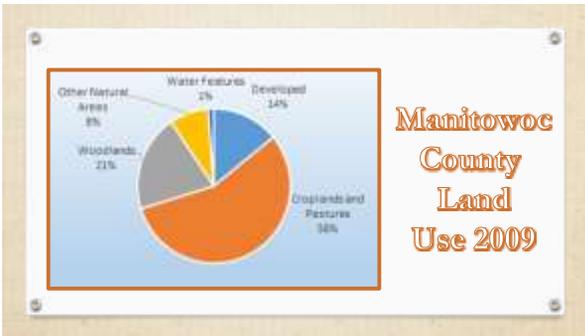


# Manitowoc County Land and Water Resource Management Plan

2016-2025



## Surface Water

- 10 major watersheds
- 927 miles of streams & rivers
- 109 lakes
- Lake Michigan

## Beaches

Major beaches in Manitowoc County include:

<input type="checkbox"/> Red Arrow Park	<input type="checkbox"/> Warm Water Beach
<input type="checkbox"/> Point Beach State Park	<input type="checkbox"/> Lincoln High School Beach
<input type="checkbox"/> YMCA	<input type="checkbox"/> Hika Park Bay
<input type="checkbox"/> Neshotah Park	<input type="checkbox"/> Maritime Drive Boat Launch
<input type="checkbox"/> Blue Rail Marina Beach	<input type="checkbox"/> Maritime Drive Wayside Beach
<input type="checkbox"/> Two Creeks Boat Launch	<input type="checkbox"/> Fischer Park Beaches (Middle and South)

## Groundwater

- Approximately 20 million gallons of groundwater used daily in Manitowoc County (Source: USGS: Protecting Wisconsin's groundwater through comprehensive planning)
- Domestic, livestock, irrigation, industrial, commercial and public use
- 5,400 active wells and 9 public water systems

## Agriculture

- 110,000 dairy cattle: 20 cows to approximately 5,500 cows per farm.
- Manitowoc County ranks in the top five of Wisconsin Counties and the top 25 U.S. Counties in dairy production.
- Manitowoc County ranks in the top five of Wisconsin counties for corn silage, hay and winter wheat production.
- Accounts for \$1.5 billion in economic activity annually.



## Woodlands

- Sugar Maple, Beech, Oak, Ash and other mixed hardwoods
- Primary use is Recreation:
  - Point Beach State Forest
  - County Parks
  - Hunting Grounds
- Timber is ongoing



### Current Land & Water Resource Management Plan 2008-Present

Soil & Water Conservation Department Work Load and Accomplishments since 2008

### County Conservation Ordinance Administration

- 63 Manure Storage and Transfer System permits to construct
- 49 Manure Storage and Transfer System permits to abandon
- 22 Livestock Facility Siting licenses (27,300 cows, 10,200 heifers, 3,900 calves and 125 steers)
- 48 Violation Enforcements



### Farmland Preservation Program Implementation

- ✓ >700 participants
- ✓ \$850,000-\$900,000 annually in tax credits
- ✓ Approximately 180 farm reviews annually
- ✓ 595 farms in full compliance with State Standards
- ✓ 130 farms have compliance schedules



### Best Management Practices Installed





63 Manure Storage and Transfer Systems



21 Barnyard Runoff Control Systems



19 Miles of Grassed Waterways

11 Acres of Wetland Restoration

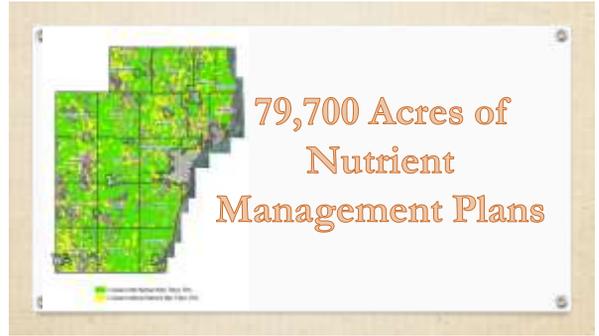


Buffers

132 Acres



90 Acres of Perpetual Conservation Easements



## Education Program

- Nutrient Management Farmer Education- Annually
- Well Water Nitrate Screening- Annually
- Conservation Education Incorporated- Annually
- Crop Advisor/Custom Manure Hauler Meeting- Bi-Annually
- Presentations and Field Days- Annually
- Added Part-Time Education Coordinator to Staff



