

LINO LAKES
Resource Inventory
Metro Greenways Project

PREPARED BY

ANOKA CONSERVATION DISTRICT

**With Funding from the
Minnesota Department of Natural Resources,
Metro Greenways Project**

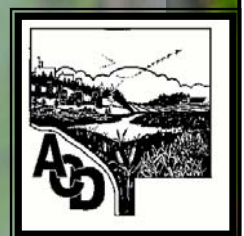
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Abstract

Project Title: Lino Lakes Resource Inventory

Lead Implementing Organization: Anoka Conservation District

Total Cash and/or In-kind Contributions excluding Grant:

Project Description:

- Location: Anoka County: City of Lino Lakes: T31N, R22W all of Sections 1,12,13,25,27,32,33,34,35,36 and part of Sections 23,24,26,28,29,30,31
City of Centerville: T31N, 22W all of Section 23 and part of Sections 24 and 26
- Size:

Centerville:	989	acres
<u>Lino Lakes:</u>	<u>7,835</u>	<u>acres</u>
Total	8,824	acres
- Purpose: To manage areas having regionally significant features, endangered or threatened species and/or their habitat.
- Use of project information: The landcover inventory data will be used to identify greenways and management priorities within the project area. The ArcView information will be used to conduct planning with the City of Lino Lakes. Identified habitat types, hubs and corridors will be used to educate landowners on management options.

Methodology:

Inventory: Landcover was inventoried using mapping standards set by the MNDNR Minnesota Land Cover Classification System. Landcover was inventoried to a level 4 in most instances and to level 3 in inaccessible areas.

Planning: Greenway hubs and corridors were identified using ArcView 3.2 and a variety of data sources. Priority areas were identified using data in ArcView 3.2 with city staff and officials.

Significant Findings and Outcomes:

- 13,301 acres of Greenway Hubs identified.
- 6,467 acres of Greenway Corridors identified.
- 1,521 acres of high priority natural community parcels.
- 1,407 acres of secondary corridors
- Formation of a Greenways Working Group focusing on open space preservation planning.

TABLE OF CONTENTS

INTRODUCTION.....	1
LANDCOVER INVENTORY (DELINEATE, DIGITIZE, GROUND-TRUTH).....	1
TAC/PUBLIC WORKSHOPS.....	1
RESOURCE MANAGEMENT OPTIONS	2
GIS ANALYSIS	2
PROJECT FINANCES	2
GREENWAY IDENTIFICATION	2
GIS ANALYSIS TO PRIORITIZE TOOLS IMPLEMENTATION.....	3
LANDCOVER	3
NATURAL COMMUNITIES	3
STREAMS	3
ROADS	3
LAKES.....	4
PARCELS	4
PUBLIC LAND (PARKS).....	4
GREENWAYS (HUBS AND CORRIDORS)	4
INTERIOR HABITAT	4
LAND MANAGEMENT.....	5
FUTURE IMPLEMENTATION ACTIVITIES	6
PROJECT FINANCES	6
MAPS	9
1) GREENWAYS PROJECT AREA	9
2) MINNESOTA LAND COVER CLASSIFICATION SYSTEM	9
3) GREENWAY HUBS AND CORRIDORS.....	9
4) POTENTIAL INTERIOR OPEN SPACE	9
5) POTENTIAL INTERIOR HABITAT.....	9
6) MANAGEMENT PRIORITY	9
7) ANOKA COUNTY GREENWAY HUBS AND CORRIDORS	9
APPENDIX.....	10
FINANCIAL STATEMENTS	10

INTRODUCTION

The Anoka Conservation District (ACD) received a \$6,000 grant from the Minnesota Department of Natural Resources (MN DNR) Metro Greenways Initiative to conduct greenways planning in a 8,824-acre portion of Lino Lakes in southeastern Anoka County. This area was selected for several reasons; 1) it completes an earlier inventory, 2) it provides complete information for the entire cities of Lino Lakes and Centerville making city wide planning more effective 3) the cities involved have expressed a strong desire to incorporate natural resources into planning. Map 1 shows the location of the project area along with some of the features mentioned. Map 7 shows greenway hubs and corridors throughout the county.

