

### **Chapter III Resource Assessment**

This chapter presents an assessment of the current conditions of Walworth County's natural resource base. These assessments were used to determine the level of protection, enhancement, and restoration needed to maintain these valuable assets.

Assessments of Walworth County resource conditions have been well documented. The following documents and several community assistance planning reports for Walworth County were used to form the basis of many of the implementation activities planned in the Walworth County LWRMP.

A Regional Water Quality Management Plan for Southeastern Wisconsin: An Update and Status Report, SEWRPC, March 1995)

Lower Rock River Basin – Water Quality Management Plan, (WDNR, October 1995)

Nonpoint Source Control Plan for the Sugar/Honey Creek Priority Watershed Project, (WDNR, et. al, February 1997)

A Regional Natural Areas and Critical Species Habitat Protection and Management Plan for Southeastern Wisconsin, (SEWRPC, September 1997)

Walworth County Agricultural Preservation Plan, (Walworth County, January 1978)

Turtle Creek Priority Watershed Plan, (WDNR, et. al. March 1984)

Walworth County Soil Erosion Control Plan (T by 2000), (Walworth County, November 1987)

A Park and Open Space Plan for Walworth County, (SEWRPC, September, 2004)

A Regional Land Use Plan for Southeastern Wisconsin: 2020 (SEWRPC, December 1997)

A Land Use Plan for Walworth County: 2020, (SEWRPC, April 2001)

The State of the Southeast Fox River Basin, (WDNR, February, 2002)

The State of the Rock River Basin, (WDNR, April 2002)

Wisconsin Land Legacy Report, (WDNR, November 2002)

Groundwater Resources of Southeastern Wisconsin, (SEWRPC, June 2002)  
[http://www.sewrpc.org/publications/techrep/tr-037\\_groundwater\\_resources.pdf](http://www.sewrpc.org/publications/techrep/tr-037_groundwater_resources.pdf)

A Multi-Jurisdictional Comprehensive Plan for Walworth County: 2035 (SEWRPC December 2009) <http://www.sewrpc.org/smartgrowth/walworthcounty/pdfs/draft-chapters/capr-288-draft-walworth-co-comp-plan.pdf>

SEWRPC Planning Report No. 52, A Regional Water Supply Plan for Southeastern Wisconsin (SEWRPC, DRAFT 2009) <http://www.sewrpc.org/watersupplystudy/chapters.asp>

## Assessment of Walworth County's Surface Waters and Watersheds

### **Outstanding Resource Waters and Exceptional Resource Waters in Walworth County**

Walworth County lakes, streams and associated shorelands, floodlands and wetlands form the most important natural resource features of Walworth County. These surface water resources support a diversity of recreational uses, economic growth, and scenic beauty. Excellent fish populations and habitats for a variety of wildlife species are well documented in Walworth County.

The following streams and lakes are unique aquatic communities in Walworth County.

Seven Walworth County waterbodies have been designated as **Outstanding or Exceptional Resource Waters of the State**. These waterways are officially approved by the WDNR board and are listed in Natural Resources Sections 102.10 and 102.11., in the State Administrative Code. Outstanding and Exceptional Resource Waters of the state have excellent water quality, high-quality fisheries, unique environmental setting, and outstanding recreational opportunities and are not impacted by human activities. The Mukwonago River supports a diverse and unique population of warm water fish species, game fish, mussels, amphibians, reptiles and invertebrates.

#### Outstanding Resource Waters in Walworth County

**Lulu Lake  
Bluff Creek**

**Potawatomi Creek  
Van Slyke Creek**

#### Exceptional Resource Waters in Walworth County

**Little Turtle Creek  
Mukwonago River**

**Turtle Creek**

### **Critical Aquatic Habitat Areas**

The Southeastern Wisconsin Regional Planning Commission has screened and ranked streams for inclusion in Planning Report Number 42, A Regional Natural Areas and Critical Species Habitat Protection and Management Plan for Southeastern Wisconsin. Significant stream reaches or lakes were identified as Aquatic Areas of statewide or greater significance (AQ-1).

