

# **Pierce County Land and Water Resource Management Plan**

**April 2011**

Pierce County  
Land Conservation Committee

## **In Cooperation With**

Pierce County Land Conservation Department  
Pierce County Department of Land Management  
Pierce County Nugget Lake County Park  
River Country Resource Conservation and Development Council  
University of Wisconsin Extension  
Wisconsin Department of Natural Resources  
USDA - Farm Service Agency  
USDA - Natural Resources Conservation Service

**County Board Chair/Interim Administrative Coordinator**

Paul Barkla

**Administrative Coordinator**

Vacant

**Land Conservation Committee**

Jerry Kosin, Chair

LeRoy Peterson, Vice-chair

Dewayne Benedict

Mel Pittman

Don Rohl

Jim Ross

**Citizens Advisory Committee Members (invited)**

Don Acker	Farmer, Bay City
Bill Bechel	Farmer & Union Town Chairman, Plum City
Dean Bergseng	Farmer & Active Farm Bureau Member, River Falls
Barry Foy	Town of Ellsworth
Dave Esterby	Farmer, Town of Hartland
Dennis Potts	Town of Isabelle
Diana Smith	Town of River Falls
Gary Peterson	Town of Spring Lake
Jim Harris	Town of Trimble
Jeff Holst	Farmer, Town of Diamond Bluff, County Supervisor
Jerry Duden	Town of Maiden Rock
Jerry Kosin	Farmer, Town of Oak Grove, County Supervisor
John Eager	Town of Rock Elm
Leroy Peterson	Farmer, Town of Clifton, County Supervisor
Dwayne Benedict	Farmer, Land Conservation Committee FSA Representative
Melvin Pittman	Farmer, County Supervisor
James Ross	Small business owner, County Supervisor
Don Rohl	Farmer, County Supervisor
Lorne Hanson	Town of Gilman
Paul Shingledecker	Town of Salem
Richard Bunce	Town of Trenton

Ronald Kannel	Farmer, Town of El Paso
William Bechel	Farmer, Town of Union
Tim Colbenson	Farmer, Spring Valley
Terry Cuddy	Rush River Produce, Maiden Rock
Faye Jones	Small Business Owner, Spring Valley
Greg Kerr	Kerr Agronomics, Inc., River Falls
Larry Knutson	Farmer, Ellsworth
Arby Linder	Eau Galle/Rush River Rod & Gun Club & Martell Town Chairman
Eric Forward	Kinnickinnic River Land Trust
Greg Nelson	Farmer, Elmwood
Jay Richardson	Farmer, Spring Valley
Nathan Sears	Farmer, Ellsworth
Tony Schafer	Farmer, Spring Valley
Rick Remmington	West Wisconsin Land Trust

**Technical Work Group Members (invited)**

Greg Andrews	University of Wisconsin – Extension
Kristin Belling	Wisconsin Department of Natural Resources
Robert Baczynski	Wisconsin Department of Natural Resources
Mark Biel	Natural Resources Conservation Service
Jim Devlin	Wisconsin Department of Natural Resources
Marty Engel	Wisconsin Department of Natural Resources
Dennis Fritz	Pierce County Land Conservation Department
Harvey Halvorson	Wisconsin Department of Natural Resources
Jim Kleinhans	Pierce County Land Management
Paul Laliberte	Wisconsin Department of Natural Resources
Linda Paul	USDA Farm Service Agency
Andy Pichotta	Pierce County Land Management Department
Scott Schoepp	Nugget Lake County Park
Karen Voss	Wisconsin Department of Natural Resources
Dan Zerr	University of Wisconsin – Extension
Gary Zielske	Wisconsin Department of Natural Resources

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# Executive Summary

## 1. Introduction

The Pierce County Land and Water Resource Management Plan has been an effective document to guide conservation work since it was first developed back in 1999. The plan was revised in 2005 and is now receiving a second update in 2011. This revision will guide resource conservation work in Pierce County for the next ten years. The environmental issues of Pierce County have not changed much in the last decade. Nutrient and soil loss to our surface waters, degradation of our ground water, reduction of soil productivity and loss of prime farmland are still the main threats. Fish and wildlife habitat protection and enhancement is another vital part of this plan and we will lean on our conservation partners to assist us in meeting all goals. While the issues have not changed, Pierce County is trying to change how we go about meeting the goals of our plan. Funding for conservation activities has become more difficult to secure which creates an additional obstacle to conservation success. In order to make sure we best use our available financial resources, Pierce County will develop a process to identify areas within sub-watersheds that have the greatest potential to provide the greatest benefit to our natural resources for the least amount of public and private investment. Various private, local, state and federal funding sources will be leveraged to conduct the land and water conservation efforts detailed in the plan. Ongoing communication and interagency cooperation is essential if we are going to successfully implement this plan.

Our plan is organized into five major sections.

### **Introduction:**

Describes the plan development process and requirements, and related plans and ordinances

### **Resource Assessment:**

Provides information about topography, and soils, agricultural land, groundwater, surface water, woodlands, wildlife and population. It also reports natural resource concerns that were identified and prioritized during the planning process.

### **Goals, Objectives, and Actions:**

Provides a detailed implementation strategy for each of five major plan goals. For each goal, objectives and actions are identified. A separate chapter details the implementation approach for the agricultural performance standards.

### **Plan Implementation:**

Describes how the Land Conservation Department will work with various conservation partners to implement the plan. A work plan lists partner agencies, potential financial partners and evaluation measures for each objective.

### **Evaluation and Monitoring:**

Describes how plan accomplishments will be tracked.

## **A. Public Participation**

### **Advisory Groups**

A citizen's advisory committee included individuals representing farmers, businesses, conservation organizations and concerned citizens. The citizens advisory committee identified natural resource concerns; reviewed goals, objectives and activities from the 2006 plan; and helped prioritize activities.

A technical work group was made up of staff from agencies whose work involves land and water resource conservation in Pierce County. The technical work group analyzed resource information; considered the citizens advisory committee and survey recommendations; reviewed goals, objectives, and activities from the 2006 plan; and provided guidance for implementation of the agricultural performance standards. Pierce County Land Conservation Committee members were invited to all meetings. All groups reviewed and provided comments on a draft of the plan document. A public hearing for the Pierce County Land and Water Resource Management Plan was held on May 26, 2011.



### **Public Opinion Survey**

A public opinion survey was conducted as part of the planning process in 1999. It was not repeated for this planning process, but was used as a starting point when the citizen's advisory committee and the technical work group prioritized resource concerns in 2005 and 2011. The priority order of resource concerns below directed the order of plan goals.

- Groundwater and surface water quality
- Loss of prime farmland and prime agricultural soils / Soil

erosion and loss of soil productivity

- Loss of environmentally sensitive lands
- Loss wildlife habitat
- Forestry issues

### **3. Current Land Use Issues**

In addition to prioritizing the resource concerns, the advisory groups identified priority issues and threats in Pierce County. Citizen and technical advisory members were most concerned with these threats to our resources:

- Sinkholes
- Unused wells
- Unused manure storage structures
- Concentrated flow channels in cropland fields (gully erosion)
- Cropland erosion rates (tillage methods, crop rotations)
- Nutrient applications to cropland
- Nutrient and pesticide applications to residential and commercial sites (lawn care applications)
- Loss of farmland to rural residential development
- Loss of wildlife habitat on sensitive lands (CRP lands back into production)
- Terrestrial and aquatic non-native invasive species
- Sedimentation and nutrient loading to streams and rivers
- Stream bank erosion and loss of in-stream habitat

### **Agricultural Land**

Agricultural land dominates the landscape in Pierce County with over  $\frac{3}{4}$  of the land in agricultural use. Current trends are toward larger livestock farms and cash grain farms. Small farms with

limited number of livestock are prevalent in several townships throughout the county.

### Groundwater Resources



streams.

Groundwater is the source of drinking water for residents of Pierce County. Groundwater is also important for supplying cold, fresh water to rivers and

The Department of Natural Resources Basin Plan ranks watersheds for groundwater based upon available data on the presence of contaminants, the evaluation of different land uses and the susceptibility of groundwater contamination associated with those land uses. All Pierce County watersheds are ranked high for groundwater contamination potential.

Drinking water test results are available from a variety of sources including a comprehensive groundwater study from 1988-90, samples collected by the UW Stevens Point Environmental Task Force lab (1988-1996), DATCP and DNR Rural Well Survey (1992), the Kinnickinnic River Priority Watershed Project, and samples collected at the Pierce County Fair. In summary, based on a variety of testing programs, 10-30% of wells sampled in the county have nitrate levels exceeding 10 mg/l. Coli form bacteria drinking water test results from 1988-1996 showed that of 261 samples analyzed, 17.6% had a positive test for bacteria.

### Surface Water Resources

The surface waters of Pierce County occupy the St. Croix and Lower Chippewa Basins. Pierce County has



approximately 2,000 miles of streams, but only about 27 percent of them are perennial or continually flowing. There are 33 inland lakes or ponds covering 387 acres in the county. Thirteen of the

lakes are associated with the backwaters of the Mississippi River. There are two man-made impoundments, Nugget Lake and the Spring Valley Reservoir.

Department of Natural Resources records show that Pierce County trout streams have improved substantially during the past 50 years.<sup>1</sup> In 1980, Pierce County had 17 trout streams for a total of 97 miles.<sup>2</sup> Currently, there are 47 trout streams for a total of 159 miles.<sup>3</sup> Class I trout streams increased from 11 miles to 47.7 miles and Class II streams increased from 55 miles to 108 miles.

Water quality and habitat are improving on most streams. However, certain streams or stream segments suffer from high water temperatures, weak spring flow, poor habitat, flooding, bank erosion, sedimentation and nonpoint pollution from runoff from agricultural and urban lands. Runoff from Pierce County watersheds also causes sedimentation and nitrification to Nugget Lake and the Mississippi and St. Croix Rivers.

Runoff from urban and agricultural land causes water quality impairment to

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<sup>1</sup> Unpublished DNR files, Rush 2000, Plum Report 1999.

<sup>2</sup> Wisconsin Trout Streams. DNR 1980.

<sup>3</sup> Wisconsin Trout Streams. Wisconsin Department of Natural Resources. 2002.

lakes, rivers and streams. Runoff from intensive row crop farming, heavy nutrient applications (both residential and agricultural) and poor manure utilization practices contribute to increased plant and algal growth in lakes and streams and may lead to fish kills from oxygen depletion. A limited number of barnyards still exist that negatively impact stream banks.



### **Woodlands**

Forestland is one of the major natural and aesthetic features of Pierce County. Good forest management can sustain the full range of economic, ecological and social benefits that forests provide. Streamside forest vegetation helps to slow runoff, filters sediment and nutrients from runoff and increases infiltration. The forest resource also provides habitat for a wide variety of wildlife.

Wisconsin's forest tax law programs have been popular with Pierce County residents and will likely remain popular as property tax assessments continue to rise on wooded properties. There are currently 26,720 acres enrolled in the forest tax law programs in Pierce County.

There are 105,050 acres of forestland in Pierce County according to the USDA Forest Service (potential sampling error of +/-25%). The greatest threats to Pierce County forestland are losses to residential development and impacts of non-native invasive plant species.

### **Wildlife**

Pierce County's land and water resources provide habitat for a wide variety of game and non-game wildlife. Grouse, turkeys and many songbirds

utilize the woodlands and pheasants and other grassland birds are making a comeback because of conversion of marginal agricultural land to grasslands through the federal Conservation Reserve Program.

Although wetland habitat is generally lacking, the Mississippi River bottomlands provide unique and important habitat for waterfowl and other wetland birds and mammals. In addition, the Mississippi River and associated bluffs are a major migratory corridor for a wide variety of both upland and lowland birds.

### **Population**

The 2009 population estimate for Pierce County was 40,081. Recent (2005–2010) population growth rates are highest in the north and west portion of the county. Housing development in the rural areas of Pierce County is typically in locations of scenic beauty, especially along the St. Croix or Mississippi River bluffs or on wooded or hilly sites. The highest housing densities are in towns with the best soils for farming.

Urbanized areas pose special threats to water quality. Urbanization disrupts the natural course of water as it moves across a watershed. Removing vegetation and constructing impervious surfaces such as roads, parking lots, driveways, sidewalks and rooftops greatly increases the amount and rate of storm water runoff. Water level fluctuations increase because of lower stream base flow from reduced infiltration and increased storm water flow from impervious surfaces. These changes may bring flooding, increased water temperatures, decreased oxygen levels, greater channel erosion and increased sedimentation. As storm water

runoff crosses the urbanized landscape, it picks up fertilizers, pesticides, debris, salt, oil, grease, other toxic substances and sediments leading to decreased water quality.

#### **4. Performance Standards and Prohibitions Implementation Strategy**

The Pierce County Land Conservation Department (LCD) will work together with the Department of Natural Resources (DNR) and other agencies to implement the agricultural performance standards in Pierce County.

The agricultural performance standards strategy involves the following steps:

1. Conduct information and education activities
2. Select and evaluate parcels for compliance
3. Document and report compliance status
4. Offer technical assistance and cost sharing
5. Administer technical assistance and cost sharing
6. Conduct enforcement activities (DNR lead)
7. Monitor compliance
8. Track program activities and progress

#### **Priority Farm strategy**

Priority farms for detailed on-site review will be selected using the priority criteria below.

#### **Priority Farms**

1. Working Lands Initiative  
Agricultural Enterprise Areas  
contract enrollments and landowners

- receiving cost share contracts from County or State funds
2. Farms without conservation plans or nutrient management plans
3. County Waste Storage Ordinance Applicants
4. Livestock facilities or cropland/pastureland located in Surface Water Quality Management Area of a DNR designated Outstanding/Exceptional Resource Water or 303(d) listed water
5. Complaints

#### **5. High Priority Work Plan Activities**

High priority activities focused on surface and groundwater quality protection and on the preservation of prime agricultural land. Additional goals will be addressed by partner agencies as well as LCD staff. Many of the objectives under goals one and two also provide measurable outcomes for goals three, four and five.

#### ***GOAL 1: Improve and protect Pierce County surface and groundwater quality.***

1. Develop and implement a targeted watershed approach based on potential to deliver sediment and nutrients to surface water
2. Provide technical assistance and cost sharing for installation of water quality best management practices (BMP'S)
3. Implement a systematic approach to evaluate and determine compliance with Ag Performance standards (NR151)
4. Encourage landowners to install grass filter areas to reduce erosion and sediment delivery to surface waters

**GOAL II: Encourage the preservation of prime agricultural lands and improve the health and productivity of agricultural soils.**

1. Promote the protection of farmland through Implementation the Wisconsin Working Land Initiative (WLI)
2. Encourage landowners to adopt modern production methods that reduce topsoil loss

being accomplished. Evaluation measures are listed for each plan objective in tables within the plan. Measures of plan success include resource monitoring, practice completion, assistance provided, and compliance with standards. A plan evaluation session will be held each year during a regularly scheduled Land Conservation Committee meeting.

**Goal III: Encourage the preservation of environmentally sensitive land for wildlife habitat, water quality, and scenic values.**

**Goal IV: Encourage good stewardship and management of woodlands.**

**Goal V: Encourage wildlife habitat restoration and maintenance.**

**6. Progress tracking and Evaluation**

Plan evaluation assesses whether the objectives and actions of the plan are

**Table S-1. Annual Staff and other Funding Needs for Plan Implementation (2012)**

<b>Goals</b>	<b>Staff Hours</b>	<b>Estimated Financial Need</b>	<b>Potential Financial Partners</b>
Goal 1: Groundwater and surface water	7,880	Estimating financial need not practical until specific conservation BMP's are planned.	County DATCP DNR NRCS NGO's Landowners
Goal 2: Prime farmland and soils	1,600		
Goal 3: Environmentally sensitive lands	120		
Goal 4: Forestry	240		
Goal 5: Wildlife	120		
Educational Activities	240		
Other LCD Activities	200		
<b>TOTAL</b>	<b>10,400</b>		

## Chapter 1. Introduction



The Pierce County Land and Water Resource Management 1999 Plan was updated in 2005 and 2011. The plan guides the Land Conservation Department in its efforts to conserve and protect natural resources. Information and guidance is also provided for citizens, county government and state and federal agencies.

Goals are developed for individual resource concerns that were identified in the planning process. Although the resources are treated separately in the plan--they are inter-related, as are the activities designed to protect them. For example, methods used to manage forest resources affect water quality and wildlife habitat. In addition, an activity like cropland conservation planning protects both soil resources and groundwater and surface water quality.

### Plan Development Process

The focus of plan development was to identify and prioritize land and water resource issues of concern and to develop strategies to address these concerns. A public opinion survey gathered information to guide development of the original plan in 1999. Survey results were reviewed with the two groups who assisted with plan development in the fall of 2005 and again in 2011. A citizen's advisory committee included individuals representing farmers, businesses, conservation organizations, local government and concerned citizens. A technical work group was made up of staff representing agencies involved in land and water resource conservation and protection in Pierce County. The advisory committee met twice to identify concerns, provide input to prioritize plan action items and review plan goals and action items. The technical work group met twice to consider the

citizen's survey and advisory committee concerns; review goals, objectives, and activities and provide guidance for implementation of the agricultural performance standards. Pierce County Land Conservation Committee members were invited to both work group meetings. All groups reviewed and provided comments on drafts of the plan document.

### DNR Participation

ATCP 50 requires counties to consult with DNR and identify how DNR will assist landowners to achieve compliance with performance standards and prohibitions. The Department of Natural Resources was an active player in the update of the Pierce County Land and Water Resource Management Plan.

The Land Conservation Director invited basin leaders from the St. Croix River Basin and the Lower Chippewa Basin to provide input and designate participants for the planning process. Several DNR staff members participated as members of the technical work group (see title page). They provided input at meetings and involved appropriate DNR staff in review of the draft plan. Through this input and review, the DNR helped to identify key problem areas and set goals and objectives.

### Plan Requirements

The County Land and Water Resource Management Planning Program was created through amendments to Chapter 92.10 of the Wisconsin Statutes in Wisconsin Act 27 (the 1997-1999 Biennial Budget Bill). The goal of the amendment was to create a planning process that would:

- Rely on a locally led process for plan development and implementation;
- Allow for maximum flexibility with

various program grants and funding sources;

- Encourage comprehensive watershed based efforts without excessive planning;
- Reward innovation and cost effectiveness;
- Enable integration of programs and funding sources;
- Make use of a wide variety of implementation tools; and
- Ensure meaningful program evaluation and accountability.



The purposes of the Land and Water Resource Management Planning Program are to conserve long-term soil productivity, protect the quality of

related natural resources, enhance water quality, and focus on severe soil erosion problems (Chapter 92.10(2)). The Pierce County Land Conservation Committee has interpreted this purpose broadly to include priority natural resource concerns identified by the citizens advisory committee and the technical work group with the help of a 1999 countywide public opinion survey. The plan was not intended to include an exhaustive inventory of land and water resources in Pierce County. Instead, it drew upon existing inventory information from previously prepared documents. The plan is consistent with the planning requirements in ATCP 50.

### **Landowner Notification**

As a requirement of the land and water resource management planning program, the Pierce County Land Conservation Committee must notify landowners and land users if soil erosion rate determinations are made, and provide an opportunity for these individuals to comment. Erosion rates for individual fields were not assessed in the preparation of this plan. Landowners were

notified of the Pierce County Land and Water Resource Management Plan contents in the notice for the public hearing. Landowners may receive individual determinations involving conditions on their property through a) conservation plans, b) compliance status reports, c) compliance status letters authorized under the NR 151 implementation strategy, and d) notices issued under NR 151.09 or NR 151.095.

A public hearing was held for the Pierce County Land and Water Resource Management Plan **May 2011**. The plan will be brought before the Pierce County Board of Supervisors following the public hearing. The plan must be submitted to the Department of Agriculture, Trade, and Consumer Protection for review. The plan will be presented to the Wisconsin Land and Water Conservation Board in August 2011.

### **Performance Standards**

County land and water resource management plans are the local mechanism to implement state performance standards and prohibitions (NR 151). Implementation of additional standards will be considered as they are completed by the state, and the management plan will be updated to reflect these changes.

## **NR151 Non-Agricultural Performance Standards**

*Construction Sites >1 acre – must control 80% of sediment load from sites*

Stormwater Management Plans (>1 acre after 10/1/04)

- Total Suspended Solids
- Peak Discharge Rate
- Infiltration
- Buffers around water

Developed Urban Areas (>1000 persons/square mile)

- Public education
- Yard waste management
- Nutrient management
- Reduction of suspended solids

## **NR151 Agricultural Performance Standards**

*For farmers who grow agricultural crops*

- Meet “T” on cropped fields
- All crop and livestock producers must follow a nutrient management plan (NRCS 590) that is designed to limit entry of nutrients into waters of the state
- Tillage setback of 5 to 20 feet. No crop producer may conduct a tillage operation that negatively impacts stream bank integrity or deposits soil directly in surface waters
- Cropland, pastures and winter grazing areas shall have a phosphorus index (PI) of six or less over the accounting period.

