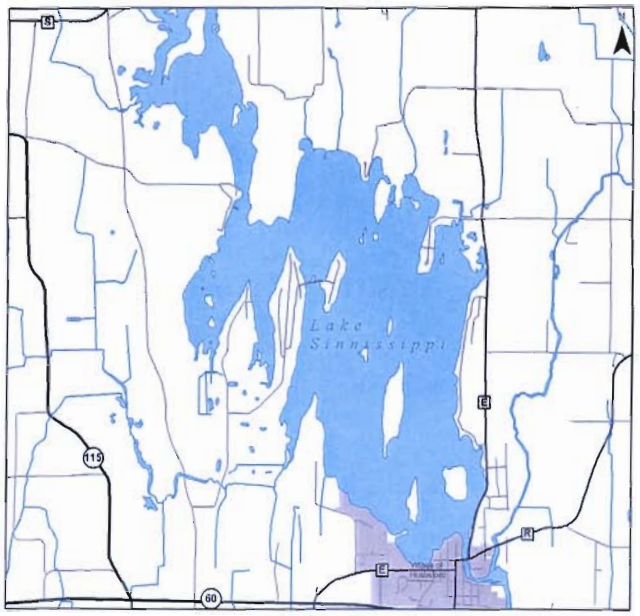


FINAL REPORT

To Wisconsin Department of Natural Resources
Lake Planning Grant Number 796-02

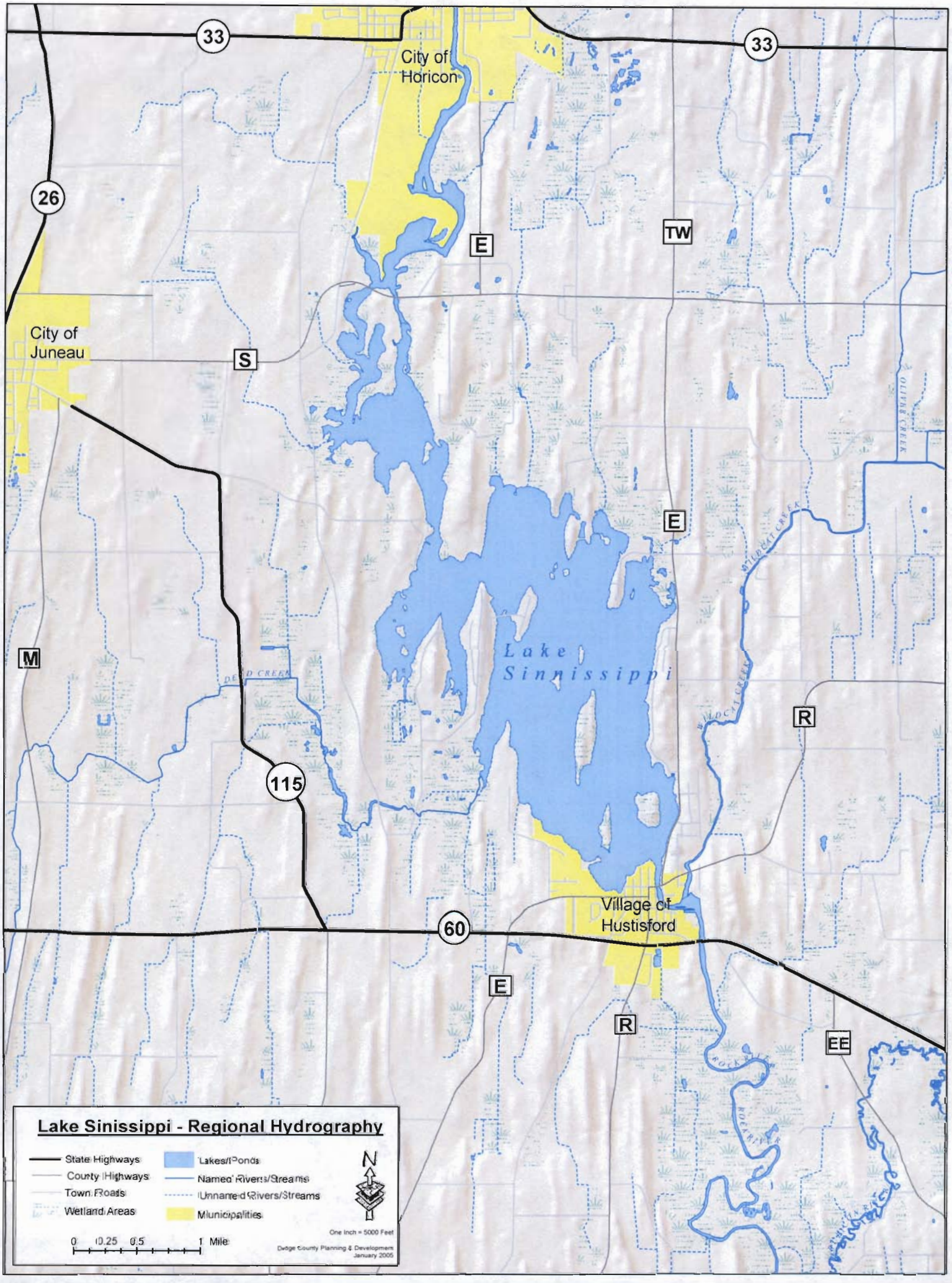
Part 1 of 3

CONSERVATION RESERVE ENHANCEMENT PROGRAM (CREP) AND WETLAND RESERVE PROGRAM (WRP) PLANNING PROJECT – LAKE SINISSIPPI WATERSHED

Submitted by

Lake Sinissippi Improvement District
Hustisford, Dodge County, Wisconsin

April 1, 2005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Lake Sinissippi - Regional Hydrography
State Highways
County Highways
Town Roads
Wetland Areas
Lakes/Ponds
Named Rivers/Streams
Unnamed Rivers/Streams
Municipalities
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One Inch = 5000 Feet
Dodge County Planning & Development
January 2005

Wisconsin Department of Agriculture, Trade and Consumer Protection

Press Releases

2001/11/01 - Historic Agriculture Conservation Program Begins

Contact: Jane Larson
608-224-5005

MADISON-- This week U.S. Agriculture Secretary Ann Veneman and Gov. Scott McCallum signed a new agricultural conservation program unprecedented in Wisconsin's history.

The Conservation Reserve Enhancement Program will provide approximately $240 million in state and federal funding to agricultural landowners to assist them with reducing soil erosion and improving water quality.

About $200 million is coming from the U.S. Department of Agriculture, the balance of more than $40 million from the state.

About 100,000 acres in more than 50 counties are eligible for the program.

"I commend all those who have made CREP a reality for Wisconsin," said Jim Harsdorf, Secretary of Agriculture, Trade and Consumer Protection, during the CREP signing ceremony with Gov. McCallum in Stratford on Oct. 29. "Without them we wouldn't be here today with this good news."

Eligible landowners will be able to enroll their land either for 15 years or permanently to install practices such as riparian buffers and filter strips on their land. These practices will keep soil in place, protect water quality, and provide wildlife habitat.

Most of the federal funds will be dispersed to qualified landowners in the form of rental payments through the USDA's Farm Service Agency. State funds will be dispersed as an up-front payment at the time the landowner signs the contract.

To get the ball rolling, eligible landowners should contact their local Farm Service Agency and make an appointment to come in and get an application.

"Our goal is to begin CREP sign-ups in Wisconsin as soon as

possible," Harsdorf said.

There is a narrow window for signing up for the program. Applications must be submitted by the end of December, 2002.

The USDA will provide techinical assistance through the Wisconsin Natural Resources Conservation Service. Participating counties will also assist landowners.

"Local involvement is the key to making CREP successful," said Harsdorf.

First proposed in 1998, the CREP program involves coordination between federal, state, and county agencies. DATCP took the lead in coordinating these efforts in Wisconsin.

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Final Report Lake Planning Grant No. 796-02

Part 1 of 3

Lake Sinissippi Improvement District
Hustisford, Dodge County, Wisconsin

Conservation Reserve Enhancement Program (CREP) and Wetland Reserve Program (WRP) Planning Project – Lake Sinissippi Watershed

Executive Summary

The U.S. Department of Agriculture, Wisconsin Department of Agriculture, Trade and Consumer Protection and Wisconsin Department of Natural Resources are implementing a version of the Conservation Reserve Program known as the Conservation Reserve Enhancement Program. The objectives of CREP include protection and improvement of water quality by reducing sediment and nutrient runoff and enhancement of wildlife.

In order to maximize landowner participation in the Lake Sinissippi watershed during the original sign-up period, there was a need to provide additional resources to ensure that requirements of program planning, implementation and delivery were met. DNR Lake Planning Grant No. LPL 796-02 was awarded to the Lake Sinissippi Improvement District ("Lake District") November 2001 for this purpose.

Subsequent to commencement of the grant work, the objective to hire a staff person at USDA Natural Resources Conservation Service proved to be untenable. In addition, landowner and farmer interest in CREP and program sign-up developed more slowly than anticipated and, thus, the existing NRCS staff was capable of handling the CREP contacts.

A major challenge to effective landowner and farmer participation in CREP was determined to be limited education and program promotion. Therefore, the Lake District, with the concurrence of DNR, worked cooperatively with two other CREP lake planning grantees in Dodge County (Beaver Dam Lake Improvement Association and Fox Lake Inland Lake Protection and Rehabilitation District) to provide a limited education and promotion program and establish landowner contacts, targeted within the Lake Sinissippi watershed.

In 2003 the project scope was revised and enlarged to include an expanded program of land identification, monitoring and field visits. The objectives were to develop an inventory of lands for specific conservation programs and for follow-up work on priority farms for compliance under Wisconsin Administrative Code Chapter NR 151, Runoff Management. The revision of project scope was approved by DNR. The report of these activities is given in parts 2 and 3.

Introduction

Beginning in the fall of 2001 the U.S. Department of Agriculture ("USDA"), Wisconsin Department of Agriculture, Trade and Consumer Protection ("DATCP") and Wisconsin Department of Natural Resources ("DNR") began implementing a version of the Conservation Reserve Program known as the Conservation Reserve Enhancement Program ("CREP"). The objectives of CREP include protection and improvement of water quality by reducing sediment and nutrient runoff and enhancement of wildlife. The program is funded by both federal and state sources and the sign-up period was originally established from October 1, 2001, to December 31, 2002 [subsequently extended]. CREP offers incentive and cost-share payments to landowners who voluntarily enroll agricultural lands adjacent to surface waters, sinkholes and wetlands into conservation practices.

Conservation practices eligible for CREP include riparian buffers, filter strips, wetland restorations and grassed waterways. In riparian project areas, eligible lands must be

within 150 feet of a stream or water body. Farmlands enrolled in the program must meet USDA requirements for cropping history (a commodity crop must have been planted in 2 out of the last 5 years) or pasturing, and lands currently enrolled in CRP are not eligible for CREP. Enrollment options for the landowner include both a 15-year contract agreement and a permanent conservation easement.

On July 9, 2001, a meeting was held to discuss the anticipated CREP program and implementation within watersheds of Dodge County. In attendance were representatives of the Lake District, Beaver Dam Lake and Fox Lake lake groups, Pheasants Forever, University of Wisconsin-Extension, two Dodge County supervisors and various county, state and federal agencies (Appendix A). One of the key issues discussed at the meeting was the role(s) of lake organizations to support CREP implementation. The Lake District and three other lake organizations had previously pledged $4,000 each to support buffer internships through Pheasants Forever. It was also decided that the Lake District and the Beaver Dam Lake and Fox Lake lake groups would each apply for DNR lake planning grants to provide funds for implementation of CREP.

Responsibility for planning, implementation and delivery of CREP in Dodge County is with the Dodge County Land Conservation Department ("LCD"), the USDA Natural Resources Conservation Service ("NRCS") and the USDA Farm Service Agency ("FSA"). DATCP and DNR personnel are also involved in parts of program implementation. While state and federal funding provides resources for incentive and cost-share payments to landowners, there are only limited resources available for program planning, implementation and delivery. In order to maximize landowner participation in the Lake Sinissippi watershed during the original sign-up period, there was a need to provide additional resources to ensure that requirements of program planning, implementation and delivery were met. Therefore, the original purpose of this project was to assist LCD and NRCS with personnel and services during the CREP sign-up and ongoing WRP sign-up periods.

Statement of Need

Within the Upper Rock River watershed soil erosion from cropland has been identified as the largest source of sediment and nutrients to local waterways. Important recreational resources at Horicon Marsh, an internationally recognized migratory bird wetland, and Lake Sinissippi are being degraded by agricultural nonpoint source pollution. The magnitude and impacts of cropland erosion in the study area has been documented in Upper Rock River Water Quality Management Plan (DNR, 1995), Prediction of Phosphorus Loads in the Rock River Basin, Wisconsin (Earth Tech, 2000), Dodge County Land and Water Resources Management Plan (LCD, 1999) and Rock River State of the Basin Report (DNR, 2002).

Many of the water resources in the project area are listed on the State of Wisconsin's Clean Water Act 303(d) list of impaired water bodies. Table 1 summarizes the water bodies in the study area on the 303(d) list. Irish and Gill Creeks are listed on the 2001 EQIP Priority Areas Maps. The DNR has designated the Upper Rock River, East Branch Rock River and Lake Sinissippi watersheds as "Focus Watersheds" for special study and implementation efforts.

Table 1
Project Area Water Bodies on State and Federal 303(d) List of Impaired Water Bodies

Water Body Name	Impact	Source
Gill Creek	Excessive sedimentation, habitat	Nonpoint source, cropland erosion
Horicon Marsh	Excessive sedimentation, low dissolved oxygen, nutrient enrichment, turbidity problems	Nonpoint source, cropland erosion, barnyard runoff
Irish Creek	Excessive sedimentation, habitat	Nonpoint source, cropland erosion
Kummel Creek	Excessive sedimentation, habitat	Nonpoint and point sources
Limestone Creek	Excessive sedimentation, habitat	Nonpoint source
Park Creek	Excessive sedimentation, habitat, nutrient enrichment	Nonpoint source, cropland erosion
Rock River South Branch	Excessive sedimentation, habitat	Nonpoint source
Rock River	Excessive sedimentation, bacteriological contamination, ammonia toxicity, nutrient enrichment	Nonpoint source, cropland erosion, municipal treatment plant discharge
Lake Sinissippi	Excessive sedimentation, nutrient enrichment, low dissolved oxygen, turbidity problems	Nonpoint and point sources, cropland erosion

Project Goal

The goal of the project is to reduce soil erosion and runoff from agricultural fields within the Lake Sinissippi watershed, thereby contributing to an improvement of water quality. To accomplish this goal the project will assist farmers and other landowners in understanding how they can take advantage of CREP and other existing state and federal conservation programs, such as WRP. These programs will help landowners to convert highly erodable lands and lands adjacent to waterways and wetlands to long-term or permanent cover.

Environmental benefits of the project include:

- Reduce soil erosion
- Reduced sediment and nutrient inputs to waterways and lake
- Improved water clarity
- Improved aquatic habitat
- Improved wildlife habitat

Lake and Watershed Description

Lake Sinissippi is a 2,854-acre impoundment of the Rock River located in central Dodge County. The lake is located within the municipal boundaries of the Village of Hustisford and Towns of Hubbard, Hustisford and Oak Grove. Table 2 outlines the general characteristics of the lake. The lake bottom is mainly composed of silt (material washed into the lake from the surrounding watershed) with an average water depth of about 4.5 feet. Lake Sinissippi and the Rock River have experienced a gradual decline in water quality as indicated by reduced water transparency, increased sedimentation, increased algae population, loss of aquatic macrophyte beds and loss of a sports fishery.

Table 2
Physical Characteristics of Lake Sinissippi

Parameter	Dimension
Surface Area (open water)	2,854 acres
Maximum Depth	8 feet
Mean Depth	4.5 feet
Volume	13,000 acre feet
Shoreline	41.95 miles
Shoreline Without Islands	35.53 miles
Watershed to Lake Ratio	115:1
Watershed Area	511 sq. miles

The Rock River from the Horicon Marsh, Dead Creek and several smaller creeks are tributaries of Lake Sinissippi. Water quality monitoring indicates that polluted runoff effects are severe on most streams in the watershed. Streams are affected by nonpoint pollution from animal feedlots and barnyards, cropland soil erosion and residential and commercial construction site erosion, as well as other urban runoff from the cities of Horicon, Mayville and Waupun.

The Lake Sinissippi watershed is a large area of over 500 square miles located primarily in Dodge County, with segments in Fond du Lac, Green Lake and Washington Counties. The watershed is intensively farmed: cropland for corn, soybeans and hay, and land for livestock of cattle and hogs. Much of the cropland is ditched, tiled and channeled to improve land drainage characteristics. According to LCD information, sediment delivery to Lake Sinissippi is estimated to exceed 54,000 tons per year (equivalent to 5,400 10-ton truckloads of soil entering the wetlands and waterways annually). An estimate of 1.21 pounds of phosphorus is added to the already nutrient-rich lake water for every ton of sediment delivered to the lake. Total phosphorus loading to Lake Sinissippi from cropland runoff is in excess of 65,000 pounds per year.

The water quality of Lake Sinissippi is poor. Nonpoint source pollution and cropland erosion are main contributors to the eutrophic condition of the lake. Excessive sedimentation, excessive nutrient enrichment, low dissolved oxygen and turbidity problems are common lake characteristics.

Lake Management

Lake Sinissippi is managed by the Lake District (a Wisconsin chapter 33 inland lake protection and rehabilitation district), local units of government and a lake property owners' association.

Long-Term Project Strategy

The management strategy for the Lake District is presented in Long-Range Implementation Strategy for the Lake Sinissippi Improvement District, June 6, 2002 (funding for the report provided by DNR Lake Planning Grant LPL 753-01). The management strategy envisions four broad categories of work for long-term improvement of Lake Sinissippi.

- Watershed Management
- Dredging
- Habitat Restoration
- Fishery Restoration

Lake Planning Grant Work Plan

Implementation of the CREP and WRP programs involve the following steps:

1. Preparation of a master plan to identify targeted and eligible landowners
2. Landowner contact
3. Ecological and soil survey of the proposed project area
4. Preparation of a restoration plan
5. Surveying of the contract or easement area
6. Assessment of the property value
7. Preparation of the easement document or long-term contract
8. Presentation and acceptance of offer
9. Closing procedures

State and federal funds for CREP provide the financial resources needed for cost-share payments to landowners. However, there are only limited financial resources available through the CREP program for project planning, implementation and delivery. For the program sign-up and participation to be successful, several objectives needed to be met. First, a program promotion strategy was needed on a countywide basis, involving federal, state and county agencies and the lake groups. Second, a landowner education strategy was needed to ensure that appropriate program information was getting to the targeted audience. And, third, NRCS and LCD personnel needed to be trained in CREP specifics and available on a timely basis so as to expedite the administrative and field-based sign-up procedures with landowners.

Initial Phase of Work Plan

The determination was made early on by the Lake District, other lake organizations and federal, state and county agencies that the existing staff at NRCS and LCD was of insufficient size to handle on a timely basis the expected number of information and sign-up requests. Previous experiences of the agencies suggested that delayed or incomplete responses to interested participants resulted in a termination of interest and a rather negative view of the conservation program by the targeted landowner population. The Lake District and partner lake organizations wanted to avoid, as far as was practicable, a repeat of previous less-than-successful promotions of conservation programs in Dodge County.

The Lake District and other lake organizations agreed with the agencies that every effort should be made to provide the infrastructure and staff support necessary to maximize CREP participation during the sign-up period that was due to expire December 31, 2002. Therefore, the decision was made by the Lake District and the other two lake organizations to apply for DNR lake planning grants to provide funds for additional staff support and for subcontracting of certain professional services:

- Certified surveys
- Legal services to review easement agreements

- Ecological assessments
- Preparation of restoration plans

This project was designed to provide funds for the hiring of a limited-term employee of NRCS for a 15-month period (October 1, 2001 to December 31, 2002). The individual was to be technically qualified in one of several natural resource disciplines and have experience in public conservation programs. The employee was to be based at the USDA Farm Service Center, Juneau, Dodge County, to assist with all aspects of CREP and WRP projects within the Lake Sinissippi/Upper Rock River watershed, as well as other Dodge County watersheds. The NRCS District Conservationist was to provide training and supervision of the employee.