**2016-2025  
Land & Water  
Resource  
Management Plan**

Plan development process



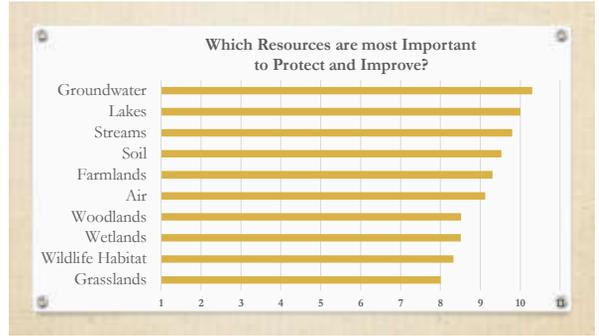
## Local Advisory Committee

<ul style="list-style-type: none"> <li>• Farm owners</li> <li>• Farm managers</li> <li>• Agronomists</li> <li>• Land Conservation Committee Members</li> <li>• Farm Service Agency Representative</li> <li>• Fish and Game Association</li> <li>• Engineers</li> <li>• U.W. Discovery Farms Co-Director</li> <li>• WDNR Agricultural Runoff Management Specialist</li> </ul>	<ul style="list-style-type: none"> <li>• WDNR Water Resource Biologist</li> <li>• U.W. Extension Agricultural Agent</li> <li>• WDNR Forester</li> <li>• USDA-NRCS District Conservationist</li> <li>• WDNR Forester</li> <li>• Planning and Zoning Director</li> <li>• Silver Lake College Professor</li> <li>• Lake property owners</li> </ul>
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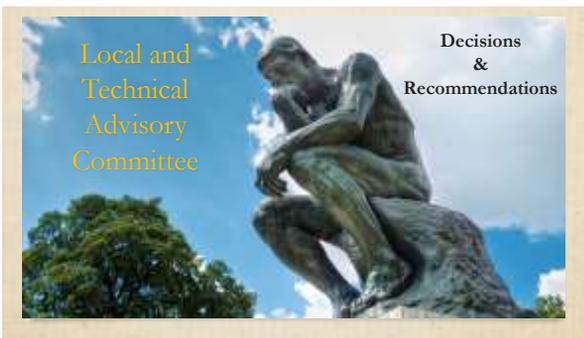
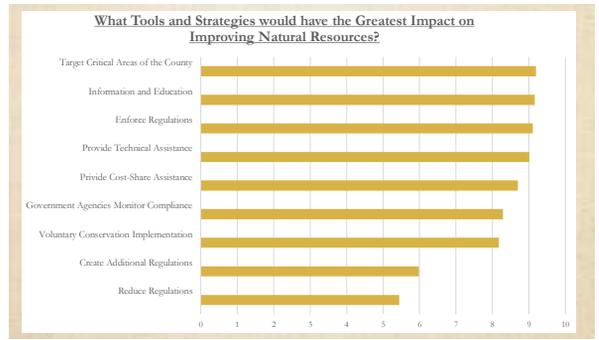