The following Walworth County streams and lakes have been ranked as **AQ-1, Aquatic Areas of Statewide or Greater Significance**:

**Beulah Lake  
Lulu Lake**

**Mukwonago River  
Bluff Creek**

**Pickereel Lake**

The following Walworth County streams and lakes have been ranked as **AQ-2, Aquatic Areas of County-wide or Regional Significance:**

<b>Benedict Lake</b>	<b>White River</b>
<b>Geneva Lake</b>	<b>Turtle Creek</b>
<b>Pleasant Lake</b>	<b>Potawatomi Creek</b>
<b>Comus Lake</b>	<b>Van Slyke Creek</b>
<b>Turtle Lake</b>	<b>Southwick Creek</b>
<b>Green Lake</b>	<b>Tripp Lake</b>
<b>Mill Lake</b>	

The following Walworth County streams and lakes have been ranked as **AQ-3, Aquatic Areas of Local Significance:**

<b>Army Lake</b>	<b>Potters Lake</b>	<b>Honey Creek</b>
<b>Booth Lake</b>	<b>Powers Lake</b>	<b>Darien Creek</b>
<b>Lake Wandawega</b>	<b>Whitewater Lake</b>	<b>Swan Lake</b>
<b>Lake Como</b>	<b>Swift Lake</b>	<b>Nippersink Creek</b>
<b>Honey Lake</b>	<b>Silver Lake</b>	<b>Sugar Creek</b>
<b>Lake Ivanhoe</b>	<b>Lake Tombeau</b>	<b>Spring Creek</b>
<b>Middle Lake</b>	<b>Green Lake</b>	<b>Lake Ivanhoe Cr</b>
<b>Honey Lake</b>	<b>Peters Lake</b>	<b>Spring Brook</b>
<b>Rice Lake</b>		<b>Little Turtle Creek</b>
		<b>Whitewater Creek</b>

**Wisconsin’s List of Impaired Water Bodies**

The following Walworth County water bodies are currently not meeting water quality standards and occur on the List of Impaired Waters, (WDNR, 2003). Approximately 6 miles of Turtle Creek are classified as impaired waterways. This waterway is located in the Rock River Basin. Nearly 19 miles of streams in the Sugar-Honey Creeks Watershed have been designated as impaired.

<u>Waterbody</u>	<u>Watershed</u>	<u>Listed Category</u>
Turtle Creek	Lower Rock River (L. Comus to County Line)	Habitat – Dominated
Spring Creek	Sugar-Honey Creeks	Sediment, Phosphorus, Habitat, Temperature
Perennial Str. (SPP1)	Sugar Honey Creeks	Sediment, Phosphorus, Habitat, Temperature
Perennial Str. (TA 4)	Sugar Honey Creeks	Sediment, Phosphorus, Habitat, Temperature
Perennial Str. (TM2)	Sugar Honey Creeks	Sediment, Phosphorus, Habitat, Temperature
Perennial Str. (B4)	Sugar Honey Creeks	Sediment, Phosphorus, Habitat, Temperature
Perennial St.	Sugar Honey Creeks	Sediment, Phosphorus, Habitat, Temperature

**Wisconsin’s Nonpoint Source Watershed and Lake List**

As required by s. 281.65(4)(c), Wis., Stats., the Department of Natural Resources is directed to prepare a list of watersheds and lakes in order of level of impairment. A watershed's rank is based on an assessment of individual lakes and streams within the watershed. Chemical, physical and biological information is used to determine whether the applicable water quality standards, including the use of the lake or stream, are being met, partially met, not met, or threatened. A screening for ground water contamination potential is also conducted. High, medium and low categories are assigned to each watershed and are defined below:

**High** – Watersheds with a high ranking for lakes or streams have predominance or impaired waters or threatened waters or a mix of waters impaired, threatened or partially impaired. The existence of endangered or threatened species will also result in a high ranking.

**Medium** - Watersheds with a medium ranking for lakes or streams that are a mixture of those fully meeting their uses and those partially meeting uses.