The NRCS employee was to be responsible for four key activities:

1. Help formulate a countywide strategy for landowner education.
2. Identify specific lands that meet the criteria of CREP and WRP programs to help target landowners for education.
3. Assist NRCS and LCD staff in ecological and soil surveys and field staking of proposed contract and easement areas.
4. Work with landowners during the contract negotiation process so that they understand the program and decisions that are being made.

Final Phase of Work Plan

The responsibility for recruitment and hiring of the limited-term employee was with NRCS. Representatives of the Lake District and other lake organizations met with NRCS personnel a number of times during the fourth quarter 2001 and first half of 2002 to learn the status of the hiring process. Due to administrative difficulties within NRCS, satisfactory progress in hiring a qualified individual was not made. The vacancy announcement and posting of the job did not occur until August 9, 2002 (Appendix B). By the end of summer 2002 the program was still without the designated employee.

During the same time period the level of interest in CREP by farmers and landowners was developing more slowly than originally anticipated. Field reports and anecdotal evidence suggested much uncertainty among dairy farmers. The milk price was low and several large dairy cooperatives were considering large-scale herd buyouts. Many cash crop farmers were reluctant to embrace a new program that would decrease planting acreage. Therefore, the number of landowner requests for program information was at a level that could be handled by existing administrative staff at NRCS and LCD. Additionally, the procedural work of landowner meetings, field and soil surveys, restoration plans and preparation of documents was being handled adequately by existing technical staff.

The conclusion reached by the Lake District, lake partners and the agencies was that the major challenge to effective landowner participation in CREP and WRP was limited education and program promotion. Therefore, the decision was made to terminate the original work plan to hire an employee at NRCS and, instead, to refocus and reapply the resources of the DNR lake planning grants to an expanded program of CREP education and promotion. Also at this time the USDA announced that the CREP sign-up period was to be extended for several years. The Lake District therefore requested an extension of the grant period. The DNR agreed with the change in scope of the grant and the time extension.

Concurrent with the change in scope of the grant work, the DNR announced a new Wisconsin administrative regulation, Chapter NR151 Runoff Management, which became effective October 2002. This regulation establishes runoff pollution performance standards and prohibitions for agricultural facilities and practices designed to achieve water quality standards. The Lake District, lake partners and agencies decided that an important part of the promotion program for CREP and WRP could be tied to helping farmers meet the new NR151 requirements. Thus, the program of CREP education and promotion evolved into presenting conservation programs, in part, as important tools to assist farmers and landowners in meeting their obligations under the regulation (Appendix C). The Lake District and lake partners worked cooperatively with the Rock

River Headwaters, Inc. (a 501c3 non-profit conservation organization) to develop and implement the education and promotion program.

CREP Program Promotion

Representatives of the Lake District worked with partner organizations and agency personnel to develop a CREP promotion program that was administrated during 2001-2003. The program included the use of print and radio media, farmer publications, mailings and presentations at agricultural organizations and local government meetings. Examples of the promotion program conducted by the lake organizations include:

- An article on CREP sign-up assistance appeared in November 2001 issue of Dodge County Drumlin Rumblings, a publication of the USDA Farm Service Agency, Juneau, for county farmers and landowners (Appendix D)
- News release January 28, 2002, regarding CREP support by lake organizations provided to eight Dodge County newspapers (Appendix E)
- Appearance February 8, 2002, on Community Comment talk show, WBEV AM radio station, Beaver Dam, with lake representative and agency representatives from NRCS, FSA and LCD
- Presentation at a board meeting of Dodge County Farm Bureau, county affiliate of the Wisconsin Farm Bureau Federation (Appendix F)
- Presentations at several high school FFA (Future Farmers of America) meetings
- Presentations at meetings of the town boards of Hubbard, Hustisford and Oak Grove
- Distributed fact sheets of Dodge County Conservation Reserve Enhancement Program to farm cooperative offices, feed mills, town halls, farm implement dealers, etc within the watershed (Appendix G)

Community Dinner

Another effective form of program communication has been an invitation dinner within a local community. The Lake District and partner organizations decided to sponsor at least one farmer outreach, community dinner within their respective watersheds.

The Lake District held three community dinners for invited farmers and landowners on February 20, 2003, in Town of Oak Grove; April 3, 2003, in Town of Theresa; and, April 22, 2004, in Brownsville (Appendix H). Mailing lists for the three dinners totaled 600 invitations and were prepared from:

- LCD list of Conservation Reserve Program participants in Towns of Clyman, Hubbard, Hustisford, Leroy, Lomira, Oak Grove, Theresa and Williamstown
- List of landowners adjacent to Lake Sinissippi, the East Branch Rock River and other main tributaries from township plat maps

Invitations were also mailed to the town boards and Dodge County supervisors representing the watershed.

An average of 60 farmers/landowners attended each of the community dinners. Speakers included David Ryden, Research Director, Jung Seed Genetics; Norb Wozniak and Abby Riggs, Conservationists, NRCS; James Congdon, Dan Heim and Ruth Johnson, DNR; and, James Fanta, Crops and Soils Agent, UW-Extension. Landowners who had recently enrolled acreage in CREP also shared with attendees their experiences with the program and other conservation practices. A question-and-answer period covered diverse topics of conservation buffers, no-till farming, CREP and WRP sign-up procedures, NR151 runoff regulations and wetlands protection. Information brochures and supplies from NRCS and LCD were also available for the dinner attendees. A list of attendees was compiled for follow-up by Lake District representatives.

Landowner Contact

The third leg of the stool of program promotion and education was direct contact with landowners and farmers. Promotion and community education are important elements of the CREP/WRP plan to communicate information about the conservation programs. However, several marketing sources recommended to the Lake District and lake groups that one-on-one contact with the landowner was often a critical element in ensuring that appropriate information is made available. Many times more than one contact is

necessary to develop the trust needed to assure a landowner that he/she has the information necessary to make a sound decision.

The Lake District, therefore, decided to devote volunteer time to initiate the process of identifying specific lands that appeared to meet the criteria of the CREP and WRP programs. On May 8, 2002, Lake District representatives attended a training meeting with Christine Javid, UW-Extension specialist, to learn information and education strategies for marketing conservation buffers (Appendix I). Further, the Lake District devoted time to target eligible landowners for education about the programs.

Several methods were used to identify eligible landowners:

- Aerial photographs of certain sections near Lake Sinissippi and main tributaries were obtained from NRCS. Cropped areas on the NRCS photographs were compared with wetland and topographic maps. Landowners of cropped areas near wetlands were identified by using the Dodge County Land Atlas and Plat Book
- Overlay data set of Dead Creek and Rushy Glen Creek were prepared by Dodge County Land Information Department. The data sets comprised a 1999 digital orthophoto with two overlays: hydrography and parcel shapefile with gisPIN# for tax parcels within a 300-ft buffer of the creeks (Appendix J). A tax assessment database associated with the gisPIN# was also generated with owner name and mailing address.
- A list of eligible riparian landowners along the Rock River south of the City of Horicon and other smaller tributaries was made from the plat book.

Landowner contact was made by in-person visits, telephone calls and separate mailings. Persons interested in additional information about CREP and WRP were referred to either LCD or NRCS technicians.

Results and Conclusions

Program Participants and Acreage Enrolled

CREP

As of December 31, 2004, there were 55 applications for CREP in process or already cost-shared and awarded totaling 611.1 acres for Dodge County, as reported by the LCD.

Within the Lake Sinissippi watershed 16 applications representing 174 acres have been enrolled in CREP.

WRP

Sign-up for WRP within Dodge County as reported by NRCS is given on the basis of contracts awarded per year:

2001	1 contract representing 30.5 acres
2002	3 contracts representing 147 acres
2003	1 contract representing 35 acres
2004	2 contracts representing 157 acres

Total number of contracts is 7 representing 369.5 acres.

There were no WRP contracts within the Lake Sinissippi watershed during this period.

Conclusions

The Lake District allocated a portion of the money available through the DNR grant to provide a limited education and promotion program for CREP and WRP and establish

landowner contacts, targeted within the Lake Sinissippi watershed. The initial landowner sign-up and enrollment in CREP during 2001-2002 was disappointingly slow, and the cumulative sign-up through the end of 2004 remained at a low level within the lake watershed and for Dodge County as a whole. Landowner interest in WRP appears to be at a consistent level with acreage enrolled in the program during each of the years 2001-2004. Unfortunately, none of the WRP acreage was within the lake watershed.

Reasons for the low rate of enrollment in CREP may include:

- **Milk price** The price of milk crashed in late 1999 and remained at historically low levels during 2000, falling below $9 per cwt (hundredweight) for class III milk (milk for cheesemaking) in November. Prices recovered in 2001, reaching $15 per cwt in August, only to plunge to below $12 per cwt later in the year, just as the CREP program was initiated. Pricing fell to around $10 per cwt and remained depressed during 2002 and the first half of 2003. This period coincided with the time of active CREP/WRP program promotion and landowner contact. Pricing recovered in late 2003 and climbed to record high levels of $20 per cwt in spring 2004. (Appendix K)
- **Herd buyout** In late 2002, as milk prices remained at depressed levels, the National Milk Producers Federation announced plans to conduct a whole-herd buyout program to reduce milk supply and thereby increase prices. The first herd buyout was fall 2003, followed by a second, larger buyout in fall 2004. Individual farmers also engaged in aggressive culling of dairy herds as a result of low milk prices and higher beef prices.
- **Land needs** Many dairy farmers who stayed in business during the period of low milk prices tried to increase revenues by increasing milk production. Increased production came from adding cows to the herd and larger herds require more land for food and forage needs and for manure spreading.
- **Cash grain price** Corn and soybean prices were weak in 2000-2001 and showed some improvement in 2002. Higher prices led to increased planting, which required the use of all available land. Drought conditions in 2003 also led to planting all tillable acreage, including lands adjacent to wetlands, waterways and agricultural

ditches. In some cases, these lands were the most productive. In 2004, however, a very wet spring made these same lands unusable.

- **Production versus conservation** Some farmers/landowners have a conviction that all land should be used for production purposes. Setting land aside for conservation purposes is not an option that is even considered.

There was much uncertainty among farmers during the 2001-2003 period, especially due to the roller coaster of milk prices. Some farmers exited the dairy business as a result of low milk prices. Others sold lands to larger, consolidating commercial farms. Still other farmers wanted to hold their options open and not commit to any long-term land arrangement. And in still other cases, a few dairy farmers who had sold their herds in 2000, purchased milk cows in 2004 and got back into the business, as a result of high milk prices. The dynamic nature of the farming business kept farmers on their toes, focusing on meeting the considerable financial challenges to their business and livelihood. Conservation programs such as CREP and WRP were, frankly, not priorities at this time.

Those landowners who saw CREP and WRP as a source of diversifying farm income looked at the programs in a positive way. Other farmers with marginally productive lands near wetlands and waterways were attracted to CREP. The wet conditions in spring 2004 also caused some farmers to investigate options to generate income from fields that were unusable. The degree of interest in the CREP program appears to be building. Indeed, at the December 20, 2004, meeting of the Dodge County Land Conservation Committee, the USDA FSA director for Dodge County " ... reported that interest in CREP has also picked up recently."

It would be difficult, if not impossible, to trace any of the program sign-ups and enrollments directly to specific education efforts by the Lake District. Public education activities such as the CREP and WRP programs involve many diverse sources of information and public contacts. And, the process by which a landowner evaluates the information and decides to apply for one of the conservation programs can be a long,

twisting path. Nevertheless, the Lake District believes that the efforts supported by the DNR grant were important in educating the public about the advantages of CREP and WRP and encouraging landowners to investigate the programs. It is hoped that these efforts will result in continued interest and participation in CREP and WRP in future years.

References

In addition to references cited within the text, the following sources were used in preparation of this report.

CWT Herd Retirement Program. National Milk Producers Federation, Arlington, VA http://www.nmpf.org

Dairy Market Statistics – Annual Summary, 2001-2003. USDA Agricultural Marketing Service, Washington, DC http://www.ams.usda.gov/dairy/mncs/index.htm
[Source of graphs of class III milk price at 3.5% test given in Appendix K]

Status of Wisconsin Agriculture, 2001-2005. Department of Agricultural and Applied Economics, University of Wisconsin-Madison http://www.aae.wisc.edu/www/pub/status/

FINAL REPORT

To Wisconsin Department of Natural Resources
Lake Planning Grant Number 796-02

Part 2 of 3

CONSERVATION RESERVE ENHANCEMENT PROGRAM (CREP) AND WETLAND RESERVE PROGRAM (WRP) PLANNING PROJECT – LAKE SINISSIPPI WATERSHED

Submitted by

Lake Sinissippi Improvement District
Hustisford, Dodge County, Wisconsin

April 1, 2005

Final Report Lake Planning Grant No. 796-02

Lake Sinissippi Improvement District
Hustisford, Dodge County, Wisconsin

Conservation Reserve Enhancement Program (CREP) and Wetland Reserve Program (WRP) Planning Project – Lake Sinissippi Watershed

Watershed Monitoring and Land Inventory
Part 2 of 3

By Jacob A. Maas, BS Geography
Intern

Introduction

Over the spring and summer of 2004, as part of the lake planning grant received from the DNR, the Lake Sinissippi Improvement District ("Lake District") hired a summer intern. The intern was to help in monitoring the Dodge County watersheds of Lake Sinissippi. Monitoring was conducted through both field investigation and through the use of mapping. These monitoring duties included:

- Identification and mapping of non-point source pollution areas
- Identification and mapping of point source pollution areas
- Identify lands that are violating NR 151 regulations
- Identifying current CRP landowners in the watershed
- Identifying and mapping landowners adjacent to stream, rivers, and lakes
- Identifying and mapping landowners on shallow soil lands
- Identifying landowners adjacent to marshes
- Identifying landowners with soils that are moderately to severely erodible

Once identified and mapped out the Lake District can use this data to implement better and sounder conservation practices within the watershed. Uses for the data collected:

- Where to establish water quality monitoring sites
- Where to help in establishing conservation programs

- Where to set up informational meeting for the landowners
- Who needs to be informed of conservation practices
- Screen land inventory for NR 151 compliance
- Possible cost-sharing for land remediation under NR 151/ATCP 50
- Landowner contacts

The scope of this report is to show where and what needs attention within the watershed. What actions the Lake District has taken will also be identified.

Non-Point Source Pollution

Non-Point Source Pollution is pollution generated by diffuse land use activities rather than from an identifiable or discrete facility. It is conveyed to waterways through natural processes, such as rainfall, storm runoff, or groundwater seepage rather than by deliberate discharge. Most of the non-point pollution sources in the Dodge County watersheds of Lake Sinissippi come from dairy farms. These farms range in size from small family farms, with small herds of cattle, to large operations with well over a one thousand head of cattle. This diversity in farm size makes certain areas more susceptible to non-point pollution, with areas of larger farms being a higher risk.

The Lake District has set up a priority ranking system to help identify farms that are at a higher risk of causing pollution. The ranking system is divided into three categories:

- High Priority
- Medium Priority
- Low Priority

The priority ranking system is a database of farms that are ranked in the above order, including the names and addresses of the landowners. Each farm in the database is hyperlinked to pictures, allowing for visual determination of each farms severity within the priority system.

High Priority

High priority non-point pollution sites are lands that pose as an immediate pollution problem in the Dodge County watersheds of Lake Sinissippi. The high priority level lands have these common characteristics:

- Low levels of sod cover (0% - 49%) on the pastures, these levels allow for easy runoff of soil and phosphorus.
- Direct access of livestock to waterways, such as creeks, streams, and ditches.

The picture in Figure 1 shows a high priority farm in the watershed. The lack of vegetation and easy access to the waterway for the cattle can cause problems down stream for those living along the stream. Within the Dodge County watersheds of Lake Sinissippi there are twenty-four high priority sites (see Appendix A). These sites need immediate attention and must be taken care of with various conservation techniques.

Figure 1 – Picture of a High Priority Farm

Medium Priority

Medium priority non-point pollution sites are lands that do not pose an immediate pollution problem to the Dodge County watersheds of Lake Sinissippi, but if left unchanged or monitored may begin causing severe pollution problems. The medium priority level lands have these common characteristics:

- Medium levels of sod cover (50% - 79%) on the pasture; this level of sod cover stops some of the pollutants from entering the watershed.
- Livestock access to waterways is directly adjacent or within a couple hundred feet of the pasture or feedlot.

The picture in Figure 2 shows a medium priority farm in the watershed. The minimally adequate amount of vegetation and livestock that are directly adjacent to the waterways can allow for some runoff to enter directly into the water. Within the Dodge County watersheds of Lake Sinissippi there are eighteen medium priority sites (see Appendix A). These sites need yearly monitoring to make sure that they do not become high priority sites. Medium priority landowners should be worked with to set up conservation plans in order to stop future high priority sites.

Figure 2 – Picture of a Medium Priority Farm

Low Priority

Low priority non-point pollution sites are lands that have little or no effects on pollution levels in the Dodge County watersheds of Lake Sinissippi. The low priority level lands have these common characteristics:

- High levels of sod cover (80% - 90%) on the pasture, at this level, runoff is very limited.
- Livestock or livestock waste has no access to waterways within the watershed.

The picture in Figure 3 shows a low priority farm in the watershed. The high level of vegetation cover and no access for the cattle to any waters make them the ideal farms within the watershed. Within the Dodge County watersheds of Lake Sinissippi there are

thirty low priority sites. These sites need to be monitored every three years to make sure there is no degradation of the site. Low priority farmers use ideal farming and conservation practices within the watershed.

Figure 3 – Picture of a Low Priority Farm

Golf Courses

In the Dodge County watersheds of Lake Sinissippi there are three golf courses (see Appendix A) that are along or contain waters that eventually flow into Lake Sinissippi. There is special concern that these courses may be contributing to the phosphorus pollution of the watershed. Often courses use fertilizers with phosphorus to maintain their grounds. If it rains after the fertilizers are applied there is a chance that the fertilizer may run off into water. That is why monitoring near these course may be necessary.

Point Source Pollution

Point source pollution is pollution coming from a single identifiable source such as discharge pipes from industry, sewer plants or by other means that include ditches, channels, sewers, and containers. Within the Dodge County watersheds of Lake Sinissippi there are seven point sources (see Appendix A) that have been identified that could cause possible pollution in the watershed. Six of these sites are wastewater treatment plants, and one of these sites is a large cheese factory. Wastewater treatment plants are a concern due to the fact that during heavy rains wastewater treatment plants can discharge untreated sewage into the streams that flow into Lake Sinissippi. The large cheese factory is also a concern because some of the waste byproducts that are disposed of on the site may contain high levels of phosphorus. Figure 4 is a picture of a wastewater treatment plant in Dodge County.

Figure 4 – Picture of a Wastewater Treatment Center

NR 151

In the spring of 2004 the Lake District used Wisconsin Administrative Code Chapter NR 151, Runoff Management, to report two farms that were in violation. Using photos from the priority ranking system and field observations the Lake District sent out these photos and two letters, via certified mail, to the wastewater specialist at the Department of Natural Resources at the Horicon station (addendum). The farms in question were violating these NR 151.08 prohibitions:

> (4) A livestock operation shall have no direct runoff from a feedlot or stored manure into waters of the state.
> (5) A livestock operation may not allow unlimited access by livestock to waters of the state in a location where high concentrations of animals prevent the maintenance of adequate sod or self-sustaining vegetative cover.

NR 151 has allowed for the Lake District to take more aggressive action towards farms that may be sources of polluted runoff within the Dodge County watersheds of Lake Sinissippi.

Figure 5 – NR 151 Violation Farm

Figure 7 – NR 151 Violation Farm

CRP

Over the summer the Lake District received a list of names of all conservation reserve program or CRP participants in Dodge County from the Farm Services Agency. These names where then screened so that people not owning land in the Dodge County watersheds of Lake Sinissippi could be taken out of the database created. In all there are one hundred and forty-two contracts in the Dodge County watersheds of Lake Sinissippi.

