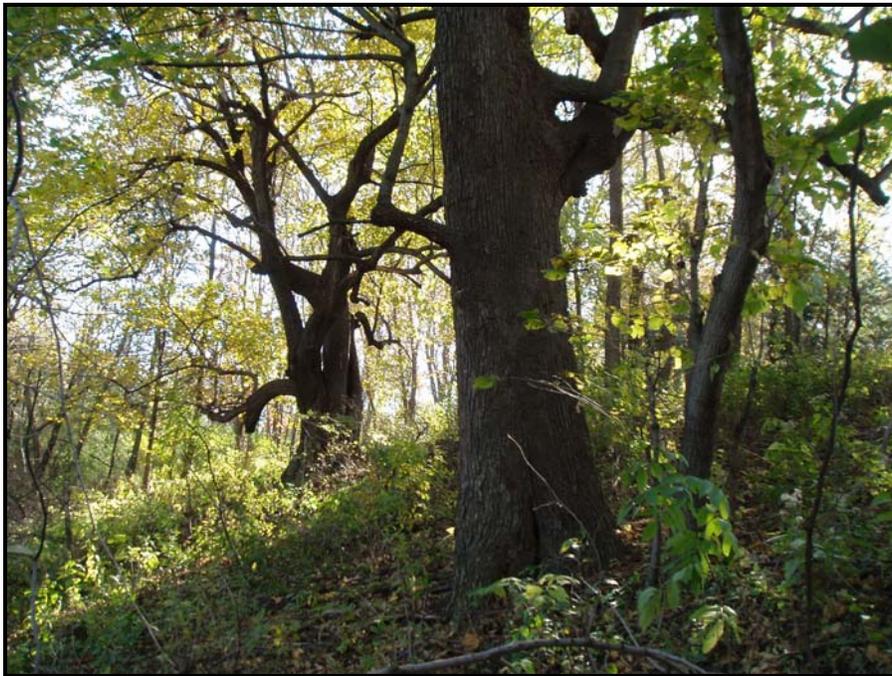


NATURAL RESOURCES PLAN



**OVERVIEW, GOALS,
STRATEGIES AND TACTICS**

NATURAL RESOURCES PLAN OVERVIEW

The Natural Resources Plan addresses the natural resources and environmental issues of Shakopee. The natural resources element of the comprehensive plan includes topics such as lakes and streams, wetlands, woodlands, upland vegetation, wildlife habitat, endangered and threatened species, steep slopes and bluffs, recreational opportunities, accessibility and natural resources corridors for residents, as well as public education.

RELATIONSHIP TO THE CITY VISION

The Shakopee Visioning Initiative was completed in 2005. This extensive process that included citizens, elected officials, and staff supports the guiding principle of the plan. Two goals supporting the vision and mission of the City include a *High Quality of Life* and an *Active and Healthy Community*. Strategies to achieve these goals include *Protect the Environment, Foster Community Connections, and Enhance Physical, Mental, and Spiritual Health*. These goals and strategies relate to the following excerpt from the Vision Statement and provide a basis for the Natural Resources Plan:

.....Where distinct neighborhoods and business areas connect with each other through greenways and trails to protected natural habitat, recreational attractions, and other destinations; and where the arts deepen and enhance our community.

Where active, healthy, individual, and family lifestyles are supported through varied recreational and educational opportunities; where we demonstrate our commitment to youth; where both young and old enjoy community gathering places; where neighbors of all backgrounds respect and appreciate each other; and where diversity is celebrated.....

The vision statement was created in part through a steering committee that was highly aware of the natural beauty within their community, opportunities for a healthy lifestyle, and the increasing diversity of their population. They strongly supported options that foster community and a healthy lifestyle for all. They recognized that citizens of Shakopee appreciate and value the high quality of life they find in Shakopee, and are sincerely committed to maintaining this wonderful quality of life and sharing it with their neighbors.

NATURAL SETTING

The natural features of Shakopee, which include the Minnesota River and adjacent floodplain and bluffs, are central features that attracted early settlement and continue to attract residents and businesses today. These natural features are important to Shakopee

because they contribute to the community's identity and bring it recognition and because they provide natural habitat, storm water management and flood control, contribute to air purity, and increase property values.

As Shakopee becomes a more popular place to live, the environmental resources need ever more protection and management. In order to protect these resources the City must have policies and guidelines for natural features such as woodlands, wetlands, lakes and streams, slopes, non-woody upland vegetation, wildlife habitat, and endangered species. In addition, the plan needs to recognize special areas and issues that impact the natural environment, and establish direction or guidelines to minimize negative impacts on the environment.

In 2002, the City of Shakopee, in partnership with the Minnesota Department of Natural Resources, commissioned a natural resources inventory using the Minnesota Land Cover Classification System (MLCCS) for lands within the City of Shakopee, Jackson and Louisville Townships. The document "Land Cover of Northern Scott County – A Natural Resources Inventory of the City of Shakopee, Jackson and Louisville Townships" was completed in September 2002, is adopted as an addendum to this Comprehensive Plan, and is herein referred to as "the Natural Resources Inventory (NRI)."

To develop natural resources protection strategies and establish land use objectives, the Natural Resources Inventory divided the study area into regions that have similar physical context, land use, and remnant natural areas. A description of each region is provided below:

1. Minnesota River Floodplain

- Land cover: mixture of floodplain, forests, backwater wetlands and agriculture
- Regional conservation corridor
- Majority of Northern Scott County's high quality natural areas are located within
- Majority of the region is protected (publicly owned, wetland laws, etc.)
- Habitat for game and non-game species
- Existing recreation and trail program established (Promote further and connect to system)

2. Mining, Landfill, Transportation and Fallow Fields

- Land Cover: exposed earth (landfills, mining, compost), fallow grassland and sprawling development south along U.S. Highway 169
- As the landfills fill-up and the aggregate mines run dry, there is potential for reclamation and restoration

3. 3rd Floodplain Terrace Deciduous Forest

- Land Cover: agriculture, deciduous forest, and residential
- Large intact forest remain as a result of steep historic Minnesota River floodplain terrace
- Forests are holding highly erodible slopes