**Low** – Watersheds with a low ranking for lakes or streams have a majority of waters fully meeting their uses.

The following Walworth County watersheds are ranked **High** for priority watershed status and occur on the WDNR Watershed List:

Large-scale Watersheds

**Sugar and Honey Creeks**

**Turtle Creek**

Priority Lake Watersheds

**Benedict Lake**

**Geneva Lake**

**Beulah Lake**

**Lulu Lake-Eagle Spring Lake**

**Lower Phantom Lake**

**Powers Lake**

**Upper Phantom Lake**

The following Walworth County watersheds are ranked **Medium** for priority watershed status and occur on the WDNR Watershed List:

Large-scale Watersheds

**White River/Nippersink Creek**

**Mukwonago River**

The following Walworth County watersheds are ranked **Low** for priority watershed status and occur on the WDNR Watershed List:

**Scuppernong Creek**

**Whitewater Creek**

## **Sugar/Honey Creek Watershed**

A Nonpoint Source Control Plan for the Sugar/Honey Creek Priority Watershed Plan was adopted by the Walworth County Board of Supervisors and the Wisconsin Land and Water Conservation Board in 1997. This plan provides a thorough assessment of the water quality conditions of the watershed and a detailed inventory of the sources of nonpoint source pollution originating from the land uses in the watershed. This plan targets critical sites of pollution. The Walworth County Land Conservation Department and the Wisconsin Department of Natural Resources are currently providing technical assistance and financial assistance to increase the use of best management practices that prevent and reduce sources of nonpoint source pollution. The plan advocates the achievement of project goals. A Summary of the Nonpoint Source Plan for the Sugar/Honey Creek Priority Watershed Plan is contained in Appendix C of this Plan.

## **Lower Rock River Basin**

The Lower Rock River Basin Water Quality Management Plan (WDNR, October 1998) and The State of the Rock River Basin contain valuable information about the water quality conditions of the water bodies in the Basin, including those located in Walworth County. The Plan identified major areas affected by runoff pollution and advocates multi-partnership projects to resolve water quality problems. The resource assessment and recommended actions for the watersheds of the Lower Rock River Basin, located in Walworth County, is contained in Appendix D of this Plan. In addition, the Rock River resource issues and recommendations identified by the Rock River Basin team is contained in Appendix D.

## **Turtle Creek Watershed**

The Turtle Creek Priority Watershed Project was initiated in 1981 and was guided by The Turtle Creek Priority Watershed Plan (WDNR, 1984). This Plan included an assessment of the water resources and an inventory of the sources of sediment from eroding cropland and streambanks and nutrients from poorly managed barnyards. Technical and financial assistance was made available to eligible landowners in the watershed to plan and use best management practices, which resulted in preventing and controlling erosion and animal waste runoff. According to the 1994 post-project evaluation, the effectiveness of best management practices use was successful on a site-by-site basis, but there was no watershed-wide reduction in nonpoint source pollution loads. Low landowner participation and the use of short-term best management practices are cited as reasons for this result. The unavailability of financial incentives to establish stream buffers and develop nutrient management plans also limited the overall effectiveness of the program.

## **Southeast Fox River Basin (Fox-Illinois)**

The State of the Southeast Fox River Basin provides an excellent overview and assessment of the conditions of the land and water resources in the Basin, including Walworth County. The findings and the recommendations contained in this report are included in Appendix D.

## **Assessment of Walworth County Groundwater**

### **Groundwater Availability**

Generous groundwater supplies have allowed the Southeastern Region of Wisconsin, including Walworth County, to grow. Although Walworth County is groundwater rich, there is a growing concern that the groundwater is being used faster than it is being replenished. Sustaining the water supply will be one of the greatest challenges facing Walworth County and the Region. Identifying and Protecting the County's groundwater recharge areas has become a major resource management issue.

Groundwater supplies water to domestic, municipal and industrial users in Walworth County; however well yields and depth vary widely. Most domestic wells in the County tap into the shallow aquifers that are less than 200 feet deep. Groundwater sustains lake levels, recharges wetlands, and provides streams with base flow, which is vital during drought conditions. Map 9 shows the depth to the shallow water table in Walworth County.

The deeper sandstone aquifer is the principal source for many municipal and industrial water supplies. Water supply managers in the region are becoming increasingly concerned about the declining potentiometric surface in the deep sandstone aquifer.

### **Groundwater Quality**

The quality of groundwater in Walworth County is generally good. Wells in sand and gravel aquifer are susceptible to pollution if they are shallow, inadequately cased, or poorly located and constructed. Excessive nitrate concentrations in drinking water are a contributing factor of methemoglobinemia in infants. Therefore, an upper limit for nitrate concentration has been set for drinking water. The Walworth County Health & Human Services offers Walworth County residents well testing services. This service is available in conjunction with the WDNR.

