

# **Houston County**

## **Comprehensive Water Plan**

**For the Upper Mississippi – La Crescent Watershed**

**2007 – 2022**

**Amendment**

**October 2017**

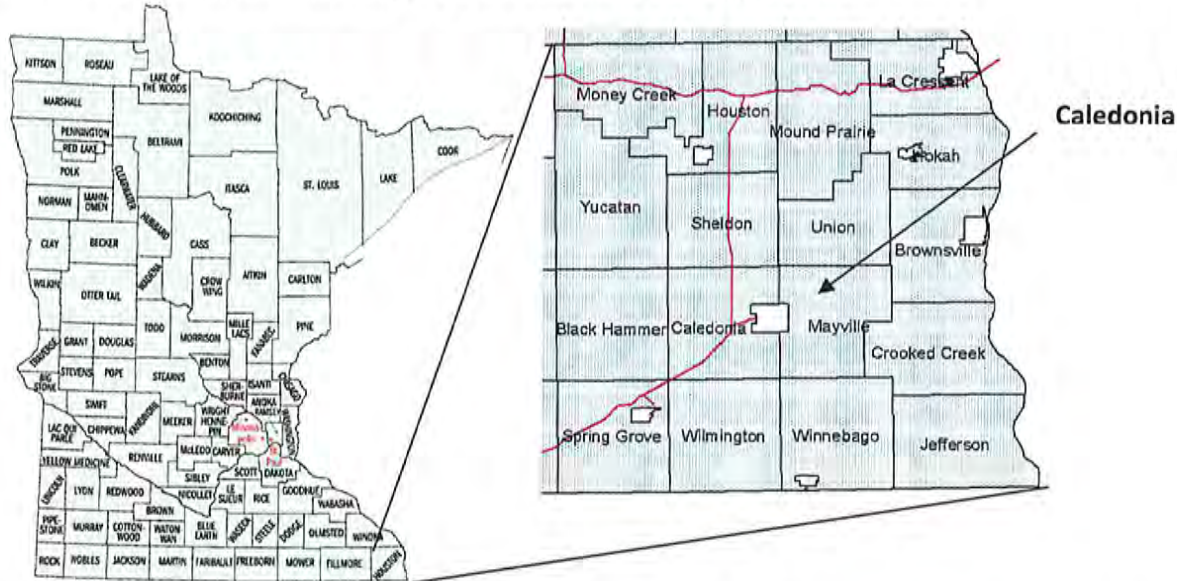


# Table of Contents

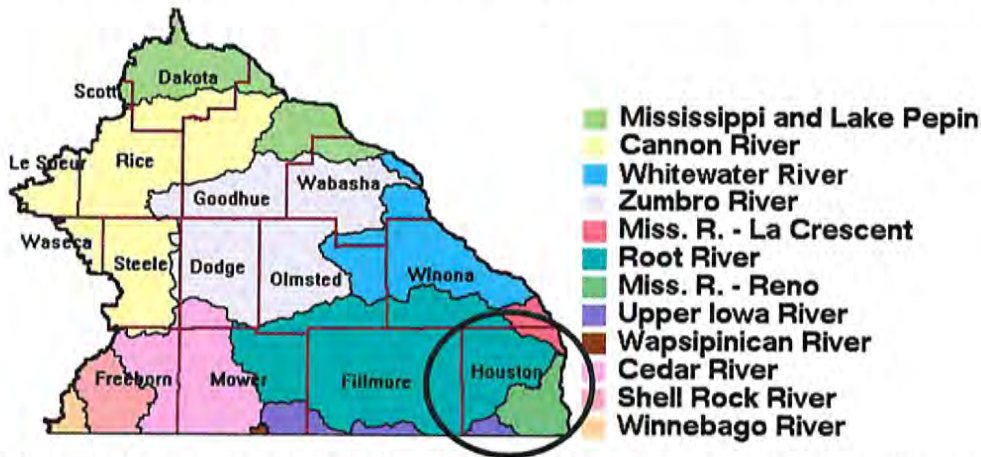
<i>Introduction</i> .....	4
<i>Commissioners, Water Plan Advisory Board, RRSWCD Board</i> .....	6
<i>Executive Summary</i> .....	7
<i>Houston County Watersheds</i> .....	8
<i>Upper Mississippi—La Crescent Watershed</i> .....	8
<i>Priority Concerns</i> .....	12
<i>Issue 1: Changes in Agriculture and Effects on Water Resources</i> .....	13
<i>Issue 2: Impact of Development on the Sensitive Karst Topography</i> .....	15
<i>Issue 3: Recreation Uses of Water and Impact to the Environment</i> .....	17
<i>Issue 4: Education and Awareness of Resources and Sensitivity</i> .....	19
<i>Issue 5: Ground Water Sensitivity in Karst Topography</i> .....	20
<i>Goals</i> .....	22
<i>5-Year Implementation Schedule</i> .....	24
<i>Ongoing Practices</i> .....	36
<i>Appendix</i> .....	37
<i>Acronym Key</i> .....	38

## Introduction

Houston County lies in the extreme southeastern corner of Minnesota bounded by the Mississippi River on the east, Iowa on the south, Fillmore County on the west and Winona County on the north. The County consists of seventeen townships and four major watersheds including the Root River, the Mississippi/Reno, the Mississippi/La Crescent and the Upper Iowa.



The Root River bisects Houston County with a watershed that comprises about 60% of its land area. Two smaller watersheds along the eastern side of the county drain directly to the Mississippi River. The fourth watershed covers the southern area of the county, draining to the Upper Iowa River. The topography of the district is very irregular with elevation extremes of over 600 feet. Many of the hilltops are over 400 feet above the flood plains and are within a fraction of a mile in distance.



Of these four major watersheds, the Upper Mississippi/LaCrescent watershed is the only one that was not included in the recent adoption of the Root River One Watershed, One Plan. For this reason, the Houston County Comprehensive Water Plan will now focus only on the Upper Mississippi/LaCrescent watershed. It is anticipated that this watershed will be covered under the Mississippi River – Winona One Watershed, One Plan, once it becomes established sometime in the next five years.

Since this plan was adopted in 2007, the Root River SWCD has worked with partnering agencies on many different projects and initiatives within the Upper Mississippi/LaCrescent watershed. As part of the water plan, SWCD employees write several news articles per year and run the Push-Up Pond Program, as well as other tasks. They have continued to partner with Houston County Public Health to be able to offer free drinking water nitrate test kits to households with infant children. They have worked with the MPCA, doing stream water quality sampling as part of the MPCA's Surface Water Assessment Grant. They have also continued to work with the MPCA and county zoning with their feedlot program, where technicians do at least 25 feedlot inspections annually, conduct manure application inspections, and work with feedlot owners to bring their feedlots into compliance if they are not already. The SWCD has worked with the Southeast Minnesota Water Resources Board to help run the Volunteer Nitrate Well Monitoring Network, as well as to use 319 Clean Water Funds for feedlot fixes. They have worked with BWSR and county zoning to regulate the Wetland Conservation Act within Houston County; working on projects within the Upper Mississippi/LaCrescent watershed such as the Wagon Wheel Bike Trail. The SWCD has worked with BWSR to run the State Cost-Share program as well, using these funds to install several conservation BMPs within the Upper Mississippi/LaCrescent watershed. In the same regards, they have worked with the NRCS to help install BMPs with the EQIP program. The SWCD has worked with the state to carry out its Buffer Law within the Upper Mississippi/LaCrescent watershed, as well as in the rest of the county; providing technical assistance to landowners. They have also worked with University of Minnesota Extensions and other organizations, to put on educational events for the public, every year. The SWCD also worked with BWSR to start a cost share program for cover crops for the first time in 2017.

**Houston County Commissioners**

Jack Miller – District 1  
Justin Zmyewski – District 2  
Scott Connor – District 3  
Teresa Walter – District 4  
Fred Arnold – District 5

**Water Plan Advisory Board**

Ervin Barth  
Linda Dahl  
Kevin Elton  
Rick Frank  
Joan Heim-Welch  
Fred Arnold  
Mike Cruse  
Gary Larson  
Carlyn Kraabel  
Loren Lapham  
Al Jacob  
Brian Pogodzinski  
Arlyn Pohlman  
Aaron Lacher  
Mary Marchel

**Root River SWCD Board**

Cecil Graf  
Matt Feldmeier  
Glen Kruse  
Jerry Welke  
Roger Stenhoff

## *Executive Summary*

The purpose of this plan is to identify the primary water resource concerns of local citizens and outline strategies to address those concerns through sound public policy, coordinating implementation with cooperating agencies and partners. These local citizen concerns are referred to as “Priority Concerns.”

The Priority Concerns identified for the Upper Mississippi – LaCrescent Watershed in Houston County are:

- Goal 1:** Protect ground water in order to maintain an adequate supply of safe drinking water for current and future generations.
- Goal 2:** Improve surface water quality in rivers and streams in Houston County.
- Goal 3:** Manage storm water runoff to minimize risk to human life, property and the environment.
- Goal 4:** Optimize recreational uses of water resources.
- Goal 5:** Review of local and regional plans and ordinances for compliance/compatibility.

An in-depth discussion of these concerns is outlined on the attached Priority Concerns Scoping Document. Houston County Water Plan was originally adopted in March 1990 and updated in 1996, 2000, and 2007. The current plan was amended in 2013 and is being amended again in 2017 before expiring December 31, 2022.

We have provided an analysis of the watershed units as well as groundwater systems. Because of the complex interconnectivity of surface and groundwater in our Karst topography along with similarities in land use and physical characteristics, Houston County has addressed resource concerns across watershed boundaries.

The five major goals identified in the priority scoping document will be addressed through focus on efforts to reduce the negative impacts of changes in agriculture and land use. These impacts including groundwater/drinking water pollution, surface water pollution, and increased storm water runoff. Cost effective measures will be implemented to prevent potential degradation, and optimize recreational uses of resources through new and/or innovative applications of technology. A combined approach of information and education, technical and financial assistance from federal, state, county and private agencies, together with regulations will be utilized. Also, city and township ordinances will be reviewed for compliance with these regulations. An estimated \$2,348,800 cash along with in-kind services will be expended from 2007 – 2022.

This Water Plan for the Upper Mississippi/LaCrescent watershed substitutes for a Comprehensive Plan for the Root River SWCD. Every effort has been made to maintain consistency with other local water management plans - such as the Root River One Watershed, One Plan, the Crooked Creek Watershed District Plan, and the WRAPS for the Mississippi/LaCrescent watershed - as well as to coordinate efforts with local, state, and federal plans and contacts. The plan covers the policies, goals, and effectiveness which the county intends to follow over a fifteen year period (2007 – 2022).

# *Houston County Watersheds*

## Upper Mississippi – La Crescent Watershed

More than other watersheds in the county, the Upper Mississippi – La Crescent Watershed is experiencing rapid changes in agriculture and land use affecting our water resources. The township has struggled with zoning issues to control development and manage water resource protection.

Non-farm rural residential growth in the area is under separate zoning governed by the township. Land use changes away from agriculture to rural non-farm dwellings have increased; adding potential issues with individual onsite sewage treatment systems, building site erosion control, and rural water supplies.



*This photo demonstrates the rapid growth in the La Crescent Area.*

The main waterbody that drains the Upper Mississippi – LaCrescent watershed is Pine Creek. This creek has historically been known to have its share of pollution issues, despite our conservation efforts within its watershed. It contains trout and cold water invertebrates, and has low enough temperatures in most reaches, but its lower reach in Houston County is not a designated trout stream, mostly due to its high amount of sediment (TSS).

In 2015, Root River SWCD received a Surface Water Assessment Grant (SWAG) from the Minnesota Pollution Control Agency. This allowed them to take 13 sets of water samples, from four different stream sites (Pine Creek, Bear Creek, Winnebago Creek, and Crooked Creek), throughout the summer. These samples were sent to a water chemistry lab for analysis. Field measurements were also taken. The results confirmed what we had known about Pine Creek: it is one of the least pristine streams in the county, and plenty of work can be done to improve its water quality.

In a recent study by the MPCA, they found that Pine Creek seems to be impaired due to very high Total Suspended Solids (TSS), high E. coli levels, and lack of fish diversity. The source of the sediment is still under investigation, and is a surprise to researchers, due to the relatively low amount of agriculture in this watershed compared to other watersheds in the county. One possible source of



this sediment may be from eroding banks within the stream. In the same regards, the high E. coli levels are also a surprise. This may be due to failing septic systems, rather than feedlots, due to the high amount of development in recent years around LaCrescent. However, the source of this pollutant is also still under investigation.

BMPs that control overland flow of runoff water, and the sediment and nutrients that it carries, are a very effective tool in the preservation of surface water quality. Practices such as ponds, water and sediment control basins, and grade stabilization structures capture runoff water from the upland watershed and release it slowly, reducing downstream flooding. These practices also capture sediment, and nutrients like phosphorus that are attached to the sediment particles, before they can enter surface water. Because of these qualities, these types of BMPs will be a priority for the SWCD to install within this watershed.

Sediment is the biggest non-point source of pollution in surface water in the world. The phosphorus that is often attached to it commonly causes algal blooms in fresh waterbodies, which in turn causes eutrophication and lowers dissolved oxygen levels, harming our freshwater ecosystems. In a recent study by the MDA, approximately 43% of the sediment in the neighboring Root River comes from eroded stream banks, instead of the upland watershed. Therefore, practices that directly help stabilize stream banks, such as cedar tree stream bank revetment should be encouraged as well in this watershed.

Other potential impairments that the MPCA have been studying include high water temperatures and lack of wildlife habitat. One strategy to keep water temperatures in Pine Creek cooler is to protect groundwater, and any sensitive features on the landscape that could serve as a direct conduit to groundwater. Therefore, sinkhole repair and well sealing will be targeted and encouraged in the Upper Mississippi – LaCrescent watershed. A great BMP to protect water temperatures and improve wildlife habitat within Pine Creek is stream buffers. With the new state buffer law in place, the SWCD will monitor the installation of these buffers and provide technical assistance when needed; in the Upper Mississippi – LaCrescent watershed, as well as in the rest of Houston County.

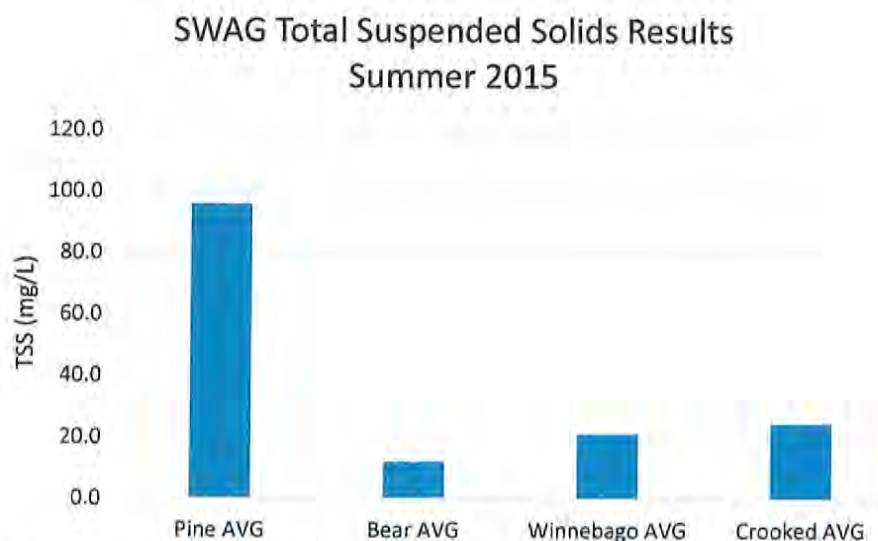


Figure 1. Surface Water Assessment Grant (SWAG) results of average Total Suspended Solids (TSS) levels in Pine, Bear, Winnebago, and Crooked Creek during the summer of 2015.