## Technical Advisory Committee

	<ul style="list-style-type: none"> <li>• WDNR Agricultural Runoff Management Specialist</li> <li>• WDNR Water Resource Biologist</li> <li>• Wastewater Specialist</li> <li>• U.W. Extension Agriculture Agent</li> <li>• Farm Service Agency Executive Director</li> <li>• DATCP Conservation Engineer</li> <li>• Health Department Environmental Health Manager</li> <li>• NRCS District Conservationist</li> <li>• Planning and Zoning Director</li> <li>• U.W. Manitowish Sea Grant Fisheries Specialist</li> <li>• Soil and Water Conservation Department Staff</li> </ul>	
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Greatest Concerns	Ranking
Chemical and Nutrient Runoff to Streams/Lakes	9.77
Chemical/Fertilizer Contamination of Groundwater	9.73
Animal Waste Runoff to Streams/Lakes	9.55
Urban Runoff to Streams and Lakes	9.25
Farmland Erosion	9.17
Stream Bank and Lakeshore Erosion	8.67
Aquatic Invasive Species	8.64
Loss of Farmland	8.53
Non Aquatic Invasive Species	8.29
Cattle Grazing in Streams/Lakes	8.25
Air Pollution	8.06
Loss of Woodlands and Grasslands	7.92
Drainage of Wetlands	7.86
Construction Site Emission	7.75
Wildlife Coop Damage	7.40



## Major Contributors to GROUNDWATER CONTAMINATION

Mineral runoff, timing of application	Fast erosion, shallow soils, unidentified sinkholes and groundwater conduits	Tile lines	Lack of knowledge	Human waste, septic systems, leachate, plant discharge	Lack of enforcement	Industrial waste leakage, brown fields	Labor Practices
10	10	20	20	20	10	5	5

## Solutions for Groundwater Problems

- Nutrient Management
- Identify/map/communicate karst features and watersheds contributing to conduits to groundwater
- Buffers
- Cover crops
- Waterways
- Education
- Fix tile lines and blowouts
- Enforcement when appropriate



## Major Contributors to SURFACE WATER POLLUTION

Soil erosion	Agriculture runoff	Run-off from cropland management	Non-point source runoff	Manure spread	Leak of oil/gasoline	Automobile washes, car washes	Lack of knowledge	Public works (DOT)	Lack of biological flows
10	10	10	10	10	10	10	10	5	5

## Solutions for Surface Water Problems

- Apply/install Best Management Practices on cropland and in production area
- Conserve valuable topsoil
- Simplify Nutrient Management Plans
- Education: Small group meetings and one-on-one with landowners
- Fix tile lines and blowouts
- Improve soil health
- Enforcement when appropriate
- Work with landowners who are not in any particular programs



### Soil and Water Conservation Department 2016-2025 PRIORITIES

- Local Conservation Ordinances
- State Agricultural Performance Standards and Prohibitions
- Working Lands Initiative
- Groundwater Protection Programming
- Surface water Protection Programming
- Soil Health Programming
- Best Management Practices
- Education Programming for Conservation
- Office Administration and Professional Development

## Priority Goals

- Improve quality of impaired surface water and groundwater
- Control & reduce delivery of sediment, nutrients, manure, wastewater & other pollutants to surface and groundwater from agricultural cropland & production sites
- Sustain healthy productive soil, minimize soil loss
- Effectively administer department functions
- Assist landowners so that they can become or remain in compliance of county ordinances and state standards and prohibitions
- Reduce conflict resulting from evolving farm and waste management practices and farm expansions
- Improve crop production and increase profitability
- Provide quality educational programming so that citizens can make informed conservation decisions



### Priority A

Implement & Enforce Local Conservation Ordinances

**High Priority Activities:**

- Permit/License Administration
- Investigation/Enforcement
- Compliance Follow-up/Monitoring

### Priority B

Implement and Enforce State Agricultural Performance Standards & Prohibitions

**High Priority Activities:**

- Allocate grant dollars to implement Best Management Practices
- Investigation/Enforcement
- Write and review conservation plans
- One-on-one contacts with landowners

### Priority C

Administer Working Lands Initiative-  
Farmland Preservation Program

**High Priority Activities:**

- Write and review conservation plans
- Monitor state standard implementation and compliance
- Record compliance




### Priority D

Implement Groundwater Protection Programming

**High Priority Activities:**

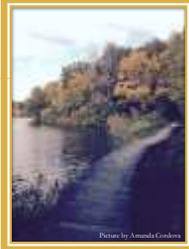
- Identify conduits to groundwater along with watersheds
- Update and distribute hazard maps
- Provide nitrate screening and sterile test bottles
- One-on-one meetings with landowners in sensitive areas
- Encourage installation/application of Best Management Practices

### Priority E

Implement Surface Water Programming

**High Priority Activities:**

- Work with Lakes Association board members where lakes are high in phosphorus. Identify pollution sources. Develop goals and strategies.
- Meet with lake and stream watershed landowners. Discuss, promote, and implement Best Management Practices that will reduce sediment, phosphorus and other pollutant loading.