- Residential development is a threat to further forest fragmentation
4. **Agricultural Plateau**
 - Land Cover: agricultural dominated with scattered residential
 - Majority of pre-settlement vegetation has been removed or degraded
 5. **Lake District**
 - Land Cover: open water, wetlands, and residential development
 - Recent low-density residential development has consumed majority of lakeshore
 - More public ownership is needed for access to valuable resources
 - Land practices and individual septic systems pose a severe threat to water quality
 - Scattered high quality forest and wetland natural areas
 6. **Agriculture – Wetland Interchange**
 - Land Cover: agriculture cropland with scattered lowland herbaceous and shrubland wetlands
 - Increasing residential development pressures
 - High concentration of wetlands
 7. **The Plains**
 - Land Cover: agriculture cropland
 - Except for the SW corner, the region is void of any significant natural resources
 - Very little elevation drop
 - The Mdewakanton Sioux Community owns large portion of the region
 8. **2nd Floodplain Terrace Deciduous Forest**
 - Land Cover: agricultural cropland, deciduous forest, and residential
 - Forests are fragmented but many are very high in quality
 - Converging deciduous forest of Maple-Basswood, Oak and Hickory
 9. **Development Pressure**
 - Land Cover: impervious surfaces, grasslands and forest
 - Recent and ending developments have removed some of the highest quality natural areas in Northern Scott County
 - A few high quality Oak Forest and Savannas remain
 10. **Dean’s Lake**
 - Land Cover: wetland, open water, woodland, and impervious surface
 - Large wetland complex
 - Majority regions remaining natural areas are protected (publicly owned, wetland laws, etc.)

11. Remnant Savanna/Man-made Lakes

- Land Cover: Fallow grasslands, open water, remnant savanna, and impervious surfaces
- Unique region with a few landowners (utilities, mining, and shipping), and contain high quality remnant savanna and man-made water bodies

12. Industry and Recreation

- Land Cover: high percentage of impervious surfaces and maintained grasslands
- Contains low percentage and low quality natural areas

13. Early Successional Woodland

- Land Cover: Woodland, grasslands, and impervious surfaces
- Large percentage of undeveloped or fallow land
- Abandonment of use has resulted in colonization by pioneering and invasive species
- Low quality woodlands and grassland exists

14. Shakopee Core

- Land Cover: Impervious surfaces with scattered openings of maintained grasses and trees
- 90% built out

These fourteen landscape delineations and the corresponding map are found in Chapter 5 of the Natural Resources Inventory (2002) document.

BACKGROUND AND CURRENT TRENDS

Based on the Marschner Map, which was created in 1929 and 1930 utilizing Public Land Survey notes from 1847 through 1907 and landscape patterns, the landscape where the current City of Shakopee is located consisted of river bottom forest, prairie, oak openings and barrens, and big woods (oak, maple, basswood, and hickory). According to this map most of Shakopee west of Dean Lake consisted of prairie. The majority of the landscape north and east of Dean Lake consisted of oak openings and barrens. The remaining landscape consisted of river bottom forest along the Minnesota River and big woods south of the prairie and oak openings and barrens landscapes.

As time moved forward farming and industry lead to the establishment of the Shakopee river town. During the past decade, Shakopee has faced the challenge of planning for community infrastructure and natural resources in the midst of rapid urban growth. Community growth has continued to occur at a high rate, and stress on infrastructure, services, and the environment are apparent. More recently, growth has started to impact the natural resources and environment within Shakopee and the surrounding area since the completion of Highway 169 in 1996. Woodland areas have been lost, wetlands have been impacted, erodible steep slopes are disturbed, sewage must be treated and released

into the river, vehicles contribute to poor air quality, garbage is created, and wildlife habitat is fragmented or lost. Natural resources within Shakopee have been impacted by the increased development pressure.

To address the need to plan for, protect and manage the unique natural resources of Shakopee, this Natural Resources Plan section has been incorporated into the Comprehensive Plan. The plan carries forward many of the principles, goals, and policies established in previous community planning documents as well as identifies new tools and strategies to implement the goals and policies for protecting the environment.

SUPPORTING INFORMATION

In 2004 the City of Shakopee Environmental Advisory Committee began work on developing a Natural Resources Corridor Map through a cooperative project of the Bush Foundation and the Minnesota Department of Natural Resources. This process primarily utilized the Natural Resources Inventory completed in 2002 as well as other available natural resources information from local, state, and federal agencies. The Environmental Advisory Committee completed work on the Natural Resources Corridor Map and it was approved by the City Council on November 9, 2005. In addition, the work completed by the Environmental Advisory Committee was included as a case study in the *Using Natural Resources in Comprehensive Planning (2006): A companion to the Metropolitan Council's Local Planning Handbook*. This handbook was a multi-agency collaboration created to assist any communities interested in including a natural resources element to their comprehensive plans.

The purpose of the Natural Resources Corridor Map project was to identify and connect the community's natural systems and areas. The goal of the project is to work with future developers to preserve these valuable natural amenities for future generations to enjoy. Natural Resources Corridors identify and connect the community's natural systems and areas. These corridors provide habitat for the movement of wildlife and protection of sensitive or rare natural resources. Natural Resources Corridors enhance the ecological function and aesthetic quality of natural areas by interconnecting them, thereby countering habitat fragmentation and loss. Additionally, Natural Resources Corridors can link the major natural features to the local park system and established wildlife areas.

Shakopee staff and the Environmental Advisory Committee organized many workshops to establish and review a methodology for the Natural Resources Corridor development process. The following is a summary of this process:

1. Natural Resources Data Collection

The first step was collecting all available data pertaining to natural resources within Northern Scott County. Much of the information was obtained and available in the Natural Resources Inventory completed for Shakopee, Jackson and Louisville Townships in 2002. Other information

was obtained from Scott County, Minnesota DNR, local watershed districts, and federal agencies and updating by the City.

2. Natural Resources Prioritization Matrix

Following the data collection process, a Natural Resources Prioritization Matrix (NRPM) was developed to evaluate available data. The Environmental Advisory Committee, along with staff, deliberated extensively through many work sessions to finalize the following list of sensitive natural features:

1. Woodland/Forested
2. Wetlands
3. Lakes/Streams
4. Slopes
5. Non-woody Upland Vegetation
6. Wildlife Habitat
7. Endangered Species
8. Recreational Opportunities
9. Infra-structure/Accessibility

These nine natural features were analyzed further to determine what criteria for each feature made the resource less or more important for preservation. This process created a NRPM for each feature. The NRPM criteria dissected a natural feature into different important elements.

For example, slopes are important in Shakopee because it is a riverfront community. The NRPM criteria to evaluate slopes were determined to be the following:

1. Percent Slope or Steepness
2. Length of Continuous Sloped Area
3. Presence of Native Species on the Slope Area
4. Erosion Potential of Soil in the Slope Area

NRPM criteria were developed for each of the nine natural features.