The greenways planning grant proposal included the following:

- producing a landcover inventory of the area,
- providing educational opportunities and sponsoring Technical Advisory Committee (TAC) meetings to expose landowners and public officials to natural community stewardship and residential development options,
- compiling resource management options, and
- identifying critical parcels on which to focus management efforts.

Landcover Inventory (Delineate, Digitize, Ground-truth)

Using ArcView 3.2, the ACD staff delineated and digitized obvious breaks in landcover on USGS digital orthoquads (DOQs). Landcover units less than 1 acre were generally incorporated into adjacent or surrounding units. In-house maps (i.e. Anoka County Soil Survey, National Wetland Inventory, Minnesota County Biological Survey (MCBS) Natural Communities) were utilized along with standard aerial photo interpretation techniques to preliminarily label the polygons. The labels were assigned from the Minnesota Land Cover Classification System (MLCCS). Greater detail was obtained by conducting windshield surveys of the majority of land within the project area. More detailed landcover was obtained from field inspection on public land. The MCBS digital coverage was also used to delineate and label natural communities per the MLCCS. Map 2 shows the delineated landcover.

TAC/Public Workshops

The ACD staff provided information and updates to the City of Lino Lakes and Centerville officials and staff during regular council meetings and environmental board meetings. A greenways working group including members of the Lino Lakes environmental board, city staff and ACD staff met to evaluate focus areas and management approaches. An article was published in the Lino Lakes paper notifying the public of the greenways project in the community. Priority areas were identified during working group meetings and council meetings. Specific management options developed in working group, environmental board and city council meetings are to be utilized by the cities planning Task Force. City officials and staff have placed an emphasis on developing a Planned Unit Development (PUD) ordinance for areas having significant natural resources. City officials and staff have expressed interest in moving forward with landowner education and backyard conservation efforts in the community. City officials plan to use the data and management options in further developing the city trail system.

Resource Management Options

The ACD has investigated different land protection options and development designs that are available to the local governmental units (LGUs) including Transfer of Development Rights (TDR), Purchase of Development Rights (PDR), donations, registry programs and “open space designs.” Educational and “Backyard Conservation” options were discussed with public officials during meeting times. Due to the limited remaining acres of private developable land in Lino Lakes, city leaders have focused on a PUD ordinance as the most applicable for non-developed land.

GIS Analysis

The MLCCS defines land cover type into seven basic categories applicable to Anoka County; artificial surfaces, planted or cultivated, forest, woodland, shrubland, herbaceous, and open water. Within each category were several subcategories that allowed for a high level of detail including such information as the type of tree cover or crop and the quality of the vegetative community. The ACD utilized the classification system to facilitate distinctions between wetland and non-wetland, between high quality and low quality and between habitat types. This included development, agriculture, wetland (hydric), grassland, forest, and woodland.

Other GIS data layers utilized in this project include public land ownership, National Wetlands Inventory, and Natural Communities. Anoka County parcel data was used to identify the following features: wildlife hubs and corridors, high priority parcels for acquisition, sending and receiving areas for transfer of development rights, and high priority areas for landowner education and incentives.

Project Finances

Program finances were tracked using QuickBooks Pro 5.0 and Excel spreadsheets. Detailed records were maintained for labor, direct costs and indirect costs. Full disclosure of project finances is provided later in this report.

Greenway Identification

An attempt was made to identify existing and potential wildlife hubs and corridors throughout the county and region to ensure continuity outside of the project area. Less analysis was done to identify corridors and hubs outside of the project area where landcover data was not available. Several criteria noted below were considered when selecting hubs and corridors. These areas are subject to modification based on local needs and desires and improved information. Map 5 shows potential hubs and corridors throughout the project area along with several of the criteria layers used to select them. Maps 3 and 7 show hubs and corridors throughout the project area and Anoka County.

Hubs

1. Large contiguous plant communities
2. High interior to edge ratio
3. High quality natural communities
4. Mixture of upland and wetland habitat

Corridors

1. Not less than 400 feet wide
2. Naturally existing corridors (i.e. Rice Creek)
3. Contains aquatic features (wetlands, streams, lakes)

4. Contains an upland travel corridor (aquatic features could be obstacles to some species)
5. Absence of heavily traveled roads and/or development
6. High quality habitats

Management Corridors

These areas have the same criteria as the above-mentioned corridors, however they also have qualities preferred for development. Therefore, these areas are indicated as habitat corridors with consideration for open space preservation through education and OSD.

