EXECUTIVE SUMMARY

Through Wisconsin Act 27 (1997-1999 Biennial Budget Bill), Chapter 92.10 of the Wisconsin Statutes was amended, creating a county land and water resource management planning program. The Dane County Land and Water Resource Management (LWRM) Plan addresses soil and water quality concerns using local, state, and federal programs. It is a 10 year (2008-2018) action and implementation plan that emphasizes cooperation with conservation partners in Dane County. The LWRM Plan is intended to both complement and coordinate with previously existing plans rather than replace them. It focuses on the Dane County Land and Water Resources Department’s (LWRD) strengths of conservation planning, water quality planning, information and education, technical assistance, and program administration, and brings diverse interests together to effectively protect and enhance Dane County’s resources.

The Dane County LWRM Plan was written with the assistance of partner agencies, including the Wisconsin Department of Agriculture, Trade and Consumer Protection; Wisconsin Department of Natural Resources; Farm Service Agency; Natural Resources Conservation Service; Capital Area Regional Planning Commission; and University of Wisconsin Cooperative Extension. Input on the plan also came from a Local Advisory Committee (LAC), comprised of individuals who represent a wide array of interests, including the Dane County Farm Bureau, the development community, local farmers and landowners, watershed organizations, the Dane County Board, and municipalities. Additionally, a public hearing on the plan was held June 25, 2008. Thus a wide array of voices and perspectives contributed to the development of Dane County’s LWRD Plan.

The objectives of the plan are to provide:

1. An assessment of the current conditions of land and water resources in Dane County.
2. An overview and status report on various land and water conservation implementation programs.
3. Regulatory requirements related to land conservation and water quality, including local zoning, the Dane County Stepped Enforcement Program, and state mandated NR 151 performance standards.
4. Monitoring and evaluation methods administered by the Land Conservation Division (LCD) and other agencies for the purpose of determining conservation needs and documenting responses in natural resources.
5. Information and education initiatives that will be used to raise awareness of the importance of maintaining and enhancing natural resources.
6. An implementation strategy to guide the LWRD in carrying out the recommendations of the plan.
In summary, the LWRM Plan outlines a comprehensive strategy for the implementation of soil and water conservation in Dane County from 2008 through 2018. It identifies six critical goals for carrying out natural resource protection in Dane County:

1. Maintaining agricultural lands for long-term production.
2. Managing crop nutrient sources in an economic and environmentally sound manner.
3. Protecting and enhancing in-stream, riparian, wetland, and upland habitat.
4. Protecting and improving the quality of groundwater and surface water in Dane County.
5. Consistently implementing all applicable Dane County erosion control and stormwater management (ECSM) policies and programs throughout the County.
6. Partnering with and involving citizens in soil and water protection and improvement initiatives in Dane County.

The Land and Water Resources Department will evaluate the workplan on an annual basis to ensure that needs are being adequately addressed and that the plan reflects new and emerging resource priorities. The plan also aims to build on previous planning efforts and the major accomplishments associated with prior plans. Since 2003, Dane County has reached several significant milestones, including:

- Consolidating the Land and Water Resources Department into five divisions.
- Creating the Land and Water Legacy Program, which annually provides upwards of $1.5 million to improve Dane County waters.
- Passing a phosphorus lawn fertilizer ordinance.
- Regulating winter liquid manure spreading.
- Completing an initial manure digester feasibility study.
- Banning toxic coal tar driveway sealants.
- Removing the West Branch of the Sugar River from the EPA impaired waters list.
- Restoring over 29 miles of streambanks, including public easements.
- Purchasing 80 acres of wetlands in the Lake Mendota Watershed.
- Amending Chapter 14 of the Dane County Code of Ordinances to meet State Performance Standards for rural and urban nonpoint source pollution.

Implementing the goals identified in this plan will help ensure the continued protection and enhancement of the natural resources in Dane County. This can only be accomplished through ongoing partnerships with agencies, landowners, watershed groups, and the citizens of Dane County.
ACKNOWLEDGEMENTS

The development of Dane County’s Land and Water Resource Management Plan involved a diverse group of individuals with a wide range of expertise. Their input was critical for plan development and will continue to play an integral role in addressing the issues and achieving the goals set forth in the following document. Thank you to everyone who helped with this process.

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Tom Stoebig Dorothy Wheeler

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Patrick Sutter-Land Conservation Darren Marsh-Parks
Susan Jones-Office of Lakes & Watersheds Michelle Richardson-Administration
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Introduction

Through Wisconsin Act 27 (1997-1999 Biennial Budget Bill), Chapter 92.10 of the Wisconsin Statutes was amended, creating a county land and water resource management planning program. The impetus behind the program is to develop a locally led process that protects Wisconsin’s land and water resources by streamlining administrative and delivery mechanisms, improving decision-making, and making better use of local, state, and federal funds. This plan revises prior plans that were written and approved in 1999 and 2003. It reflects an overall effort to tie together conservation programs, available funding, and other resources to effectively address the land and water resource management issues facing Dane County from 2008 through 2018.

Revisions found in this plan include: an updated resource assessment, additional programs for conservation, a revised enforcement program for the implementation of runoff guidelines and performance standards established through NR 151 (effective October 1, 2002), and the Dane County Workplan. In addition, this plan includes a comprehensive review of the accomplishments from the previous plan. Conservation programs the Dane County LWRD uses to implement the goals and objectives outlined are also discussed. These programs provide the necessary administrative and technical support for implementing conservation practices in Dane County.

Dane County’s LWRM Plan is intended to complement and coordinate with existing plans rather than replace them. It is an action and implementation plan that emphasizes cooperating with our conservation partners. The successful implementation of this plan depends upon many divisions, agencies, and organizations working together. Moreover, success can only be achieved with continued levels of current staffing and financial resources. Through continued cooperation between the LWRD and its partners and stable funding, citizens will be able to enjoy Dane County’s soil and water resources today and well into the future.

The goals and objectives outlined in this workplan clearly reflect the existing resources in Dane County and were developed to specifically meet conservation needs. Previous resource management plans and current LWRD responsibilities factored into the final development of the workplan. LWRD staff and the LAC reviewed past LWRM plans and evaluated their effectiveness at enhancing conservation and documenting results. Using the resource assessment and information from existing water quality plans as a starting point, six major goals were developed.

Dane County Land and Water Resources Department

Recognizing the importance of cross program coordination and the value of merging into one Department, the Dane County Land and Water Resources Department (LWRD) was created in the 2005 Dane County budget. Effective January 1, 2005, the Parks Department, Land Conservation Department, and Lakes and Watersheds Division of the
County Executive’s Office were merged into one department that contains five work units:

**Administration Division**

The Administration Division is responsible for watershed and park planning. The division also provides administrative oversight and support, and GIS services to the entire department.

**Office of Lakes and Watersheds**

The Office of Lakes and Watersheds coordinates water-related policy initiatives across the County, and informs and educates citizens about water resource issues and actions they can take to protect lakes, streams, and wetlands. The Office also provides staff support to the Dane County Lakes and Watershed Commission.

**Land Conservation Division**

The Land Conservation Division provides conservation implementation services to private landowners and land users in order to protect and enhance Dane County soil and water resources. The Division’s three work groups provide conservation services on both agricultural and urban lands and apply scientific methods to measure, monitor, and manage lake levels.

**Land Acquisition Division**

The Land Acquisition Division preserves, protects, and acquires historical, archeological, and natural resource lands for the protection, use, benefit, restoration, and enjoyment of Dane County citizens and visitors. The Division also administers the County’s land acquisition grant programs.

**Parks Division**

The Parks Division operates and maintains a system of 33 parks, natural resource areas, and trail corridors for the citizens of and visitors to Dane County. The Division is organized into five work units: visitor services and enforcement, land maintenance and development, adult conservation team, locks and dam operations and aquatic plant harvesting, and the Lussier Family Heritage Center.

The goal of the new LWRD is to protect and restore Dane County’s natural resources and to promote the sustainable and environmentally responsible enjoyment of public natural areas. To these ends, the Department began a strategic planning process in 2007.
The strategic planning process aligned and united the Department’s various divisions around a shared sense of purpose. It further served as a platform for the development of the Department’s long range work planning, which is aimed at providing the best possible services for Dane County’s natural resources and the clientele of the LWRD. Using the foundation built by this process, the LWRD will continue to evaluate and incorporate the results of the planning process in the years to come.

**Vision Statement**

*Dane County citizens value the quality of the County’s natural, historic, and cultural resources, recognize the connection between these resources and their own quality of life, and expect these resources to be improved and sustained for present and future generations.*

*The Dane County Land and Water Resources Department exists to ensure the protection and enhancement of Dane County’s natural, cultural, and historic resources; to provide the County’s citizens with a broad array of accessible, high quality resource-based recreational services and facilities; and to support citizens, communities, local governments and other agencies and organizations in their resource management and protection activities.*

*The Department pursues its mission, alone and in collaboration with other agencies and organizations, through a mix of strategies that includes and combines resource management, program delivery, education and outreach, policy development, oversight, data management, technical assistance, responsiveness, and excellent customer service.*
CHAPTER 1
EXISTING RESOURCE CONDITIONS OF DANE COUNTY

It is important to understand the current state of the land and water resources of Dane County before the goals and objectives of this plan are presented. The geography of the region has a profound influence on water quality. The natural setting of the landscape determines how the weather shapes the county. The following provides a brief overview of the physical characteristics of Dane County.

PHYSIOGRAPHY
At 1,230 square miles (or 793,335 acres) in size, Dane County is the third largest county in Wisconsin after Marathon and Grant. The geomorphology of Dane County is a result of glaciation, the Yahara River, and the Wisconsin River. The eastern half of Dane County is glaciated, while the western half of the county lies within the Driftless Area. Eastern Dane County is characterized by low rolling hills with intermittent moraines. Western Dane County has the greatest relief in the county and is comprised of ridgetops, steep sloping valleys, rock outcroppings, and narrow valley bottoms.

Soils
The soils of Dane County occur in two distinct geologic areas: the Driftless Area of southwestern Wisconsin and the area that was covered by the Laurentide Ice Sheet during the Wisconsin Glaciation.

On the ridge tops of the Driftless Area, the soils formed in a thin layer of loess and the underlying residuum of Paleozoic rock. Soils of the side slopes formed in colluviums that resulted from mass-wasting and fluvial erosion. Steep slopes and shallow depth to bedrock are the primary soil properties that affect use and management of soils in the Driftless Area. In the Wisconsin River bottomland, the soils formed in the sandy sediment deposited by glacial melt water.

Most of the glaciated part of Dane County is composed of sediment associated with the Horicon Member of the Holy Hill Formation. The soils formed in loess and the underlying sandy loam till, sand and gravel outwash, and stratified silt and clayey lacustrine deposits. There are also areas of hydric soils, comprised of both organic material and mineral sediments that constitute existing and former wetlands. Erosion and sedimentation affecting water quality and long-term soil productivity are the major management concerns of soils in the glaciated area in the county.

Climate
Dane County’s climate is humid continental. With prevailing weather patterns and winds from the west, the county experiences four distinct seasons with extreme variations in temperature and precipitation. Temperature varies from an average of 16.7°F in January to 71.4°F in July. Average annual precipitation is 31 inches. May through October have the highest rainfall totals; 60% of annual precipitation falls during this time period. Frost depth averages 18-30 inches and lasts from early December through late March or early April.
Land Use

Containing the second largest metropolitan area in Wisconsin and the seat of state government, rapid growth has been the norm throughout the county over the past three decades. According to the U.S. Census Bureau, Dane County had a population of 463,826 in 2006, an 8.7% growth from 2000. This represents 8.3% of the total population in the State of Wisconsin. The county is expecting an additional 20% increase by the year 2020. As the population continues to grow, more emphasis will need to be placed on protecting the natural resources. Land use is still predominantly agricultural, however more farms are being lost as development continues to encroach into rural Dane County. Table 1-1 outlines land use categories that were inventoried concurrent with the 2000 and 2005 Census. Figure 1-1 displays a geographic representation of the land use.

Table 1-1. Total Land Use for Dane County in 2000 and 2005
(Source: Capital Area Regional Planning Commission)

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Residential</td>
<td>49,194</td>
<td>56,552</td>
<td>7.1%</td>
<td>+15</td>
</tr>
<tr>
<td>Industrial</td>
<td>7,362</td>
<td>7,682</td>
<td>1.0%</td>
<td>+4.3</td>
</tr>
<tr>
<td>Transportation</td>
<td>43,842</td>
<td>46,075</td>
<td>5.8%</td>
<td>+5.1</td>
</tr>
<tr>
<td>Communications &amp; Utilities</td>
<td>1,778</td>
<td>1,249</td>
<td>0.2%</td>
<td>-30</td>
</tr>
<tr>
<td>Commercial-Retail</td>
<td>3,009</td>
<td>3,372</td>
<td>0.4%</td>
<td>+12</td>
</tr>
<tr>
<td>Commercial Services</td>
<td>3,655</td>
<td>4,015</td>
<td>0.5%</td>
<td>+9.9</td>
</tr>
<tr>
<td>Institution &amp; Government</td>
<td>5,083</td>
<td>5,544</td>
<td>0.7%</td>
<td>+9.1</td>
</tr>
<tr>
<td>Recreation</td>
<td>13,133</td>
<td>15,835</td>
<td>2.0%</td>
<td>+21</td>
</tr>
<tr>
<td>Agriculture &amp; Undeveloped</td>
<td>666,280</td>
<td>651,643</td>
<td>82.3%</td>
<td>-2.2</td>
</tr>
<tr>
<td><strong>Total Developed Area</strong></td>
<td><strong>127,054</strong></td>
<td><strong>140,324</strong></td>
<td>17.7%</td>
<td>+10.4</td>
</tr>
<tr>
<td><strong>Total Area</strong></td>
<td><strong>793,335</strong></td>
<td><strong>791,978</strong></td>
<td>100.0%</td>
<td>-0.17</td>
</tr>
</tbody>
</table>

Hydrology

Dane County contains part or all of 20 different watersheds that are part of four different basins: the Lower Wisconsin River Basin, the Grant-Platte-Sugar-Pecatonica River Basin (referred to hereafter as the Sugar-Pecatonica Basin), the Upper Rock River Basin, and the Lower Rock River Basin. A map of these basins and watersheds is found on page 7. The county is home to 68 named lakes and ponds (covering 33 square miles) and 52 named streams and rivers extending 421 miles (in addition to 14 miles of the Wisconsin River). The total surface water acreage in Dane County is 26,748 acres, or 36 square miles. The county also contains 52,000 acres of remaining wetlands.

Dane County’s distinct geomorphologies create different effects on water patterns and resources. The dividing line between the two geomorphologies is roughly the watershed boundary between the Lower Rock River basin and the Lower Wisconsin and Sugar-Pecatanica basins. Figure 1-2 is a shaded relief map that shows these two distinct geomorphologies. In the eastern glaciated portion, streams are low gradient and are usually adjoined by wetlands. Few streams are spring fed, and drainage is not well defined. sediments of sand, silt, and muck underlie the streams. In the Yahara River valley area (Rock River basins), deep glacial deposits dammed up large valleys to form a chain of lakes and wetlands (now known as Mendota, Monona, Waubesa, and Kegonsa), all of which are connected by the Yahara River.
Figure 1-1. Land Use (2005)

Legend:
- Agriculture
- Woodland / Commercial Forest
- Water
- Open Land / Outdoor Recreation
- Cemetery
- Institutional or Governmental
- Single Family
- Two Family
- Multi-Family
- Transportation / Communication / Utilities
- Commercial Sales or Services
- Extractive
- Industrial
- Under Construction
- Township Boundary

Data from the Capital Area Regional Planning Commission
In the western, unglaciated portion of the county, many streams have a gravel or rubble bottom. The steeper topography in the western portion of the county results in higher flow rates than the streams in the eastern glaciated portion. Most streams are nourished by springs and seeps that flow from water-bearing layers of bedrock exposed on hillsides and from upwelling groundwater discharge. The upwelling of groundwater and steep gradients contribute to cool water and high dissolved oxygen, resulting in abundant trout streams in this half of the county. This area is generally without natural lakes or impoundments.

The Wisconsin River Valley in the northwestern part of the county contains deep sand and gravel deposits and extensive marshes in the river floodplains. Fish and Crystal Lakes are located here.

Lakes, streams, and wetlands are among Dane County’s most precious resources. County residents depend on clean water to drink and to run their businesses. Not only does ground water supply all of our drinking water, but water resources also offer recreational opportunities such as fishing and swimming, provide scenic beauty, and help define residents’ sense of place. Moreover, wetlands filter pollutants and even provide protection from floods. Rivers, lakes, and wetlands also provide critical habitat for both aquatic and land-based wildlife.

Dane County’s waters have a number of different classifications (or designations) based on the health of the water body. Figure 1-3 shows the location of outstanding and exceptional resource waters as well as impaired waters, as listed by the DNR. According to the DNR, an outstanding resource water has excellent water quality, high recreational and aesthetic value, high quality fishing, and is free from treated wastewater discharges or runoff pollution. Point source pollution will not be allowed to these waters in the future, unless the quality of such discharges meets or exceeds the quality of the receiving water. An exceptional resource water is a stream that exhibits the same high quality resource values as outstanding waters, but may be impacted by point source pollution or may receive future discharges. Impaired waters are on a list maintained by the DNR according to Section 303(d) of the federal Clean Water Act. This list includes Wisconsin surface waters for which beneficial uses of the water (i.e. drinking, recreation, aquatic habitat, and industrial use) are impaired by pollutants. The LWRD often focuses its conservation efforts on waters that do not meet their intended use.

COORDINATION WITH OTHER WATER QUALITY NATURAL RESOURCE PLANS

DNR Basin Plans

Four basins are located in Dane County: the Lower Rock River Basin, the Upper Rock River Basin, the Lower Wisconsin River Basin, and the Sugar Pecatonica River Basin (Figure 1-4). The Wisconsin Department of Natural Resources’ (DNR) Water Quality Management (WQM) Plans (basin plans) identify areas of water quality concern and propose management objectives for the water resources of the basins. These plans focus on issues that require a comprehensive and collaborative management approach from the DNR, other public agencies, and private citizens, and they include background information and management recommendations for streams, rivers, creeks, wetlands, and groundwater. Specific management objectives that were identified for each basin were considered in the development of the LWRM workplan. Pages 11-15 provide more detailed descriptions of the four basins.
Dane County Water Quality Plan
In 1975, Wisconsin’s Governor designated Dane County as an area with complex water quality problems and the Dane County Regional Planning Commission as the local representative planning agency charged with developing a comprehensive, area-wide water quality management plan. The Regional Planning Commission worked with federal, state, and local management agencies over several years to develop the initial Dane County Water Quality Plan (which included 11 technical appendices). The plan was adopted and certified by the state in 1979 as the official, area-wide water quality management plan for Dane County and has been continually revised, updated, and expanded over the years. The latest revision took place in 2004 and was adopted by the DNR on December 9, 2004.

During the 31 years that the Commission maintained an area-wide water quality planning process for the county, significant progress was made in developing and implementing local environmental programs that embrace resource protection and pollution control. After the Commission was dissolved in 2004, the Capital Area Regional Planning Commission (CARPC) was formed to continue this role, with particular focus on future urban development area planning.

Although the watershed basins differ physically, common resource issues exist. Polluted runoff from both agricultural and urban sources, increases in the quantity of urban stormwater, altered stream and groundwater hydrology, continued loss of aquatic and riparian habitat, and less infiltration and recharge of groundwater continue to be identified as critical resource issues. In the past, a lack of water quality monitoring has made it difficult to set priorities for the purposes of resource management planning and to target protection efforts in those watersheds where land and water conservation work is needed most.

Dane County Comprehensive Plan
Adopted in 2007, the Dane County Comprehensive Plan will help guide land use decisions for the next 20 years. In particular, Chapter 5: Agriculture, Natural and Cultural Resources outlines multiple goals for managing our natural environment. A key finding of the plan comes from a survey in which 86% of respondents indicated that they felt the county should pay either “somewhat more” or “considerably more” attention to managing water resources.

2006–2011 Dane County Parks and Open Space Plan
The 2006-11 Dane County Parks and Open Space Plan seeks to identify significant cultural, historical, and natural resources that should be considered for possible protection, preservation, or restoration over the next five years. The plan also seeks to identify countywide recreational needs and Dane County’s role in providing facilities to meet anticipated demands. Both resource and recreation needs were identified through a comprehensive public input process. Lands that are identified in the plan for acquisition are purchased through the Dane County Conservation Fund. Twenty percent of the annual Conservation Fund appropriation is set aside for grants to local units of government and non-profit conservation organizations to acquire lands identified in the plan.
Dane County Groundwater Protection Plan
The Dane County Groundwater Protection Plan addresses existing and potential groundwater problems in Dane County. Adopted in 1999, the plan is part of the Dane County Water Quality Plan.