Unfortunately this list did not identify how much land and what lands the landowner had in contract. This database will be used as a contact list for the Lake District.

Mapping

One of the main projects that the intern was involved in this summer was the mapping of priority areas within the Dodge County watersheds of Lake Sinissippi. The mapping itself took place at the Department of Natural Resources at the Horicon station. The software used by the intern throughout the mapping process was ESRI's ArcView 3.2.

In total there were twenty-one maps produced over the course of the internship. Along with the maps there were five databases produced, each of these databases are broken down into the individual townships within the watershed. These databases include the farmer's name and address so that it can be used as a contact source. This allows the Lake District to contact these landowners for meetings or dinners and contacts for conservation practices on their land.

During the mapping process only land parcels ten acres or greater were used. This allowed for the elimination of city and village parcels within the watershed.

Phosphorus

Phosphorus runoff is a problem that affects the whole watershed, especially Lake Sinissippi itself. Phosphorus is the main chemical that helps produce algae blooms on Lake Sinissippi. Phosphorus along with Lake Sinissippi's already nutrient high water can and has caused major blooms out on the lake. This detracts from a lake that is used mainly for recreational purposes such as skiing and boating. Because of these algae blooms the United States Geological Survey in cooperation with the Wisconsin Department of Natural Resources and Lake Sinissippi Association have been monitoring phosphorus inputs into Lake Sinissippi from the main branch of the Rock River. Monitoring stations were setup and operated at the outlets of the Horicon Marsh and Lake Sinissippi.

In Figure 8 it is easy to see that the majority of phosphorus pollution is coming from the East Branch watershed that eventually drains into Lake Sinissippi. Of the five sub-watersheds, which make up the Dodge County section of the East Branch watershed, two have extremely high levels of phosphorus runoff. These two sub-watersheds on annual bases produce half a pound to a pound of phosphorus runoff per acre. While the other three average on annual bases one tenth of a pound to half a pound of phosphorus runoff per acre. The East Branch watershed needs the most immediate addressing. The cause of this runoff could be from farmers over applying fertilizers to there crops. This is where educational public meetings or dinners should be emphasized.

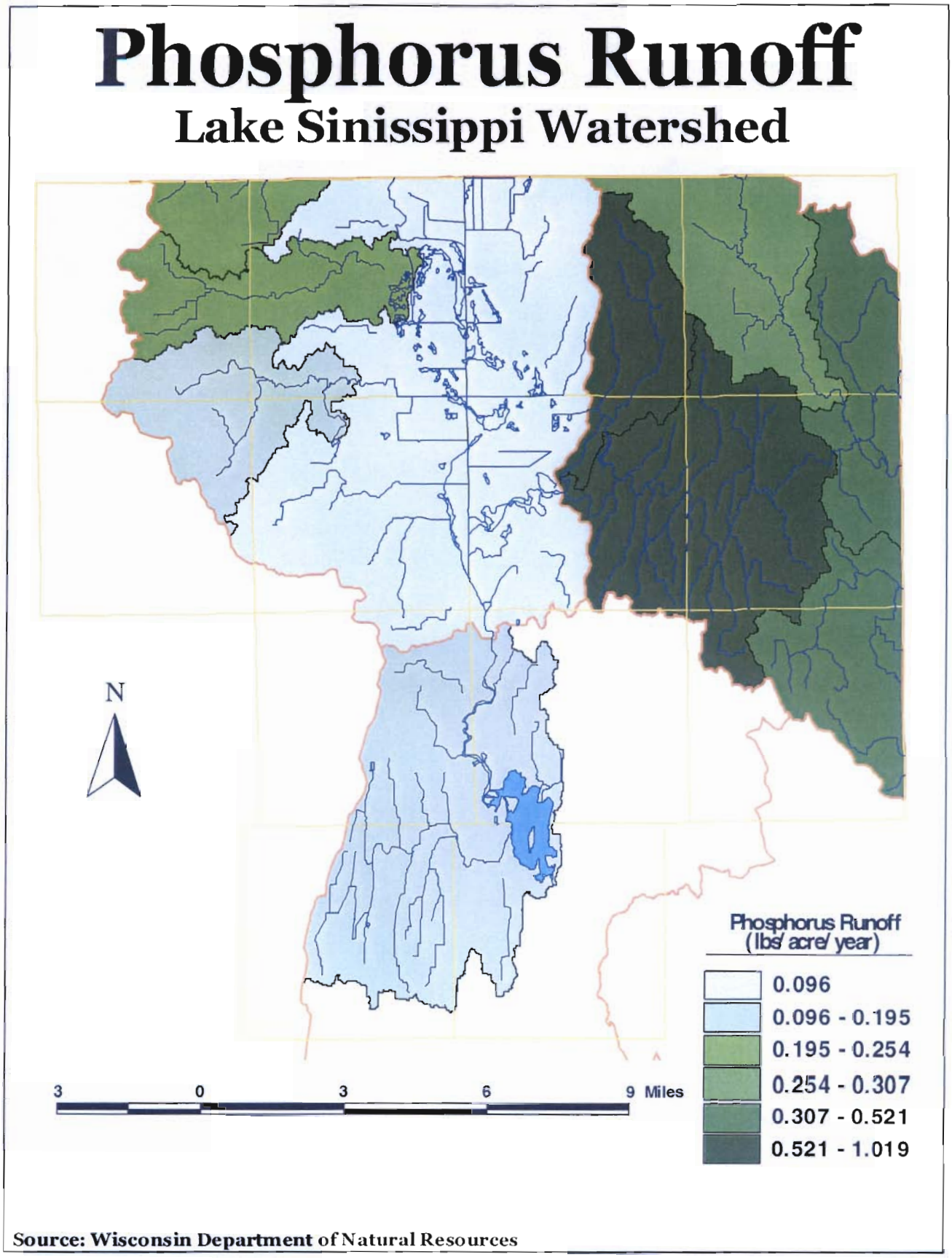


Figure 8 – Map of Phosphorus Runoff in the Dodge County Watersheds of Lake Sinissippi

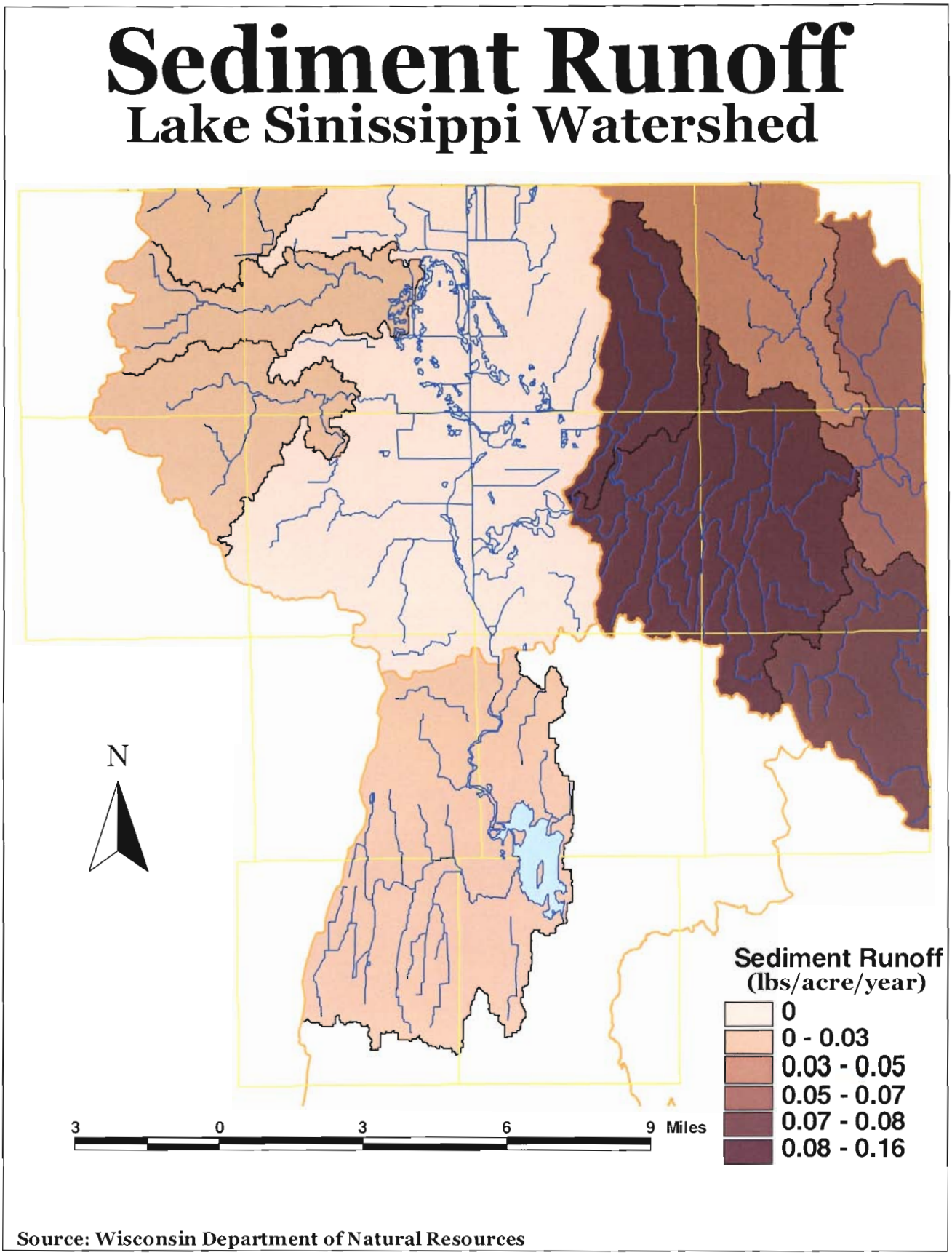


Figure 9 - Map of Sediment Runoff in the Dodge County Watersheds of Lake Sinissippi

The Dead Creek sub-watershed of the Lake Sinissippi watershed has also received attention from the Lake District. The Lake District began monitoring this creek in 2002. Not only have they found high levels of phosphorus but also high levels of fecal coliform. This area is of special concern due to the fact that it harbors the largest farm in the Dodge County watersheds of Lake Sinissippi.

Sediment

Sediment runoff is also a huge concern within the Dodge County watersheds of Lake Sinissippi. The majority of the sediment is coming into Lake Sinissippi from the small streams that flow into the Rock River. The soils that are around these streams are the finer grained silt and loam type soils. These types of soils are easily eroded away and because of their small grain size they tend to stay suspended in water for longer periods of time than large grain sized soils. When these suspended soil particulate reach Lake Sinissippi they tend to settle in the lake because of the slower flow of water. These sediment deposits can result in impediment to navigation. Sediment deposits have already affected some channels in Lake Sinissippi, causing navigation problems for boaters. Sediment deposits also affect the local fishery by damaging spawning and nursery areas.

Most of the sediment that enters into the system comes from poor agricultural techniques. Plowing methods are the biggest problem. Many farmers in the area still use moldboard plows. This type of plow leaves no crop residue on the field. With no cover on the soil it is easily eroded away by both rain and wind and then deposited into nearest stream. By changing agriculture practices to such practices as chisel plowing would greatly reduce runoff. The preferred type of farming practices would be no-till. This type of practice leaves crop residue on the soil, which in turn considerable reduces any soil runoff. Figure 10 shows sediment runoff from a field near Lake Sinissippi.

Figure 10 – Picture of Sediment Runoff near Lake Sinissippi

In May of 2004 the Lake District monitored a field that was having considerable sediment runoff in to Lake Sinissippi itself. This sediment was directly entering in to the lake from a ditch. The Lake District has taken this issue up with the Town and Village of Hustisford to resolve it.

In Figure 9 it is easy to see that the majority of sediment pollution is coming from the East Branch watershed that eventually drains into Lake Sinissippi. Of the five sub-watersheds, in the East Branch watershed, two have extremely high levels of sediment runoff. These two sub-watersheds on annual bases produce one hundred and sixty pounds to three hundred and twenty pounds of sediment runoff per acre. While the other three average on annual bases sixty pounds to one hundred and sixty pounds of sediment runoff per acre. This section of the watershed that flows into Lake Sinissippi needs to be addressed immediately. Again, this is where educational meeting or dinners about good agricultural practices would help.

Streams

One of the tasks during mapping was to create a database and maps of land parcels within a one hundred and fifty-foot buffer of all waters that flow into Lake Sinissippi. The one hundred and fifty-foot buffer was put on the streams so that lands that have immediate impact on them can be identified even if the stream does not flow through that parcel.

In the Dodge County watersheds of Lake Sinissippi there are a total of 1,885 parcels that are along or within one hundred and fifty feet of a stream. These parcels make up 96,519 acres or 151 square miles of the watershed. Appendix B shows these parcels by each township.

The stream map database, created from the maps, was created so that the Lake District could have a database of landowner next to streams and rivers within the watershed. The database is broken up into the thirteen townships in the Dodge County watersheds of Lake Sinissippi; this way the Lake District can focus on one area of concern. This data can be used as a contact list or as a possible identifier of possible stream sampling sites.

Shallow Soils

Shallow soils are a main concern in the townships of Herman, Leroy, Lomira, Theresa, and Williamstown due to the Niagara Escarpment. The Niagara Escarpment is an escarpment of Niagara dolomite that occurs in the eastern section of Dodge County. Because dolomite is a form of limestone, it can be easily weathered away by physical and chemical reaction. This weathering can cause sinkholes, which do occur in the East Branch watershed that flows into Lake Sinissippi.

Around these sinkholes and dolomite outcroppings is the soil type Knowles. Knowles are characterized by shallow horizons, which are sometimes as shallow as twenty centimeters, over bedrock. The shallowness of this soil allows for easy access of

contaminated water straight into the groundwater of the watershed. Much of the phosphorus pollution in these areas is coming from the groundwater that forms these streams. Figure 11 shows a dolomite outcropping with shallow soils over the top of the dolomite.

Figure 11 – Picture of Shallow Soil in the Town of Leroy

In Appendix C it is easy to see that the towns of Leroy and Lomira have the largest areas of shallow soil. In the five townships that have these shallow soils there are a total of 403 parcels that contain shallow soils. These parcels make up 13,765 acres or 22 square miles of East Branch watershed.

The shallow soil database, created from the maps, was created so that the Lake District could have a database of landowners who have shallow soils on their land. The database is broken up into the five townships in East Branch watershed; this way the Lake District can focus on one area of concern. This data can be used as a contact list so that information can be given to these landowners on proper nutrient handling around the soil. Also, these landowners who may have possible sinkholes on their property can also be contacted about sinkhole closure programs.

Marshes

Marshes act as an important buffer to our streams and rivers within the Dodge County watersheds of Lake Sinissippi. Marshes are great filters of sediment and phosphorus that can runoff into our streams. They do this by slowing down the flow of water and allow through natural processes the cleaning of water.

Within the Dodge County watersheds of Lake Sinissippi are the Horicon Marsh and Theresa Marsh. These two large areas are protected by the state, with the northern section of the Horicon Marsh also being protected by the federal government as a federal

wildlife preserve. These large areas act as a buffer, but also provide habitat for animals and plants that cannot be found else where in the watershed. Marshland found elsewhere in the watershed is in danger from ditching and tiling in order for it to be drained. Figure 12 is a picture of the Horicon Marsh with farmland directly adjacent to it.

Figure 12 – Picture of the Horicon Marsh

During the making of the Marsh database, a one hundred and fifty-foot buffer was put around the marshes. This was done so that lands that have immediate impact on them can be identified even if there is no marsh on that parcel.

In the Dodge County watersheds of Lake Sinissippi there are a total of 1,399 parcels that are within one hundred and fifty feet or containing marshland. These parcels make up 81,333 acres or 127 square miles of the watershed. There is some marshland in all thirteen townships that make up the Dodge County watersheds of Lake Sinissippi. The towns of Chester and Williamstown have the most acres of marshland.

This database can be used as a contact for landowners so they can receive information about the Wetland Reserve Program. This program is run through the USDA-Natural Resource Conservation Service, and was created to protect and restore wetlands.

Moderately Erodible Soils

Moderately erodible soils within the Dodge County watersheds of Lake Sinissippi can be a possible area of concern within the watershed. These soils are often found on slopes. These slopes allow for the soil to be easily eroded away by heavy rain.

Farming methods, such as moldboard plowing, on these slopes also have an affect on how these soils are eroded away. Some of these agricultural fields may exceed T or tolerable soil loss. Tolerable soil loss is defined as the maximum rate of erosion, in tons

per acre per year, allowable for particular soils and site conditions that will maintain soil productivity

Within the watershed there are two main geomorphologic features that these soils are found on. Drumlins and the Niagara Escarpment are where the majority of these soils are found. Drumlins have a characteristic backside of a teaspoon shape that allows for soils to be eroded away when heavy rains occur. Many of the shallow soils on the Niagara Escarpment are found along the escarpments back slope. Figure 13 shows an area of moderately erode able soil on a drumlin.

Figure 13 – Picture of Moderately Erodible Soils in the Town of Theresa

In the Dodge County watersheds of Lake Sinissippi there are a total of 1,573 parcels that contain moderately erodible soils. These parcels make up 56,906 acres or 89 square miles of the watershed. There are moderately erodible soils in all thirteen townships that make up the Dodge County watersheds of Lake Sinissippi. The towns of Theresa and Williamstown have the most acres of moderately erodible soils.

The database of moderately erodible soils can be used as a contact list for the Lake District. These landowners can then be sent information on CRP and conservation reserve enhancement programs or CREP programs. These programs can help pay for waterways and conservation buffers on these slopes.

Severely Erodible Soils

Severely erodible soils are of great concern within the watershed. Severely erodible soils are often found on severe slopes that are easily eroded away. Most of the severely erodible soils in the Dodge County watersheds of Lake Sinissippi are found along the steep slopes of the Niagara Escarpment.