Other Considerations

1. Target wildlife species include sandhill crane, wild turkey, Blanding's turtles, large mammals and neo-tropical birds.
2. Publicly owned land.
3. Hubs and corridors outside of the project area boundaries taken into account include, Rum River Central Regional Park, Rum River North County Park, Bethel Wildlife Management Area, Rice Creek Chain of Lakes Regional Park Reserve, Lamprey Pass Wildlife Management Area, Bunker Hills Regional Park, Cedar Creek Corridor, Rum River Corridor, and Coon Rapids Dam Regional Park.
4. Potential greenways concepts as provided in the Metro Greenprint (see Appendix).

GIS ANALYSIS TO PRIORITIZE TOOLS IMPLEMENTATION

Geographic information systems (GIS) greatly improves the ease with which planning efforts can identify and prioritize areas to implement program activities. The planning and analysis is only as good as the data that are available in the system and the knowledge level of the planner in terms of natural resources and public interests. Different planners with differing knowledge and values will likely arrive at very different conclusions. For this reason, the criteria used to select areas for implementation are clearly defined below. The reader's understanding of them is essential to ensure that the reason for the conclusions are at least understood if not supported.

Landcover

The landcover was inventoried by the Anoka Conservation District in 2000 and 2001 using the Minnesota Landcover Classification System. Vegetation cover type was the primary distinguishing feature by which areas (polygons) were delineated and classified.

Natural Communities

Natural communities include areas identified by the Minnesota County Biological Survey as being relatively undisturbed since the settlement of the state in the early 1800s. The MN DNR Natural Heritage and Nongame Wildlife Program provided digital coverage.

Streams

Digital stream coverage was provided by the MN DNR. This data layer is not completely accurate but was sufficient for the purposes of this report.

Roads

Digital road coverage was provided by the Anoka County GIS Department, and the Metropolitan Council.

Lakes

Digital coverage of lakes was adapted from data provided by the MN DNR. The coverage includes only those lakes that are considered locally important.

Parcels

Digital parcel boundary coverage was provided by Anoka County GIS Department and includes approximate parcel locations. An agreement between the ACD and Anoka County GIS prohibits the display of this data as an individual layer.

Public Land (Parks)

Digital public land coverage was provided by the MN DNR, which included wildlife management areas, scientific and natural areas, regional parks, and county parks. It was adapted by the ACD to include some significant City Parks and Minnesota Trust Land.

Greenways (Hubs and Corridors)

The greenways data layer was developed by the ACD with consideration of the items noted above in the Greenways Identification section of this report.

Interior Habitat

Some animal species require habitat that is remote from development, agriculture or even other types of natural habitat. The primary need may be forest, prairie, wetland, or simply open space. The Anoka Conservation District utilized the landcover inventory, natural communities data and GIS buffering tools to compile the following data layers. These layers show different types of interior habitat, which may be required by different species. Habitat requirements for some species involve specific habitat complexes, like the Blanding's turtle, which needs emergent marsh in proximity to sandy grassland. Bald eagles require lakes surrounded by at least 330 feet of forest buffer that contain large open crown trees such as white pine. They prefer to be isolated from human activity.

Open Space Interior

Wild turkeys, many raptors and large mammals prefer to be isolated from human activity. They are not particular about the habitat type and often depend on a mix of landcover types, including agricultural land. This data layer was developed by merging agricultural land, grassland, shrubland, woodland, and forest into an open space layer, and then applying a 200-foot interior buffer. Map 4 shows potential interior open space areas.

Forest/Woodland Interior

For species such as oven birds and most warblers, ideal nesting habitat is deep forests and woodlands that are 100 feet or more from clearings. Clearings include roads and residential neighborhoods but may also be in the form of large wetlands or oak savannas. This data layer was developed by merging planted forests, woodlands and forests into a single layer and then applying a 100-foot interior buffer. Map 5 shows potential interior forest and woodland areas.

Prairie/Savanna Interior

Indigo buntings, meadowlarks and loggerhead shrikes utilize these types of habitats and require at least a 100-foot buffer from deeply forested areas and also a buffer from highly developed areas depending on the specific species needs. This data layer was developed by applying a 100-foot interior buffer to inventoried grasslands and a 300-foot buffer around developed areas. Some agricultural lands are also suitable depending on the crop type and level of disturbance, but they were not included in the layer since suitable habitat would change from year to year

depending on crop rotation or other management considerations. Map 5 shows potential interior prairie/savanna areas.