Dane County Water Body Classification Study
The Water Body Classification Study (Phase I and Phase II) classifies lakes, ponds, rivers, and streams according to their current level of development and sensitivity to development. A range of protection, restoration, and enhancement strategies, as well as various management actions can be taken depending on the circumstances surrounding a particular site. This classification system allows water resource plans, policies, and programs to be tailored to meet the needs of the resource and the priorities of the community. It also provides a framework for guiding program resources, promoting cost-sharing opportunities and partnerships among various agencies and groups, and directing efforts where they will have the greatest beneficial impact.

Dane County Wetlands Resource Management Guide
The Dane County Wetlands Resource Management Guide is intended to support and encourage landowner and community-based wetland improvement projects. The information, strategies, and activities presented in the guide provide an overall framework and a variety of options for land acquisition, conservation easements, cooperative agreements, and management projects by individuals and groups in the community. The guide is meant to reflect how citizens or organizations (with their individual sets of skills, resources, and support bases) might participate in efforts to reverse the loss of wetlands in Dane County and promote water quality improvements in surface waters overall.

Common themes or points of interest among water quality and resource management plans include:

**Protection of ORW and ERW waters.** Streams classified as outstanding resource waters (ORW) and exceptional resource waters (ERW) are listed in Wisconsin Administrative Codes NR 102.10 and NR 102.11 (see Figure 1-3). Exceptional resource waters have excellent water quality and valued fisheries, but may already receive wastewater discharges or may receive future discharges necessary to correct environmental or public health problems. Outstanding resource waters have excellent water quality and high-quality fisheries. They do not receive wastewater discharges and point source discharges will not be allowed in the future, unless the quality of such discharges meets or exceeds the quality of the receiving water. This classification includes national and state wild and scenic rivers and the highest quality Class I trout streams.

**Continued conservation efforts on 303(d) water bodies.** 303(d), or impaired, waters do not presently meet their designated use (see Figure 1-3). Dane County has focused a portion of its conservation efforts in these watersheds over the past 10 years and will continue to do so as indicated in the workplan. These areas and potential remediation/restoration alternatives are identified at annual meetings with DNR water quality staff.
Implementation of streambank protection, buffers and wetland restoration. Water quality, flood control, biodiversity, and groundwater all benefit from streambank buffers and wetland restoration activities. High priority was given to this action in all four basin plans. Dane County will work with local, state, and federal programs to secure funding and technical assistance to implement these practices. Dane County will also continue to use the Parks and Open Space Plan and the Land and Water Legacy Fund as major implementation tools.

Coordination of water quality monitoring. DNR annual baseline monitoring covers areas of proposed water quality improvement projects. The data that is generated provides accurate assessments of pre-post implementation. Citizen stream monitoring and continued funding of the USGS monitoring station will remain top priorities. Dane County will also explore the feasibility of developing county monitoring stations for real time data.

Support of educational initiatives relating to land and water conservation. All four basin plans specifically indicate that informing and educating citizens is essential to improving and protecting natural resources, since human activity is the largest single factor affecting the water resources in the basins. Dane County will continue to coordinate educational programming with internal and external partners.

Implementation and coordination of the NR 151 performance standards. Dane County has amended its strategy for implementing the NR 151 performance standards, including the County’s Stepped Enforcement Program (page 37). The LWRD will continue to work with DNR and DATCP staff to ensure standards are properly administered.

Mitigation of urban stormwater runoff. Increasing development pressures in all four river basins were identified as significant threats to county surface waters. The Dane County Erosion Control and Stormwater Management Ordinance went into effect in August 2002. This mandatory ordinance requires all units of government to uniformly apply comprehensive water quality and quantity standards. LCD staff will continue to assist local municipalities with proper implementation and administration of the ordinance.

The Dane County LWRD will continue to work with all partnering agencies and non-governmental organizations to implement water quality management plans, particularly where conservation initiatives can best be achieved through a coordinated approach.
ASSESSMENT OF WATER QUALITY AND SOIL EROSION CONDITIONS IN DANE COUNTY

Dane County River Basins

LOWER WISCONSIN RIVER BASIN WATERSHEDS
Mill and Blue Mounds Creek
Black Earth Creek
Roxbury Creek
Lake Wisconsin

Basin Overview
The Lower Wisconsin River Basin encompasses 12 counties and 137,695 acres, of which Dane County is but one part (with 14,244 acres). Most of the Lower Wisconsin River Basin is in the driftless (i.e. unglaciated) part of the state. The Wisconsin River is the Basin’s main water attribute. The Wisconsin River is a tributary to the Mississippi, which drains into the Gulf of Mexico. The large valley of the Wisconsin River consists of deep sand and gravel deposits and extensive marshes on the river’s floodplain.

General Basin-Wide Concerns
- Nitrate/bacteriological contamination of wells. High nitrate concentrations in shallow private wells are the result of agricultural fertilizer use, septic systems, etc. Earlier studies have shown that 25-35% of private domestic wells tested in the County exceed the ten mg/l nitrate drinking water standard.
- Nutrients to surface water.
- Pesticides/herbicides including atrazine. Detected in many places, atrazine use is largely prohibited now.
- Improperly abandoned or unabandoned wells and poorly located wells.
- Municipal discharges.
- Agricultural and nonpoint runoff (primarily soil erosion from cropland, but also some organic pollution from barnyard runoff).

Specific Concerns
- Groundwater contamination from the closed Refuse Hideaway Landfill in the Black Earth Creek Watershed. Additional discussion is provided in that section of this document.
- Future source to other county waters of exotic pest species such as zebra mussels and Asian Carp.
GRANT-PLATTE-SUGAR-PECATONICA RIVER BASIN
WATERSHEDS
Gordon Creek
Upper East Branch Pecatonica River
Allen Creek/Middle Sugar River
Little Sugar River
Upper Sugar River
West Branch Sugar/ Mount Vernon Creek

Basin Overview
The Sugar, Pecatonica, Grant, and Platte Rivers drain 1,832 square miles primarily in the
driftless area of Wisconsin and eventually flow into the Rock River in Illinois. The driftless area
is a region that was not covered by the continental ice sheet during the most recent glacial age,
which ended 10-12,000 years ago. This produced a landscape unlike the rest of glaciated
Wisconsin. The terrain varies from gently to moderately rolling hills, with small streams that
have moderate to steep gradients. The Dane County portion of the basin is 171,589 acres in size.

The Grant-Platte-Sugar-Pecatonica Basin has more than 1,720 miles of streams. About 261 miles
of those streams provide a cold-water fishery (trout). Another 518 miles are a warm-water
fishery, while 215 miles are considered valuable forage fishery streams. The few lakes in the
basin are primarily impoundments.

General Basin-Wide Concerns
• Rapid growth. According to studies by the DNR, streams begin to be adversely affected
  when urbanization reaches 10% of contributing watershed area and at 25%, streams are
  severely affected. In this basin, urbanization has been rapid. For example, from 1990 to
  2000, the nearby City of Fitchburg grew by 31% (20,501 up from 15,648), the City of
  Verona by 31% (7,052 up from 5,374), and the Village of Mount Horeb by 40% (5,860
  up from 4,182). Such urbanization leads to greater runoff, which carries pollutants to
  surface waters.

• The City of Verona, found in the Grant-Platte-Sugar-Pecatonica River Basin, is part of a
  regional wastewater system that is run by and known as the Madison Metropolitan
  Sewage District (MMSD). Communities served by this system send their untreated
  wastewater via sewage pipes to the MMSD facility where it is treated and discharged to
  Badfish Creek. Most wastewater primarily begins as groundwater that has been used by
  residential and industrial customers. When Verona sends its wastewater to MMSD, there
  is a transfer of water from the Grant-Platte-Sugar-Pecatonica River Basin to the Lower
  Rock River Basin. While groundwater is still considered to be plentiful for drinking
  water, the possibility exists that this water transfer will impact surface water flow. This
  might occur under a drought condition or if groundwater levels drop, which would impact
  surface waters or wetlands. Discharge to surface waters is an important source of
  continuous flow to lakes and streams when the weather is dry. When too much of this
  water is used or diverted away, the water table falls low enough to reduce the flow to
  lakes and streams (known as baseflow), which negatively impacts the habitat for animals


and plants in those places. A program to return a portion of the highly treated wastewater effluent flow back to the Sugar River Basin has been implemented. This was done to minimize the potential for reduced flows in Badger Mill Creek and the Sugar River that could result from a “loss” due to wastewater treatment. To accomplish this, treated wastewater was returned via a large pipe, aerated in a cascade type structure, and discharged to Badger Mill Creek, a tributary to the Sugar River. Again, the goal is to minimize any hydrologic imbalance created by transferring water from one basin to another.

- From a groundwater quality standpoint, private wells in this region are usually a few hundred feet deep and generally draw water from the shallow aquifer. Shallow private wells are typically more susceptible to contamination from surface activities than deeper public wells are. High capacity municipal wells may be as much as one thousand feet deep and draw water from the Mt. Simon sandstone aquifer, resulting in considerably less risk of contamination for public sources of water.

Specific Concerns
- Bacteriological contamination of wells.
- Nutrients in water and pesticides. Pesticides (mostly atrazine) have been detected in all 639 wells sampled.
- Nitrates in groundwater, mostly in shallow private wells. High concentrations are probably from high background levels of nitrate/nitrogen, which may result from agricultural over-fertilization or discharges from on-site sewage systems, manure, or silage systems.
- Wells can be a direct source of contamination if they were improperly abandoned or poorly built.

UPPER ROCK RIVER BASIN WATERSHEDS
Lower Crawfish River
Maunesha River
Upper Crawfish River

LOWER ROCK BASIN WATERSHEDS
Yahara River and Lake Kegonsa
Badfish Creek
Yahara River and Lake Monona
Yahara River and Lake Mendota
Six Mile and Pheasant Branch Creeks
Lower Koshkonong Creek

The Upper and Lower Rock River Basins encompass 2.4 million acres in ten counties. Dane County occupies 67,181 acres in the Upper Rock River Basin, and 410,042 acres in the Lower Rock River Basin.
Glaciers once covered this area and produced rolling hills, plains, rivers, lakes, marshes, moraines, and drumlins on a relatively flat, spongy terrain.

Early explorers reported that many streams flowed through the area and described them more as “long seeping wetlands” rather than rivers in a defined channel. This was a result of deep prairie soils and dense vegetation absorbing rainfall and slowly releasing it to rivers. While most of the basin’s large streams and rivers still meander as they have for thousands of years, many smaller streams have been ditched and straightened, thereby substantially changing the hydrology of the basin’s rivers.

Over time, many of the streams and rivers were dammed for gristmills or power mills. As settlements and transportation grew, acres of pavement, buildings, and other impervious areas increased. Prairies and forests were converted to farmland. Water began running off the land faster and less soaked in, leading to more flooding, warmer rivers, and decreased groundwater infiltration.

Many waters in the basin are impaired, but all the waters have reduced water quality from nonpoint or point source pollution. Many water bodies are eutrophic (or highly enriched) with high levels of nutrients. This leads to excessive algal growth and poor water clarity. It also leads to beach closings and endangers mollusks, aquatic plants, and waterfowl.

Most private wells in the region draw water from sand and gravel, twenty to several hundred feet beneath the land surface. Most public wells draw water from deeper limestone or sandstone, from wells that are often over 1,000 feet deep. Risk of water contamination is greater for shallower wells or wells that are located in areas of high bedrock or permeable soils.

MMSD provides wastewater treatment to an approximately 170 square mile service area, most of which is located in the Lower Rock River Basin. A small portion of the district’s service area is located in the Sugar River Basin. MMSD treats about 41 MGD of wastewater. Treated effluent is discharged to two receiving streams. About 38 MGD of treated effluent is currently diverted around the Madison Lakes and discharged to Badfish Creek, which is located in the Lower Rock Basin. Diversion of effluent around the Madison Lakes can have significant impacts on water quantity in portions of the Yahara River during low flow conditions. As water quantity concerns within the basin increase, there may be opportunities to reuse effluent to address these concerns. About three MG is returned to the Sugar River Basin via discharge to Badger Mill Creek. The decision to return effluent to Badger Mill Creek was made primarily to address water quantity concerns.

Stormwater volumes are increasing in the basin due to urbanization and the growth of impervious watershed areas. These additional stormwater volumes in the lakes have increased the frequency and magnitude of flooding, which results in public and private property damage, shoreline erosion, habitat degradation, a loss of floating bogs, and diminished recreational use of the lakes. One estimate of the property damage from floods in 1993, 1996, and 2000 tallied over $40 million in losses. Studies have begun and mitigation plans have been prepared to develop strategies for reducing flooding in the Yahara Lakes.
General Basin-Wide Concerns

- Well testing shows that various sorts of groundwater contamination are fairly widespread in certain areas. In Dane County, where intensive testing occurs, about 45% of wells test positive for pollution from surface contaminants.
- Of all basin counties, known atrazine contamination is greatest in Dane County, where atrazine is prohibited in two-thirds of the county. As a result, other herbicides are increasingly used now.
- In Dane County, about 35% of wells have high nitrate levels, compared to only 13% basin-wide.
- Contamination can also come from leaking underground storage tanks (LUST) and on-site spills. Many LUST sites have been cleaned up, but many are still under investigation or remediation.
- Improperly abandoned wells are conduits for contamination to reach groundwater.
- The groundwater table is dropping. In some basin areas, groundwater is being extracted faster than it is being recharged. Growth of cities and suburbs means higher water consumption, less infiltration because of pavement, and consequently, less recharge. A Dane County Regional Hydrologic Study was begun in 1992 and completed in 1997. The purpose of the study was to estimate the impact of development on county groundwater. One finding from that effort was that water table levels beneath metropolitan Madison have declined by as much as 60 feet in some areas. Lowered groundwater levels result in less groundwater discharge to the Yahara Lakes and tributary streams. This study also showed that the source for Dane County groundwater is infiltration within county boundaries and that some streams already have been affected and show lower baseflows (i.e. the minimum amount in dry weather that is supplied by ground water) due to paving, greater pumping, and possibly from more rain falling in intense events. Groundwater recharge loss from impervious development has compounded the problem by as much as 20%. As the county’s population continues to expand, the impacts to surface water resources are expected to increase due to growth, development, and additional water withdrawals.

Lakes

The Dane County Lakes are also a focal point for conservation efforts. The LWRD is actively involved with and oversees a number of lake management related programs. The LWRD operates up to ten aquatic plant harvesters on the Dane County lakes, with a major emphasis on the Yahara Chain of Lakes. While improving the navigation ability of recreational craft, the harvesting program also serves to expedite the flow of water through the system and remove the infestation of Eurasian water milfoil. In 2007, 9,246 tons of plant material were removed. Lake levels are also monitored on a daily level to coincide with the DNR mandated seasonal elevation requirements. The LWRD also operates a system of locks and dams including the Tenney, Babcock, and LaFollette dams. Additional LWRD responsibilities include annually installing navigation and hazard buoys and supporting numerous research and educational initiatives aimed at improving lake quality in Dane County.
Each lake type displays unique limnological characteristics based on physical and chemical properties. Production of plant and animal life generally varies in accordance with lake type. Basic classifications and qualifying criteria are:

Drainage lake (DG)  Impoundments and natural lakes with the main water source from stream drainage. Have at least one inlet and one outlet.

Drained lake (DR)  Natural lakes with the main water source dependent on the groundwater table and seepage from adjoining wetlands. Seldom have an inlet, but will have an outlet of very little flow. Similar to the seepage lake except for the outlet.

Seepage lake (SE)  Landlocked. Water level maintained by groundwater table and basin seal. Intermittent outlet may be present.

Spring lake (SP)  Seldom have an inlet, but always have an outlet of substantial flow. Water supply dependent upon groundwater rather than surface drainage.

Table 1-2 lists the lakes of Dane County. The table includes the lake name, location (Town, Range, and Section), surface acres, basin, lake type, maximum depth, shoreline development factor (S.D.F.), shoreline miles, and public access type.
### Table 1-2. Lakes of Dane County

<table>
<thead>
<tr>
<th>Lake Name</th>
<th>Location (T, R, S)</th>
<th>Surfac e Acres</th>
<th>Basin</th>
<th>Lake Type</th>
<th>Max. Depth</th>
<th>S.D.F.</th>
<th>Shoreline (mi.)</th>
<th>Public Access</th>
<th>Access:</th>
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<td>Barney Lake</td>
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<td>27</td>
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<td>Trail/Boat Ramp</td>
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<td>8</td>
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<td>1.22</td>
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<td>Seepage</td>
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<td>1.20</td>
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<td>Mud Lake (Lower Mud)</td>
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<td>Rice Lake</td>
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<td>Lower Rock</td>
<td>Deep Marsh</td>
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<td>1.92</td>
<td>2.67</td>
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<td>Salmo Pond</td>
<td>8N, 7E, Sec. 32</td>
<td>4</td>
<td>Lower Wisconsin</td>
<td>Spring Fed</td>
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<td>Turtle Lake</td>
<td>5N, 12E, Sec. 34 &amp; 3</td>
<td>15</td>
<td>Lower Rock</td>
<td>Seepage</td>
<td>4</td>
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<td>Verona Gravel Pits (Palmer Ponds)</td>
<td>6N, 8E, Sec. 22</td>
<td>8</td>
<td>Sugar Pecatonica</td>
<td>Seepage</td>
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<td>Waubesa Lake</td>
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<td>Wingra Lake</td>
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<td>1.61</td>
<td>4.20</td>
<td>Boat Ramp-Public</td>
<td>BR BF P R BW X</td>
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**Access:**
- BR: Boat ramp
- BF: Barrier-free boat ramp (boating dock and/or wheelchair access)
- P: Barrier-free pier (wheelchair access)
- T: Walk-in trail
- R: Roadside
- W: Wilderness
- BW: Barrier-free wilderness access (wheelchair access)
- NW: Navigable water access to lake
- X: Some type of access available, but not specified
303(d) Waters
Under current U.S. Environmental Protection Agency (EPA) requirements, states must list their impaired waters, or those that do not meet water quality standards. The standards include both specific substances and the intended use of that particular water body. The DNR is responsible for developing the list of impaired waters in Wisconsin. It is the DNR’s intent that waters on this list will receive attention for water quality improvement and protection. It is important to recognize impaired waters in the Water Resource Management Plan since the 303(d) list prioritizes where efforts are to be focused. Table 1-3 and Figure 1-3 (on page 6) highlight the waters in Dane County that were listed and reported to the EPA as impaired waters.

Table 1-3. Impaired 303(d) Waters in Dane County

<table>
<thead>
<tr>
<th>Water Body Name</th>
<th>Stream Mile</th>
<th>Basin</th>
<th>Impacts</th>
<th>Priority Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Token Creek</td>
<td>2.9-6.35</td>
<td>Lower Rock</td>
<td>Flow, habitat, sediment, temperature, turbidity, migration</td>
<td>High</td>
</tr>
<tr>
<td>Badfish Creek</td>
<td>0-13</td>
<td>Lower Rock</td>
<td>Peb</td>
<td>Low</td>
</tr>
<tr>
<td>Lake Mendota</td>
<td></td>
<td>Lower Rock</td>
<td>Peb</td>
<td>Low</td>
</tr>
<tr>
<td>Lake Monona</td>
<td></td>
<td>Lower Rock</td>
<td>Peb</td>
<td>Low</td>
</tr>
<tr>
<td>Starkweather Creek</td>
<td>0-3</td>
<td>Lower Rock</td>
<td>Dissolved oxygen, flow, habitat, toxicity, turbidity</td>
<td>Medium</td>
</tr>
<tr>
<td>Nine Springs Creek</td>
<td>0-6.6</td>
<td>Lower Rock</td>
<td>Sediment</td>
<td>High</td>
</tr>
<tr>
<td>Yahara River</td>
<td>7.3-22</td>
<td>Lower Rock</td>
<td>Dissolved oxygen, habitat</td>
<td>High</td>
</tr>
<tr>
<td>Wingra Creek</td>
<td>0-1.2</td>
<td>Lower Rock</td>
<td>Aquatic toxicity</td>
<td>Low</td>
</tr>
<tr>
<td>Maunesha River</td>
<td>5.4-31.8</td>
<td>Upper Rock</td>
<td>Dissolved oxygen, habitat</td>
<td>High</td>
</tr>
<tr>
<td>Halfway Prairie Creek</td>
<td>0-8</td>
<td>Lower Wisconsin</td>
<td>Habitat, sediment</td>
<td>Low</td>
</tr>
<tr>
<td>Wendt Creek</td>
<td>0-6</td>
<td>Lower Wisconsin</td>
<td>Habitat, sediment</td>
<td>Low</td>
</tr>
<tr>
<td>German Valley Branch</td>
<td>0-7.63</td>
<td>Sugar-Pecatonica</td>
<td>Habitat, sediment</td>
<td>Medium</td>
</tr>
<tr>
<td>Pleasant Valley Branch</td>
<td>0-5</td>
<td>Sugar-Pecatonica</td>
<td>Habitat</td>
<td>Medium</td>
</tr>
<tr>
<td>Dorn Creek</td>
<td>1.6.46</td>
<td>Lower Rock</td>
<td>Bacteria, sediment</td>
<td>High</td>
</tr>
<tr>
<td>Pheasant Branch Creek</td>
<td>0-9.09</td>
<td>Lower Rock</td>
<td>Sediment</td>
<td>High</td>
</tr>
<tr>
<td>Lake Koshkonong</td>
<td></td>
<td>Lower Rock</td>
<td>Point source, sediment, habitat</td>
<td>High</td>
</tr>
<tr>
<td>Stony Brook</td>
<td>0-15</td>
<td>Upper Rock</td>
<td>Sediment</td>
<td>High</td>
</tr>
<tr>
<td>Vermont Creek</td>
<td>0-3.46</td>
<td>Lower Wisconsin</td>
<td>Sediment</td>
<td>Medium</td>
</tr>
</tbody>
</table>

Drainage Districts
Drainage districts are local government districts that are organized to drain lands for agricultural or other purposes. Land is drained via drainage ditches, which cross individual property boundaries. Landowners in a district who benefit from drainage must pay assessments to cover the cost of constructing, maintaining, and repairing the drainage system. Drainage districts affect water quality in Dane County by conveying surface and subsurface water to lakes, rivers, streams, and wetlands. As they drain runoff away from agricultural areas, they may also be transporting sediment and other pollutants.
Groundwater Resources
Groundwater accounts for nearly all of the water supply sources in Dane County (Figure 1-5). Public water systems (including residential, industrial, and commercial) account for 73% of the water use in Dane County. The remaining 27% is utilized by irrigation stock watering, rural domestic, and self supplied industry. For rural domestic use, more than 21,000 wells serve over 55,000 people in rural Dane County. From 1979 through 2005, average groundwater use in the county ranged from 53 to 70 million gallons per day. Average individual use is estimated at 140 gallons per day. The Madison metropolitan area utilizes nearly 47 million gallons per day. By the year 2020, an increase of approximately 21% (or 9.66 million gallons per day) is expected in the central Dane County municipalities that discharge to the Madison Metropolitan Sewage District. In addition to domestic and industrial uses, groundwater is essential for providing water to lakes and baseflow to many streams and rivers in the county.