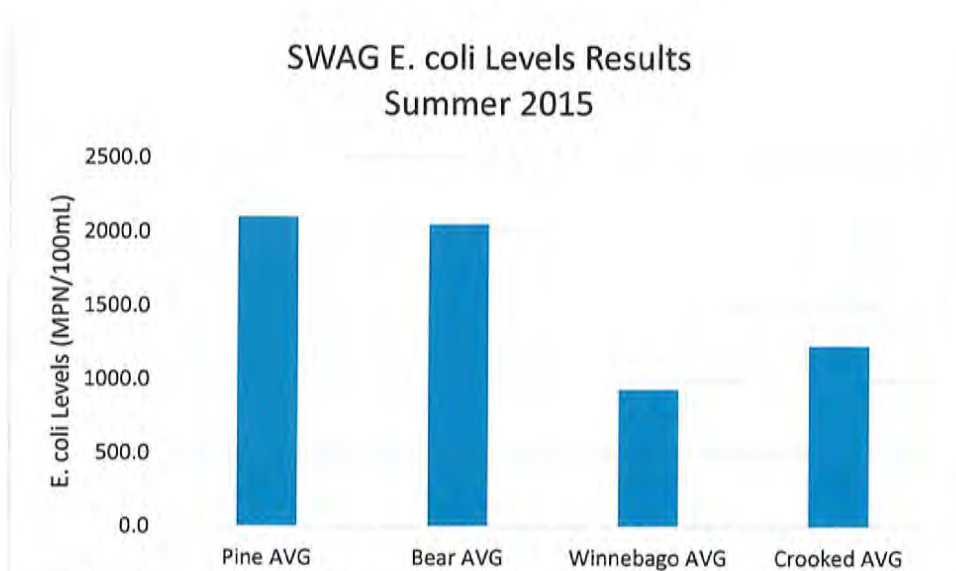


Figure 2. Surface Water Assessment Grant (SWAG) results of average *E. coli* levels (MPN/100mL) in Pine, Bear, Winnebago, and Crooked Creek during the summer of 2015.

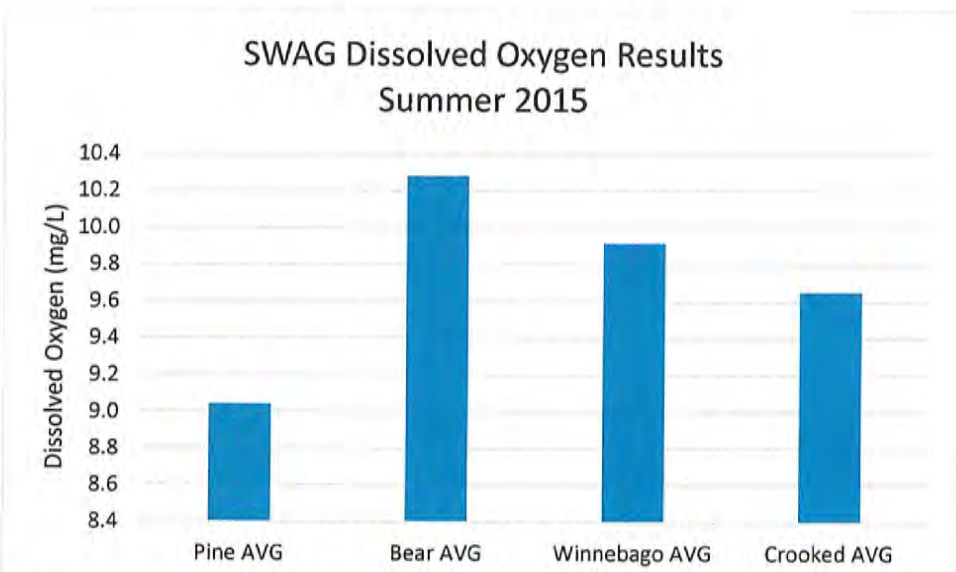


Figure 3. Surface Water Assessment Grant (SWAG) results of average dissolved oxygen levels (mg/L) in Pine, Bear, Winnebago, and Crooked Creek during the summer of 2015.

### SWAG Phosphorus Levels Results Summer 2015

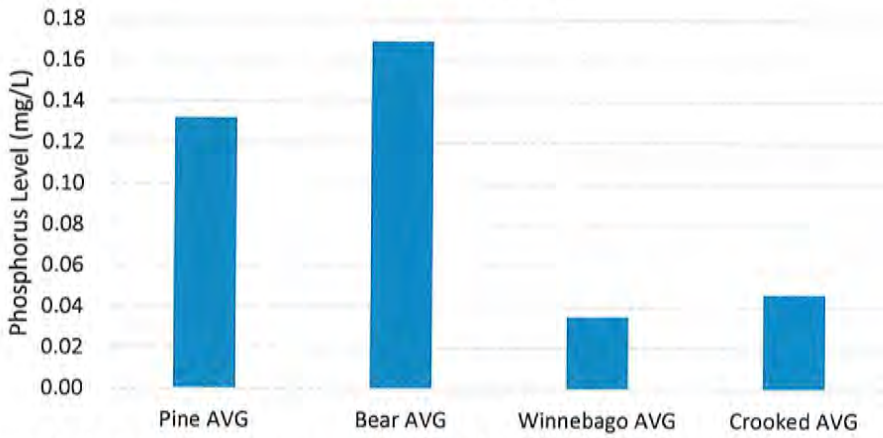


Figure 4. Surface Water Assessment Grant (SWAG) results of average phosphorus levels (mg/L) in Pine, Bear, Winnebago, and Crooked Creek during the summer of 2015.

## ***Priority Concerns***

An assessment of the Priority Concerns impacting water in the Upper Mississippi – LaCrescent watershed has identified major issues in erosion control and sedimentation, surface water contamination from confined livestock, sewage treatment and disposal, home site development, commercial and industrial mining, flood control, human drinking water supply, and recreational uses. Other issues considered were State mandated requirements including wetlands, stream side buffers, and protection zones including shore lands, calcareous fens, and bluff lands. These priority concerns fall into five major issues as identified in the Priority Concerns Scoping Document. ***(See Attachment #2 – Priority Concerns Scoping Document)***

An in-depth analysis of these issues reveal a complex interconnectivity compounded by our Karst geology. Surface water flows readily into ground water through shallow soils over fractured bedrock. Springs discharge ground water into streams miles away, often crossing surficial divides, rendering the traditional watershed approach ineffective, in many cases. For this reason, while differences in watersheds have been considered and are outlined below, many of the issues are addressed on a county wide basis.

***(See Attachments #3 - #5)***

Likewise, many of the issues identified transcend the scope of a single resource concern, affecting surface and groundwater surface water quality and quantity and so on. Because of these factors, Houston County has provided an assessment of the priority resource concerns on an issue by issue basis, rather than a resource by resource basis.

Issue 1: Changes in Agriculture and Effects on Water Resources

Issue 2: Sensitivity of the Karst Topography and Changes to Land Use and Development

Issue 3: Recreational Uses of Water and Impacts to the Environment

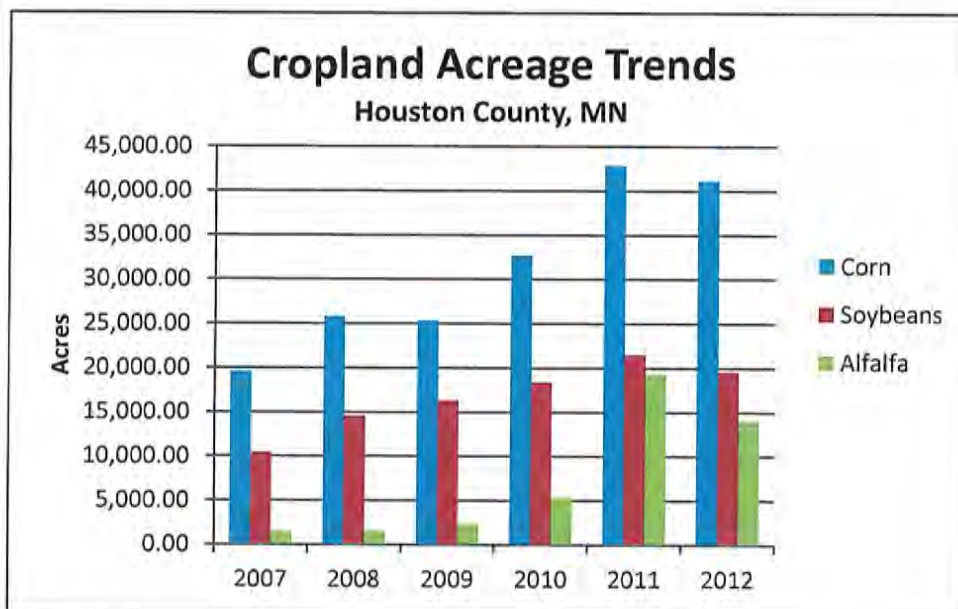
Issue 4: Educational and Awareness of Resources and Sensitivity

Issue 5: Ground Water Sensitivity in Karst Topography

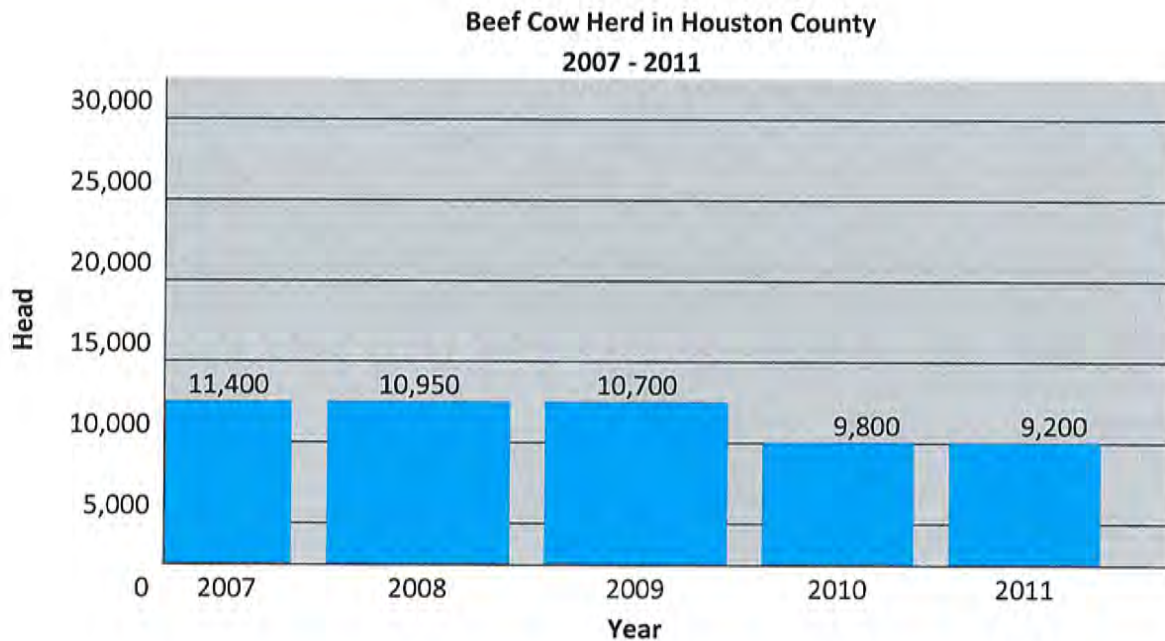
**Issue 1: Changes in Agriculture and Effects on Water Resources:**

Changes in agriculture and public policy have resulted in a shift away from small scale animal agriculture, toward fewer larger scale operations. Global demand for agricultural products, market pressures and domestic uses of commodities have resulted in additional pressure being placed on farmers to produce more. As a result, agricultural lands need to become more productive and additional pressure is placed on marginal lands to grow commodity crops.

	2007	2008	2009	2010	2011	2012
Corn	19,575.30	25,760	25,276.40	32,638	42,791.80	41,122.10
Soybeans	10,350.60	14,505.80	16,266.40	18,370	21,460.20	19,551.60
Alfalfa	1,430.50	1,502.60	2,298.40	5,301.70	19,284.10	13,985.70



Concentration of dairy herds into larger operations has created an increase in demand for engineering and technical assistance for storage, handling and application of livestock waste. Fewer beef cattle herds have resulted in reductions of hay land and pasture land and emphasizes the need for permanent vegetation stands and contour strip systems which were once a prominent feature of Houston County's landscape. Conservation practices such as no till farming, terraces and buffer strips, grade stabilization structures, state mandated stream side buffers, water and sediment control basins and push-up ponds while effective may not fully mitigate the effects of this change.



These changes have the potential for a profound negative impact on both surface water quality and water quantity, particularly due to the vulnerability of our soils to erosion and rapid runoff.

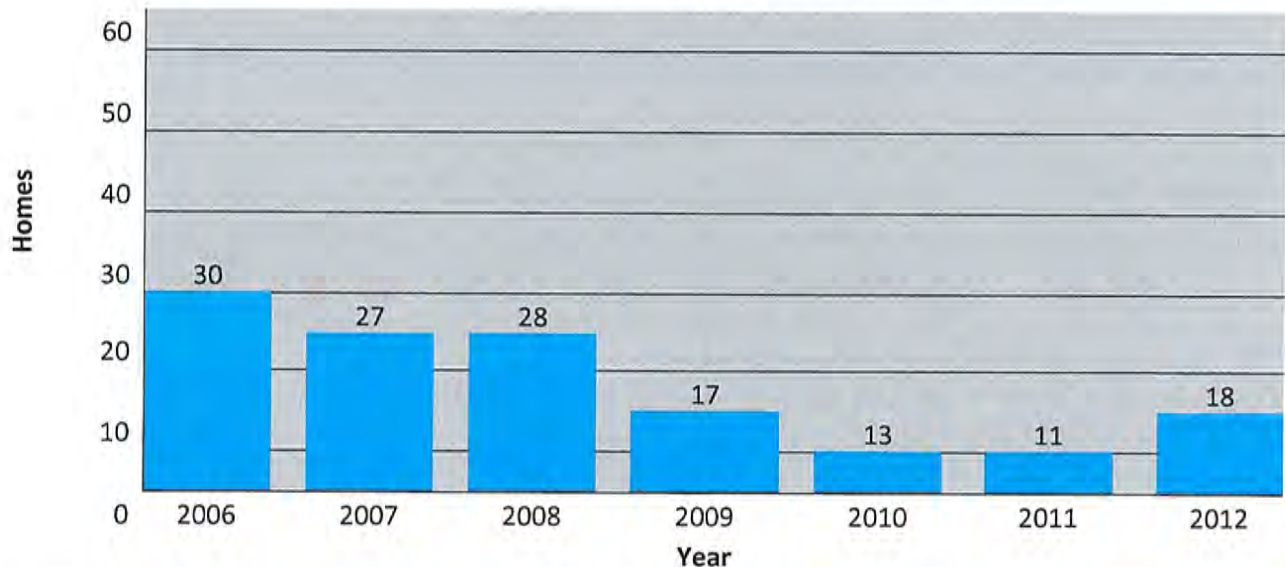
Houston County recognizes these changes in agriculture and the effects on our water resources. We also recognize the socioeconomic factors driving these changes extend far beyond the scope of county jurisdiction. Changes in U.S. Farm Bill, along with state laws creating economic disincentives to livestock producers in Minnesota may be contributing factors to the loss of animal agriculture.

Land use changes away from agriculture to rural non-farm dwellings have increased, adding potential issues with individual onsite sewage treatment systems, building site erosion control and rural water supplies.

## **Issue 2: Impact of Development on the Sensitive Karst Topography**

The current rate of new housing in the rural areas of Houston County has stayed fairly constant in the last 10 years (see graph). Even though population growth in the rural areas of the county has been constant, there remains a strong need for practices to reduce the potential erosion on new building sites. New building sites located on the Karst topography of Houston County provide the homeowner an opportunity for unique scenery and breathtaking views but, at the same time, require best management practices in reducing soil erosion.