*For farmers who raise, feed, or house livestock*

- No direct runoff from feedlots or stored manure into state waters
- No unlimited livestock access to waters of the state where high concentrations of animals prevent the maintenance of adequate or self sustaining sod cover
- Starting in 2005 for high priority areas, and 2008 for all other areas, follow a nutrient management plan when applying or contracting to apply manure to limit entry of nutrients into waters of the state

*For farmers who have or plan to build a manure storage structure*

- Maintain a structure to prevent overflow, leakage, and structural failure
- Repair or upgrade a failing or leaking structure that poses an imminent health threat or violates groundwater standards
- Close a structure according to accepted standards
- Meet technical standards for a newly constructed or substantially-altered structure

*For farmers with land in a water quality management area (defined as 300 feet from a stream, or 1,000 feet from a lake or areas susceptible to groundwater contamination)*

- Do not stack manure in unconfined piles
- Divert clean water away from feedlots, manure storage areas, and barnyards located within this area

## **Related Plans**

### **Pierce County Farmland Preservation Plan**

This plan was completed in July of 1982 and outlines criteria for lands eligible for participation in the Wisconsin Farmland Preservation Program. Conservation standards were revised according to the state NR151 agricultural performance standards in June 2005. The Pierce County Farmland Preservation Standards are found in Appendix F. Pierce County will be revising their farmland preservation plan in 2012 to reflect changes with the Working Lands Initiative.

There are currently 56 Farmland Preservation Program participants in Pierce County with a total of 8,740.7 acres enrolled in the program. One Pierce County Township--River Falls, has an exclusive agricultural zoning ordinance. The number of participants for EAZ in the Town of River Falls is unknown due to the lack of information sharing from Department of Revenue.

Pierce County requires that participating landowners place all of their existing cropland in the program and have a conservation plan developed for all land entering the program. Spot checks are completed on 25% of all Farmland Preservation farms each year to determine conservation plan compliance.

### **Pierce County Erosion Control Plan**

The Pierce County Erosion Control Plan was completed in March of 1985. The purpose of the plan was to determine where the need for erosion control work was the greatest in Pierce County. The plan was completed by entering Universal Soil Loss Equation (USLE) data into a computer database at 6.12 acre intervals throughout the county.

Through this USLE information, it was determined that the average soil loss rate in Pierce County in 1985 was 6.74 tons per acre per year. This was 2.12 tons per acre per year greater than Pierce County's tolerable soil loss value for sustaining continued levels of crop productivity. The Oak Grove Watershed, located in the southwestern portion of Pierce County, was in the greatest need for soil conservation practices. With cost-sharing funds provided by federal, state and local sources, a special watershed project was carried out in the Oak Grove Watershed during 1986-1993. The soil erosion control plan was updated again in 1991.

### **Pierce County Comprehensive Plan**

This plan was completed in 2009 as a general guide to the regulation of land use in the 17 townships of Pierce County. Its policies and plan maps are the basis for county zoning ordinances and zoning maps. Most townships within Pierce County have completed their comprehensive planning process also.

### **Basin Water Quality Management Plans**

The Department of Natural Resources prepares basin water quality management plans. Two river basins cross Pierce County borders, and plans exist for each basin. The Lower Chippewa Basin Plan was prepared in 2001, and the State of the St. Croix Basin Plan was completed in 2002. The basin plans were used as references in the preparation of this document.

Recommendations from the basin plans are endorsed in the land and water resource management plan. The county encourages the Department of Natural Resources to complete the recommendations in the plans, especially recommendations related to enhanced monitoring and evaluation of resources.

Currently Minnesota and Wisconsin are combining efforts to develop and implement a Total Maximum Daily Load (TMDL) for the St. Croix River Basin. Pierce County plans to participate in this effort by continuing to work in the Kinnickinnic River Watershed.

The water quality objectives and priorities of this plan were influenced by the basin plans and reviewed by Department of Natural Resources staff as part of their participation in the advisory committee.

## St. Croix River Basin Plan

### Water Quality Priorities

1. Continue to fund priority watershed projects
2. Seek ways to assist communities in acquiring TRM (Targeted Runoff Management) grants to control NPS (Nonpoint Source) pollution
3. Provide assistance on the development and implementation of land and water plan goals and objectives

### Lower Chippewa River Basin Plan

The State of the Chippewa River Basin includes a list of concerns that very closely mirrors the concerns identified by the Pierce County Land and Water Resource Management Plan advisory groups. These include loss of habitat, excessive sediment and nutrient loading to water bodies, impacts of development, drinking and groundwater quality and education.

Basin plan objectives and activities related to these concerns also fit closely with objectives and activities in the Pierce County Land and Water Resource Management Plan.

Sediment and nutrient loading reduction actions in the basin plan include:

- Promote landowner participation in nutrient management planning
- Promote the use of best management practices for small farms to reduce surface water impairment

The basin plan also mentions assisting local units of government and landowners to promote proper well abandonment techniques. The plan provides detailed water quality information for each Pierce County stream.

## Pierce County Ordinances<sup>4</sup>



### Zoning (Chapter 240)

The zoning ordinance regulates the use of land and water in Pierce County. The ordinance applies to all unincorporated areas except for the Town of River Falls that has its own ordinance. Shoreland regulations apply in all unincorporated areas. The ordinance establishes zoning districts, describes provisions for district maps and lists appropriate uses for each district. Requirements established include dimension requirements for lots, set backs for structures and road building specifications. Incentives are included for cluster developments. These developments encourage open space by decreasing minimum lot size and allowing the clustering of residential lots together.

In the shoreland area of waterways (1000 feet from a lake and 300 feet from a stream), structures must be set back at least 75 feet. Barnyards, feedlots, and farm structures must be set back at least 100 feet from navigable waters. There are specific requirements for the Kinnickinnic River

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<sup>4</sup> Pierce County ordinances are on-line at [www.co.pierce.wi.us/piercecodycode](http://www.co.pierce.wi.us/piercecodycode).

bluff lands in the Town of Clifton. Structures must be set back at least 15 feet from the bluff line. Clearing trees along the bluff line requires a conditional use permit.

An erosion control plan is required where there is construction proposed for slopes of 20 percent or more. The Land Conservation Department must approve this erosion control plan.

### **Administration and Enforcement**

The Land Management Committee and Department are responsible for administration of the zoning ordinance. The Board of Adjustment hears appeals and variances. The zoning administrator is responsible for day-to-day management of the ordinance. The administrator also serves violators of the ordinance with notices of violation and reports them to the corporation counsel. The corporation counsel can follow up with legal actions or proceedings. Zoning officials can issue orders, directives to correct violations and citations to appear in court. The court may impose fines of \$100- \$500 per day with a conviction.

### **Subdivision (Chapter 237)**

Pierce County's subdivision ordinance regulates lot dimensions and requires appropriate roads and access for divisions and combinations of land. There are also erosion control provisions in the ordinance. The Land Management Committee refers erosion control provisions in preliminary plats to the Land Conservation Department and Committee.<sup>5</sup> The committee may condition and accept or reject the preliminary plan based upon written comments from the Land Conservation Department.

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<sup>5</sup> Chapter 237-17 (C) (4).

### **Administration and Enforcement**

Responsibilities and authority are similar to those for the zoning ordinance.

### **St. Croix Scenic Riverway (Chapter 239)**

St. Croix Scenic Riverway district areas and permitting requirements for land within these areas are described. Structures may not be constructed on slopes greater than 12 percent. Removal of trees and shrubs is not permitted within 200 feet of the ordinary high water mark on the bluff face and 40 feet landward of the bluff line. Structures must be set back 200 feet from the ordinary high water mark and 100 feet from the bluff line.

The Riverway ordinance is currently under revision to meet new state requirements. A significant required change is that structures may be placed as little as 40 feet from the bluff line with mitigation.

### **Administration and Enforcement**

The ordinance is administered by the Pierce County Zoning Administrator. The Board of Adjustment is the body for appeals. The Department of Natural Resources reviews appeals for conditional use permits, amendments, and variances.

### **Manure Storage (Chapter 101)**

The Pierce County Board of Supervisors updated the Manure Storage Ordinance in January 2008. The Land Conservation Department is responsible for implementation of the manure storage ordinance. The ordinance regulates the location, design, construction, installation, alteration and use of manure storage facilities. A permit is required to construct, install, reconstruct, enlarge or substantially alter a manure storage facility or to dispose of manure from the facility. Natural Resource Conservation Service technical

standards are used to guide the construction and abandonment of facilities and the application of manure from facilities.

### **Administration and Enforcement**

The Pierce County Land Conservation Department is responsible for administration and enforcement of the manure storage ordinance. The department reviews plans and permits, inspects manure facility construction and investigates complaints. As part of its enforcement authority, the Land Conservation Department is authorized to post a stop work order upon land where an activity is in violation of the ordinance. Penalties of up to \$200 per day may be levied for violations. Enforcement may also occur through court injunctions or restraining orders. The Board of Adjustment is the appeal authority for the ordinance.

### **Nonmetallic mining reclamation (Chapter 241)**

The Department of Land Management and the Land Conservation Department administer the nonmetallic mining ordinance in Pierce County. Both departments have the authority under the ordinance to accept and review permit applications, requests for permit modifications and notices of completion of reclamation plans. The Land Conservation Department may also conduct follow-up inspections. In practice, the Land Conservation Department reviews the storm water, sediment and erosion control plans for the ordinance. There are about ten reviews each year.

## **Related state regulations**

### **NR 151**

Implementation and enforcement of performance standards and prohibitions are covered under this state rule. Pierce County's implementation plan for NR 151 Agricultural Performance Standards is found in Chapter 4.

### **NR 216**

Under subchapter III of NR 216, Wis. Adm. Code, a notice of intent shall be filed with the DNR by any landowner who disturbs one or more acres of land. This disturbance can create a point source discharge of storm water from the construction site to waters of the state and is therefore regulated by DNR. Agriculture is exempt from this requirement for activities such as planting, growing, cultivating and harvesting of crops for human or livestock consumption and pasturing or yarding of livestock as well as sod farms and tree nurseries. Agriculture 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 s. NR 216.42(2), Wis. Adm. Code.) Furthermore, construction of an agricultural building or facility must follow an erosion and sediment control plan consistent with s. NR 216.46, Wis. Adm. Code and including meeting the performance standards of s. NR 151.11, Wis. Adm. Code.

An agricultural building or facility is not required to meet the post-construction performance standards of NR 151.12, Wis. Admin. Code.

### **ATCP 50**

Conservation practices that farmers may follow to meet the DNR standards of

NR 151 are included in this regulation. It also guides appropriate practices and cost share procedures for implementation of additional conservation practices.

ATCP 50 codifies specific standards for the approval of the land and water resource management plans and requires counties to consult with DNR and identify how they will assist landowners to achieve compliance with performance standards and prohibitions. This required compliance strategy is outlined in Chapter 4.

## **Land Conservation Department Activities**

The Land Conservation Department (LCD) provides services and administers programs aimed at conserving soil, land and water resources in Pierce County. A progress report for 2006-2010 activities is included as Appendix B.

### **Wildlife Damage Program Administration**

The Wildlife Damage Program uses state funds to reimburse agricultural producers for wildlife crop damage. Wildlife damage is managed via a contract with USDA-APHIS.

### **Financial and technical assistance**

State funds<sup>6</sup> may be available to landowners for implementation of the land and water resource management plan through the LCD. The department encourages landowner participation, administers the programs, provides technical assistance and designs and inspects practices for this funding source and other federal and state programs. Technical assistance includes developing conservation plans, surveying the area, preparing designs, developing bid documents, overseeing construction and

signing off that the practice is completed according to standards and specifications.

### **Technical review for local ordinances**

As described in the local ordinance section, the LCD is responsible for environmental review and technical assistance under the zoning, subdivision and nonmetallic mining ordinances. The LCD reviews erosion control and storm water management plans for these ordinances. The Department of Land Management, the Land Management Committee, or the Board of Adjustment carries out enforcement actions under these ordinances. The LCD administers the entire manure storage ordinance.

### **Educational Activities**

Educational activities that emphasize protection of land and water resources are provided for students and landowners. Conservation poster and speaking contests are held each year. A conservation recognition banquet recognizes families using conservation practices. Classroom presentations are given upon request.

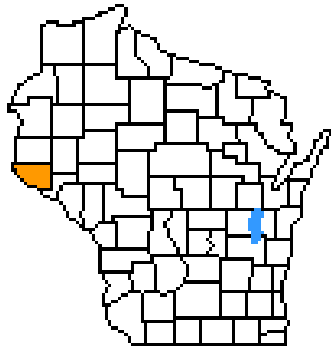
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<sup>6</sup> Department of Agriculture, Trade, and Consumer Protection

## Chapter 2. Resource Assessment

Pierce County is located in West Central Wisconsin. It is bordered on the west by the St. Croix River and on the south by the Mississippi River. Pierce County is bordered to the east by Dunn and Pepin Counties and to the north by St. Croix County. The total land area of Pierce County is 378,240 acres. Figure 2 illustrates land cover in Pierce County.

**Figure 1. Pierce County Location**



### Topography and Soils

There are ten major soil associations found in Pierce County. Figure 3 depicts the location of these ten major soil associations. Glacial activity formed the surface topography and soils in Pierce County. Many parts of the county were covered by two separate glacial episodes, and four other glacial periods directly influenced the county with rock and silt overburdens. Glacial action also resulted in wide valleys and hills and ridges across most of Pierce County. Much of the county is covered with windblown loess, which tends to flatten the surface topography. There are dramatic bluffs along the St. Croix and Mississippi Rivers and steep wooded hills along the many streams of Pierce County. The hilly topography creates problems with soil

erosion and building placement. Limestone rock found in many parts of the county has led to the formation of caves and caverns and led to problems with sinkholes.

Soils have a natural ability to reduce pollution effects from animal and human wastes, municipal sewage sludge and other sources. A study completed in 1991 by the Cooperative Extension Service and the Wisconsin Geological and Natural History Survey studied the ability of the various soils in Pierce County to reduce pollution effects. In general, the best soils for pollution reduction are mainly located in the uplands between the steep stream valleys in the southern half of the county. These soils are naturally drained and are more effective at contaminant removal. The worst locations for contaminant removal are the steep and stony hillsides of the stream valleys and alluvial lands. Forest and other cover should not be removed for cropland or development purposes from such soils. The alluvial soils of Pierce County have very poor natural drainage, while the deep sands in certain areas of Pierce County allow water to pass through too quickly for pollutant removal.

In many locations across the northern half of the county, the bedrock is within 5 feet of the surface. Even though bedrock may be covered by 2 to 4 feet of soil that has a good capacity to attenuate contaminants, the proximity of bedrock to the surface still limits the subsurface and surface land-use activities.





## **Pierce County Soil Survey**

Soil Survey work in Wisconsin began in the early 1900s shortly after the inception of the National Cooperative Soil Survey. Pierce County's original soil survey was issued in May of 1968. On May 14, 2006, over 100 years of Wisconsin soil survey work was completed when the digital soils data for Iron County, Wisconsin was posted to the Soil Data Mart bringing digital soils coverage for Wisconsin to 100%. This accomplishment could not have been achieved without the National Cooperative Soil Survey program, which in Wisconsin is a joint effort of the NRCS and other federal, state, and local agencies. Principal state cooperators include the University of Wisconsin-Madison & Stevens Point, and the Wisconsin Geological and Natural History Survey.<sup>7</sup> The Pierce County Soil Survey depicts the various soil types and terrains in the county and explains various properties of these soils such as suitability for agricultural uses, tree planting, and various development uses.

According to information derived from the Pierce County Soil Survey 130,500 (34%) of Pierce County's 378,240 acres are considered to be "prime" for farming, 121,800 (32%) are ranked as additional farmland of "statewide importance," and 70,300 (19%) are of local importance for farming. Thus, 85% of the county is potentially productive farmland. However, parts of the county are already occupied by non-farm development such as cities, roads and rural houses.

## **Soil Erosion Rates**

The Pierce County Land Conservation Department completes a countywide windshield transect survey each year. The transect survey involves collecting soils

information, cropping, and tillage data at pre-selected points approximately every half mile across the county with a minimum of 450 data collection points. This information is used to estimate erosion rates in Pierce County.

Current estimates for countywide average soil erosion rates are 2.8 tons per acre per year. The Isabelle Creek watershed and South Rush River watershed currently have the highest erosion rates. Countywide average erosion rates have decreased considerably from the 6.74 tons/acre/year figure derived through the 1985 erosion control program planning process. The current dominance of row crop production for cash grain and livestock farms on highly erodible lands in Pierce County is threatening the trends of the last 25 years.

The tolerable soil loss rate, commonly referred to as "T," is defined as the maximum average annual rate of soil erosion for each soil type that will permit a high level of crop productivity to be sustained economically and indefinitely (ATCP 50.01(16)).

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<sup>7</sup> [www.wi.nrcs.usda.gov/technical/soil/](http://www.wi.nrcs.usda.gov/technical/soil/)

**Table 1. Pierce County Transect Survey Results<sup>8</sup>**

<b>Watershed</b>	<b>Ave. T Value</b>	<b>2010 Soil Loss</b>	<b>2009 Soil Loss</b>	<b>2008 Soil Loss</b>	<b>2007 Soil Loss</b>	<b>2006 Soil Loss</b>	<b>2005 Soil Loss</b>	<b>2004 Soil Loss</b>	<b>2003 Soil Loss</b>	<b>2002 Soil Loss</b>	<b>2001 Soil Loss</b>	<b>2000 Soil Loss</b>	<b>1999 Soil Loss</b>
<b>Kinnickinnic River</b>	4.30	2.2	2.0	2.1	2.5	2.8	2.7	3.1	2.5	3.4	3.4	3.3	3.3
<b>Plum Creek</b>	4.65	2.9	2.5	2.7	3.4	3.6	4.1	3.1	3.4	3.5	3.8	3.1	4.1
<b>Eau Galle River</b>	4.80	3.2	3.1	3.2	4.7	3.8	3.9	3.4	4.7	4.6	4.7	3.2	3.8
<b>North Rush River</b>	4.67	2.5	1.9	2.1	3.2	2.9	3.0	3.5	3.3	3.2	2.9	2.3	3.1
<b>Trimbelle River</b>	4.75	2.7	2.4	2.4	3.4	3.1	3.0	3.0	3.4	3.1	3.4	2.9	3.1
<b>Isabelle Creek</b>	4.78	3.8	3.1	3.4	5.6	5.1	4.9	6.1	5.6	4.8	5.1	4.4	5.5
<b>Oak Grove</b>	4.62	2.9	2.7	3.0	2.4	3.1	2.5	3.0	2.4	3.1	3.4	2.8	3.5
<b>South Rush River</b>	4.70	3.6	2.8	2.5	4.0	3.0	4.6	5.5	4.0	3.8	2.8	3.2	3.9
<b>Countywide</b>		2.9	2.5	2.6	3.5	3.3	3.4	3.5	3.5	3.5	3.5	3.0	3.6

<sup>8</sup> All values are in tons per acre per year



## Agricultural Land

Agricultural land dominates the landscape in Pierce County with over  $\frac{3}{4}$  of the land in agricultural use. Agriculture is changing in the county, however. Trends are toward fewer dairy farms, more small and very large farms and conversion of agricultural land to residential land.

Agricultural land continues to dominate the landscape of Pierce County, Wisconsin. Total land in farms is 271,178 acres.<sup>9</sup> These lands include: cropland, pasture, woodland and other agricultural uses including woodlands. Of the total land in farms, 174,000 acres, or 64 percent is harvestable cropland. Harvested cropland is increasing slightly as conservation reserve Program land is converted back to harvested cropland.

Dairy farm numbers declined from 253 in 2002 to 216 in 2007.<sup>10</sup> The decline in dairy farm numbers stabilized between the 2002 and 2007 Census on Agriculture as compared to the dramatic decline from 1989 to 2002<sup>11</sup> Yet, overall dairy cow numbers and milk produced is comparable to 2002 Census Data.

Crop production has dramatically shifted from forage acres to row crop production of soybeans. Soybean acreage harvested climbed from 24,000 acres in 2002 to 32,000 acre in 2009.

Also, 65,600 acres of corn was harvested which is close to the same number of acres

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<sup>9</sup> 2007 Census of Agriculture

<sup>10</sup> 2007 and 2002 Census of Agriculture

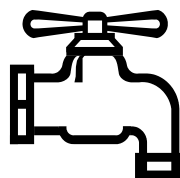
<sup>11</sup> 2007 and 2002 Census of Agriculture and Wisconsin Ag Statistics 1989

In 2003. Cropland acres devoted to forage and small grains declined significantly from 2002 to 2007. In 2007, all forage acres totaled 43,140 acres. In contrast, 54,900 acres were devoted to forage in 2002, and in 1997 nearly 70,000 acres were devoted to forage.<sup>12</sup>

Farm numbers (USDA Definition of \$1,000 in Sales) have increased slightly from 2002 to 2007 or 1,510 to 1,531 respectively. However, the number of farms with sales greater than \$500,000 in sales has nearly doubled from 2002 to 2007. The average size farm (by acreage) remained the same at 177 acres. Conversion of farmland to other uses such as rural residential development has declined from 2002 to 2011.<sup>13</sup>

Farmland rental rates have dramatically increased from 2002 to 2011. The Pierce County Farmland Rent Study discovered an average rental rate of \$62 per acre in 2002 versus the 2011 average rental rate of \$9 per acre.<sup>14</sup>

## Groundwater



Groundwater is the source of drinking water for residents of Pierce County. Groundwater is also important for supplying cold, fresh water to rivers and streams.

Contamination of groundwater by human activity can be a severe problem because contaminants generally travel unnoticed, are difficult to remove and may persist for decades. Water percolating through the soil can pick up human-made pollutants and transport them to the groundwater. Contaminants may also enter the

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<sup>12</sup> 1999-2009 Wisconsin Ag Statistics

<sup>13</sup> 2007 and 2002 Census of Agriculture

<sup>14</sup> Pierce County Farm Land Rental Studies, G Andrews, 199-2011

groundwater through unused wells that are not properly sealed. Groundwater contamination comes from a variety of sources including leaking underground petroleum pipes and tanks; use and storage of road salt; improper use, disposal, and storage of hazardous materials and mismanagement of fertilizers, pesticides, and animal waste.