Figure 1-5. Dane County Water Use
There are two types of potential pollution sources to groundwater: subsurface and surface. It should also be noted that most of Dane County lies within the atrazine prohibition area. Table 1-4 highlights potential pollution sources in Dane County.

Table 1-4. Potential groundwater pollution sources in Dane County

<table>
<thead>
<tr>
<th>Subsurface Pollution Sources</th>
<th>Surface Pollution Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Land disposal of solid waste</td>
<td>• Aboveground storage tanks (fertilizer and pesticides)</td>
</tr>
<tr>
<td>• On-site wastewater systems</td>
<td>• Hazardous waste storage</td>
</tr>
<tr>
<td>• Wastewater infiltration ponds</td>
<td>• Irrigation</td>
</tr>
<tr>
<td>• Sanitary sewers</td>
<td>• Wastewater irrigation and land spreading</td>
</tr>
<tr>
<td>• Transmission pipelines</td>
<td>• Sludge or biosolids landspreading</td>
</tr>
<tr>
<td>• Abandoned and improperly constructed wells</td>
<td>• Septage</td>
</tr>
<tr>
<td>• Underground storage tanks</td>
<td>• Salt storage and use</td>
</tr>
<tr>
<td></td>
<td>• Animal feedlots</td>
</tr>
<tr>
<td></td>
<td>• Livestock waste storage</td>
</tr>
<tr>
<td></td>
<td>• Land spreading of livestock waste</td>
</tr>
<tr>
<td></td>
<td>• Fertilizer and pesticide applications</td>
</tr>
<tr>
<td></td>
<td>• Stockpiles</td>
</tr>
<tr>
<td></td>
<td>• Hazardous spills</td>
</tr>
<tr>
<td></td>
<td>• Junkyards/salvage yards</td>
</tr>
<tr>
<td></td>
<td>• Illegal disposal practices</td>
</tr>
</tbody>
</table>

Soil Erosion
Agriculture is the predominant land use in Dane County. Some of the most productive soils in Wisconsin lie within the county. Dane County continues to lead the state in many agricultural categories. Table 1-5 lists the major crops that are produced in the county, including hay, corn, and soybeans. Average yields include 3.8-t/a of hay, 160 b/a of corn, and 55 b/a of soybeans.
**Table 1-5. Dane County Agriculture Statistics 2006**  
*(Source: Wisconsin Agricultural Statistics Survey)*

<table>
<thead>
<tr>
<th>Crops</th>
<th>Quantity</th>
<th>Production</th>
<th>Rank in State</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corn for grain</td>
<td>157,000 acres</td>
<td>27,040,000 bu</td>
<td>1</td>
</tr>
<tr>
<td>Corn for silage</td>
<td>28,600 acres</td>
<td>692,000 ton</td>
<td>1</td>
</tr>
<tr>
<td>Oats</td>
<td>4,300 acres</td>
<td>339,000 bu</td>
<td></td>
</tr>
<tr>
<td>Wheat</td>
<td>11,900 acres</td>
<td>1,042,000 bu</td>
<td>4</td>
</tr>
<tr>
<td>Soybeans</td>
<td>80,600 acres</td>
<td>4,210,000 bu</td>
<td>2</td>
</tr>
<tr>
<td>Alfalfa hay</td>
<td>71,900 acres</td>
<td>310,000 ton</td>
<td>4</td>
</tr>
<tr>
<td>Tobacco</td>
<td>1,100 acres</td>
<td>2,748,000 lbs</td>
<td>1</td>
</tr>
</tbody>
</table>

**Livestock**

<table>
<thead>
<tr>
<th></th>
<th>Number</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Dairy cows</td>
<td>49,000 head</td>
<td></td>
</tr>
<tr>
<td>Dairy herds</td>
<td></td>
<td>390</td>
</tr>
<tr>
<td>Lbs milk/cow/year</td>
<td></td>
<td>20,700</td>
</tr>
<tr>
<td>Total milk/year</td>
<td></td>
<td>1,014,300,000 lbs</td>
</tr>
<tr>
<td>All cattle and calves</td>
<td>130,000 head</td>
<td></td>
</tr>
<tr>
<td>Hogs</td>
<td>23,500 head</td>
<td></td>
</tr>
</tbody>
</table>

The geologic history of Dane County is responsible for the soils found here. Clay and silt loams are found primarily in the glaciated portion of the county, while shallower sandy loams are found in the Driftless Area.

In 2007, the average tolerable soil loss (T value) for Dane County was 4.11 tons per acre per year (t/ac/yr), while the average annual soil loss (A value) was slightly less at 3.41 t/ac/yr. In 1988, the average soil loss was 10.45. A values from 1988 through 2007 are displayed in Figure 1-6 (page 22). These soil loss values are from the Land Conservation Division’s Cooperator Tracking System. Comparisons of the average annual soil loss (in tons/year) from 1988 through 2007 are reflected in Figure 1-6.

Moldboard plowing use has shown a decrease as more farmers are using no till methods for their crops. In addition, soil erosion rates have declined because more farmers are using mulch till. Canning crops and tobacco, which tend to be grown in clean tilled conditions, can increase erosion rates. However, as fewer acres of these crops are being produced and as they are replaced with traditional crops, soil erosion rates on these acres will also decrease.
Figure 1-6. Erosion Summary Comparison

T07 is the Tolerable Soil Loss in tons/acre for 2007. A (by year) is Average Annual Soil Loss (tons/acre).

Data from the Dane County Land Conservation Cooperators Tracking System (CTS).
CHAPTER 2
LAND AND WATER CONSERVATION PROGRAMS

The LWRD utilizes multiple programs to help implement conservation initiatives in Dane County at the local, state, and federal level. Service recipients and projects are evaluated on their overall conservation needs by the LWRD staff. The merits of each program are discussed with the landowner or partner prior to entering into a formal agreement. This chapter provides a brief overview of Dane County’s main conservation programs and funding sources.

LOCAL PROGRAMS

Dane County Urban Water Quality Grant (UWQG)
In 2005, Dane County initiated a cost-sharing program for local municipalities called Urban Water Quality Grants. The goals of UWQG are to improve the quality of urban stormwater runoff entering Dane County lakes, rivers, and streams; increase public awareness of urban water quality issues; and provide public education for urban stormwater quality improvement practices. The project goals are achieved through the construction of best management practices that provide efficient, cost-effective treatment of urban runoff. Financial assistance is available to municipalities in the form of cost-sharing up to 50% percent of the total project cost, not to exceed $35,000.

To be considered for funding, all practices must meet the following eligibility requirements:

- Be constructed and fully functional in 2008.
- Be designed to improve water quality in an existing drainage area with inadequate stormwater controls.
- Treat existing urban runoff draining to a lake, river, or stream.

Submitted projects are scored and ranked based on the project’s anticipated performance, cost, demonstration value, and the municipality’s commitment to maintenance. In 2008, the county allocated $150,000 to the UWQG program.

2006–2011 Dane County Parks and Open Space Plan
The 2006-11 Dane County Parks and Open Space Plan seeks to identify significant cultural, historical, and natural resources to be considered for possible protection, preservation, or restoration over the next five years. The plan also seeks to identify countywide recreation needs and Dane County’s role in providing facilities to meet anticipated demands. Both resource and recreation needs have been identified through a comprehensive public input process. Lands identified in the plan for acquisition are purchased through the Dane County Conservation Fund. Twenty percent of the annual Conservation Fund appropriation is set aside for grants to local units of government and to non-profit conservation organizations for the acquisition of identified lands.

Land and Water Legacy
In 2006, the Dane County Land and Water Legacy Fund was established to protect Dane County waters. Monies are allocated on an annual basis for purchasing lands critical to the protection and enhancement of water quality with a particular emphasis on wetland restorations and streambank
easements. Priority is given to wetland restoration sites within the Lake Mendota Watershed (a DNR designated Priority Watershed) that, when restored, will reduce sediment and nutrient loading to Dane County waters while also providing wildlife habitat. In 2007, Dane County established and implemented its Streambank Easement Program. This program purchases perpetual easements from willing sellers along stream corridors for public fishing and for water quality and habitat protection. Protection of high quality cold-water trout streams or of those that have undergone publicly funded habitat improvement projects is a major focus of the program. Improving public fishing access to streams in Dane County is a priority as well. $50,000 per year is allocated to allow for enforcement through Chapter 14, Subchapter I.

U.S. Highway 12 Purchase of Development Rights Program
Dane County, the Wisconsin Department of Transportation (WisDOT), several other units of government, agencies, and organizations signed a memorandum of agreement (MOA) on March 29, 1999, regarding the reconstruction of U.S. Highway 12 (USH 12) between Middleton and Lake Delton. Among its many features, the MOA included a provision for the creation of a Dane County Fund to be used to acquire lands, scenic/conservation/agricultural easements, and/or development rights from willing sellers in northwestern Dane County. WisDOT agreed to provide $1 million per year for five years (a total of $5 million over five years) for the Dane County Fund. Dane County purchased its first agricultural easement under the program in 2004 and has successfully secured a total of 10 easements across 1,600 acres of important farmland and resource lands. United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) is an important partner and supporter of the program, contributing over $3.5 million toward the easement purchases through the USDA Farm and Ranch Lands Protection Program. Due to the program’s success, Dane County is exploring funding mechanisms to expand the program and continue it beyond its initial five-year span.

Community Manure Feasibility Study - Phase I
Dane County established a Manure Management Advisory Task Force in the spring of 2006. The main goal of the task force was to conduct an independent study of alternatives to manure management in Dane County. Recognizing the need to strengthen the livestock industry in the county and protect water quality as it relates to manure management, Phase I of the study was completed in 2007. Phase II of the project will begin in 2008 and is aimed at implementing the recommendations of the initial study. For more information, please see: http://danewaters.com/management/ManureTaskForce.aspx.

Yahara Clean (Capital Lakes Environmental Assessment and Needs)
Recognizing the value of the Yahara Chain of Lakes and the concern over runoff pollution impacting the chain, Dane County, the City of Madison, DNR, and DATCP entered into a formal agreement to assess the nutrient and sediment loading to the Yahara Chain of Lakes. The process will ultimately determine what steps are necessary to improve water quality.

STATE PROGRAMS

Lake Mendota Priority Watershed Project
Located in north central Dane County, implementation of this 232 square mile project began in 1997 and will continue through 2008. The watershed is primarily agricultural; 20% of the land area is urban or experiencing rapid urbanization. The plan includes management objectives for
both rural and urban areas with project goals aimed at reducing sediment and phosphorus loadings to Lake Mendota.

**Land and Water Resource Management Cost-Share Program**

The Land and Water Resource Management Plan identifies resource protection or improvement areas and makes management recommendations to meet stated goals and objectives. State cost-share funding is available through DATCP for soil conservation and water quality practices. From 2003-2007, Dane County received $293,300 in grants for the implementation of conservation practices.

**Targeted Runoff Management (TRM) and Urban Nonpoint Source and Stormwater Projects**

After 1997, no additional priority watershed projects were selected in the State of Wisconsin. The DNR replaced the program with Targeted Runoff Management Grants, which are competitive financial awards to support small-scale, short-term projects to be completed by local governmental units within 24 months of the start of the grant period. Both urban and rural projects can be funded through a TRM Grant. Up to 70% of a project can be funded, to a maximum of $150,000 in state funding. Project selection is based on geographical water quality priorities, local support for the project, the ability of the project to control nonpoint pollution, and other factors (source: DNR). From 2003-2008, the LWRD contracted over $860,000 in TRM related projects.

Urban Nonpoint Source and Stormwater Grants promote urban runoff management for existing urban areas, developing urban areas, and urban re-development. The primary goals include: implementing urban runoff performance standards (Wis. Admin. Code NR 151), achieving water quality standards, protecting groundwater, and helping municipalities meet municipal storm water permit conditions (Wis. Admin. Code NR 216).

Eligible planning projects may include municipal storm water planning, storm water and construction site erosion control ordinance development, development of local storm water management financing options (such as storm water utilities), and information and education. These projects must be conducted in an existing urban area or an area expected to become urban within 20 years. The maximum amount in state cost-sharing that can be granted for a planning project is $100,000 (source: DNR).

**OTHER STATE PROGRAMS**

The LWRD has also been successful in securing funds through:

- **DNR Lake Management Grant Program** - Lake Wingra shoreline protection and research, aquatic plant management studies.
- **Recreational Boating Aids** - construction of new weed harvesters, purchase of navigational aids, Tenney Lock improvements.
- **Conservation Aids** - fish habitat, critical area stabilization, Lake Mendota dredging.
- **Aquatic Invasive Species** - development of a Dane County Aquatic Invasive Species Management Plan.
FEDERAL SOIL AND WATER CONSERVATION PROGRAMS IN DANE COUNTY

Conservation Security Program (CSP)
CSP is authorized by the Farm Security and Rural Investment Act of 2002. CSP is a voluntary program that provides financial and technical assistance to producers who advance the conservation and improvement of soil, water, air, energy, plant and animal life, and other conservation purposes of tribal and private agricultural lands. Such lands include cropland, grassland, prairie land, improved pasture, and rangelands, as well as forested land and other non-cropped areas that are an incidental part of the agricultural operation. CSP is a unique program that goes beyond the past approach of repairing on-farm conservation problems. The program offers incentives for those who wish to exceed the minimum levels of resource protection and enhance the natural resources of the land they manage.

CSP rewards those farmers who have reached the pinnacle of good land stewardship and encourages others to enhance the ongoing production of clean water and clean air on their farms.

Conservation Reserve Program (CRP)
One of the best-known conservation programs is CRP. The USDA Farm Service Agency’s Conservation Reserve Program is a voluntary program available to agricultural producers to help them safeguard environmentally sensitive land. It does this by providing incentive payments to remove environmentally sensitive land from agricultural production. Landowners have the option of enrolling land either into a 10-15 year contract or perpetually. Since 1985 the program has evolved into a more well rounded program that emphasizes addressing all resource concerns on the entire landscape, including soil and water quality and wildlife habitat.

Another provision of CRP is the Conservation Reserve Enhancement Program (CREP). CREP is a federal and state partnership between the USDA and the State of Wisconsin. Some of the practices offered in CREP are: riparian buffers, wildlife habitat buffers, wetland buffers, filter strips, wetland restorations, and grass waterways. Landowners are offered even greater incentives to enroll in CREP. Land that does not qualify for CREP can be enrolled into general CRP.

Current number of contracts and acres enrolled into CRP:
- 1,273 contracts in CCRP/General CRP totaling 25,470.4 acres.
- 260 CREP contracts totaling 2,708.1 acres.
- 2.6 million dollars paid to landowners in Dane County in calendar year 2007.

Wetlands Reserve Program (WRP)
The Wetlands Reserve Program is a voluntary program to restore and protect wetlands on private property. It is an opportunity for landowners to receive financial incentives to restore wetlands that have been drained for agriculture. Landowners who choose to participate in WRP may sell a conservation easement or enter into a cost-share restoration agreement with the USDA to restore and protect wetlands. The landowner voluntarily limits future use of the land, yet retains private ownership. The landowner and NRCS develop a plan for the restoration and maintenance of the wetland. Dane County has 196.3 acres under 30-year easements and 1,401.2 permanently eased acres.
Farm and Ranch Protection Program (FRPP)
The Farm and Ranch Lands Protection Program helps farmers keep productive land in agriculture. The program provides matching funds to state, tribal, non-profit, or local government entities for existing programs that protect farmland through the purchase of conservation easements or development rights. Individual landowners participate voluntarily and retain all rights to use the property for agriculture. Projects are selected through a competitive application process.

Eligible farmland:
- Contains prime, statewide important, unique, or other productive farmland, or includes important historical or archaeological sites.
- Is privately owned and is part of a working farm.
- Has a pending offer for purchase of development rights (conservation easement) from a state, tribal, or local farmland protection program.
- Meets the highly erodible land provisions of the Food Security Act.
- Has location, size, and existing protections (such as zoning) that support long-term agricultural use.

Environmental Quality Incentive Program (EQIP)
EQIP provides technical and financial help to landowners for conservation practices that protect soil and water quality. Grassed waterways, stream fencing, critical area planting, terraces, manure management systems (including storage structures and barnyard runoff protection), and many other conservation practices are eligible for EQIP. Incentive payments may also be made to encourage farmers to adopt land management practices, such as nutrient management, manure management, integrated pest management, or wildlife habitat management. Agricultural producers on agricultural land are eligible. Projects are selected based on environmental value, and contracts run for 1-10 years. Ag producers may be eligible for financial assistance, up to $450,000 for the life of the Farm Bill. The most promoted practice over the last few years has been the Comprehensive Nutrient Management Plan (CNMP). The CNMP is a conservation management system unique to livestock producers that is an evaluation of the livestock operation. These plans document practices and strategies adopted by livestock operations to address natural resource concerns related to soil erosion, livestock manure, and disposal of organic by-products. The development of a CNMP begins with a comprehensive engineering and conservation planning resource assessment of current site conditions. Management options and structural alternatives are developed to address resource concerns identified in the assessment.

Wildlife Habitat Incentives Program (WHIP)
The Wildlife Habitat Incentives Program is a voluntary program for people who want to develop or improve wildlife habitat on private lands. The program offers technical and financial assistance to help establish and improve wildlife habitat. Participants work with NRCS to prepare a wildlife habitat development plan. The plan describes the landowner’s goals for improving wildlife habitat, includes a list of practices and a schedule for installing them, and details the steps necessary to maintain the habitat for the life of the cost-share agreement. Presently, 11 practices are available for cost-share: brush management, conservation cover, firebreaks, prescribed burning, fish passage, streambank stabilization and protection, stream habitat improvement, tree planting, upland wildlife habitat planting, wetland wildlife habitat management, and pest management.
Grassland Reserve Program (GRP)

When properly managed, grasslands can result in cleaner, healthier streams and can reduce sediment loads in water bodies. These lands are vital for the production of livestock forage, and they provide forage and habitat for maintaining healthy wildlife populations. They also add to the beauty of the landscape, provide scenic vistas and open space, provide for recreational activities, and protect the soil from water and wind erosion. The Grassland Reserve Program offers eligible producers who own at least 40 contiguous acres several enrollment options:

- **Permanent Easements** - USDA makes a payment based on the fair market value of the property less the grazing value.
- **30-year easements** - USDA pays 30 percent of the fair market value less the grazing value.
- **Rental Agreements** - 10, 15, 20, or 30 year duration. USDA pays 75 percent of the grazing value in annual payments for the length of the agreement.
- **Restoration Agreements** - USDA pays up to 90 percent of the restoration costs on grassland and shrubland that has never been cultivated, and not more than 75 percent on restored grassland and shrubland that was once cultivated.

Applications for this program have been closed since 2005. In 2004, one rental agreement was accepted in Dane County for 45.0 acres.

