



Hennepin County Natural Resources Strategic Plan

2015 – 2020

Adopted by the Hennepin County Board of Commissioners
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INTRODUCTION



Hennepin county's natural resources strategic plan is intended to guide the county and its partners in responding to natural resource issues and developing internal and external policies, programs and partnerships that improve, protect and preserve natural resources.

As the only county in the state with the duties and authorities of a soil and water conservation district, Hennepin County takes the lead role in delivering soil and water conservation services throughout the county. Hennepin County officially assumed this role in 2014 when all duties and authorities of Hennepin Conservation District (HCD) were transferred to the county. Prior to officially assuming these responsibilities, the county was involved in the management of natural resources for decades through collaboration with internal departments on county projects, performing HCD's conservation duties through a cooperative agreement, and by working in partnership with local watershed districts and joint-powers watershed management organizations.

The plan is intended to guide natural resources management in the county through 2020. The plan was developed to be consistent with the county's mission "to enhance the health, safety and quality of life of our residents and communities in a respectful, efficient and fiscally responsible way." It also aligns with the mission of the Environment and Energy Department to "protect and preserve the environment to enhance the quality of life for current and future generations," and complements the department's strategic plan by providing more details about the broad ecosystems and natural resources protection objectives included in that plan.

Mission •

To protect and preserve the environment to enhance the quality of life for current and future generations through the responsible management of natural resources, development of effective partnerships and promotion of environmental stewardship.

Guiding principles

The following principles encompass the concepts and values that were used in the development of the natural resources goals, objectives and strategies included in this plan. These principles also provide general guidance to support work plan activities and management decisions regarding natural resources.

To protect and preserve natural resources in Hennepin County, we:

- Gather and analyze countywide data to identify local and regional trends from which priorities are determined.
- Achieve results through deliberate planning, thorough establishment and implementation of clear and measurable goals.
- Commit to the use of proven best practices while supporting the research and implementation of innovative practices.
- Build and foster partnerships to meet common natural resource management goals and to effectively leverage resources.
- Provide financial and technical assistance and education to motivate environmental stewardship.
- Promote cost-effective resource management and pursue diverse funding sources.
- Anticipate the environmental needs of the county and take advantage of opportunities to preserve and restore the county's natural resources.
- Maintain qualified, knowledgeable, multi-disciplinary staff who act as both advocates for and stewards of the county's natural resources.

Gathering public and partner feedback

The county gathered feedback on the proposed natural resources strategies from 500 participants through meetings, events, and online and in-person surveys. Participants included residents and representatives from watershed management organizations, park districts, cities and state agencies. Outreach for these activities included arranging in-person meetings, sending emails to city mayors, managers and clerks, contacting staff at partner organizations, and publishing information in newspapers, e-newsletters and social media.

Public engagement activities	Participants
Online survey for residents	117 residents
In-person surveys at community events	59 residents
Online survey for partners	35 respondents
In-person presentations and discussions with partner organization staff	200 participants
Natural Resources Partnership meetings (6/2/15 and 7/28/15)	32 participants
Soliciting written and verbal comments	27 comments via e-mail, letter or in person conversations.
Meetings with county department staff representing Transportation, Community Works and Environment and Energy.	39 county staff participants

Key findings

Residents:

- Are concerned about natural resources.
- Place the highest priority on protecting water resources.
- Want more education on what is needed to protect natural resources and what actions to take.
- Requested more information on the quality of our natural resources, policies and regulations, and financial incentives.

Partners:

- Support the plan's overall theme of partnership.
- See value in the county taking a more active role to facilitate collaboration on natural resources management.
- Confirmed their appreciation of the support the county currently provides through technical and financial assistance, management of the natural resources inventory and education efforts, and expressed a desire for more support in these areas.

Public engagement participants

Residents from:

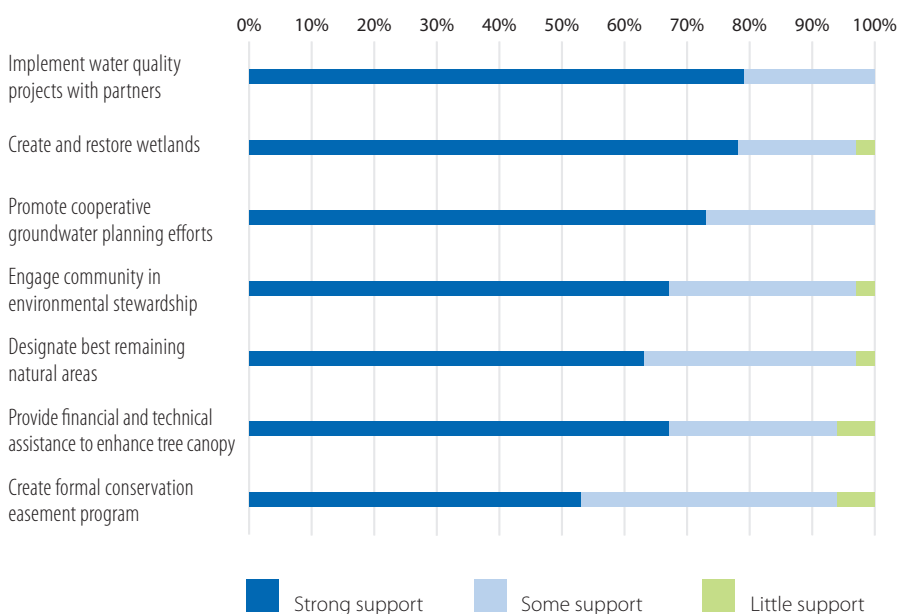
- Bloomington
- Brooklyn Park
- Champlin
- Corcoran
- Crystal
- Eden Prairie
- Edina
- Golden Valley
- Maple Grove
- Minneapolis
- Minnetonka
- Orono
- Plymouth
- Robbinsdale
- St. Louis Park
- Shorewood

Partners representing:

- Bassett Creek Watershed Management Commission
- Bloomington
- Brooklyn Center
- Brooklyn Park
- Carver County Watershed Management Organization
- Champlin
- Corcoran
- Crow River Organization of Water
- Crystal
- Dayton
- Eden Prairie
- Edina
- Elm Creek Watershed Management Commission
- Golden Valley
- Greenfield
- Independence
- Long Lake
- Loretto
- Lower Minnesota River Watershed District
- Maple Grove
- Maple Plain

- Expressed strongest support for strategies that protect water.
- Support new strategies to create wetlands banks, formally designate the best natural areas, establish a conservation easement program and implement strategies to enhance the tree canopy.
- Expressed a strong interest to partner with the county to jointly pursue Clean Water, Land and Legacy funding.