In 1992, the State of Wisconsin adopted the Atrazine Rule. Atrazine was the most widely used herbicide in Wisconsin and a number of wells were found to exceed the groundwater enforcement standard for Atrazine. The Wisconsin Department of Agriculture, Trade and Consumer Protection must prohibit the use of Atrazine in areas where the concentration of Atrazine in groundwater exceeds 3 parts per billion, (ppb). Walworth County presently has two Atrazine Prohibition Areas. The Atrazine Prohibition Areas are shown on Map 19 and Map 20.

Improperly abandoned wells constitute a significant threat to groundwater quality. Walworth County, the USDA Farm Service Agency, and Natural Resources Conservation Service continue to provide assistance to landowners to safely abandon wells throughout the County.

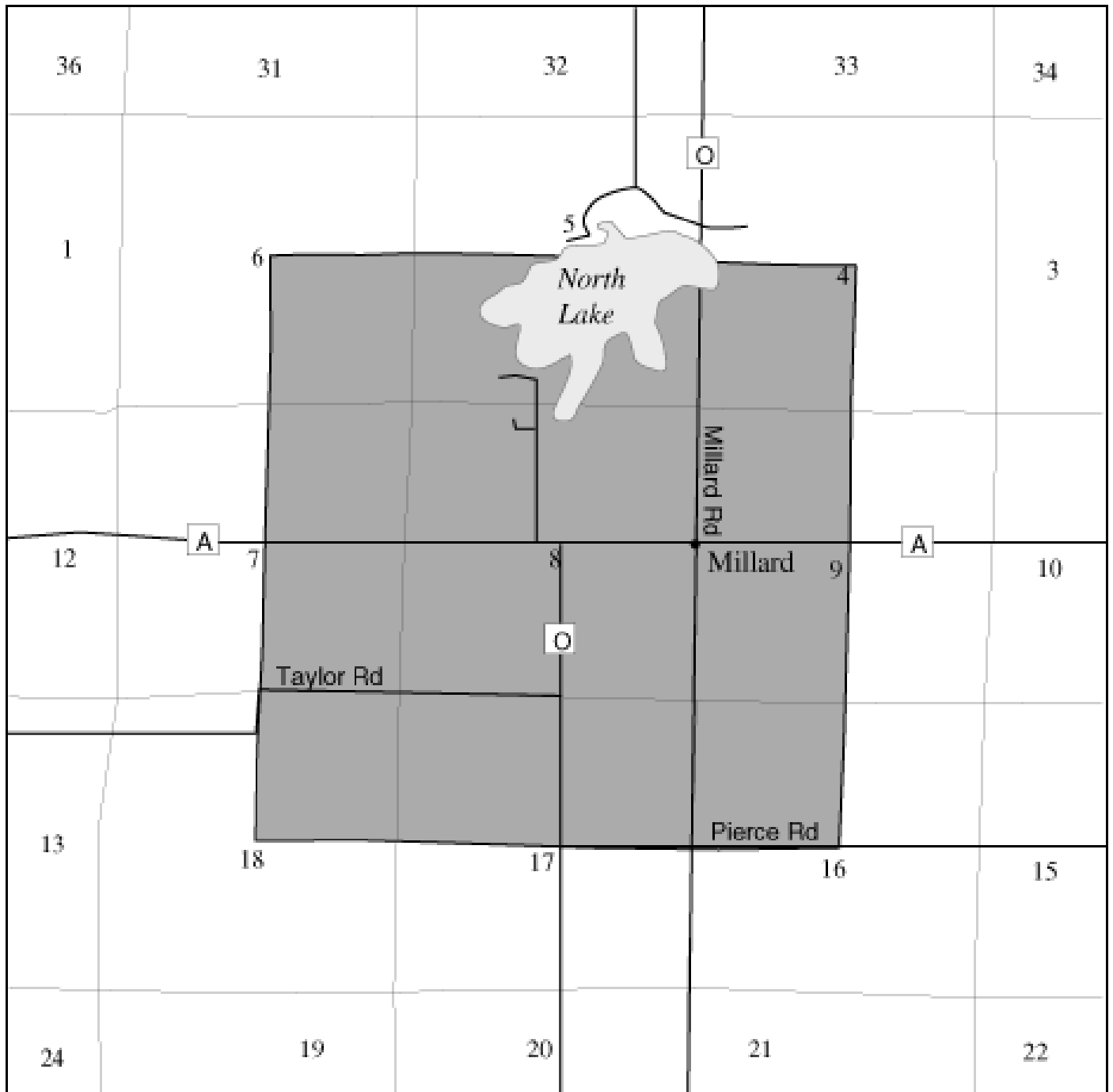
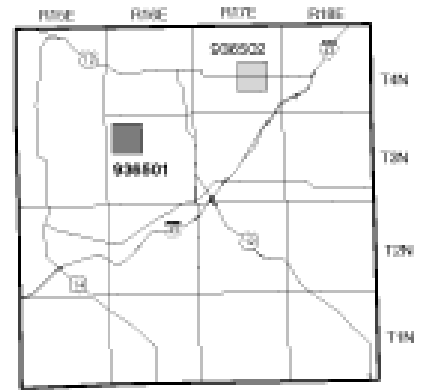
Groundwater contamination problems from septic systems, improperly managed animal waste, spills, improper use of fertilizers and pesticides, abandon dumps, leaky underground storage tanks, abandoned wells, and stormwater runoff have been noted in Walworth County.