Technical Service Provider (TSP)

Wisconsin’s Technical Service Provider process is intended to help professionals interested in providing technical assistance to landowners and farmers under Farm Bill conservation programs. The premise behind the TSP process is that the demand for technical assistance to do conservation work is increasing and will exceed the current staffing capacity of the NRCS. Technical assistance includes conservation planning and design, installation, and certification of approved conservation practices. NRCS has traditionally provided these technical services and will continue to do so. What is new is that the USDA will now reimburse producers for technical services provided by a USDA certified TSP. The majority of the TSP allocated in Dane County has been associated with the design and installation of waste storage systems and nutrient management planning.
Federal programs are integral to assisting with the implementation of conservation programs in Dane County. Table 2-1 summarizes federal program activity in Dane County during federal fiscal years 2003-2008.

**Table 2-1. Federal Program Implementation in Dane County from 2003-2008**

<table>
<thead>
<tr>
<th>Program</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>EQIP</td>
<td>$515,355 in payments 25 contracts</td>
<td>$742,353 in payments 56 contracts</td>
<td>$283,451 in payments 27 contracts</td>
<td>$228,099 in payments 24 contracts</td>
<td>$387,380 in payments 22 contracts</td>
<td></td>
</tr>
<tr>
<td>WHIP</td>
<td>$69,915</td>
<td>$22,759</td>
<td>$15,580</td>
<td>$0.00</td>
<td>$22,358</td>
<td></td>
</tr>
<tr>
<td>CSP</td>
<td>1st year sign up. No payments</td>
<td>No info</td>
<td>No info</td>
<td>$165,995 in payments 17 contracts 12,366 acres</td>
<td>$165,995 in payments 17 contracts 12,366 acres</td>
<td></td>
</tr>
<tr>
<td>FRPP</td>
<td>$427,285 in payments 360 acres</td>
<td>$1,555,660 in payments 617 acres</td>
<td>$717,946 in payments 481 acres</td>
<td>$591,262 in payments 196 acres</td>
<td>$369,004 in payments 133 acres</td>
<td></td>
</tr>
<tr>
<td>GRP</td>
<td></td>
<td></td>
<td></td>
<td>45 acres</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TSP</td>
<td>$12,539</td>
<td>$34,739</td>
<td>$19,691</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

LCD and NRCS staff (in consultation with the landowner) select the practice(s) best suited for the identified conservation need. All practices are planned and designed according to the NRCS Field Office Technical Guide for Wisconsin. Long-term maintenance plans are also prepared for the landowner to ensure that installed practices are properly maintained and function as intended.
CHAPTER 3
REGULATORY REQUIREMENTS IN DANE COUNTY

LCD staff administer several Dane County ordinances related to soil and water resource conservation. Chapter 14 of the Dane County ordinances consists of two subchapters: Manure Storage and Utilization (Subchapter I) and Erosion Control and Stormwater Management (Subchapter II). The LCD also administers the shoreland erosion control requirements of the county’s Shoreland Zoning Ordinance, Chapter 11.

The Dane County LCD has also developed a strategy for implementing the NR 151 performance standards. Through provisions in 1997 Act 27 and 1999 Act 9, the Wisconsin Legislature directed the DNR to develop performance standards to control polluted runoff from non-agricultural activities, to develop performance standards and prohibitions for agricultural activities through cooperation with DATCP (including four manure management prohibitions developed through a previous advisory committee effort), and to make other changes to address polluted runoff problems from rural and urban sources. Additional details on the rule can be found at: http://www.dnr.state.wi.us/org/water/wm/nps/rules/NRrules.html.

Brief descriptions of the ordinances and Dane County’s proposed implementation strategy for NR 151 follow.

CHAPTER 14, SUBCHAPTER I: MANURE STORAGE
Manure storage and utilization is regulated through Chapter 14, Subchapter I, of the Dane County Code of Ordinances. The ordinance regulates the design, construction, maintenance, and proper closure of manure storage facilities as well as the proper utilization of manure. A permit must be obtained from the Dane County LCD for these activities. Additionally, Section 14.18 prohibits the application of stored, pumpable liquid manure on either frozen or snow-covered cropland (unless the liquid manure is effectively incorporated) without first obtaining a winter application permit. All permits pertaining to this subchapter are reviewed by the Dane County LCD to ensure compliance with the technical requirements of the ordinance and the Manure Storage and Animal Waste Standards developed by the NRCS. The amended ordinance became effective on January 31, 2006. Chapter 14, Subchapter I is consistent with the Performance Standards and Prohibitions of the State NR 151 rules.

CHAPTER 14, SUBCHAPTER II: EROSION CONTROL AND STORMWATER MANAGEMENT
Because LCD staff are more involved in administering and providing technical oversight regarding this ordinance, this section presents a more thorough review and explanation of Subchapter II.

Overview
As of January 31, 2007, revisions to Dane County’s construction site erosion control and stormwater management ordinance went into effect. First adopted in 2001 by the Dane County Board, the amended Chapter 14 includes countywide stormwater management standards that address the quantity and quality of the water that runs off areas under construction in urban and rural areas and farms. Subchapter III of NR 216, Wis. Administrative Code requires that a notice
of intent must be filed with the DNR by any landowner who disturbs one or more acres of land. Such a disturbance can create a point source discharge of storm water from the construction site to the waters of the state and is therefore regulated by the DNR. Agriculture is exempt from this requirement for activities such as planting, growing, cultivating, and harvesting crops for human or livestock consumption; pasturing or yarding of livestock; and sod farms and tree nurseries. Agriculture, however, is not exempt from the requirement to submit a notice of intent for one or more acres of land disturbance for the construction of structures such as barns, manure storage facilities, or barnyard runoff control systems (see NR 216.42(2), Wis. Adm. Code.) Furthermore, the construction of an agricultural building or facility must follow an erosion and sediment control plan consistent with NR 216.46, Wis. Adm. Code and meet the performance standards of NR 151.11, Wis. Adm. Code. The county ordinance recognizes the unique characteristics of each project and site, and therefore provides flexibility for landowners in meeting those standards.

Administration
The ordinance sets countywide stormwater management standards and gives the necessary flexibility to local governments, builders, and developers to meet those standards effectively and efficiently. Moreover, the ordinance has been and continues to be amended as necessary to keep current with stormwater management standards and technology.

The Dane County LCD administers the ordinance in unincorporated areas. Administration in incorporated areas is by cities and villages, if they have adopted stormwater and erosion control standards that are at least as restrictive as the county ordinance. Dane County administers the ordinance in cities and villages that do not adopt, or are not effectively administering county standards. Cities and villages also have the option to contract with the LCD for plan review and site inspection through an intergovernmental agreement. Currently, five communities have these agreements, including the cities of Sun Prairie, Middleton, and Stoughton and the villages of Deforest and Waunakee.

The Erosion Control and Stormwater Management Ordinance:
- Sets standards for the quality and quantity of runoff from areas under construction in urban areas, rural areas, and farms, where alterations to the landscape and the creation of impervious surfaces would result in changes in the quantity and quality of water flowing off the site.
- Encompasses existing erosion control standards, which limit the cumulative annual soil loss rate to 7.5 tons per acre.
- Allows flexibility in meeting those standards, thereby enabling landowners and developers to take the unique characteristics of the site or project into account.

Stormwater Management
Developed through an extensive process of input and review by technical experts, local officials and staff, engineers, builders, and other stakeholders, the stormwater standards build on the success of and complement the county’s existing erosion control standards. The following provisions apply to developments that cumulatively add 20,000 square feet or more of impervious surface.
Stormwater Quality
The stormwater standards establish soil loss limits for new developments, protect waters in particularly sensitive areas from thermal pollution, and limit the amount of oil and grease contained in runoff from commercial or industrial developments.
The standards call for:
- An 80% reduction in the amount of sediment that washes from a newly developed site, as compared to the same site with no sediment control.
- A 40% reduction in the amount of sediment from a site being redeveloped, as compared to the same site with no sediment control.
- The builder or developer to take steps to treat oil and grease contained in runoff during the first 1/2 inch of runoff from areas where oil and grease pollution is possible.
- The builder or developer to take steps to reduce the temperature of runoff from sites where water flows into rivers or streams designated by the DNR as “cold-water communities” (see Figure 3-1).

Stormwater Quantity
The ordinance sets a standard of no increase in the rate of runoff for a site after it has been developed (as compared to before development) and requires that stormwater runoff be infiltrated. The stormwater quantity standards call for:
- Water leaving a site to be discharged to a stable outlet capable of carrying the designed flow at a rate that does not cause erosion.
- Residential land uses to infiltrate 90% of the predevelopment infiltration volume and non-residential uses to infiltrate 60% of the predevelopment infiltration volume. The county ordinance does not include the facility area caps found in NR 151, but does have an alternate 100% predevelopment recharge requirement when the area exceeds 1% and 2% for residential and non-residential land uses, respectively.
- Peak flow rates to be attenuated to predevelopment conditions for the 2-year and 10-year, 24-hour design storm events.
- All downspouts, driveways, and other impervious areas to be directed to pervious areas, where feasible.

Stormwater Goals
The amended ordinance recognizes the differences among existing, new, and redeveloped properties and, where appropriate, suggests goals as opposed to setting standards.

Although not required by the ordinance, the following standards should be met whenever possible:
- For existing development, reduce by 20% the amount of sediment that washes from the site, as compared to the same site with no sediment control.
- For street reconstruction, reduce by 40% the amount of sediment that washes from the site, as compared to the same site with no sediment control.
Activities that are exempt include:

- Any activity directly related to planting, growing, or harvesting agricultural crops.
- One and two family sites regulated under the Wisconsin Uniform Dwelling Code.
- The construction of public buildings, or buildings that are places of employment regulated by the Wisconsin Department of Commerce (associated land disturbance must meet ordinance requirements).
- Certain state building projects and highway projects.

Criteria for Applying the Ordinance

The Dane County erosion control and stormwater management ordinance applies countywide and brings consistency to Dane County’s towns, cities, and villages.

An erosion control permit is required and construction site erosion control standards apply to any of the following:

- Land disturbance more than 4,000 square feet.
- Land disturbance on a slope more than 12%.
- Land disturbance involving excavation and/or filling more than 400 cubic yards of material.
- Land disturbance of more than 100 lineal feet of road ditch, grass waterway, or other area where surface drainage flows in defined, open channels.
- New public or private roads or access drives longer than 125 feet.
- Development that requires a subdivision plat.
- Land disturbance less than 4,000 square feet that has a high risk of soil erosion or water pollution, as determined by local ordinance administration.

A stormwater control permit is required and stormwater management provisions apply to any of the following:

- Development that results in the cumulative addition of 20,000 square feet of impervious surface to the site.
- Construction of agricultural buildings where the new total impervious surface area exceeds 20,000 square feet.
- Development that requires a subdivision plat.
- Development that requires a certified survey map.
- Other development or redevelopment that may have significant downstream impacts.
- Buildings and activities of municipalities and school districts, local highway projects, and municipal streets.

Costs

The ordinance allows local authorities to establish their own fee schedules for erosion control and stormwater management permits. For builders, developers, and those undertaking construction projects, advanced planning and the flexibility to choose methods that are best suited to a site make meeting the standards cost-effective.
In unincorporated areas, the ordinance sets a base fee of $200.00 plus $.004 for every square foot of disturbed area, plus $.005 per square foot of new impervious area and $.0025 per square foot of redeveloped impervious area.

Fees in incorporated areas are set by each municipality.

Costs for installing and conducting necessary stormwater control on the site (i.e. detention ponds and other practices) are the responsibility of the landowner.

Maintaining stormwater controls are the responsibility of the landowner.

**Enforcement**

 Builders, developers, and other site planners must submit erosion control and stormwater management plans. If an inspection determines that a site is out of compliance with its plan, a stop work order may be issued and fines may be levied. If a city or village has not adopted standards at least as restrictive as the county’s, or has adopted county standards but the Lakes and Watershed Commission finds that they are not being effectively administered and enforced, the Dane County LCD will administer the provisions of the ordinance in that municipality.

**Technical Assistance**

County staff worked with local governments, builders, developers, and others to create a Dane County Erosion Control and Stormwater Management Manual to assist in creating effective plans for erosion control and stormwater management. This manual, permit application forms, a copy of the ordinance, and links to other technical resources are all available on the LWRD website. Please see: http://www.countyofdane.com/landconservation/ecswpg.htm.

**CHAPTER 10: COUNTY ZONING**

Adopted under section 59.69 of the Wis. Stats., this ordinance governs the use of publicly and privately owned land. All 34 towns in Dane County have adopted the county’s zoning ordinance. The ordinance consists of two elements:

1. A map of zoning districts in the county.
2. The ordinance text, including standards and provisions for each district.

Chapter 10 also includes the county’s exclusive agricultural (A-1(ex)) zoning district, adopted under Chapter 91, Wis. Stats. Twenty-nine towns (all but the Towns of Springdale, Middleton, Burke, and Bristol) have adopted the county’s exclusive agricultural zoning district. Amendments to Chapter 10 require approval of affected town boards, the County Board, and the County Executive.

**CHAPTER 11: SHORELAND / WETLAND ZONING**

Adopted under section 59.692, Wis. Stats. and NR 115, Wis. Adm. Code, this ordinance includes standards to protect wetlands and lands near navigable waters. Chapter 11 applies to unincorporated areas and recently annexed areas within 300 feet of the ordinary high-water mark (OHWM) of a navigable river or stream or the landward side of a floodplain (whichever is greater), or within 1,000 feet of a navigable lake or pond. The ordinance includes requirements for minimum building setbacks, erosion control, wetland protection, and vegetative buffers. Amendments to Chapter 11 require approval of the County Board and the County Executive, and are subject to DNR review. The LCD administers and enforces the shoreland erosion control section, Ch. 11.05, of the Shoreland Zoning Ordinance. Land disturbance within the shoreland
zone requires a special erosion control permit and is administered similarly to Ch. 14. Other provisions of Ch. 11 are administered by Dane County Planning & Development (P&D).

CHAPTER 17: FLOODPLAIN ZONING
Adopted under section 59.692, Wis. Stats. and NR 118, Wis. Administrative Code, this ordinance limits development in designated 100-year floodplains. Chapter 17 describes two types of floodplains:

1. **Flood fringe** (areas of standing water during a flood event): Development must be flood-proofed (usually 2 feet or more above base flood elevations) and must not create additional downstream flooding.
2. **Floodway** (areas of flowing water during a flood event): Structural development is not permitted.

Amendments to Ch. 17 require approval of the County Board and the County Executive, and are subject to DNR review. Ch. 17 is administered by Dane County Planning & Development.

CHAPTER 74: NON-METALLIC MINING
The purpose of this ordinance is to adopt and implement effective reclamation requirements for non-metallic mining sites in Dane County and to provide uniform and predictable reclamation standards in accordance with NR 135, Wis. Adm. Code and Wis. Stats. Ch. 295, Subchapter 1. This ordinance is not intended to interfere with zoning rules or regulations or with existing permits relating to the location, operation, or end uses of an existing non-metallic mining site, provided that the permits otherwise comply with the provisions of this ordinance. The LCD assists the P&D with non-metallic mining permits by reviewing the implementation, operation, and reclamation plans to ensure that erosion control and stormwater management requirements are being met.

CHAPTER 75: LAND DIVISION
Adopted under Chapter 236 of the Wisconsin Statutes, this ordinance applies to any division of land that creates a parcel of 35 acres or less in size. The Zoning and Natural Resources Committee has direct approval authority over land divisions in the unincorporated portions of Dane County, and has objection authority for land divisions in cities and villages. Land division standards include provisions for land suitability, lot width, road frontage, public improvements, and park dedication. Amendments to Chapter 75 require approval of the County Board and County Executive.

Additional information on Dane County Ordinances can be found at:
DANE COUNTY CHAPTER 14, SUBCHAPTER I: STEPPED ENFORCEMENT AND NR 151 IMPLEMENTATION STRATEGY

The Wisconsin Department of Natural Resources rule NR 151 went into effect on October 1, 2002. This rule set performance standards and prohibitions for agricultural facilities, operations, and practices. The Dane County Land Conservation Division (LCD) developed an implementation strategy and accompanying checklist document as part of the 2003 Land and Water Resource Management Plan. Ordinance amendments to manure storage and utilization requirements located within Chapter 14, Dane County Code of Ordinances went into effect on January 31, 2006. These amendments provided the necessary mechanisms for Dane County to administer and enforce NR 151 agricultural performance standards at the local level.

The Dane County LCD is responsible for administration and enforcement of Chapter 14, Subchapter I: Manure Storage and Utilization. Included in this subchapter are also provisions for enforcing the State of Wisconsin Rule NR 151, which sets performance standards and prohibitions for agricultural producers. Section 14.07 is consistent with NR 151 performance standards for manure storage facilities. Section 14.14 requires livestock operations to prohibit the overflow of manure storage facilities, have no unconfined manure piles in water quality management areas, prevent direct runoff from feedlots, and prohibit unlimited access by livestock to waters of the state. Dane County also regulates the application of stored pumpable liquid manure on frozen, snow covered, or ice covered cropland.

Table 3-1 provides an overview of the standards and prohibitions in NR 151. Dane County is consistent with all performance standards either through Chapter 14, Subchapter I or conservation planning practices and principles.

<table>
<thead>
<tr>
<th>Performance standard (Type of standard covered)</th>
<th>Effective Date</th>
<th>Conservation Initiatives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control soil erosion to meet tolerable soil loss (T) calculated by RUSLE 2. (Cropland)</td>
<td>October 1, 2002</td>
<td>Install contour farming, cover and green manure crop, crop rotation, diversions, field windbreaks, residue management, strip-cropping, and terrace systems. Related runoff controls: critical area stabilization, grade stabilization structures, sinkhole treatment, water and sediment control basins, waterway systems.</td>
</tr>
<tr>
<td>Construct, maintain, and close manure storage facilities to prevent manure overflows and leaks. (Livestock operations and facilities)</td>
<td>October 1, 2002</td>
<td>Meet NRCS standards for construction, maintenance, and closure using technical standards: 313 (waste storage facility), 360 (closure of waste impoundments), 634 (manure transfer standard).</td>
</tr>
<tr>
<td>Divert clean water from feedlots. (Livestock operations and facilities within Water Quality Management Areas)</td>
<td>October 1, 2002</td>
<td>Install diversions, roof runoff systems, subsurface drains, and underground outlets.</td>
</tr>
</tbody>
</table>
Manure Management Prohibitions

<table>
<thead>
<tr>
<th>Prohibition</th>
<th>Date</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. No overflow from manure storage facilities.</td>
<td>October 1, 2002</td>
<td>a. Design and construct facilities to technical standards, maintain facilities including adequate freeboard, repair or replace facilities, as needed.</td>
</tr>
<tr>
<td>b. No unconfined manure stacks within the Water Quality Management Area.</td>
<td></td>
<td>b. Relocate manure piles, construct manure storage facilities.</td>
</tr>
<tr>
<td>c. No direct runoff from feedlots and manure storage facilities.</td>
<td></td>
<td>c. Install barnyard runoff control systems, including diversions, milking center waste control systems, relocating or abandoning animal feeding operations, roof runoff systems, sediment basins, subsurface drains, underground outlets, water and sediment control basin, wastewater treatment strips, well decommissioning. For manure storage facility runoff, see (a.) above.</td>
</tr>
<tr>
<td>d. No unlimited access of livestock to shore lands that prevent maintenance of adequate sod cover. (Livestock operations and facilities)</td>
<td></td>
<td>d. Install access roads and cattle crossings, animal trails and walkways, critical area stabilization, livestock fencing, livestock watering facilities, prescribed grazing, riparian buffers, streambank and shoreline protection.</td>
</tr>
</tbody>
</table>

Control nutrient runoff into waters of the state. (Cropland) Effective in 2003 for new operations, 2005 for land near impaired or exceptional waters, and 2008 for other existing farms. Develop and follow an annual nutrient management plan for applying fertilizer or manure. Base plans on soil tests conducted by a DATCP certified laboratory. Become qualified to prepare plan or use qualified planners. Apply nutrients according to UWEX recommendations for crops. Install additional conservation or management practices to reduce nutrient loading.

Landowner Education

Informing landowners and operators of the performance standards is key to achieving compliance. On average, LCD staff have over 500 landowner contacts per year. An additional 1,700 Farmland Preservation Participation (FPP) letters are sent each year to participants in that program. The letter requires that all landowners who sign the agreement also ensure their conservation plans meet the soil and water conservation standards for NR 151 and ATCP 50.04. The LCD also distributes fact sheets developed by the DNR that explain the performance standards. One-on-one communication with landowners has proven vital to determining, achieving, and maintaining compliance. The primary goal is that landowners will voluntarily come into compliance with the required standards.

Additional information will be disseminated through newsletters published by the Dane County University of Wisconsin Extension and the LCD.
When implementing soil and water conservation practices, staff work with landowners to ensure that the practices being constructed meet the regulatory framework. They also inform the landowner why compliance is necessary and explain the expectations for long-term maintenance of the practice being implemented.