Partner support for natural resources strategies



Public engagement participants, *continued*

Partners representing:

- Medicine Lake
- Medina
- Metro Conservation District
- Metropolitan Council
- Minnehaha Creek Watershed District
- Minneapolis
- Minneapolis Park and Recreation Board
- Minnesota Board of Water and Soil Resources
- Minnesota Department of Natural Resources
- Minnesota Pollution Control Agency
- Minnetonka
- Minnetrista
- Mississippi Watershed Management Organization
- Mound
- New Hope
- Nine Mile Creek Watershed District
- Osseo
- Pioneer-Sarah Creek Watershed Management Commission
- Plymouth
- Richfield-Bloomington Watershed Management Organization
- Robbinsdale
- Rogers
- Riley Purgatory Bluff Creek Watershed District
- St. Anthony
- St. Louis Park
- Shingle Creek Watershed Management Commission
- Three Rivers Park District
- Tonka Bay
- University of Minnesota Extension Service
- West Mississippi River Watershed Management Commission

Natural resources in Hennepin County

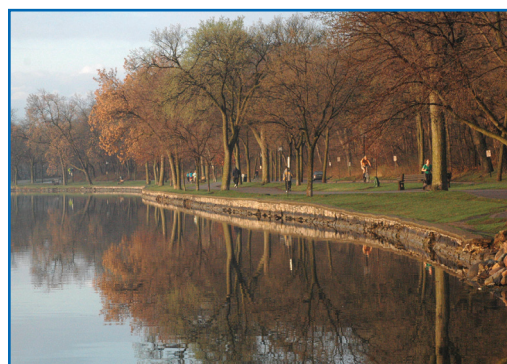
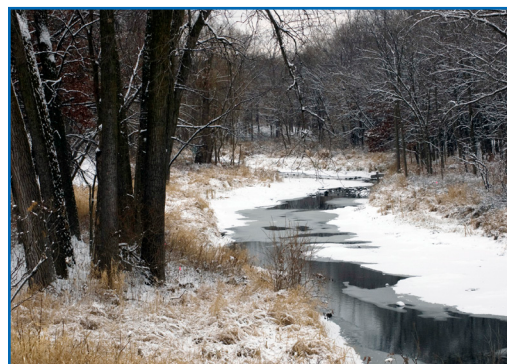
Hennepin County has an abundance of natural resources, including numerous lakes, streams, wetlands and rivers and diverse landscapes and habitats ranging from gardens and urban parks to prairies and forests. Natural resources provide critical habitat for wildlife, protect water quality, offer recreational opportunities and serve as the foundation for the region's environmental well-being, economic prosperity and collective quality of life. Protecting these important recreational, aesthetic and ecological resources is a priority for the county and its residents and partners. However, the county's natural resources are under increasing pressure from population growth, development and climate change.

Hennepin County's size and population present unique challenges and opportunities in regard to protecting natural resources. Hennepin County is the most populous county in the state with about 1.2 million residents, and the population is expected to increase steadily by 8 percent through 2030. Population density and land use vary widely throughout the county, encompassing urban, suburban (collectively referred to as urban in this plan) and rural areas.

Many entities in the county have a role in water and land conservation issues, making developing and maintaining partnerships critical to protecting natural resources. Many of the strategies included in this plan outline our intention to partner with cities, watershed organizations, nonprofit organizations, and regional and state agencies in order to meet our natural resource protection goals.

The impacts of climate change will put more stress on natural resources. Temperature and moisture patterns may change faster than plant and animal communities can adapt, resulting in changes to ecosystems, habitat loss and spread of invasive species. Additionally, an increased frequency of both flooding and droughts will put additional pressure on our stormwater management infrastructure and groundwater resources.

Land use is projected to shift in the county through 2030 with more land being developed and less land being open space or agricultural. Understanding the current and projected land use helps guide our priorities to support programs that implement best practices to protect land and water and enhance wildlife habitat in urban and rural areas throughout the county as well as preserve the county's remaining ecologically significant open space areas.



From lakes to rivers to urban parks, forests and prairies, Hennepin County has an abundance of diverse landscapes and natural resources.

Land use in Hennepin County

Land use type	2010	2030, projected
Developed	49%	71%
Open space	39%	23%
Agricultural	12%	6%

Source: Metropolitan Council

Goals, objectives and strategies

This plan outlines Hennepin County's strategies to meet the following goals:

- Hennepin County waters are clean and healthy.
- Hennepin County landscapes are diverse and functional and natural areas are preserved.
- Hennepin County fosters effective partnerships.
- Hennepin County motivates environmental stewardship.
- Hennepin County leverages financial resources.

The plan accounts for both new and ongoing strategies the county will pursue to meet our goals. The plan proposes an adaptive management approach in which we will continually review management strategies and outcomes in order to fulfill our mission of protecting and preserving the county's natural resources.

The strategies under each objective have been identified as a continuation of past efforts, an expansion or new approach to an existing effort, or a new program.