3. Natural Resources Analysis

The natural resources analysis, completed utilizing the NRPM, evaluated each natural feature separately and assigned a numerical value based on the NRPM criteria.

Quality	Numerical Value
Good	1
Better	2
Best	3

Again, using the slopes natural feature as an example, an area meeting all of the following criteria would be the Best Quality Slopes and assigned a numerical value of 3:

1. Greater than 18% slopes,
2. Greater than or equal to 1/8 mile,
3. High and medium quality woodlands based on the Natural Resources Inventory,
4. Has the highest level of erosion potential based on the Scott County Soil Survey information.

Following the natural resources analysis numerical values for the natural features ranged from 0 to 21 out of a possible 27. Some areas had no natural features, such as impervious parking surfaces, and other areas had multiple natural features that overlapped, such as a forested wetland on a slope, that created a score in excess of 3.

4. Natural Resources Corridor Map

Following the natural resources analysis, a Natural Resources Corridor Map was created and evaluated. Revisions recommended by the Environmental Advisory Committee were completed to the NRPM to better reflect the natural resources corridors within Northern Scott County. Based on these revisions the following numerical values were assigned an overall quality for the map:

Natural Resources Corridor Map Quality	Numerical Value
Good	2-4
Better	5-8
Best	9+

This map would become the map that defines the Northern Scott County Natural Resources Corridors.

Following revisions to the map the natural features were not contiguous. To address this, existing and proposed recreation, transportation, and regional trail systems for the City of Shakopee and Scott County were added to provide connections between the Natural Resources Corridor areas. The inclusion of these trails on the map provides corridors connecting the suitable habitats where sensitive natural resources areas may not have connections. In areas where no planned trail connections were planned but connections are logical, a very general corridor connection was provided.

The Natural Resources Matrix was developed by staff and the Environmental Advisory Committee to categorize the natural features based on various criteria related to the feature. The document “City of Shakopee Natural Resources Prioritization Matrix” was

completed in 2005, is included as an appendix to this Comprehensive Plan, and is herein referred to as “the Natural Resources Prioritization Matrix or NRPM.”

NATURAL RESOURCES PLAN GOALS AND STRATEGIES

This section includes a discussion of the natural resources issues and a list of general goals and strategies that direct the community in the management of natural resources and protection of the environment.

Not all natural resources can be protected within the City. Natural resources such as clean water and air have no boundaries. Choices made in how the City is developed and how residents live day-to-day lives affect the quality of natural resources and the environment. The City has developed the Natural Resources Corridor Design Criteria to guide development within the corridor to ensure the natural heritage of the City is preserved for future generations.

The following goals, strategies, and implementation measures are included in the Comprehensive Plan to preserve, protect, restore, enhance, and manage natural resources and the environment. A *goal* is a statement that describes in general terms the desired future condition. A *strategy* is a course of action or rule of conduct to achieve the goals of the Plan.

GOAL 1: Monitor, preserve, protect, improve, and restore lakes and streams to improve the quality of water within and leaving the City of Shakopee.

Strategy 1.1: Require new development to utilize natural drainage patterns and measures to minimize or trap pollutants before they enter surface waters.

Strategy 1.2: Promote improvement of existing stormwater drainage processes to reduce the volume of runoff and polluted runoff by utilizing alternative storm water design methods such as raingardens, green roofs, pervious treatment products, alternative parking lot designs, soft surface trails, and reduced road widths.

Strategy 1.3: Reduce pollution by limiting the use of pesticides and herbicides and encourage the use of alternative methods.

Strategy 1.4: Promote water conservation and quality through education on the website, brochures, and public outreach opportunities.

Strategy 1.5: Continue to implement the Shakopee Comprehensive Water Resources Management Plan which includes water resources management practices, guidelines, and programs for managing storm water drainage, enhancing water

quality, and controlling flooding through the development review process and its capital improvement program.

GOAL 2: Preserve, protect, maintain, and enhance wetlands to provide floodwater retention, ground water recharge, nutrient assimilation, and wildlife habitat.

Strategy 2.1: Require lot sizes and development densities to be exclusive of wetlands to protect these environmentally sensitive areas from the encroachment of development.

Strategy 2.2: Require wetlands to be platted as outlots and be acquired by or dedicated to the City consistent with high quality subdivision design.

Strategy 2.3: Develop plans for the management of invasive and exotic plant species in wetlands.

Strategy 2.4: Enforce the Shoreland and Floodplain Ordinances and the Wetland Conservation Act.

GOAL 3: Preserve, protect, maintain, and enhance the woodlands to provide healthy air quality, reduce urban warming, and increase habitat.

Strategy 3.1: Create a tree inventory of city trees requiring routine maintenance.

Strategy 3.2: Continue replacement of trees removed within publicly owned or managed lands.

Strategy 3.3: Recommend the use of techniques such as large lot zoning or development clustering in areas having significant tree cover in an effort to minimize the removal or disruption of existing trees.

Strategy 3.4: Require subdivisions within wooded areas to be designed in a manner that minimizes tree removal and loss through root compaction, tree cuts, or diseases. Street layouts, lot configurations, and building pad locations will be evaluated through the development review process in an effort to minimize the loss of significant trees.

Strategy 3.5: Promote the preservation of woodlands.

Strategy 3.6: Require the use of native shrubs and trees in the restoration of the sites disturbed through development.

Strategy 3.7: Protect Heritage Trees; deciduous trees with a diameter at breast height equal to or greater than 24 inches.

Strategy 3.8: Implement the Shade Tree Disease Control and Prevention and Tree and Woodland Management Ordinances.

GOAL 4: Preserve, protect, enhance, and restore non-woody upland native vegetation areas for habitat diversity.

Strategy 4.1: Promote and support upland prairie and savanna restoration programs and initiatives.

Strategy 4.2: Incorporate native seeding restoration and enhancement as part of public and private projects to evaluate effectiveness at reducing maintenance while increasing biodiversity.

Strategy 4.3: Enforce the Noxious Weed Law and Rules to eliminate, reduce, or mitigate the effects of noxious weeds on area lands.

Strategy 4.4: Promote local government and general public awareness and education about invasive species.

GOAL 5: Protect and preserve area wildlife resources.

Strategy 5.1: Preserve existing wildlife habitat and travel corridors.

Strategy 5.2: Utilize conservation easements to enhance wildlife habitat.

GOAL 6: Preserve and protect native, threatened, endangered, and unique plants and animals.