FINAL REPORT

To Wisconsin Department of Natural Resources
Lake Planning Grant Number 796-02

Part 3 of 3

CONSERVATION RESERVE ENHANCEMENT PROGRAM (CREP) AND WETLAND RESERVE PROGRAM (WRP) PLANNING PROJECT – LAKE SINISSIPPI WATERSHED

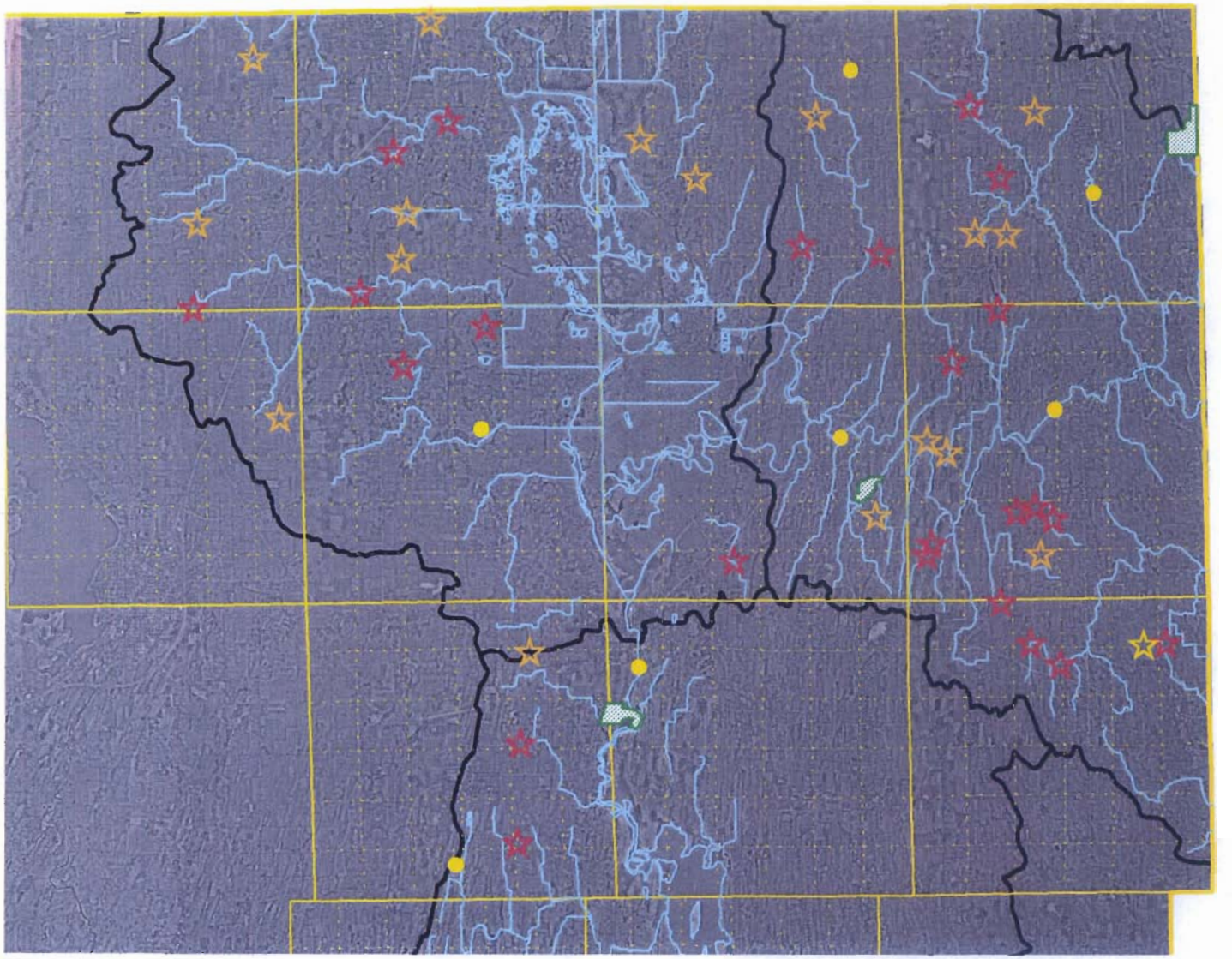
Submitted by

Lake Sinissippi Improvement District
Hustisford, Dodge County, Wisconsin

April 1, 2005

Point and Non-Point Source Pollution Sites

Lake Sinissippi Watershed



N

Site Legend

- Point Source Pollution
- Medium Priority Non-Point Source
- High Priority Non-Point Pollution
- Golf Courses
- Streams
- Township Boundary
- Watershed

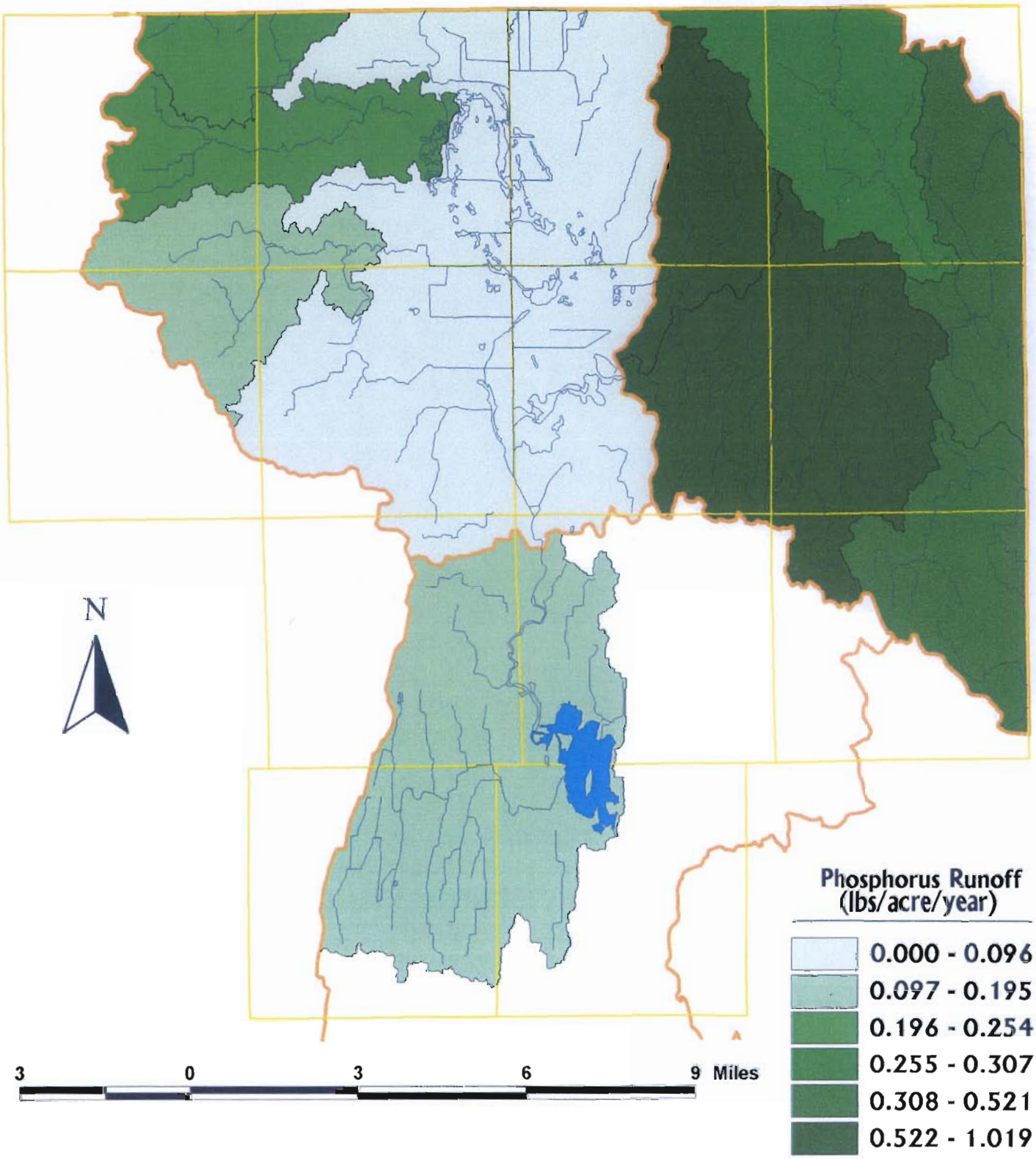
7 0 7 14 Miles

Source: Lake Sinissippi Improvement District & Wiscoonsin DNR

Author: Jacob Maas, LSID

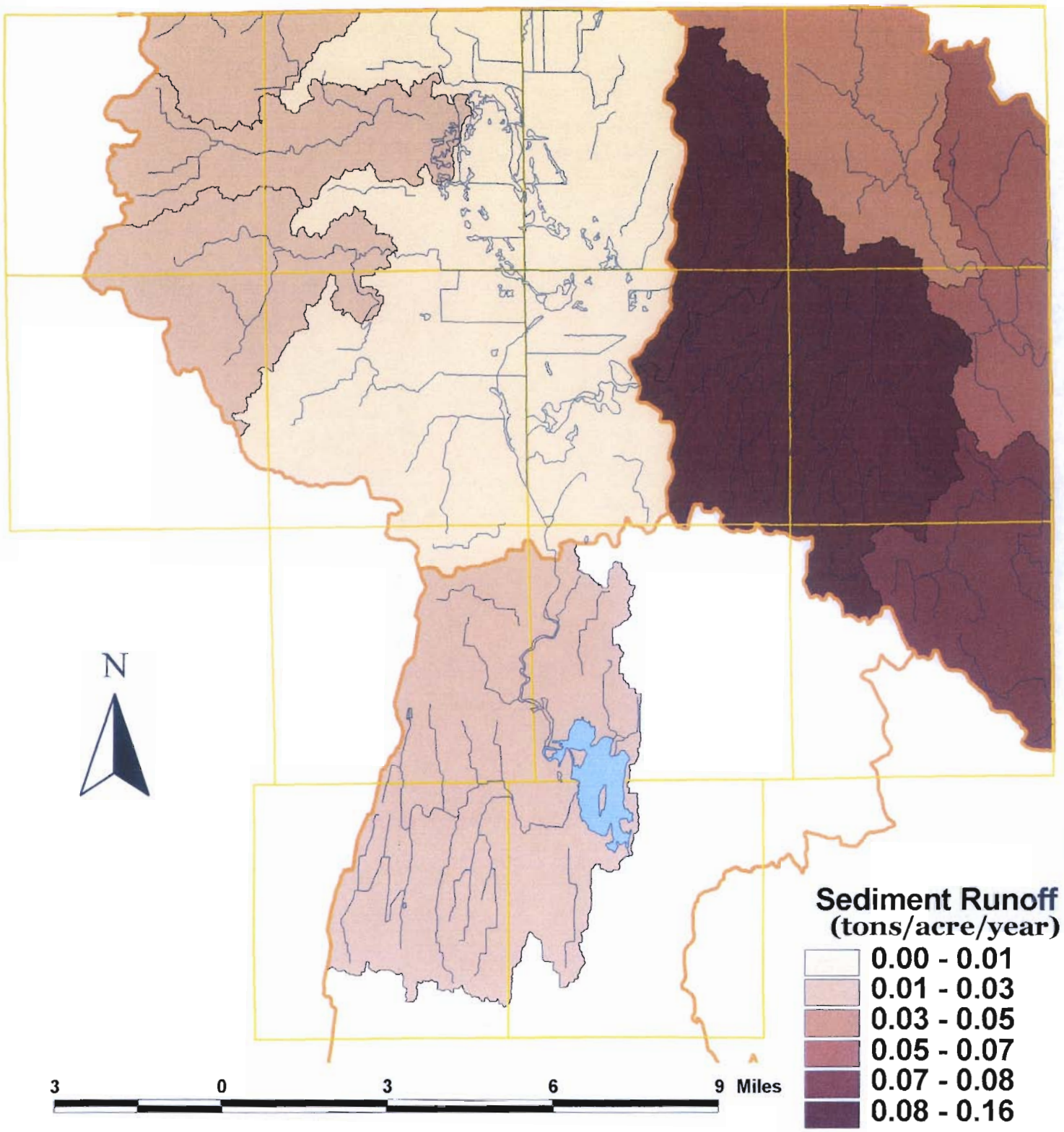
Phosphorus Runoff

Lake Sinissippi Watershed



Source: Wisconsin Department of Natural Resources

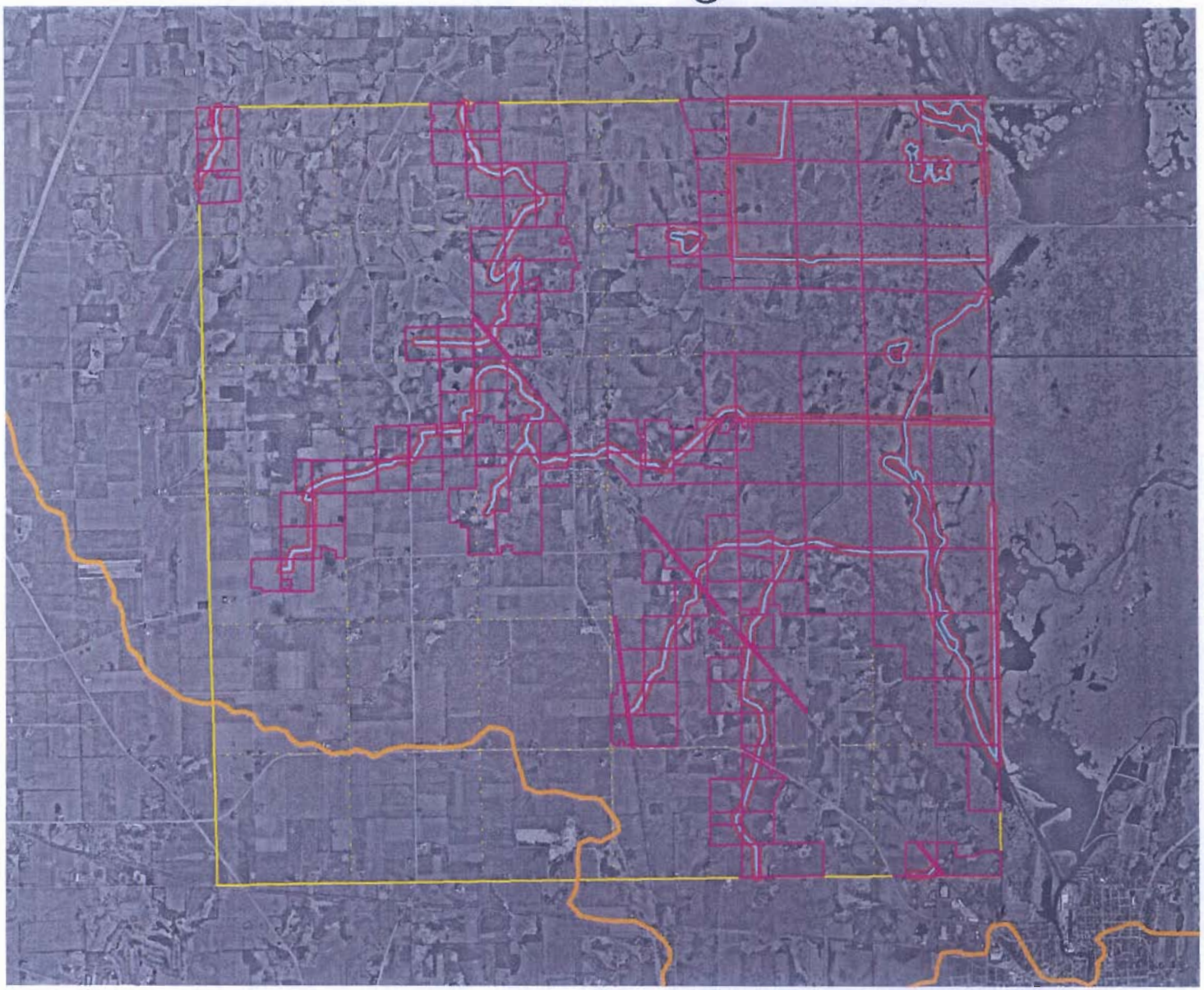
Sediment Runoff
Lake Sinissippi Watershed



Source: Wisconsin Department of Natural Resources

Burnett Land Parcels

Within 150 ft. of Streams



Burnett Legend

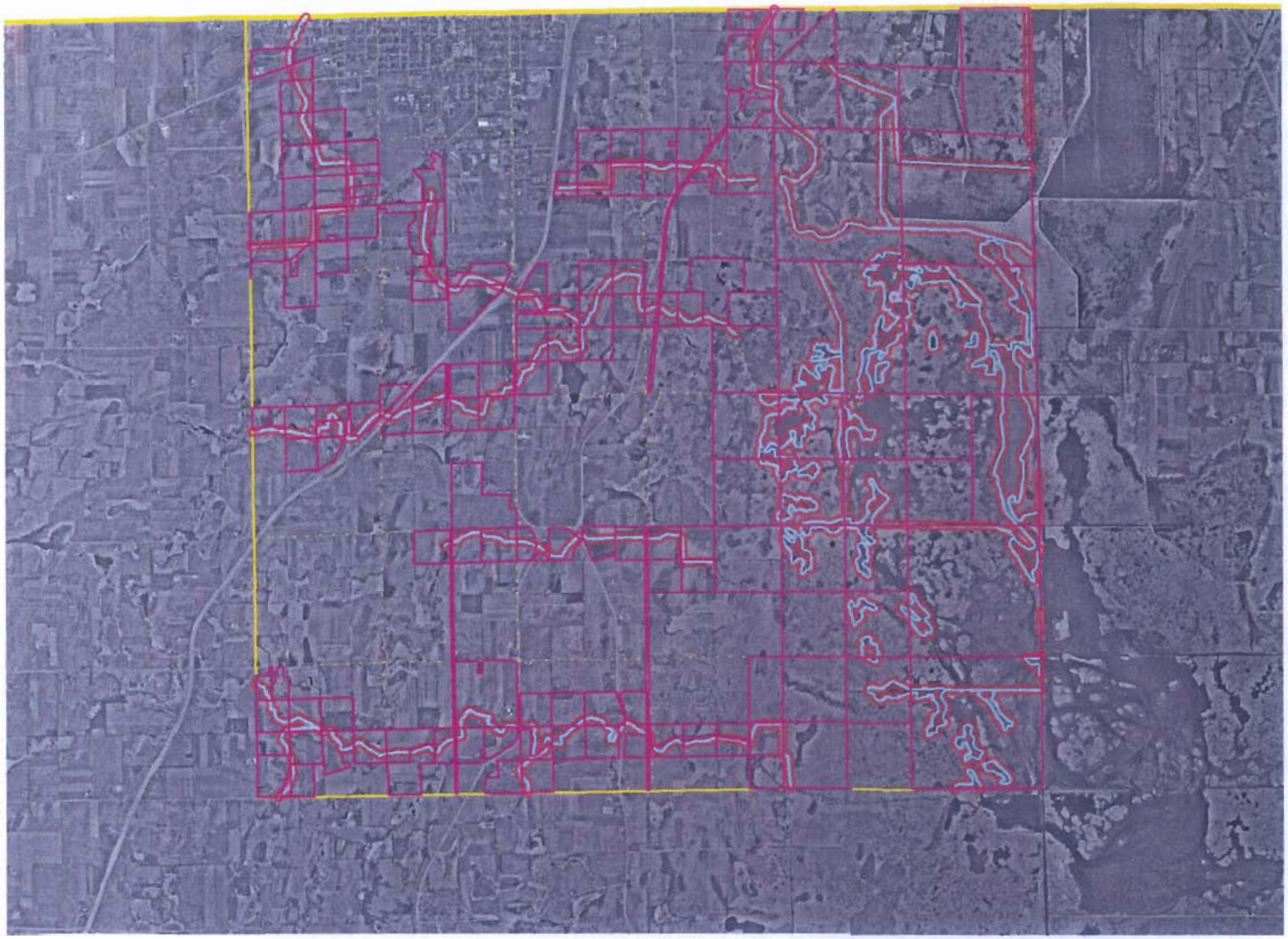
- Burnett Stream Parcels
- 150 ft. Stream Buffer
- Streams
- Watershed Boundary
- Burnett Township