GOAL 1

Hennepin County waters are clean and healthy

Hennepin County will work to protect and restore lakes, rivers, streams and wetlands to preserve the health of aquatic ecosystems, meet applicable standards for fishing and recreation, and ensure that water supplies are sustainable.

1.1 Objective: Protect and restore lakes, rivers and streams

Strategy	Continue	Expand	New
1.1.1 Track the quality of the county's water resources.	✓		
1.1.2 Work with partners to implement water quality restoration and protection projects to improve impaired water resources.		✓	
1.1.3 Provide technical assistance and education to residents, municipalities and watersheds.	✓		
1.1.4 Reduce the impacts of stormwater runoff through the implementation of best management practices.		✓	

Strategies

1.1.1 Track the quality of the county's water resources.

Understanding the quality of the county's water resources is important to determining priorities and identifying how strategies and programs need to be adapted to better achieve water quality goals and objectives.

To assess long-term trends in the quality of the county's water resources, the county will use available data to track annual conditions on 50 reference lakes. To avoid duplication of monitoring efforts, the county will use data collected by watersheds, cities and other groups. The county will also monitor the state's impaired waters list and resulting Total Maximum Daily Load (TMDL) studies, which set pollution-reduction goals needed to restore waters. This information will be shared with the county board, partners and the public to increase awareness of the status of our water resources and to guide decisions.

1.1.2 Work with partners to implement water quality restoration and protection projects to improve impaired water resources.

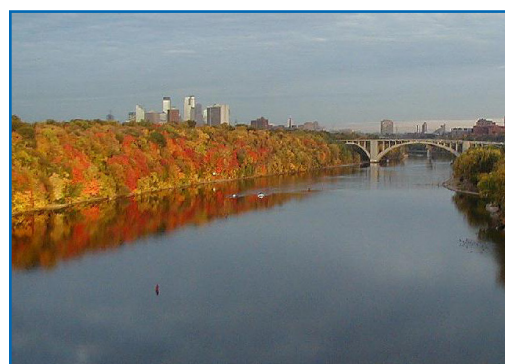
Numerous lakes and miles of rivers and streams in Hennepin County are on the State of Minnesota's list of impaired waters for aquatic recreation, aquatic life or aquatic consumption. The impaired waters list assesses water quality based on standards for a wide range of pollutants, including bacteria, chloride, nutrients, turbidity and mercury. A body of water is considered impaired if it fails to meet one or more of the water quality standards. The number of impaired waters is expected to increase as more monitoring data on more lakes, rivers and streams becomes available.

To remediate impaired waters and support local leads on TMDLs, the county provides technical and financial assistance to partners to implement best management practices. These practices capture and filter stormwater to slow and

Water resources in Hennepin County

Hennepin County has an abundance of water resources, including:

- 200 lakes
- 640 miles of streams
- 3 major rivers
- 45,000 acres of wetlands



The streams and rivers in Hennepin County eventually flow into the Mississippi River.

Total Maximum Daily Load

A Total Maximum Daily Load, or TMDL, is a calculation of the maximum amount of a pollutant that a body of water can receive and still meet water quality standards. A TMDL study is an analysis and plan established for an impaired body of water to ensure that the water quality standards will be attained and maintained.

reduce runoff, reduce erosion and sedimentation, preserve and establish native vegetation and vegetative buffers, and enhance wildlife habitat.

1.1.3 Provide technical assistance and education to residents, municipalities, watershed management groups and other county departments to protect and restore our water resources.

Many entities in the county have a role in protecting water resources, making the establishment of partnerships and providing education critical to meeting our goals. To ensure that the county's water resources are protected and restoration measures are sound, the county provides technical assistance to landowners, local units of government and other county departments.

The county provides technical support to these groups by:

- Participating on technical advisory committees to review watershed management plans, rule updates and environmental studies.
- Reviewing site and project plans.
- Participating in project pre-design and pre-construction processes.
- Conducting area-wide assessments regarding water quality, wetlands, erosion and floodplain issues.

The county also undertakes specific watershed and resource-based assessments to identify and prioritize the implementation of best management practices that protect and restore water resources.

1.1.4 Reduce the impacts of stormwater runoff through the implementation of best management practices.

Stormwater runoff occurs when flow from rain or snowmelt runs off of yards, farm fields, roofs, parking lots and roadways, picking up soil, yard waste, chemicals and other pollutants along the way. If left untreated, the runoff drains directly into lakes, streams and wetlands, degrading the quality of those resources. Changes in precipitation patterns, including the amount, timing and intensity, in combination with increased urbanization will affect the amount of stormwater runoff that needs to be managed. Increased runoff puts more demand on our stormwater management infrastructure, increases the potential for flooding, and increases the amount of bacteria, chloride, nutrients, sediments and other pollutants that is carried to water resources. Climate and land use changes will worsen some existing stormwater-related issues while other areas will be less affected.

The county will promote the implementation of low-impact development and green infrastructure for newly developed and redeveloped properties, agricultural best practices, wetland restorations and innovative stormwater management practices where applicable. The county will also continue to research and implement state-of-the-art methods of applying chloride to reduce water pollution while maintaining safe roads. These practices will help the county adapt to changing future conditions, reduce impacts from stormwater runoff and work toward the remediation of impaired waters.



Hennepin County Transportation (Roads and Bridges) received the Environmental Leadership Award at the 2014 Road Salt Symposium for their ongoing efforts to implement best practices for applying road salt. The county strives to maintain safe roads while minimizing the impact on the environment.