Strategy 6.1: Require development and redevelopment to be in compliance with Minnesota's Endangered Species Statute (Minnesota Rules, Chapter 6134 and 6212.1800 to 6212.2300, as amended) and the federal Endangered Species Act of 1973.

Strategy 6.2: Maintain an updated inventory of the locations of species considered endangered, threatened, and of special concern.

Strategy 6.3: Consider impacts on native threatened and special concern species when reviewing land use developments.

GOAL 7: Preserve, protect, and enhance steep slopes in or adjacent to bluffs for the long-term sustainability of Shakopee’s identity and reduce potential erosion issues.

Strategy 7.1: Preserve steep slopes in their natural, vegetated state.

Strategy 7.2: Avoid excessive cut and fill of steep slopes.

Strategy 7.3: Design new roads and make improvements to existing roads within the existing contours of the land.

Strategy 7.4: Utilize Best Management Practices at all times to provide erosion control to disturbed steep slopes and at a minimum address the National Pollutant Discharge Elimination System (NPDES) requirements.

Strategy 7.5: Use buffers to preserve vegetation and reduce erosion.

GOAL 8: Provide recreational opportunities for natural resources observation and interaction.

Strategy 8.1: Promote preservation of natural resources in or adjacent to parkland.

Strategy 8.2: Support the construction of soft, permeable, low impact trail systems in natural areas when feasible.

Strategy 8.3: Encourage the construction of trail connections linking residents to parkland and natural resources.

Strategy 8.4: Create trail systems that provide open space wildlife corridor connections between natural areas, when feasible.

Strategy 8.5: Acquire nature space and corridors using any one or combination of acquisition techniques.

GOAL 9: Develop and design a natural resources corridor system that integrates the infra-structure system of the City as well as provides easy access to natural resources amenities.

Strategy 9.1: Identify, inventory, and obtain easements to provide open space, recreational, and wildlife connections between natural resources.

Strategy 9.2: Limit construction or installation of structures on easements to provide barrier free movement for wildlife.

GOAL 10: Preserve, protect, restore, and enhance natural resources areas that provide valuable wildlife habitat identified in the Natural Resources Corridor to provide a barrier free corridor for wildlife and recreation.

Strategy 10.1: Update the Natural Resources Corridor Map as new or updated natural resources information becomes available.

Strategy 10.2: Implement the land use recommendations in the Comprehensive Plan to improve land use patterns and encourage Low Impact Development.

Strategy 10.3: Recognize the interrelationships of adjacent landscapes and avoid fragmenting or altering areas identified as best quality.

Strategy 10.4: Use all practicable methods for increasing natural vegetative cover within City limits.

Strategy 10.5: Work with the County to promote a County-wide Natural Resources Corridor system to protect natural resources, provide recreational opportunities, and preserve the natural heritage of the area.

Strategy 10.6: Work with private property owners to permanently preserve or protect areas identified as best quality on the Natural Resources Corridor Map.

Strategy 10.7: Ensure that development projects include provisions for identifying and protecting areas identified on the Natural Resources Corridor Map.

Strategy 10.8: Educate the community on natural resources management concepts to facilitate optimal management of privately held resources and public decision-making processes.

Strategy 10.9: Manage and enforce conservation easements to ensure land use is consistent with intended easement.

Strategy 10.10: The City will preserve, protect, restore, and enhance the natural resources according to current local, state, and federal standards and regulations.

GOAL 11: Collaborate with adjacent jurisdictions to preserve, protect, restore, and enhance natural areas.

Strategy 11.1: Provide natural resources information to local jurisdictions.

Strategy 11.2: Promote the extension of the Natural Resources Corridor into adjacent jurisdictions.

Strategy 11.3: Encourage the assistance of agencies and collaboration with adjacent jurisdictions to preserve and acquire natural resources areas that may serve outside of the City of Shakopee.

GOAL 12: Be effective stewards of the land to create a sustainable environment.

Strategy 12.1: Encourage activities that conserve energy and result in less/no pollution output such as waste reduction, recycling, alternative transportation modes, alternative energy sources and composting.

Strategy 12.2: Encourage and support composting by providing appropriate sites and education for Shakopee residents.

Strategy 12.3: Support, provide, and encourage community efforts, such as recycling, in environmental awareness through internal and external communication and education.

Strategy 12.4: Develop sustainable design standards for development such as Green Building.

Strategy 12.5: Reduce City government use of scarce and non-renewable resources and actively support similar efforts throughout the community.

Strategy 12.6: Work with development and redevelopment to reduce the use of non-renewable resources and to reduce pollution.

NATURAL RESOURCES PLAN TACTICS

This section describes the major actions involved in implementing the Natural Resources Plan element of the Comprehensive Plan. The Natural Resources Plan tactics are intended to guide the City Council, commissions, and staff in setting priorities for budgeting and staff allocation.

Items identified as **New** are practices that will be implemented upon the adoption of this plan. Items identified as **Ongoing** are practices that will continue to be implemented. **Future** items will be completed when resources are available.

No.	DESCRIPTION	TIMELINE
1	Utilize Natural Resources Corridor Map – continue to update and make use of the map in the review process to identify areas for preservation.	Ongoing
2	Preserve Best Quality Natural Resources Areas –preservation of best quality natural resources areas through: a) Natural Resources Corridor Design Criteria b) Conservation easements c) Selected acquisition of sites identified as Best Quality d) Working with Park and Recreation on Open Space Plan	Ongoing
3	Create Natural Resources Corridors – continue to work with developers to create a barrier free system of trails, parks, open space, and conservation easements for recreational and wildlife movement and protection of natural resources.	Ongoing
4	Manage City-owned Natural Areas – Develop and apply a management plan for natural areas within park, open space, and conservation easements.	Ongoing
5	Manage the Urban Forest – continue to enforce the Shade Tree Disease Control and Management Ordinance, Tree Management Ordinance, and Natural Resources Corridor Design Criteria for the City.	Ongoing
6	Manage Boulevard Trees – obtain GPS equipment to inventory boulevard trees to assist the public works department in maintenance, removal, and replacement of trees.	New
7	Protect Wetlands – continue to enforce the Wetland Conservation Act (WCA) and Natural Resources Corridor Design Criteria.	Ongoing
8	Monitor the Quality of Lakes and Streams – continue to participate in efforts such as the Citizen-assisted Monitoring Program (CAMP) and working with the County to monitor lake and stream water quality.	Ongoing
9	Noxious and Invasive Weed Control – continue to work with the County to coordinate noxious weed control and coordinate invasive weed control according to approved management plans.	Ongoing