**Rural Residential Housing in Houston County  
2006 - 2012**

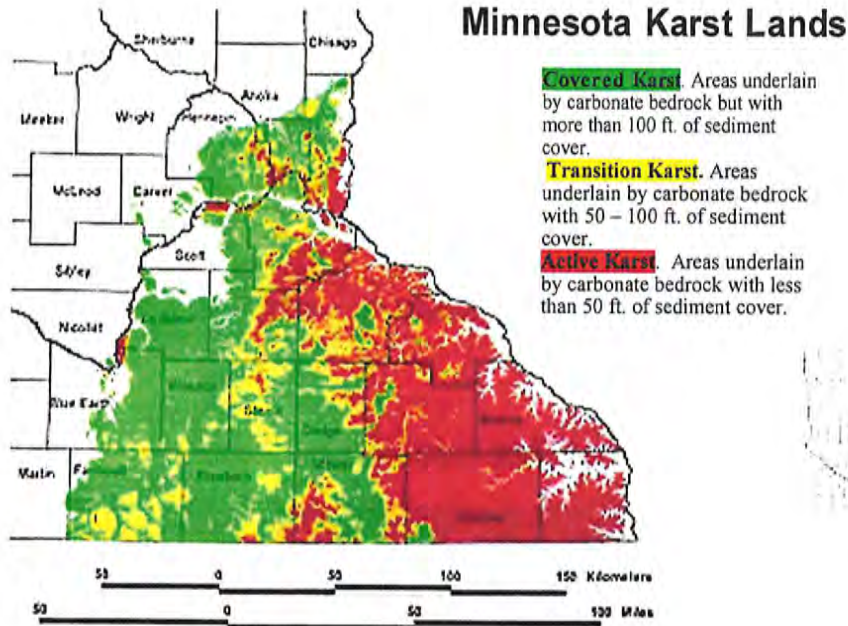


Local zoning ordinances limit housing to areas of reasonable slope and take into consideration setback distances from shore land and bluff land areas. These ordinances were adopted to protect vulnerable areas of the county from housing development. Through the zoning review process these vulnerable areas are eliminated as potential building sites early on before they get started.

Nonetheless, the need for good erosion control planning still exists on permitted sites as a means to ensure that new home owners are addressing potential problem areas. Examples of erosion control measures include such things as immediate temporary seeding and silt fence on slopes, addressing water coming off new driveways and other non-pervious areas, and landscaping plans along with permanent seeding of lawns. These practices should be accomplished as soon as reasonably possible after construction in order to reduce soil erosion and the resulting sedimentation into surface waters of the county.

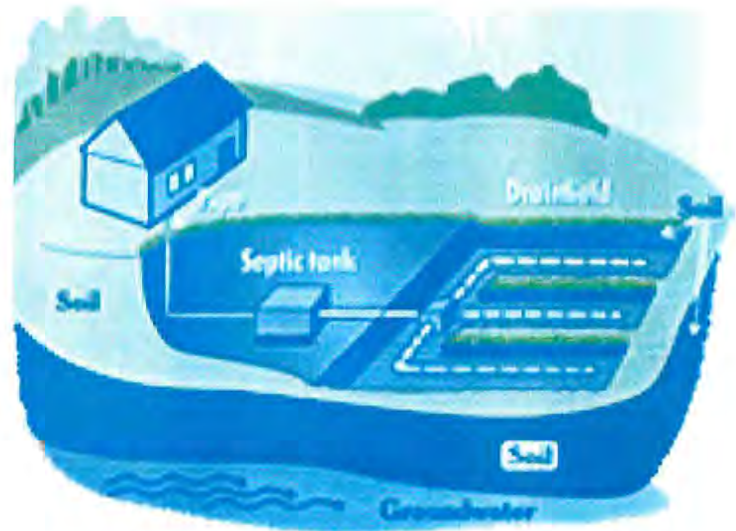
Houston County recognizes the need to address the potential sedimentation into local streams and rivers from new building sites. If good planning in terms of erosion control on new building sites and protection of vulnerable sites is not taken into consideration, a profound negative impact on surface waters is the result.

The sensitive Karst topography is also impacted by rural septic systems. The shallow soils of the Karst region sometimes pose a challenge in providing enough separation between the bottom of a typical drain field and the bedrock below. When soil depth is not suitable, mound or at-grade septic systems are the alternative as required by the state's septic rules.



Houston County estimates approximately 1,800 non-conforming sewage treatment systems are currently in existence. Some of these include straight pipes that outlet into ditches or other drainage ways; others may be deficient in adequate soil depth or are out letting onto the surface of the ground.

All of these non-conforming systems are in need of updating and are continually being addressed as time allows. A Department of Agriculture Ag BMP loan is available to homeowners that have non-conforming septic systems to help them bring these systems in compliance.





### **Issue 3: Recreation Uses of Water and Impact to the Environment**

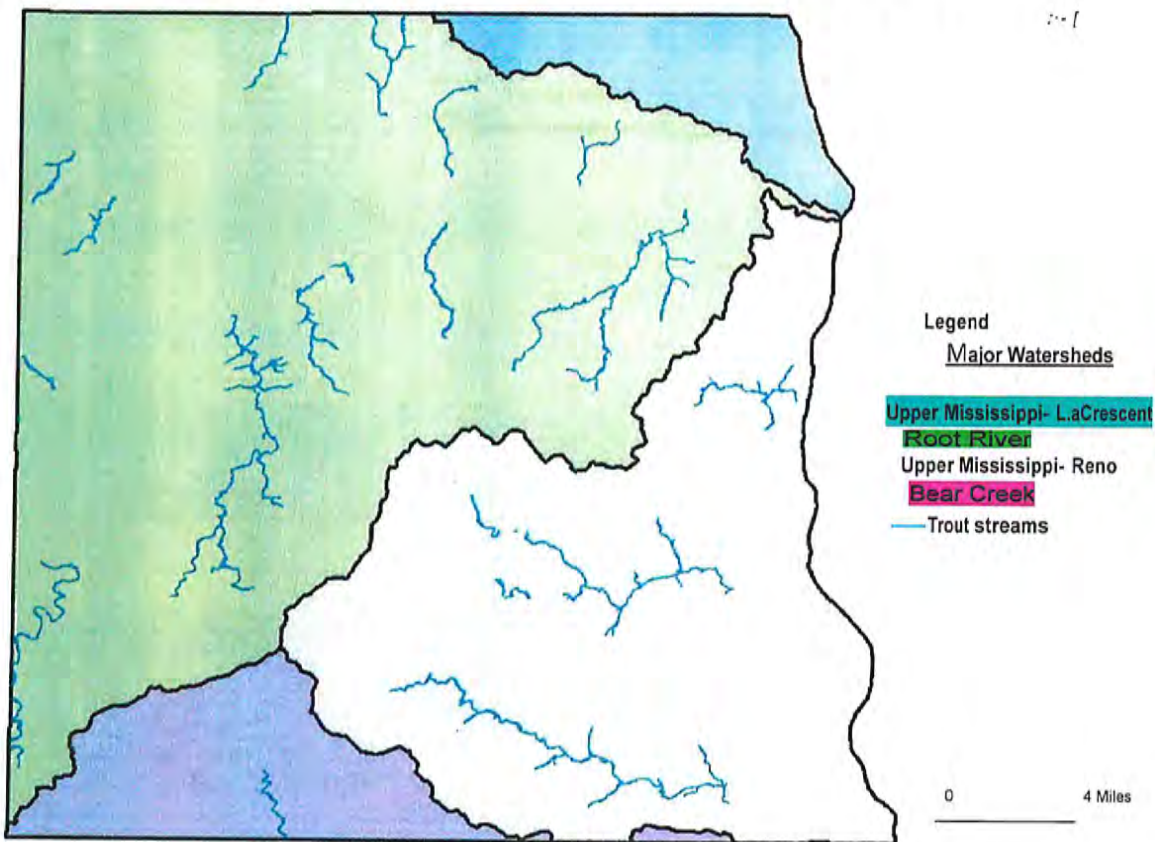
Houston County has long been a recreational paradise with miles of trout streams, abundant wildlife and scenic bluffs. A clean and plentiful water supply is essential to maintain health and stable populations for all of our wildlife species. Houston County's wildlife resource is a key component of our economic base.

Recently, habitat development on river islands through U.S. Army Corps of Engineers dredging operations continues to provide expansion of recreational opportunities. The lock and dam system installed in the mid 1930's added additional recreation opportunities for boaters and fisherman.

Access to trout streams and other water resources have been an issue for sportsman and land owners. Confusion on trespass regulations increase demand for public access and fishing regulations on certain streams are a few of the issues facing future recreational usage of this resource.

Concerns for maintaining pristine conditions for trout habitat have emphasized the need for runoff control, erosion control and sediment reduction.

#### **Houston County Trout Streams by Watershed**



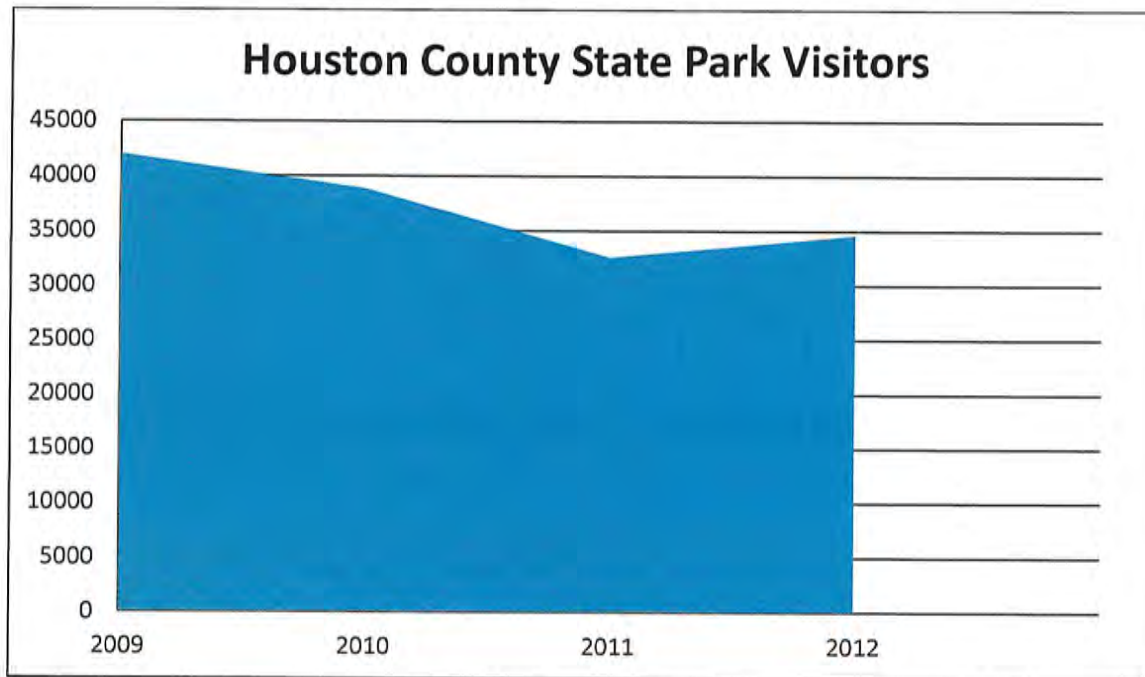
Outdoor Recreation

Houston County offers an abundance of recreational opportunities that directly prosper and flourish through quality water resource management. Each year, outdoor enthusiasts take part in activities such as hunting, fishing, boating, hiking, snowmobiling, camping and much more. Our natural resources continue to provide both personal and economic benefits to those that call Houston County their home.

Houston County Recreational License Sales  
(Hunting, Trapping, Fishing, Other Recreational)

Year	Permits Sold	State Amount Collected	Change
2009	19,352	\$462,416.75	-
2010	17,378	\$442,952.50	-1,974
2011	16,414	\$419,967.00	-964
2012	16,479	\$424,703.50	+65
Total	69,623	\$1,750,039.75	-2,873

Source: MN DNR



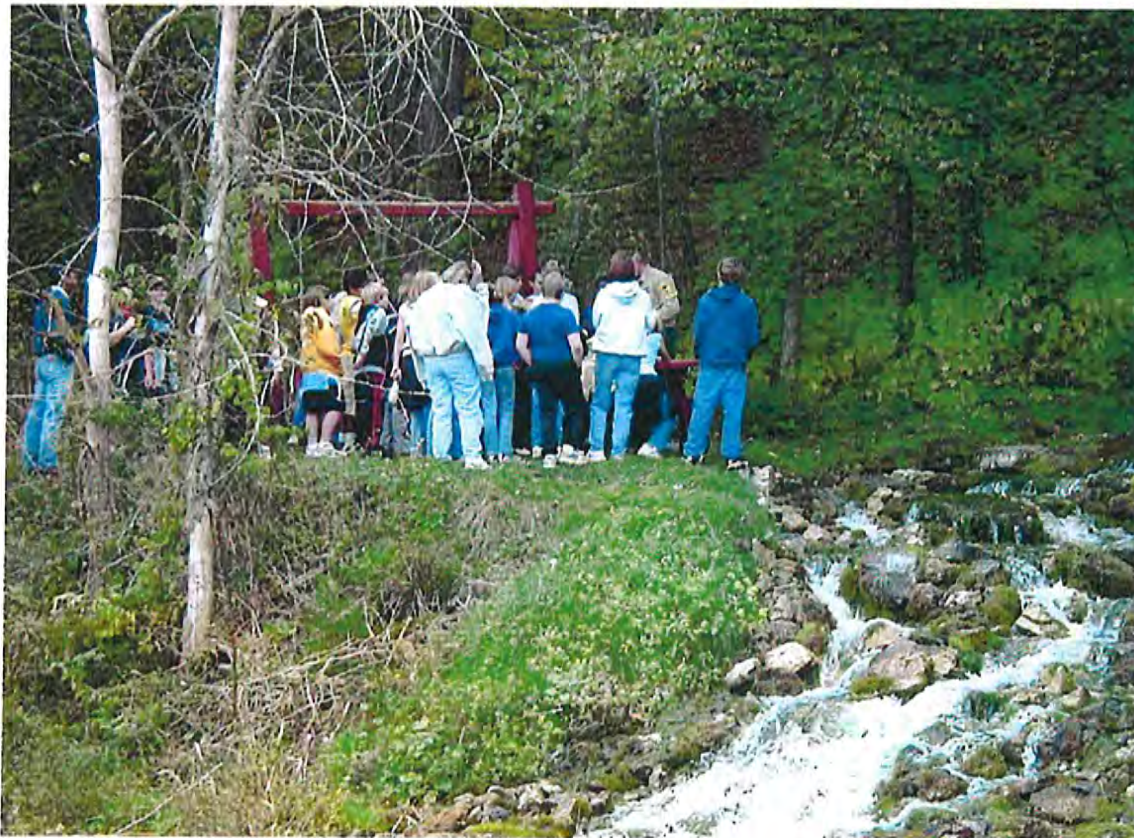
#### **Issue 4: Education and Awareness of Resources and Sensitivity**

Education and awareness of our water resources continue to be a cornerstone of Houston County's Water Plan. Maintaining an ongoing effort to inform the public of resource needs, resource impairments and resources protection measures has been identified as the most important tool in addressing water resource concerns.

Climate change, and its negative effects on water resources is becoming more and more apparent in recent years, with larger more intense storm events causing more cases of severe flooding, runoff, and erosion throughout Minnesota. This makes soil and water conservation work, as well as education, all the more important. Landowners who are more educated about the effects of climate change are more likely to work with SWCDs and establish conservation BMPs, conservation easements, and wetland restoration projects that help counter the effects of climate change.