The Department of Natural Resources Basin Plans ranks watersheds for groundwater

based upon available data on the presence of contaminants and the evaluation of different land uses and the susceptibility of groundwater contamination associated with those land uses. Groundwater watershed rankings for Pierce County are reported in Table 1. A score below 20 is low. A score of 20 or more is considered medium. At 30 or greater, the score is considered high for groundwater contamination potential. All Pierce County watersheds are ranked high for groundwater contamination potential.

**Table 2. Groundwater Ranking for Watersheds in Pierce County**

<b>Basins</b>	<b>Watersheds Included</b>	<b>DNR ID</b>	<b>Numerical Ranking<sup>15</sup></b>	<b>Qualitative Ranking</b>
St. Croix	Kinnickinnic	SC01	82	High
Lower Chippewa	Plum Creek	LC02	34	High
Lower Chippewa	Eau Galle River	LC03	41	High
Lower Chippewa	Rush River	LC22	47	High
Lower Chippewa	Trimble River and Isabelle Creek	LC23	46	High

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<sup>15</sup> DNR basin plans. Revised November 2003.

## **Drinking Water Testing Results**

Pierce County conducted the first comprehensive study of the groundwater resource in Pierce County from 1988-90. The study identified 537 drinking water wells in the county based upon the well construction reports and geographic distribution throughout the county. The analysis included measurements of nitrates, pH, hardness, electrical conductivity, chlorides, sulfates and alkalinity. 10.6% of the samples exceeded the health advisory standard of 10 mg/l for nitrates. The Pierce County Cooperative Extension Office is also involved in other water testing programs through the UW-Stevens Point Environmental Task Force Lab. Test results taken through this lab from 1988-1996 showed that of the 274 water samples analyzed, 17.9% exceeded the health advisory standard of 10 mg/l for nitrates.

A number of Pierce County residents participated in the Rural Well Survey conducted by the Wisconsin Department of Agriculture, Trade & Consumer Protection (DATCP) and the Department of Natural Resources (DNR) which reported the findings in 1992. Of the 66 participant samples analyzed, 21.2% exceeded the health advisory standard of 10 mg/L for nitrates.

A testing of 135 wells through the Kinnickinnic Watershed Project undertaken in 1996 showed that land use activities are affecting groundwater quality in the Kinnickinnic Watershed. Testing revealed that 29% of the samples had analytical results which exceeded the health advisory standard of 10 mg/l for nitrates. Of the 96 private well samples analyzed for atrazine in the Kinnickinnic Watershed, 2 exceeded the enforcement standard of 3 parts per billion (ppb) atrazine plus metabolites. In 43% of the wells, triazine was detected at a level below the Preventative Action Limit of 0.3

parts per billion. Twenty-nine well sample analyses (30%) were greater than the PAL, but less than the Enforcement Standard of 3 ppb. No pattern of groundwater contamination has been linked to specific sources.

In addition to all of the above forms of testing, the cooperative extension office routinely tests drinking water samples for nitrates at the Pierce County Fair each year. Participants bring in a water sample for nitrate analysis on a voluntary basis. From 1990-1997, 468 samples were tested and 16.2% exceeded the health advisory standard of 10 mg/l.

In summary, based on a variety of testing programs, 10-30% of wells sampled in the county have nitrate levels exceeding 10 mg/l. A few of the wells sampled have nitrate levels in the 25-60 mg/l range.

## **Bacteriological Contamination**

Drinking water testing for coli form bacteria is also available through a homeowners package water testing program through the UW-Stevens Point Environmental Task Force Lab. Test results from 1988-1996 showed that of 261 samples analyzed, 17.6% had a positive test for bacteria. This may be caused by a variety of factors including the existence of old wells with substandard well casing, use of cisterns and the predominance of sinkholes in the county which allow surface contaminants to enter the groundwater.

While nutrient and bacteriological testing are the most common tests completed on household drinking water supplies, cases of several other sources of drinking water contamination have been documented in Pierce County. These include volatile organic compounds and agricultural

chemicals from field applications, leaking underground storage tanks and landfills.

## Surface Waters

River basins and watersheds are the management units used for Department of Natural Resources and other state and federal agency programs. The surface waters of Pierce County occupy two major basins of West Central Wisconsin – the St. Croix and the Lower Chippewa.

Watersheds are the subsets of each basin. Figure 4 illustrates watershed boundaries and the major surface water features within each basin.

Pierce County has approximately 2,000 miles of streams, but only about 27 percent of them are perennial or continually flowing. The remaining intermittent streams play an important role in surface water quality by delivering runoff water seasonally. There are 33 inland lakes or ponds covering 387 acres in Pierce County. Thirteen of the lakes are associated with the backwaters of the Mississippi River. There are two man-made impoundments, Nugget Lake and the Spring Valley Reservoir. Nugget Lake (116 acres) is created by the Nugget Lake Dam which is maintained by the Pierce County Land Conservation Department. The Eau Galle Dam, maintained by the U.S. Army Corps of Engineers, creates the 126-acre Spring Valley Reservoir. The majority of the Spring Valley Reservoir is located in St. Croix County.<sup>16</sup>

Pierce County has numerous high gradient coulee trout streams. Most contain naturalized brown trout, native brook trout, or stocked brown trout populations.

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<sup>16</sup> Wisconsin Department of Natural Resources. Surface Water Resources of Pierce County.

Many streams contain moderate to high-density trout populations.

Department of Natural Resources records show that Pierce County trout streams have improved substantially during the past 50 years.<sup>17</sup> In 1980, Pierce County had 17 trout streams for a total of 97 miles.<sup>18</sup> Currently, there are 47 trout streams for a total of 159 miles.<sup>19</sup> Class I trout streams increased from 11 miles to 47.7 miles and Class II streams increased from 55 miles to 108 miles.

Water quality and habitat are improving on most streams. However, certain streams or stream segments suffer from high water temperatures, weak spring flow, poor habitat, flooding, bank erosion and sedimentation, and nonpoint pollution from runoff from agricultural and urban lands. Runoff from Pierce County watersheds also causes sedimentation and nitrification to Nugget Lake and the Mississippi and St. Croix Rivers.

## Nonpoint Source Pollution

Runoff from urban and agricultural land is a source of water quality impairment to lakes, rivers and streams. Runoff from intensive row crop farming, heavy fertilizer applications (both residential and agricultural) and poor manure utilization practices contribute to increased plant and algal growth in lakes and streams and may lead to fish kills from oxygen depletion. A limited number of barnyards still exist that negatively impact stream banks.

## Sediment Loads

Historically agricultural soil erosion from fields led to heavy deposition of fine

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<sup>17</sup> Unpublished DNR files, Rush 2000, Plum Report 1999.

<sup>18</sup> Wisconsin Trout Streams. DNR 1980.

<sup>19</sup> Wisconsin Trout Streams. Wisconsin Department of Natural Resources. 2002.

sediment in streambeds. Excessive bank erosion in wooded and heavily pastured - areas continues today. Gully and sheet erosion from agricultural fields also contribute to the current problem. Sedimentation of streams results in the loss of deep-water fish habitat, and declines in spawning habitat and stream productivity. Additionally, construction site erosion from urban growth may impact sedimentation. Conservation practices such as stream bank restoration, rotational grazing, fencing, buffer strips and controls on construction site erosion can be taken to reduce active bank erosion and reduce the impact of fine sediment to our streams.

### **Urbanization Impacts on Groundwater Recharge**

Several coldwater streams in Pierce County are threatened by urban growth and associated increases in impervious (hard) surfaces. High capacity groundwater withdrawals for agriculture, drinking and industrial use could also contribute to declines in spring flow. As impervious surface increases in a watershed, groundwater recharge and spring water outflow is reduced while floodwater flow increases. Loss of spring flow weakens coldwater flows that support coldwater fish communities. Best management practices to reduce impervious surfaces are important to protect and improve coldwater trout streams.

### **Thermal Impacts of Dams**

While many flood control dams have improved stream conditions by reducing sedimentation, several dams act as heat sinks, warming up coldwater streams to a point where the stream loses the ability to support coldwater fish communities. Opportunities should be pursued to modify or remove such dams to help reduce negative impacts to these stream resources.

### **Meeting Fishery Resource Demands**

Several streams including the Rush and Kinnickinnic Rivers have national, regional and statewide significance as sport and/or trophy trout fisheries. Fishing pressure on popular streams reach saturation levels, and anglers are focusing their efforts on lesser-known streams in the area. As residential and private recreational land development increases along streams, public access is being lost. Trespass issues are on the increase on rivers such as the Rush and Trimble. Increased efforts are recommended to secure public parking and access to the best Pierce County trout fishing resources.



## Water Classification

Outstanding and exceptional resource waters are protected through Department of Natural Resources (DNR) regulation. These waters may not be lowered in quality due to DNR permitted activities, such as wastewater treatment plants. The St. Croix River, on Pierce County's western border and the Kinnickinnic River, are Outstanding Resource Waters (ORW). Class 1 trout streams designated Exceptional Resource Waters (ERW) include the 47.7 miles of Trimble and Rush Rivers along with Cady Creek. Class 1 trout streams include a portion of the Big River, Cave Creek, Lost Creek, Pine Creek and Plum Creek.

Impaired waters, also known as 303(d) listed waters, were listed by the Department of Natural Resources in 2004. The list, required by the Environmental Protection Agency under the Clean Water Act, identifies water bodies that do not meet water quality standards. The list will be used as the basis for establishing strategies to improve water bodies using total maximum daily loads (TMDL) to water bodies when appropriate. A TMDL is currently being developed for the St. Croix River Basin which includes the Kinnickinnic River. Creek 16-10 and Creek 16-2 tributaries to the Trimble River, the Eau Galle River and Morgan Coulee Creek are on the 303(d) list because of degraded habitat and temperature caused by sediment deposition.

Lake George is impacted by phosphorus loading which causes eutrophication and altered pH. The Mississippi River is impacted by mercury and PCB's.

Nugget Lake is on the list for mercury contamination. Many water bodies across the state are listed for fish consumption advisories for mercury contamination most likely due to atmospheric deposition—not

from local sources. Priority for clean-up is likely to be determined by a national strategy.

## Watershed and Lake Evaluations

Wisconsin initiated a process to rank watersheds for nonpoint source problems in the mid-to-late 1980s to identify high priority areas under the state's Nonpoint Source Pollution Abatement Program. As management of nonpoint source problems has changed, so has the nonpoint source ranking process.

Today, DNR not only ranks watersheds for streams, lakes and groundwater, every stream and lake in the state will eventually be ranked according to 1) expressed impacts from nonpoint source pollution and 2) the waterbody's potential response to best management practices.

The DNR uses these watershed and waterbody rankings for several purposes: 1) to identify priority areas for best management practice implementation 2) to help guide funding decisions under nonpoint source related programs and 3) to convey nonpoint source priority areas to counties for county land and water planning, specifically work tasks and other activities related to BMPs and performance standards implementation.<sup>20</sup>

Individual lakes are also ranked during the development of some of the DNR water basin plans. A high ranking indicates that the lake has documented problems or threats related to water quality and is likely to be responsive to watershed protection efforts. None of the lakes in Pierce County ranked high in these plans.

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<sup>20</sup> From DNR website

<http://dnr.wi.gov/org/water/wm>

GLWSP/NPSRANK Last revised: January 2004.

An analysis of surface water quality in these watersheds can be found in the DNR's Lower Chippewa River Basin Plan and St. Croix River Water Quality Management Plan. A synopsis of reports for the eight major Pierce County Watersheds follows. DNR fisheries biologist, Marty Engel, provided updates to the published watershed reports in the basin plans for this plan.

### **Plum Creek Watershed (LC02)**

A 1991 stream bank erosion survey of Plum Creek undertaken as part of the DNR Lakes Planning Grants Program showed that 17 percent of the bank area along Plum Creek, above Nugget Lake, is eroding. Elevated bacteria levels at the mouth of Rock Elm Creek (part of the overall Plum Creek Watershed) have been recorded following major storm events. This input contributes to elevated bacteria levels at the Nugget Lake swimming beach area after heavy rains. There is a high rate of sedimentation occurring at the lake. The northern portion of the lake is rapidly filling with approximately 1.76 acre-feet of sediment per year. Nugget Lake experiences frequent algal blooms, dense aquatic plant growth in shallow areas and a high sedimentation rate near the inlet. The lake's problems stem from watershed erosion, stream bank erosion and feedlot runoff. Fish advisories have been issued for Nugget Lake due to elevated levels of mercury.

To combat the water quality problems at Nugget Lake the Pierce County Land Conservation Department and Committee in conjunction with the Natural Resources Conservation Service ran a special watershed project for landowners located in the 11,000 acre Nugget Lake Watershed (a sub-watershed of the larger Plum Creek Watershed) from 1995-1998. The majority of the funding for this project came through Pierce County's conservation cost-sharing

account. Approximately \$100,000 of federal, state, county and individual landowner funds were utilized to install 12 grade stabilization structures, 5 grassed waterway projects, 1 barnyard runoff control project and 1 stream bank stabilization project.

A 1999 fish survey showed the Plum Creek downstream from Nugget Lake to the Pepin County line to be a Class I trout fishery. This stream improved from a Class II trout stream designation from a 1993 survey. Plum Creek could improve further with restoration of severe bank erosion and upland land use practices to reduce overland flow.

Pierce and Pepin Counties are participating in a watershed project through the NRCS Environmental Quality Incentives Program (EQIP). The entire Plum Creek Watershed - split almost equally between the two counties - received \$1.34 million of EQIP funds from 1998-2003. The major thrust of the EQIP program in the Plum Creek Watershed Project is to reduce sediment delivery to surface waters by reducing sheet and rill and gully erosion. Conservation practices that are used include nutrient management planning, conservation cropping rotations at or below "T-value" and pasture management.

### **Eau Galle River Watershed (LC03)**

Polluted runoff from barnyards and feedlots, stream bank grazing and flooding threaten trout streams in the Eau Galle River watershed. When the streams flood, large amounts of sediment are moved and the high flows scour the streambeds. This watershed, once almost entirely forested, is now 82 percent agricultural. Best management practices that reduce the total volume of runoff by increasing infiltration would benefit the streams of the Eau Galle River Watershed. Cady Creek is currently classified as a Class I trout stream for 6.8 miles and is designated as an Exceptional Resource Water (ERW). This stream was formerly classified as a Class II and Class III trout stream. Runoff from nonmetallic mining in its headwaters used to plague this stream. The Eau Galle River is a popular place to fish trout, but water quality is threatened by turbidity, natural erosion and stream bank grazing. The Eau Galle River is severely impaired by fine sediment and large-scale bank erosion especially in the Elmwood area. The Spring Valley reservoir receives large amounts of nutrients and sediments from its agricultural watershed. As a result, it experiences frequent summer algal blooms and has extensive aquatic plant growth in shallow areas. Because of elevated stream temperatures, turbidity, excessive nutrient inputs, sedimentation and loss of in-stream habitat, the Eau Galle River is included on the state's 303(d) list of impaired waters. Control of sediment, nutrients and storm water runoff is critical to the improvement of water quality in this reservoir.

### **Rush River Watershed (LC22)**

The Rush River Watershed comprises 245 square miles in Pierce and St. Croix Counties. Agriculture is the major land use affecting surface waters in this watershed. The comparison of current land use to

original vegetation shows a significant conversion of prairie and forests to cropland and pasture. This land use conversion has led to a larger volume of runoff and less infiltration of precipitation. The Pierce County portion of the Rush River Watershed is considered a Class II trout stream and is designated an Exceptional Resource Water (ERW). The storm runoff to Rush River tends to be high due to the tight clay soils responsible for reducing infiltration rates. To improve the Class II portion of the Rush River, the stream's average temperature needs to be decreased. This can be accomplished by increasing the amount of groundwater discharging to the river. To improve groundwater discharge, best management practices should target increasing infiltration to replenish groundwater supplies. These measures would also reduce sedimentation and turbidity in the stream.

### **Trimbelle River, Isabelle Creek and Oak Grove Watersheds (LC23)**

The Trimbelle River, Isabelle Creek and Oak Grove Watersheds drain 221 square miles in Pierce County. The character of this area of the county has changed dramatically from pre-settlement times to the present. Forested acreage has dramatically reduced from 96 percent to 9 percent of the overall watershed. Increased runoff rates have led to reduced infiltration of precipitation and thus decreased stream habitat and increased water temperatures. This watershed contains 37 miles of trout streams. The Trimbelle River is considered to be a Class II trout stream and is designated as an Exceptional Resource Water (ERW). Land use limits this river from becoming a Class I trout stream with a reproducing trout population. Bank erosion for almost the entire length of the river due to both natural causes and poor land use contributes to the lack of in-stream habitat.

The Trimbelle River has some springs, but heavy grazing of the stream banks masks the benefits of the groundwater discharge.

At the time when the Pierce County Erosion Control Plan was completed (1985) the Oak Grove Watershed was cited as having the highest average annual cropland erosion rate in the county at a level of 7.43 tons per acre per year. According to current information from the Land Conservation Department the average annual cropland erosion rate in this watershed now stands at 2.5 tons per acre per year. A special watershed project, running in this area from 1985-1993, placed many more acres of conservation tillage, contouring, waterways and grade stabilization practices on the land. These land conservation practices also served to improve the water quality in the Oak Grove watershed by decreasing the amount of sedimentation in rivers and streams. While cropland erosion rates have been reduced significantly in the Oak Grove Watershed, erosion from development has been increasing as this rapidly growing area of Pierce County continues to see more and more cropland being converted into rural residential developments.

### **Kinnickinnic River Watershed (SC01)**

The Kinnickinnic River is classified as an Outstanding Resource Water (ORW) and is considered to be one of the premier Class I trout streams in the State of Wisconsin. Pierce and St. Croix Counties are two of the fastest growing counties in the state. Thus, water quality and aquatic habitat in the streams of this watershed are threatened by nonpoint source pollution from urban development, rural residential development and agricultural land use. The City of River Falls Comprehensive Storm Water Management Plan and ordinance should be beneficial in helping to maintain the overall

water quality of the Kinnickinnic River as development proceeds within the city. Several groups are currently working to protect the water quality of the Kinnickinnic Watershed including the Kinnickinnic River Land Trust, Trout Unlimited, Kinnickinnic River Priority Watershed Project, the City of River Falls and the University of Wisconsin -River Falls.

The segment of the St. Croix River in this watershed is threatened by nutrient input from inflowing streams. The entire St. Croix River is designated as a National Scenic Riverway. Portions of the St. Croix River have fish advisories due to PCB and mercury contamination found in fish tissue.



### **Woodlands**

Forestland is one of the major natural and aesthetic features of Pierce County. Good forest management can sustain the full range of economic, ecological and social benefits our forests provide. Streamside forest vegetation helps to slow runoff, filters sediment and nutrients from runoff and increases infiltration. The forest resource also provides habitat for a wide variety of wildlife. The loess soils that cover much of the county are very productive forest soils. The county historically and currently produces high quality hardwood timber. Total net growth exceeds timber harvest.<sup>21</sup>

At the time of European settlement, trees covered 78 percent of Pierce County, but forest cover has been reduced to approximately 27 percent of the total land area. The average forest cover for the state is 46 percent. The major forest types/groups in Pierce County include Maple-Basswood

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<sup>21</sup> 1996 USDA-FS Inventory

(31%), Elm-Ash-Cottonwood (9%), Oak-Hickory (47%), Aspen (9%) and Pine (4%).

Wisconsin's forest tax law programs have been popular with Pierce County residents and will likely remain popular as property tax assessments continue to rise on wooded properties. There are currently 26,720 acres enrolled in the forest tax law programs in Pierce County. Of these, 58,850 acres are enrolled in the Managed Forest Law, and 870 acres are enrolled in the Forest Crop Law<sup>22</sup>. The average tax law entry is approximately 30-40 acres, so there are over 700 landowners participating in these programs.

There are 105,050 acres of forestland in Pierce County (forest inventory data 2005-2009). This compares to 96,100 acres in 1996 and 100,600 in 1983. Fluctuations may be due in part to survey sampling errors. Development, agriculture, and other competing land uses can contribute to a loss of forestlands. Increasing property taxes on forestland could lead to accelerated subdivision and development of these lands.

Residential development impacts forest cover and individual trees. Protecting existing trees during home construction is important. Many homeowners desire sites with large trees. Site impacts during construction such as soil compaction, grading, trenching, and excavation can affect tree health. Direct injury to tree trunks and branches can expose trees to diseases such as oak wilt.

### **Invasive Species**

Next to the loss of forestland from development, the greatest potential threat to Pierce County forestland is non-native invasive plants. Honeysuckle and buckthorn

infest many acres in the county. The herbaceous plant Garlic Mustard is spreading rapidly to new locations within Pierce County.

The gypsy moth is becoming established in Pierce County. When the population becomes large enough to cause defoliations, proper forest management, particularly of oak species, can help to make forests more resilient to attacks, and reduce tree mortality. Emerald Ash borer (EAB) has not been detected in Pierce County. EAB exists in the Twin Cities. Compliance with established rules for transporting ash materials in quarantine areas and cooperation with recommendations for transporting fuel wood etc. in non-quarantine areas may prevent the introduction of the destructive pest into Pierce County. Ash trees are an important component of forests in Pierce County (estimated 3,398,800 trees per Wisconsin Forest inventory 2002-2006).