**Dane County Implementation Strategy and Compliance Determination**

The strategy for implementation varies based on the reason for the site investigation. The existing regulatory framework under Chapter 14, Dane County Code of Ordinances provides the LCD with a means of expediting potential violations and compliance requirements. The following criteria is used to prioritize performance standard implementation and compliance:

1. Dane County priority farms are those for which the LCD has received a formal complaint that has the potential to affect surface or groundwater or violate performance standards and prohibitions. Average annual complaints range from 50-100.
2. LCD staff perform watershed inventories, focusing efforts on livestock operations located within WQMA and in 303(d) watersheds or in watersheds that have been identified through the annual Dane County/DNR water quality planning meeting. These may also include areas identified in the annual SEG grant applications to DATCP for nutrient management plan implementation.
3. Compliance verification through LCD staff erosion control and stormwater management permit review and inspections.
4. Compliance verification through Farmland Preservation Program certification and annual spot checks.
5. Compliance confirmation at the request of the landowner.

For site investigations, LCD staff use the revised Dane County Chapter 14/NR 151 checklist (see Appendix A). A copy of the checklist is provided to the landowner and placed in the conservation plan file. Should it be determined that the field/farmstead being evaluated is not in compliance, a report is drafted that includes:

- Corrective measures needed to achieve compliance.
- Estimated costs for implementing the corrective measures.
- The status of eligibility for cost-share assistance.
- Funding sources and technical assistance available from federal, state, and local sources.
- Any conditions that may be required, such as following technical standards or deed restrictions.
- A signature line on the report indicating whether the landowner agrees or disagrees with the report findings.
- Process and procedures for the landowner to contest the findings (Ch. 14.26).
- A copy of the performance standards and prohibitions and technical design standards.
- A process/schedule for continued compliance monitoring.

Sites noted as compliant are tracked using a GIS database layer. The landowner is also sent a letter stating that they are in compliance with the applicable standards and must maintain the current status. The compliance letter does not preclude the landowner from receiving future cost-share dollars.

For complaints or for sites noted as non-compliant and failing to respond, staff investigating the site complete a Dane County Land Conservation Division Agricultural Management Complaint.
Form (Appendix B). Based on the information gathered and the potential risk to the resource, staff respond with a site visit within 24 hours of the complaint. A professional determination is then made, and the appropriate procedures implemented. Remedial action varies based on the degree of the complaint, and a subsequent site visit is made, if needed.

**Issuance of County Notice of Ordinance Violation**

Sites that are determined to be out of compliance with the prohibitions or standards outlined in Chapter 14, Subchapter I are issued a formal Notice of Ordinance Violation (Appendix C). LCD staff:

- Detail the specific prohibition(s) or performance standard(s) not being met and reference Chapter 14.
- Provide the landowner or operator with a copy of the County Notice of Ordinance Violation.
- Inform the landowner or operator of the 30 day response/corrective action requirement (depending on the violation and cost share requirements).

When the activity poses an imminent threat to water quality, the response/corrective action period may be shortened at the discretion of the LCD Director in consultation with the County Conservationist.

**Enforcement**

LWRD enforcement authority is delegated under Chapter 14, Subchapter I, Section 14.22. Current authority allows the Department to perform inspections and order certain violations into compliance within the compliance periods listed below (see pages 42-43). All Notices of Ordinance Violation require landowner or operator response within 30 days of notification. Landowners or operators who fail to comply with the response or corrective action deadline or meet the conditions set forth by the Notice of Ordinance Violation may be issued a citation. Violations may be subject to forfeitures of not less than $10 nor more than $200 per day. The intent of this policy is to have the landowner acknowledge the violation and determine the best available option for corrective action. Depending on the nature of the violation, the appropriate enforcement process will be followed.

In some instances, LCD staff may request that the DNR assist with enforcement. In such instances, the DNR must have visited the site and concurred with all the determinations made in the notice to ensure compliance with NR 151.09 and/or NR 151.095.

**State Cost-Sharing and Enforcement**

All enforcement actions shall be consistent with NR 151.09 or NR 151.095 implementation and enforcement procedures. For sites using state cost-sharing, LCD staff:

- Determine if the site is new or existing.
  - New facilities are those which were constructed or substantially altered after October 1, 2002.
  - New facilities must comply with Chapter 14/ NR 151 regardless of cost-sharing.
- Notify the owner or operator in writing of the noncompliance, detailing the specific performance standard or prohibition being violated. The notice must be sent by certified mail.
• Inform the landowner as to which best management practice(s) or corrective action(s) are necessary to comply and provide an estimated cost and level of cost-sharing.
• Offer to provide or coordinate technical assistance.
• Inform the landowner of the compliance period.
• Explain the consequences for failure to comply with the provisions of the notice.
• Explain any state or local appeals processes.
• Landowners may bring the site into compliance using their own funds. Once the site is considered to be in compliance, landowners must be notified of obligations to keep the site in compliance, regardless of the cost-share requirement.

Dane County should coordinate with DNR regional staff to ensure NR 151 notice requirements are met and are consistent with state law. This is particularly important when state funded programs will be used for the purpose of providing cost-share dollars. This is also important for joint enforcement between Dane County and the DNR.

**Funding, Administration, and Technical Assistance**

The LCD utilizes various sources for funding conservation practices including local, state, and federal cost-share programs. Annual allocations from DATCP are earmarked for practices such as streambank protection, diversions, terraces, grass waterways, grade stabilization structures, access roads (channel crossings), water and sediment control structures, and clean water for barnyards (eaves).

The criteria used to evaluate applications will be reviewed annually and revised by the LCC as necessary. The LCD and USDA have been very successful in making cost-share funds from various programs available to meet landowners’ needs. These efforts will continue to be a priority. Overall ranking criteria will be based on resource priorities and funding availability.

If cost-sharing is involved, the appropriate agreements will be signed and implemented. The following forms of technical assistance will be provided throughout project implementation:

- Conservation planning assistance.
- The review of conservation plans by other parties (Technical Service Provider).
- Engineering design.
- The review of engineering designs by other parties.
- Construction oversight.
- Certification of construction projects to standards.
- Cost containment.

Upon completion of the practice installation, staff will issue a letter of compliance to the landowner indicating the site has been brought into compliance with the applicable performance standards and prohibitions.
The following standards for livestock operations or stacking will be employed when local, state, or federal cost-share funds are used to achieve compliance:

1. **No overflow of manure storage facilities.**

<table>
<thead>
<tr>
<th>Practice (Code)</th>
<th>Cost-Share Source</th>
<th>Landowner Response/Action Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduce stored manure volume to prevent overflow</td>
<td>None</td>
<td>24 hours</td>
</tr>
<tr>
<td>Closure (360)</td>
<td>County, state, federal</td>
<td>Within 30 days of notification</td>
</tr>
</tbody>
</table>

2. **No unconfined manure piles in water quality management areas.**

<table>
<thead>
<tr>
<th>Practice (Code)</th>
<th>Cost-Share Source</th>
<th>Landowner Response/Action Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remove the manure stack from the WQMA</td>
<td>None</td>
<td>72 hours</td>
</tr>
<tr>
<td>Waste storage facility (313) <em>Manure stacking facilities only</em></td>
<td>County, state, federal</td>
<td>Within 30 days of notification</td>
</tr>
</tbody>
</table>

3. **No direct runoff from a feedlot or stored manure into the waters of the state.**

<table>
<thead>
<tr>
<th>Practice (Code)</th>
<th>Cost-Share Source</th>
<th>Landowner Response/Action Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critical area planting (342)</td>
<td>County, state, federal</td>
<td>Within 30 days of notification</td>
</tr>
<tr>
<td>Diversions (362)</td>
<td>County, state, federal</td>
<td>Within 30 days of notification</td>
</tr>
<tr>
<td>Fencing (382)</td>
<td>County, state, federal</td>
<td>Within 30 days of notification</td>
</tr>
<tr>
<td>Filter strip (393)</td>
<td>State, federal</td>
<td>Within 30 days of notification</td>
</tr>
<tr>
<td>Heavy use area protection (561)</td>
<td>County, state, federal</td>
<td>Within 30 days of notification</td>
</tr>
<tr>
<td>Sediment basin (350)</td>
<td>State, federal</td>
<td>Within 30 days of notification</td>
</tr>
<tr>
<td>Underground outlet (620)</td>
<td>State, federal</td>
<td>Within 30 days of notification</td>
</tr>
<tr>
<td>Use exclusion (472)</td>
<td>None</td>
<td>Within 30 days of notification</td>
</tr>
<tr>
<td>Waste treatment strip (635)</td>
<td>County, state, federal</td>
<td>Within 30 days of notification</td>
</tr>
<tr>
<td>Roof runoff (558)</td>
<td>County, state, federal</td>
<td>Within 30 days of notification</td>
</tr>
</tbody>
</table>
4. No unlimited access to waters of the state in a location where high concentrations of animals prevent the maintenance of self-sustaining vegetative cover.

<table>
<thead>
<tr>
<th>Practice (Code)</th>
<th>Cost-Share Source</th>
<th>Landowner Response/Action Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access road (560)</td>
<td>County, state, federal</td>
<td>Within 30 days of notification</td>
</tr>
<tr>
<td>Critical area planting (342)</td>
<td>County, state, federal</td>
<td>Within 30 days of notification</td>
</tr>
<tr>
<td>Fencing (382)</td>
<td>County, state, federal</td>
<td>Within 30 days of notification</td>
</tr>
<tr>
<td>Heavy use protection (561)</td>
<td>State, federal</td>
<td>Within 30 days of notification</td>
</tr>
<tr>
<td>Streambank/shoreline protection (580)</td>
<td>County, state, federal</td>
<td>Within 30 days of notification</td>
</tr>
<tr>
<td>Use exclusion (472)</td>
<td>None</td>
<td>Within 30 days of notification</td>
</tr>
<tr>
<td>Watering facility (614)</td>
<td>County, state, federal</td>
<td>Within 30 days of notification</td>
</tr>
</tbody>
</table>

For all other standard or prohibition violations, staff will use the appropriate management practice and follow the NRCS Technical Guide for standards and specifications.
CHAPTER 4
MONITORING AND EVALUATION

A comprehensive measurement system that shows whether conservation efforts are making a difference is essential to any conservation program. When evaluating a specific project or program, a system of qualitative and quantitative measurements should be used to determine a project or program’s value and effectiveness. Such evaluations need to take into account a variety of factors, including customer needs, protection or enhancement of the resource, regulatory requirements, and fiscal responsibility.

The LWRD monitors its programs in a number of different ways. Due to the Department’s vast array of program responsibilities, only a few monitoring protocols will be discussed here.

Implementation of T
Through conservation planning, soil erosion rates are tracked and reviewed to determine whether current efforts are adequate or further measures are needed. LCD staff review data using the Revised Universal Soil Loss Equation (RUSLE). The average tolerable soil loss for Dane County is 3.8 tons/acre/year. Predicted average annual soil loss in Dane County in 2007 was 3.2 tons/acre/year (Figure 4-1) or 0.6 tons/acre/year less than allowed. This represents a 0.3 tons/acre/year decrease from the predicted rates in 2003 when the LWRM Plan was last updated. In 1985, the average annual soil erosion rate was 10.5 t/a/yr.

Transect Survey
LCD staff conduct transect surveys each year in the spring. These surveys, which Dane County began in 1994, show crop and tillage trends. Residue measurements are taken and compared to the previous years’ data. The survey evaluates changes in crop rotation and crop residue management systems, as well as other supporting conservation practices such as contour farming and contour strip cropping.

The survey covers 410 linear miles and originally included 1,146 data points in 1994. In 1999, there were 1,122 data collection points, 1,095 data collection points in 2002, and 1,054 data collection points in 2007. The net loss of data collection points is a result of converting annually cropped fields to non-cropland use.

A majority of the cropland acres are planted to corn. Soybeans, hay, and small grains make up the remaining crops (see Figure 4-2). As the number of beef and dairy farms has decreased, there has been a concurrent decline in the number of acres planted to hay and soybeans. This survey also collects data concerning tillage methods and the percent residue the crops are planted in. By comparing previous years’ records, trends in crop rotations and tillage methods are revealed. This information is used to support upland conservation management systems.
Figure 4-1. Erosion Summary by Township (2007)

Data from the Dane County Land Conservation Cooperator Tracking System (CTS).
Figure 4-2. Estimated Crop Acres in Dane County 1997-2007

![Diagram showing estimated crop acres in Dane County from 1997 to 2007.](image)

**Status Reviews**

To ensure that landowners and managers comply with their conservation plans, LCD staff conduct status reviews. A variety of methods are used to determine which conservation plans will be reviewed. NRCS randomly selects a percentage of cooperators enrolled in federal programs, such as CRP. This percentage varies from year to year and is determined by the FSA. Twenty-five percent of all Farmland Preservation Program participants are selected every year for a status review. All cost-share agreements in the Nonpoint Source Pollution Abatement Program are reviewed annually. Table 4-1 shows the total number of status reviews that were conducted over recent years. The number of cooperators requiring follow-up can be used as an indicator of customer service and resource protection. The percentages do not always add up to 100, as some conservation plans that are actively being applied may require follow-up.

**Table 4-1. Summary of Conservation Status Reviews in Dane County from 2003-2007**

<table>
<thead>
<tr>
<th>Type of Review</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conservation Status Reviews</td>
<td>696</td>
<td>473</td>
<td>248</td>
<td>906</td>
<td>958</td>
</tr>
<tr>
<td>Conservation Plans actively being applied</td>
<td>681 (98%)</td>
<td>456 (96%)</td>
<td>243 (98%)</td>
<td>886 (98%)</td>
<td>806 (84%)</td>
</tr>
<tr>
<td>Conservation Plans needing follow-up</td>
<td>136 (20%)</td>
<td>89 (19%)</td>
<td>69 (28%)</td>
<td>144 (16%)</td>
<td>177 (18%)</td>
</tr>
</tbody>
</table>
Spot Checks
DATCP and NRCS conduct annual engineering and conservation planning spot checks on work the LCD performed the previous year. These checks provide quality control of both planning and technical design work done by the division. These checks also contribute to an advancement of staff knowledge and responsibilities.

The DNR and Dane County also conduct audits of nonpoint source projects. Program administration and financial audits ensure quality from an administrative perspective. These audits are required by law and will continue to be an important self-evaluation tool.

Annual Accomplishment Reports
The LWRD produces an annual report that not only gives updates on soil and water resource programs, but also lists the year’s achievements, statistics, and Department highlights (Table 4-2). Since the county is involved in multiple programs, it is worth noting that a detailed quality control procedure has been developed to ensure the cited achievements are current and accurate.

County, state, and federal agencies require the County to be checked by an outside quality control team for work that is done on all programs. For example, the county requires countywide signal audits. These audits are used to monitor program administration and financial allocations and ensure a high work performance standard. The state is also required to check engineering work and annually monitors a percentage of all Nutrient Management and Farmland Preservation Plans.

LCD staff work with a multitude of federal programs on a daily basis. These programs include conservation planning, WHIP, EQIP, CRP, WRP, CREP, and engineering and design work, and they all require annual status reviews to be performed by an outside review team.

The LCD also forwards an annual report to DATCP as part of the requirements set forth under the SWRM program. The LWRD uses this report and the others outlined above to inform the LCC, County Board, county committees, County Executive, and other lead agencies about the quality and quantity of work being produced by the Department.
Table 4-2. Conservation achievements in Dane County from 2003-2007

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Conservation Practice:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Landowners assisted (no.)</td>
<td>790</td>
<td>682</td>
<td>564</td>
<td>918</td>
<td>1,576</td>
</tr>
<tr>
<td>Landowners applying practices (no.)</td>
<td>141</td>
<td>190</td>
<td>177</td>
<td>895</td>
<td>703</td>
</tr>
<tr>
<td>Conservation plans (ac.)</td>
<td>18,512</td>
<td>31,643</td>
<td>12,834</td>
<td>38,315</td>
<td>38,574</td>
</tr>
<tr>
<td>Conservation plan status reviews (no.)</td>
<td>696</td>
<td>473</td>
<td>248</td>
<td>906</td>
<td>958</td>
</tr>
<tr>
<td>Conservation plans actively being applied (no.)</td>
<td>681</td>
<td>456</td>
<td>243</td>
<td>886</td>
<td>806</td>
</tr>
<tr>
<td>Conservation plans requiring follow-up (no.)</td>
<td>136</td>
<td>89</td>
<td>69</td>
<td>144</td>
<td>177</td>
</tr>
<tr>
<td>Construction site erosion control plans reviewed (no.)</td>
<td>485</td>
<td>730</td>
<td>800</td>
<td>736</td>
<td>887</td>
</tr>
<tr>
<td>Barnyard runoff systems/roof runoff installed (no.)</td>
<td>5</td>
<td>7</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Grassed buffers (ac.)</td>
<td>707.6</td>
<td>106.1</td>
<td>327.7</td>
<td>197</td>
<td>105.3</td>
</tr>
<tr>
<td>Grassed waterways (ac.)</td>
<td>28.6</td>
<td>23.3</td>
<td>20.5</td>
<td>25</td>
<td>20</td>
</tr>
<tr>
<td>Contour strip cropping (ac.)</td>
<td>436</td>
<td>140</td>
<td>332</td>
<td>290</td>
<td>84</td>
</tr>
<tr>
<td>Prairie restoration (ac.)</td>
<td>797.5</td>
<td>266.3</td>
<td>24.4</td>
<td>855</td>
<td>305</td>
</tr>
<tr>
<td>Tree planting (ac.)</td>
<td>290</td>
<td>75</td>
<td>38</td>
<td>62</td>
<td>176</td>
</tr>
<tr>
<td>Terraces (ft.)</td>
<td>11,325</td>
<td>4,200</td>
<td>17,050</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Diversions (ft.)</td>
<td>5,490</td>
<td>4,075</td>
<td>745</td>
<td>900</td>
<td>1,080</td>
</tr>
<tr>
<td>Wetland restoration (ac.)</td>
<td>330.3</td>
<td>144</td>
<td>99</td>
<td>109</td>
<td>98.7</td>
</tr>
<tr>
<td>Water and sediment control structures (no.)</td>
<td>6</td>
<td>22</td>
<td>12</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Manure storage structures (no.)</td>
<td>2</td>
<td>3</td>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Winter manure spreading permits (no.)</td>
<td></td>
<td></td>
<td></td>
<td>92</td>
<td>100</td>
</tr>
<tr>
<td>Winter manure spreading plans (ac.)</td>
<td></td>
<td></td>
<td></td>
<td>52,877</td>
<td>57,623</td>
</tr>
<tr>
<td>Grade stabilization structures (no.)</td>
<td></td>
<td></td>
<td></td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Nutrient management plans completed (ac.)</td>
<td>20,999</td>
<td>26,052</td>
<td>32,334</td>
<td>41,351</td>
<td>43,537</td>
</tr>
<tr>
<td>Streambank protection (ft.)</td>
<td>38,130</td>
<td>43,590</td>
<td>14,000</td>
<td>45,408</td>
<td>12,300</td>
</tr>
</tbody>
</table>

Erosion Control/Stormwater Management Activity

In 2007, the LWRD took over sole responsibility for issuing erosion control and stormwater management permits and conducting inspections. Monitoring permit activity in the county helps LWRD staff with workload planning and with meeting ordinance-required inspections. Beginning in 2008, all permits and associated attributes are now tracked via a new database. This database allows staff to immediately access the status of any given project.

Figure 4-3 summarizes land disturbance activity in Dane County from 2004-2007. Submittals reviewed exceed the number of actual permits issued because this category includes permit applications, permit application amendments, permit revisions, and CARPC reviews. Not all the
plans that are submitted meet the ordinance requirements and therefore need revisions before they can be approved.

**Figure 4-3. Summary of ECSM permit activity in Dane County 2004-2007**

![Summary of Permit Activity within the County](image)

**Water Quality Monitoring Stations**
Various water quality monitoring stations are located throughout Dane County. Dane County also participates in a Cooperative Water Resources Monitoring Program, which is coordinated by the Capital Area Regional Planning Commission in conjunction with local units of government. This program monitors baseflow water quality in representative streams throughout the county and storm flow in the Yahara River system and in the major tributaries to Lake Mendota. These monitoring stations are maintained by the USGS for the purpose of determining long-term trends in surface water quality. They provide valuable information for planning, evaluation, and calibrating water quality models. Staff can also use the data to determine the effects land use changes are having on water quality. Water quality data can be used to qualify the effects certain management practices are having if they are properly maintained. Figure 4-4 shows locations of the USGS gauging stations with long-term records in Dane County.

**Citizen Monitoring Program**
In 2002, the Dane County LWRD implemented a Citizen Stream Monitoring Program that focuses on the Rock River Basin. Since that time, the program has expanded to include citizen volunteer monitors in the Sugar Pecatonica and Lower Wisconsin River Basins. LWRD staff provide technical support by training the monitors to take measurements of dissolved oxygen, temperature, water clarity, water flow, and habitat. Volunteers also collect samples of the aquatic insects that live in rocky areas, under banks, and in weed beds of the stream, and they determine the biotic index of the stream. In 2006, citizen monitoring was advanced to include Level II monitoring protocols. Endorsed by the DNR, this program offers volunteers the opportunity to monitor streams with instruments and place the data results on the statewide database. This information is then used to build a baseline inventory of stream conditions and is considered to be a valuable tool for resource managers. Insufficient data is a major hurdle to making informed decisions about local resources. Therefore, this type of monitoring provides important baseline and trend data, and is often the only data available. Both of these citizen monitoring programs
also serve as excellent educational tools for the general public. Volunteers are trained not only on protocols, but also on identifying concerns that resource managers may not be aware of. See Figure 4-4 for a map of the monitoring locations in Dane County.
Accomplishments/Progress related to 2003 LWRM Plan (2003-2007)

The 2003 Dane County LWRM Workplan listed a number of goals for soil and water conservation. Objectives and action items were developed for the purposes of achieving each goal. The following highlights the accomplishments from the 2003 workplan.