1.2 Objective: Protect groundwater resources

Strategy	Continue	Expand	New
1.2.1 Support planning and education efforts to protect groundwater resources.		✓	
1.2.2 Advocate for the cleanup of contaminated sites with the potential to significantly impact groundwater resources.			✓
1.2.3 Seal abandoned wells to reduce the potential for groundwater contamination.	✓		

Strategies

1.2.1 Support planning and education efforts to protect groundwater resources.

Recent Metropolitan Council studies have shown that aquifers are being depleted due in part to the increased reliance on groundwater for water supply. More than 70 percent of the Twin Cities region's water supply now comes from groundwater, compared with about 20 percent in the 1940s and 1950s before suburban growth. The depletion of aquifers is affecting water levels of some Twin Cities metro area lakes, wetlands and streams. Numerous lakes in Hennepin County were identified as being potentially vulnerable to pumping from surrounding shallow aquifers in a June 2010 Metropolitan Council model. Seven of these lakes were further identified as having a wide littoral zone, or shallow area near shore, where a loss in lake water levels would be more noticeable due to receding shorelines.

To effectively protect and improve groundwater resources, the county will support cooperative planning efforts that will evaluate existing data, identify additional data needs, and assess the susceptibility of our surface and groundwater resources to current and projected levels of groundwater withdrawal, contamination and other threats. Through the Hennepin Natural Resource Partnership, the county will provide a forum for partner engagement in groundwater issues to improve related decision-making processes and build a strong base of support for groundwater protection by encouraging communication and dialogue. The county will continue to work with the Minnesota Department of Natural Resources, the Minnesota Department of Health and the Metropolitan Council to assist local communities in identifying groundwater protection needs and integrating groundwater issues with other local planning efforts, such as growth management plans. The county will work with partners to improve the understanding of groundwater and surface water interactions and its influence on the county's groundwater-dependent natural resources. The county will also explore opportunities to collaborate with partners to promote water conservation messages.

1.2.2 Advocate for the cleanup of contaminated sites with the potential to significantly impact groundwater resources.

Stormwater that infiltrates through sites polluted with petroleum, heavy metals, dump materials or other hazardous substances often contaminates groundwater. In some cases, the contamination is gradually mitigated through natural processes. However, other sites require active cleanup.

Using the county's Geographic Information System, staff will evaluate the locations of contaminated sites with the goal of identifying contaminated sites that may pose significant risks to groundwater resources. Although the regulatory authority for the protection of groundwater rests with the Minnesota Pollution Control



Hennepin County provided funding through its Dumpsite Assessment Program and Environmental Response Fund to the City of Excelsior to characterize and reduce environmental risks associated with a former dump site that was given to the City of Excelsior by the prior property owner for use as a park. Financial assistance provided by the county was used to assess environmental risks, complete a partial cleanup, install a four-foot clean soil cover on the dump site, restore the shoreline and add a landfill gas venting system. These actions greatly expanded the use of the park, which is now clean enough to be used, in part, as a community garden.

Agency and the Minnesota Department of Health, the county will work with state regulatory agency staff, municipalities, and, where necessary, landowners to advocate for the cleanup of sites that pose a high risk to the environment and/or human health.

1.2.3 Seal abandoned wells to reduce the potential of groundwater contamination.

Unused and unsealed wells pose a threat to our drinking water by acting as a channel between the surface and the aquifer below, allowing surface water runoff, contaminants or improperly disposed waste to reach an uncontaminated aquifer. Permanently sealing abandoned wells provides long-term protection of our water supplies.

The county will continue to provide cost-share grants to landowners, using a combination of county and state funding as available, to seal high-priority abandoned wells that are located within municipal wellhead protection areas or have other environmental factors that increase the potential for contamination.

1.3 Objective: Protect and restore wetlands

Strategy	Continue	Expand	New
1.3.1 Identify the highest-quality wetlands to ensure their protection and determine impacted wetlands suitable for restoration.		✓	
1.3.2 Ensure the protection and preservation of wetlands through enforcement of Minnesota's Wetland Conservation Act.	✓		
1.3.3 Pursue creation and restoration of wetlands to establish wetland banking credits, mitigate losses and remediate impaired waters within the county.			✓

Strategies

1.3.1 Identify the highest-quality wetlands to ensure their protection and determine impacted wetlands suitable for restoration.

Wetlands are diverse ecosystems that act as a transition between water and land, slowing stormwater runoff and protecting shorelines. Wetlands improve water quality by absorbing excess sediment, nutrients and other pollutants, reduce flooding, replenish groundwater, and provide fish and wildlife habitat and recreational opportunities.

The county will work with partners to conduct a thorough analysis of the function and environmental benefits of the wetlands in the county. This analysis will help set priorities for protecting the highest-quality wetlands and identifying and restoring wetlands that provide the biggest benefit to impaired waters.

1.3.2 Ensure the protection and preservation of wetlands through enforcement of Minnesota's Wetland Conservation Act.

Compared to pre-settlement land use, thousands of acres of wetlands in Hennepin County have been drained or filled by landowners. To prevent further loss of wetlands, Hennepin County has a statutory role in the enforcement of Minnesota's Wetland Conservation Act (WCA), which was created to protect and preserve the quantity, quality and biological diversity of our wetlands. WCA requires anyone



Wetlands in Baker Park in Maple Plain.

proposing to drain, fill or excavate a wetland must first, try to avoid disturbing the wetland, second, try to minimize any impact on the wetland and finally, replace any lost wetland acres, functions and values.

County staff work with landowners who have wetland violations on their properties to restore the wetland to its pre-existing condition or to create a wetland of equal or greater value. The county also participates on Technical Evaluation Panels, which provide a forum to discuss site-specific interpretations of WCA laws, rules and technical data in order to avoid, reduce or mitigate wetland impacts. The county will also track how well county-led projects are fulfilling WCA goals.

1.3.3 Pursue the creation and restoration of wetlands to establish wetland banking credits, mitigate losses and remediate impaired waters within the county.