Source: Dodge County Land Information Dept. & Wisconsin DNR

Author: Jacob A. Maas, LSID

Chester Land Parcels

Within 150 ft. of Streams



N

Chester Legend

- Chester Stream Parcels
- 150 ft. Stream Buffer
- Streams
- Watershed
- Chester

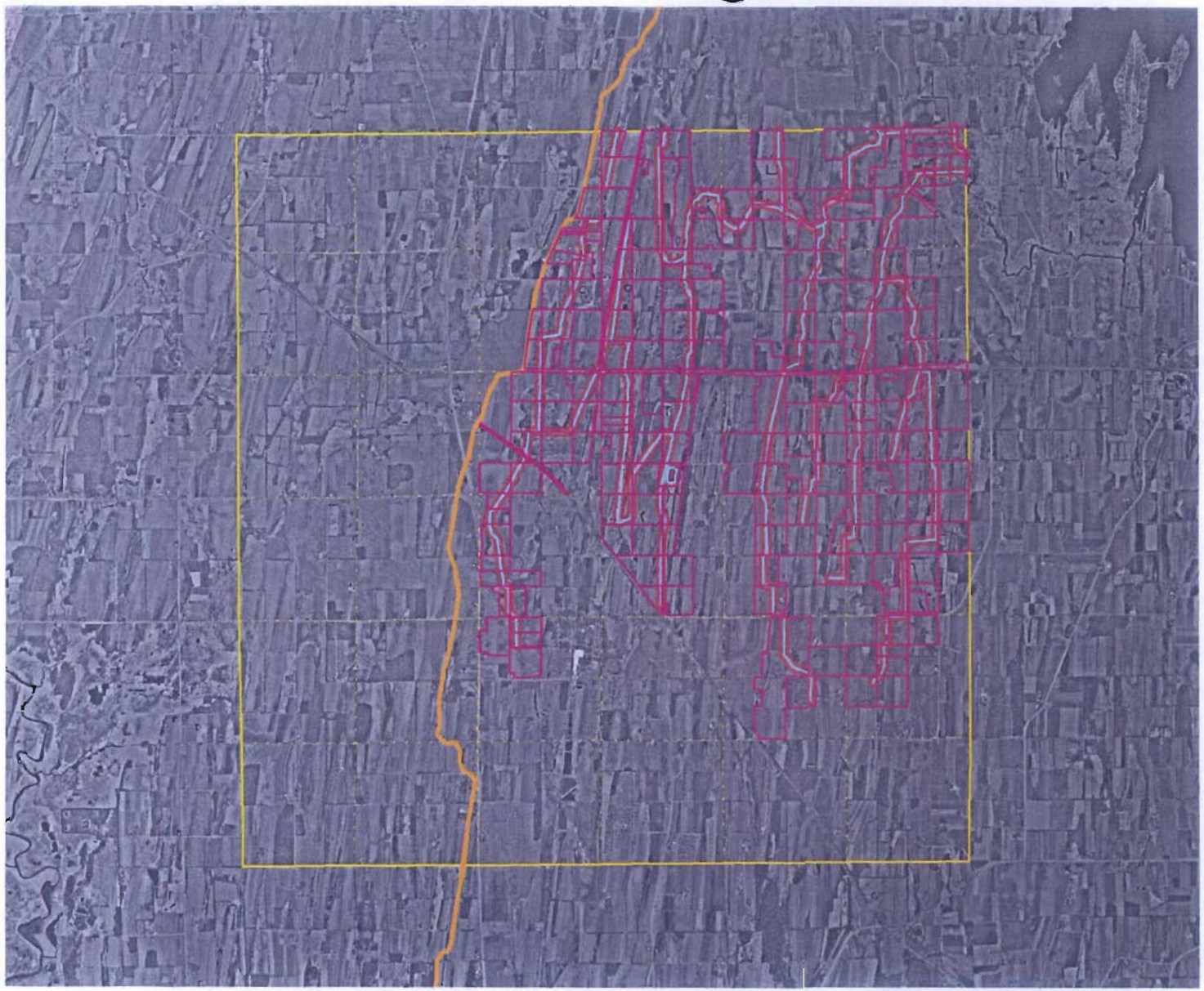
3 0 3 Miles

Source: Dodge County Land Information Department & Wisconsin DNR

Author: Jacob A. Maas, LSID

Clyman Land Parcels

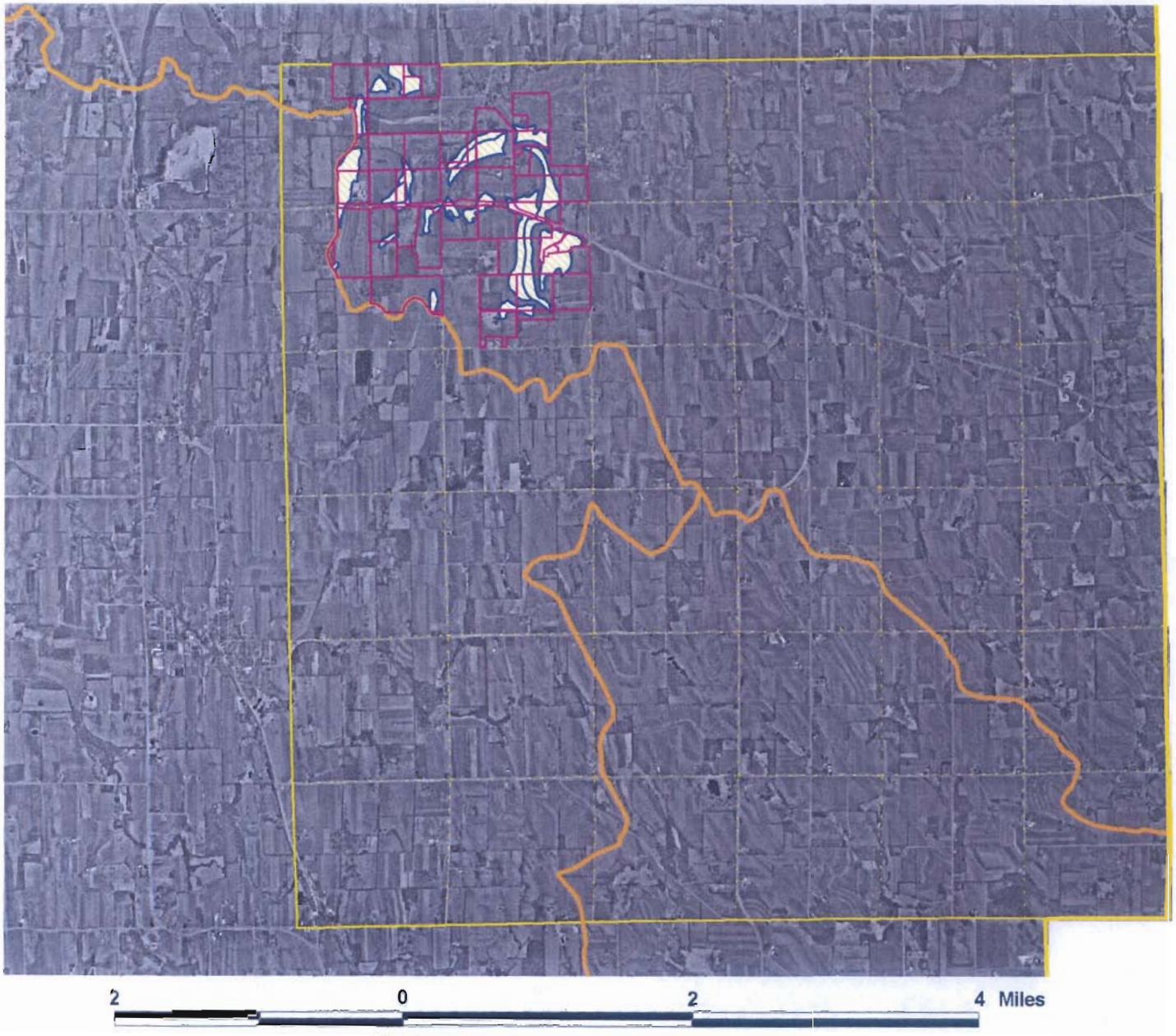
Within 150 ft. of Streams



Source: Dodge County Land Information Dept. & Wisconsin DNR

Author: Jacob A. Maas, LSID

Herman Land Parcels
That Contain Shallow Soils



Herman Legend

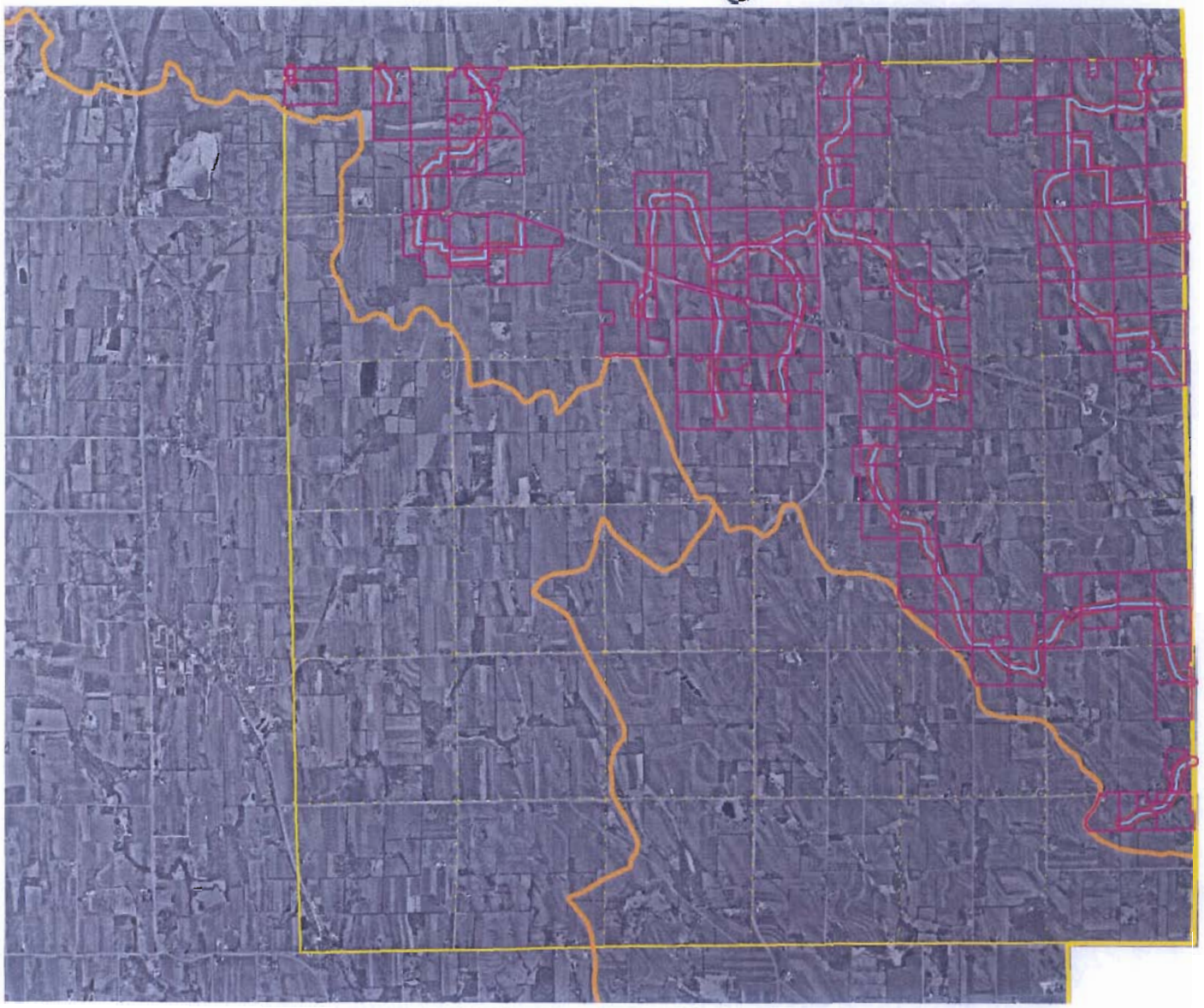
- Herman Land Parcels
- Shallow Soils
- Watershed
- Herman Township

Source: Dodge County Land Information Dept. & Wisconsin DNR

Author: Jacob A. Maas, LSID

Herman Land Parcels

Within 150 ft. of Streams



N

Herman Legend

- Herman Land Parcels
- 150 ft. Stream Buffer
- Streams
- Watershed
- Herman Township

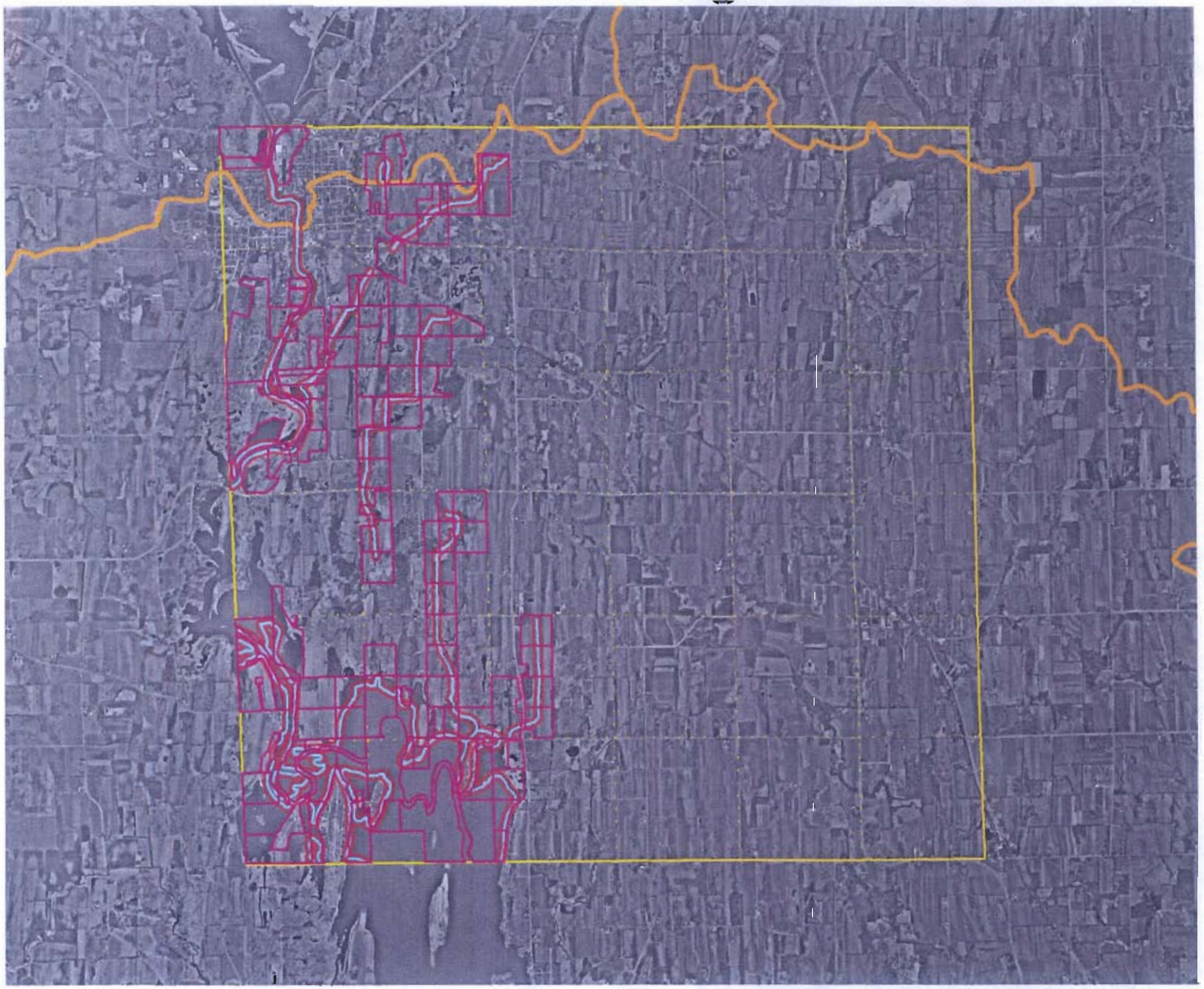
2 0 2 4 Miles

Source: Dodge County Land Information Dept. & Wisconsin DNR

Author: Jacob A. Maas, LSID

Hubbard Land Parcels

Within 150 ft. of Streams



Hubbard Legend

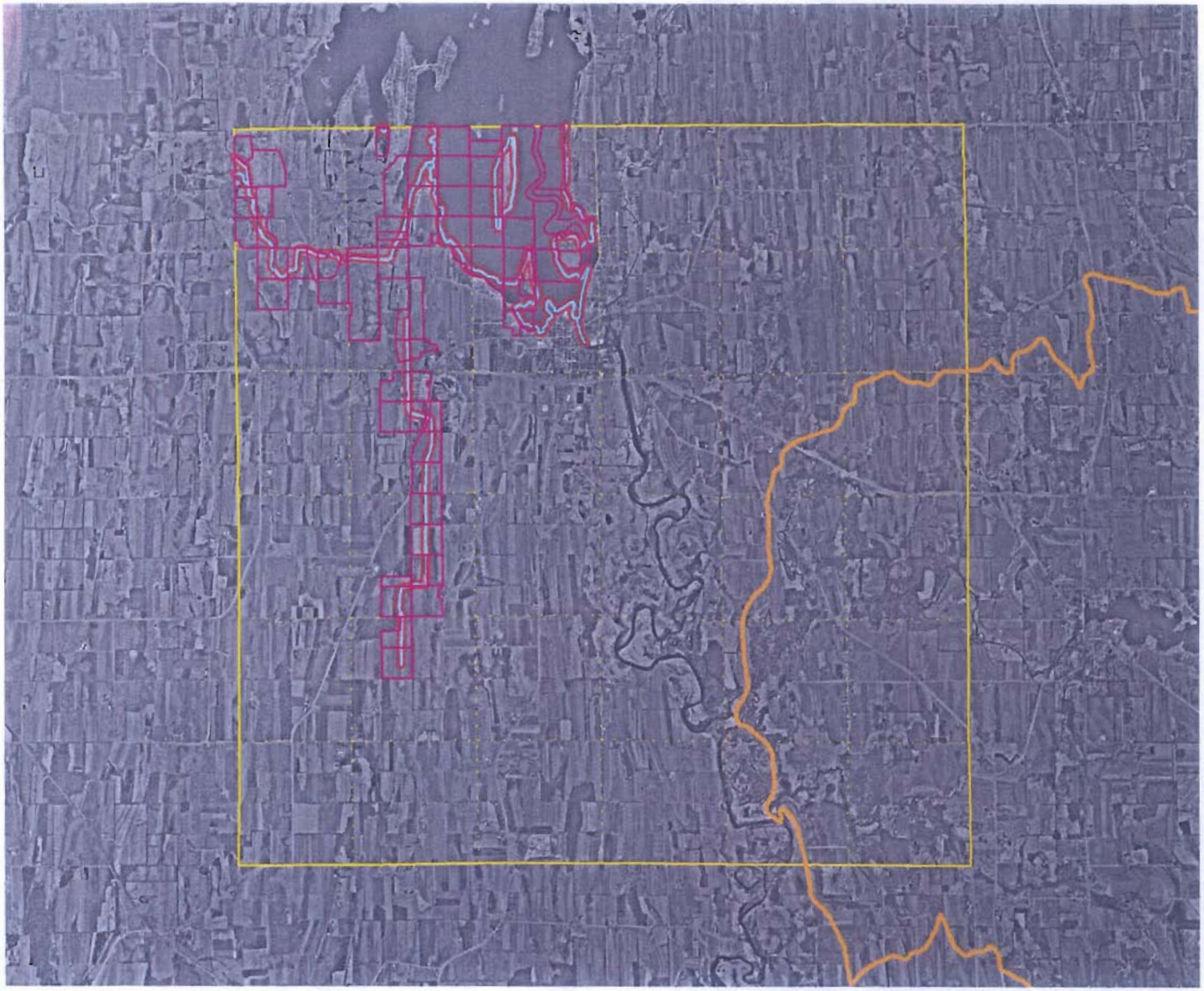
- Hubbard Land Parcels
- 150 ft. Stream Buffer
- Streams
- Watershed
- Hubbard Township