**Goal I. Maintain agricultural lands for long-term production.**

<table>
<thead>
<tr>
<th>Objectives and priority</th>
<th>Actions</th>
<th>Major Accomplishments/Completed Tasks</th>
</tr>
</thead>
</table>
| 1. Implement NR 151 Agricultural Performance Standards. | 1. Use water management strategies to minimize off site sediment delivery.  
2. Reduce or maintain all cropped fields to “T”  
3. Implement buffers in all WQMAs. | • 94.8% of conservation plans actively applied. |
| 2. Work with landowners to install/maintain sound agricultural practices. | 1. Implement whole farm planning.  
2. Promote and develop conservation plans on all ag land in Dane County.  
3. Conduct educational workshops, forums, and field demonstrations | • From 2003-2007 implemented $293,300 in conservation practices through the Land and Water Resource Management (LWRM) program administered by DATCP.  |
| 3. Provide technical and financial support when available to agency and other group’s efforts to keep ag land in large blocks to maintain viability. | 1. Purchase of development rights  
2. Acquire easements  
3. Utilize manure brokering | • Since 2003 paid over $6 million for the HWY 12 PDR program preserving 1,787 acres of farmland. USDA, through the Farm and Ranch Protection Program has contributed over $3.5 million with the remaining being supported by WisDOT |

**Goal II. Manage crop nutrient sources in an economic and environmentally sound manner.**

<table>
<thead>
<tr>
<th>Objectives and priority</th>
<th>Actions</th>
<th>Accomplishments/Completed Tasks</th>
</tr>
</thead>
</table>
| 1. Farmers will understand the economic and environmental value of developing and implementing a nutrient management plan. | 1. Address nutrient management (NM) planning through whole farm planning.  
2. Provide annual NM workshops for landowners to implement NM plans on their own.  
3. Incorporate sludge applications into Nutrient and Conservation Plans.  
4. Work with commercial fertilizer applicators and farmers to ensure application of nutrients according to nutrient management plans.  
5. Work with partners to ensure they comply with NR 151 standards. | • From 2005-2007 developed 6,000 acres of nutrient management plans ($167,000) through LWRM  
• Developed a total 164,273 acres of NM plans.  
• Held four workshops with over 60 landowners attending. |
| 2. Update the Dane County Ch.14 Waste Storage Ordinance. | 1. List actions that are needed to update and implement the ordinance.  
2. Review all NM Plans developed as a result of the updated Waste Storage Ordinance. | • Completed the amended Ch. 14 Manure Storage and Utilization Ordinance effective 1-31-2006. (Ordinance includes NR 151 performance standards) |

**Goal III. Protect and enhance in-stream, riparian, wetland, and upland habitat.**

<table>
<thead>
<tr>
<th>Objectives and priority</th>
<th>Actions</th>
<th>Accomplishments/Completed Tasks</th>
</tr>
</thead>
</table>
| 1. Use county, state, and federal programs to restore and stabilize stream banks and shorelines in Dane County. | 1. Continue to apply for nonpoint source and other applicable grants.  
2. Work with non-profits and other conservation groups to identify critical stream corridors.  
3. Refer to DNR Basin Plans for coordinated approach to prioritize areas based in water quality needs i.e. 303 (d) list. | • From 2003-2008, contracted over $860,000 for streambank restoration and enhancement. Over 29 miles restored from 2003-2007. (Over 50 miles since 1999). Public access easements are associated with most of the associated project areas. 2.5 miles permanently eased through Land and Water Legacy Funding of $250,000.  
• West Branch of Sugar River removed from 303(d) list in 2004. |
| 2. Restore wetland habitat where possible in Dane County. | 1. Restore wetlands identified in DNR Basin Plans and other water quality plans in Dane County. | • Restored 781 wetland acres from 2003-3007.  
80 acres purchased in the LMN watershed through the Land and Water Legacy Fund. |
| 3. Identify programs to help restore/enhance upland habitats in Dane County. | 1. Promote county, state and federal programs to assist landowners with technical and financial planning.  
2. Refer landowners to nonprofit organizations specializing in upland restoration and enhancement programs. | • Utilized $130,612 in federal WHIP funding for upland practices. |
4. Assist in reducing the loss of wetlands to agricultural and urban development.

1. Identify permitted wetland loss.
2. Map hydric soils and flood damage as educational tools (where not to build).
3. Evaluate need for additional wetland/hydric soil regulation.
4. Continue to avoid and mitigate through the plan review process.
5. Provide information & education assistance detailing the importance of wetlands to Dane County.

- Continues to occur through the erosion control and stormwater management review process and at the request of CARPC.

Goal IV. Protect and improve the quality of groundwater in Dane County.

<table>
<thead>
<tr>
<th>Objectives and priority</th>
<th>Actions</th>
<th>Accomplishments/Completed Tasks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. All significant land use and siting decisions should include evaluation of potential groundwater and hydrologic impacts.</td>
<td>1. Incorporate and use the information, tools, criteria and guidelines identified in the Dane County Groundwater Protection Plan and coordinate with other local agencies.</td>
<td>• Included infiltration standard in Ch. 14 which includes siting and separation requirements to protect groundwater and provide recharge.</td>
</tr>
<tr>
<td>2. Properly seal unused wells in Dane County.</td>
<td>1. Include proper well abandonment in every Whole Farm Plan. 2. Refer landowners with wells to be abandoned to Dane County Environmental Health for grant assistance.</td>
<td>• From 2004-2007, properly abandoned and sealed 153 wells.</td>
</tr>
<tr>
<td>3. Continue to work with partnering agencies to protect recharge areas in Dane County.</td>
<td>1. Map priority areas for infiltration &amp; recharge. 2. Educate developers, citizens, etc. on importance of protecting these areas. 3. Implement practices in these areas aimed at increasing infiltration. 4. Provide interpretive materials and maps for use during site development and review. 5. Protect areas by appropriate means (including purchase, inclusion into County comprehensive plan, restrict by ordinance &amp; other means as necessary.) 6. Work with developers to identify areas where demonstration of infiltration practices can be used for education.</td>
<td>• Provided $13k to WGNHS for mapping of recharge areas in Dane County. • Updated ECSM manual list practices for improving groundwater recharge. • Continue to provide planning maps for development projects. • Infiltration standard guides development to protect and utilize existing recharge areas in order to meet such requirements. • Continue to work with developers on new and improved infiltration practices.</td>
</tr>
<tr>
<td>4. Protect springs in Dane County</td>
<td>1. Identify and map springs in Dane County. 2. Inform and educate landowners about the detriments of grazing, tiling, cropping, spraying, and building ponds. 3. Guide development away from recharge areas of major springs during the plan review process. 4. Encourage the use of buffers.</td>
<td>• Ch.11 Shoreland Zoning establishes a 75' setback from springs and adjacent water resources. Springs also protected by requiring more restrictive erosion control through shoreland erosion control permits.</td>
</tr>
</tbody>
</table>
Goal V. Implement all applicable stormwater programs along with the existing Erosion Control and Stormwater Management Ordinance (Ch. 14) consistently throughout Dane County.

<table>
<thead>
<tr>
<th>Objectives and priority</th>
<th>Actions</th>
<th>Accomplishments/Completed Tasks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Work with all units of government in Dane County to ensure the minimum requirements of the ordinance are met.</td>
<td>1. Implement procedures for ensuring consistent municipal implementation found at <a href="http://www.co.dane.wi.us/commissions/lakes/pdf/munioversightpolicyemailversion.pdf">http://www.co.dane.wi.us/commissions/lakes/pdf/munioversightpolicyemailversion.pdf</a> 2. Offer technical and administrative training to municipal staff, developers and consultants 3. Update BMP manual, including new technical information and location of practices to visit 4. Maintain email list of contractors, developers, and municipal staff, and use to inform of changes to BMP manual, workshops, etc 5. Maintain web page resources for implementation 6. Educate citizens about ordinance requirements and their benefits</td>
<td>• Continued contractual agreement with 5 municipalities for ECSM plan review and inspections. Completed online permit registration page. • 14,000 hits on ECSM webpage including self registration e-mail list for BMP manual updates and permit applications.</td>
</tr>
<tr>
<td>2. Identify shortfalls in the ordinance and determine new methodologies to mitigate the deficiencies.</td>
<td>1. Identify administrative shortfalls; areas for better clarity 2. Identify technical shortfalls; develop new methodologies to mitigate stormwater 3. Amend ordinance and BMP manual as necessary as result of 1 and 2. 4. Ensure that the County Ordinance complies with NR 151.</td>
<td>• Thermal Model (TURM) has been enhanced and published. • Improved infiltration models through MAMSWaP. • DNR endorsed CH 14 as compliant with NR 151. • BMP manual has been revised to include updated information and technological advances in stormwater management practices.</td>
</tr>
<tr>
<td>3. Identify transitional areas that will undergo development (see 2020 build out projections) and provide technical assistance when needed to ensure full implementation of the standards.</td>
<td>1. Review storm water management plans to ensure they comply with the Dane County Erosion Control and Stormwater Management Ordinance. 2. Provide staff assistance in the development of the Dane County Smart Growth Plan.</td>
<td>• Reviewed 3,638 ECSM plans for compliance. • Smart Growth Plan completed in 2006.</td>
</tr>
<tr>
<td>4. Ensure county internal procedures for implementing ordinance are efficient and effective</td>
<td>1. Continue internal staff meetings to improve policy and procedure</td>
<td>• On-going bi-weekly meetings resulting in new policy documents and updated tracking procedures.</td>
</tr>
<tr>
<td>5. Revise the current stream classification list for Dane County Streams.</td>
<td>1. Work with DNR staff to update the existing stream classification map for Dane County Cold Water Streams.</td>
<td>• Initiated discussions with DNR. Process ongoing</td>
</tr>
<tr>
<td>6. Apply for Dane County to be certified by the DNR as a Local Qualified Program for the issuance of stormwater permits under NR 216</td>
<td>1. Work with DNR Regional stormwater staff on a comprehensive approach to become certified while assuring interagency needs are met.</td>
<td>• Staff continue discussions with DNR on becoming an Authorized Local Program.</td>
</tr>
</tbody>
</table>

Goal VI. Partner with and involve citizens on soil and water conservation initiatives in rural and urban areas.

<table>
<thead>
<tr>
<th>Objectives and priority</th>
<th>Actions</th>
<th>Accomplishments/Completed Tasks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Support individuals along with watershed groups and organizations in their education of citizens about resource improvement; pollution prevention.</td>
<td>1. Provide technical assistance when available. 2. Promote the formation of watershed organizations throughout Dane County. 3. Continue to provide support to Citizen Monitoring program in the Rock River Basin 4. Continue Yahara Lakes Week and all associated programs including “Water Champions” recognition</td>
<td>• Annual Take a Stake in the Lakes Days promotes groups’ outreach efforts. This annual event focuses attention on water resources of Dane County with annual clean up, paddling and recognition events. <a href="http://www.takeastakeinthelakes.com">www.takeastakeinthelakes.com</a> • Foster and support quarterly meetings of friends groups to network and share information. • Held Voice of Our Waters workshop for friends and watershed groups. • Added multiple citizen monitors and Level II monitoring program. • Supported formation of many new watershed groups.</td>
</tr>
</tbody>
</table>
2. Educate urban and rural residents on health and value of land and water resources and protection measures

1. Media campaign, flyers, newsletters, presentations, editorial board meetings, displays, etc.
2. Coordinate with NR 216 Information & Education Plan implementation.
4. Use watershed and agricultural newsletters to educate and promote compliance with programs and goals including the ag requirements of the Dane County EC/SW Management Ordinance.

• “Dane Waters: A Reflection of Us All” DVD made available free of charge to public.
• MAMSWaP annual TV, radio and print ads

3. Educate and inform water users in Dane County about the threats posed by invasive and exotic species.

1. Coordinate with the Dane County Lakes and Watershed Commission and WDNR on distribution of “Watch Cards” and “Wisconsin Wild Cards.”
2. Incorporate information into Dane County Boater safety classes.

• Watch cards are distributed at events and at counter.
• Boater safety classes are promoted on www.danewaters.com

4. Inform and educate county, municipal, and town officials on the health and value of land and water resources in Dane County.

1. Explore development of educational briefing for newly elected officials on responsibilities and programs of Dane County agencies.
2. Invite other elected officials as appropriate.
3. Continue to offer rural and urban tours to committees and elected officials that focus on land and water conservation initiatives.

• All newly appointed Lakes & Watershed Commissioners are given orientation binder.

Major Accomplishments

• Completed a department merger to form the Dane County Land and Water Resources Department, which includes the Administration Division, Office of Lakes and Watersheds, Parks Division, Land Acquisition Division, and Land Conservation Division.
• From 2003-2008, contracted over $860,000 for streambank restoration and enhancement. More than 29 miles were restored from 2003-2007 (and over 50 miles since 1999). Public access easements are associated with most of the associated project areas.
• Contracted $575,000 in the LMN Watershed.
• From 2003-2007, implemented $293,300 in conservation practices through the Land and Water Resource Management (LWRM) program administered by DATCP.
• From 2005-2007, developed 6,000 acres of nutrient management plans ($167,000) through LWRM.
• Since 2003, paid over $6 million for the HWY 12 PDR program, preserving 1,787 acres of farmland. USDA contributed over $3.5 million, and WisDOT provided the rest.
• Developed and implemented a Winter Spreading Ordinance to regulate the application of stored pumpable liquid manure on either frozen or snow covered cropland.
• Completed Phase I of the Manure Feasibility Study.
• Updated Shoreland Zoning, Chapter 11 of the Dane County Code of Ordinances.
• Continued to provide contractual services to Waunakee, Middleton, Stoughton, Sun Prairie, and De Forest for erosion control and stormwater management plan reviews and inspections.
• Worked with the DNR to successfully remove the West Branch of the Sugar River from the federal impaired 303(d) list. Was the first such water body removed in Wisconsin for habitat improvements.
• Continued the annual transect survey.
• Implemented the Land and Water Legacy program, which includes County funding for streambank improvements, urban water quality projects, and easement acquisition.
• Began a full lake restoration project on Stewart Lake to include sediment removal, dam repairs, and improved public access.
• Assumed responsibility for the Yahara Lakes level management.
• Continued to coordinate the Madison Area Municipal Stormwater Partnership for meeting NR 216 stormwater requirements.
• Updated the conservation planning system to GIS-enabled technology.
• Completed and published a stormwater research study on Brewery Creek that investigated the in-stream impacts from constructing a residential subdivision.
• Held multiple stormwater and erosion control workshops.
CHAPTER 5
INFORMATION AND EDUCATION

Natural resource conservation and protection are at the core of the Land and Water Resources Department’s mission. It is well known that Dane County citizens place considerable value on the quality and quantity of the county’s land and water resources and consider these resources to be an important aspect of their quality of life. As part of LWRD’s strategic planning efforts, Information and Education (I&E) activities were identified as a key component to building support for the Department’s mission and environmental stewardship. Department staff recognize that sustained behavioral and attitudinal change is often easier to achieve by changing people’s core beliefs than it is through enforcement activities. The Department believes that by helping citizens become more knowledgeable about and appreciative of a healthy natural environment, it will need to rely less on its enforcement role to protect and enhance the county’s natural resources.

LWRD’s comprehensive role in natural resource management has led to a broader set of actions to support environmental education throughout Dane County. As a result of the stakeholder analysis performed during the strategic planning process, the LWRD developed the following key points as a focus for education efforts:

- Create more diverse educational programs for communities outside of Madison.
- Develop a sustainable indoor/outdoor environmental education program.
- Provide outreach to public schools.
- Educate the public regarding environmental stewardship.
- Expand the function of the Heritage Center to include environmental ethics.
- Increase/expand the role of the Dane County Parks Naturalist.
- Identify a person/role for promotion of the environmental ethic.
- Create an ambassadors program to promote LWRD programs.

It is important for the LWRD to identify and address barriers to protecting natural resources, and an I&E program is the best method for dealing with barriers related to a lack of information and awareness. I&E activities demonstrate to residents how their actions directly affect the watershed in which they live. As a result, people are more likely to adopt best management practices and thereby improve local water quality.

All five Dane County LWRD Divisions perform I&E activities related to natural resource conservation and preservation. Dane County is home to a very diverse population, which requires an I&E strategy that disseminates information in a variety of formats and to a wide range of audiences. Additionally, as new resource concerns are identified and demographics change, the LWRD will need to adjust the I&E strategy to ensure it is meeting the needs of the changing environment. I&E strategies have been included in the LWRD workplan.
The following are examples of I&E activities that will continue if staffing and funding remain at 2008 levels:

- Partnering with UWEX and the DNR in their outreach efforts.
- Meeting one-on-one with agricultural producers.
- Conducting Nutrient Management Workshops.
- Holding Well Abandonment Demonstrations.
- Coordinating Take a Stake in the Lakes Days activities (e.g. event solicitation, planning and coordination, poster design, printing and distribution, media relations including radio and print ads, clean-up event coordination, recognition program, paddling events).
- Partnering with existing watershed associations and friends groups and promoting their annual events.
- Working on the Better Lawns and Gutters Tour.
- Tabling displays at the Fishing Expo, Canoeecopia, Green Day, Garden Expo, and other venues.
- Submitting articles to daily and weekly papers and posting them on the web for neighborhood association, watershed association, and friends group newsletters.
- Issuing bimonthly or monthly press advisories on timely issues.
- Developing a web-based and hard copy “State of the Waters” publication that provides local watershed group contacts and summarizes water quality information by watershed.
- Further developing the website with new photos and content.
- Developing workshops and materials in cooperation with the DNR and UW Extension on shoreland restoration and other environmentally friendly waterfront practices.
- Developing education materials that address areas of concern/frequent questions raised by the public.
- Distributing information developed by others (e.g. UWEX, DNR, NRCS, etc.).
- Developing and distributing an aquatic plant management publication.
- In addition to publishing figures in the newspaper, exploring ways to publicize the annual county budget proposal and encourage residents to provide input at public hearings.
- Supporting watershed groups and projects by providing them with consistent information; publicizing them on the LRWD website, in letters to editor, etc.; and by hosting a “watershed day”.
- Hosting another workshop for watershed and friends groups.
- Developing and implementing an erosion control and stormwater management I&E plan.
- Developing a citizen outreach plan for a stormwater/erosion control ordinance that includes home and yard care practices.
- “Creating a market” for construction site erosion control.
- Continuing to review ordinances.
- Inviting input on workshop topics.
- Continuing to work with the Green Tier Program and partners.
- Updating the Erosion Control and Stormwater Management manual.
- Holding ordinance workshops for:
  - City and village administrators and staff (ordinance administration, troubleshooting, implementation).
  - Developers and engineers (ordinance overview, manual content, specifics of technical standards).

58
- County departments (ordinance overview, ensuring county projects meet ordinance standards).
- Contractors and builders (ordinance overview, importance of complying with stormwater & erosion control plans).
- Aggregate producers (ordinance overview, Ch. 74 (nonmetallic mining reclamation)).
- Ag community (ordinance overview, standards relevant to ag expansions).
- Zoning inspectors (ordinance overview, internal procedures).
- Holding citizen/watershed group workshops.
- Communicating the county oversight process to ensure consistent administration and enforcement.
- Conducting citizen stream monitoring, including WAV and Level II monitoring throughout Dane County.
- Distributing *Dane Waters: A Reflection of Us All* DVD.

Dane County also belongs to the Madison Area Municipal Storm Water Partnership, whose I&E Plan can be viewed at: www.danewaters.com/pdf/stormwater/jointstormwaterpermit.pdf.

The Adult Conservation Team (ACT) is an integral component of the LWRD’s overall education initiatives. Although the primary aim of ACT is to extend and enrich the work done by the parks staff, that is not its sole role. The Adult Conservation Team was created in 1992 to bring the community and the Dane County Parks Department together, to educate the public about natural resources and departmental goals, to improve quality of life, and to enhance the level of service delivery. While ACT extends and enriches the work done by park staff, volunteers also are a source of advocacy and financial support, comprise an informed part of the public, act as a public relations resource, and serve as an avenue to gauge public opinion and elicit feedback. ACT volunteers’ efforts have accelerated the development of parks and natural areas, increased open space and food supply for wildlife, and improved the County’s recreational opportunities. Furthermore, volunteers and employees gain a better understanding of each other as they work in partnership.