A wetland mitigation bank is a wetland that has been restored, established or enhanced to compensate for impacted wetlands. Under the Wetland Conservation Act, landowners who cannot restore or avoid impacting a wetland must replace lost wetland acres by purchasing wetland banking credits. Because there are limited wetland mitigation banking credits available in Hennepin County, credits are often purchased outside of the county, resulting in a net loss of wetlands within the county.

To bolster the availability of mitigation credits within Hennepin County, the county will identify, evaluate and pursue wetland restoration and funding opportunities on county-owned properties and tax-forfeited lands. County-owned restorations will ensure the availability of banking credits for county projects within the county boundaries and also avoid the costs of purchasing credits outside the county. In addition, the county will assist the Minnesota Board of Water and Soil Resources (BWSR) in locating willing county landowners with potential wetland restoration sites that may qualify for BWSR funds to restore their wetlands through BWSR's wetland bank road program. These wetland restorations will not only benefit downstream water quality, but will generate additional wetland credits within the county that could be used to offset wetland impacts resulting from county projects or sold to fund additional wetland restorations. In addition, the county will evaluate identified wetland restoration opportunities on county properties, tax-forfeited lands and other available sites to determine those that should be prioritized based on their functions to help address water quality and quantity impairments.



Example of a filled wetland that would need to be remediated or replaced under the Wetland Conservation Act.

GOAL 2

Hennepin County landscapes are diverse and functional and natural areas are preserved

Hennepin County will work to identify and protect natural areas and green spaces. The county will also promote, establish and restore ecologically functional landscapes and control threats to natural resources to promote diverse and sustainable ecosystems throughout the county.

2.1 Objectives: Protect and enhance natural areas, corridors and green spaces

Strategy	Continue	Expand	New
2.1.1 Identify, protect and restore the best remaining natural areas and corridors.		✓	
2.1.2 Promote the establishment of conservation easements to protect valued natural areas.		✓	
2.1.3 Work with partners to preserve, enhance and expand urban green spaces.		✓	

Strategies

2.1.1 Identify, protect and restore the best remaining natural areas and corridors.

Natural areas are lands that consist of primarily native vegetation and have not been significantly altered by human activity. Natural areas, which include different types of forests, prairies and wetlands, provide critical habitat for wildlife, recreational opportunities and economic benefits. Protecting and restoring natural areas can improve water quality, mitigate flooding and create opportunities for future trail connections between regional parks and other protected green spaces.

The remaining natural areas in the county will face increasing pressure in the next 20 years as more land becomes developed, making it critical to protect these areas now. Every acre in the county has been identified and classified with respect to its value as a natural area and habitat, laying the groundwork for long-term protection and restoration of natural areas and important corridors or greenways that facilitate the growth and movement of wildlife and native vegetation between natural areas.

Formally designating the best remaining natural areas and corridors would better position the county and partners to leverage funds for their protection and enhancement. The county will continue to maintain an interactive Natural Resources Map that assists local governments in managing growth and protecting their natural resources and green spaces.

Natural areas in Hennepin County

Hennepin County encompasses 600 square miles with a variety of natural areas, including prairies, forests and wetlands. The county has:

- 2,665 ecologically significant natural areas totaling 26,368 acres.
- 47,407 acres identified as priority natural resources corridors.



The Natural Resources Interactive Map is a tool local governments can access to make land use decisions and landowners can use to learn more about their properties.

2.1.2 Promote the establishment of conservation easements to protect natural areas.

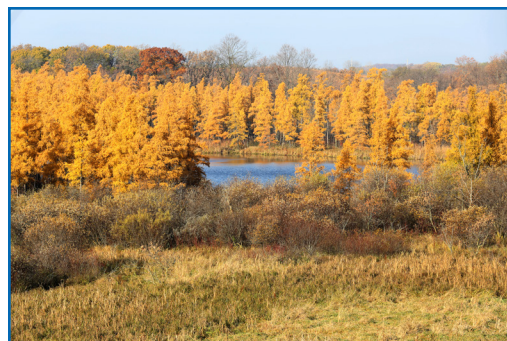
Conservation easements are one of the most effective tools available for permanently preserving private lands as open space. The establishment of a conservation easement restricts development and certain types of use on a piece of property in perpetuity in order to protect its natural resources. Conservation easements are legally binding agreements that can be either voluntarily donated or sold by the landowner to protect land and potentially provide public access for future generations.

The county manages nearly 40 conservation easements that were either inherited through the transition of the Hennepin Conservation District's duties or in partnership with the Minnesota Land Trust. However, the county does not have a formal program to actively pursue and fund conservation easement opportunities. The county will explore options for establishing a board-adopted conservation easement program that provides guidance for the consideration of potential easement properties as opportunities arise via tax-forfeiture, capital projects or private landowner inquiries. A program approved by the board will also improve the county's ability to secure external funding. As part of this program, the county will continue to provide technical assistance to landowners for tasks related to establishing conservation easements.

2.1.3 Work with partners to preserve, enhance and expand urban green spaces.

Urban green spaces include a variety of landscapes, from highly maintained environments like ball fields and gardens to more natural landscapes like greenways along river corridors and urban forests. Urban green spaces serve important ecological functions such as slowing and capturing stormwater, protecting water quality, preserving fish and wildlife habitat, and protecting scenic, cultural and historical features. Urban green spaces also provide recreational opportunities, foster connectivity between communities, create a "sense of place," and have a positive economic impact on the surrounding area.

Through the county's work identifying and mapping critical habitats and wildlife corridors and the facilitation of the Hennepin Natural Resource Partnership, the county will continue to collaborate with partners to encourage the incorporation of green spaces, sustainable landscaping practices and establishment and maintenance of tree canopies in developing and redeveloping areas.



Hennepin County and the Minnesota Land Trust established a 44-acre conservation easement at Camp Kingswood in Minnetrista in 2011. This ecologically diverse natural area had been identified in Hennepin County's natural resources inventory as a priority area in need of protection. The easement area includes a Big Woods remnant maple-basswood forest, a restored tall grass prairie, a tamarack bog and unique glacial features.