Recently, state reduction in funding has severely limited the ability to maintain adequate levels of information/education activities.

Alternative methods are continually being sought through other resource partners and private sponsors to meet this need.



*Students Learn About Water Resources*

## **Issue 5: Groundwater Sensitivity in Karst Topography**

Southeast Minnesota is known for its karst landscape. Complex interconnections between surface water and groundwater exist throughout this region of Southeast Minnesota. Sinkholes and fractionized bedrock provide a rapid conduct from surface to ground water. Surface contaminants can move quickly to the upper aquifers. Thin soil layers provide little filtration. This raises the risk of groundwater contamination from chemical spills, manure application, agricultural fertilizers, and septic systems.

Minnesota Geological Survey has developed the first part of a Geologic Atlas for Houston County. This part describes the surface and bedrock geology including data-base information, bedrock topography, and depth-to-bedrock and structural tops of bedrock strata. Minnesota DNR is working on the second part that will describe the hydrogeology and provide maps including the sensitivity of groundwater to pollution. The Geologic Atlas will assist in improving our understanding of the sensitivity of groundwater to pollution.

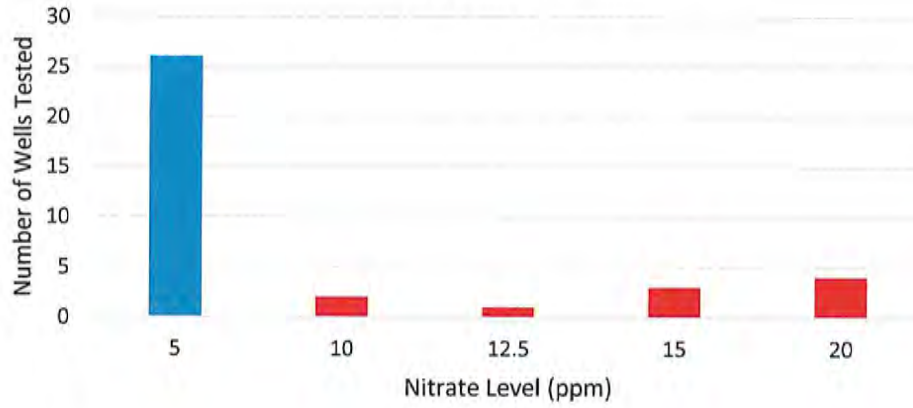
The City of La Crescent is the only community public water supply in the Upper Mississippi/LaCrescent watershed within Houston County. La Crescent has developed a wellhead protection plan under the Minnesota Department of Health Source Water Protection program. The County and Root River SWCD will cooperate with La Crescent and municipalities in implementing their plan, and help with any groundwater protection work within LaCrescent's Drinking Water Supply Management Areas. The technical aspect of this work may include sealing open sinkholes and unused wells within the DWSMAs, for they could potentially serve as direct conduits to groundwater. This work could also include promoting the proper disposal of hazardous household wastes in the LaCrescent area.

In the county as a whole there has been limited monitoring of private wells indicating scattered incidences of high nitrates, primarily in cases of improperly cased and generated wells. Levels of nitrates above the drinking water standard of 10 mg/L are a hazard to human health. Nitrates above this level can cause the potentially fatal "blue baby syndrome" in infants who consume this water, and at higher levels it is considered a carcinogen. Further sampling and analysis is needed for an accurate assessment of this complex issue.

To further investigate groundwater quality of private wells, we will encourage participation in the Volunteer Nitrate Well Monitoring Program, through the Southeast Minnesota Water Resources Board. This will give us a clearer picture of what is happening to our groundwater, and what we need to do to protect it.

## Results of Houston County Volunteer Well Monitoring Network

2008-2012



## **Goals and Objectives**

### **GOAL #1 – Protect ground water in order to maintain an adequate supply of safe drinking water for current and future generations.**

- A. Provide technical and financial assistance to land users to properly manage and utilize agricultural nutrients.
- B. Address non-conforming Individual Sewage Treatment Systems (ISTS).
- C. Assist private well owners with testing and well management.
- D. Support community public water suppliers in implementing their wellhead protection plans.

### **GOAL #2 – Improve surface water quality in rivers and streams in the watershed.**

- A. Explore opportunities to install living cover on agricultural cropland.
- B. Provide incentives to adopt conservation practices which will offset the effects of current cropping trends and land use on run off and erosion in the watershed.
- C. Work to establish and implement the new Buffer Law.
- D. Provide technical and financial assistance on feedlots.
- E. Work to reduce suspended sediments in streams by increasing living cover on upland contribution areas and by implementing streambank stabilization practices.

### **GOAL #3 – Manage storm water runoff to minimize risk to human life, property and the environment.**

- A. Explore opportunities to reduce peak flow from rural and urban residential development.
- B. Explore solutions to flooding concerns throughout the Upper Mississippi/LaCrescent watershed along with utilizing upstream jurisdiction and other partners.
- C. Provide administrative and technical assistance to address issues related to existing wetlands within the watershed.
- D. Keep up to date with new technology in the fields of engineering, modeling, surveying, and design.

**GOAL #4 – Optimize recreational uses of water resources.**

- A. Maintain recreation access to water resources.
- B. Strive to keep the surface water quality of Pine Creek and its tributaries below the standards set by the MPCA, so that freshwater habitats are kept safe and ideal for fish, wildlife, and people.
- C. Participate in public outreach and education.

**GOAL #5 – Review of local and regional plans and ordinances for compliance/compatibility.**

- A. Administer all provisions of Houston County Water Plan.

# Implementation Schedule

GOAL #1 – Protect ground water in order to maintain an adequate supply of safe drinking water for current and future generations						
Issues/Objectives	Actions/Brief Description	Lead Agency(ies)	Est. Cost In-kind/Cash	Timeline	Accomplishments to Date	
A. Provide technical and financial assistance to land users to properly manage and utilize agriculture nutrients	1. Provide technical assistance on ag waste management on 1 per year.	SWCD/TSA	5,000/yr	2017 – 2022	2015 – 35 Level III and 2 waste storage facilities constructed in Houston County.	
	2. Establish demonstration plot exploring manure application rate and nitrogen/phosphorus rates.	UME	500/yr	2017-2022		
	3. Manure Application Field Day, educating the public on the importance of nutrient management, and teaching them how to calibrate a manure spreader. Goal of hosting one more in the next five years.	SWCD – UME	0	1,000	2017-2022	One was held in 2016 on Bob Scanlan's farm.
	4. Work with MDH staff to analyze available water quality data to determine areas to target nutrient management activities. May also work with DNR and MGS to use their Geologic Atlas maps to further identify sensitive areas in the county.	MDH/SWCD	1000/yr	0	2019	\$50/hr x 20 hrs
	5. Work with landowners in the Upper Mississippi-LaCrescent watershed to create one nutrient management plan in the next five years.	NRCS/SWCD	\$2,850/plan	0	2017-2022	



## Implementation Schedule

<b>B. Address non-conforming Individual Sewage Treatment Systems (ISTS)</b>	1. Update 2-3 non-conforming ISTS/year.	Zoning	10,000/yr	9,000/yr	2017-2022	
	2. Inspect all new & upgraded ISTS.	Zoning	10,000/yr	9,000/yr	2017-2022	
	3. Administer Ag BMP loan program, which can provide financial assistance for upgrading non-conforming ISTS.	Zoning	3,000/yr	0	2017-2022	
	4. Track all new & upgraded ISTS annually.	Zoning	1,000/yr	2,000/yr	2013/Ongoing	
	5. Promote education and outreach to homeowners on proper SSTS maintenance and availability of financial assistance.	Zoning	0	0	2017-2022	
<b>C. Assist private well owners with testing and well management.</b>	1. Offer free infant well tests to 5 families/year.	Public Health	500/yr	500/yr	2017-2022	
	2. Offer well water testing kit at low cost to 100 landowners per year.	SWCD	300/yr	300/yr	2017-2022	
	3. Participate in the Volunteer Nitrate Monitoring Network program through the Southeast MN Water Resources Board.	SWCD/SEMN WRB	0	1,000/yr	2017-2022	
	4. Provide annual free nitrate testing to 10 residents within the Upper Mississippi – LaCrescent watershed.	SWCD	500/yr	500/yr	2017-2022	
	5. Prepare two news articles annually on well testing.	SWCD	500/yr	500/yr	2017-2022	
	6. Prepare posters on prenatal and infant care & place where appropriate.	Public Health	300	300	2017-2022	

## Implementation Schedule

	<p>7. Provide private well owners with MDH brochure. "Owner's Guide to Wells"</p>	MDH	0	0	2017-2022	
<p><b>D. Support community public water suppliers in implementing their wellhead protection plans</b></p>	<p>1. Provide financial incentives for sealing unused unsealed wells with priority given to those wells in LaCrescent's Drinking Water Supply Management Areas. With a goal of one well sealed there in the next five years.</p> <p>2. Promote proper disposal of hazardous household wastes, old pesticides, and livestock carcasses.</p>	Zoning, SWCD	1,000/yr	10,000/yr	2017-2022	2015 – Two were funded
		Zoning/SWCD	500/yr	500/yr	2017-2022	

# Implementation Schedule

## GOAL #2 – Improve surface water quality in rivers and streams in the watershed

Issues/Objectives	Actions/Brief Description	Lead Agency(ies)	Est. Cost In-kind/Cash	Timeline	Accomplishments to Date
<b>A. Install living cover and/or perennial vegetation in high risk areas</b>	1. Promote programs such as CRP, RIM, and CREP which offer incentives to establish/maintain perennial vegetation, with a goal of establishing 10 acres of perennial vegetation in the Upper Mississippi – LaCrescent watershed annually in targeted high risk areas.	UME/SWCD/N RCS	1,000/yr 5,000/yr	2017-2022	
	2. Information/education campaign on importance of hay land for erosion control and runoff reduction, mostly through face-to-face interactions with landowners and news articles.	UME/HC/SWCD	500/yr	500/yr	2017-2022
<b>B. Provide incentives to adopt conservation practices which will offset the effects of current cropping trends and land use on runoff and erosion in the watershed</b>	3. Assist with implementation/administration of programs that support/promote animal agriculture.	UME/SWCD	0	2017-2022	2015 – September Tour
	1. Establish a cover crop cost-share program through State Cost-Share. It is on a first come, first serve basis, with enough funds to establish 280 acres of cover crops. With a goal of 30 of these acres being established in the Upper Mississippi – LaCrescent	SWCD	2,000/yr	5,000/yr	2017-2022

# Implementation Schedule

	watershed. Target high risk areas/vulnerable areas.	SWCD/NRCS	2,500/yr	5,000/yr	2017-2022	
	2. Continue technical assistance to the NRCS through contribution agreements and other related programs to install a goal of 3-5 approved EQIP conservation practices each year within the Upper Mississippi - LaCrescent watershed.	SWCD/NRCS	2,500/yr	5,000/yr	2017-2022	
	3. Seek federal, state and local grants including but not limited to Emergency Defense Fund (EDF) and Clean Water Fund (CWF) to provide cost share and technical assistance to landowners for conservation practice implementation within the Upper Mississippi – LaCrescent watershed. With a goal to install 15 practices here in the next five years.	SWCD	500/yr	500/yr	2017-2022	
	4. Conduct one annual meeting with county commissioners to discuss funding mechanisms for BMP installation.	SWCD	500/yr	500/yr	2017-2022	
	5. Contact ARS (Agriculture Research Station) to obtain cover crop data information for Houston County landowners and conduct one landowner workshop.	UME/SWCD/BWSR/NRCS	500	500	2017-2022	

# Implementation Schedule

	<p>6. Provide outreach to landowners/landlords throughout the county through news articles on the importance of conservation planning and installation of recommended practices. Goal of 15 articles per year.</p>	SWCD	1,500/yr	500/yr	2017-2022	
	<p>7. Provide technical assistance and cost-share to 2 private forest landowners using various programs (CRP, EQIP, State) for forest stewardship activities that reduce runoff, improve wildlife habitat and maintain, expand and improve perennial cover.</p>	DNR Forestry/FSA/ NRCS/BWSR/ SWCD	1,000	125,000/yr	2017-2022	
	<p>8. Continue prioritization and promotion of BMPs using LIDAR and the Stream Power Index (SPI) as a way to target sensitive landscape features that contribute a disproportionate amount of sediment and nutrients.</p>	SWCD	1,000/yr	0	2017-2022	
	<p>9. Promote and assist with the MN Ag Water Quality Certification Program. With a goal of getting 3-5 farmers certified in the Upper Mississippi – LaCrescent watershed by 2022.</p>	SWCD	0	2,500/yr	2017-2022	
<p><b>C. Work to establish and implement the MN Buffer Law.</b></p>	<p>1. Provide technical assistance to landowners to help them become compliant with the Buffer Law by November 2017. As of June</p>	SWCD	0	15,000/yr	2017-2022	Grant = \$20,000

## Implementation Schedule

	<p>2017, there are about 300 out of 1500 parcels that are non-compliant or need to be field checked.</p>						
	<p>2. Work to educate landowners about the Buffer Law Requirement through face-to-face interactions, news articles, and meetings.</p>	SWCD	0	5,000	2017-2018	Grant = \$20,000	
	<p>3. Establish which waters in the county that will be included under the "Other Waters" section of the Buffer Law.</p>	SWCD	0	1,500	Completed 2017		
	<p>4. Use this "Other Waters" list to target areas in which to establish buffers, using existing programs and funding sources.</p>	SWCD	0	0	2017-2022		
<p><b>D. Provide technical and financial assistance on feedlots</b></p>	<p>1. Provide planning and financial assistance for low-cost feedlot fixes on one lot per year.</p>	Zoning/SWCD	10,000/yr 5,000 yr	30,000/yr	2017-2022	2015 – Gerard, Mark	
	<p>2. Provide technical assistance to Houston County to conduct inspections and provide maintenance recommendations on 0.5% of open lot agreements (OLA program) per year.</p>	SWCD	15,000/yr	15,000/yr	2017-2022	2015 - 35	
	<p>3. Promote residue management on 50 acres of highly erodible land annually.</p>	SWCD	1,000/yr	1,000/yr	2017-2022		
	<p>4. Plan and implement grazing plans on 25 acres of sensitive areas annually.</p>	SWCD/NRCS	300/yr	1,000/yr	2017-2022		

## Implementation Schedule

<p><b>E. Work to reduce suspended sediments in streams by implementing streambank stabilization practices.</b></p>	<p>5. Prepare and submit an annual news article on information and opportunities for non-traditional livestock operations and agricultural operations that support the use of perennial vegetation.</p> <p>6. Provide most updated information and material related to non-traditional livestock operation and provide guidance and contacts to interested residents.</p>	<p>UME/SWCD</p>	<p>100/yr</p>	<p>100/yr</p>	<p>2017-2022</p>	
<p>1. Work with partnering organizations to implement the Cedar Tree Revegetation Program, and treat 0.25 miles of streambank annually within the county. Encourage this type of work to be done in the Upper Mississippi – LaCrescent watershed, investigate suitable project sites, and provide technical assistance there when needed.</p>	<p>1. Work with partnering organizations to implement the Cedar Tree Revegetation Program, and treat 0.25 miles of streambank annually within the county. Encourage this type of work to be done in the Upper Mississippi – LaCrescent watershed, investigate suitable project sites, and provide technical assistance there when needed.</p>	<p>CCM/WVSU/SWCD</p>	<p>0</p>	<p>10,000</p>	<p>2017-2022</p>	<p>1.5 miles of streambank treated with Cedar Tree Revegetation work in Riceford Creek since 2014</p>