10	Educate the Public – continue to update the website, participate in environmental education opportunities, and utilize a variety of mechanisms such as local newspapers and organizations. This includes working with local businesses and other entities in environmental initiatives.	Ongoing
11	Protect Bluffs and Steep Slopes – continue to work with the Scott WMO to enforce Natural Resources Corridor Design Criteria to protect bluffs and steep slopes. Pursue preservation of bluff along the south side of Dean Lake.	Ongoing
12	Participate in Vegetation Restoration Projects – create prairie restoration sites and evaluate effectiveness at reducing erosion and maintenance.	Ongoing
13	Update the Natural Resources Inventory – continue to update the inventory when new aerial photos and funding are available.	Ongoing
14	Create Reforestation Program – create a tree planting program to assist residents in purchasing and planting trees.	Ongoing
15	Revise Grass and Weeds on Private Property Ordinance – revise ordinance to allow areas where native grasses and/or forbs have been planted such as prairie plantings and raingardens.	Future
16	Revise Fire Ordinances – revise ordinances to allow maintenance of natural or restoration areas using prescribed fires.	Future
17	Sustainable Building and Design – the City should lead by example implementing and promoting sustainable design practices such as energy efficient heating, lighting, and cooling, daylighting, building orientation, using recycled building materials, etc.	New
18	Impervious Surface Reduction – develop strategies to reduce the amount of impervious surface during development and redevelopment.	New

NATURAL RESOURCES PLAN TABLES

**Table 1: Northern Scott County Natural Resources Inventory
Level 1 Summary – Summer 2002**

	Acres	% of Coverage	
Artificial Surfaces & Associated Vegetation	10,428	32.0	65.0
Planted or Cultivated Vegetation	10,749	33.0	
Forest	3,849	11.8	35.0
Woodland	956	3.0	
Shrubland	372	1.1	
Herbaceous Vegetation	3,642	11.2	
Nonvascular	0	0.0	
Sparse Vegetation	83	0.3	
Open Water	2,472	7.6	
Total	32,551	100	100

Source: Land Cover of Northern Scott County – A Natural Resources Inventory of the City of Shakopee, Jackson and Louisville Townships, September 2002, p. 2.

**Table 2: Shakopee Natural Resources Inventory
Level 1 Summary – Summer 2002**

	Acres	% of Coverage	
Artificial Surfaces & Associated Vegetation	7,514	40.9	69.9
Planted or Cultivated Vegetation	5,326	29.0	
Forest	1,683	9.3	30.1
Woodland	297	1.6	
Shrubland	192	1.0	
Herbaceous Vegetation	2,452	13.3	
Nonvascular	0	0.0	
Sparse Vegetation	0	0.0	
Open Water	905	4.9	
Total	18,369	100	100

Source: Land Cover of Northern Scott County – A Natural Resources Inventory of the City of Shakopee, Jackson and Louisville Townships, September 2002, p. 14.

**Table 3: Jackson Township Natural Resources Inventory
Level 1 Summary – Summer 2002**

	Acres	% of Coverage	
Artificial Surfaces & Associated Vegetation	1,037	21.8	71.8
Planted or Cultivated Vegetation	2,377	50.0	
Forest	531	11.1	28.2
Woodland	54	1.1	
Shrubland	109	2.3	
Herbaceous Vegetation	400	8.5	
Nonvascular	0	0.0	
Sparse Vegetation	0	0.0	
Open Water	246	5.2	
Total	4,754	100	100

Source: Land Cover of Northern Scott County – A Natural Resources Inventory of the City of Shakopee, Jackson and Louisville Townships, September 2002, p. 14.

**Table 4: Louisville Township Natural Resources Inventory
Level 1 Summary – Summer 2002**

	Acres	% of Coverage	
Artificial Surfaces & Associated Vegetation	1,872	19.8	52.1
Planted or Cultivated Vegetation	3,053	32.3	
Forest	1,626	17.2	47.9
Woodland	614	6.5	
Shrubland	71	0.8	
Herbaceous Vegetation	1,175	12.5	
Nonvascular	0	0.0	
Sparse Vegetation	83	0.9	
Open Water	934	10.0	
Total	9,428	100	100

Source: Land Cover of Northern Scott County – A Natural Resources Inventory of the City of Shakopee, Jackson and Louisville Townships, September 2002, p. 14.

NATURAL RESOURCES PLAN ATTACHMENTS

Attachment A

Natural Resources Prioritization Matrix

Attachment B

Natural Resources Corridor Map

DEFINITIONS

Best Management Practices are sediment and erosion control mechanisms used to protect waterbodies from stormwater related pollution.

Bluff means a topographic feature such as a hill, cliff, or embankment having the following characteristics:

1. The slope rises at least twenty-five (25) feet in elevation above the toe of the bluff;
2. The grade of the slope from the toe of the bluff to a point twenty five (25) feet or more above the toe averages 18% or greater.
3. Any area with a horizontal distance of 50 feet (perpendicular to the slope contour) that has an average slope less than 18% is not considered part of the bluff.

Bluff impact zone means a bluff and land located within fifty (50) feet from the top or the toe of a bluff.

Buffer is an area of natural, unmaintained, vegetated ground cover abutting or surrounding a wetland, watercourse, waterbody, habitat area, or other natural feature.

Conservation Easement is a City approved legal agreement processed by the County for an easement over, above, and below a parcel of land to permanently protect the environmental value of the land. The land may continue to be privately owned, but if the land is sold or passed to heirs the easement remains in effect with the land.

Diameter at Breast Height, or **DBH**, means the length of a straight line through the trunk of a tree (in inches) measured at fifty-four (54) inches above the ground from the uphill side of the tree.

Easement means a limited property right to make use of a parcel or lot owned by another person, such as a drainage and utility easement or conservation easement.

Endangered Species is a species threatened with extinction throughout all or a significant portion of its range in Minnesota.

Heritage Tree means a tree that has all of the following characteristics:

1. Is a deciduous tree;
2. Has a DBH equal to or greater than twenty-four (24) inches (a lesser size tree may be considered to be a Heritage Tree if it is a rare species or can be utilized as a focal point in the project);
3. Has a life expectancy of greater than ten (10) years; and
4. Has structural integrity and shows no visible defects that would cause it to be classified as a Hazard Tree;

High quality vegetation means those areas identified in the Scott County MLCCS land cover survey with native vegetation and rated as “better” or “best” sites in the Shakopee Natural Resources Corridor maps.

Invasive species are plants or animals that have been introduced, or moved, by human activities to a location where they do not naturally occur and cause ecological or economic problems.