### Map 19

# Walworth County Town of Sugar Creek

T3N R16E PA 93-65-01

All uses of atrazine are prohibited on lands within the shaded regions. There are two prohibition areas in Walworth County. Refer to each map for specific locations.

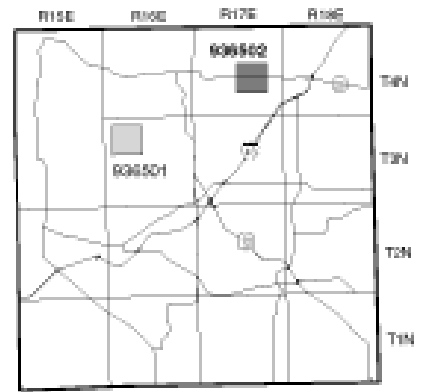


# Walworth County Map 20

Town of Troy

T4N R17E PA 93-65-02

All uses of atrazine are prohibited on lands within the shaded regions. There are two prohibition areas in Walworth County. Refer to each map for specific locations.





## **Assessment of Walworth County Soil Resources**

The Walworth County Soil Erosion Control Plan (T by 2000) was completed and approved in 1987. This plan contained township-by-township inventory of cropland soil erosion, a goal to achieve county-wide soil loss standards, a listing of specific needed soil conservation practices and their implementation costs and a staffing plan for the Walworth County Land Conservation Department to achieve the goals of the plan. The soil erosion inventory contained in this plan has not been updated for preparation of this plan.

Since 1999, the Walworth County Land Conservation Division Staff has conducted an annual transect survey using state-wide protocol developed by the Wisconsin Department of Agriculture, Trade and Consumer Protection. Cropping information, including the type of tillage is collected annually at specific points throughout the County. The findings of this survey are used to determine the trend of cropland soil loss and tillage practices used.

Walworth County Transect Survey data from 1999 through 2007 indicate that cropland acres meeting “T” has held relatively steady at 70-75 percent. An additional 15 percent has been held to less than 2 “T”. Erosion rates have held despite recent extreme spring rains and over 25 percent reduction in the number of hay and CRP fields. Contributing to effective soil retention has been the adoption of mulch and no-till replacing clean-till on corn ground. No-till of soybeans has been the greatest benefit to reducing non-point runoff, with over 45 percent of soybeans having greater than 76% residue in 2007.

Land owners enrolled in the Wisconsin Farmland Preservation Program are required to farm under a conservation plan to maintain soil loss rates within the acceptable soil loss tolerance levels. Each year over the 150 conservation plans are reviewed by the Walworth County Land Conservation Division for compliance with this soil conservation requirement.

## **Assessment of Walworth County Natural Areas, Critical Species Habitat, Wetlands, Environmental Corridors and other Ecologically Important Features**

Losses of natural areas, critical species habitat, wetlands and environmental corridors will continue to increase without adequate protection by land use control or acquisition by the public or non-profit conservation organizations.