Source: Dodge County Land Information Dept. & Wisconsin DNR

Author: Jacob A. Maas, LSID

Hustisford Land Parcels

Within 150 ft. of Streams



N

Hustisford Legend

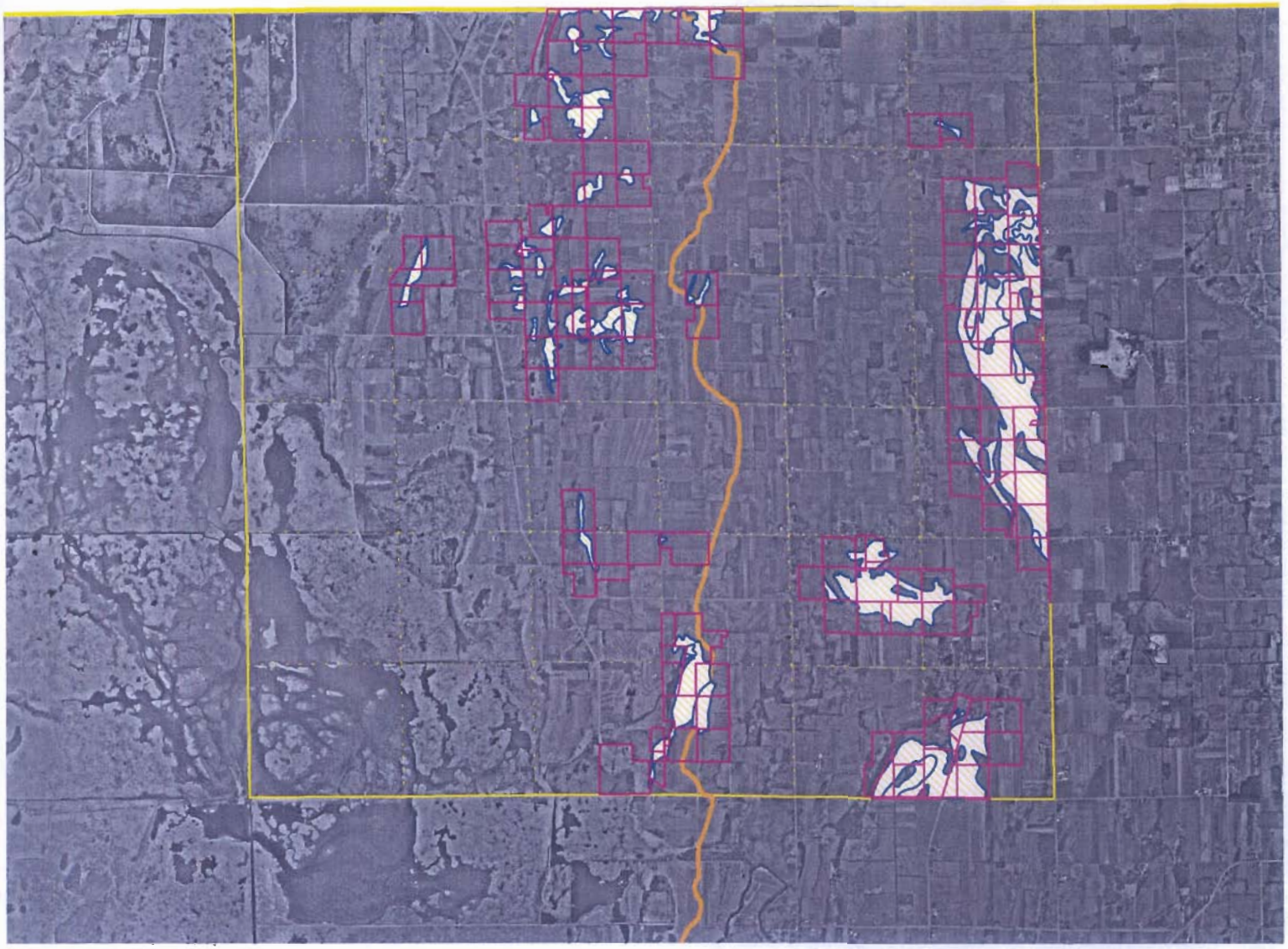
- Hustisford Land Parcels
- 150 ft. Stream Buffer
- Streams
- Watershed
- Hustisford Township

3 0 3 6 Miles

Source: Dodge County Land Information Dept. & Wisconsin DNR

Author: Jacob A. Maas, LSID

Leroy Land Parcels
That Contain Shallow Soils



N

Leroy Legend

- Leroy Land Parcels
- Leroy Shallow Soils
- Watershed
- Leroy Township

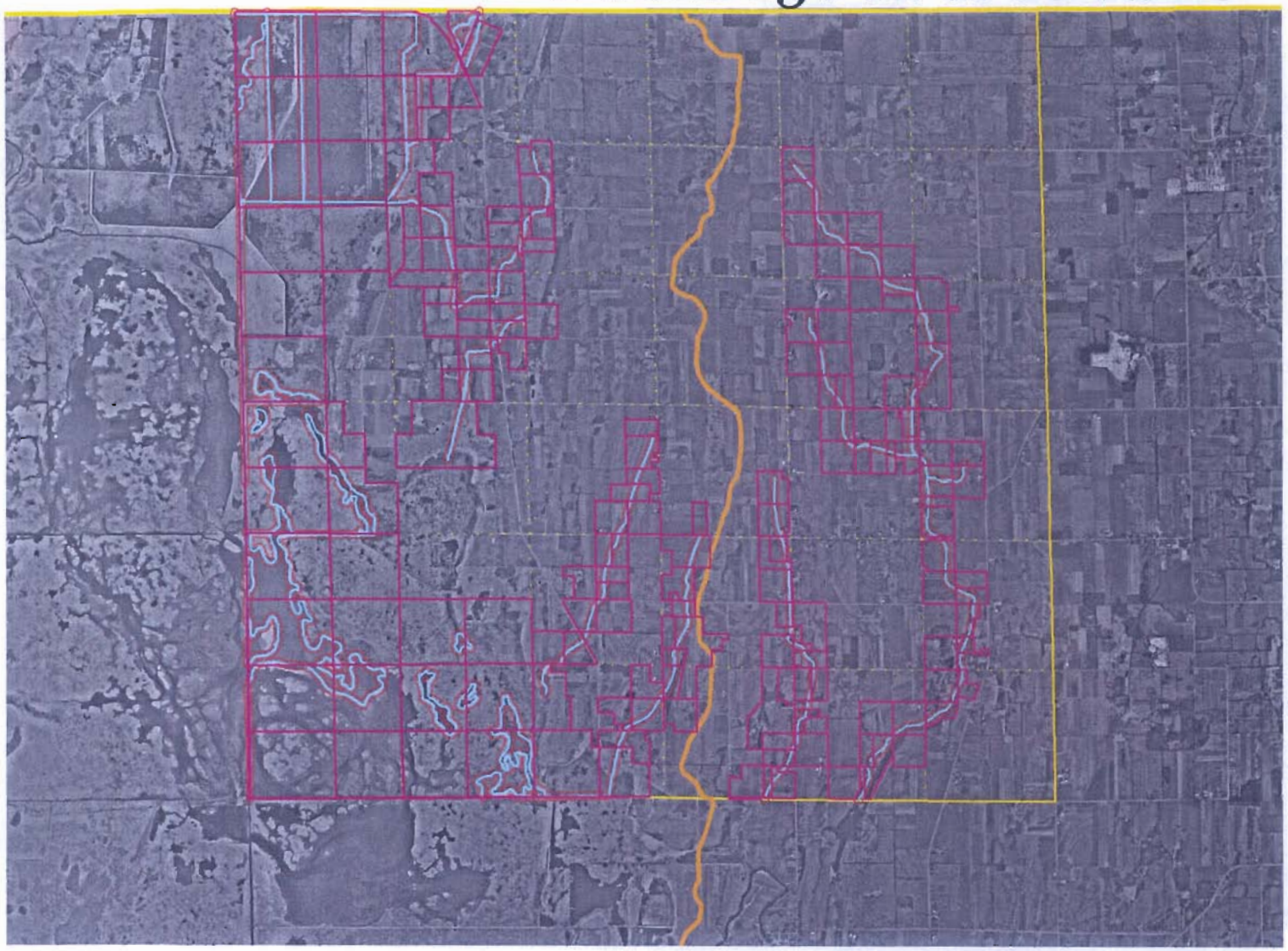
3 0 3 Miles

Source: Dodge County Land Information Dept. & Wisconsin DNR

Author: Jacob A. Maas, LSID

Leroy Land Parcels

Within 150 ft. of Streams



N

Leroy Legend

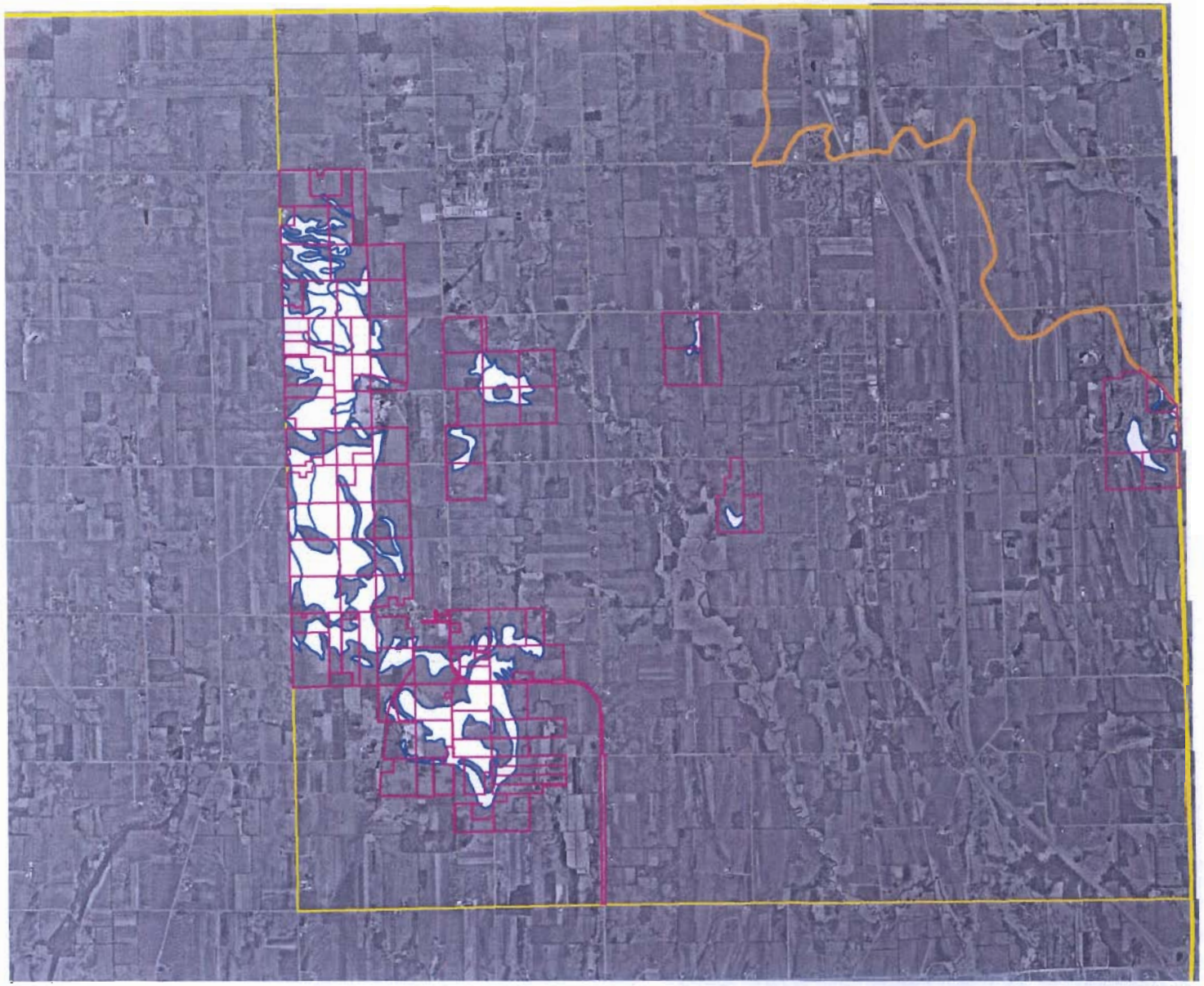
- Leroy Land Parcels
- 150 ft. Stream Buffer
- Streams
- Watershed
- Leroy Township

3 0 3 6 Miles

Source: Dodge County Land Information Dept. & Wisconsin DNR

Author: Jacob A. Maas, LSID

Lomira Land Parcels
That Contain Shallow Soils



N

Lomira Legend

- Lomira Land Parcels
- Lomira Shallow Soils
- Watershed
- Lomira Township

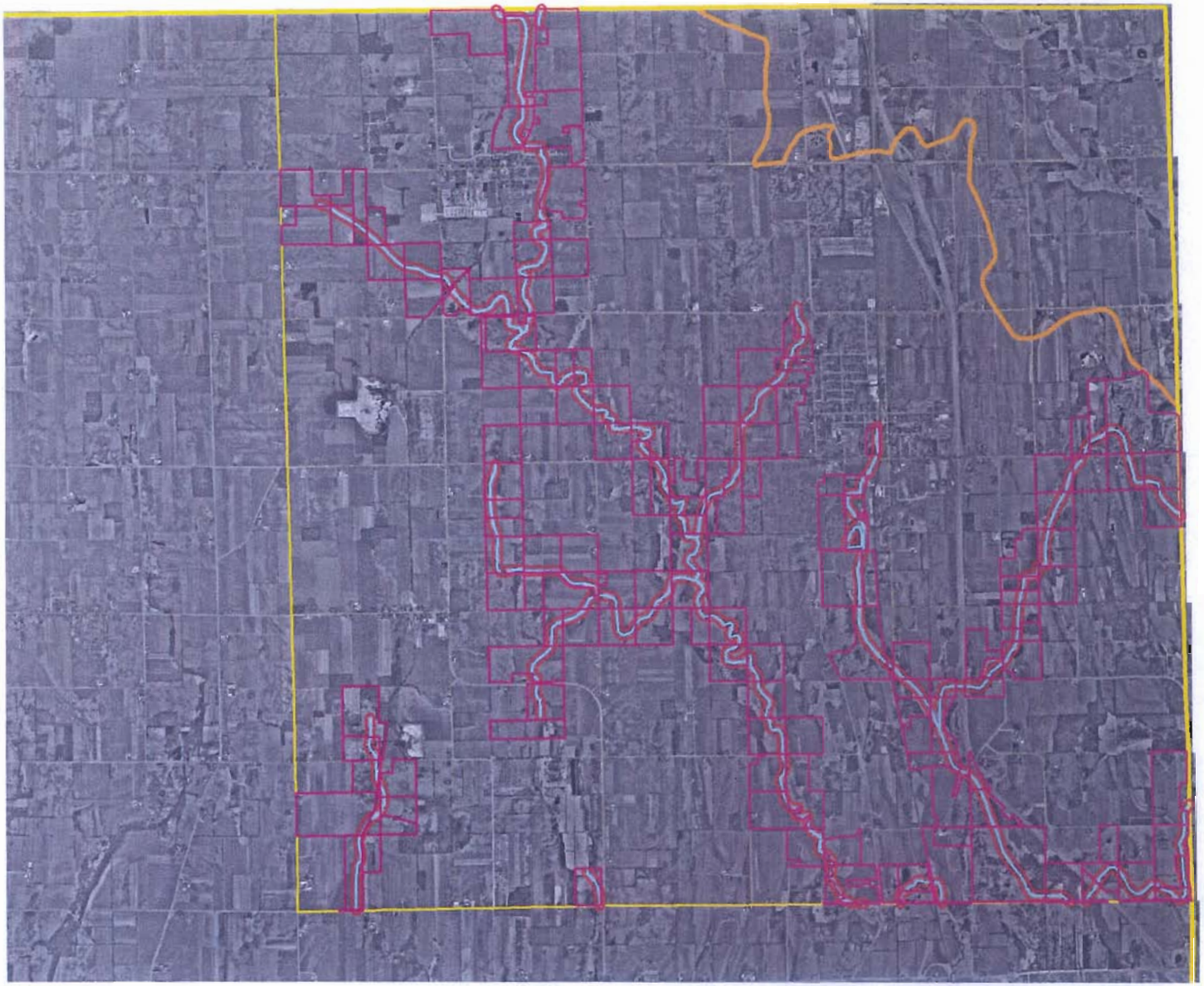
3 0 3 Miles

Source: Dodge County Land Information Dept. & Wisconsin DNR

Author: Jacob A. Maas, LSID

Lomira Land Parcels

Within 150 ft. of Streams



N

Lomira Legend

- Lomira Land Parcels
- 150 ft. Stream Buffer
- Stream
- Watershed
- Lomira Township

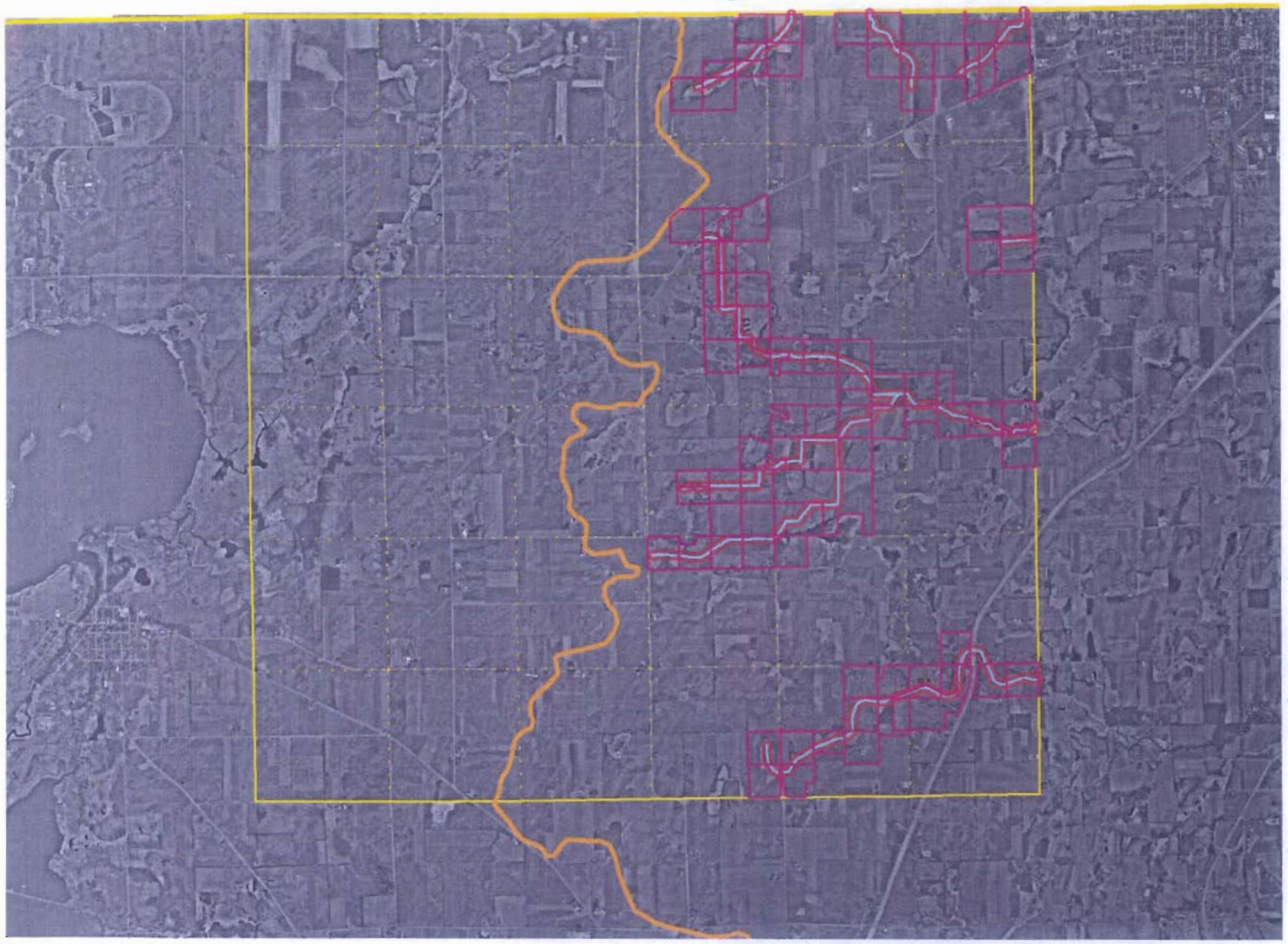
2 0 2 Miles

Source: Dodge County Land Information Dept. & Wisconsin DNR

Author: Jacob A. Maas, LSID

N. Trenton Land Parcels

Within 150 ft. of Streams



N

N. Trenton Legend

- N. Trenton Land Parcels
- 150 ft. Stream Buffer
- Streams
- Watershed
- N. Trenton Township