### **Wildlife**

Pierce County's land and water resources provide habitat for a wide variety of game and non-game wildlife. The mix of agricultural lands and woodlands provide ideal habitat for common species such as white-tailed deer, squirrels, rabbits and raccoons.

Grouse, turkeys and many songbirds utilize the woodlands, and pheasants and other grassland birds are making a comeback because of conversion of marginal agricultural land to grasslands through the federal Conservation Reserve Program. The Conservation Reserve Program has been popular in Pierce County. However, CRP acres have recently declined. In 2010 there were approximately 10,791.6 acres enrolled in CRP. This value is down from 27,710 acres in 1997.

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<sup>22</sup> WI DNR Forest Tax Section 2005 Master Listings

Although wetland habitat is generally lacking, the Mississippi River bottomlands provide a unique and important habitat for waterfowl and other wetland birds and mammals. In addition, the Mississippi River and associated bluffs are a major migratory corridor for a wide variety of both upland and lowland birds. Pierce County currently has one Wetland Reserve Program contract.

### **Rare Species & Natural Communities**

The Natural Heritage Inventory of the Wisconsin Department of Natural Resources lists 21 natural areas containing significant remnants of native plant communities.

Seven of these are located in part or completely on state owned lands with the remaining areas on private land. Sites range from bottomland forest to river gorges to bluff prairies. Known sites include:

Kinnickinnic River Gorge and Delta State Natural Area  
Pierce County Islands Natural Area  
Trenton Bluff Prairie State Natural Area  
Bay City Bluff Natural Area  
Diamond Bluff Prairie-Savanna  
Rush River Delta State Natural Area  
Beldenville Woods Natural Area  
Cave Creek Natural Area  
Diamond Bluff Oak Barrens Natural Area  
Exile Maples Natural Area  
Forester Hill Prairie Natural Area  
Kinnickinnic Valley Natural Area  
Plum Creek Woods State Natural Area  
Lake Pepin Hardwoods Natural Area  
Lost Creek Cliff Natural Area  
Morgan Coulee Prairie State Natural Area  
Nugget Lake Woods Natural Area  
Pine Creek Woods Natural Area  
Psoralea Prairie Natural Area  
Waverly Pines Natural Area  
Brush Creek Maples Natural Area  
Bat Cave Natural Area

Eighty-one endangered, threatened or rare species are known to occur or have occurred in Pierce County. This includes 34 plants, 2 birds, 25 invertebrates, 17 fish, and 3 herptiles. The full list is included as Appendix E.

## **Population**

Pierce County's population in the year 2000 was 36,804. The 2009 estimate was 40,081 a nine percent increase from the year 2000. Over half of the county population lives in incorporated areas (57%) with about half of these people in the City of River Falls.

Recent population growth rates are highest in the north and west portion of the county. The Town of Clifton and the Town of Oak Grove each experienced growth rates over ten percent in this time period. Towns with growth rates above five percent (the overall growth rate of the county) included Gilman, Martell, Spring Lake and the Villages of Ellsworth and Spring Valley.<sup>23</sup> Towns with populations above 1000 include Clifton, Oak Grove, Trimble and Union.

A high percentage of the housing units in Pierce County are occupied year round. Only 182 out of 13,493 housing units were for seasonal or recreational use in the year 2000. Seventy three percent of the households were owner-occupied.<sup>24</sup> Only five percent of the county's working population was employed in agriculture, forestry, fishing and hunting or mining. The total number of households in Pierce County is forecast to increase by 953 from 2005 until 2010. This additional development will place more pressure on Pierce County's natural resource base.

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<sup>23</sup> Wisconsin Demographic Services Center. 2004.

<sup>24</sup> U.S. Census Bureau. 2000.

Housing development in the rural areas of Pierce County is typically in locations of scenic beauty, especially along the St. Croix or Mississippi River bluffs or on wooded or hilly sites. However, there are also non-farm houses in open fields including multiple-lot subdivisions. The highest housing densities are in towns with the best soils for farming.

Urbanized areas pose special threats to water quality. Urbanization and other human activities disrupt the natural course of water as it moves across a watershed. Removing vegetation and constructing impervious surfaces such as roads, parking lots, driveways, sidewalks and rooftops greatly increases the amount and rate of storm water runoff. Water level fluctuations increase because of lower stream base flow from reduced infiltration and increased storm water flow from impervious surfaces. These changes may bring flooding, increased water temperatures, decreased oxygen levels, greater channel erosion, and increased sedimentation. As storm water runoff crosses the urbanized landscape; it picks up fertilizers, pesticides, debris, salt, oil, grease, other toxic substances and sediments leading to decreased water quality.

### Identification of Concerns



The Pierce County Land Conservation Department conducted a public opinion survey in 1999. The survey identified degradation of groundwater quality as the greatest concern to Pierce County residents completing the survey. This issue was followed by the loss of prime agricultural lands, degradation of surface water quality and loss of environmentally sensitive land areas in the county. Soil erosion and soil productivity were ranked next followed by loss of

wildlife and/or wildlife habitat, forestry issues and air quality. Summarized results are included in Appendix A.

The survey was mailed to 600 randomly selected households throughout Pierce County. One hundred and eighty nine were returned through the mail. This rate of return of 32 percent is above the normal range expected with a mail survey.

### Review of survey conclusions

The citizen advisory committee and technical work group members reviewed survey results in the 2005 planning process. Each group was asked to identify natural resource concerns, potential threats to county natural resources and activities to address the threats. These results are also included in Appendix A. The 1999 and 2005 survey data was reviewed by both committee and work group members and determined to be relevant for this plan revision.

Input from Citizen Advisory Committee and Technical Work Group members was used to re-evaluate the priority of plan goals and to prioritize plan action items. Overall both groups agreed that nutrient and soil loss from cropland and the corresponding effects on surface and ground water is the greatest concern. Protection of farmland from development and fragmentation also concerned both groups.

The final ordering of resource concerns directed the order of plan goals.

- Groundwater and surface water quality
- Loss of prime farmland and prime agricultural soils / Soil erosion and loss of soil productivity
- Loss of environmentally sensitive lands
- Loss of wildlife and wildlife habitat

- Forestry issues

Threats identified in the citizen group in order of priority:

- Agricultural fields–soil erosion
- Agricultural livestock operations
- Rural residential development
- Residential/lawn fertilizer and pesticide use
- Agricultural fertilizer and pesticide use
- Construction site or road construction erosion

Public officials and staff were concerned with priority threats in the following order:

- Agricultural fields – soil erosion
- Agricultural livestock operations
- Stream bank/gully erosion
- Agricultural fertilizer and pesticide use
- Rural residential development
- Construction site or road construction erosion

Implementation of the plan, including goals and objectives, and action items focused on the top five resource concerns identified. Some of the other individual resource concerns will be addressed through the activities developed for the priority concerns. Other concerns that received lower priority may at times be given attention because they may be most critical at a particular site. Concerns that were not prioritized are also often addressed as part of required on-going agency efforts.

## Chapter 3. Goals, Objectives, and Activities



The goals established in this plan represent priorities for land and water resource conservation and protection in Pierce County. They will be implemented over a ten-year planning period beginning in the year 2012.

### Plan Goals

#### Water Quality

*Goal I: Improve and protect surface and groundwater quality.*

#### Prime Agricultural Land and Soils / Soil Erosion and Loss of Soil Productivity

*Goal II: Encourage the preservation of prime agricultural lands and improve the health and productivity of agricultural soils.*

#### Environmentally Sensitive Lands

*Goal III: Encourage the preservation of environmentally sensitive land for wildlife habitat, water quality, and scenic values.*

#### Forestry

*Goal IV: Encourage good stewardship and management of woodlands.*

#### Wildlife

*Goal V: Encourage wildlife habitat restoration and maintenance.*

### Implementation Strategy

Pierce County Land Conservation Department staff will use this document as a guide to ensure that the five plan goals are addressed. A comprehensive review of agricultural lands based on the goals and objectives of this plan will be conducted to determine the environmental need for a given resource area. Staff will meet with landowners to conduct the field portion of the review. The results will then be discussed with the landowner and a list of recommended actions to achieve the goals of the watershed will be developed. All reviews and recommended actions will be recorded with the use of GIS database to ease tracking of recommended practices along with parcels meeting the conservation objectives. This database will provide fast and accurate data to be used to apply for cost sharing funds and provide reliable information to evaluate the success of this plan. Resource area to be evaluated will be determined using results from our transect survey, the Wisconsin Buffer Initiative watershed ranking data and other resource information from our supporting conservation partners.

## **Water Quality**

*Goal I: Improve and protect surface and groundwater quality.*

### **Objectives**

1. Develop and implement a targeted watershed approach based on potential to deliver sediment and nutrients to surface waters
2. Provide technical assistance and cost sharing for installation of water quality best managements practices (BMP's)
3. Implement a systematic approach to evaluate and determine compliance with Agricultural Performance Standards (NR151)
4. Encourage landowners to install grass filter areas to reduce erosion and sediment delivery to surface waters
5. Monitor progress towards goals of cropland soil loss = "T" or less
6. Reduce erosion on construction sites through education and implementation of construction site BMP's
7. Promote the need for continued resource protection
8. Monitor ground water quality through out the County

## **Prime Agricultural Land and Soils / Soil Erosion and Soil Productivity**

*Goal II: Encourage the preservation of prime agricultural lands and improve the health and productivity of agricultural soils.*

### **Objectives**

1. Promote the protection of farmland through implementation of the Wisconsin Working Lands Initiative
2. Encourage landowners to adopt modern crop production methods that reduce topsoil losses
3. Promote bio-energy and the bio-economy
4. Promote alternative agriculture production systems/ increase the amount of grazing for grass-fed goods industry
5. Communicate "right to farm" in an ecologically and socially acceptable manner

## **Environmentally Sensitive Lands**

*Goal III: Encourage the preservation of environmentally sensitive land for wildlife habitat, water quality and scenic values.*

### **Objectives**

1. Promote the protection and restoration of sensitive lands for fish and wildlife habitat, water quality and scenic values through existing or other acquisition or conservation easement programs
2. Encourage compliance with existing land use and zoning regulations
3. Ensure that protection of sensitive lands is included in comprehensive land use planning efforts at all levels of government
4. Evaluate the need for additional land use regulations to provide fish and wildlife habitat protections

## **Forestry**

*Goal IV: Encourage good stewardship and management of woodlands.*

### **Objectives**

1. Promote planting of native trees and shrubs on private lands
2. Encourage professional forestry assistance and promote forestry best management practices (BMP's)
3. Promote restoration of woodlands on steep slopes and other sensitive lands where cropping or over-grazing has occurred
4. Educate woodland owners on non-native invasive species that are spreading in Pierce County

## **Fish and Wildlife**

*Goal V: Ensure fish and wildlife habitat is restored and maintained*

### **Objectives**

1. Increase native grass and tree/shrub planting to enhance wildlife habitat on private lands
2. Identify and enhance important fish and wildlife habitat areas
3. Locate remnant prairie and oak savannahs throughout Pierce County
4. Promote awareness of aquatic and terrestrial non-native invasive species

## **Other Responsibilities / Activities of the Land Conservation Department**

- A. Implement the Wildlife Damage Program
- B. Continue current floodwater protection program constructed under PL566 and CCC programs. Maintain the Emergency notification system at Nugget Lake.
- C. Provide software, hardware, staff training, and data for an integrated county Geographic Information System that is available to the public.

## **Information and Education Strategy**



Information and education action items will be critical to reaching each plan goal. In order to reach the goals, many individuals in the county must make behavioral changes. People will not make these changes unless they understand the importance of natural resources, the ways to protect them and are aware of assistance available.

The priority educational topics listed below were identified from the 1999 natural resources survey, and were updated in the fall of 2005 and winter of 2011 with citizen advisory committee and technical work group input. The action items are priorities for delivering information about the priority topics. New action items and topics may be chosen through the plan implementation period.

### **Educational Programs**

Goal: Target conservation education to address priority topics.

- Pierce County conservation educational programs: annual awards banquet; speaking contest; poster contest ; conservation tours and conservation camp scholarships

- Nutrient management planning; Assist farms in interpreting consultant-developed nutrient management plans and educate farmers to help them develop their own nutrient management plans
- Land Conservation Department Annual Report
- Pierce County web page conservation information
- LCD staff classroom presentations and field days
- Listening session(s) regarding future conservation programming efforts
- Conservation Brochures
- Pierce County Fair Participation

## **Chapter 4. Implementation Strategy for NR 151 Agricultural Nonpoint Performance Standards**

### **A. Implementation Considerations**

The Pierce County Land Conservation Department (LCD) will cooperate with the Department of Natural Resources (DNR), and other agencies to assist landowners in meeting the agricultural performance standards and prohibitions. The DNR 10-point implementation strategy will be used as a model to guide department staff through this process.

Implementation of each component of the strategy outlined below will be dependent upon receiving adequate staffing, support and cost share funds for completion.

*The following principles will guide implementation of the agricultural performance standards in Pierce County:*

1. Prioritize sub-watersheds to be evaluated based on highest soil erosion rates as determined by transect survey, Wisconsin Buffer Initiative (WBI) ranking data, conservation partner agency survey data, and department staff knowledge of resource concerns
2. Encourage voluntary participation in on-farm resource evaluations and cost sharing program for agricultural conservation practices
3. Implement most cost effective practices as a high priority
4. Evaluate all parcels enrolled in Working Lands Initiative or receiving cost sharing from DATCP or DNR grant
5. Evaluate all parcels owned by a landowner applying for a Pierce County Manure Storage Ordinance permit
6. Coordinate DATCP funding for conservation practices to meet the agricultural performance standards with other cost share opportunities such as the Federal EQIP (Environmental Quality Incentives Program of the Natural Resources Conservation Service)
7. Evaluate all performance standards at one time for a particular farm/site with an on-site visit
8. Document compliant parcels through a landowner compliance status report and track parcels using a GIS database

### **B. Conduct Information and Education Activities**

The LCD will distribute information and educational material prepared by the DNR. The information may be distributed via newspaper, newsletters, handouts, public information meetings, and one-on-one contacts.

The educational materials will be designed to meet the following objectives:

1. Educate landowners about Wisconsin's agricultural performance standards and prohibitions, applicable conservation practices and cost share grant opportunities;
2. Promote implementation of conservation practices necessary to meet performance standards and prohibitions
3. Inform landowners about procedures and agency roles to be used statewide and locally for ensuring compliance with the performance standards and prohibitions.

## **C. Determine Compliance**

### **1. Identification of Priority Farms**

Pierce County Land Conservation Department and Committee will identify priority farms for NR151 evaluation by these methods. A farm will be evaluated if;

- a) Landowner receives a cost share contract for installation of a conservation practice from County, DATCP or DNR
- b) The landowner applies for a manure storage ordinance permit
- c) The landowner enrolls in Working Lands Initiative
- d) The department receives a complaint regarding potential violation
- e) Livestock facilities or cropland/pastureland is located in Surface Water Quality Management Areas (SWQMA) of a DNR designated Outstanding/Exceptional Resource Water (ORW/ERW) or 303(d) listed water

Successful Implementation of this priority farm strategy will hinge on continued funding for staff and cost sharing at the County and State level.

### **2. Onsite Evaluations Procedure**

- a) Compile list of priority farm parcels for on-site evaluations based upon the priority list completed above.
- b) Contact owners of selected parcels and schedule site evaluations.
- c) Conduct onsite evaluations, determine and document the extent of current compliance with each of the performance standards and prohibitions. See NR151 performance standards and prohibitions checklist in Appendix D.
- d) Non-compliant parcels will have a cost estimate for practices required along with cost sharing opportunities detailed in Compliance Status Report

### **3. Maintaining Voluntary Cost Share Program**

Pierce County plans to maintain what has been a very successful voluntary cost share program with modifications to incorporate the agricultural performance standards. Interest in voluntary cost sharing is high in Pierce County. Significant water quality improvements are made through this voluntary participation.

### **Voluntary Cost Sharing Guidance**

Applicant farms will be screened using the agricultural performance standards on-site evaluation procedure and compliance status documentation.

- a) Applicants will receive on-site evaluations on a first come, first serve basis.
- b) Cost sharing offered will be prioritized using the criteria for priority farms.
- c) Scheduling of cost share practices will be based upon:
  - 1) State and federal cost share \$ available
  - 2) Farmer's desired timeframe and match availability
  - 3) Ability to meet agricultural performance standards at a relatively low cost

Cost sharing may be provided to exceed the agricultural performance standards if water quality benefits are achieved and practices are relatively low-cost.

## **D. Document and Report Compliance Status**

### **1. NR151 Status Report**

Following completion of on-site evaluation, prepare and issue NR 151 status report to owners of the evaluated parcels. This report will convey the following information at a minimum:

- a) Current status of compliance of individual parcels with each of the performance standards and prohibitions. Parcel information will be filed and traced using Pierce County parcel identification number for use with a Geographic Information System
- b) Corrective measure options and rough cost estimates to comply with each of the performance standards and prohibitions for which a parcel is not in compliance.
- c) Status of eligibility for public cost sharing<sup>25</sup>
- d) Grant funding sources and technical assistance available from federal, state, and local government and third party service providers
- e) An explanation of conditions that apply if public cost share funds are used (*If public funds are used, applicable technical standards must be met.*)
- f) A timeline for completing corrective measures, if necessary.
- g) Signature lines indicating landowner agreement or disagreement with report findings
- h) Process and procedures to contest evaluation results to county and or state. The Land Conservation Committee will review cases of contested compliance evaluation results at a regularly scheduled LCC meeting

### **2. Maintain Public Records**

Keep and maintain evaluation and compliance information as public record.

Note: The primary objective of this step is to ensure subsequent owners are made aware of (and have access to) NR 151 information pertinent to their property. The method for maintaining these records and for ensuring relevant information is

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<sup>25</sup> Livestock facilities constructed after October 1, 2002 are not eligible for DATCP cost sharing to reach compliance with the state agricultural performance standards.

conveyed to subsequent owners will be discussed with the Pierce County Corporation Counsel.

## **E. Cost Share Funding, Administration and Technical Assistance**

### **1. Voluntary Component (Cooperative)**

- a) Receive request for cost-share and/or technical assistance from landowner.  
*Note: Landowners will be prompted to voluntarily apply for cost-sharing based on information provided in a NR 151 Compliance Status Report.*
- b) Confirm cost-share grant eligibility and availability of cost-share and technical assistance.
- c) Develop and issue cost-share contract (including BMPs to be installed or implemented, estimated costs, project schedule, and notification requirements under NR 151.09(5-6) and/or 151.095(6-7).

### **2. Non-Voluntary Component (Non-Cooperative)**

In the event that a landowner chooses not to install corrective measures either with or without cost sharing, issue landowner notification per NR 151.09(5-6) and/or 151.095(6-7)

- a) If eligible costs are involved, this notification shall include an offer of cost sharing.
- b) If no eligible costs are involved, or if cost sharing is or was already made available, the notification will not include an offer of cost sharing.

The notification referenced above will be designed by the DNR and contain:

- 1) A description of the performance standard or prohibition being addressed;
- 2) The compliance status determination made in accordance with NR 151;
- 3) The determination of which best management practices or other corrective measures are needed and which, if any, are eligible for cost sharing;
- 4) The determination that cost sharing is or has been made available, including a written offer of cost sharing when appropriate;
- 5) An offer to provide or coordinate the provision of technical assistance;
- 6) A compliance period for meeting the performance standard or prohibition;
- 7) An explanation of the possible consequences if the owner or operator fails to comply with provisions of the notice; and
- 8) An explanation of state appeals procedures.

## **F. Enforcement**

If a landowner is found to be out of compliance with state performance standards and prohibitions and refuses technical and financial assistance from Pierce County Land Conservation Committee, they will receive notification by mail that they are subject to enforcement actions pursuant to NR151.09 or NR151.095. Pierce County Land Conservation

Committee will then refer the landowner to the Department of Natural Resources, Runoff Management Program, West-Central Office in Eau Claire, Wisconsin. Pierce County will work closely with DNR staff to provide necessary information related to the enforcement procedure.

## **G. Tracking and Reporting Program Activities and Progress**

1. Maintain and convey a record of annual site evaluations showing their location and compliance status.
2. Maintain a record of estimated costs of corrective measures for each evaluated parcel.
3. Maintain and convey a record showing parcels where public cost sharing has been applied to implement standards and prohibitions, the amount and source of those funds and the landowner share.
4. Maintain and convey a record and location of parcels receiving notification under component 2A.
5. Maintain and convey a record of the annual cost of technical and administrative assistance needed to administer agricultural performance standards and prohibitions, as established in NR151.

## Chapter 5. Plan Implementation

The land and water resource management plan is a ten-year strategic plan for Pierce County. The plan was developed to guide the Pierce County Land Conservation Committee and Department. Some of the activities are led by other organizations and county departments.

### A. Work Plan

A work plan to implement the plan activities is outlined in the tables in Appendix C. This work plan identifies lead and cooperating agencies and evaluation measures. The work plan will be updated in 2016 or before, if necessary. Addresses and telephone numbers for these agencies are listed in Appendix L.

There are many groups and agencies that are involved with resource conservation in Pierce County. Carrying out the provisions of this county land and water resource management plan will require the cooperation of many individuals and organizations. The following is an overview of the main state and federal agencies that will work together with the Pierce County Land Conservation Department and Committee.

### B. Plan Partners

#### 1. Local

##### a) Pierce County Department of Land Management

The Department of Land Management is responsible for planning and zoning functions in Pierce County. The Land Conservation Departments provides review and technical assistance in the administration of the zoning and subdivision ordinances.

