for public usage	High		X			$10,000
Extend trail, possible pavement improvements	High		X			$95,000
Install benches at regular intervals or at key viewpoints	Medium		X			$6,000
Install additional interpretive signs along trail	Low	X				$6,000
Identify and construct canoe access	Low			X		$5,000

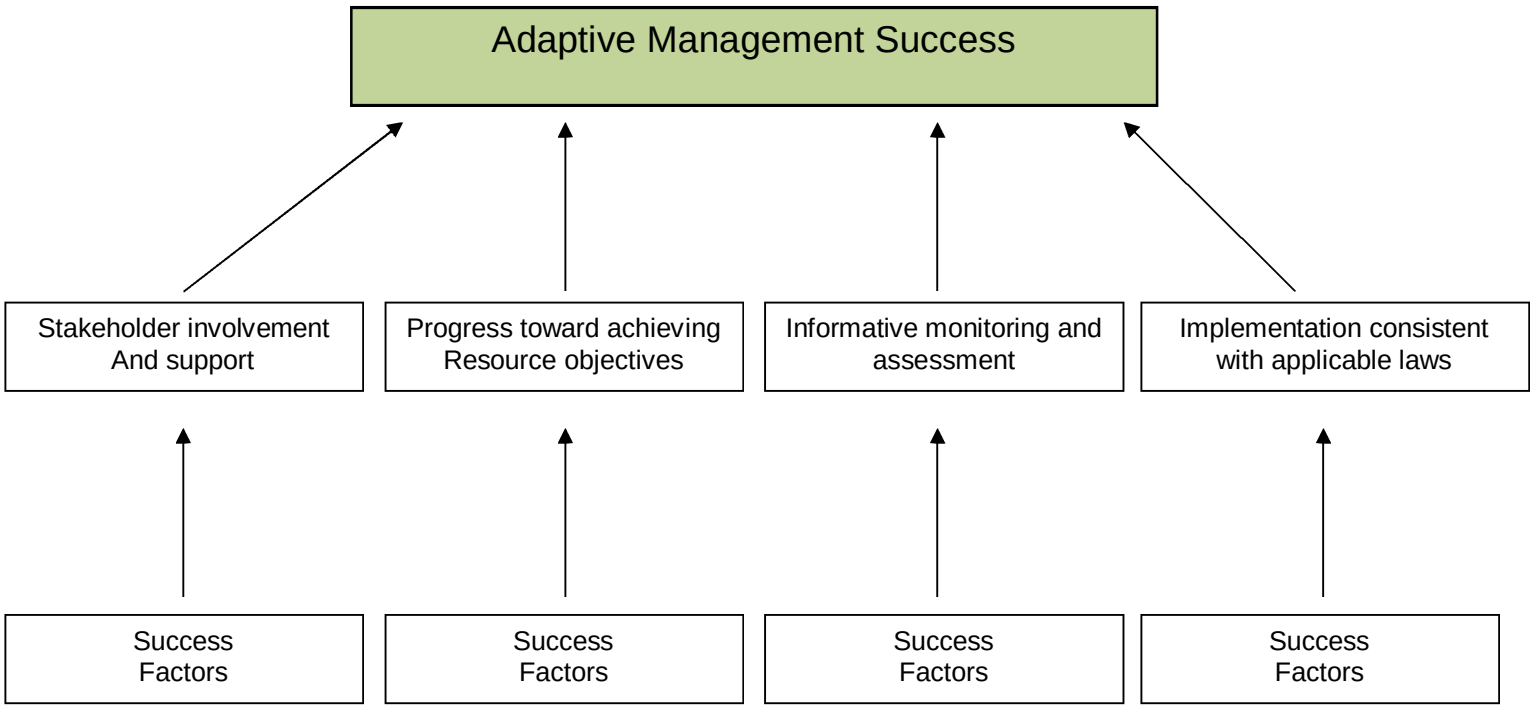
General Mills Nature Preserve						
Maintain trail system	Low			X		$5,000
Golden Ridge Nature Area						
Install interpretive sign along the trail within the conifer plantation	Low		X			$3,000
Install new benches along two main trails	Low		X			$3,000
Laurel Avenue Greenbelt						
Install interpretive sign along trail at key vantage points	Medium		X			$9,000
Install benches at entry and on deck overlook	Medium		X			$12,000
Natural surface trail development	Low			X		$12,000
Pavement improvements (6' wide asphalt trail) revise 8 feet wide	Low			X		$30,000
~~Install canoe access for recreation us of the ponds~~(Deleted in 2017 by EC)	~~Low~~			~~X~~		~~$10,000~~
Mary Hills Nature Area						
Collaborate on the Sochacki Park/Mary Hills/Rice Lake Nature Area plan	High	X				$25,000
Pennsylvania Woods Nature Area						
Maintain culvert maintenance access	High	X				$8,000
Install 2 types of educational signs	Medium	X				$6,000
Install new benches along the trail at regular intervals or at key viewpoints	Medium		X			$6,000
Rice Lake Nature Area						
Collaborate on the Sochacki Park/Mary Hills/Rice Lake Nature Area plan	High	X				$25,000
Evaluate stability of Bassett Creek span, resurface natural surface trails, repair/replace dock transition	High		X			$30,000
Install new benches at entry and on deck overlook	Medium		X			$2,000
Install interpretive sign	Medium			X		$3,000
Consider canoe access	Low			X		$5,000
Western Avenue Marsh						
Extend new trail, pavement improvements 8 feet wide asphalt	Medium			X		$50,000
Install interpretive sign	Medium			X		$3,000
Install new benches at entry and on deck overlook	Low			X		$3,000

Adaptive Management Success Criteria

Implementation of natural resource adaptive management is typically defined as successful if progress is made toward achieving its goals through a "learning-based" or adaptive decision making process. Recognizing success in an adaptive management approach are based on four criteria (See Figure 6.1):

- Stakeholders are actively involved and committed to the process.
- Progress is made toward achieving management objectives.
- Results from monitoring and assessment are used to adjust and improve management decisions.
- Implementation is consistent with applicable laws.

Figure 6.1 Adaptive Management Success Model



Source: DOI

Maintaining the Plan

To ensure the Natural Resources Management Plan remains a dynamic and usable document, the City should implement an on-going planning process that uses the Plan to develop annual improvement projects. It should also be reviewed and evaluated periodically to ensure that its goals, objectives, policies, and programs continue to reflect changing needs. To serve as an effective tool, the Plan should be used as part of the day-to-day and monthly planning and management routine by committed elected and appointed officials, City staff members and citizens. The Plan should also be referenced in other planning studies and reports when considering any impacts or improvements to the City's natural resources.

Amending and Updating the Plan

Amending the Plan

While major updates are typically made every ten years, periodic amendments can provide an opportunity for relatively minor plan updates and revisions such as changed conditions – in future land use designations, nature area expansions, implementation actions, and review of the Plan for consistency with ordinances. Process for Amending the Natural Resources Management Plan should be similar to the process used to develop this Plan.

Updating the Plan

The City of Golden Valley should review this Natural Resources Management Plan annually. If there are significant physical changes; changes in community needs, priorities, trends; or significant regulatory changes by adjacent jurisdictions or agencies with oversight, the City should update the Plan accordingly. At a minimum, the City should update this Plan every ten years or in conjunction with the Comprehensive Plan Update. The process for updating the Natural Resources Management Plan should be similar to the process used to develop this Plan.