# Implementation Schedule

<b>GOAL #3 – Manage storm water runoff to minimize risk to human life, property and the environment</b>						
<b>Issues/Objectives</b>	<b>Actions/Brief Description</b>	<b>Lead Agency(ies)</b>	<b>Est. Cost</b>		<b>Timeline</b>	<b>Accomplishments to Date</b>
			<b>In-kind/Cash</b>			
<b>A. Explore opportunities to reduce peak flow from rural and urban residential development</b>	1. Provide home site evaluations on average of 1 rural building site per year.	Zoning/SWCD	5,000/yr	500/yr	2017-2022	2015 – 16
			1,000/yr	0	2017-2022	One installed at new Caledonia High School.
<b>B. Explore solutions to flooding concerns throughout the Upper Mississippi/LaCrescent watershed, along with utilizing upstream jurisdiction and other partners</b>	1. Provide financial incentives to establish one push-up pond annually.	SWCD	5,000/yr	5,000/yr	2017 – 2022	
<b>C. Provide administrative and technical assistance to address issues related to existing wetlands within the watershed.</b>	2. Develop program providing storm water retention through road culvert/or ditch size reduction on one township or county road annually. 3. Work with engineering partners to establish 1 flood control structure/year.	SWCD/HC DOT	1,000/yr	1,000/yr	2017 - 2022	Talk with Brian
					2017-2022	
			12,000/yr	12,000/yr	2017-2022	
<b>D. Keep up to date with new technology in the fields of</b>	1. Provide funding and in-kind contributions for	SWCD/NRCS/ BWSR/DNR/D	1,000/yr	20,000/yr	2017-2022	



## Implementation Schedule

<p><b>engineering, modeling, surveying, and design.</b></p>	<p>improved technology using LiDAR, stream monitoring projects, computer models, and computer design software in an effort to model water movement, identify potential water storage areas, and identify pollutant source areas.</p>	<p>OT/Houston County/MPCA</p>			
	<p>2. Discuss and prepare staff training needs for both technical and administrative employees.</p>	<p>SWCD</p>	<p>500/yr</p>	<p>500/yr</p>	<p>2017-2022</p>

# Implementation Schedule

## GOAL #4 – Optimize recreational uses of water resources

Issues/Objectives	Actions/Brief Description	Lead Agency(ies)	Est. Cost		Timeline	Accomplishments to Date
			In-kind/Cash			
A. Maintain recreation access to water resources.	1. Maintain and/or create signage at boat landings and trout easements.	SWCD/DNR	0	1,000/yr	2017-2022	
	2. Monitor local streams for AIS, including terrestrial, emergent, and submerged invasive weeds.	SWCD	0	20,000/yr	2017-2022	
	3. Provide access information on Houston County Hwy. maps.	Houston County DOT	1,000/yr	0	2017-2022	
B. Strive to keep the surface water quality of Pine Creek and its tributaries below the standards set by the MPCA, so that freshwater habitats are kept safe and ideal for fish, wildlife, and people.	1. Participate in the MPCA's Surface Water Assessment Grant, and any other surface water monitoring programs they may have available.	SWCD/MPCA	0	20,000/yr	2017-2022	Used ½ of what SWCD (2 yr) grant was
	2. Work with partnering agencies in the development of the WRAPS for the Upper Mississippi – LaCrescent Watershed.	MPCA/SWCD	2,000/yr	0	2017-2018	
	3. Use SWAG data, and other sources of data to target Pine Creek and its watershed for more BMPs.	SWCD	300/yr	0	2017-2022	
C. Participate in public outreach and education.	1. Educate citizens about AIS at boat landings, in news articles, at meetings, and with a fair booth.	SWCD	0	20,000/yr	2017-2022	

# Implementation Schedule

GOAL #5 – Review of local and regional plans and ordinances for compliance/compatibility						
Issues/Objectives	Actions/Brief Description	Lead Agency(ies)	Est. Cost In-kind/Cash		Timeline	Accomplishments to Date
<b>A. Administer all provisions of Houston County Water Plan</b>	1. Staff part-time Water Plan Coordinator.	SWCD	6,000/yr	12,000/yr	2017-2022	Used \$15,000 Grant
	2. Work with Olmsted County/SWCD, Wabasha County/SWCD, and Winona County/SWCD on developing a Comprehensive Water Management Plan for the Mississippi River – Winona planning area.	SWCD, County	500/yr	1,500/yr	2017-2022	\$7,000 in-kind from County Levy
	3. Coordinate this Water Plan with the Root River One Watershed One Plan, and any other neighboring local water management plans.	SWCD, County	500/yr	1,500/yr	2017-2022	\$7,000 in-kind from County Levy
	4. Continue participation on SE MN WRB.	SWCD, County	500/yr	5,000/yr	2017-2022	
	5. Review local/regional plans to insure compliance with Water Plan.	SWCD	500/yr	0	2017-2022	

## *Ongoing Practices*

Houston County will continue to work with federal, state, and local partners to address issues related to our priority concerns. Specific ongoing programs include:

- Conservation provision of Federal Farm Bill
- State Cost-Share Program
- MPCA's Impaired Waters Program
- Minnesota's Wetland Conservation Act
- DNR Shoreland Program
- DNR Protected Waters Program
- U.S. Fish and Wildlife – Private Lands Program
- Root River SWCD's Technical Assistance Program
- Minnesota State Revolving Loan Fund
- EPA 319 Funds
- USDA – NRCS Technical Assistance Program
- Hiawatha Valley RC & D
- Houston County EDA
- MN Ag BMP Loan Program
- Houston County Public and Private Schools
- MDH Source Water Protection Program
- MDA Nitrogen Fertilizer Management Plan

## *Appendix*

- Attachment # 1 – Priority Concerns Scoping Document
- Attachment # 2 – Houston County Slopes over 20% by Watershed
- Attachment # 3 – Houston County Feedlots by Watershed
- Attachment # 4 – Houston County FEMA Floodways by Watershed
- Attachment # 5 – MN Buffer Law – Other Waters in Houston County

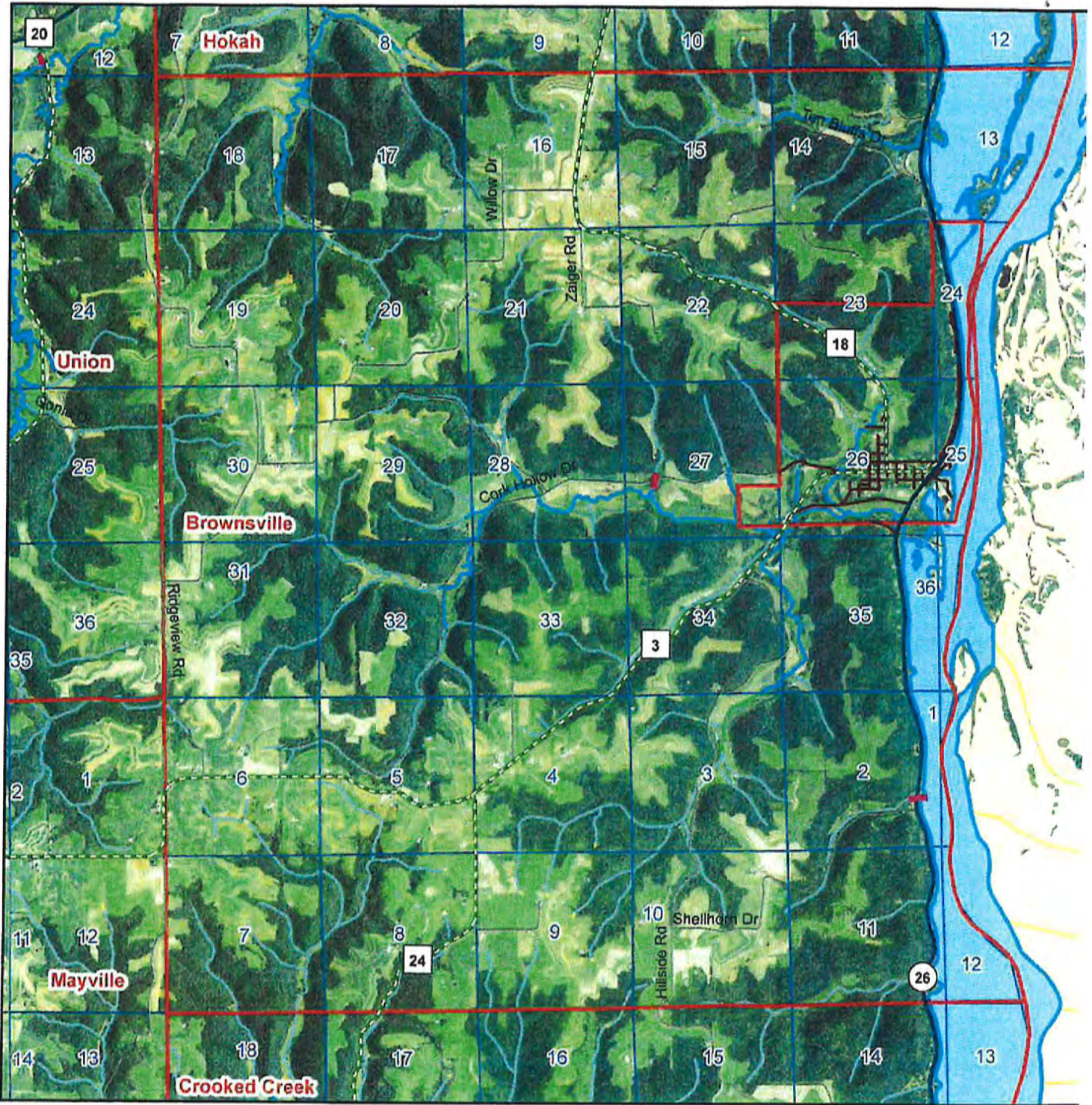
### *Acronym Key*

ARS	=	Agriculture Research Station
BMP	=	Best Management Practices
BWSR	=	Board of Water and Soil Resources
CRP	=	Conservation Reserve Program
DNR	=	Department of Nature Resources
EDF	=	Environmental Defense Fund
EPA	=	Environmental Protection Agency
EQIP	=	Environmental Quality Incentive Program
FEMA	=	Federal Emergency Management Agency
FSA	=	Farm Service Agency
HC	=	Houston County
ISTS	=	Individual Sewage Treatment Systems
JPB	=	Joint Powers Board
MDH	=	Minnesota Department of Health
Mn DOT	=	Minnesota Department of Transportation
MPCA	=	Minnesota Pollution Control Agency
NRCS	=	Natural Resource Conservation Service
RR SWCD	=	Root River Soil & Water Conservation District
SRF	=	State Revolving Fund
SWCA	=	Special Well Construction Area
SWCD	=	Soil & Water Conservation District
TMDL	=	Total Maximum Daily Load
TNC	=	The Nature Conservancy
UME	=	University of Minnesota Extension
USFWS	=	US Fish & Wildlife Service
WCA	=	Wetland Conservation Act




# OTHER WATERS

## Houston County



1:55,744

1 inch equals 4,645 feet

 Feet  
 6800660



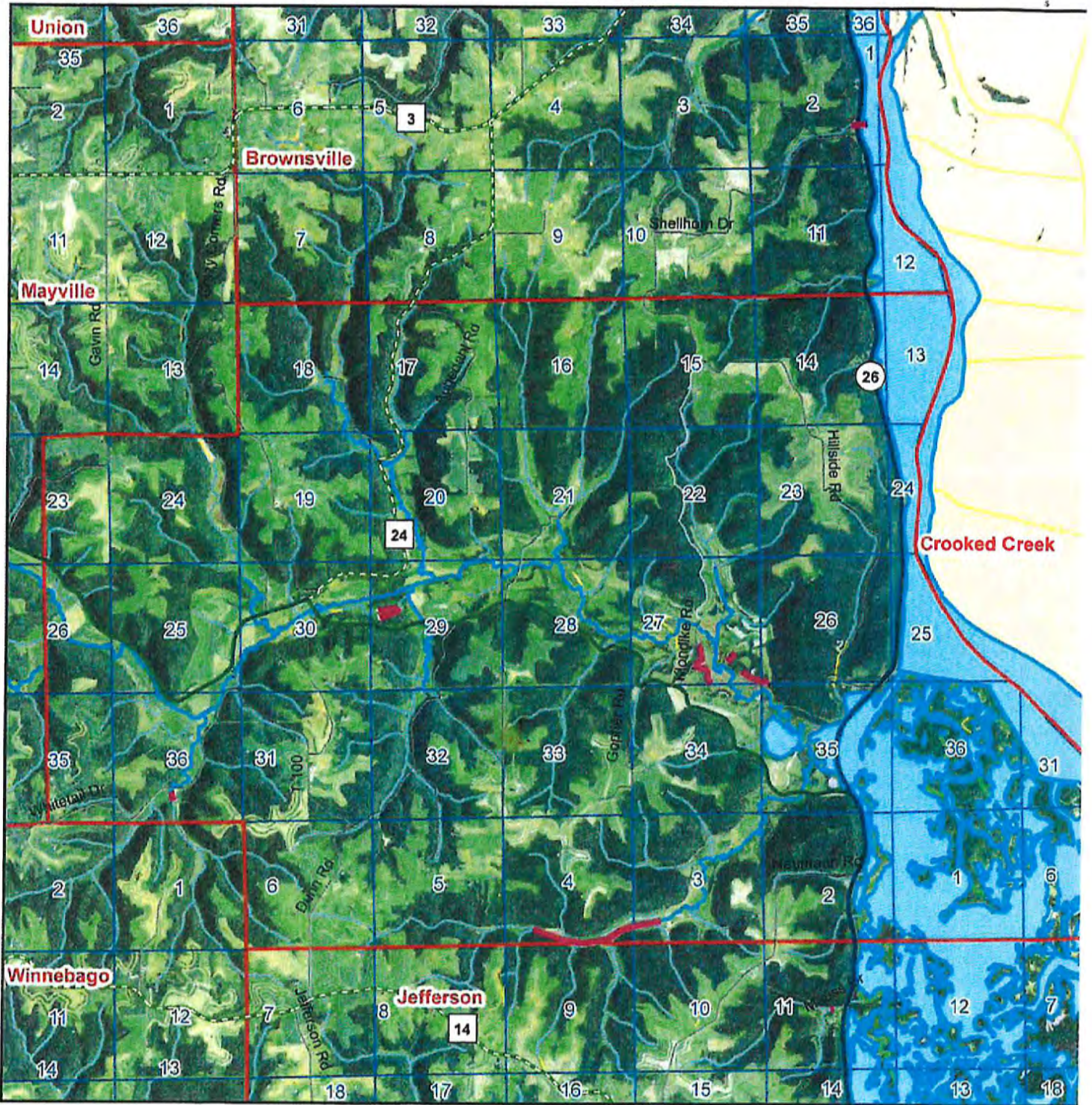
Maps are for graphical purposes only. They do not represent a legal survey.

Date: 3/2/2017



# OTHER WATERS

## Houston County



1:66,892

1 inch equals 5,574 feet

Feet  
6680660



Maps are for graphical purposes only. They do not represent a legal survey.