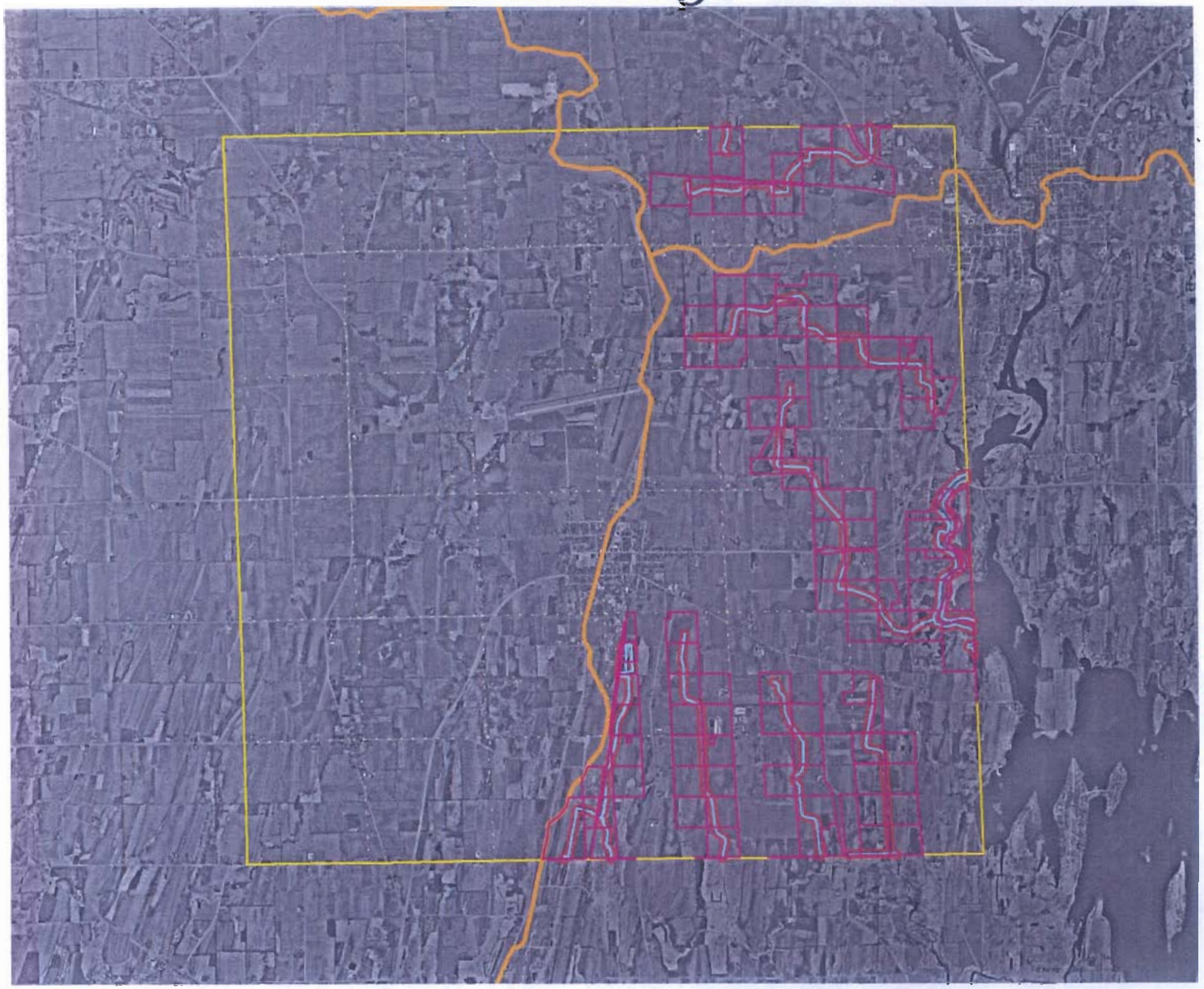
3 0 3 6 Miles

Source: Dodge County Land Information Dept. & Wisconsin DNR

Author: Jacob A. Maas, LSID

Oak Grove Land Parcels

Within 150 ft. of Streams



N

Oak Grove Legend

- Oak Grove Land Parcels
- 150 ft. Stream Buff
- Streams
- Watershed
- Oak Grove Township

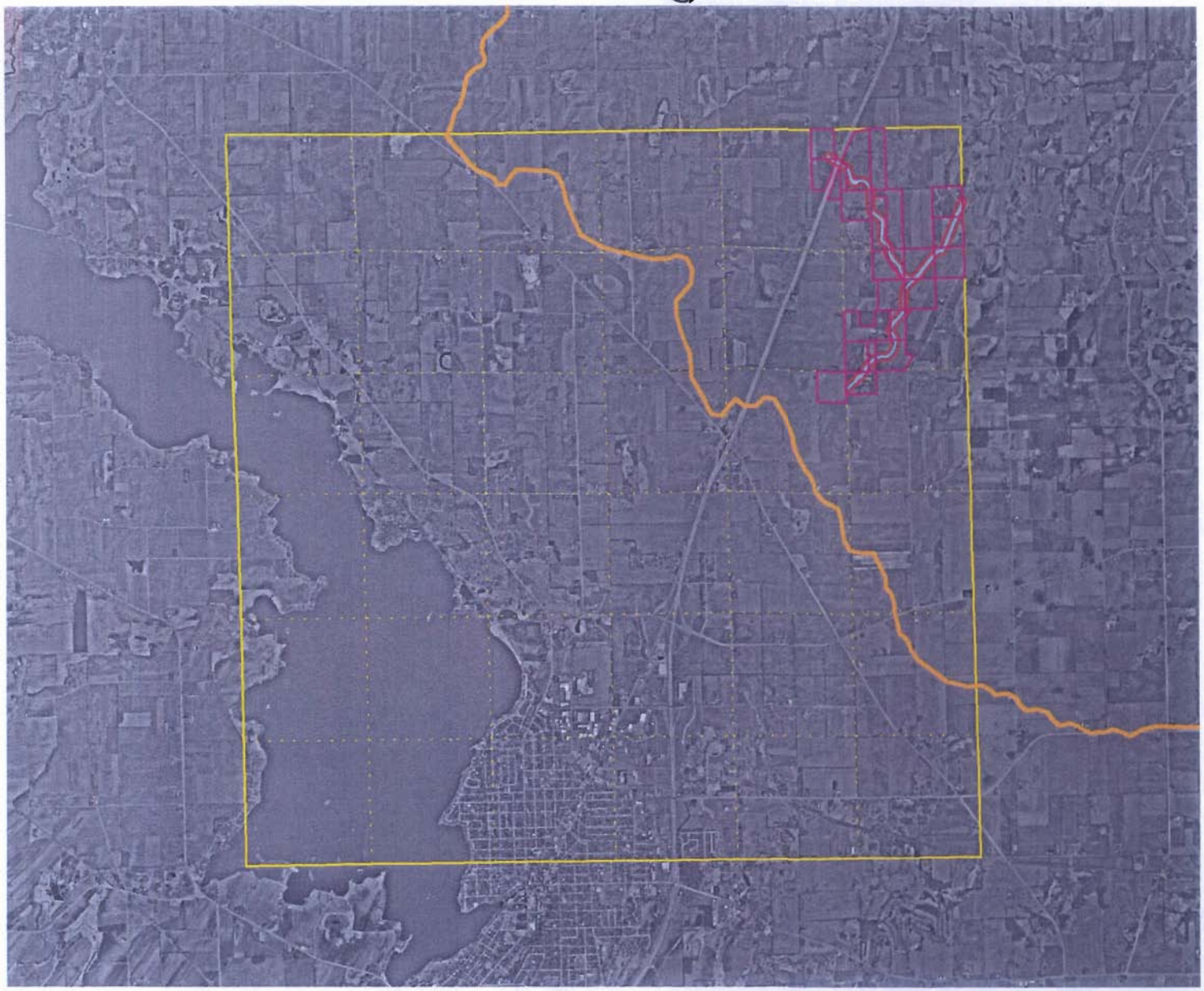
3 0 3 6 Miles

Source: Dodge County Land Information Dept. & Wisconsin DNR

Author: Jacob A. Maas, LSID

S. Trenton Land Parcels

Within 150 ft. of Streams



N

S. Trenton Legend

- S. Trenton Land Parcels
- 150 ft. Stream Buffer
- Stream
- Watershed
- S. Trenton Township

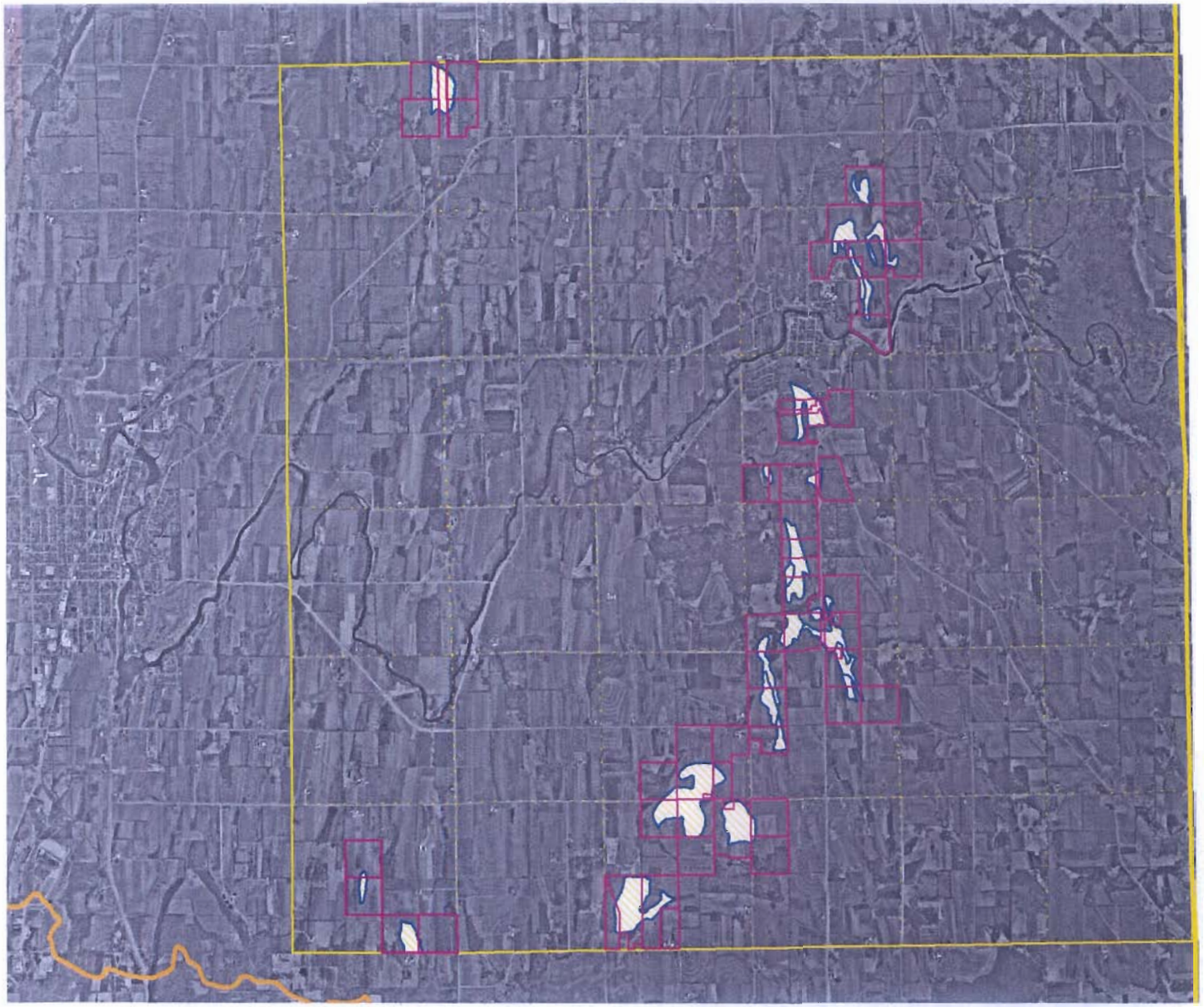
3 0 3 6 Miles

Source: Dodge County Land Information Dept. & Wisconsin DNR

Author: Jacob A. Maas, LSID

Theresa Land Parcels

That Contain Shallow Soils



Theresa Legend

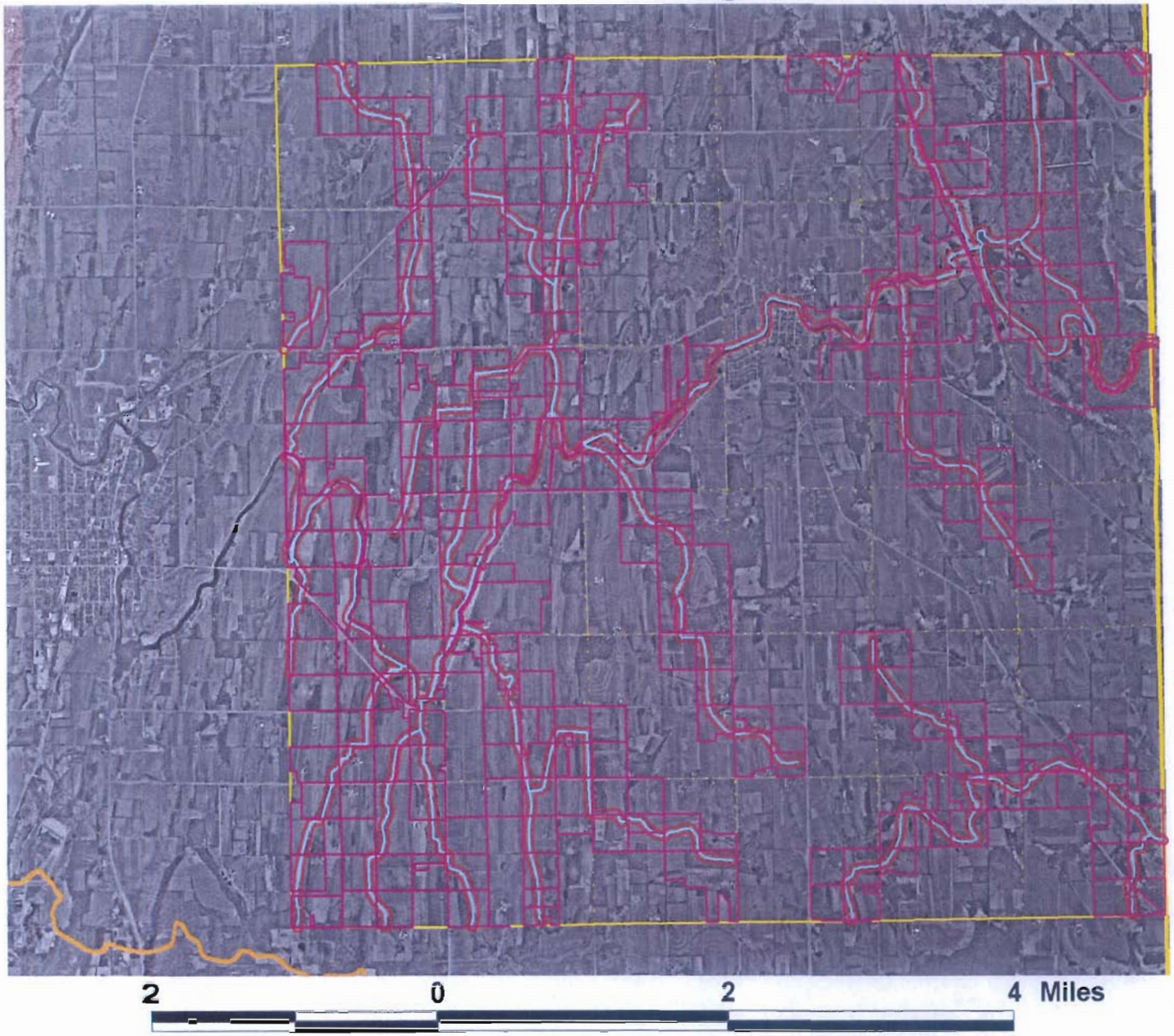
- Theresa Land Parcels
- Shallow Soils
- Watershed
- Theresa Township

Source: Dodge County Land Information Dept. & Wisconsin DNR

Author: Jacob A. Maas, LSID

Theresa Land Parcels

Within 150 ft. of Streams



N

Theresa Legend

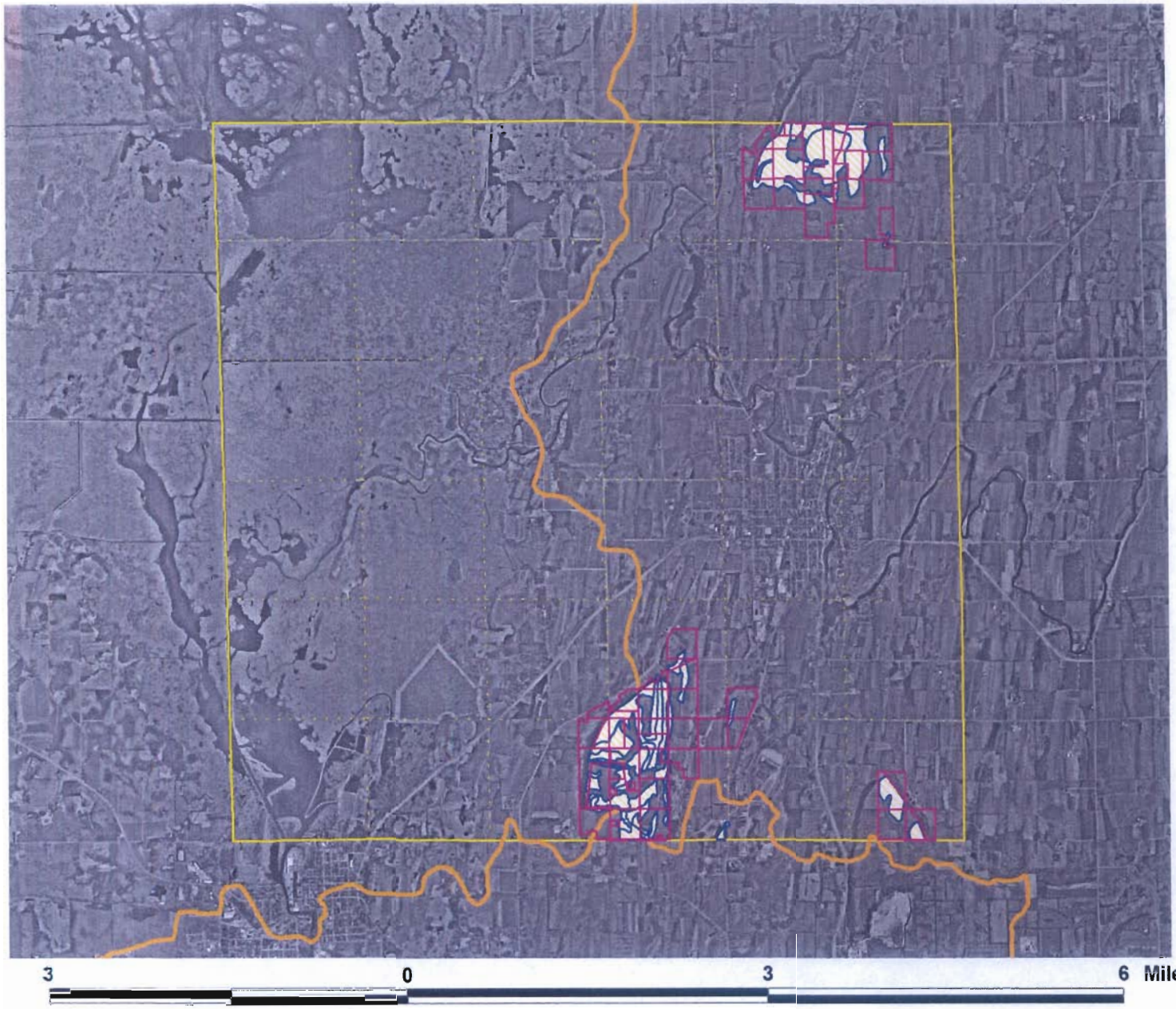
- Theresa Land Parcels
- 150 ft. Stream Buffer
- Stream
- Watershed
- Theresa Township