##### b) Pierce County Nugget Lake Park

Park staff work together with the LCD to maintain the dam at Nugget Lake. Cooperative projects maintain the dam and work to improve water quality in Nugget Lake.

##### c) Non-Government Organizations (NGO's)

Land Conservation staff will collaborate with private conservation groups such as Land Trusts and Sportsman's Clubs to effectively address resource protection and enhancements.

#### 2. Statewide

##### a) University of Wisconsin Cooperative Extension Service (UWEX)

UWEX is responsible under state law for research and educational programs related to soil and water conservation. The extension service is directed to work with local counties on these programs. UWEX conservation programs include: nutrient and pest management demonstration projects, groundwater survey

projects, farmstead assessments for groundwater protection (Farm\*A\*Syst) and local conservation tillage demonstration projects.

**b) Wisconsin Department of Agriculture, Trade & Consumer Protection (DATCP)**

According to state statute, DATCP is responsible for serving as the central agency for setting up and implementing statewide soil and water conservation policies and administering the state's soil and water conservation programs. DATCP provides assistance and reviews for the county land and water management plans. DATCP has overall responsibility for the Wisconsin Farmland Preservation Program and Working Lands Initiative. State Statutes requires that DATCP funding be provided to Land Conservation Departments to support local staff, training and to fund local conservation projects.

**c) Wisconsin Department of Natural Resources (DNR)**

This state agency manages nearly all state owned land and protects all public waters of the state. The DNR provides cost-sharing and technical assistance to implement a variety of resource programs such as the Kinnickinnic Priority Watershed Project, Wildlife Damage Abatement and Claims Program, Animal Targeted Runoff Management Grants, Notice of Discharge and WPDES (NR-243), Fisheries Management Programs, Lake Management Programs, and Forestry Assistance Programs such as the Wisconsin Managed Forest Law Program. DNR has twenty-three basin water teams throughout the state. These teams deal with nonpoint pollution, point source pollution, and other water issues on a multi-county area based upon the major basins of the state.

**d) Wisconsin Land & Water Conservation Association (WLWCA)**

WLWCA is a membership organization representing all of the state's 72 county Land Conservation Committees. On behalf of county LCC's, WLWCA lobbies elected officials and government agencies to secure financial and program support for local conservation activities. In addition, several state conservation education and recognition programs are sponsored by the WLWCA. On a larger basis, the National Association of Conservation Districts (NACD) comprised of over 3000 local conservation districts and departments throughout the nation, provides national support and lobbying efforts on behalf of its local members. Pierce County is an active member in both of these organizations.

**3. Federal**

**a. Farm Service Agency (FSA)**

Also a part of USDA, the FSA administers a variety of agricultural assistance programs including production controls, price supports, and conservation incentives. The Pierce County Land Conservation Committee has a representative from FSA on their committee as a regular voting member to encourage further coordination and cooperation between agencies. Specific conservation programs which FSA has partial or sole responsibility for

administering include: Conservation Reserve Program, Conservation Reserve Enhancement Program, Sodbuster, and Swampbuster.

**b) Natural Resources Conservation Service (NRCS)**

Part of the United States Department of Agriculture (USDA), NRCS has long-cooperated with and assisted land conservation committees and departments. NRCS is linked to the Pierce County LCC and LCD through a memorandum of understanding that is reviewed on an annual basis. This memorandum spells out the roles and responsibilities of each agency. Some of the existing conservation programs and activities which NRCS has been given partial or sole responsibility for administering include: Conservation Reserve Program, Conservation Compliance, Conservation Security Program, Farm and Ranchlands Protection Program, Grassland Reserve Program, National Resource Inventory, Resource Conservation and Development Program, Sodbuster, Swampbuster, Wetland Reserve Program, Wildlife Habitat Incentives Program, Environmental Quality Incentives Program (EQIP), and Soil Survey Program

**c) USDA-Animal & Plant Health Inspection Service - Wildlife Services (APHIS-WS)**

This federal agency provides technical and financial support in cooperation with the Pierce County Land Conservation Department and Wisconsin DNR to assist Pierce County landowners in minimizing crop losses due to wildlife damages.

**4. Other Cooperating Partners and Non-Government Organizations**

Besides the local, state, and federal organizations listed above, the 1999 Pierce County Citizens Advisory Group listed several other organizations and agencies that may be able to provide support and assistance to the overall conservation program in Pierce County. Some of the ideas generated included: student volunteer groups, UW-River Falls, local Rod & Gun Clubs, Kinnickinnic River Land Trust, agricultural business interests, teachers organizations, Sierra Club, Trout Unlimited, Pheasants Forever, Ducks Unlimited, West Central Wisconsin Woodland Owners Association, Farm Bureau, National Farmers Organization, Farmers Union, West Wisconsin Land Trust, Wisconsin forest Products, and Wisconsin Tree Farm Commission

**C. Budget and Funding**

The Pierce County Land and Water Resource Management Plan is a document that can be used by all of the partners that work to protect natural resources in the county. A combination of private, local, state, and federal sources will be sought to implement the priorities of the plan. As funding opportunities arise, the plan goals and objectives will be referenced to develop project applications. A partial list of potential funding sources is included in Appendix G. The lead agency to pursue funding will depend upon the individual activity being pursued.

Estimated resources needed for plan implementation are summarized in Table 3 below. Five full

time equivalent staff will carry out the activities in the plan. Actual financial needs will be determined as resource inventory and evaluation process is completed for each resource area. Additional resources are contributed by partner agencies and departments listed in the work plan, but not detailed in the budget below.

**Table 3. Annual Staff and Estimated Funding Needs for Plan Implementation**

	<b>Staff Hours</b>	<b>Cost Sharing</b>	<b>Financial Partners</b>
Goal 1: Groundwater and surface water	7880	\$750,000	COUNTY TAX LEVY, DATCP, DNR,NRCS.UWEX
Goal 2: Prime farmland and soils	1600	50,000	COUNTY TAX LEVY, DATCP, DNR,NRCS.UWEX,LM
Goal 3: Environmentally sensitive lands	120	50,000	COUNTY TAX LEVY, DATCP, DNR,NRCS.UWEX
Goal 4: Forestry	240	5,000	COUNTY TAX LEVY, DATCP, DNR,NRCS.UWEX
Goal 5: Wildlife	120	25,000	COUNTY TAX LEVY, DATCP, DNR,NRCS.UWEX
Educational Activities	240	1,000	COUNTY TAX LEVY, DATCP, DNR,NRCS.UWEX
Other LCD Activities	200	3,000	
<b>TOTAL</b>	<b>10400</b>	<b>\$884,000</b>	

## Chapter 6. Evaluation and Monitoring



Plan evaluation assesses whether the objectives and action items of the plan are being accomplished. Evaluation measures are listed for each plan objective in the work plan located in appendix C.

The Pierce County Land Conservation Department prepares an annual report each year, see **appendix B** for the 2010 report. The annual report includes the number of conservation practices installed each year, acres of conservation plans and nutrient management plans written, number of status reviews completed, farmland preservation program and other conservation program statistics, information and education program progress, and the department goals planned and established. A GIS database will be used to track all conservation practices installed each year, see table below for a summary of practices installed during current LWRM plan cycle. Additionally, an inventory of recommended practices from on-farm evaluations will be developed and maintained in GIS database. DNR water quality monitoring data will be reviewed periodically and additional stream monitoring may be initiated if resources become available to support the activity. The annual transect survey will be used to monitor cropland soil loss and to track changes in land uses. Pierce County will explore the opportunities to offer a county –wide groundwater sampling program in the near future. Annual reporting will be completed to the Department of Agriculture, Trade and Consumer Protection (DATCP) using the web-based reporting system maintained by DATCP.

The Pierce County Land Conservation Committee (LCC) will review the annual report and work plan outcomes each year. The LCC will sponsor mid-term public review of land and water management plan progress in early 2016. The members of the Citizens Advisory Committee and Technical Work Group will be invited to participate in evaluation and monitoring. This meeting will be open to other interested members of the public. The meeting will review progress to date and solicit input on work plans and priority action items and conservation practices for the remaining years of plan implementation.

### PIERCE COUNTY CONSERVATION ACHIEVEMENT 2006-2010

PRACTICE	TOTAL UNITS INSTALLED
Nutrient Management	27,500 acres
Grade Stabilization Structures	135
Grassed Waterways	120 acres
Clean Water Diversions	1800 feet
Waste Storage Closure	5
Stream Bank Protection	12,922 feet
Critical Area Treatment	6 acres
Waste Storage Facilities	12 structures
Sinkhole Treatment	16
Well Decommissioning	30
Vegetative Buffer	2
Roof Runoff Management	3
Livestock Exclusion	2
Livestock Watering Facility	1
Milk House Waste Treatment	1
Prescribed Grazing	177.7 acres

## Appendix A. Public Input Summaries

### 1999 Land and Water Resource Management Plan Survey Summarized Results

<u>Resource Issue</u>	# of survey respondents which ranked this issue as <u>their top concern</u>
Air Quality	4
Loss of Farmland & Farmland Soils	48
Forestry Issues	2
Groundwater Quality Degradation	62
Loss of Environmentally Sensitive Land Areas	14
Loss of Wildlife & Wildlife Habitat	11
Soil Erosion & Loss of Soil Productivity	11
Surface Water Quality Degradation	<u>13</u>
Total # of Responses	165*

\*20 of the survey respondents did not use the requested numbering system, thus we were not able to use their responses for this portion of the survey.

<u>Resource Issue</u>	Total number of points which each resource issue <u>received in the survey*</u>
Air Quality	889
Loss of Farmland & Farmland Soils	588
Forestry Issues	849
Groundwater Quality Degradation	451
Loss of Environmentally Sensitive Land Areas	659
Loss of Wildlife & Wildlife Habitat	768
Soil Erosion & Loss of Soil Productivity	712
Surface Water Quality Degradation	613

\*In this scenario the resource issues with the lowest number of total points actually ranked higher as a concern by the citizens completing the survey. For example, since groundwater quality was ranked as the #1 natural resource concern by many of the survey respondents, its total points did not add up as fast as some of the other resource concerns. Also, while surface water quality degradation was ranked as the number #1 resource concern by only 13 of the survey respondents in Table I, it had a fairly low total number of points (613) in Table II. This meant that while surface water quality degradation was not necessarily the main concern of most survey respondents, it was oftentimes selected as the #2 or #3 resource concern by the respondents.

**2005 Pierce County Resource Concerns--Citizen Advisory Committee Results  
September 13, 2005**

<b>Resource Issue</b>	<b>Rank of Concern</b>	<b>Weighted score<sup>26</sup></b>	<b>Number of votes</b>
1. Loss of Farmland & Farmland Soils	1	27	10
2. Groundwater Quality Degradation	2	18	10
3. Surface Water Quality Degradation	3	10	5
4. Soil Erosion & Loss of Soil Productivity	3	10	6
5. Loss of Environmentally Sensitive Land (including bluff lands)	4	4	3
6. Loss of Wildlife & Wildlife Habitat	5	2	1
7. Air Quality	5	2	1
8. Forestry Issues	6	1	1

1) What **potential** threats to Pierce County natural resources should receive the most attention?

- 14 \_\_\_ Rural residential development (eg. loss of open space or loss of habitat)
- 14 \_\_\_ Agricultural livestock operations (eg. manure handling and storage)
- 11 \_\_\_ Agricultural fields - soil erosion
- 8 \_\_\_ Residential/lawn fertilizer and pesticide use
- 4 \_\_\_ Agricultural fertilizer and pesticide use
- 3 \_\_\_ Construction site or road construction (eg. soil erosion and runoff)
- 3 \_\_\_ Off-road (ATV) vehicle use – damage to habitat and runoff to waters
- 2 \_\_\_ Industry / toxic waste
- 2 \_\_\_ Septic systems
- 2 \_\_\_ Invasion of exotic species
- 1 \_\_\_ Domestic/municipal solid waste (dumps/landfills)
- 1 \_\_\_ Other (not identified)

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<sup>26</sup> Participants were asked to choose their top three concerns in order of importance. The weighted score was calculated by assigning three points to #1 votes, 2 points to #2 votes, and 1 point to #3 votes and totaling the value.

2) Please check **five** activities that you believe the local, state, and federal conservation staff should emphasize in Pierce County to address the potential threats to our local natural resources.

- 8 \_\_\_ Environmental education programs for kids
- 7 \_\_\_ Cost sharing/financial assistance to landowners for approved conservation practices
- 7 \_\_\_ Land use planning
- 7 \_\_\_ Change zoning codes for residential development (more strict)
- 7 \_\_\_ Improved zoning enforcement
- 5 \_\_\_ Promote alternative, sustainable, and organic agriculture
- 5 \_\_\_ Animal waste ordinance enforcement
- 5 \_\_\_ Groundwater protection education and technical assistance
- 3 \_\_\_ Nutrient management planning for farmers
- 3 \_\_\_ Construction site erosion control assistance
- 3 \_\_\_ Conservation information and technical assistance
- 3 \_\_\_ Environmental education programs for adults
- 2 \_\_\_ Conservation easement assistance (voluntarily limit land development)
- 1 \_\_\_ Well sealing/abandonment assistance
- 1 \_\_\_ Household hazardous waste collection

**2005 Pierce County Resource Concerns--Technical Work Group Results  
September 15, 2005**

<b>Resource Issue</b>	<b>Rank of Concern</b>	<b>Weighted Score<sup>27</sup></b>	<b>Number of votes</b>
1. Groundwater Quality Degradation	1	21	8
2. Surface Water Quality Degradation	2	16	7
3. Soil Erosion & Loss of Soil Productivity	3	11	6
4. Loss of Farmland & Prime Farmland Soils	4	9	6
5. Loss of Environmentally Sensitive Land (includes bluff lands)	5	5	4
6. Loss of Wildlife & Wildlife Habitat (includes grasslands)	6	3	1
7. Forestry Issues	7	1	1

<sup>27</sup> Participants were asked to choose their top three concerns in order of importance. The weighted score was calculated by assigning three points to #1 votes, 2 points to #2 votes, and 1 point to #3 votes and totaling the value.

3) What **potential** threats to Pierce County natural resources should receive the most attention?

**Technical work group priorities**

- 9 \_\_\_ Agricultural fields - soil erosion
- 8 \_\_\_ Agricultural livestock operations (eg. manure handling and storage)
- 7 \_\_\_ Rural residential development (eg. loss of open space or loss of habitat)
- 7 \_\_\_ Construction site or road construction (eg. soil erosion and runoff)
- 6 \_\_\_ Streambank/gully erosion
- 3 \_\_\_ Agricultural fertilizer and pesticide use
- 3 \_\_\_ Invasion of exotic species
- 3 \_\_\_ Loss of wetlands
- 2 \_\_\_ Residential/lawn fertilizer and pesticide use
- 2 \_\_\_ Increases in impervious surfaces/loss of groundwater recharge\_
- 2 \_\_\_ Non-metallic mining/gravel pits
- 2 \_\_\_ Salvage yards
- 1 \_\_\_ Off-road (ATV) vehicle use – damage to habitat and runoff to waters

4) Please check **five** activities that you believe the local, state, and federal conservation staff should emphasize in Pierce County to address the potential threats to our local natural resources.

5)

- 12 \_\_\_ Cost sharing/financial assistance to landowners to install approved conservation practices
- 7 \_\_\_ Nutrient management planning for farmers
- 6 \_\_\_ Conservation information and technical assistance
- 5 \_\_\_ Construction site erosion control assistance
- 4 \_\_\_ Animal waste ordinance enforcement
- 3 \_\_\_ Change zoning codes for residential development
- 3 \_\_\_ Invasive species information and technical assistance
- 3 \_\_\_ Conservation easement assistance (voluntarily limit land development)
- 2 \_\_\_ Drinking water well testing
- 1 \_\_\_ Groundwater protection education and technical assistance
- 1 \_\_\_ Well sealing/abandonment assistance
- 1 \_\_\_ Agricultural purchase of development rights program
- 1 \_\_\_ Land use planning
- 1 \_\_\_ Tree and shrub sales
- 1 \_\_\_ Conservation planning

## **Appendix B.**

### **2010 ANNUAL REPORT OF THE PIERCE COUNTY LAND CONSERVATION**

**2010 ANNUAL REPORT  
PIERCE COUNTY LAND CONSERVATION DEPARTMENT (LCD)  
TO THE HONORABLE MEMBERS  
OF THE PIERCE COUNTY BOARD OF SUPERVISORS  
March 15, 2011**

<b>DEPARTMENT MISSION STATEMENT</b>
-------------------------------------

The Pierce County Department of Land Conservation develops strategies, implements programs, and provides technical assistance to protect and enhance the soil and water resources of the county.

<b>DEPARTMENT GOALS ESTABLISHED FOR 2010</b>
----------------------------------------------

- ◆ Improve and protect surface water quality by addressing sedimentation of rivers, lakes and streams. And improve and protect groundwater quality by educating farmers on nutrient management implementation.
- ◆ Encourage the preservation of prime agricultural land and improve the health and productivity of agricultural soils.
- ◆ Encourage the preservation of environmentally sensitive land for wildlife habitat, water quality and scenic values.
- ◆ Encourage good stewardship and management of woodlands.
- ◆ Ensure wildlife habitat is restored and maintained.
- ◆ Target conservation education to address priority topics.

### **STATUTORY RESPONSIBILITIES**

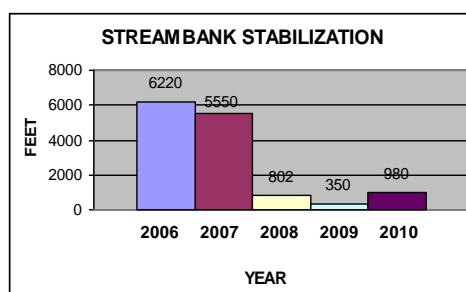
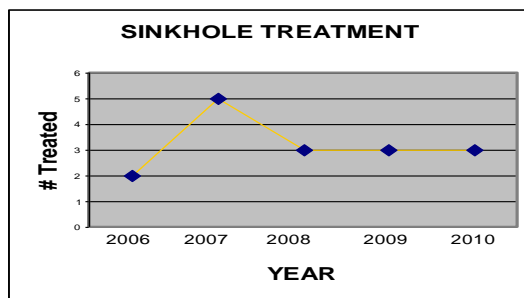
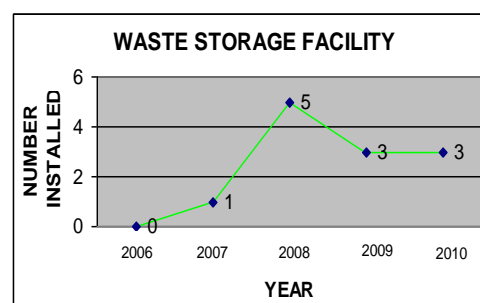
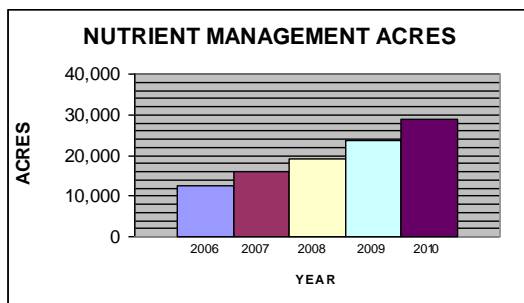
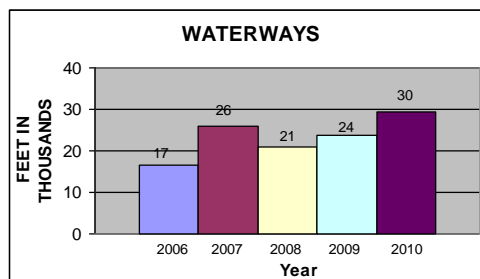
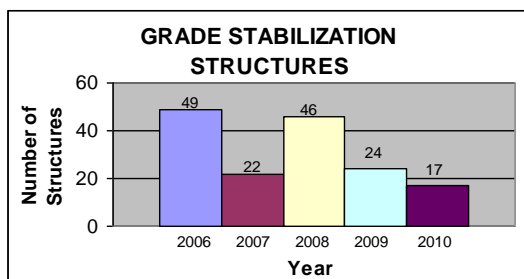
The Land Conservation Committee/Department is dedicated to resource management. Its statutory responsibilities can be found in Chapters 91, 92 and 281 of the Wisconsin Statutes. These responsibilities are further defined in Administrative Codes NR 120, NR 151 and ATCP 50.

This Department is responsible for administering Pierce County's Land and Water Resource Management Plan and its accompanying cost share program; the County's Farmland Preservation Program; Manure Storage Ordinance; Kinnickinnic Priority Watershed Program; Conservation Reserve Enhancement Program (CREP); Wildlife Damage and assists the USDA Natural Resource Conservation Service (NRCS) in administering the 2008 Farm Bill (The Farm Security and Rural Investment Act); Conservation Reserve Program (CRP); Conservation Security Program (CSP); Environmental Quality Incentive Program (EQIP); Farm and Ranchland Protection Program (FRPP); Wetland Reserve Program (WRP); and Wildlife Habitat Incentive Program (WHIP).

## DEPARTMENT GOALS ACCOMPLISHED FOR 2010

### CONSERVATION ACCOMPLISHMENTS

There is a strong voluntary conservation ethic and conservation program in Pierce County. The Land Conservation Department utilizes the expertise and funding from many agencies to assist in the protection and preservation of the natural resources of the county. The following charts and graphs depict conservation practices installed by producers who obtained benefits from county, state or federal programs.