2.2 Objective: Establish and restore landscapes that serve an ecological function

Strategy	Continue	Expand	New
2.2.1 Develop and implement sustainable landscaping guidelines and practices for county-funded projects and properties.			✓
2.2.2 Work with partners and landowners to implement sustainable landscaping and low-impact development practices in developed and redeveloping areas.		✓	
2.2.3 Maintain and increase a healthy tree canopy.		✓	

Strategies

2.2.1 Develop and implement sustainable landscaping guidelines and practices for county-funded projects and properties.

Sustainable landscaping focuses on creating outdoor spaces that are functional, easy-to-maintain, environmentally sound, cost-effective and aesthetically pleasing. Sustainable landscaping practices improve the success of landscape installation, can lower maintenance costs, and reduce the need for chemical controls and watering by encouraging the use of native plants, utilizing integrated pest management strategies and implementing stormwater runoff reduction practices.

The county will promote the sustainable use of water and land, conserve soils and vegetation, support natural ecosystem functions and lessen maintenance costs and needs by incorporating sustainable landscaping principles in county projects and properties.

2.2.2 Work with partners and landowners to implement sustainable landscaping and low-impact development practices in developed and redeveloping areas.

Low-impact development is an approach to land development or redevelopment that works with the landscape to manage stormwater as close to where it falls as possible, using stormwater as a resource and promoting the natural movement of water within an ecosystem. Low-impact development practices include bioretention ponds, rain gardens, green roofs, rain barrels and permeable pavements. Sustainable landscaping aims to create functional, easy-to-maintain and low-input landscapes by focusing on improving soil and choosing the right plants and landscape features for the conditions. In urban settings, natural landscapes improve air and water quality, increase energy efficiency, reduce the heat island effect, restore wildlife habitat and provide economic and community benefits.

The county will support landscapes that serve an ecological function by working with partners through the Hennepin Natural Resources Partnership and by providing technical and financial assistance to incorporate low-impact development and sustainable landscaping practices into development and redevelopment projects.

2.2.3 Maintain and increase a healthy tree canopy.

Trees improve water and air quality, sequester carbon, provide wildlife habitat and infiltrate stormwater. Left unmanaged, the overall tree canopy in the county will likely continue to decline due to loss of trees from age, development, invasive species, disease, pests, climate change and storm damage.

To enhance the tree canopy, the county established a gravel-bed nursery that gives the county access to a wider variety of tree species for use on county properties and projects, helps the county proactively replace ash trees that will ultimately be infested with the emerald ash borer, and produces trees that have a higher survival rate than conventional nursery trees. This proactive initiative, combined with increased tree inventory, monitoring and maintenance efforts, will result in an improved and healthier tree canopy. The county will also provide technical assistance to cities to enhance tree canopy and will evaluate the feasibility of providing financial and logistical assistance for planning and mitigation efforts related to the emerald ash borer. Additionally, the county will encourage cities, park districts and landowners to permanently protect existing, high-quality forested areas because established trees provide greater air quality, water quality, habitat and recreational benefits than newly planted small trees.



Hennepin County provided grant funding for the establishment of rain gardens in Plymouth.

2.3 Objective: Control and prevent vegetative and biological threats to maintain healthy ecosystems

Strategy	Continue	Expand	New
2.3.1 Prevent the introduction and spread of invasive species.		✓	
2.3.2 Control and prevent the spread of noxious weeds.	✓		

Strategies

2.3.1 Prevent the introduction and spread of invasive species.

Invasive species are non-native species that cause economic or ecological damage. Without natural predators, invasive species can spread rapidly in an ecosystem and out-compete native species. Hennepin County's natural resources are threatened by both aquatic and terrestrial invasive species.

The county works to prevent the spread and promote the control of invasive species by participating on regional and statewide invasive species task forces and by educating the public on the actions they need to take. The county will utilize state funding, as available, to enhance efforts to prevent the spread of invasive species, such as using the state's Aquatic Invasive Species Prevention Aid to construct decontamination stations, assist in watercraft inspections and enhance enforcement.

2.3.2 Control and prevent the spread of noxious weeds.

Noxious weeds are plants that are injurious to public health, the environment, public roads, crops, livestock and other property.

The county assists in administering and enforcing the state's noxious weed laws and rules and provides education, training and outreach for professional and private land managers. The county inspects county right-of-ways for noxious weeds and works with cities to respond to complaints.

Invasive species in Hennepin County

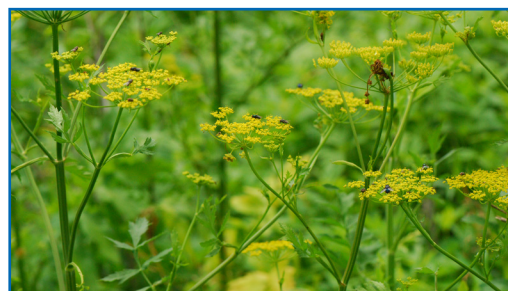
Invasive species are not native to Minnesota and cause economic or environmental harm. Our natural resources are currently threatened by a number of invasive species such as zebra mussels, Eurasian watermilfoil, invasive carp, common buckthorn and emerald ash borer.