Low Impact Development is a design strategy with the goal of maintaining or replicating the pre-development hydrologic regime through the use of design techniques to create a functionally equivalent hydrologic site design.

Minnesota Land Cover Classification System (MLCCS) means the land cover classification system created by the Minnesota Department of Natural Resources and the completed land cover survey data collected and mapped by Scott County consistent with the MLCCS. The classification system consists of five hierarchical levels. Levels 1, 2, and 3 are a hybrid based on the National Vegetation Classification System and the Minnesota Natural Heritage plant communities data. Levels 4 and 5 use the Minnesota Natural Heritage system to more explicitly identify plant community types.

Natural Resources Corridor (NRC) is a connection of the natural features according to the analysis completed utilizing the Natural Resources Prioritization Matrix (See Attachment A). The resulting map of this analysis is the basis for many of the goals and strategies of the plan.

Natural Resources Corridor Map refers to the most recent version of the Shakopee Natural Resources Corridor map approved by the Shakopee City Council.

Natural Resource Prioritization Matrix (NRPM) refers to the matrix system created by the Shakopee Environmental Advisory Committee to evaluate natural features for the creation of the Natural Resources Corridor map. The NRPM is included in the Natural Resources Plan component of the Comprehensive Plan.

Natural Resources Inventory (NRI) refers to the Minnesota Land Cover Classification System data collected in 2002 for Northern Scott County.

Natural features are the natural resources evaluated as part of the Natural Resources Corridor mapping project by the Environmental Advisory Committee.

Native vegetation means plants and plant communities that occur naturally in the Shakopee area.

Non-woody Upland Vegetation is a natural feature evaluated as part of the Natural Resources Corridor Map and consists of herbaceous grasses and forbs i.e. prairie or savanna.

Noxious weeds are annual, biennial, or perennial plants that the commissioner designates to be injurious to public health, the environment, public roads, crops, livestock, or other property.

Recreation opportunities means an area that provides residents recreating an opportunity to interact with natural resources in the Natural Resources Corridor.

Steep slope means land where Development is either not recommended or described as poorly suited due to slope steepness and the site's soil characteristics, as mapped and described in soil surveys, permit application information, or other technical reports. Where specific information is not available, steep slopes are lands with average slopes over 10%, as measured over horizontal distances of fifty (50) feet or more, that are not bluffs.

Special Concern Species is a species not listed as endangered or threatened, but is considered extremely uncommon in Minnesota or has unique or highly specific habitat requirements and deserves careful monitoring of its status. Species on the periphery of their range that are not listed as threatened may be included in this category along with those species that were once threatened or endangered but now have increasing or protected, stable populations.

Threatened Species is a species likely to become endangered within the foreseeable future throughout all or a significant portion of its range within Minnesota.

Wetland means the lands transitional between terrestrial and aquatic systems as defined in the Minnesota Wetland Conservation Act (WCA).

Wetland Conservation Act (WCA) became effective January 1, 1992, to A) achieve no net loss in the quantity, quality, and biological diversity of Minnesota's existing wetlands; B) increase the quantity, quality, and biological diversity of Minnesota's wetlands by restoring or enhancing diminished or drained wetlands; C) avoid direct or indirect impacts from activities that destroy or diminish the quantity, quality, and biological diversity of wetlands; and D) replace wetland values where avoidance of activity is not

ATTACHMENT A

City of Shakopee Natural Resource Prioritization Matrix

Natural Feature	Priority Ranking	Selection Criteria			
4 Slopes		1A Percent slope/ steepness	1B Length of continuous sloped area	1C Presence of native species on the slope area	1D Erosion potential of soil in the slope area
	BEST	> 18% slope ¹	>= 1/8 mile in length (or 660')	Forest and herbaceous cover with native "high quality" and "medium quality" species ²	Highest level of erosion potential for all three steepness categories
	BETTER	12 - 18 % slope	>= 1/8 mile in length (or 660')		
	GOOD	10- 12 % slope	>= 1/8 mile (or 660')		

¹ Lower Minnesota River Watershed District Management Plan, 1999

² Northern Scott County NRI: Figure 3.35: High quality forested parcels

City of Shakopee Natural Resource Prioritization Matrix

Natural Feature	Priority Ranking	Selection Criteria			
3 Lakes and Streams		2A Stream corridors and Lakeshore (300' buffer)	2B Relationship to surrounding wetland complex	2C Drainage function	2D <i>Ability to restore</i>
	BEST	Vegetated stream corridor and lakes with natural shoreline, less disturbed, higher value for wildlife habitat , high potential for recreational use (NRI land use category for 300' shoreline buffer: "undeveloped")	Wetlands immediately adjacent to streams and lakes which form a complex of open water and wetlands	High connectivity to and from other water bodies, efficiently captures and routes runoff to stormwater basins, provides a major drainage system between south Shakopee and the river valley	Low level of exotic species, minor improvements in landscape would positively affect water and habitat quality
	BETTER	Stream corridors and lakeshore with natural functions and cultivated shore vegetation (NRI category for shoreline: "agriculture")	Isolated setting in landscape. Away and unconnected to wetlands.	Artificial functions. Minimal connectivity Control structures (dams, culverts) impede	Contains non-native species, history of alterations; major restoration efforts would bring back original functions.
	GOOD	Stream corridors and lakeshore with natural or artificial functions with maintained shore vegetation, little or no value for wildlife habitat (NRI: "maintained")	(No relationship to surrounding wetland complex.)		Long-term abuse and neglect require major restoration efforts to recreate a functioning, healthy resource.