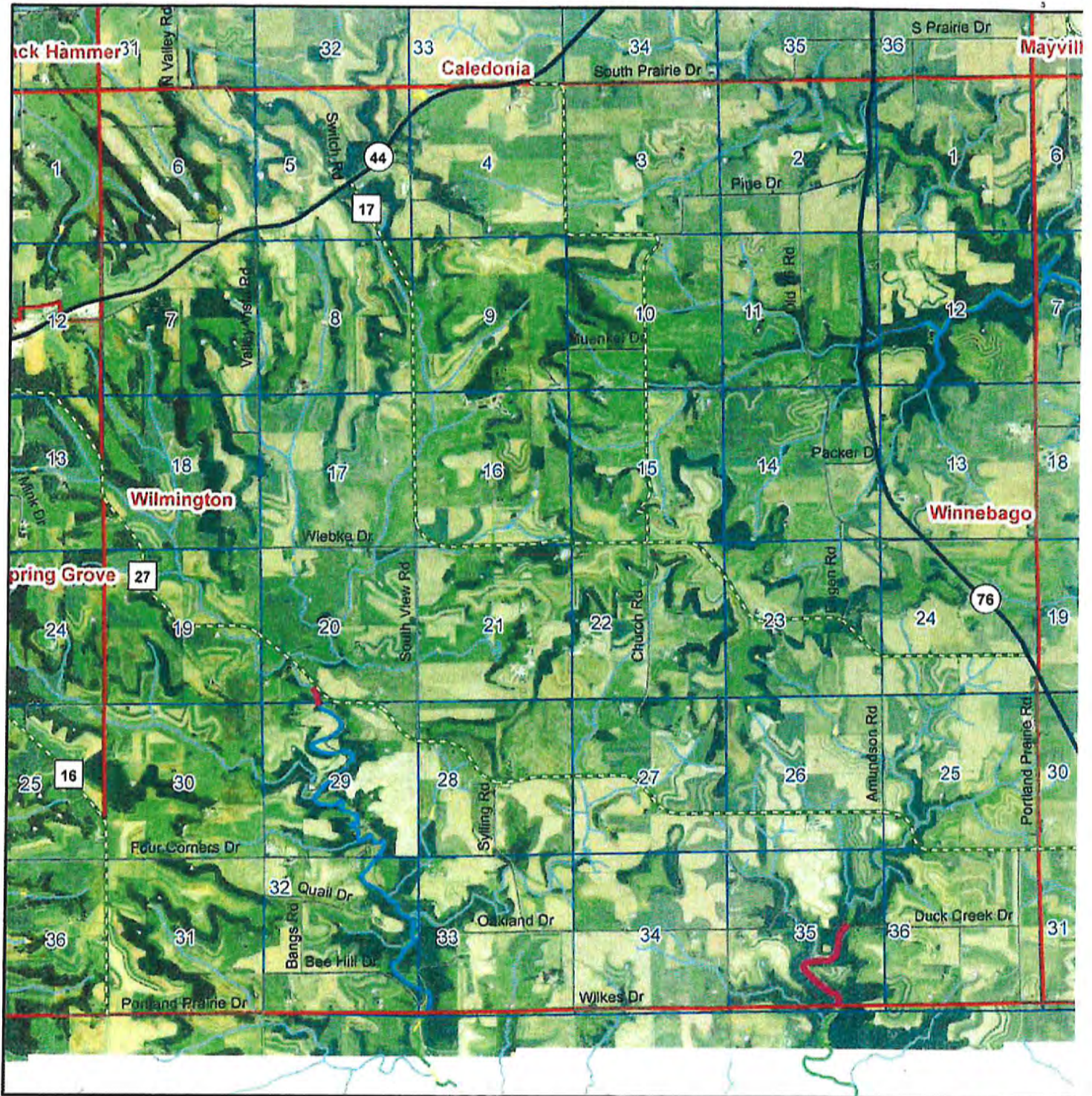
Date: 3/2/2017






# OTHER WATERS

## Houston County



1:55,744

1 inch equals 4,645 feet

 Feet  
 6800660



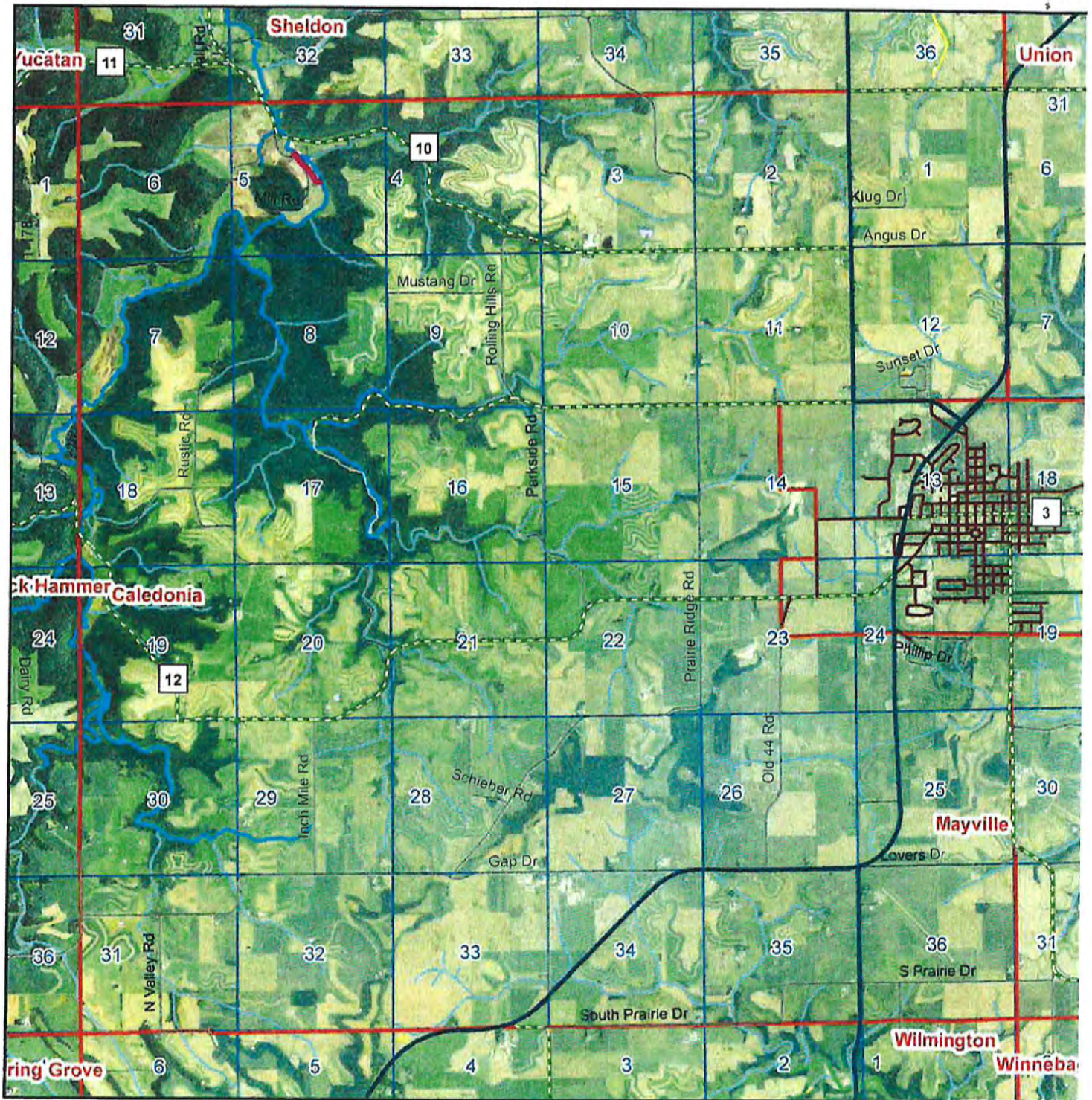
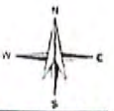
Maps are for graphical purposes only. They do not represent a legal survey.

Date: 3/2/2017




# OTHER WATERS

## Houston County



1:55,744

1 inch equals 4,645 feet

 Feet  
 6800660



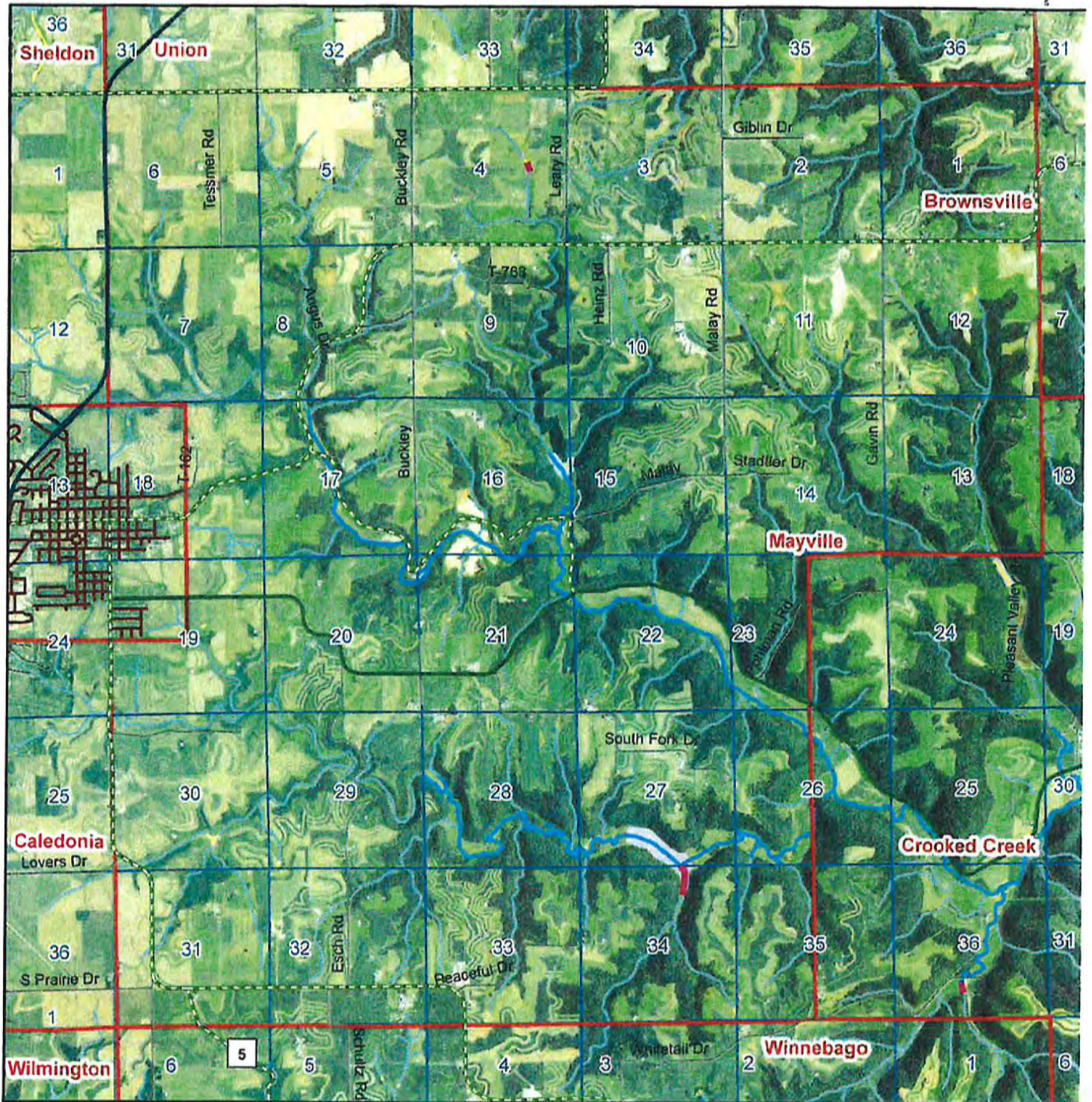
Maps are for graphical purposes only. They do not represent a legal survey.

Date: 3/2/2017



# OTHER WATERS

## Houston County



1:55,744

1 inch equals 4,645 feet

Feet  
6680660



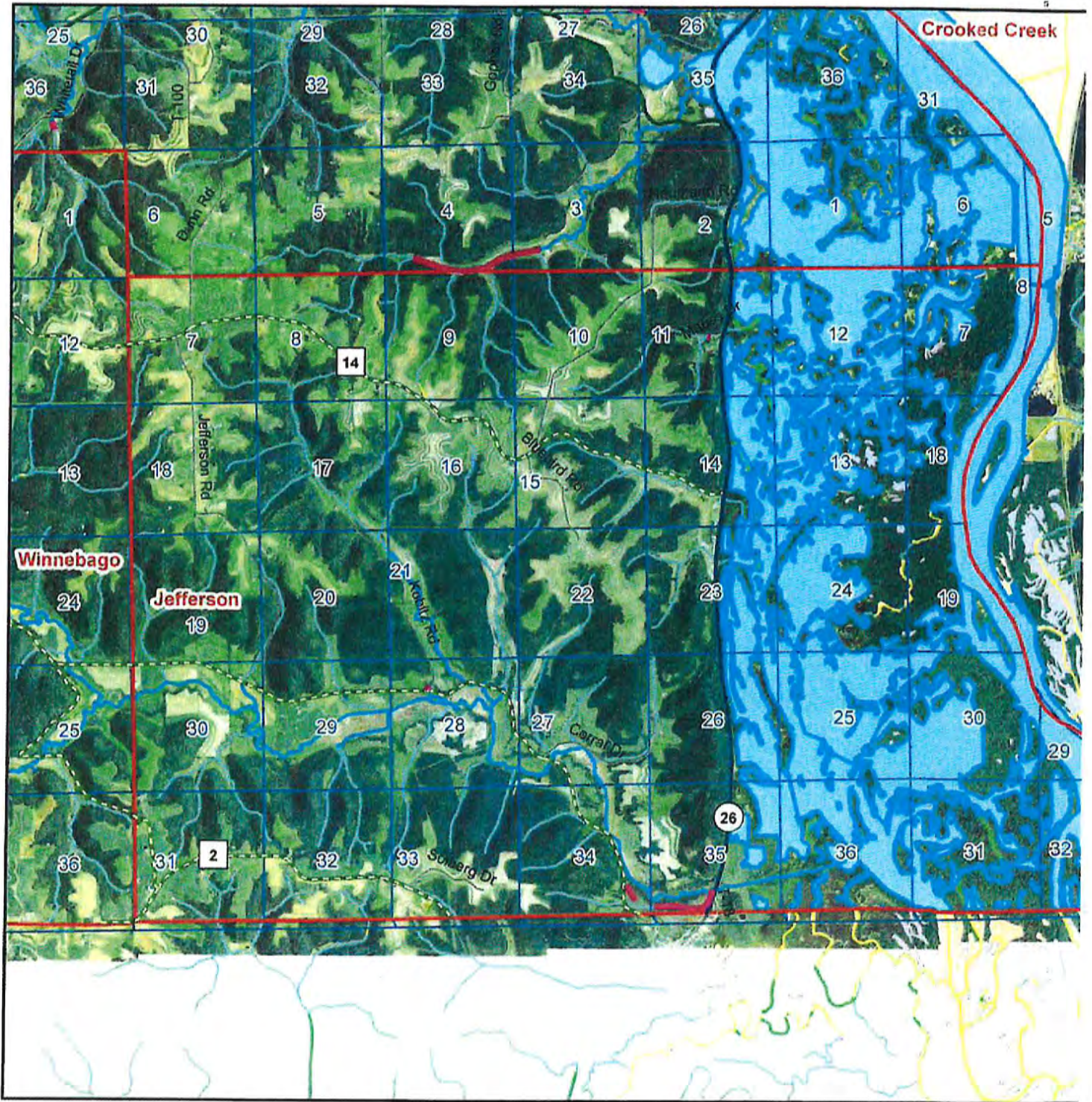
*Maps are for graphical purposes only. They do not represent a legal survey.*