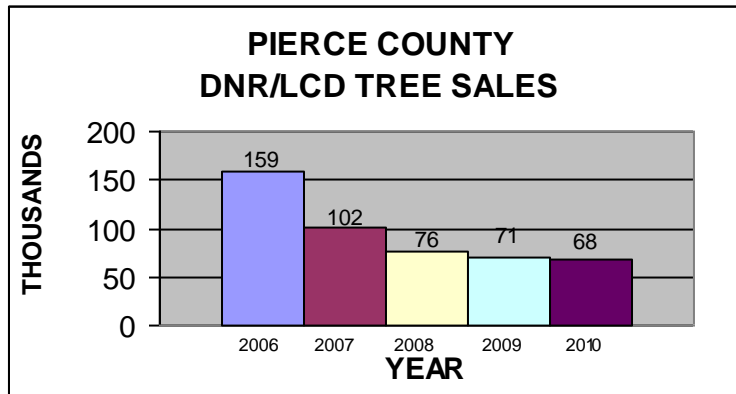
### PL-566 WATERSHED STRUCTURE MAINTENANCE PROGRAM

The Pierce County Land Conservation Department carried out its inspection and maintenance program on several watershed structures that Pierce County is responsible for maintaining. This includes: Three dams in the Plum Creek Watershed; One dam, five concrete grade stabilization structures and 2,000 feet of channel in the Bay City Watershed; and Three debris basins in the Maiden Rock Watershed; and installation of the Nugget Lake Engineering Notification System.

### WASTE STORAGE ACTIVITIES

The Pierce County Land Conservation Department: Reviewed Nutrient Management Plans for new and expanding livestock facilities; Issued three waste storage permits; and performed construction inspections on waste storage facilities to ensure compliance with county ordinance standards.

### FORESTRY



<b>LCD Sales</b>	<b>19,125</b>	<b>21,800</b>	<b>24,150</b>	<b>20,500</b>	<b>19,350</b>
<b>DNR Sales</b>	<b>139,500</b>	<b>80,400</b>	<b>52,000</b>	<b>50,236</b>	<b>48,400</b>
<b>Year</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>

In addition, the Pierce County Land Conservation Department assisted 200+ landowners with species selection and establishment techniques.

### CONSERVATION COMPLIANCE

Approximately 36 farms or 20% of Farmland Preservation participants totaling 5,722 acres were reviewed for compliance with their conservation plan. In addition to these farms, a county-wide transect survey was conducted to statistically analyze soil loss for the County as a whole. To date, eleven years of data with over 7,500 data points have been gathered. This survey shows that 78% (117,608 acres) of Pierce County cropland is below tolerable soil limits and the remaining 22% (33,171 acres) is above tolerable soil loss limits.

### CONSERVATION STEWARDSHIP PROGRAM (CSTP)

The 2008 Farm Bill makes a major investment in working lands conservation. One particularly positive development is additional support for the Conservation Stewardship Program (CSTP), formally known as the Conservation Security program (CSP). The new Farm Bill simplifies and expands CSP to help farmers and ranchers maintain, establish and increase conservation on land they are actively farming. Incentives to encourage conservation on working farmland is becoming an increasingly important approach to protecting our nation's soil and water as demands on farmland increase. LCD staff provides program assistance to NRCS staff on approximately 53,000 acres enrolled in the CSP Program in Pierce County.

### WILDLIFE DAMAGE ABATEMENT & CLAIMS PROGRAM

The Pierce County LCD cooperated with the Wisconsin Department of Natural Resources and USDA-APHIS-Wildlife Services to provide implementation of a Wildlife Damage Program (WDP) in Pierce County. This year, Pierce County landowners worked with the program by utilizing various abatement techniques to reduce wildlife damages. WDP also funded the Hunters Against Hunger whereby 78 deer were processed and donated to the Pierce County Food Pantry.

### **EDUCATIONAL ACTIVITIES**

The Land Conservation Department: *Sponsored* a Conservation Speaking Contest for Pierce County students; *Promoted* local speech participant at the West Central Area Speaking Contest in Eau Claire (First-place winner in the Elementary Division, Jari Zoller of River Falls Westside Elementary and first-place winner in the Junior Division, Hannah Lassen of Prescott Middle School represented Pierce County); *Recognized* individuals at a conservation recognition banquet in April. (Families that were recognized for their conservation efforts included Ralph and Katherine Schommer, Outstanding Conservation Award recipient and Randy Bredahl of River Falls, Soil and Water Conservation Award recipient); *Posted* one online newsletter entitled, "Conservation News & Notes". Local newspapers were also utilized to keep the public informed of LCD activities throughout the year.); *Maintained* Land Conservation Department webpage. *Provided* a speaker from the LCD or NRCS staff to give presentations to schools or other groups as requested; *Co-Sponsored* an Educational Display at the Hillcrest Career Fair; *Participated* in Farm Tech Days preparation; *Sponsored* an informational booth at Farm Tech Days; *Informed* state and national legislators, throughout the year, on how state and federal legislation would impact local conservation programming efforts as well as Pierce County landowners; *Conducted* a Nutrient Management Planning workshop and further assisted landowners wishing to develop and implement nutrient management planning.

### **DEPARTMENT COLLABORATION**

The Pierce County Land Conservation Department collaborated with Land Management/ Zoning, Parks and Emergency Management to develop the required emergency notification system for the Nugget Lake Dam. Highway Department was contracted to complete vegetation management for the PL 566 Flood Control Structures. Land Conservation Staff also assisted UWEX in preparing for Farm Technology Days by providing topographic site surveys. . Land Conservation staff prepared contracts (36) and obtained signatures for CRP program sign-up through a USDA NRCS Contribution Agreement.

<b>DEPARTMENT GOALS PROPOSED FOR 2011</b>
-------------------------------------------

**Pierce County Land Conservation Department (LWRMP) Work Plan 2011 Goals:**

- ◆ Improve and protect surface water quality by addressing sedimentation of rivers lakes and streams. And improve and protect groundwater quality by educating farmers on nutrient management implementation
- ◆ Encourage the preservation of prime agricultural land and improve the health and productivity of agricultural soils
- ◆ Encourage the preservation of environmentally sensitive land for wildlife habitat, water quality and scenic values
- ◆ Encourage good stewardship and management of woodlands
- ◆ Ensure wildlife habitat is restored and maintained
- ◆ Target conservation education to address priority topics

# Appendix C.

## Pierce County Land Conservation Department Work Plan 2012 – 2016

<b>GOAL I. Improve and Protect Pierce County Surface and Groundwater Quality.</b>					
<b>Objective<sup>28</sup></b>	<b>Actions</b>	<b>Partners<sup>29</sup></b>	<b>Staff Hours Needed</b>	<b>Potential Financial Support</b>	<b>Evaluation Tools</b>
<b>1. Develop and implement a targeted watershed approach based on potential to deliver sediment and nutrients to surface water</b>	Use GIS and on-site investigations to identify areas within sub-watersheds that have the greatest probability to deliver sediment and nutrients to surface waters Work one on one with landowners to complete an inventory of conservation need	DATCP DNR NRCS KRLT	2080	DATCP DNR County Levy NGO's	Acres of farmland evaluated and inventoried for conservation need.(1000 acres) St. Croix Basin TMDL participation
<b>2. Provide technical assistance and cost sharing for installation of water quality best management practices(BMP'S)</b>	Assist agricultural, residential and commercial landowners in implementing nutrient management standard NRCS 590 Assist landowners in meeting cropland soil loss goal of less than "T" through conservation planning Assist landowners in addressing erosion issues through the installation of conservation BMP's	DATCP DNR NRCS	4420	DATCP DNR County Levy NGO's	Best Management Practices installed ( 5 Grade Stabilization Structures, 5 acres waterways, 2 clean water diversions, 1000 NM plans) Conservation plans developed and implemented (2000 acres)
<b>3. Implement a systematic approach to evaluate and determine compliance with Ag Performance standards (NR151)</b>	Complete ag performance standards evaluations and enter information into tracking software program	DNR DATCP NRCS	500	DATCP DNR County Levy	Acres of farmland evaluated for compliance with NR151 (1000 acres)
<b>4. Encourage landowners to install grass filter areas to reduce erosion and sediment delivery to surface waters.</b>	Assist landowners with installation of field borders, riparian buffers and filter areas. Develop count- based program to promote grass filters	NRCS UWEX	560	DATCP DNR County Levy NGO's	Acres of filter areas installed (10 acres)

<sup>28</sup> Objectives are in priority order with highest priority objectives in bold.

<sup>29</sup> LCD is involved in each action listed and is the lead agency for the action unless another is listed in bold letters.

<b>GOAL I. Improve and Protect Pierce County Surface and Groundwater Quality.</b>					
<b>Objective<sup>28</sup></b>	<b>Actions</b>	<b>Partners<sup>29</sup></b>	<b>Staff Hours Needed</b>	<b>Potential Financial Support</b>	<b>Evaluation Tools</b>
5. Monitor progress towards goal of cropland soil loss = "T" or less	Complete transect survey	LCD	120	DATCP County Levy	Transect survey completed
6. Reduce erosion from construction sites through education and implementation of construction site BMP's	Develop and implement a countywide construction site erosion control ordinance Demonstrate effective use of erosion control BMP's	LM UWEX	50	County Levy	Ordinance completed Technical assistance provided BMP's maintained throughout construction
7. Promote the need for continued resource protection	Educate landowners, businesses and local and state decision makers on the need for continued financial support for protection of our natural resources Promote the need for a stronger conservation ethic among all landowners and operators Conduct producer workshops/field days to promote farming techniques to minimize erosion from cropland	DATCP DNR NRCS UWEX	100	UWEX NGO's	Financial support for effective resource protection Annual workshops/ field days Fact sheets developed
8. Monitor ground water quality through out the County.	Partner with UWEX and other agencies to conduct a county-wide ground water quality study	UWEX NRCS	50	DATCP DNR UWEX	Number of wells sampled Results mapped in GIS
	<b>SUBTOTAL Goal I</b>		<b>7880</b>		

<b>GOAL II: Encourage the Preservation of Prime Agricultural Lands and Improve the Health and Productivity of Agricultural Soils.</b>					
<b>Objective<sup>30</sup></b>	<b>Actions<sup>31</sup></b>	<b>Partners</b>	<b>Staff Hours Needed</b>	<b>Potential Financial support</b>	<b>Evaluation</b>
<b>1. Promote the protection of farmland through Implementation the Wisconsin Working Land Initiative (WLI)</b>	Revise County Farmland Preservation Plan to meet requirements of WLI. Assist Landowners wishing to develop Ag Enterprise Areas (AEA) Evaluate and certify compliance with NR151 ag performance standards for program participants	LM Towns DATCP LT	1000	DATCP NGO's County levy	Plan completion Number of AEA in County Landowners certified to meet program standards. (5 certifications) Compliance checks (20% annually reviewed)
<b>2. Encourage landowners to adopt modern production methods that reduce topsoil loss</b>	Educate landowners on the use of minimum till/ no-till farming methods, cover crops and contour farming to reduce topsoil loss below "T"	UWEX DATCP DNR	600	DATCP DNR County Levy NRCS	Field days (1 annually) Acres of cropland farmed below "T" (1000 acres planned)
3. Promote Bio-Energy and the Bio-Economy	Explore opportunities to establish biomass crops on sensitive farmland	<b>UWEX</b> DATCP DNR	0	UWEX	Acres of cropland planted to biomass crops
4. Promote alternative agriculture Increase the amount of grazing for grass-fed foods industry	Organize educational field day for promoting intensive grazing methods Provide information regarding cost share opportunities through NRCS EQIP program	<b>RCRCD</b> UWEX NRCS	0	NRCS	Educational activities Technical assistance Plan pasture walks seasonally
5. Communicate "right to farm" in an ecologically and socially acceptable manner	Educate non-farm residents on the modern farming methods Encourage agricultural producers to openly communicate with neighbors & local officials	<b>UWEX</b> NRCS	0	UWEX	Fact sheet developed
	SUBTOTAL Goal II		1600		

<sup>30</sup> Activities are in priority order with highest priority activities in bold.

<sup>31</sup> LCD is involved in each activity listed and is the lead agency for the activity unless another is listed in bold letters.

<b>Goal III. Encourage the Preservation of Environmentally Sensitive Land for Fish and Wildlife Habitat, Water Quality and Scenic Values.</b>					
<b>Objective<sup>32</sup></b>	<b>Actions<sup>33</sup></b>	<b>Partners</b>	<b>Staff Hours Needed</b>	<b>Potential Financial Support</b>	<b>Evaluation</b>
1. Promote protection and restoration of sensitive land for fish and wildlife habitat, water quality and scenic values through existing or other acquisition or conservation easements programs	Evaluate and inventory high priority sensitive areas throughout Pierce County Encourage landowners to implement land preservation actions through private, local, state and federal programs aimed at long term protection of resources Promote awareness of the Kinnickinnic River Land Trust and similar NGO's to local residents	LM DNR LT Towns NRCS	50	NGO's DNR	Environmentally sensitive acres identified Acres enrolled in land protection programs Acres protected under easement Educational materials
2. Encourage the proper enforcement of existing land use and zoning regulations.	Inform landowners of regulations related to activities covered under current zoning ordinances Enforce current zoning ordinances	<b>LM</b> DNR UWEX	50	County Levy	Landowner contacts Enforcement
3. Provide technical assistance to the Pierce County Board, Pierce County Land Management Department, local townships and other local units of government for comprehensive land use planning, zoning and/or permitting efforts	Assist land use planning efforts at all levels of government  Ensure that sensitive lands are identified in comprehensive plans and measures are included for their protection	LM UWEX	20	County Levy	Environmentally sensitive lands protected (acres) Sensitive fish and wildlife lands identified in State stewardship, County or Township plans are protected (acres)
4. Evaluate the need for additional zoning regulations to provide protections for fish and wildlife habitat.	Determine if additional regulations are needed to adequately protect our valuable fish and wildlife resources Consider building setbacks from public recreation areas Consider a moratorium on all captive deer/elk farms	<b>LM</b> DNR Towns NRCS		County Levy	Ordinances approved
	SUBTOTAL Goal III		120		

<sup>32</sup> Activities are in priority order.

<sup>33</sup> LCD is involved in each activity listed and is the lead agency for the activity unless another is listed in bold letters.

<b>GOAL IV. Encourage Good Stewardship and Management of Woodlands.</b>					
<b>Objective<sup>34</sup></b>	<b>Actions</b>	<b>Partners<sup>35</sup></b>	<b>Staff Hours Needed</b>	<b>Potential Financial support</b>	<b>Evaluation</b>
<b>1. Promote planting of trees and shrubs on private lands</b>	Conduct the Pierce County Tree Sales Program Assist with the DNR tree sales program Maintain planting equipment	DNR NRCS	160	Revenue generated from program	Trees and shrubs planted People renting equipment
<b>2. Encourage professional forestry assistance and promote forestry BMPs</b>	Publicize and promote the Wisconsin Managed Forest Law(MFL) Program and Wisconsin Forest Landowner Grant Program(WFLGP)	<b>DNR</b> NRCS	20	WFLGP	Referrals # of MFL contracts Referrals Technical assistance Materials distributed
<b>3. Promote restoration of woodlands on steep slopes and other sensitive lands where cropping or over-grazing has occurred</b>	Identify areas that would be suitable for reforestation	<b>DNR</b> NRCS NGO's	40		Woodland acres of highly erodible or sensitive lands restored (acres) Oak savannas will be identified and managed to benefit this rare plant community
<b>4. Educate woodland owners on non-native invasive species that are spreading in Pierce County</b>	Identify areas with non-native invasive plant populations and track their existence with GIS Provide information to landowners on how to control invasive species on their property	<b>DNR</b> <b>UWEX</b> DATCP	20		Inventoried areas Fact sheets developed and distributed
	SUBTOTAL Goal IV		240		

<sup>34</sup> Activities are in priority order.

<sup>35</sup> LCD is involved in each activity listed and is the lead agency for the activity unless another is listed in bold letters.

<b>Goal V: Ensure Fish and Wildlife Habitat is restored and maintained</b>					
<b>Objective<sup>36</sup></b>	<b>Actions<sup>37</sup></b>	<b>Partners</b>	<b>Staff Hours Needed</b>	<b>Potential Financial support</b>	<b>Evaluation</b>
1. Increase native grass planting and tree/shrub planting to enhance wildlife habitat on private lands	Encourage landowners to plant and manage native grasses and/or plant trees and shrubs to increase acres of suitable wildlife habitat Promote the installation of filter areas adjacent to streams to improve fish habitat Employ prescribed burning crews from The Prairie Enthusiasts and UW-River Falls to annually burn 50 acres of prairie on private lands	<b>FSA</b> <b>DNR</b> <b>NRCS</b> <b>US Fish &amp; Wildlife</b> <b>The Prairie Enthusiast</b> <b>UW-River Falls</b>	40	NRCS NGO's	Acres native grasses seeded Trees planted Acres of prescribed burning completed
2. Identify and enhance important fish and wildlife habitat areas	Complete inventory of critical fish and wildlife habitat areas through Pierce County Assist landowners to target and manage small parcels of wildlife habitat on private land Promote and facilitate restoration of targeted trout streams throughout the county	<b>DNR</b> <b>NGO's</b>	40	County Cons. Aids NRCS EQIP NGO's	Acres identified Information shared with local government Acres planned for habitat improvements Miles of stream restored
3. Locate remnant prairie and oak savannahs throughout Pierce County	Inventory remnant prairie and oak savannah Develop GIS layer to maintain inventory	<b>DNR</b> <b>Prairie Enthusiast,</b> <b>UWRF</b>	0	NGO's	Acres identified Information shared with local government.
4. Promote awareness of aquatic and terrestrial invasive species	Provide information and technical assistance to combat invasive species	<b>UWEX</b> <b>DNR</b> <b>Parks</b>	40		Displays, Fact sheets distributed Web info Field tours
	Subtotal Goal V		120		

<sup>36</sup> Activities are in priority order with highest priority activities in bold.

<sup>37</sup> LCD is involved in each activity listed and is the lead agency for the activity unless another is listed in bold letters.

<b>Educational Activities – Target conservation education to address priority topics</b>					
<b>Activity</b> <sup>38</sup>	<b>Partners</b> <sup>39</sup>		<b>Staff Hours Needed</b>	<b>Potential Financial Support</b>	<b>Evaluation</b>
<i>Conservation News &amp; Notes: LCD Newsletter</i>	ALL		40	County Levy	Shared agency newsletter (RSS Feed) # Priority topics covered
News Releases	ALL		40	County Levy	News releases/year Articles in Partnering newsletters # Priority topics covered
Town Board Presentations	Towns LM UWEX DNR NRCS		20	County Levy	# Presentations
Pierce County Conservation Educational Programs	NRCS DNR UWEX		80	County Levy	Annual awards banquet Speaking contest participants Poster contest participants Conservation tours
Annual report	NRCS		20	County Levy	Report completed (annually)
Classroom assistance	Schools NRCS		20	County Levy NRCS	# Presentations # Field days, # students
Brochures / fact sheets	UWEX DNR DATCP LM NRCS		20	County Levy DATCP DNR NRCS	# Brochures developed and distributed Website information available
SUBTOTAL Education			240		

<sup>38</sup> Activities are in priority order with highest priority activities in bold.

<sup>39</sup> LCD is involved in each activity listed and is the lead agency for the activity unless another is listed in bold letters.

<b>Other LCD Functions</b>					
<b>Activity<sup>40</sup></b>	<b>Partners<sup>41</sup></b>		<b>Staff Hours Needed</b>	<b>Potential Financial Support</b>	<b>Evaluation</b>
Implement the Wildlife Damage Program.	USDA-APHIS		40	DNR	# Contracts \$ Reimbursed
Continue current floodwater protection program (PL 566).	Park EM DNR NRCS		120	County Levy NRCS	Structure maintenance Annual maintenance Maintain emergency notification system
Provide support for an integrated county geographic information system.	<b>LM</b>		40	County Levy	NR151 GIS map maintained Staff training Data developed
SUBTOTAL OTHER LCD			200		

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<sup>40</sup> Activities are in priority order.

<sup>41</sup> LCD is involved in each activity listed and is the lead agency for the activity unless another is listed in bold letters.

Goal	Estimated Staff Hours	Potential Financial Partners	County Cost Sharing from Tax Levy (2011)	Additional Estimated Financial Need to Install Conservation BMP's
Goal 1: Water Quality	7880	DATCP, DNR,NRCS,UWEX	\$50,000.00	\$700,000.00
Goal 2: Prime Farmland and Soils	1600	DATCP,DNR,NRCS,UWEX,LM		\$50,000.00
Goal 3: Environmentally Sensitive Land	120	DATCP, DNR,NRCS,UWEX		\$50,000.00
Goal 4: Forestry	240	DATCP, DNR,NRCS,UWEX		\$5,000.00
Goal 5: Wildlife	120	DATCP, DNR,NRCS,UWEX		\$25,000.00
Educational Activities	240	DATCP, DNR,NRCS,UWEX		\$1000.00
Other LCD Functions	200	DATCP, NRCS,LM		\$3000.00
TOTAL	10400		\$50,000.00	\$834,000.00

**STAFFING:** The Land and Water Conservation Department currently has 4.85 FTEs. This work plan is developed with the goal of having 5.0 FTE's equivalent to 10,400 hours. Urban storm water and erosion control plans are reviewed by contracted engineers.