### Priority F

Promote Best Management Practices that improve Soil Health



**High Priority Activities:**

- Promote conservation practices such as decreasing soil disturbance, increase crop diversity, maintaining living roots, residue cover, preventing compaction.
- Promote BMPs through demonstrations and distribution of information.

### Priority G

Implement Best Management Practices

**High Priority Activities:**

- Work with landowners/operators, consultants, and engineers to design and apply Best Management Practices
- Administer Cost-Share Contracts



## Priority H

### Implement Educational Programming

**High Priority Activities:**

- One-on-one contacts
- Nutrient Management Farmer Education Program
- Crop Advisors/Custom Manure Haulers Meeting
- County Fair
  - Nutrient Screening
  - Agriculture adventure tent (NEW)
- Conservation Education Incorporated
- Breakfast on the Farm (NEW)
- Agriculture Education Center Display (NEW)

## Priority I

### Office Administration/Professional Development

**High Priority**

Proficient and engaged staff:

- **Tony Smith:** Certified Crop Advisor, Certified Conservation Planner, 590 Nutrient Management SOC team
- **Mike Wendt:** Certified Crop Advisor
- **Bruce Riesterer:** Certified Agricultural Engineering Practitioner, Cover Crop Demonstration on his land
- **Amanda Cordova:** Education Activities with Winnebago County, Naturalist Educator with WDNR
- **Jerry Halverson:** Certified Agricultural Engineering Practitioner, Livestock Siting Technical Expert Committee

## Program Monitoring & Evaluating

Are our actions on schedule?  
 Are our actions effective?  
 Do we need to deviate from our plan?



### Monitoring

- GIS to monitor locations and data
- Excel workbooks to track participation and compliance
- Environmental monitoring of streams and lake: WDNR, county Lakes Association, UW Manitowoc, County Health Department
- Monitoring groundwater quality: UW Steven's Point Water and Environmental Analysis Lab, County Health Department, County SWCD Screening

### Evaluating

- Farm practices:
  - Barnard runoff ratings
  - RUISE2
  - Setbacks
  - Odor scores
  - Manure spreading acreage requirements
  - Manure incorporation
  - Residue cover
- Annual progress reports: DAICP, WDNR, NRCS, LCC, Annual Financial Audit

Local and Technical Advisory Committees will meet Annually for Plan Review

<p><b>State:</b></p> <ul style="list-style-type: none"> <li>UW Extension- Manitowoc</li> <li>Wisconsin Department of Natural Resources</li> <li>Natural Resource Conservation Service</li> <li>WI Department of Agriculture, Trade, and Consumer Protection</li> </ul> <p><b>Federal:</b></p> <ul style="list-style-type: none"> <li>Natural Resource Conservation Service</li> <li>Farm Service Agency</li> <li>U.S. Fish &amp; Wildlife</li> </ul>	<p><b>Local:</b></p> <ul style="list-style-type: none"> <li>County Executive, County Board and Land Conservation Committee</li> <li>Planning and Zoning Health Department</li> <li>Highway Department</li> <li>Public Works Department</li> </ul>	<p><b>Environmental Advocates Organizations, Associations &amp; Friends:</b></p> <ul style="list-style-type: none"> <li>Manitowoc County Lakes Association</li> <li>Lakeshore: Natural Resource Partnership</li> <li>Manitowoc County Forage Council</li> <li>Friends of the Branch River</li> <li>Friends of Hika Bay</li> <li>Friends of the Manitowoc River Watershed</li> <li>Friends of the Twin Rivers</li> <li>Manitowoc County Fish and Game Association</li> <li>Lake Michigan Advocates of Manitowoc County</li> <li>Maritime Museum</li> <li>Woodland Diaries</li> <li>Glacial Lakes Conservancy</li> </ul>
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Partners