City of Shakopee Natural Resource Prioritization Matrix

Natural Feature	Priority Ranking	Selection Criteria	
7 Endangered Species		3A Presence of Endangered or Protected Species	3B Biodiversity Ranking (recommend on-site evaluation be done by City Staff)
	BEST	Area adjacent to and within 300 feet of "Documented rare and endangered plants, animals or natural communities" Excluding polygons rated "artificial" in the NRI	Located within the CBS's Area of Biodiversity Significance with a rating of Outstanding or High
	BETTER	Area within 300 to 600 feet of "Documented rare and endangered plants, animals or natural communities" Excluding polygons rated "artificial" in the NRI	Located within the CBS's Area of Biodiversity Significance with a rating of Medium
	GOOD	Area within 600 to 900 feet of "Documented rare and endangered plants, animals or natural communities" Excluding polygons rated "artificial" in the NRI	Located within the CBS's Area of Biodiversity Significance with a rating of Below
		"Rare features not documented or likely to occur due to ecological quality of area." Buffer: 900' and 1200'	

City of Shakopee Natural Resource Prioritization Matrix

Natural Feature	Priority Ranking	Selection Criteria			
		4A	4B	4C	4D
1 Wood-land / Forested		Forest Core	Species – type of trees – native vs. non-native	Health of woodland – healthy vs diseased	Ability to restore
	BEST	Forest core distance from edge: 400' – 600' ¹	Oak forest, maple-basswood, Floodplain forest	Forest/Woodland ranked "High" or "Medium" ²	Restoration will result in high value, high functioning forest. Desired outcome of improved forest health, improved habitat, etc. is achievable.
	BETTER	Forest core distance from edge: 200' – 400'	Similar to species in High class but with greater percent of exotic species, degradation such as compacted soils, deer browse, lack of woody debris and native species in ground layer	All Forest/woodland ranked "Low" ²	Fair potential for restoration Desired outcome of improved forest health, improved habitat, etc. is marginally achievable.
	GOOD	Forest core distance from edge: 0- 200'	Box Elder-Green Ash Disturbed, Buckthorn, high value trees have been removed	Young trees, sparse tree cover, diseased or stressed trees, exotic species	Low potential for restoration. Desired outcome of improved forest health, improved habitat, etc. is not possible without great expense and time.

¹ Northern Scott County Natural Resource Inventory 2002: Figure 3.34 "Forest Woodland Core"

² Northern Scott County Natural Resource Inventory 2002: Figure 3.35 "Forest Woodland Quality"

City of Shakopee Natural Resource Prioritization Matrix

Natural Feature	Priority Ranking	Selection Criteria				
		5A Species – Native/non- native	5B Size of area	5C Area disturbed / maintained	5D <i>Density of species in native patches</i>	5E <i>Ability to restore</i>
5 Non-Woody Upland Vegetation						
	BEST	NRI based selection: Herbaceous vegetation considered “Natural” based on native plants being dominant <i>Savanna</i>	10 acres and greater	NRI polygons (areas) identified as the “Highest Quality Natural Areas” See Figure 3.3 pg 18 of the NRI	“These areas tend to be larger in size, and/or with few adjacent land cover type/uses that could adversely affect the area; may have greater diversity of vegetation cover types; or it may be an isolated native plant community mapped and given a score of outstanding biodiversity significance by MCBS.” ¹	Good potential for restoration And/or Desired outcome of improved forest health, improved habitat, etc. is achievable
	BETTER	NRI based selection: Herbaceous vegetation considered “Semi-natural” based on non-native plants being dominant	5 – 10 acres	NRI areas with MLCCS code in the 60,000 and designates “non-native”	“These areas tend to be moderate in size, and/or with more adjacent land cover types/uses that could adversely affect the area; may have greater diversity of vegetation cover types; or it may be an isolated native plant community mapped and given a score of outstanding biodiversity significance by MCBS.” ¹	Fair potential for restoration And/or Desired outcome of improved forest health, improved habitat, etc. is marginally achievable
	GOOD	NRI based selection: Herbaceous vegetation considered “planted” “maintained”, “non-row crops”, and “pasture”.	1 - 5 acres	NRI polygons with a 10,000 or 20,000 (Artificial Surfaces and Planted or Cultivated Vegetation) with impermeable surfaces of not more than 10%	“These areas tend to be smaller in size while still meeting the minimum size requirements (minimum size is variable based on cover type) for regional significance; may have less diversity of vegetative cover types; may have more adjacent cover type/uses that could adversely affect the area; or it may be an isolated native plant community mapped and been a score of moderate biodiversity significance by MCBS.” ¹	Low potential for restoration and/or Desired outcome of improved forest health, improved habitat, etc. is not possible without great expense and time.

¹ Scott County Parks, Trails and Open Space System Policy Plan 2004, Figure 8 (Source: Mn/DNR)

² Shakopee NRI, 4.1, pg 23

³ Source: Silver Creek Corridor Management Plan....

City of Shakopee Natural Resource Prioritization Matrix

Natural Feature	Priority Ranking	Selection Criteria				
		6A Size	6B Level of degradation as determined by presence of invasive species	6C <i>Relationship to wetland complex</i>	6D <i>Function as floodplain storage area</i>	6E Proximity to water body (see Lakes and Streams)
2 Wetland	BEST	Greater than 2 acres.	Native dominated per NRI categories with modifier indicating high quality. High proportion of native species and little evidence of human disturbance. "lack of exotic species" ²	High potential for intense land use activities to adversely affect wetland functions – such as regulating and filtering runoff, providing habitat, etc.	"Parcel located at outlet of subwatershed to corridor and/or encompasses significant stormwater ponding, infiltration or other feature(s) critical to surface and groundwater management." ¹	Adjacent to or connecting with a water body that provides important hydrologic and / or habitat functions (e.g. floodplain, littoral zone of a lake or pond).
	BETTER	1 – 2 acres.	NRI categories with modifier indicating medium quality: "weedy species may be evident but they are not dominant over typical native specie"	Medium potential for intense land use activities to adversely affect wetland functions – such as regulating and filtering runoff, providing habitat, etc.	"Parcel in direct drainage subwatershed of impaired lake or highly sensitive wetland community within or abutting the inner corridor."	
	GOOD	Less than 1 acre.	Non-native dominated per NRI categories and modifier indicating "natural processes are highly altered". High percentage of exotic species such as reed canary grass, quackgrass, Kentucky bluegrass, stinging nettles ²	Little potential for intense land use activities to adversely affect wetland functions – such as regulating and filtering runoff, providing habitat, etc.	"All other parcels that border the inner corridor."	Isolated situation in the landscape with little or no opportunity to be connected in a functioning manner to other water features. I.E. doesn't positively or adversely affect water quality

City of Shakopee Natural Resource Prioritization Matrix

Natural Feature	Priority Ranking	Selection Criteria			
8 Recreation Opportunities		7A Proximity to park facilities	7B Trail provides connectivity to recreation and open space resources	7C <i>Proximity to proposed recreation facility</i>	7D <i>Potential of site for passive recreation¹ or as access to such an area</i>
	BEST	1/8 mile (within 660') Adjacent to existing parks.	Existing and proposed trails	Adjacent and nearby to proposed facility.	Site is such that good access is provided to recreation activities such as birding, hiking.
	BETTER	Proximity of 1/8 (660') to ¼ mile (1,320')	(All trail corridors evaluated as High.)		
	GOOD	¼ to ½ mile proximity	(All trail corridors evaluated as High.)		