**Annual estimated financial need:** LWRM (DATCP), County cost-share fund (County levy), Targeted Runoff Management Grants(DNR), Notice of Discharge Grants(DNR), NRCS EQIP, St. Croix Basin TMDL, County Conservation Aids (DNR) and other NGO grants will be pursued to attempt to provide funding to landowners to complete recommended and/or required conservation practices. **Does not include staff dollars.**

### Work plan implementation

The work plan developed to implement the objectives is contingent on continued and stable funding and personnel resources. This work plan identifies partner agencies for each activity, potential financial sources for implementation, a timeframe for implementing the activity, and measurement tools. Staff needs are estimated only for the Pierce County Land Conservation Department. The plan lays out a process that puts staff in the field completing evaluations with landowners. This evaluation process gives us what is actually needed in the field to meet our goals (reduced soil loss and improved water quality).

### Plan evaluation benchmarks

Practice implementation benchmarks are required to be included as a measurement of plan success. In order to meet this requirement we will use numbers derived from previous plan years to use as a comparison for future years of this revised plan. These annual benchmarks are in parentheses listed in the evaluation column of the work plan.

**PIERCE COUNTY INVENTORY AND EVALUATION FORM**  
*for*  
**AGRICULTURAL PERFORMANCE STANDARDS AND PROHIBITIONS**  
**NR 151, RUNOFF MANAGEMENT**

Landowner - \_\_\_\_\_ Operator - \_\_\_\_\_

Evaluated by - \_\_\_\_\_ Date - \_\_\_\_\_

**YES**                      **NO**

**NR 151.02 Sheet, Rill and Wind Erosion**

*Land where crops are grown shall be cropped to "T" using RUSLE II.*

- Is there a current farm plan?
- Does the existing farm plan meet "T" using RUSLE II?
- Is the operator following the farm plan?

**NR 151.05 Manure Storage Facilities**

*New, altered, or abandoned manure storage facilities must meet NRCS standards.*

NR 151.05 (2) New Construction and Alterations

- Is there a manure storage facility at this site?
- What year was the facility constructed? \_\_\_\_\_
- Has the original facility been altered? If yes, when?
- Is the facility certified as meeting NRCS standards?

NR 151.05 (3) Closure

- Has any manure been added or removed in past 24 months?
- Is retention of the facility warranted based on future use?

NR 151.05 (4) Failing and Leaking Existing Facilities

- Does the facility as is pose a public health threat, a threat to fish and aquatic life, or is it violating groundwater standards? \_\_\_\_\_

**NR 151.06 Clean Water Diversions**

*Runoff shall be diverted from contacting feedlots, manure storage areas, and barnyard areas located within water quality management areas (WQMA).*

- Is a feedlot, barnyard, or manure storage area located in a WQMA?
- If yes, is clean water being diverted?

**NR 151.07 Nutrient Management**

*Crop and livestock producers applying manure and other nutrients to agricultural fields shall do so according to a certified nutrient management plan.*

- Does this farm have a certified 590 nutrient management plan?
- If yes, who prepared the plan? \_\_\_\_\_
- When was the plan prepared? \_\_\_\_\_
- When was the last update prepared? \_\_\_\_\_



**Adequate Sod or Self-sustaining Vegetative Cover** – the maintenance of sufficient vegetation types and densities such that the physical integrity of the streambank or lakeshore is preserved. Self-sustaining vegetative cover includes grasses, forbs, sedges and duff layers of fallen leaves and woody debris.

**Direct Runoff** – a discharge of a significant amount of pollutants to water of the state resulting from any of the following practices:

1. runoff from a manure storage facility
2. runoff from an animal lot that can be predicted to reach surface water of the state through a defined or channelized flow path or man-made conveyance
3. discharge of leachate from a manure pile
4. seepage from a manure storage facility
5. construction of a manure storage facility in permeable soils or over fractured bedrock without a liner designed in accordance with NR 154.04 (3)

**Unconfined Manure Pile** – a quantity of manure that is at least 175 ft<sup>3</sup> in volume and which covers the ground surface to a depth of at least 2 inches and is not confined within a manure storage facility, livestock housing facility or barnyard runoff control facility or covered or contained in a manner that prevents storm water access and direct runoff to surface water or leaching of pollutants to groundwater.

**Water Quality Management Area (WQMA)** – the area within 1,000 feet from the ordinary high water mark of navigable waters of a lake, pond or flowage; the area within 300 feet from the ordinary high water mark of navigable waters of a river or stream; a site that is susceptible to groundwater contamination or that has the potential to be a direct conduit for contamination to reach groundwater. A site susceptible to groundwater contamination means the following:

1. an area within 250 ft. of a private well
2. an area within 1000 ft. of a municipal well
3. an area within 300 ft. upslope or 100 ft downslope of karst features
4. a channel with a cross-sectional area equal to or greater than 3 ft<sup>2</sup> that flows to a karst feature
5. an area where the soil depth to groundwater or bedrock is less than 2 feet.
6. an area where the soil above groundwater or bedrock does not exhibit one of the following:
  - at least a 2-foot soil layer with 40% fines or greater
  - at least a 3-foot soil layer with 20% fines or greater
  - at least a 5-foot soil layer with 10% fines or greater

**Waters of the State** – defined in s.283.01 (20) Stats.

- all lakes, bays, rivers, streams, springs, ponds, wells, impounding reservoirs, marshes, water courses, drainage systems and other surface water or groundwater, natural or artificial, public or private within the state or under its jurisdiction, *except those waters which are entirely confined and retained completely upon the property of a person.*

**Nutrient Management Plan Deadlines:**

1. January 1, 2005 for land located in watersheds draining to outstanding or exceptional resource waters.
2. January 1, 2005 for land located in watersheds draining to 303d waters if the impairment relates to excessive nutrients.
3. January 1, 2008 for other lands.

## **STAFF RECOMMENDATIONS**

The following conservation practices and management decisions are options to correct violations of NR-151 standards and prohibitions listed on page 2:

The following conservation practices and management decisions are options to address runoff problems unrelated to NR-151 standards and prohibitions:

## Appendix E.

### Rare, Threatened, and Endangered Species and Natural Communities

The DNR Bureau of Endangered Resources maintains databases of endangered plants and animals. The Bureau urges that special notice be taken to protect any and all endangered resources from development.

Rare or endangered species and communities are generally very sensitive to encroachment of development and changes in their surroundings. Development on or near the locations of rare or endangered species can threaten their survival. The following table lists rare, threatened, and endangered species in Pierce County.

#### PLANTS

<b>Common Name</b>	<b>Species Name</b>	<b>WI Status<sup>42</sup></b>
Musk-Root	<i>Adoxa moschatellina</i>	Threatened
Roundstem Foxglove	<i>Agalinis gattingeri</i>	Threatened
Carolina Anemone	<i>Anemone caroliniana</i>	Endangered
Dragon Wormwood	<i>Artemisia dracunculus</i>	Special Concern
Prairie Sagebrush	<i>Artemisia frigida</i>	Special Concern
Ground-Plum	<i>Astragalus crassicaarpus</i>	Endangered
Kitten Tails	<i>Besseyia bullii</i>	Threatened
Great Indian Plantain	<i>Cacalia muehlenbergii</i>	Special Concern
Yellow Evening Primrose	<i>Calylophus serrulatus</i>	Special Concern
Carey's Sedge	<i>Carex careyana</i>	Threatened
Hill's Thistle	<i>Cirsium hillii</i>	Threatened
Arrow-Headed Rattle-Box	<i>Crotalaria sagittalis</i>	Special Concern
Silky Prairie Clover	<i>Dalea villosa</i>	Special Concern
Glade Fern	<i>Diplazium pycnocarpon</i>	Special Concern
Twinleaf	<i>Jeffersonia diphylla</i>	Special Concern
Prairie Bush Clover	<i>Lespediza leptostachya</i>	Endangered**
Silver Bladderpod	<i>Lesquerella ludoviciana</i>	Threatened
Dotted Blazing Star	<i>Liatrix punctata var. Nebraskana</i>	Endangered
American Gromwell	<i>Lithospermum latifolium</i>	Special Concern
Prairie False-Dandelion	<i>Nothocalais cuspidata</i>	Special Concern
Marbleseed	<i>Onosmodium molle</i>	Special Concern
Louisiana Broomrape	<i>Orobanche ludoviciana</i>	Endangered
Pomme-De-Prairie	<i>Pedimelum esculentum</i>	Special Concern

<sup>42</sup> Wisconsin Status:

Endangered: continued existence in Wisconsin is in jeopardy.

Threatened: appears likely, within the foreseeable future, to become endangered.

Special Concern: species for which some problem of abundance or distribution is suspected but not yet proven.

\* = Candidate for federal listing.

\*\* = Federally Endangered or Threatened.

Last Updated: April 2004.

Small Skull Cap	<i>Scutellaria parvula var. parvula</i>	Endangered
Prairie Ragwort	<i>Senecio plattensis</i>	Special Concern
Snowy Campion	<i>Silene nivea</i>	Threatened
Small-Flowered Woolly Bean	<i>Strophostyles leiosperma</i>	Special Concern
Prairie Fame-Flower	<i>Talinum rugospermum</i>	Special Concern
Snow Trillium	<i>Trillium nivale</i>	Threatened
Showy Lady's Slipper	<i>Cypripedium reginae</i>	Special Concern
Tufted Hairgrass	<i>Deschampsia cespitosa</i>	Special Concern
Wild Licorice	<i>Glycyrrhiza lepidota</i>	Special Concern
Glade Mallow	<i>Napaea dioica</i>	Special Concern
Marsh Ragwort	<i>Senecio congestus</i>	Special Concern

## ANIMALS

Common Name	Species Name	Wisconsin Status <sup>43</sup>	Group
Red-Shouldered Hawk	<i>Buteo lineatus</i>	Threatened	Bird
Bald Eagle	<i>Haliaeetus leucocephalus</i>	Special Concern**	Bird
Lake Sturgeon	<i>Acipenser fulvescens</i>	Special Concern	Fish
Skipjack Herring	<i>Alosa chrysochloris</i>	Endangered	Fish
American Eel	<i>Anguilla rostrata</i>	Special Concern	Fish
Redside Dace	<i>Clinostomus elongates</i>	Special Concern	Fish
Crystal Darter	<i>Crystallaria asprella</i>	Endangered	Fish
Blue Sucker	<i>Cycleptus elongates</i>	Threatened	Fish
Mud Darter	<i>Etheostoma asprigene</i>	Special Concern	Fish
Western Sand Darter	<i>Etheostoma clarum</i>	Special Concern	Fish
Banded Killifish	<i>Fundulus diaphanus</i>	Special Concern	Fish
Goldeye	<i>Hiodon alosoides</i>	Endangered	Fish
Black Buffalo	<i>Ictiobus niger</i>	Threatened	Fish
Shoal Chub	<i>Macrhybopsis aestivalis</i>	Threatened	Fish
Silver Chub	<i>Macrhybopsis storeriana</i>	Special Concern	Fish
River Redhorse	<i>Moxostoma carinatum</i>	Threatened	Fish
Pallid Shiner	<i>Notropis amnis</i>	Endangered	Fish
Weed Shiner	<i>Notropis texanus</i>	Special Concern	Fish
Pugnose Minnow	<i>Opsopoeodus emiliae</i>	Special Concern	Fish
Yellow-Bellied Racer	<i>Coluber constrictor</i>	Special Concern	Herptile
Timber Rattlesnake	<i>Crotalus horridus</i>	Special Concern	Herptile
Wood Turtle	<i>Clemmys insculpta</i>	Threatened	Herptile
Olive Hairstreak	<i>Callophrys gryneus</i>	Special Concern	Invertebrate
Wing Snaggletooth	<i>Gastrocopta procera</i>	Threatened	Invertebrate

<sup>43</sup> Wisconsin Status:

Endangered: continued existence in Wisconsin is in jeopardy.

Threatened: appears likely, within the foreseeable future, to become endangered.

Special Concern: species for which some problem of abundance or distribution is suspected but not yet proven.

\* = Candidate for federal listing.

\*\* = Federally Endangered or Threatened.

Last Updated: April 2004.

Smooth Coil	<i>Helicodiscus singleyanus</i>	Special Concern	Invertebrate
Net-Veined Leafhopper	<i>Polyamia dilate</i>	Threatened	Invertebrate
Elktoe	<i>Alasmidonta marginata</i>	Special Concern	Invertebrate
Rock Pocketbook	<i>Arcidens confragosus</i>	Threatened	Invertebrate
Spectacle Case	<i>Cumberlandia monodonta</i>	Endangered	Invertebrate
Purple Wartyback	<i>Cyclonaias tuberculata</i>	Endangered	Invertebrate
Butterfly	<i>Ellipsaria lineolata</i>	Endangered	Invertebrate
Elephant Ear	<i>Elliptio crassidens</i>	Endangered	Invertebrate
Snuffbox	<i>Epiblasma triquetra</i>	Endangered	Invertebrate
Ebony Shell	<i>Fusconaia ebena</i>	Endangered	Invertebrate
Plains Clubtail	<i>Gomphurus externus</i>	Special Concern	Invertebrate
Skillet Clubtail	<i>Gomphurus ventricosus</i>	Special Concern	Invertebrate
Higgins' Eye	<i>Lampsilis higginsii</i>	Endangered	Invertebrate
Yellow & Slough Sandshells	<i>Lampsilis teres</i>	Endangered	Invertebrate
Washboard	<i>Megalonaias nervosa</i>	Special Concern	Invertebrate
Smoky Shadowfly	<i>Neurocordulia molesta</i>	Special Concern	Invertebrate
Stygian shadowfly	<i>Neurocordulia yamaskanesis</i>	Special Concern	Invertebrate
Bullhead	<i>Plethobasus cyphysus</i>	Endangered	Invertebrate
Round Pigtoe	<i>Pleurobema sintoxia</i>	Special Concern	Invertebrate
Winged Mapleleaf	<i>Quadrula fragosa</i>	Endangered**	Invertebrate
Monkeyface	<i>Quadrula metanevra</i>	Threatened	Invertebrate
Russet-Tipped Clubtail	<i>Stylurus plagiatus</i>	Special Concern	Invertebrate
Buckhorn	<i>Tritogonia verrucosa</i>	Threatened	Invertebrate
Eastern Pipistrelle	<i>Pipistrellus subflavus</i>	Special Concern	Mammal
Bat Hibernaculum	Bat <i>Hibernaculum</i>	Special Concern	Bat

## NATURAL COMMUNITIES

*Important examples of the following natural community types have been found in Pierce County. Although communities are not legally protected, they are critical components of Wisconsin's biodiversity and may provide the habitat for rare, threatened, and endangered species.*

Dry Cliff  
Moist Prairie  
Moist Cliff  
Northern Dry-Mesic Forest  
Oak Barrens  
Pine Relict  
Southern Dry Forest  
Southern Dry-Mesic Forest  
Southern Mesic Forest  
Emergent Marsh  
Floodplain Forest  
Stream-Slow; Hard; Warm

## Appendix F.

### Pierce County Soil and Water Conservation Standards for the Farmland Preservation Program

#### Section I. Authority, Purpose, and Applicability

- A. This policy is established by the Pierce County Land Conservation Committee pursuant to ss. 92.104 and 92.105, Wis. Stats., ATCP 50.16, Wis. Adm. Code, and related guidelines adopted by the Wisconsin Land and Water Conservation Board under s. 92.105(2). It provides for soil and water conservation standards to be met and procedures to be followed by participants in the Wisconsin Farmland Preservation Program. Conformance with these standards and procedures will be necessary for landowners to establish and maintain eligibility for farmland preservation tax credits under Subchapter IX of Chapter 71, and ss. 92.104 and 92.105, Wis. Stats.
- B. These standards shall apply to all landowners who claim a farmland preservation tax credit for which they are eligible because their land is located in a district zoned exclusive agricultural use. In cases where the tax credits are based on the landowner participating under a farmland preservation agreement, the landowner is subject to the soil and water conservation standards applicable at the time the agreement was signed by the landowner. These standards are effective when approved by the LWCB and adopted by the LCC.

#### Section II. Definitions

- A. Committee means Pierce County Land Conservation Committee appointed by the Pierce County Board of Supervisors.
- B. Cropland means land used for the growing and harvesting of grains, legumes, grasses, fruits, or vegetables; including land used for such purposes that may occasionally be used for livestock pasture.
- C. Farmland means land used for any agricultural uses defined in s. 91.01(1), Wis. Stats., including beekeeping; commercial feedlots; dairying; egg production; floriculture; fish or farming; forest and game management; grazing; livestock raising; orchards; plant greenhouses and nurseries; poultry raising; raising of grain, grass mint and seed crops; raising of fruits, nuts and berries; sod farming; placing land in federal programs in return for payments in kind; and vegetable raising.
- D. Participant means a landowner who owns land that is included on a valid zoning certificate or subject to a farmland preservation agreement under the provisions of s. 71.59(1), Wis. Stats.
- E. Landowner means an individual legal guardian, corporation incorporated in this state, business trust, estate trust, partnership or association whose land is subject to an effective farmland preservation agreement or is included on a valid zoning certificate.

- F. RUSLE 2 (Revised Universal Soil Loss Equation – revision 2) means the mathematical formula for estimating or predicting average annual soil erosion rates due to sheet and rill erosion caused by rainstorms on specified land areas, as described in Section I of the Technical Guide.
- G. Technical Guide means the state version of the Natural Resources Conservation Service Field Office Technical Guide published by the Natural Resource Conservation Service of the U.S. Department of Agriculture, and adopted by the Pierce County Land Conservation Committee.
- H. T-Value means the maximum average annual rate of soil erosion for each soil type that will permit a high level of crop productivity to be sustained economically and indefinitely. T-Values of soil are specified in Section I and II of the Technical Guide.

### **Section III. Soil and Water Conservation Standards**

- A. Participants in the Farmland Preservation Program shall implement soil and water conservation standards, according to a schedule of compliance approved by the land Conservation Committee, on all lands for which the participant claims farmland preservation tax credits. The standards to be implemented are those required under ATCP 50.04, Wis. Adm. Code. The conservation plan will serve as the schedule of compliance that the landowner will follow to bring land into compliance with the standards, including bringing soil losses down to T value using RUSLE 2.

### **Section IV. Administration**

- A. This policy shall be administered by the Pierce County Land and Water Conservation Department. Technical assistance may also be provided by available staff of the Natural Resources Conservation Service, U.S. Department of Agriculture.
- B. Schedule of Compliance  
Soil and water conservation standards described in Section III shall be achieved and maintained according to a schedule of compliance established by the LCC and participant. The LCC may allow participating landowners a schedule of compliance of up to five years to meet standards from the year this policy first applies to the landowner. Each landowner shall make sufficient annual progress to ensure that the standards will be met by the end of the schedule of compliance. The LCC may issue a notice of noncompliance at any time that the required standards, maintenance of practices, or prescribed annual progress are not met.
- C. Certification – Participants shall annually certify in writing that they comply with the county's soil and water conservation standards. The County Land Conservation Committee may, at their discretion, issue a notice of noncompliance

(Section VI-B) to a participant that fails to annually certify. For participants with an ongoing schedule of compliance the participant shall certify that the annual progress to achieve required standards has or has not been accomplished. Certification may be made by mail or in person to the Pierce County Land Conservation Department on forms provided by the Department.

D. Screening of Participants

1. The Land Conservation Department will screen each new participant in the Farmland Preservation Program. The screening will evaluate whether each new participant is meeting the soil and water conservation standards enumerated in Section III and the extent to which any participant is out of compliance with the standards
2. Initial screening will be completed by using information submitted by the new participant to the Land Conservation Department at the time the participant requests a zoning certificate or applies for a farmland preservation agreement.
3. If it is determined at initial screening that a new participant in the Farmland Preservation Program is out of compliance with the standards the participant shall develop a schedule of compliance with assistance from the Land Conservation Department. The schedule of compliance must be approved by the Committee.

E. Monitoring Compliance

The Land Conservation Department Staff will determine individual compliance with the required soil and water conservation standards, at a minimum, once every six years. This determination will be made through a combination of field inspections and examination of aerial photos or slides.

F. Notice of Noncompliance

The committee shall issue a notice of noncompliance as provided under s. 92.104(4) and s. 92.105(5), Wis. Stats and ATCP 50.16 Wis. Adm. Code. The Land Conservation Committee may not issue a notice of noncompliance before a field inspection of the land has been made. The requirement for a field inspection may be waived by the Land Conservation Committee if the notice of noncompliance is voluntarily agreed upon or is for failure to annually certify compliance with the soil and water conservation standards. Copies of notices of noncompliance shall be submitted to the appropriate zoning jurisdiction, and the Wisconsin Department of Revenue. No farmland preservation tax credits will be allowed to landowners who have been issued a notice of noncompliance with soil and water conservation requirements, unless such notice is subsequently canceled by the Committee under s. 92.104(4) or s. 92.105(5), Wis. Stats.

The committee may issue a notice of noncompliance to a participant if the participant does any of the following (see ATCP 50.16(6), Wis. Adm. Code):

1. Fails to comply with the county soil and water conservation standards.
2. Fails to comply with an existing farm conservation plan developed to meet the standards.
3. Fails to permit a reasonable inspection or provide information to determine compliance with conservation standards or an existing farm conservation plan.
4. Fails to certify compliance with county standards, or an existing farm conservation plan, as requested by the LCC.

The notice of noncompliance shall disclose all of the following:

- (a) The nature of the violation, and a deadline date for correcting the violation.
- (b) That the participant may not claim farmland preservation tax credits unless the participant corrects the violation.
- (c) That the participant may meet with the LWCC to contest or discuss the notice of noncompliance. The notice will spell out the procedure for contacting the LWCC and contesting the notice.