Date: 3/2/2017



# OTHER WATERS

## Houston County



1:66,892

1 inch equals 5,574 feet

Feet  
6680660



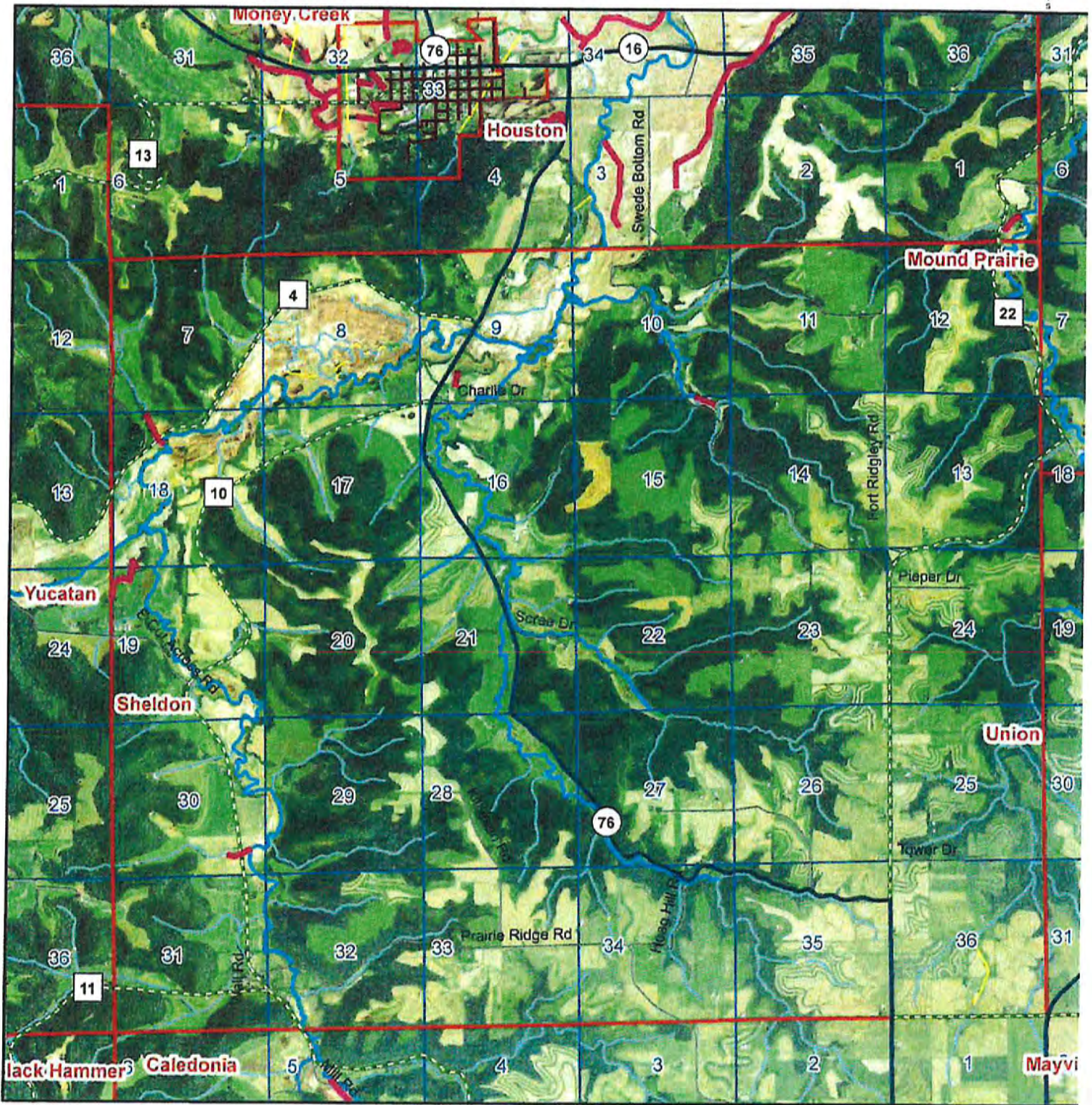
Maps are for graphical purposes only. They do not represent a legal survey.

Date: 3/2/2017



# OTHER WATERS

## Houston County



1:55,744

1 inch equals 4,645 feet

Feet  
6880660



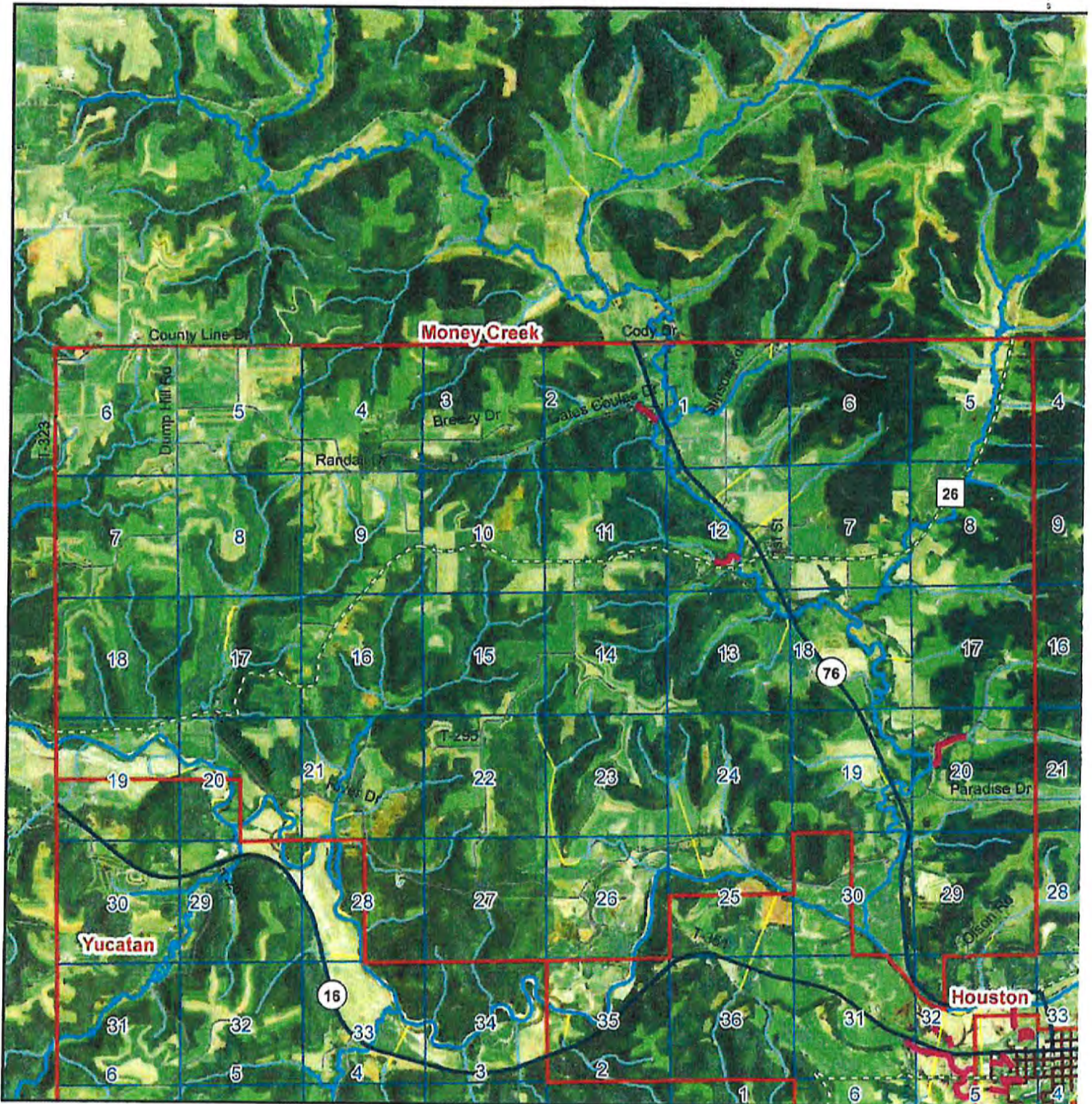
Maps are for graphical purposes only. They do not represent a legal survey.

Date: 3/2/2017



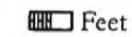
# OTHER WATERS

## Houston County



1:70,638

1 inch equals 5,887 feet

 Feet  
 667060



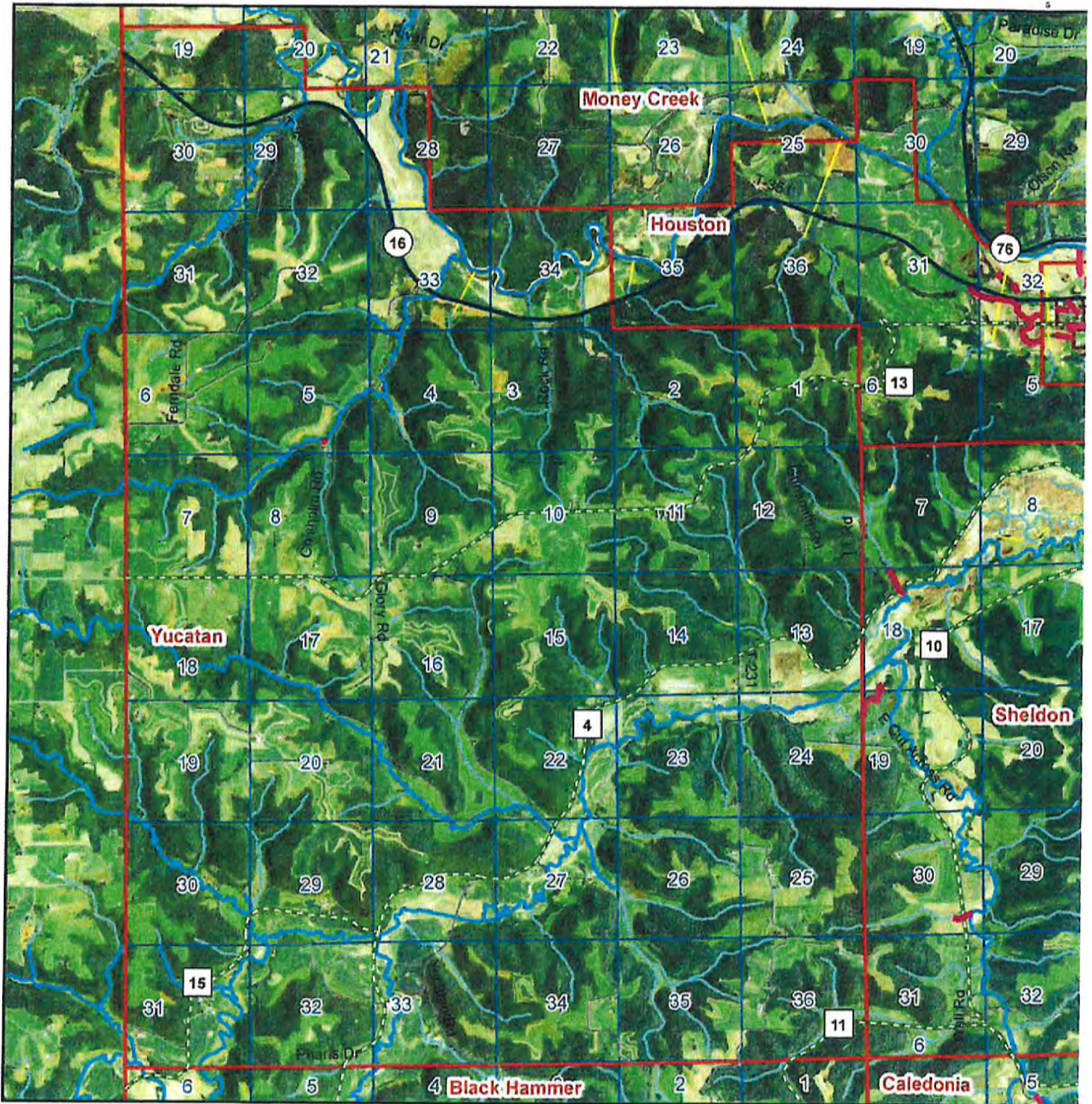
*Maps are for graphical purposes only. They do not represent a legal survey.*

Date: 3/2/2017




# OTHER WATERS

## Houston County



1:70,638

1 inch equals 5,887 feet

 Feet  
 60 00 60



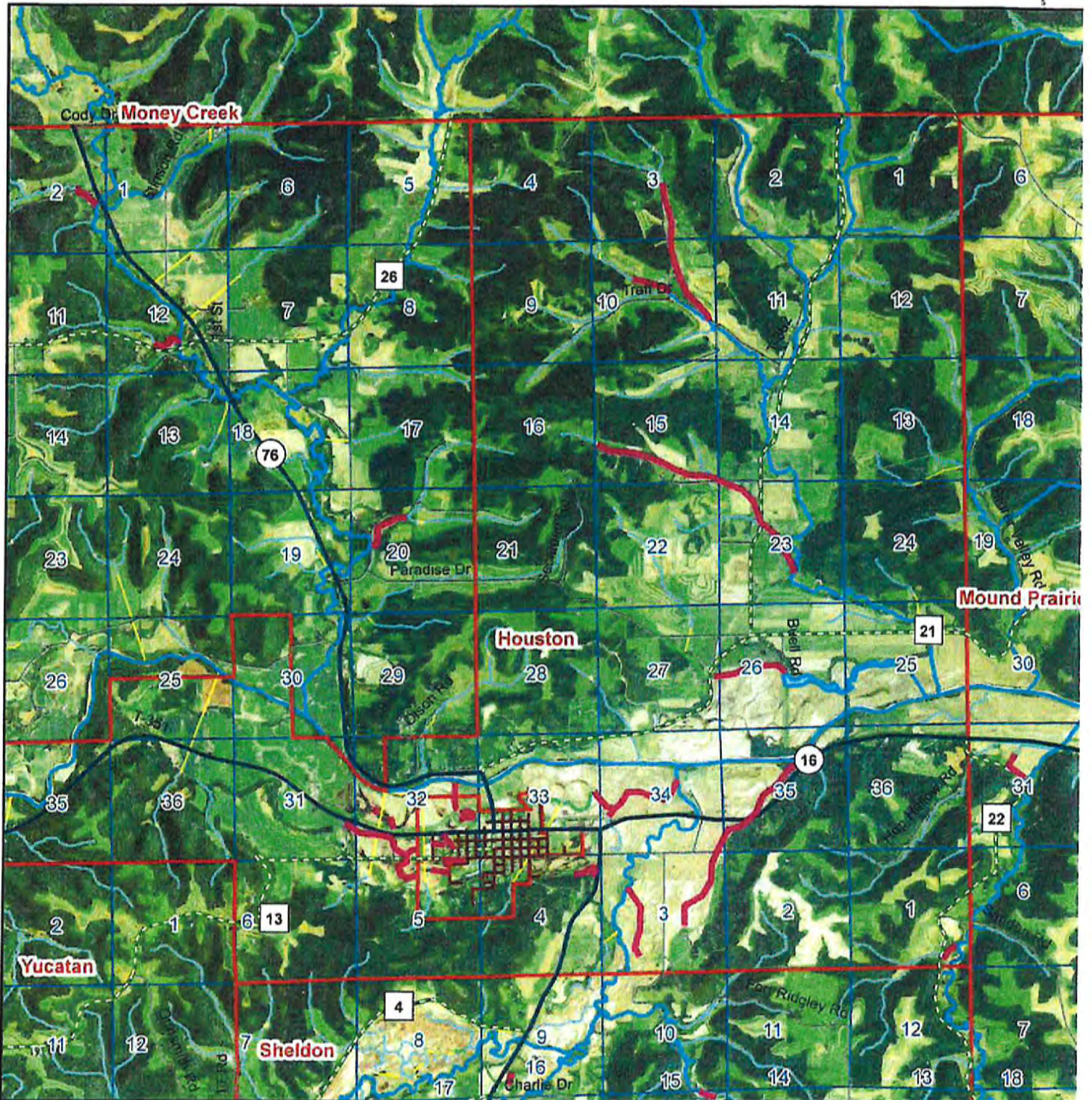
Maps are for graphical purposes only. They do not represent a legal survey.

Date: 3/2/2017



# OTHER WATERS

## Houston County



1:70,638

1 inch equals 5,887 feet

 Feet  
 60 0 60



Maps are for graphical purposes only. They do not represent a legal survey.