With the aim of delivering better services by combining community involvement with education, ACT has formed relationships with individuals and groups that have a long-term investment in the parks. These partnership groups work independently under Parks Division supervision, scheduling their own workdays and recruiting their own volunteers. Partners include Friends of the Park groups, non-profit and recreational user groups, neighborhood associations, businesses, and service clubs.

Currently, our Friends of the Park groups include: Friends of Schumacher Farm, Friends of Donald Park, Friends of Old Halfway Prairie School, Friends of Pheasant Branch, Friends of Lakeview Woods, Friends of McCarthy Youth Conservation Park, and a newly forming Friends of Stewart Lake Park.

The overall success of this plan will largely be attributable to the educational initiatives outlined above. Moreover, forming and maintaining partnerships will continue to be vital to the LWRD and its approach to resource management.
CHAPTER 6
RECOMMENDATIONS/PLAN IMPLEMENTATION

The Land and Water Resource Management Plan entails a vast amount of information that will be used to direct how the LWRD delivers conservation programs from 2008 through 2018. Multiple partner agencies, groups, and individuals were included in the planning process and their contributions have been incorporated into this plan. The following recommendations summarize and prioritize the action items that were developed during the planning process. They are categorized as “administrative” and “planning and technical.”

ADMINISTRATIVE RECOMMENDATIONS

• Per the LWRM plan, support the LWRD with annual workload analysis, budget, program prioritization, and future direction.

• Use the LWRM plan to identify workplan schedules and priorities for working with partner agencies and associated programs, with the end goal of ensuring that the highest level of natural resource conservation and protection services are provided to the people of Dane County.

• Continue to support other county departments, the County Board, and the County Executive’s Office in reviewing soil and water resource issues affecting Dane County.

• Support new ordinances, standard development, and implementation that guide policy and protect the natural resources of the county. Incorporate ordinance revisions and standards into the LWRM plan as they become available.

• Assist all municipalities with continued implementation of their erosion control and stormwater management ordinances.

• Support agriculture with existing and new programs that become available, while ensuring they remain compliant with all applicable regulations.

PLANNING AND TECHNICAL RECOMMENDATIONS

• Provide planning and technical assistance at the request of county landowners, land users, and decision makers, while continuing to use the most current standards and technology available for natural resource protection.

• Secure further education and training for LWRD staff to ensure that the most current planning and technical information is available to landowners, land users, and decision makers.

• Continue to provide the highest level of GIS information by keeping current with advancements in the field of computer science and technology.

• Act as a liaison between landowners/land users and decision makers/appropriate government agencies to ensure that current ordinance information is available. Provide
planning and technical assistance to ensure ordinances related to soil and water resources are followed in Dane County.

- Provide landowners, land users, and decision makers the most current, cost-effective, and productive planning and technical tools available. Certify the proper application of conservation practices that will protect the county’s soil, water, and natural resources.

- Participate in local, state, and federal monitoring and research efforts, and incorporate the resulting data into conservation planning and resource protection decisions in the county.

**Dane County Workplan**
The compilation of this plan involved a coordinated effort among LWRD staff, partnering agencies, and a Local Advisory Committee (LAC). The LAC was comprised of a cross section of local interests that included landowners, municipal officials, developers, and watershed organizations. The LAC’s perspectives greatly enhanced and strengthened Dane County’s Land and Water Resource Management Plan. With assistance from LWRD staff, the LAC provided valuable insight on the plan’s goals, objectives, and actions that will guide the LWRD through 2018.

The workplan has six major goals that will serve to guide the LWRD, and it contains educational initiatives that are aimed at achieving the goals outlined in the 10-year plan. Throughout the implementation of the LWRM Plan, the Department will conduct annual reviews of its progress and will make any necessary adjustments. Similarly, the plan will be affected by changes in workloads and funding availability. Progress toward goal implementation will be measured using the evaluation tools discussed in Chapter 4. Annual reports will be generated and forwarded to DATCP and other partnering agencies for further program review.

As mentioned above, the work plan (Appendix D) identifies six goals that were identified as priorities by LWRD staff and the LAC. The goals are not prioritized, as no one goal is more important than another.

Changes in annual budget allocations and federal farm programs make it difficult to accurately predict when these objectives will be completed. The Dane County LWRD will prepare annual workplans and budgets for DATCP as part of the required monitoring and evaluation. This plan will serve as an overall guide in the annual development of these plans and will help the LWRD prioritize its efforts.

**2003 Budget Review and 2008 Plan Implementation Budget**
The estimated LWRM Plan implementation budget was calculated based on actual expenditures from 2004 through 2007. The budget table (Table 6-1) includes expenditures that were projected in the 2003 LWRM plan. The table is divided into two categories: cost-share funds and technical assistance funds. Actual costs from 2004-2007 for both categories are also included in this table. Cost-share funds include county, state, and federal program dollars used for the implementation of conservation practices. Technical assistance funds are used to support the Land Conservation Division staff. These funds do not include costs incurred by Administration Division staff who also assist LCD staff with program implementation and oversight.
<table>
<thead>
<tr>
<th>Funding Type</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>Projected C/S</td>
<td>$464,590</td>
<td>$476,200</td>
<td>$488,100</td>
<td>$500,310</td>
</tr>
<tr>
<td>Actual C/S Spent</td>
<td>$906,553</td>
<td>$854,887</td>
<td>$610,349</td>
<td>$553,297</td>
</tr>
<tr>
<td>Projected Technical</td>
<td>$1,250,090</td>
<td>$1,281,350</td>
<td>$1,313,380</td>
<td>$1,346,200</td>
</tr>
<tr>
<td>Assistance Realized</td>
<td>N/A</td>
<td>$714,800</td>
<td>$759,089</td>
<td>$868,947</td>
</tr>
</tbody>
</table>

Table 6-2 reflects the anticipated budget for the implementation of the 2008 workplan. This budget is projected through 2012. While this plan is a 10-year plan, the workplan will be evaluated on an annual basis due to possible changes in available cost-share dollars, staff, and county and state priorities related to soil and water conservation. The updated LWRM plan also includes relevant tasks that pertain to the entire LWRD, and therefore the scope of work is broader than in the past. As a result, the projected budget takes into account both additional staffing and cost-share dollars that are needed to satisfy the workplan.

<table>
<thead>
<tr>
<th>Funding Type</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Projected C/S</td>
<td>$732,000</td>
<td>$760,500</td>
<td>$790,900</td>
<td>$822,500</td>
<td>$855,000</td>
</tr>
<tr>
<td>Projected Technical</td>
<td>$1,020,000</td>
<td>$1,060,800</td>
<td>$1,104,000</td>
<td>$1,150,000</td>
<td>$1,200,000</td>
</tr>
<tr>
<td>Assistance Realized</td>
<td>N/A</td>
<td>$714,800</td>
<td>$759,089</td>
<td>$868,947</td>
<td></td>
</tr>
</tbody>
</table>

**Conclusion**

The projected budgetary needs represent the best estimates of the LWRD as of this writing. All estimates are based on previous expenditures and assumed needs for this plan. Such estimates are used in the annual Dane County budget preparation and also rely on available state and federal funding. The LWRD will continue to utilize all existing funding mechanisms to implement the 2008 LWRM Plan.
Appendix A

Dane County Ch.14 Sub.I / DNR NR 151 Compliance Checklist

OWNER: __________________________ OPERATOR: __________________________

STAFF COMPLETING REVIEW: __________________________ DATE: __________

**Sheet, Rill and Wind Erosion**

Conservation plan reflects current crop rotation and tillage practices: Y N NA
Soil erosion rates meet tolerable soil loss (T) requirements: Y N NA
Soil erosion rates calculated by: USLE RUSLE RUSLE2

**Clean Water Diversions**

Feedlots, Barnyards, Manure Storage Areas protected by clean water diversion(s): Y N NA

**Manure Management (Livestock Operations)**

Unconfined manure piles in a Water Quality Management Area (WQMA): Y N NA
Direct runoff from a feedlot or stored manure into the waters of the state: Y N NA
Unlimited livestock access to waters of the state where concentrations of animals prevent the maintenance of adequate sod or self-sustaining vegetative cover: Y N NA

**Manure Storage Facilities**

Manure storage facilities *(If none, skip this section)*: Y N NA
Number of manure storage facilities
Facilities constructed or substantially altered after October 2002: Y N
Facility construction or alteration performed to NRCS standards and specs.: Y N
Facilities overflowing or in need of repair: Y N

Facilities pose an imminent threat to public health, fish and aquatic life or violate groundwater standard: Y N NA
Facilities have been idle or unused for a period of 24 months or more: Y N NA
Facilities abandoned according to NRCS standards and specs.: Y N
Facilities designed to store manure for longer than 24 months: Y N
Facilities being retained based on anticipated future use: Y N
Facilities meet NRCS standards and specs.: Y N

**Nutrient Management**

Operation applies nutrients in accordance with current NRCS 590 standard Y N NA

**Winter Application of Stored, Pumpable, Liquid Manure**

Operation applies stored, pumpable, liquid manure Y N NA
Operation has a Liquid Manure Winter Application Plan Y N NA
Landowner keeps accurate record of date, location, and rate of manure application Y N NA

NOTES:________________________________________________________________________________________
______________________________________________________________________________________________
______________________________________________________________________________________________
# Dane County Land Conservation Division
## Agricultural Management Complaint

### General Information:
- **Complaint taken by:** ____________________________  **Date:** ____________  **Time:** ________
- **Complainant (optional):** ____________________________  **Phone #:** ____________________________
- **Location:** **Township:** ____________________________  **Sec:** _______  ¼ ___  ¼¼ ___
- **Address or Nearest Intersection:** ____________________________
- **Landowner:** ____________________________  **Operator:** ____________________________
- **Complaint Type:**
  - Winter Spreading
  - Pit Overflow
  - Manure Run-off
  - Manure Stack WQMA
  - Livestock in Stream
  - Other: __________
- **Is manure currently running off site?** N Y*  **Is manure liquid or from a pit?** Liq* Pit* Unknown
- **Is manure close to a stream or lake?** N Y _____ ft.  **Is manure close to private well?** N Y _____ ft.
- **Name of nearest waterbody:** ____________________________
- **Has anyone else been contacted?** ____________________________ *Call the DNR Hotline (800)943-0003

### Land Conservation Division Response Procedure
- **LCD staff person responding:** ____________________________
  1. **Contact the landowner/operator to verify location and gather details regarding the complaint.**
    **Date:** ______  **Time:** ______ am/pm.  **Person contacted:** ____________________________
  2. **Is site visit needed?** Y N  **If yes, perform site visit within 24 hours of complaint.**
  3. **When inspecting the site with others, document who attended the inspection (name, agency):**

    | Name | Agency |
    |------|--------|
    |      |        |
    |      |        |
    |      |        |
    |      |        |

  4. **If a winter spreading complaint, does plan/permit exists?** Y N
  5. **Was the application on lands noted as acceptable winter spreading areas?** Y N
  6. **Document site conditions and action taken:**

    __________________________________________________________
    __________________________________________________________
    __________________________________________________________
    __________________________________________________________
Appendix C

Agricultural Site
NOTICE OF ORDINANCE VIOLATION

LANDOWNER: ___________________________________ OPERATOR: ______________________________________

TOWNSHIP: _______________________________ SECTION: _______ ¼ SEC.: _______ FIELD # ________

STAFF COMPLETING REVIEW: _______________________________ DATE: ___________________

DESCRIPTION OF NONCOMPLIANCE:
(Violates Dane County Code of Ordinances, Chapter 14, Subchapter I)

14.20
☐ Application of liquid manure on frozen, snow covered or ice covered ground

14.14
☐ Unlimited livestock access to waters of the state preventing maintenance of self-sustaining sod cover

14.09
☐ Manure storage facility construction–No Permit
☐ Manure storage facility overflow

☐ Manure storage facility closure–No Permit
☐ Unconfined manure stack in WQMA

☐ Manure storage facility alteration–No Permit
☐ Direct runoff from feedlot to waters of the state

☐ Direct runoff from stored manure to waters of the state

COMMENTS:
________________________________________
________________________________________
________________________________________
________________________________________
________________________________________

DEADLINE FOR COMPLIANCE: DATE: ______________________ TIME: _________ am/pm
(Failure to comply will result in enforcement action.)

ON-SITE CONTACT: NAME: _____________________________________ DATE: __________

SIGNATURE: _____________________________________ DATE: __________

OWNER: HAND DELIVERED POSTED ON-SITE E-MAILED FAXED MAILED SENT CERTIFIED MAIL
OPERATOR: HAND DELIVERED POSTED ON-SITE E-MAILED FAXED MAILED SENT CERTIFIED MAIL

WHITE – COUNTY YELLOW – OWNER PINK – OPERATOR
## Appendix D
### Dane County Workplan

**Goal I. Maintain agricultural lands for long-term production.**

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Actions</th>
<th>Priority</th>
<th>Partnering Agencies</th>
</tr>
</thead>
</table>
| 1. Reduce or maintain all cropped fields to “T” or below. | 1. Promote and develop conservation plans on all agricultural land in Dane County to ensure compliance with NR 151. *(Target 750 landowner contacts/year)*
2. Use stormwater erosion control measures to minimize off site sediment delivery.
3. Work with landowners to install/maintain effective agricultural conservation practices.
4. Promote the use of the most recent soil loss models by landowners and operators. | High | LWRD, NRCS, DATCP, DNR, FSA |
| 2. Assist landowner with compliance of Ch. 14 and all NR 151 Agricultural Performance Standards, including TMDL implementation or select watersheds where feasible. | 1. Landowner certification and spot checks through Farmland Preservation Program.
2. Complete annual status reviews. *(Target 650/year)*
3. Utilize landowner compliance checklist *(Target 100/year)*
4. Respond to complaints in a timely manner.
5. Implement Dane County Stepped Enforcement Procedures.
6. Prioritize at the watershed level where feasible.
7. Conduct educational workshops, forums, and field demonstrations. *(Conduct 2/year)*
8. Utilize Dane County Land & Water Legacy, NR 153 and DATCP LWRM funding to achieve/maintain compliance with performance standards. | High | LWRD, DNR, P&D, DATCP, MAMSWaP MS4s, MMSD |
| 3. Maintain agricultural land viability | 1. Implement the recommendations of the Dane County Parks and Open Space Plan for Purchase development rights (PDR) on production agricultural areas.
2. Assist Towns in identifying key land characteristics to be used for developing and executing transfer of development rights (TDR).
3. Acquire conservation easements for natural resource protection. | Medium | LWRD, NGO, USDA, DATCP, DNR |

**Goal II. Manage crop nutrient sources in an economic and environmentally sound manner.**

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Actions</th>
<th>Priority</th>
<th>Partnering Agencies</th>
</tr>
</thead>
</table>
| 1. Farmers will understand the economic and environmental value of developing and implementing a nutrient management plan. | 1. Address nutrient management (NM) planning through conservation planning.
2. Provide Nutrient Management workshops for landowners to implement plans on their own. *(Conduct 2/year)*
3. Incorporate industrial waste, septage and sludge applications into Nutrient and Conservation Plans. | High | LWRD, NRCS, UWEX, DATCP |
4. Work with commercial fertilizer applicators, farmers, their employees and crop consultants to ensure application of nutrients according to nutrient management plans. *(Target 20,000 acres/year)*

5. Work with landowners to ensure compliance with NR 151 standards. *(Implement annual DATCP SEG Grant-approx 3,500 acres/yr.)*

6. Assist crop consultants with the development of a NM plan meeting the NRCS 590 standard.

7. Promote the use of the most recent nutrient management planning models by landowners and operators.

<table>
<thead>
<tr>
<th>2. Implement the Dane County Ch. 14 Waste Storage Ordinance.</th>
<th>1. Monitor and update ordinance requirements as needed to ensure compliance with NR 151.</th>
<th>High</th>
<th>LWRD, P&amp;D</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2. Review all NM and storage structure plans to ensure compliance with Ch. 14. <em>(5-10/year)</em></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3. Minimize manure runoff from all cropped fields</th>
<th>1. Explore alternative manure management options including the use of variable rate technologies.</th>
<th>High</th>
<th>LWRD, MAMSWaP MS4s, MMSD, UWEX</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2. Implement the recommendations of the Dane County Manure Feasibility Study.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Monitor and enforce Dane County Winter Spreading Ordinance. <em>(90-100 landowners)</em></td>
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<tr>
<td></td>
<td>4. Encourage manure brokering.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5. Explore potential for LWRD to assist with brokering TMDL sediment and phosphorus pollutant trading with permitted MS4s and WWTPs.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>6. Conduct on farm status reviews on nutrient management plans to ensure all cropland meets “T” soil loss levels.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Goal III. Protect and enhance in-stream, riparian, wetland, and upland habitat.**

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Actions</th>
<th>Priority</th>
<th>Partnering Agencies</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Restore and stabilize stream banks and shorelines in Dane County.</td>
<td>1. Continue to apply for nonpoint source and other applicable grants while considering the broader value of flora, wildlife, and water quality in addition to overall habitat.</td>
<td>High</td>
<td>LWRD, DNR NRCS, DATCP, NGO</td>
</tr>
<tr>
<td>2. Work with partner agencies NGOs and other conservation groups to identify critical stream corridors.</td>
<td>3. Refer to DNR Basin Plans for coordinated approach to prioritize areas based in water quality needs and updated 303 (d) listed waters.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Where applicable, use the stream corridor protection and management criteria outlined in the Dane County Parks and Open Space Plan to assist with streambank restoration.</td>
<td>5. Acquire permanent streambank easements using the Dane County Land and Water Legacy fund. <em>(1-5 miles/year per funding availability)</em></td>
<td></td>
<td></td>
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<td>---</td>
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</tr>
<tr>
<td>6.</td>
<td>Work with landowners to ensure compliance with NR 151 and ATCP 50 standards.</td>
<td>High</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>Explore options for long-term maintenance programs on county owned easements.</td>
<td>LWRD, DNR, NRCS</td>
<td></td>
</tr>
<tr>
<td>2. Restore wetland habitat where possible in Dane County.</td>
<td>1. Promote county, state and federal programs to assist landowners with technical and financial planning.</td>
<td>High</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Restore/acquire wetlands identified in water quality plans in Dane County using Land and Water Legacy fund.</td>
<td>LWRD, DNR, NRCS</td>
<td></td>
</tr>
<tr>
<td>3. Restore/enhance upland habitats in Dane County.</td>
<td>1. Promote county, state and federal programs to assist landowners with technical and financial planning.</td>
<td>Medium</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Refer landowners to partner agencies and, NGOs specializing in upland restoration and enhancement programs.</td>
<td>LWRD, NRCS, DNR, NGOs, FWS</td>
<td></td>
</tr>
<tr>
<td>4. Minimize conversion of wetlands to agricultural and urban development.</td>
<td>1. Map hydric soils and flood prone areas as educational tools (where not to build).</td>
<td>High</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Evaluate need for additional wetland/hydric soil regulation.</td>
<td>LWRD, CARPC</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Continue to avoid and mitigate through the Chapter 14 stormwater plan review and approval process.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. Continue to use the POSP and Conservation Fund to identify and acquire wetlands.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5. Use the Dane County Wetlands Resource Management Guide as a tool to protect and enhance wetlands in Dane County.</td>
<td></td>
<td></td>
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<td>5. Develop/expand invasive species programs (aquatic and terrestrial) aimed at preventing introduction of new species and reducing existing species</td>
<td>1. Hire an Aquatic Invasive species Coordinator in Dane County. <em>(Fall 2008)</em></td>
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<td>2. Develop an aquatic invasive species management plan for flora and fauna. <em>(2009)</em></td>
<td>LWRD, NRCS, DNR, UWEX, MAMSWaP MS4s, NGOs</td>
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<td>3. Educate water resource users on the impacts and actions they can take to reduce impacts and transfer.</td>
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<td>4. Work with partnering agencies to identify new threats and management alternatives for existing threats.</td>
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<td>5. Continue and or expand aquatic plant harvesting operations to manage existing Eurasian Water Milfoil infestation.</td>
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<td>6. Implement aquatic plant management plans and the experimental project on Lake Monona.</td>
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<td>8. Continue serving as Gypsy Moth program coordinator.</td>
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<td>9. Continue to implement eradication contracts through federal programs.</td>
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<td>10. Continue upland management efforts on county-owned property.</td>
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<td>11. Participate in development of programs to implement Dane County’s Water Classification project initiatives adopted by the Dane County Board.</td>
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**Goal IV. Protect and improve the quality of groundwater and surface water in Dane County.**

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<th>Objectives</th>
<th>Actions</th>
<th>Priority</th>
<th>Partnering Agencies</th>
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</table>
| 1. Seal unused wells in Dane County. | 1. Educate landowners to the importance of sealing unused wells. *(Seal 20-40 wells/year)*  
2. Refer landowners with wells to be abandoned to City of Madison-Dane County Public Health and UWEX for grant assistance. | High | LWRD, Dane County/City EH, DATCP, UWEX |
| 2. Continue to work with partnering agencies to protect recharge areas in Dane County. | 1. Map priority areas for infiltration & recharge.  
2. Educate developers, citizens, etc. on importance of protecting these areas.  
3. Provide interpretive materials and maps for use during site development and review.  
4. Protect areas by appropriate means (including purchase, inclusion into County comprehensive plan, restrict by ordinance & other means as necessary.)  
5. Work with developers to identify areas where demonstration of infiltration practices can be used for education.  
6. Incorporate and use the information, tools, criteria and guidelines identified in the Dane County Groundwater Protection Plan and coordinate with other local agencies.  
7. Implement Ch. 14 to ensure compliance with the infiltration and thermal standards. | High | LWRD, CARPC, WGNHS, USGS |
| 4. Protect springs in Dane County | 1. Identify and map springs in Dane County.  
2. Inform and educate landowners about the detriments of grazing, tiling, cropping, spraying, and building ponds.  
3. Encourage enhancement and preservation of recharge areas of springs during the plan review process.  
4. Encourage the use of buffers to protect springs | Medium | LWRD, NRCS, CARPC, WGNHS, USGS, MAMSWap, MS4s |
| 5. Reduce nutrients and associated pollutants from entering groundwater and surface water. | 1. Promote and review Nutrient Management Plans to ensure proper implementation at the field level. *(Target 20,000 acres/year)*  
2. Review and oversee implementation of manure storage construction and closure plans and all other pertinent standards and prohibitions in accordance with Ch. 14 and NR 151. *(5-10/year)*  
3. Administer Winter Spreading Ordinance. *(50,000-60,000 acres/year)*  
4. Provide financial assistance to municipalities for installing sediment control practices through the Urban Water Quality Grant Program. *(3-8 projects annually)*  
5. Provide planning and technical support for Yahara Lakes Legacy Partnership. | High | LWRD, DNR, DATCP, MAMSWap MS4s |
| 6. Collaborate on studies and research projects that will improve our understanding and ability to manage | 1. Support zebra mussels research on the Yahara Chain of lakes.  
2. Implement the Yahara Clean Project initiative.  
3. Where applicable, work with the UW Water | High | LWRD, DNR, UW-Madison, USGS, DATCP, UWEX |
water resources in Dane County.