The committee may issue a notice of noncompliance, and suspend the participant's tax credit eligibility, without offering cost-sharing to the participant.

#### G. Notice of Hearing

Prior to issuing a notice of noncompliance with soil and water conservation standards established under Section III, the Land Conservation Committee shall notify the affected landowner by registered mail that the Committee is considering issuing a notice of noncompliance and provide the landowner an opportunity to present to the Committee reasons why the notice of noncompliance should not be issued. The Committee shall provide at least ten days notice to the landowner prior to the meeting at which the landowner shall appear. A hearing is not required if the notice of noncompliance is voluntarily agreed upon.

#### H. Cancellation of Notice of Noncompliance

If a landowner who has been issued a notice of noncompliance subsequently complies with the required standards or reestablishes a schedule of compliance, or if the notice was incorrect, the committee will cancel the notice of noncompliance. The cancellation of the notice of noncompliance must be based on a request from the affected landowner and a field inspection of the farm operation. Notice of the cancellation of the notice of noncompliance will be given to the appropriate zoning authority and the Wisconsin Department of Revenue.

**Section V. Variances**

- A. The committee may authorize a variance from the schedule of compliance when, upon a showing by the landowner, unnecessary hardship would result from meeting the schedule of compliance. Before a variance is granted upon the ground of unnecessary hardship, the Committee must make findings that (1) the schedule of compliance, by itself, would preclude a reasonable return from the land in question; (2) that the plight of the owner is due to unique circumstances and not to the general conditions of the area which may reflect the unreasonableness of the schedule of compliance itself; and (3) that the conditions authorized by the variance will not have significant off-site impacts.
  
- B. The unavailability of cost-sharing funds to install needed practices, by itself, will not be sufficient grounds for the committee to grant a variance. The availability of cost-sharing funds may be considered in determining reasonable return under V. A. However, a variance shall not be granted to allow time for the implementation of an expensive conservation practice when the implementation of a less expensive practice would allow the landowner to meet the schedule of compliance.
  
- C. The Land Conservation Committee may also authorize variances from soil and water conservation schedule of compliance when the committee is unable to review and determine conformance with requirements due to county staff shortages.

**Section VI. Annual Report**

- A. By April 15<sup>th</sup> of each year, the Committee will prepare and file a report with DATCP of the previous year's status of administering this policy. The report will be consistent with ATCP 50.18 Wis. Stats.

**Section VII. Amendments**

- A. This policy may be amended following a public hearing held by the Committee for which a class 2 notice shall be published. All amendments shall be consistent with the Wisconsin Land and Water Conservation Board Guidelines for soil and water conservation requirements in the Farmland Preservation Program.

## **Appendix G.**

## **Potential Funding Sources**

### **Private Sources Non-government organizations (NGO)**

- Conservation Organizations
  - Ducks Unlimited
  - Pheasants Forever
  - Sierra Club
  - Trout Unlimited
  - Wisconsin Waterfowler's Association
  - Kinnickinnic River Land Trust
- Farmer's Union
- Lions Club
- Individual Contributions
- River Country Resource Conservation and Development Council
- Private Foundations
- Volunteer hours
- Wisconsin Forest Products Council
- Wisconsin Tree Farm Commission
- West Central Woodland Owners Association

### **Local Government Sources**

- Pierce County Department Budgets

### **State Government Sources**

- Cooperative Educational Services Administration
  
- Department of Natural Resources
  - Targeted Runoff Management
  - Stewardship Grants
  - Lakes Planning Grants
  - Lakes Protection Grants
  - River and Stream Planning and Protection Grants
  - DNR Wildlife Sources
    - Pheasant Stamp
    - Segregated Funds (general license)
    - Wisconsin Waterfowl Stamp
    - Turkey Stamp
    - Trout Stamp (Inland)
  - Wisconsin Forest Landowner Grants
  
- Department of Agriculture, Trade, and Consumer Protection
  - Land and Water Resource Management Plan Funds

Office of Land Information Services

University of Wisconsin Extension

Wisconsin Environmental Education Board Grants Programs

Wisconsin Geologic and Natural History Survey

Wisconsin Groundwater Resource Center

## **Federal Sources**

Environmental Protection Agency

Environmental Education Grants

319 (Clean Water Act) Grants

Five Star Grants

United States Department of Agriculture

Rural Development Administration

Farm Service Agency

Conservation Reserve Program (CRP)

Conservation Reserve Enhancement Program (CREP)

Natural Resources Conservation Service

Conservation Security Program (CSP)

Environmental Quality Incentives Program (EQIP)

Farm and Ranchlands Protection Program (FRPP)

Wildlife Habitat Incentives Program (WHIP)

Wetland Reserve Program (WRP)

North American Waterfowl Conservation Act (NAWCA)

U. S. Fish and Wildlife Service

## Appendix H.

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## Appendix I.

## Glossary

### **ALGAE:**

A group of microscopic, photosynthetic water plants. Algae give off oxygen during the day as a product of photosynthesis and consume oxygen during the night as a result of respiration. Therefore, algae affect the oxygen content of water. Nutrient-enriched water increases algae growth.

### **ALLUVIUM:**

Clay, silt, sand, gravel, or similar detrital material deposited by running water.

### **ANIMAL WASTE MANAGEMENT:**

A group of practices including barnyard runoff management, nutrient management, and manure storage facilities designed to minimize the effects of animal manure on surface and groundwater resources.

### **AQUIFER:**

A water-bearing stratum of permeable rock, sand, or gravel.

### **AREAWIDE WATER QUALITY MANAGEMENT PLANS (208 PLANS):**

A plan to document water quality conditions in a drainage basin and make recommendations to protect and improve basin water quality. Each basin in Wisconsin must have a plan prepared for it, according to section 208 of the Clean Water Act.

### **BASIN PLAN:**

See "Areawide Water Quality Management Plan."

### **BEST MANAGEMENT PRACTICES (BMPs):**

The most effective, practical measures to control nonpoint sources of pollutants that runoff from land surfaces.

### **BUFFER STRIPS:**

Strips of grass, shrubs, trees, and other vegetation between disturbed areas and a stream, lake, or wetland.

### **CLUSTER DEVELOPMENT:**

Grouping homes on part of a property while maintaining a large amount of open space on the remaining land.

### **CONSERVATION EASEMENT:**

A legal document that restricts the use of land to farming, open space, or wildlife habitat. A landowner may sell or donate an easement to a government agency or a private land trust.

**COST-EFFECTIVE:**

A level of treatment or management with the greatest incremental benefit for the money spent.

**ECOSYSTEM:**

The interacting system of a biological community and its nonliving surroundings.

**ENVIRONMENTAL PROTECTION AGENCY (USEPA):**

The federal agency responsible for enforcing federal environmental regulations. The Environmental Protection Agency delegates some of its responsibilities for water, air, and solid waste pollution control to state agencies.

**EROSION:**

The wearing away of the land surface by wind or water.

**EUTROPHIC:**

Refers to a nutrient-rich lake. Large amounts of algae and weeds characterize a eutrophic lake (see also "Oligotrophic" and "Mesotrophic").

**EUTROPHICATION:**

The process of nutrient enrichment of a lake leading to increased production of aquatic organisms. Eutrophication can be accelerated by human activity such as agriculture and improper waste disposal.

**FECAL COLIFORM:**

A group of bacteria used to indicate the presence of other bacteria that cause disease. The number of coliform is particularly important when water is used for drinking and swimming.

**FISHABLE AND SWIMMABLE:**

Refers to the water quality goal set for the nation's surface waters by Congress in the Clean Water Act. All waters were to meet this goal by 1984.

**FOOD CHAIN:**

A sequence of organisms where each uses the next as a food source.

**GROUNDWATER:**

Underground water-bearing areas generally within the boundaries of a watershed, which fill internal passageways of porous geologic formations (aquifers) with water that flows in response to gravity and pressure. Often used as the source of water for communities and industries.

**HABITAT:**

The place or type of site where a plant or animal naturally lives and grows.

**HERBICIDE:**

A type of pesticide that is specifically designed to kill plants and can also be toxic to other organisms.

**MACROPHYTE:**

A rooted aquatic plant.

**MESOTROPHIC:**

Refers to a moderately fertile nutrient level of a lake between the oligotrophic and eutrophic levels. (See also "Eutrophic" and "Oligotrophic.")

**MILLIGRAMS PER LITER (mg/l):**

A measure of the concentration of substance in water. For most pollution measurements this is the equivalent of "parts per million" (ppm).

**MITIGATION:**

The effort to lessen the damages from a particular project through modifying a project, providing alternatives, compensating for losses, or replacing lost values.

**NAVIGABLE WATERS:** A water body with a bed and a bank that can float a watercraft at any point in the year.

**NONPOINT SOURCE POLLUTION (NSP):**

Pollution whose sources cannot be traced to a single point such as a municipal or industrial wastewater treatment plant discharge pipe. Nonpoint sources include eroding farmland and construction sites, urban streets, and barnyards. Pollutants from these sources reach water bodies in runoff, which can best be controlled by proper land management.

**NUTRIENT MANAGEMENT PLAN:**

A guidance document that provides fertilizer and manure spreading recommendations for crop fields based upon soil test results and crop needs. Plans are sometimes referred to as NRCS 590 plans for the Natural Resources Conservation Service Standard that guides their preparation.

**OLIGOTROPHIC:**

Refers to an unproductive and nutrient-poor lake. Such lakes typically have very clear water. (See also "Eutrophic" and "Mesotrophic.")

**ORDINARY HIGH WATER MARK:**

The point on the bank or shore up to which the water leaves a distinct mark on the shore or bank from its presence, wave action, or flow. The mark may be indicated by erosion, destruction of or change in vegetation, or another easily recognizable characteristic.

**PESTICIDE:**

Any chemical agent used to control specific organisms, such as insecticides, herbicides, fungicides, etc.

**PHOSPHORUS:**

A nutrient that, when reaching lakes in excess amounts, can lead to over-fertile conditions and algae blooms.

**POINT SOURCES:**

Sources of pollution that have discrete discharges, usually from a pipe or outfall.

**POLLUTION:**

The presence of materials or energy whose nature, location, or quantity produces undesired environmental effects.

**PRIME AGRICULTURAL LAND:**

Farmland that has gentle slopes and well-drained soils and requires a minimum of conservation practices. It is the easiest land to farm. Class I and II soils, as defined by the Natural Resources Conservation Service are considered prime agricultural soils.

**PRIORITY WATERSHED:**

A drainage area selected to receive state money to help pay the cost of controlling nonpoint source pollution.

**PRODUCTIVITY:**

A measure of the amount of living matter which is supported by an environment over a specific period of time. Often described in terms of algae production for a lake.

**PUBLIC PARTICIPATION:**

The active involvement of interested and affected citizens in governmental decision-making.

**PURCHASE OF DEVELOPMENT RIGHTS:**

The voluntary sale of the rights to develop a piece of property by the landowner to a government agency or a land trust. The sale price is determined by an appraisal. The land is restricted to farming or open space.

**REDUCED TILLAGE:**

Planting row crops while only slightly disturbing the soil. With reduced tillage, a protective layer of plant residue stays on the surface and erosion rates decrease.

**RIPARIAN:**

Belonging or relating to the bank of a lake, river, or stream.

**RIPRAP:**

Broken rock, cobbles, or boulders placed on the bank of a stream to protect it against erosion.

**RUNOFF:**

Water from rain, snowmelt, or irrigation that flows over the ground surface and returns to streams and lakes. Runoff can collect pollutants from air or land and carry them to receiving waters.

**SEDIMENT:**

Soil particles suspended in and carried by water as a result of erosion.

**SEPTIC SYSTEM:**

Sewage treatment and disposal for homes not connected to sewer lines usually with a tank and drain field. Solids settle to the bottom of the tank. Liquid percolates through the drain field.

**STORM SEWERS:**

A system of sewers that collect and transport rain and snow runoff. In areas that have separated sewers, such storm water is not mixed with sanitary sewage.

**SUSPENDED SOLIDS (SS):**

Small particles of solid pollutants suspended in water.

**TOLERABLE SOIL LOSS:**

The tolerable soil loss rate, commonly referred to as “T,” is the maximum average annual rate of soil erosion for each soil type that will permit a high level of crop productivity to be sustained economically and indefinitely (ATCP 50.01(16)).

**TOTAL MAXIMUM DAILY LOADS:**

The maximum amount of a pollutant that can be discharged into a stream without causing a violation of water quality standards.

**TRANSFER OF DEVELOPMENT RIGHTS:**

Property rights that may not be used on the land from which they come. TDRs may be sold to be used on a designated site in a receiving (growth) area. When TDRs are sold, the land they came from is then restricted to farming.

**TROPHIC STATUS:**

The level of growth or productivity of a lake as measured by phosphorus content, algae abundance, and depth of light penetration.

**TURBIDITY:**

Lack of water clarity. Turbidity is closely related to the amount of suspended solids in water.

**UNIFORM DWELLING CODE:**

A statewide building code specifying requirements for electrical, heating, ventilation, fire, structural, plumbing, construction site erosion, and other construction related practices.

**UNIVERSITY OF WISCONSIN EXTENSION (UWEX):**

A special outreach and education branch of the state university system.

**VARIANCE:**

Government permission for a delay or exception in the application of a given law, ordinance, or regulation. Also, see water quality standard variance.

**WASTE:**

Unwanted materials left over from manufacturing processes; refuse from places of human or animal habitation.

**WATER QUALITY CRITERIA:**

A measure of the physical, chemical, or biological characteristics of a water body necessary to protect and maintain different water uses (fish and aquatic life, swimming, etc.).

**WATER QUALITY STANDARDS:**

The legal basis and determination of the use of a water body and the water quality criteria;

physical, chemical, or biological characteristics of a water body, that must be met to make it suitable for the specified use.

**WATER QUALITY MANAGEMENT AREA OR WQMA:**

The area within 1,000 feet from the ordinary high water mark of navigable waters that consists of a lake, pond or flowage, except that, for a navigable water that is a glacial pothole lake, the term means the area within 1,000 feet of the high water mark of the lake; the area within 300 feet from the ordinary high water mark of navigable waters that consist of a river or stream; and a site that is susceptible to groundwater contamination, or that has the potential to be a direct conduit for contamination to reach groundwater. (NR 151.015(24))

**WATER QUALITY STANDARD VARIANCE:**

When natural conditions of a water body preclude meeting all conditions necessary to maintain full fish and aquatic life and swimming, a variance may be granted.

**WATERSHED:**

The land area that drains into a lake or stream.

**WETLANDS:**

Areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a variety of vegetative or aquatic life. Wetland vegetation requires saturated or seasonally saturated soil conditions for growth and reproduction. Wetlands generally include swamps, marshes, bogs, and similar areas.

**WISCONSIN ADMINISTRATIVE CODE:**

The set of rules written and used by state agencies to implement state statutes. Administrative codes are subject to public hearing and have the force of law.

**WISCONSIN NONPOINT SOURCE WATER POLLUTION ABATEMENT GRANT PROGRAM:**

A state cost-share program established by the state legislature in 1978 to help pay the costs of controlling nonpoint source pollution. Also known as the nonpoint source element of the Wisconsin Fund or the Priority Watershed Program.

## Appendix J.

## List of Commonly Used Initials

BMP	Best Management Practice
CAC	Citizen Advisory Committee
FSA	Farm Service Agency (United States Department of Agriculture)
CREP	Conservation Reserve Enhancement Program
CRP	Federal Conservation Reserve Program
CSA	Cost Share Agreement
DATCP	Wisconsin Department of Agriculture, Trade, and Consumer Protection
DILHR	Department of Industry, Labor, and Human Resources
DNR	Wisconsin Department of Natural Resources
EQIP	Environmental Quality Incentives Program (USDA)
FOCS	Field Office Computing System (NRCS)
FFA	Future Farmers of America
FPP	Wisconsin Farmland Preservation Program
FRPP	Farm and Ranchland Protection Program
GIS	Geographic Information System
GPR	General Purpose Revenue
I&E	Information and Education
LCC	Land Conservation Committee
LCD	Land Conservation Department
LWCB	Land and Water Conservation Board
NAWCA	North American Waterfowl Conservation Act
NPM	Nutrient and Pest Management
NRCS	Natural Resources Conservation Service
PDR	Protection of Development Rights
SIP	Stewardship Incentive Program
SOS	Signs of Success Monitoring Program
TDR	Transfer of Development Rights
USFWS	United States Fish and Wildlife Service
USEPA	United States Environmental Protection Agency
USDA	United States Department of Agriculture
USGS	United States Geological Survey
UWEX	University of Wisconsin-Extension
WGNHS	Wisconsin Geological and Natural History Survey
WHIP	Wildlife Habitat Incentives Program
WPDES	Wisconsin Pollutant Discharge Elimination System [permit system]
WRP	Wetland Reserve Program
WUWN	Wisconsin Unique Well Number assigned to well sample sites

## Appendix K.

## Potential Conservation Practices

The following table lists all conservation practices currently in ATCP 50 along with the appropriate funding source. DATCP currently has only bond revenue available to fund cost-share projects for Land and Water Resource Management Plan implementation.

<b>PRACTICE or ACTIVITY</b>	<b>ATCP 50 Reference</b>	<b>Funding Source<sup>44 45</sup></b>
Manure storage systems	50.62	Bonding
Manure storage closure	50.63	Bonding
Barnyard runoff control systems (specify components)	50.64	Bonding
Access road or cattle crossing	50.65	Bonding
Animal trails and walkways	50.66	Bonding
Contour farming	50.67	GPR
Cover and green manure crop	50.68	GPR
Critical area stabilization	50.69	Bonding
Diversions	50.70	Bonding
Field windbreaks	50.71	Bonding
Filter strips	50.72	Bonding
Grade stabilization structures	50.73	Bonding
Heavy use area protection	50.74	Bonding
Livestock fencing	50.75	Bonding
Livestock watering facilities	50.76	Bonding
Milking center waste control systems	50.77	Bonding
Nutrient management	50.78	GPR
Pesticide management	50.79	GPR
Prescribed grazing	50.80	
a. management plan		GPR
b. fencing (not permanent)		GPR
c. fencing (permanent)		Bonding
Relocating or abandoning animal feeding operations	50.81	Bonding
Residue management	50.82	GPR
Riparian buffers	50.83	

<sup>44</sup> Cost share rates are 70% for practices installed with bonding money. Practices installed with General Purpose Revenue (GPR) are generally reimbursed at a per acre rate established in ATCP 50.

<sup>45</sup> Cost sharing may also be available through the Natural Resource Conservation Service Environmental Quality Incentives Program (EQIP). These cost share rates range from 50 – 75%.

<b>PRACTICE or ACTIVITY</b>	<b>ATCP 50 Reference</b>	<b>Funding Source<sup>44 45</sup></b>
a. installation (including land out of production)		Bonding
b. maintenance		GPR
Roofs	50.84	Bonding
Roof runoff systems	50.85	Bonding
Sediment basins	50.86	Bonding
Sinkhole treatment	50.87	Bonding
Streambank and shoreline protection	50.88	Bonding
Strip-cropping	50.89	GPR
Subsurface drains	50.90	Bonding
Terrace systems	50.91	Bonding
Underground outlet	50.92	Bonding
Waste transfer systems	50.93	Bonding
Wastewater treatment strips	50.94	Bonding
Water and sediment control basins	50.95	Bonding
Waterway systems	50.96	Bonding
Well decommissioning	50.97	Bonding
Wetland restoration	50.98	Bonding
Engineering services provided in connection with a cost-share practice for which bond revenue may be used	50.34(4)	Bonding
Other cost-effective practices with DATCP's written approval	50.40(3)(a)	GPR

## Appendix L.

## Department and Agency Contacts

### Pierce County Departments ([www.co.pierce.wi.us](http://www.co.pierce.wi.us))

#### **Pierce County Land Conservation Department**

412 W. Kinne St., PO Box 67, Ellsworth, WI 54010 717-273-6763

#### **Pierce County Department of Land Management**

414 W. Main St., PO Box 647, Ellsworth, WI 54011 715-273-6746

#### **Pierce County Nugget Lake County Park**

N4351 Co. Rd. HH, Plum City, WI 54761 715-639-5611

### State of Wisconsin Agencies

#### **Department of Natural Resources ([www.dnr.wi.us](http://www.dnr.wi.us))**

DNR Service Center  
890 Spruce Street  
Baldwin, WI 54002  
715-684-2914

DNR Forester  
130 N. Chestnut Street, PO Box 428  
Ellsworth, WI 54010  
715-273-5523

#### **University of Wisconsin Extension ([www.uwex.edu/ces/cty/pierce](http://www.uwex.edu/ces/cty/pierce))**

412 W. Kinne Street, Ellsworth, WI 54010 715-273-3531 ext. 6663

### Federal Agencies

#### **USDA-Farm Service Agency ([www.fsa.usda.gov](http://www.fsa.usda.gov))**

412 W. Kinne Street, PO Box 158, Ellsworth, WI 54010 715-273-5522

#### **USDA-Natural Resources Conservation Service ([www.wi.nrcs.usda.gov](http://www.wi.nrcs.usda.gov))**

412 W. Kinne St., PO Box 67, Ellsworth, WI 54010 717-273-6763

### Private Non Profit

#### **River Country Resource Conservation & Development (R C & D)**

([www.rivercountryrcd.org](http://www.rivercountryrcd.org)) 715-834-9692