Wetland Interior

Several amphibians, and wading birds such as the American Bittern and the King Rail, require large wetlands for their entire life cycle. Others species such as Sandhill Cranes and several turtle and salamander species require large wetlands for a portion of their lifecycle. In order for many species to nest and reproduce, they search out areas isolated from human activity. This data layer was developed by applying a 200-foot interior buffer to the wetland layer. Map 5 shows potential interior wetland areas.

Land Management

A map was developed to identify high priority areas for the land management options previously described. Map 6 shows parcels that are high priority for acquisition, easements, high density development and education based generally upon the following criteria.

Acquisition

The following criteria were used to select the highest priority parcels for acquisition.

- Natural Communities (higher upland:wetland ratio)
- Within the corridors or hubs (hubs preferred over corridors)
- Adjacent to public land
- Sub-dividable parcels (>20 acres in size)
- Parcels without structures
- Open space habitat with high interior:edge ratio
- Oak savanna or Prairie (rarest habitat types in Anoka County)

Easements/Purchase of Development Rights

The following criteria were used to select the highest priority parcels for permanent conservation easements.

- All high priority acquisition parcels
- Upland open space communities (excluding agricultural land)
- Within the corridors or hubs
- Sub-dividable parcels >20 acres

Transfer of Development Rights

The following criteria were used to select the suitable parcels for transfer of development rights.

- Sending
 - 1) All high priority acquisition and easement parcels.
 - 2) Sub-dividable parcels.
 - 3) Within the corridors or hubs.
- Receiving
 - 1) Non-natural communities.
 - 2) Subdividable parcels >20 acres.
 - 3) Outside of corridors and hubs.

Open Space Design Development

- Anywhere within the municipalities with density incentives within corridors or hubs.

Landowner Education

Some landowners benefit from education on natural communities whereas other benefit from information on habitat restoration and management. GIS was used to identify the highest priority audiences for these efforts.

- Owners of natural communities within the project area.
- Property owners within corridors and hubs.
- Property owners with high quality habitat.

FUTURE IMPLEMENTATION ACTIVITIES

Completion of the land cover inventory and this report is only the first step toward the establishment of a greenway network in Anoka County. The Anoka Conservation District will continue to work toward the vision provided in this report by doing the following within time and budgetary constraints.

- Educate local governments about the pros and cons of open space preservation by conducting a tour of local open space developments and natural communities and by holding workshops or attending planning and zoning meetings.
- Assist local governments with incorporation of greenways planning into their local comprehensive plans.
- Assist local governments with development of ordinances and other mechanisms necessary to implement open space design.
- Provide educational workshops and site specific management plans for owners of natural communities on how to manage their highly unique resources.
- Provide educational workshops and on site management plans for property owners within identified hubs and corridors on how to restore and maintain habitats to encourage native wildlife. Conservation Partners Grants and other cost-share programs may be used for implementation of this.
- Educate landowners within high priority acquisition and easement areas about land protection options such as the Metro Greenways Program to permanently protect the highest quality and most threatened areas. ACD will assist them with the application process.
- Continue to inventory and analyze land cover to identify high priority areas for preservation, education and development.

PROJECT FINANCES

Expenses for the individual elements of the grant were not tracked separately. ACD's accounting procedures allow for total project expenses to be calculated in two ways. The first accounting method presented below is a direct summary of hours, miles and direct costs expended on the project. The total cost reported using this method is \$15,399.22. This is similar to the amounts presented in the second accounting method in which the entire cost of the district operations is divided between all program in proportion to the labor expended on it. This method is most accurate in that it appropriately applies the real costs of ACD operations to the programs for which the office exists. This method returns a total cost of \$12,054.27. Capital expenses were not applied to this project since they are not eligible under MnDNR guidelines. An interim invoice was not submitted. An invoice for \$6,000, the full amount of the grant, accompanies this report.