4. Explore the feasibility of the LWRD developing water quality monitoring program.

Goal V. Implement all applicable Dane County erosion control and stormwater management (ECSM) and related programs consistently throughout the County.

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<th>Objectives</th>
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<th>Priority</th>
<th>Partnering Agencies</th>
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<tr>
<td>1. Work with all units of government in Dane County to ensure the minimum requirements of the ordinances are met.</td>
<td>1. Implement procedures for ensuring consistent municipal implementation 2. Offer technical and administrative training to municipal staff, developers and consultants 3. Update ECSM manual to include new technical information as needed. 4. Maintain email list of contractors, developers, consultants and municipal staff, and use to inform of changes to ECSM manual, workshops, etc 5. Maintain web page resources for implementation 6. Provide information &amp; education assistance detailing the importance of Dane County water resources. 7. Ensure implementation of related ordinances that improve the quality of stormwater runoff. (e.g. Ch. 80 lawn fertilizer and coal tar products requirements)</td>
<td>High</td>
<td>LWRD, Dane County Municipalities, DNR, NASECA, MAMSWaP MS4s</td>
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<td>2. Identify necessary improvements for inclusion in the ordinance and determine new methodologies to implement effectively.</td>
<td>1. Annual review of administrative policies and procedures to improve program delivery. 2. Continue to develop/research new methodologies to mitigate adverse effects of stormwater runoff. 3. Amend ordinance and ECSM manual as necessary as result of 1 and 2. 4. Ensure that the County Ordinance complies with NR 151.</td>
<td>Medium</td>
<td>LWRD, MAMSWaP MS4s, Dane County Municipalities</td>
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<td>3. Identify transitional areas that will undergo development and provide technical assistance when needed to ensure full implementation of the standards.</td>
<td>1. Review storm water management plans to ensure they comply with the Dane County Erosion Control and Stormwater Management Ordinance. <em>(600-800/year)</em></td>
<td>High</td>
<td>LWRD, CARPC, MAMSWaP MS4s</td>
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<td>4. Ensure county internal procedures for implementing ordinance are efficient and effective</td>
<td>1. Continue internal staff meetings to improve policy and procedure. 2. Work with other Dane County Departments to ensure compliance with NR 216 requirements.</td>
<td>Medium</td>
<td>P&amp;D, LWRD</td>
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<td>5. Pursue certification for Dane County to be certified by the DNR as a Local Qualified Program for the</td>
<td>1. Work with DNR Regional stormwater staff on a comprehensive approach to become certified while assuring interagency needs are met.</td>
<td>Medium</td>
<td>LWRD, DNR</td>
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### Goal VI. Partner with and involve citizens on soil and water protection and improvement initiatives in Dane County.

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<th>Priority</th>
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<td>1. Support individuals along with watershed groups and organizations in their education of citizens about resource improvement; pollution prevention.</td>
<td>1. Continue annual water resource management meetings with DNR regional staff to maintain common resource management goals are identified and program implementation is consistent with NR 151 and watershed planning.</td>
<td>High</td>
<td>LWRD, DNR, MAMSWaP MS4s, NGOs</td>
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<td>2. Provide technical assistance and outreach materials when available.</td>
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<td>3. Promote and/or support the efforts of others in the formation of watershed organizations and friends groups throughout Dane County.</td>
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<td>4. Continue to provide support to Citizen Monitoring program in the Rock River Basin and other areas of Dane County</td>
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<td>5. Continue Take a Stake in the Lakes Days and all associated programs including “Dane County Waters Champion” recognition.</td>
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<td>6. Give presentations to groups, associations and organizations on various topics relating to water quality when invited.</td>
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<td>2. Educate urban and rural residents on health and value of land and water resources and protection measures.</td>
<td>1. Use media campaigns, flyers, newsletter articles, annual reports, websites, presentations, videos, editorial board meetings, displays at meetings, expos and other venues, kiosks, bulletin boards, etc. to disseminate information.</td>
<td>Medium</td>
<td>LWRD, DNR, UWEX, MAMSWaP, Yahara Lakes Legacy Partnership</td>
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<td>2. Coordinate with MAMSWaP Information &amp; Education Plan implementation, including Plant Dane native vegetation grants.</td>
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<td>3. Coordinate with any outreach plans that emerge from the Yahara Lakes Legacy Partnership.</td>
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<td>4. Use watershed and agricultural newsletters to educate and promote compliance with programs and goals including the ag requirements of the Dane County EC/SW Management Ordinance.</td>
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<td>3. Educate and inform water users in Dane County about the threats posed by aquatic and terrestrial invasive and exotic species.</td>
<td>1. Coordinate with the Dane County Lakes and Watershed Commission, Dane County Parks Commission and WDNR on distribution of educational materials relating to invasives.</td>
<td>High</td>
<td>LWRD, DNR, UWEX, DATCP, Dane County Sheriff Dept.</td>
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<td>2. Incorporate information into Dane County Boater safety classes.</td>
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<td>3. Administer the educational components of aquatic and terrestrial invasive species program.</td>
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<td>4. Inform and educate county, municipal, and town officials on the</td>
<td>1. Explore development of educational briefing for newly elected officials on responsibilities and programs of Dane County agencies.</td>
<td>High</td>
<td>LWRD, UWEX, MAMSWaP MS4s</td>
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| Health and value of land and water resources in Dane County. | 2. Invite other elected officials as appropriate.  
3. Continue to offer rural and urban tours to committees and elected officials that focus on land and water conservation initiatives. |  
| 5. Promote sustainable recreational opportunities in Dane County | 1. Continue to implement the POSP recommendations to preserve and create parkland and other natural resource recreational opportunities.  
2. Where applicable, assist in program delivery to implement recreational objectives outlined in the Dane County Comprehensive Plan.  
3. Expand educational and recreational opportunities with the potential of implementing an indoor and outdoor classroom at the Lussier Heritage Center.  
4. Promote development and use of comprehensive trail guides such as the Yahara Water Trail Guide.  
5. Work with partnering organizations to identify funding mechanisms that promote recreation in Dane County.  
6. Conduct a Yahara Lakes recreational use survey to update the 1995 study. | Medium  
LWRD, DNR |  
| 6. Make grants available to local units of government and non-profits to protect and enhance land and water resources and to help carry out the goals of the Parks and Open Space Plan. | 1. Provide grant opportunities through the Conservation Fund Grant Program, Park Partner Match Program, Scheidegger Trust Fund, Plant Dane Matching Program, and Dane County Environmental Council.  
2. Continue to build awareness among partners on County grant opportunities.  
3. Provide guidance and assistance to applicants on grant project proposals and applications. | Medium  
LWRD, UWEX |  

**Partnering Agencies Defined**

LWRD - Dane County Land and Water Resources Department  
UWEX - Dane County University of Wisconsin Extension  
DNR - Wisconsin Department of Natural Resources  
DATCP - Wisconsin Department of Agriculture, Trade and Consumer Protection  
P&D - Dane County Department of Planning and Development  
EH - Dane County Environmental Health Department  
WG&NHS - Wisconsin Geologic & Natural History Survey  
FSA - Farm Service Agency  
NRCS - Natural Resource Conservation Service  
CARPC - Capital Area Regional Planning Commission  
MAMSWaP MS4s - Madison Area Municipal Storm Water Partnership Municipal Storm Sewer Separate Governmental Entities  
USGS - United States Geological Survey  
NGO - Non Governmental Organization
References


Brynildson, Clifford; Day, Elizabeth; Grzebieniak, Gayle; Osterby, Kurt. *Surface Water Resources of Dane County*. Wisconsin Department of Natural Resources, 1985.


Dane County Land Use Transportation Plan. Dane County Regional Planning Commission, June 1997.


Dane County Parks and Open Space Plan. Dane County Parks Division, December 2007.


Dane County Water Quality Plan. Dane County Regional Planning Commission, September 2004.


Glossary

**Animal Damage Control (ADC)** A federal program of APHIS, responsible for reducing animal damage.

**Animal Unit** A mature beef animal or an equivalent number of other animals.

**Animal Waste Management Program** A regulatory program administered by the DNR that seeks to identify and correct animal waste-related water quality problems.

**Southern Area Association of Land Conservation Committees** Any one of eight area divisions of WLWCA in Wisconsin, each containing from seven to eleven member county LCCs.

**Army Corps of Engineers (ACOE)** The federal agency responsible for issuing permits to allow alteration of wetlands.

**ATCP 50** The chapter of Wisconsin’s Administrative Code that implements the Land and Water Resource Management Program as described in Chapter 92 of the state statutes.

**Best Management Practices (BMPs)** The most effective practice or combination of practices for reducing nonpoint source pollution to acceptable levels.

**Chapter 92** The portion of Wisconsin statutes that outlines the soil and water conservation, agricultural shoreland management, and animal waste management laws and policies of the state.

**Clean Sweep Programs** A state program, administered in part by DATCP and DNR, that helps people dispose of agricultural pesticides, household hazardous wastes, and other toxic materials.

**Conservation Plan** A record of decisions and intentions made by land users regarding the conservation of the soil, water, and related natural resources of a particular unit of land.

**Conservation Reserve Enhancement Program (CREP)** An add-on to the CRP program which expands and builds on CRP’s success.

**Conservation Reserve Program (CRP)** A provision of the federal Farm Bill that takes eligible cropland out of production and puts it into grass or tree cover for 10-15 years.

**Cooperative Extension Service (CES)** The educational outreach agency of the USDA.

**Cooperator** A landowner or operator who is working with or has signed a cooperative agreement with a county LCC.

**County Conservationist** County Land Conservation Division Manager, responsible for implementing programs assigned to the LCD and for supervising LCD staff.
Critical Sites  Sites that are significant sources of nonpoint source pollution upon which best management practices must be implemented.

Cultural Sites  Sites that are significant for historical or archeological reasons.

Decision Makers  When used in this document, this term refers to anyone who makes decisions about the land or water resources. This includes landowners, land users, citizens, and elected officials.

Department of Administration (DOA)  The department of state government that provides the Governor fiscal management information and policy alternatives for the preparation of Wisconsin’s budget. The department also analyzes administrative and fiscal issues faced by the state and recommends solutions.

Department of Agriculture, Trade and Consumer Protection (DATCP)  The state agency responsible for establishing statewide soil and water conservation policies and administering the state’s soil and water conservation programs. DATCP administers state cost-sharing funds for a variety of LCC operations, including support for staff, materials, and conservation practices.

Department of Natural Resources (DNR)  The state agency responsible for managing state owned lands and protecting public waters. DNR also administers programs to regulate, guide, and assist LCCs, LCDs, and individual land users in managing land, water, fish, and wildlife.

Department of Revenue (DOR)  The state agency that administers state tax laws, including the law related to the Farmland Preservation Program.

Department of Workforce Development (DWD)  Formerly the Department of Industry, Labor and Human Relations (DILHR), the state agency with conservation-related responsibilities that include the enforcement of construction site erosion control standards for one and two-family dwellings and the regulation of underground storage containers.

District Conservationist (DC)  The NRCS employee responsible for administering federal conservation programs at the local level.

Environmental Protection Agency (EPA)  The agency of the federal government responsible for carrying out the nation’s pollution control laws. It provides technical and financial assistance to reduce and control air, water, and land pollution.

Environmental Quality Incentives Program (EQIP)  A federal program that provides technical and cost-sharing assistance to landowners for water quality protection.

Farm Service Agency (FSA)  The USDA agency that administers agricultural assistance programs including price supports, production controls, and conservation cost-sharing.

Farmland Preservation Program (FPP)  A DATCP land-use program under Chapter 91 of the Wisconsin statutes that helps preserve farmland through local planning and zoning, promotes soil and water conservation, and provides tax relief to participating farmers.
Farm and Ranch Lands Protection Program (FRPP)  An NRCS program that helps farmers keep productive land in agriculture.

Farmstead Assessment for Groundwater Protection (Farm*A*Syst)  A UWEX program that helps rural residents keep their water supplies clean through step-wise assessments of each farmstead activity or structure that could cause contamination.

Fish and Wildlife Service (FWS)  The federal agency that manages the Horicon, Necedah, Trempealeau, and Fox River National Wildlife Refuges. The FWS also works with participating LCCs to protect and restore wetlands through a matching grants program.

Forest Service (FS)  The USDA agency that manages the Chequamegon and Nicolet National Forests in northern Wisconsin. The Forest Service also provides funding and technical assistance to counties through the DNR Forester.

Forestry Assistance Program  The DNR program designed to help private landowners manage their forest resources. DNR foresters assist forest owners with planting, harvesting, and stand improvement.

Forestry Incentives Program (FIP)  The NRCS program that provides cost-share assistance to private forest landowners for developing and improving private woodlots.

Geographic Information System (GIS)  A computerized system of maps and layers of data about land including soils, land cover, topography, field boundaries, roads, and streams. Such combinations (or layers) of data are otherwise impossible to achieve.

Highly Erodible Land (HEL)  Land that has a high potential for soil erosion as defined by the NRCS.

Lake Management Program  A DNR program designed to maintain a healthy and diverse aquatic environment for Wisconsin’s lakes.

Land and Water Conservation Board (LWCB)  An advisory body to DATCP. The LWCB reviews DATCP’s plans and reports, and makes policy recommendations.

Land and Water Resource Management Plan  A locally developed and implemented multi-year work plan that emphasizes stakeholder involvement and program integration. The plan includes a resource assessment, identifies nonpoint pollution problems and priorities, establishes a progress tracking system, and describes an approach for coordinating information and implementation programs with other local, state, and federal agencies, communities, and organizations.

Land Conservation Committee (LCC)  The portion of county government empowered by Chapter 92 of the Wisconsin Statutes to conserve and protect the county’s soil, water, and related natural resources.

Memorandum of Understanding (MOU)  An agreement between two or more public entities that typically involves one providing the other with services, funding, or assistance.
National Association of Conservation Districts (NACD)  NACD serves as the national voice for the conservation district movement. NACD pools the experience of 3,000 districts (and LCCs) in developing national conservation policies.

National Resource Inventory  Monitors the status and trends of the nation’s natural resources.

Natural Resources Conservation Service (NRCS)  The part of the USDA that provides soil survey, conservation planning, and technical assistance to local land users.

Nonpoint Source Pollution (NPS)  Pollution from many small or diffuse sources. Livestock waste that finds its way into a stream and causes water pollution is an example of a nonpoint source pollution.

Nonpoint Source Pollution Abatement Program  A DNR water quality program under Chapters 120 and 281 of the Wisconsin Statutes that provides technical assistance and cost-sharing to landowners to develop and maintain management practices that prevent or reduce nonpoint source water pollution.

Nutrient and Pest Management Program  A program promoting agricultural practices that sustain resources and maintain profitable farms. It provides farmers with the information they need to make management decisions on crop nutrient and pest control strategies. The program also establishes farmer-managed, on-farm demonstrations that display sustainable agricultural practices.

Public Law 566 (PL-566)  Authorizes NRCS to help communities develop projects that protect small watersheds from flooding or that protect water quality through land treatment plans.

Resource Conservation and Development (RC&D)  A USDA program administered by NRCS that focuses on utilizing and conserving natural resources for economic development.

Rural Clean Sweep  A DATCP program that provides funds to county agencies to conduct projects that help farmers properly dispose of pesticides and other toxic materials found around farmsteads.

Sodbuster  A conservation provision of the 1985 federal Farm Bill. It requires a conservation plan for highly erodible land that was not cropped between 1981 and 1985.

Soil and Water Resource Management Program (SWRM)  A DATCP program that provides counties with funds to hire and support Land Conservation Department staff and to assist land users in implementing DATCP conservation programs.

Soil Loss Tolerance (“T”)  The erosion rate in tons per acre per year at which a soil can maintain productivity.

Soil Survey  NRCS conducts the National Cooperative Soil Survey and publishes soil survey reports. Soils data is available digitally for soil potential ratings, interpretations, and for Geographical Information Services.
**Solid and Hazardous Waste and Recycling Program** A DNR program that works to reduce the volume of waste produced in Wisconsin. The program also helps insure that wastes are handled, stored, recycled, and disposed of properly.

**Stewardship Incentives Program (SIP)** A federal forestry program that provides cost-share assistance to private landowners to manage their forest lands for economic, environmental, and social benefits.

**Sustainable Agriculture** Agricultural practices that enhance environmental quality, provide food and fiber, and enhance the quality of life for farmers and society as a whole.

**Sustainable Agriculture Program** A DATCP program that funds individual farmer and agency efforts to implement sustainable agriculture demonstration projects.

**Swampbuster** A conservation provision of the federal Farm Bill that discourages conversion of wetlands for agricultural purposes.

**United States Department of Agriculture (USDA)** The branch of federal government with responsibilities in the areas of food production, inspection, and storage. Agencies with resource conservation programs and responsibilities (such as FSA, NRCS, Forest Service, and others) are agencies of the USDA.

**United States Department of Interior (USDI)** The branch of the federal government responsible for managing public lands. The Fish and Wildlife Service, National Park Service, and Bureau of Land Management are conservation-related agencies in the USDI.

**University of Wisconsin-Extension (UWEX)** The outreach of the University of Wisconsin system responsible for formal and informal educational programs throughout the state.

**Watershed** The geographic area from which a particular river, stream, or water body receives its water supply.

**Wetlands Reserve Program (WRP)** A provision of the federal Farm Bill that compensates landowners for voluntarily restoring and protecting wetlands on their property.

**Wildlife Damage Abatement and Claims Program** A DNR-funded program that establishes county-administered Wildlife Damage Abatement and Claims programs to assist landowners with excessive levels of crop damage from deer, geese, and bear.

**Wildlife Habitat Incentives Program (WHIP)** A federal program to help improve wildlife habitat on private lands.

**Wisconsin Association of Lakes** An organization that preserves and protects Wisconsin inland lakes and waterways, promotes public policy, advances education, and strengthens local leadership through a united voice of lake associations, lake management districts, sanitary districts, municipalities, individuals, families, and corporations.

**Wisconsin Association of Land Conservation Employees (WALCE)** A membership organization that represents all of Wisconsin’s Land Conservation Department employees.
**Wisconsin Counties Association (WCA)**  An association of county governments established in 1935 for the protection of county interests and the promotion of better county government. WCA is a membership organization that represents Wisconsin’s 72 county boards of supervisors and nine county executives.

**Wisconsin County Code Administrators (WCCA)**  An association of county employees who work in various departments enforcing land use and zoning codes, along with agents for state departments who enforce certain administrative codes.

**Wisconsin Lakes Partnership**  A partnership between UWEX and the Wisconsin Association of Lakes that strives to maintain a healthy and diverse aquatic environment for Wisconsin’s lakes. The partnership involves lake organizations, local governments, and concerned citizens in its approach to good lake management, which includes self-help volunteer monitoring (a way to educate citizens about lake ecology while providing quality lake data), aquatic plant management, and technical and financial assistance to lake communities.

**Wisconsin Land and Water Conservation Association (WLWCA)**  A membership organization that represents the state’s 72 County Land Conservation Committees and Departments.