Source: Dodge County Land Information Dept. & Wisconsin DNR

Author: Jacob A. Maas, LSID

Williamstown Land Parcels

That Contains Shallow Soils



Williamstown Legend

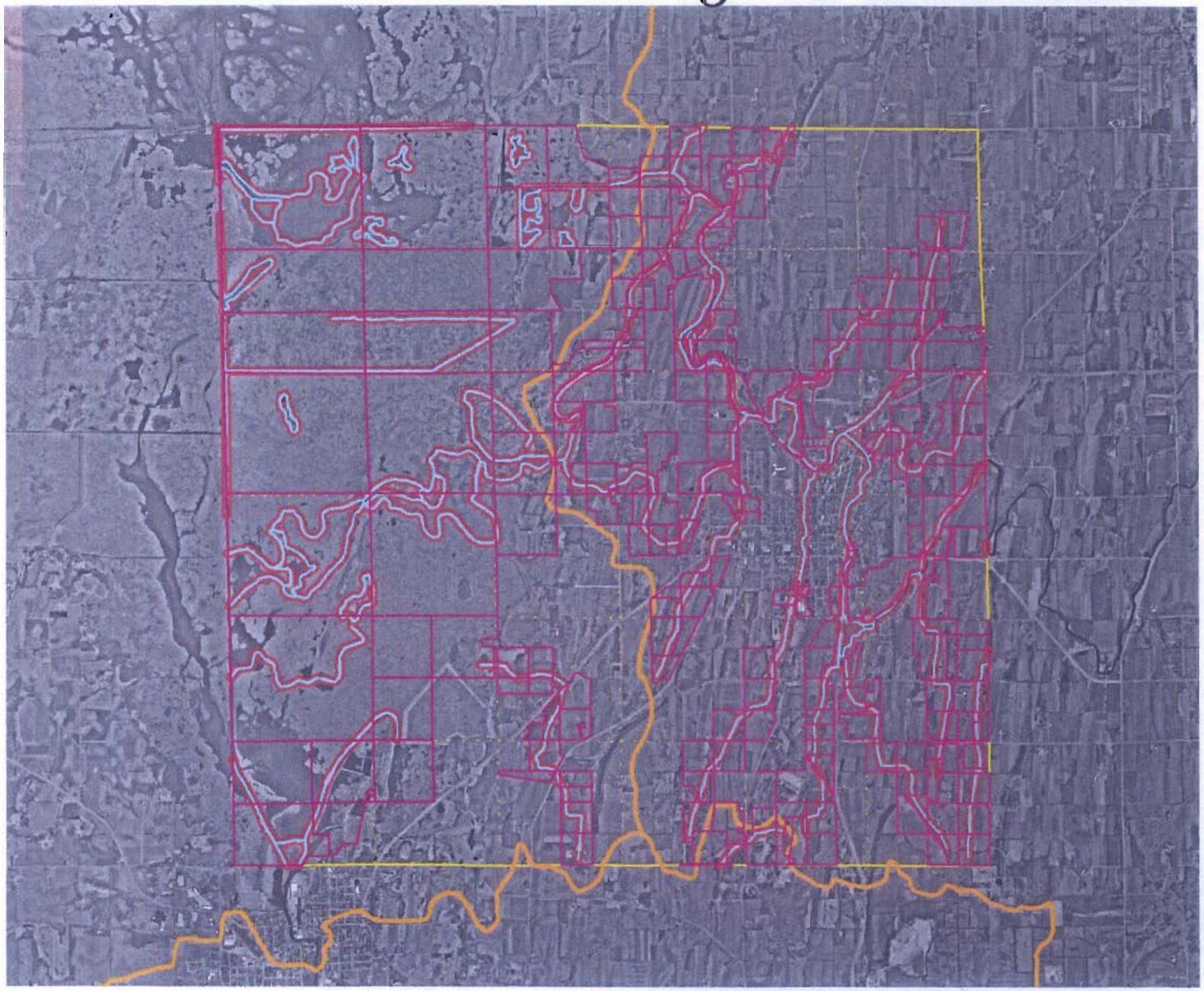
- Williamstown Land Parcels
- Shallow Soils
- Watershed
- Williamstown Township

Source: Dodge County Land Information Dept. & Wisconsin DNR

Author: Jacob A. Maas

Williamstown Land Parcels

Within 150 ft. of Streams



N

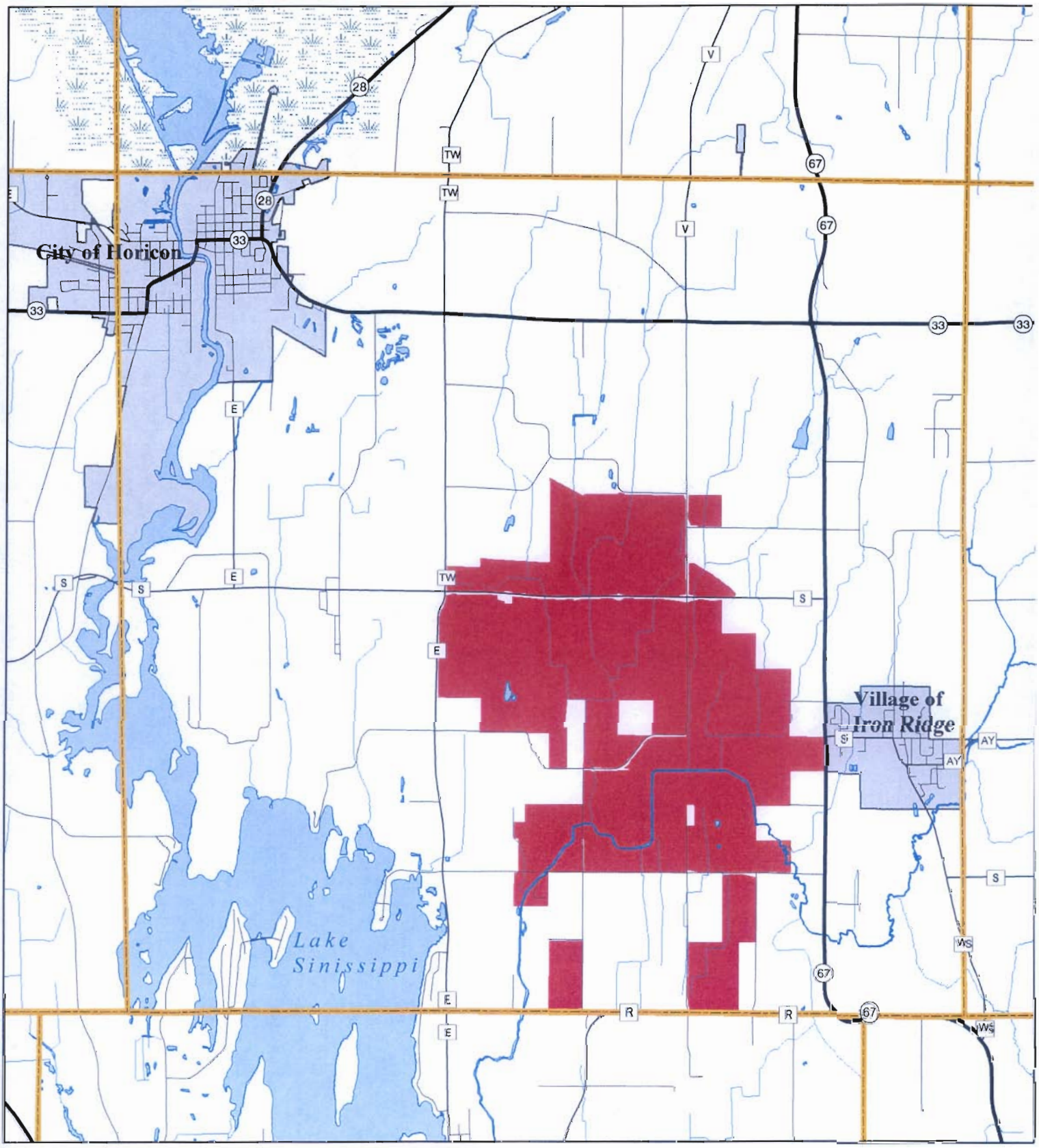
Williamstown Legend

- Williamstown Land Parcels
- 150 ft. Stream Buffer
- Streams
- Watershed
- Williamstown Township

3 0 3 6 Miles

Source: Dodge County Land Information Dept. & Wisconsin DNR

Author: Jacob A. Maas, LSID



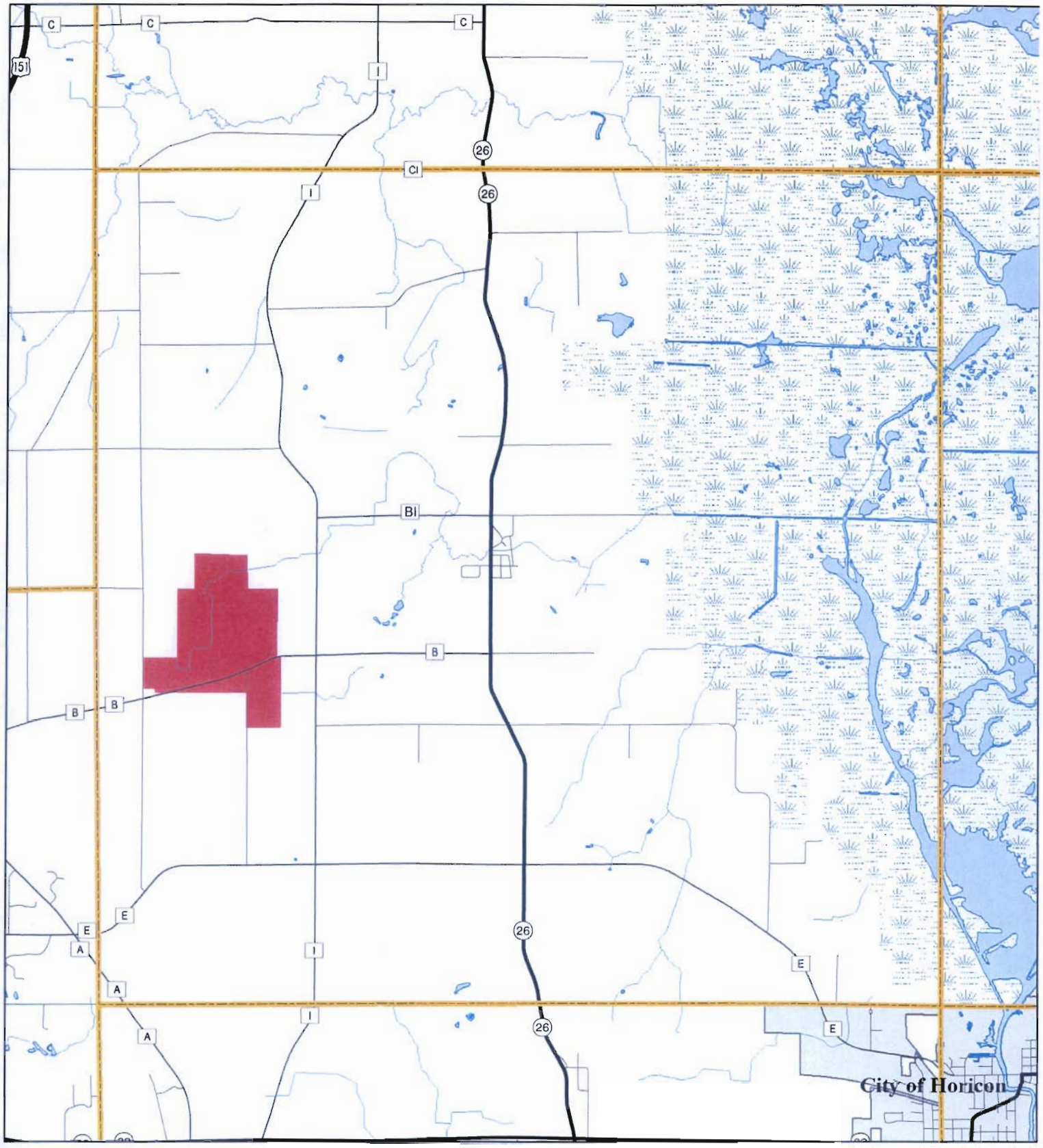
Drainage District #72 (Town of Hubbard)

Town Boundaries
Hydrography
Drainage Dist.
Municipalities
Horicon Marsh
State Highway
County Road
Town Road

1:60000 Scale
One Inch = 5,000 feet
0 0.5 1 2 Miles

Dodge County Land Information Dept. Feb 2005

N

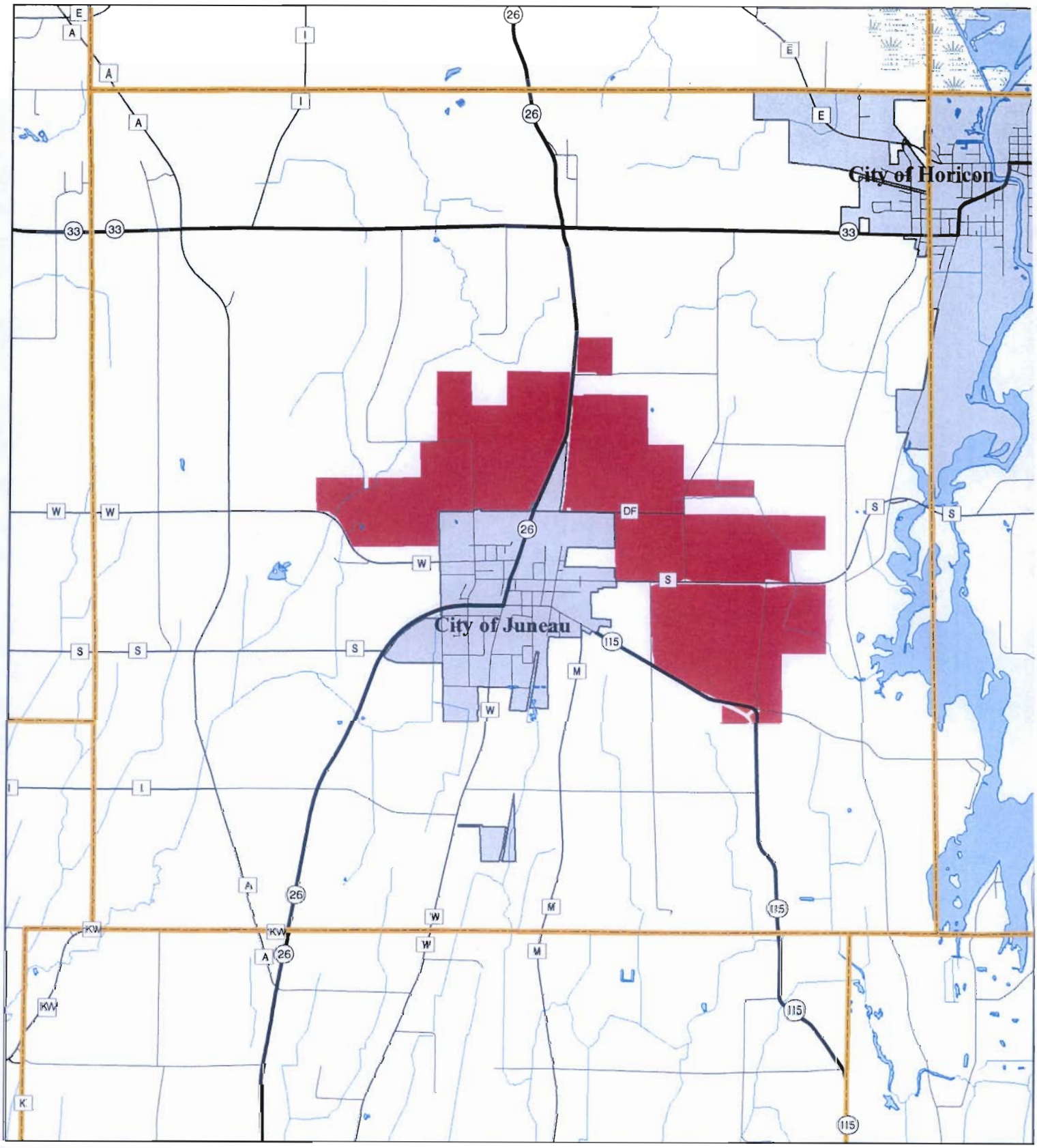


Drainage District #76 (Town of Burnett)

Town Boundaries
Hydrography
Drainage Dist.
Municipalities
Horicon Marsh
State Highway
County Road
Town Road

1:60000 Scale
One Inch = 5,000 feet
0 0.5 1 2 Miles
Dodge County Land Information Dept., Feb 2005

N



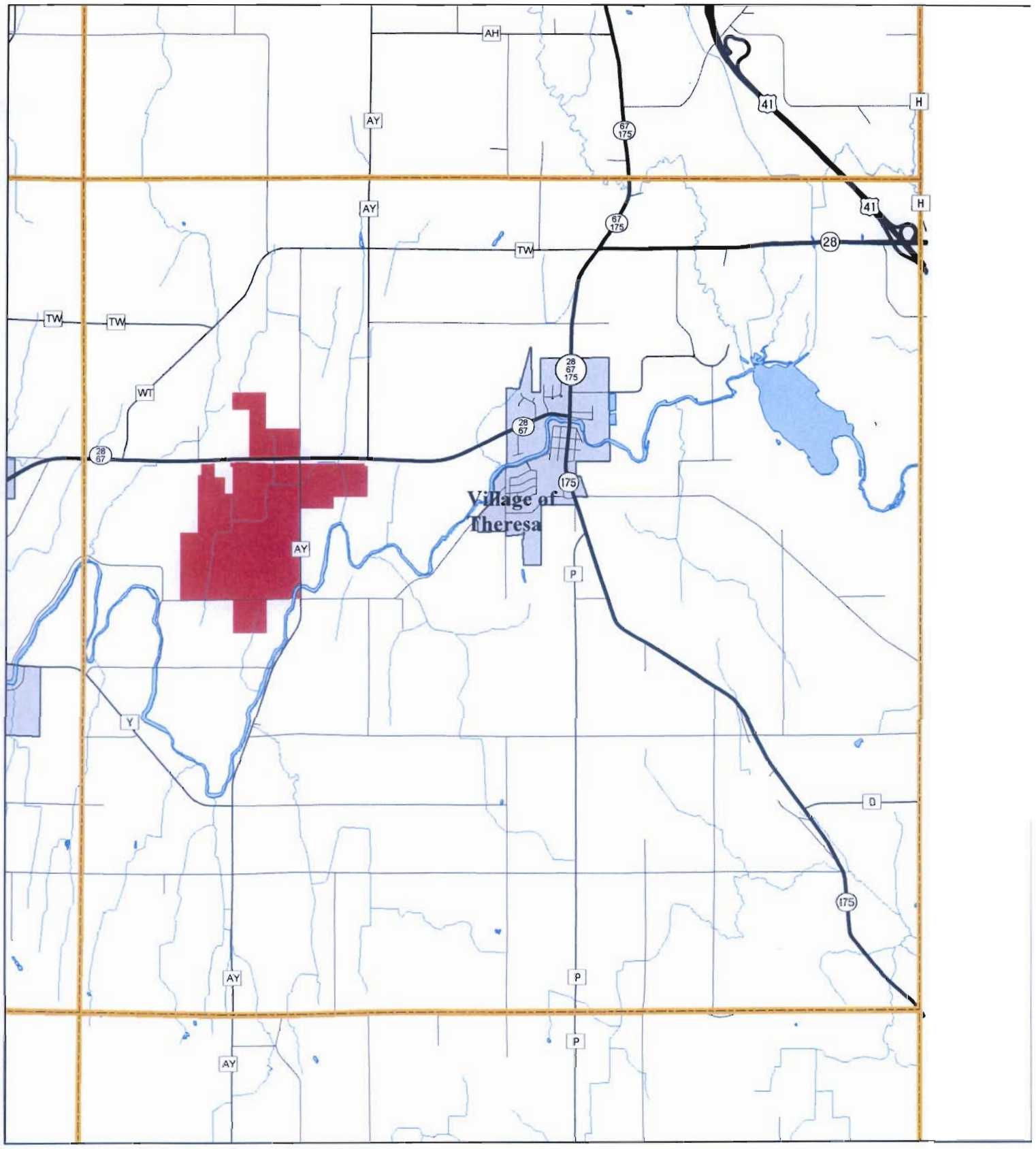
Drainage District #1 (Town of Oak Grove)

Town Boundaries
Hydrography
Drainage Dist.
Municipalities
Horicon Marsh
State Highway
County Road
Town Road

1:60000 Scale
One Inch = 5,000 feet
0 0.5 1 2 Miles

Dodge County Land Information Dept. Feb 2005

N



Drainage District #28 (Town of Theresa)

Town Boundaries
Hydrography
Drainage Dist.
Municipalities
Horicon Marsh
State Highway
County Road
Town Road

1:60000 Scale
One Inch = 5,000 feet
0 0.5 1 2 Miles
Dodge County Land Information Dept., Feb 2005

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