Table 1: Project Revenue

Contributor	Amount	Type
Anoka Conservation District	\$5,404.27	In-kind
Natural Resources Conservation Service	\$1,000.00	In-kind
City of Lino Lakes Environmental Board	\$1,050.00	In-kind
City of Lino Lakes Greenways Workgroup	\$250.00	In-kind
City of Lino Lakes	\$2,600.00	Cash
Centerville/Lino Lakes Hearing	\$700.00	In-kind
City of Lino Lakes Staff	\$1,050.00	In-kind
Total	\$12,054.27	
Metro Greenways Grant	\$6,000.00	Cash Reimbursement

No work was done on the Lino Lakes Greenways project until 2002 due to budget constraints on the part of the City of Lino Lakes.

Table 2: Project Expenses – Accounting Method 1

Employee	1 st Quarter 2002	2 nd Quarter 2002	Total Units	Rate	TOTAL
ACD Manager	22.5	30.5	53	50	\$2,650.00
ACD Specialist	0	0	0	42	\$ 0.00
ACD Technician	44.9	235.1	280	30	\$8,400.00
ACD Expenses	109.78	0	109.78	1	\$ 109.78
ACD Mileage	30	562	592	.32	\$ 189.44
NRCS Technical Assistance ¹	10	15	25	40	\$1,000.00
Lino Lakes Environmental Board ²	0	42	42	25	\$1,050.00
Lino Lakes Greenways Workgroup ³	0	5	5	50	\$ 250.00
Joint Centerville/Lino Lakes Hearing ⁴	0	14	14	50	\$ 700.00
Lino Lakes Staff	0	14	14	75	\$1,050.00
TOTAL					\$15,399.22

¹The USDA Natural Resources Conservation Service provided technical staff that assisted with landcover mapping, digitizing and polygon coding.

²The City of Lino Lakes has a citizen Environmental Board that conducts environmental review and planning for the city in an advisory capacity. Greenways was discussed as length during eight of the seven member board's meetings. The value of this was estimated at \$25 per attendee.

³The EB developed a five-member subcommittee that met solely for the purpose of greenway planning. The value of this was estimated at \$50 per attendee.

⁴Lino Lakes and Centerville held a joint council meeting to discuss greenways planning and a road issue. The meeting was attended by fourteen council members and mayors at a value of \$50 per attendee.

Table 3: Project Expenses – Accounting Method 2

Expense Categories	2 nd Quarter 2002		1 st Quarter 2002	2 nd Quarter 2002 Corrected ⁰	TOTAL
NRCS Technical Asst. @ \$50/hr ¹	600.00		400.00	600.00	\$1,000.00
Lino Lakes Environmental Board ²	1050.00		.00	1050.00	\$1,050.00
Lino Lakes Greenways Workgroup ³	250.00		.00	250.00	\$ 250.00
Joint Centerville/Lino Lakes Hearing ⁴	700.00		.00	700.00	\$ 700.00
Lino Lakes Staff	1050.00		.00	1050.00	\$1,050.00
Anoka Conservation District					
Supplies	20.21		12.50	26.94	\$ 39.44
Mileage	289.73		22.18	386.21	\$ 408.39
Misc.	2.29		.60	3.05	\$ 3.65
Office Maintenance	164.99		9.21	219.93	\$ 229.14
Postage	.83		3.17	1.11	\$ 4.28
Professional Fees	.40		13.22	.53	\$ 13.75
Rent	233.32		95.49	311.02	\$ 406.51
Training	46.41		22.68	61.86	\$ 84.54
Utilities	101.45		25.66	135.23	\$ 160.89
Salaries	4119.64		701.07	5491.48	\$6,192.55
Supervisors	150.88		28.66	201.12	\$ 229.78
Fees & Dues	.00		43.07	.00	\$ 43.07
Program Supplies	.00		109.78	.00	\$ 109.78
Advertisement	40.99		23.86	54.64	\$ 78.50
TOTAL	8821.14		1511.15	10543.12	\$12,054.27

⁰Due to payment of bills in arrears and the fact that the project was done over a six month period instead of a full 12 months, a correction multiplier of 1.333 had to be incorporated into the reported spreadsheet values for second quarter to account for June bills paid in July.

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MAPS

- 1) **Greenways Project Area**
- 2) **Minnesota Land Cover Classification System**
- 3) **Greenway Hubs and Corridors**
- 4) **Potential Interior Open Space**
- 5) **Potential Interior Habitat**
- 6) **Management Priority**
- 7) **Anoka County Greenway Hubs and Corridors**

APPENDIX
Financial Statements