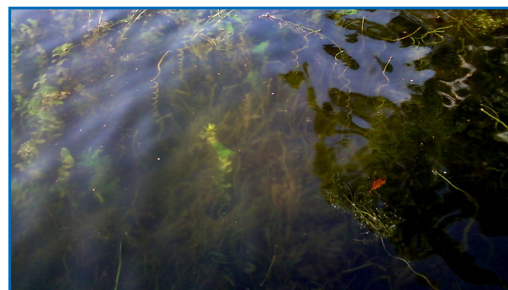
Zebra mussel photo by: D. Jude, Univ. of Michigan



Emerald ash borer photo by: U.S. Department of Agriculture



Wild parsnip photo by: Joshua Mayer on www.flickr.com



Eurasian watermilfoil photo by: librarylvr on www.flickr.com

2.4 Objective: Practice and promote environmental stewardship of the county's soil resources

Strategy	Continue	Expand	New
2.4.1 Assist partners in identifying high-priority areas where soil erosion, sedimentation and related water quality degradation is occurring.	✓		

Strategies:

2.4.1 Assist partners in identifying high-priority areas where soil erosion, sedimentation and related water quality degradation is occurring.

Controlling soil erosion improves soil and water quality by reducing sedimentation, preserving topsoil and avoiding the degradation of lakes, rivers, streams and wetlands.

The county will offer to help partners, including watershed districts, water management organizations, cities and landowners, identify the types and locations of high-quality soils, prime farmlands and erodible soils. The county will then work with partners to set priorities for conservation planning and implementation, install best management practices, stabilize shorelines and establish vegetation buffers, and leverage outside funding sources such as the Natural Resources Conservation Services Fund.



Example of soil erosion along a creek.

GOAL 3

Hennepin County fosters effective partnerships

Hennepin County will take a leadership role in pursuing and fostering external and internal partnerships to protect, restore and enhance the county's natural resources

3.1 Objective: Foster partnerships and strengthen collaboration with natural resource management entities

Strategy	Continue	Expand	New
3.1.1 Facilitate collaboration and coordination among natural resource management groups through the Hennepin Natural Resources Partnership.			✓
3.1.2 Collaborate with partners to research and promote innovative solutions to address regional issues and meet common goals.		✓	

Strategies

3.1.1 Facilitate collaboration and coordination among natural resource management groups.

There are numerous natural resource management entities working to fulfill varying missions and requirements throughout the county, which can result in missed opportunities for collaboration.

To provide a forum for a more holistic approach to natural resource management, the county has convened a group of representatives from watershed districts, water management organizations, cities, county departments and state and regional natural resource agencies. The Hennepin Natural Resources Partnership promotes collaborative land and water management efforts on issues transecting political and hydrologic boundaries, encourages sharing of resources and information, increases opportunities to leverage resources and provides a venue to address countywide policy issues.

3.1.2 Collaborate with partners to research and promote innovative solutions to address regional issues and meet common goals.

We need to gain a better understanding of innovative solutions and best practices to address emerging regional issues, such as water supply sustainability, climate change impacts and mitigation, the urban heat island effect, extreme weather events, stormwater management practices, and regional land use planning that addresses differing natural resource management needs of urban and rural areas.

The county will work with partners, including other governmental units, nonprofit organizations and educational institutions, to research, implement and promote innovative solutions to regional issues.

Natural resource management entities in Hennepin County

Many entities are involved with natural resources, including the county's:

- 45 municipalities
- 11 watershed management entities, including four watershed districts* and seven joint-powers watershed management organizations
- 2 park districts

*Watershed district board managers are actively interviewed before being appointed to three-year terms by the county board.

3.2 Objective: Collaborate with internal partners to incorporate sustainable natural resource management strategies

Strategy	Continue	Expand	New
3.2.1 Engage other Hennepin County departments to incorporate the use of proven and innovative best management practices on county projects and properties.	✓		

Strategies

3.2.1 Engage other Hennepin County departments to incorporate the use of proven and innovative best management practices on county projects and properties.

Internal collaboration effectively utilizes the range of expertise of county staff. The Environment and Energy Department raises awareness about the threats to our natural resources and educates other county departments on becoming leaders in the management of our natural resources by proactively being part of the solution and, where applicable, continue efforts of going beyond compliance.

The Environment and Energy Department provides technical support on county community works, housing, railroad, transit and transportation projects by assisting with environmental permitting requirements, evaluating stormwater and erosion issues, developing sustainable landscaping and forestry strategies, promoting the incorporation of best management practices, and assessing natural resource improvements as part of the capital project prioritization process.

GOAL 4

Hennepin County motivates environmental stewardship

Hennepin County will support and participate in environmental education and outreach activities that educate the community on the importance of environmental sustainability, natural resource protection and habitat enhancement.

4.1 Objective: Engage the community in taking action to protect the environment

Strategy	Continue	Expand	New
4.1.1 Collaborate with partners to deliver environmental education.	✓		
4.1.2 Engage volunteers in environmental stewardship.	✓		
4.1.3 Promote natural resources programs.		✓	

Strategies

4.1.1 Collaborate with partners to deliver environmental education.

Natural resources are impacted by the individual actions and choices of the county's residents, businesses, local governments and other organizations, making it critical to educate community members about their impact and engage them in taking action to protect the environment.

The county works with partners to deliver environmental education, allowing the county to leverage resources, expertise and community connections. The county develops educational resources, shares technical information and provides funding for partners to implement environmental education projects that empower residents to take action to protect water and land. The county supports programs and projects that help audiences understand that they are part of an ecosystem and can take action to protect the environment regardless of where they live. The county will implement additional efforts to engage youth in hands-on, outdoor educational experiences and service-learning projects. The county will also focus on reaching new and diverse audiences through peer-to-peer outreach and culturally appropriate educational materials.

4.1.2 Engage volunteers in environmental stewardship.

Volunteer programs engage interested and enthusiastic residents in gathering environmental data and promoting environmental stewardship.

The county administers volunteer programs that monitor water quality, collect data and provide hands-on environmental education experiences for volunteers. The county will continue to explore opportunities with our partners where volunteers could be used to promote environmental stewardship.