¹ Passive activities: such as walking, canoeing, nature observation, etc. that require limited facility development and have limited impact on the landscape and its living communities.

City of Shakopee Natural Resource Prioritization Matrix

Natural Feature	Priority Ranking	Selection Criteria	
9 Infra-structure / Accessibility		8A <i>Provides stormwater function</i>	8B <i>Accessible because of existing easements or roadway</i>
	BEST	Provides stable and effective storm water runoff functions	Existing utility or roadway easements which allow public access and conditions are favorable for recreation
	BETTER	Planned storm water runoff functions.	Planned utility easements, and trail corridors needing implementation
	GOOD	No stormwater purpose	No permission to use or safety issues eliminating possibility for access

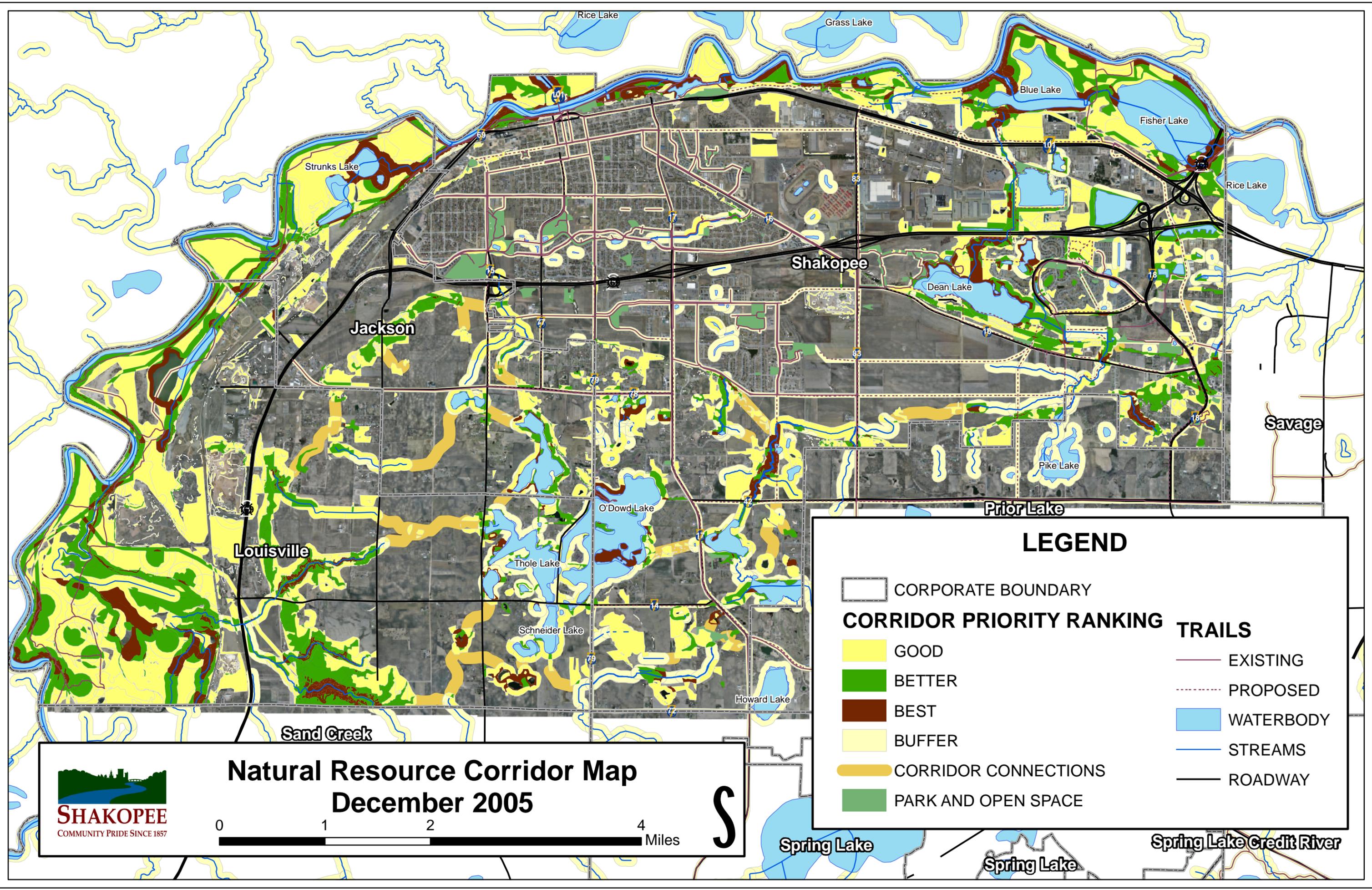
City of Shakopee Natural Resource Prioritization Matrix

Natural Feature	Priority Ranking	Selection Criteria	
6 Wildlife		9A <i>Wildlife habitat quality: upland</i>	9B <i>Habitat value: wetland</i>
	BEST	High diversity and number of bird species and mammals "Although not documented, good potential for rare and endangered plants and animals to occur"	Provides high quality food source and cover. "Excellent wildlife habitat due to composition, quality and proximity of natural communities to local/regional elements (e.g. Minnesota River Valley). Provides habitat for habitat specialist species" ¹
	BETTER	"Provides barrier-free movement"	"Moderate wildlife habitat, generally not associated with local/regional elements. Habitat supports "habitat generalists" species.
	GOOD	Dominated by livestock or domestic animals "Current land uses may not serve as a wildlife corridor"	Generally low quality habitat that is substantially fragmented and supports limited numbers of "habitat generalists" species

² Shakopee NRI, 4.1, pg 23

¹ Source: Silver Creek Corridor Management Plan....

ATTACHMENT B



LEGEND

	CORPORATE BOUNDARY		EXISTING TRAILS
	GOOD		PROPOSED TRAILS
	BETTER		WATERBODY
	BEST		STREAMS
	BUFFER		ROADWAY
	CORRIDOR CONNECTIONS		
	PARK AND OPEN SPACE		

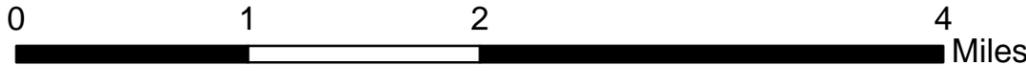


SHAKOPEE
COMMUNITY PRIDE SINCE 1857

Natural Resource Corridor Map

December 2005





0 1 2 4 Miles

Spring Lake Spring Lake Spring Lake Credit River