Between 1980 and 1990, approximately 500 acres of wetlands were lost to the construction of roads, homes and businesses and the artificial drainage for crop protection. Many Walworth County wetlands are not placed in a protective zoning district. Wetlands, smaller than 5 acres, are not in the county protective zoning district. Setback standards have not been established for wetlands in Walworth County and structures and buildings can be placed immediately adjacent to wetlands, if the wetlands are not considered navigable or lack an ordinary high water mark, near or at their boundary.

Environmental Corridors are the best of the remaining natural resources in Walworth County and are available for development at densities of 5 acres per residential unit. This standard does not adequately protect environmental corridors.

## Assessment of Agricultural Lands and Other Land Uses

Walworth County leads the Southeast Region in preserving land for agriculture use. Walworth County administers a county-wide zoning ordinance and exercises platting authority. Walworth County was the first county in the Southeast Wisconsin Region to adopt a County Agricultural Preservation Plan and set zoning standards aimed at preserving farmlands in all townships. The County Board of Supervisors adopted the standards contained in the Southeastern Wisconsin Regional Land Use Plan 2010 as a guide for growth and the agricultural preservation in Walworth County and reaffirmed these standards in the adopted *Multi-Jurisdictional Comprehensive Plan for Walworth County: 2035*, (SEWRPC)

The *Multi-Jurisdictional Comprehensive Plan for Walworth County: 2035*, (SEWRPC) recommends the preservation of prime agricultural land in Walworth County and up-dating the *Agricultural Preservation Plan for Walworth County* (1978).

Although each year brings a loss of Walworth County farms and farm size, livestock herd size is rising and the use of more annual and cash crops is increasing. These adjustments require the Land Conservation Department Staff to develop new tools, methods and incentives to encourage the use of best management practices aimed at protecting the soil, water and other natural resources. To manage the collection, storage and land application of livestock waste, Walworth County has developed zoning ordinances and environmental ordinances to protect valuable resources and prevent impairments to land and water. The Walworth County Board of Supervisors adopted an Animal Waste Storage Ordinance. This ordinance can be found in Appendix E or navigating to Chapter 6, Art. IV from the Walworth County LURM page found at <http://www.co.walworth.wi.us/Land%20Management/Website/conservation.htm>. In addition, the Walworth County Shoreland and Floodplain Ordinance and the County Zoning Ordinance contain standards for regarding livestock uses.

Growth and development in Walworth County are occurring at conservative rates compared to the neighboring counties. In anticipation of large tracts of land under construction for homes, business and recreation uses, Walworth County was the first county in the State of Wisconsin to adopt a construction site erosion control ordinance, requiring the use of best management practices during construction to protect nearby waterways and wetlands from sediment discharge. There are other impacts that come with more pavement and roofs in a watershed. Runoff from urban land not only increases; it's flashy, warmer and toxic. Further analysis and investigation is needed to assess the impact of increased impervious surfaces on watershed hydrology and water resource conditions. The Walworth County Construction Site Erosion Control Ordinance and Stormwater Management Standards were amended in 2007 to include the non-agricultural runoff performance standards contained in NR 151. A copy of this County Ordinance is included in Appendix E or can be downloaded on the Walworth County Website <http://www.co.walworth.wi.us/Land%20Management/Website/conservation.htm> and following to Ch. 26, Art. I-III.

The Walworth County Board of Supervisors adopted new Nonmetallic Mining Reclamation Standards in 2001 to comply with Section 295 of the Wisconsin Statutes and NR 135 of the State Administrative Code. Although Walworth County has historically required reclamation plans for new nonmetallic mining sites, this ordinance established reclamation standards by ordinance and applicable to all active mining sites in Walworth County. A copy of this ordinance is contained in Appendix E or can be downloaded by finding Ch. 26, Art. VI on the Walworth County Website <http://www.co.walworth.wi.us/Land%20Management/Website/conservation.htm>

Lakes and other waterways in Walworth County, by their very nature, attract residential development. In addition, summer lake cottages are often enlarged to accommodate year-round living. This type of re-development is having an impact on the water quality of Walworth County's sensitive lakes, streams and wetlands. For example Geneva Lake, the largest and deepest lake in the County and the Region, is beginning to show biological changes.