Metro Blooms received a Hennepin County Green Partners Environmental Education Grant to plant a rain garden at Bethune Community School in north Minneapolis. About 60 fourth- and fifth-grade students helped plant the garden with assistance from a Master Water Steward volunteer. The garden will reduce runoff by capturing and filtering rain water and will be used to educate students and the community about actions they can take to protect water quality.

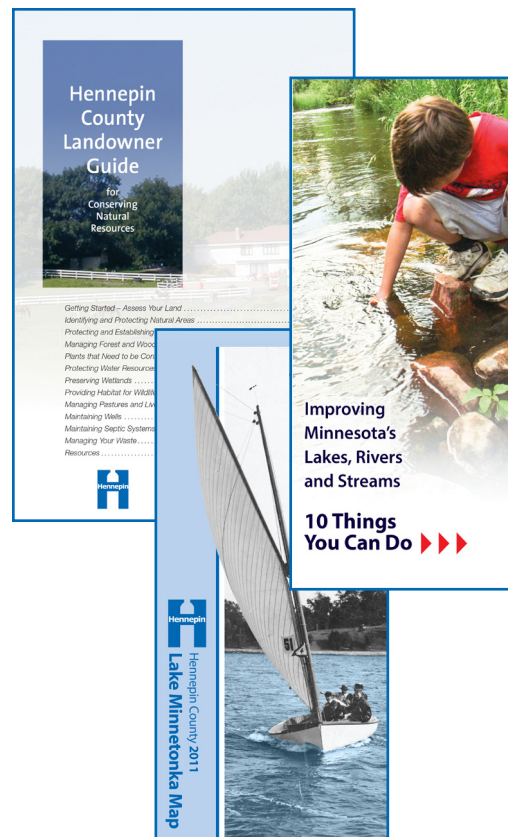


Citizen scientist volunteers with the Hennepin County Wetland Health Evaluation Program gather data to assess the health of the county's wetlands.

4.1.3 Promote natural resources programs.

Actively promoting the county's conservation programs and services educates the community on the issues threatening our natural resources and raises awareness of opportunities to get involved.

The county will be visible in the community by advocating for our natural resource management work and expanding the delivery of information about our environmental programs and services through all of our communication channels.



Hennepin County has a variety of resources available to promote the protection of natural resources, including a guide for landowners on protecting natural resources, a brochure developed in partnership with watershed organizations on ways to protect water quality, and a map of Lake Minnetonka.

GOAL 5

Hennepin County leverages financial resources

Hennepin County will provide financial assistance, pursue additional funding sources and leverage resources to implement projects and programs that meet common goals of the county and partners.

5.1 Objective: Integrate the work of Hennepin County and partners to achieve the goals of the Clean Water, Land and Legacy Amendment

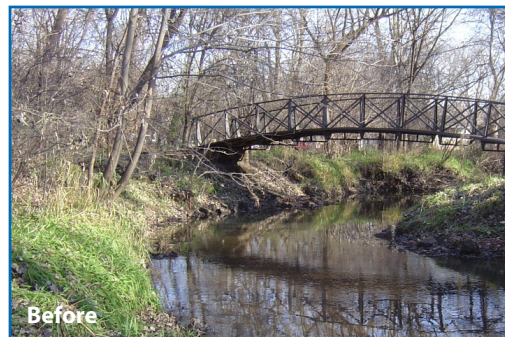
Strategy	Continue	Expand	New
5.1.1 Work with partners to leverage resources to implement projects and programs that meet common natural resource management goals.		✓	

Strategies

5.1.1 Work with partners to leverage resources to implement projects and programs that meet common natural resource management goals.

The Clean Water, Land and Legacy Amendment provides funding for projects that protect, enhance and restore natural resources, including lakes, rivers, streams, groundwater, wetlands, prairies, forests and wildlife habitat. County partners, including watershed management organizations, cities and park districts, are better positioned than the county to successfully compete for grant funding because they have defined projects in their state-approved capital implementation plans.

In an effort to lessen the burden on local taxpayers, the county will seek partners to jointly pursue grant funds on projects and programs that address common natural resources issues, needs and goals.



Hennepin County awarded the City of Golden Valley \$135,000 in 2009 to stabilize eroded banks along a 5,100-foot reach of Bassett Creek. Funding came from the county's riparian restoration and streambank stabilization program, which received \$500,000 from the Minnesota Clean Water Fund.

5.2 Objective: Provide financial assistance

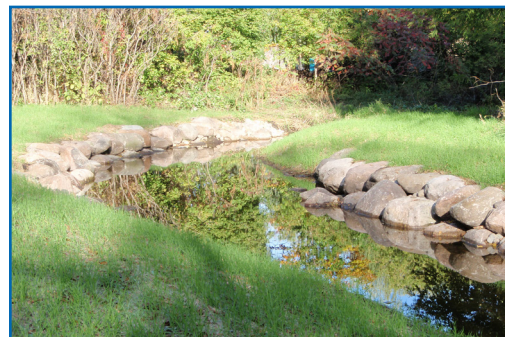
Strategy	Continue	Expand	New
5.2.1 Develop and manage grant and cost-share programs that provide financial and technical assistance to partners to implement best management practices and programs that preserve, enhance, and restore our natural resources.		✓	

Strategies

5.2.1 Develop and manage grant and cost-share programs that provide financial and technical assistance to partners to implement best management practices and programs that preserve, enhance, and restore our natural resources.

Providing financial and technical assistance to partners allows the county leverage resources to more effectively accomplish shared goals.

The county oversees multiple grant programs that address a variety of environmental issues. Grants are available to help landowners, governmental units and organizations implement best management practices that preserve or restore critical habitats, reduce erosion and protect and improve water quality. Grants are also available to fund the assessment and cleanup of contaminated lands, seal high-priority abandoned wells, and engage and empower residents to take actions to protect the environment.



Hennepin County provided funding for the stabilization of the Fox Creek in Rogers.





Hennepin County
Public Works
Environment and Energy