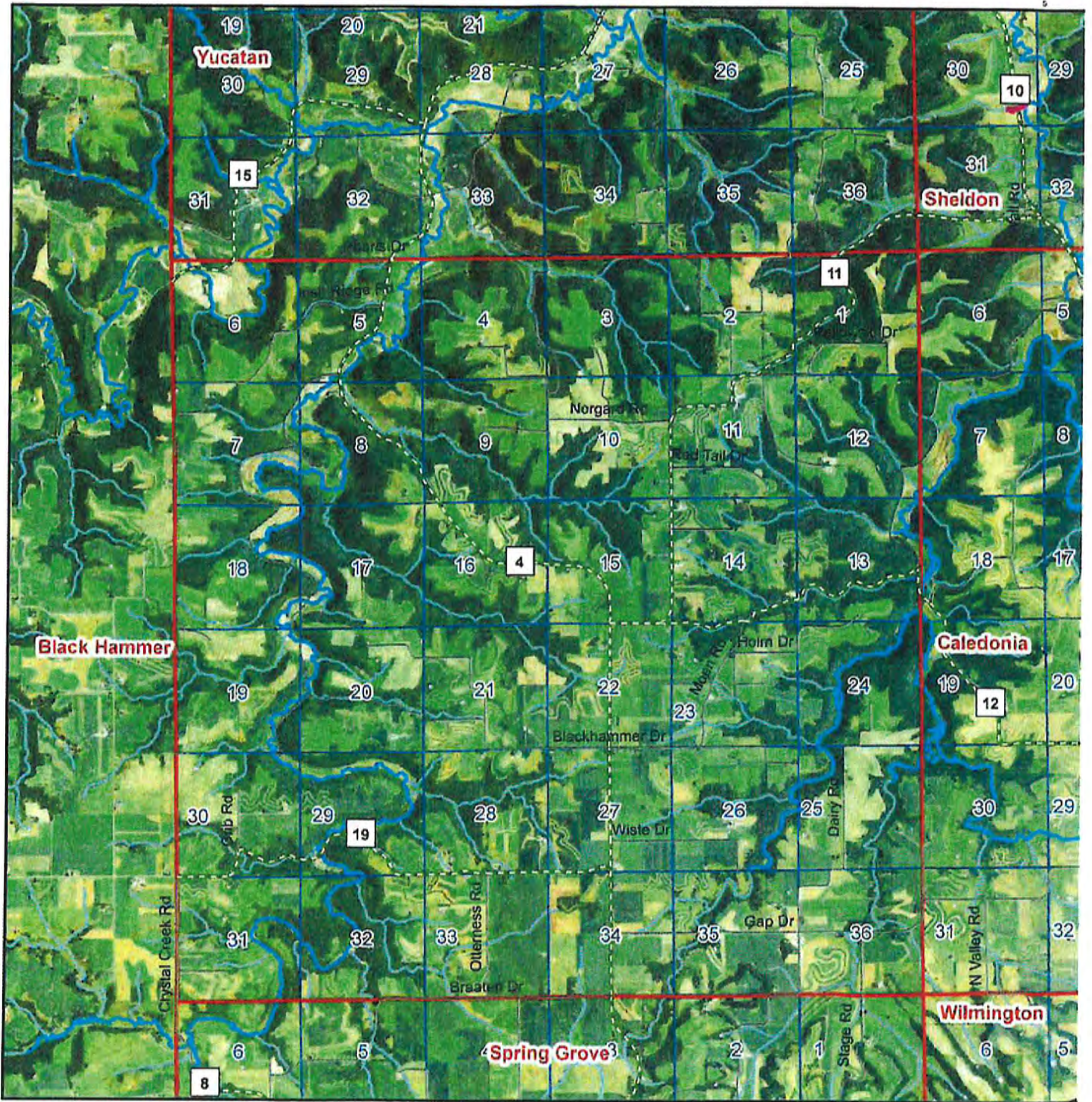
Date: 3/2/2017






# OTHER WATERS

## Houston County



1:69,680

1 inch equals 5,807 feet

 Feet  
 60 0 60



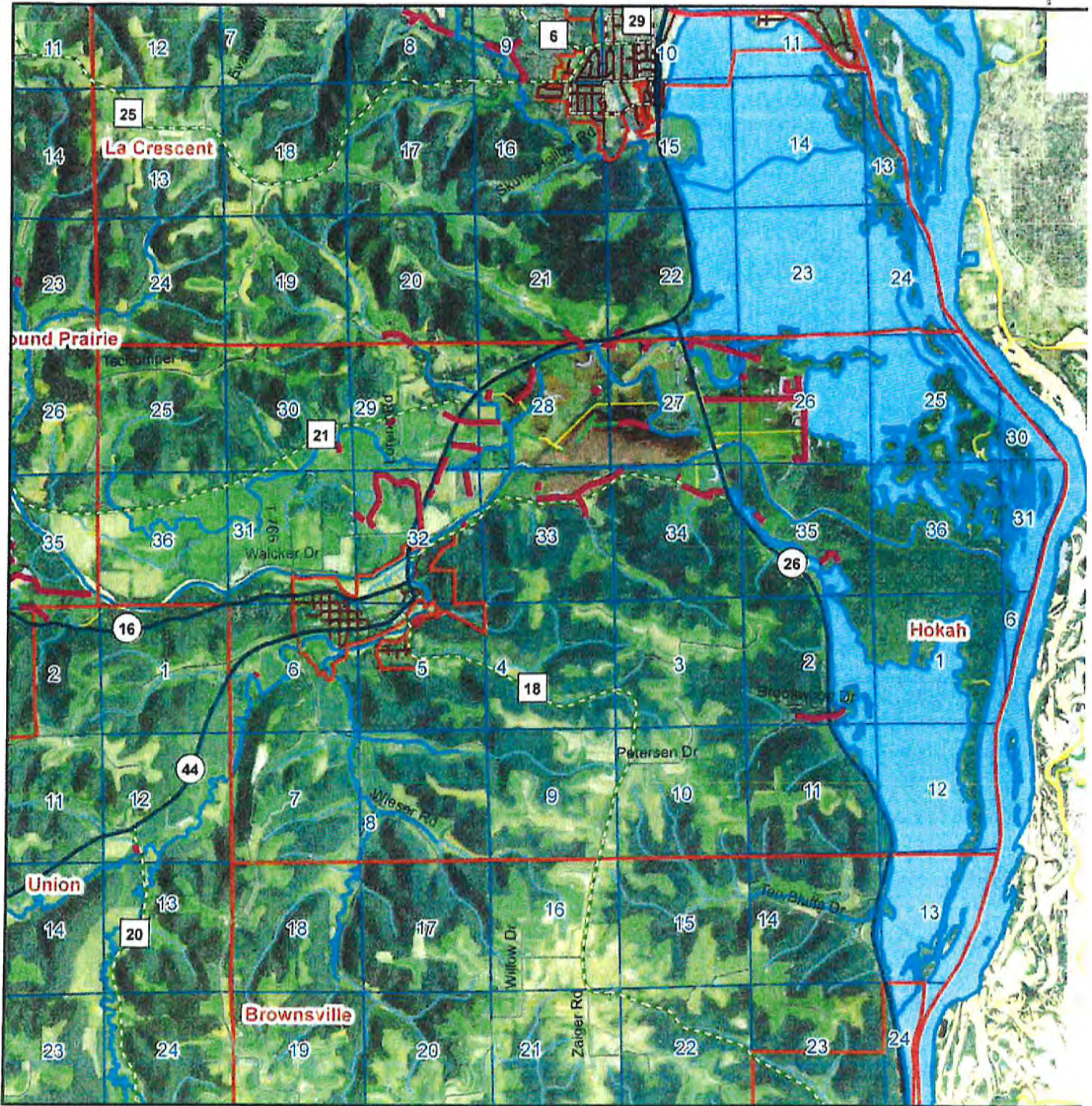
Maps are for graphical purposes only. They do not represent a legal survey.

Date: 3/2/2017



# OTHER WATERS

## Houston County



1:66,892

1 inch equals 5,574 feet

 Feet  
 66892



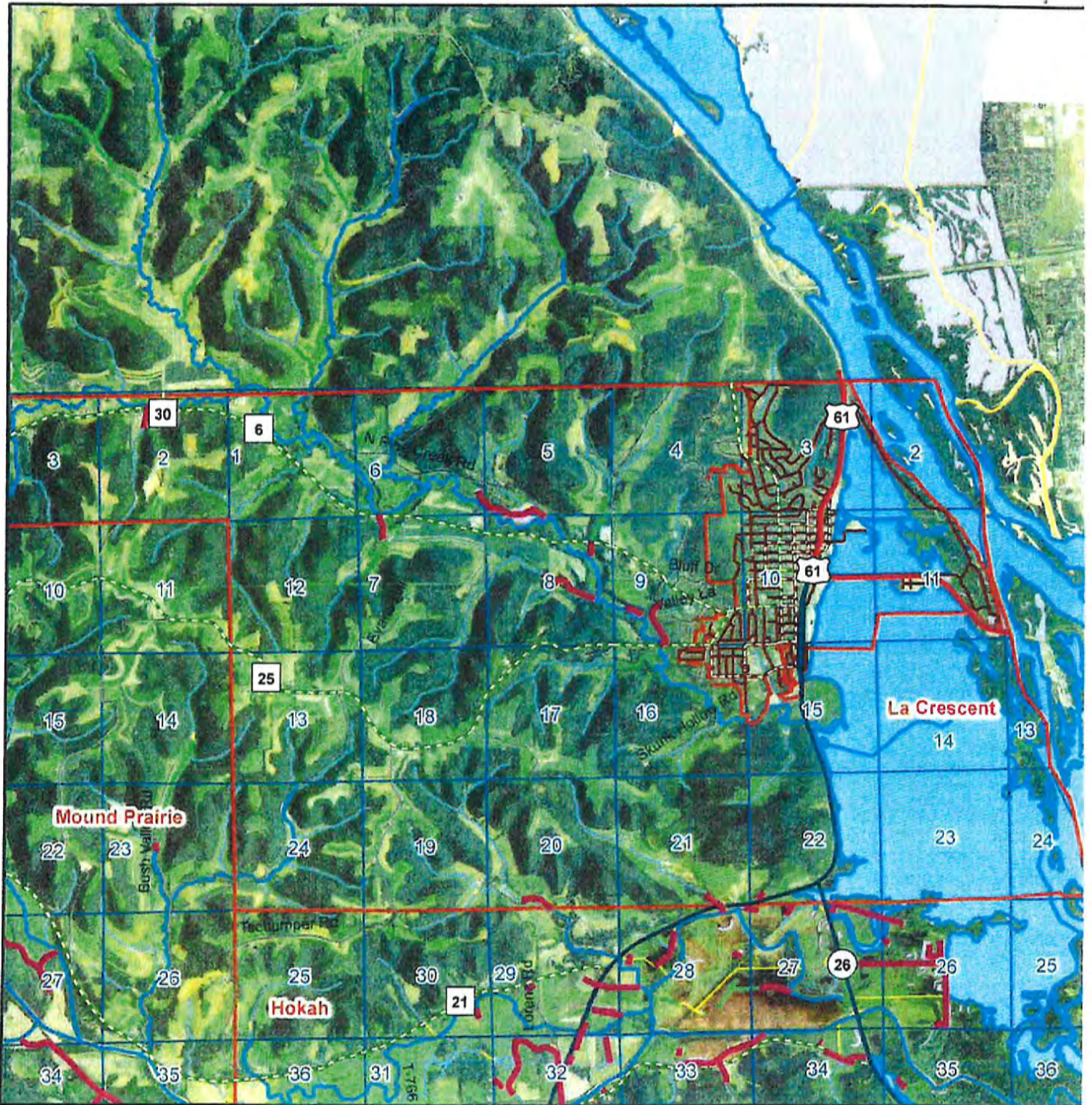
Maps are for graphical purposes only. They do not represent a legal survey.

Date: 3/2/2017




# OTHER WATERS

## Houston County



1:66,892

1 inch equals 5,574 feet

 Feet  
 66892



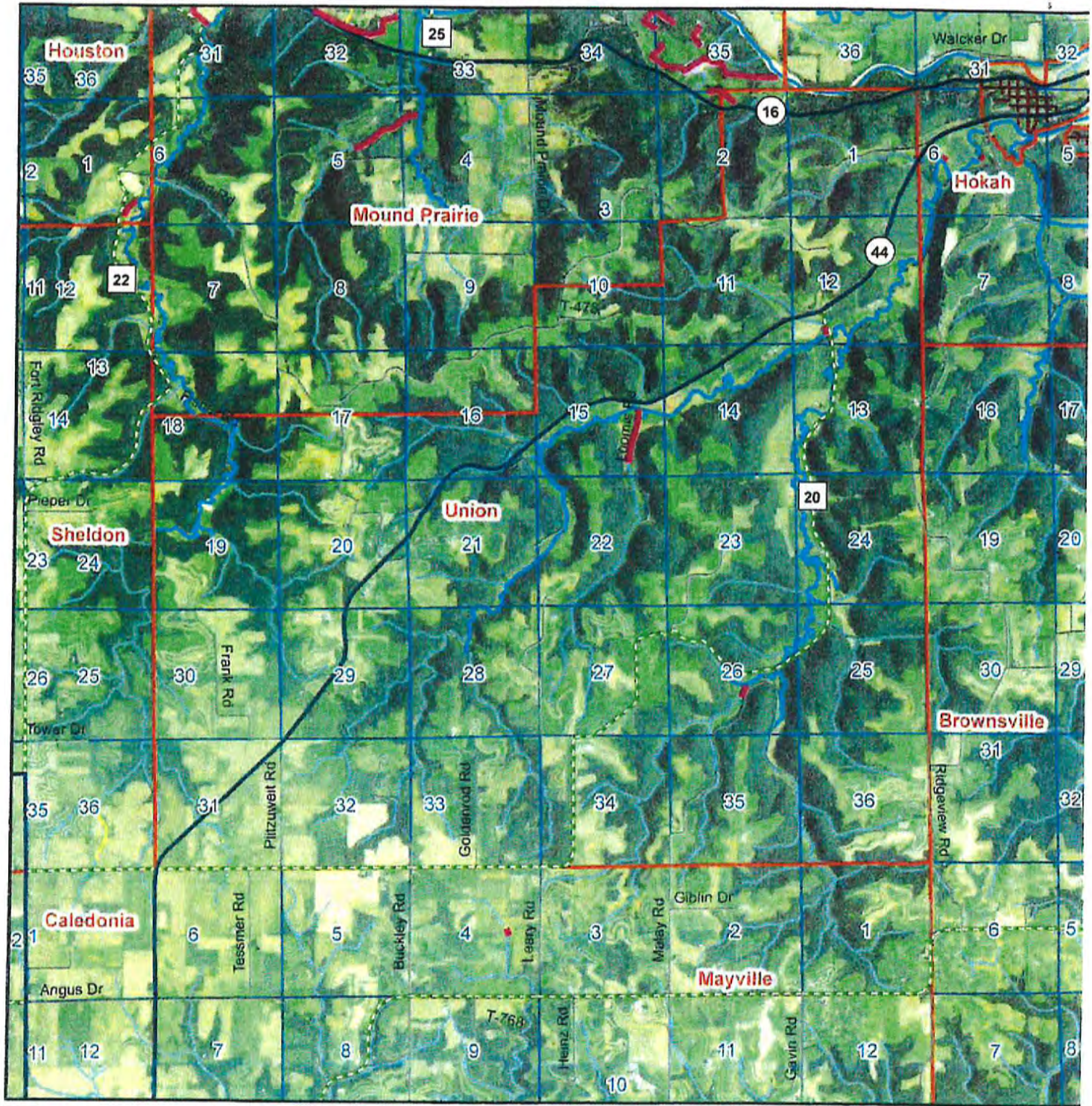
Maps are for graphical purposes only. They do not represent a legal survey.

Date: 3/2/2017




# OTHER WATERS

## Houston County



1:66,892

1 inch equals 5,574 feet

 Feet  
 6680660



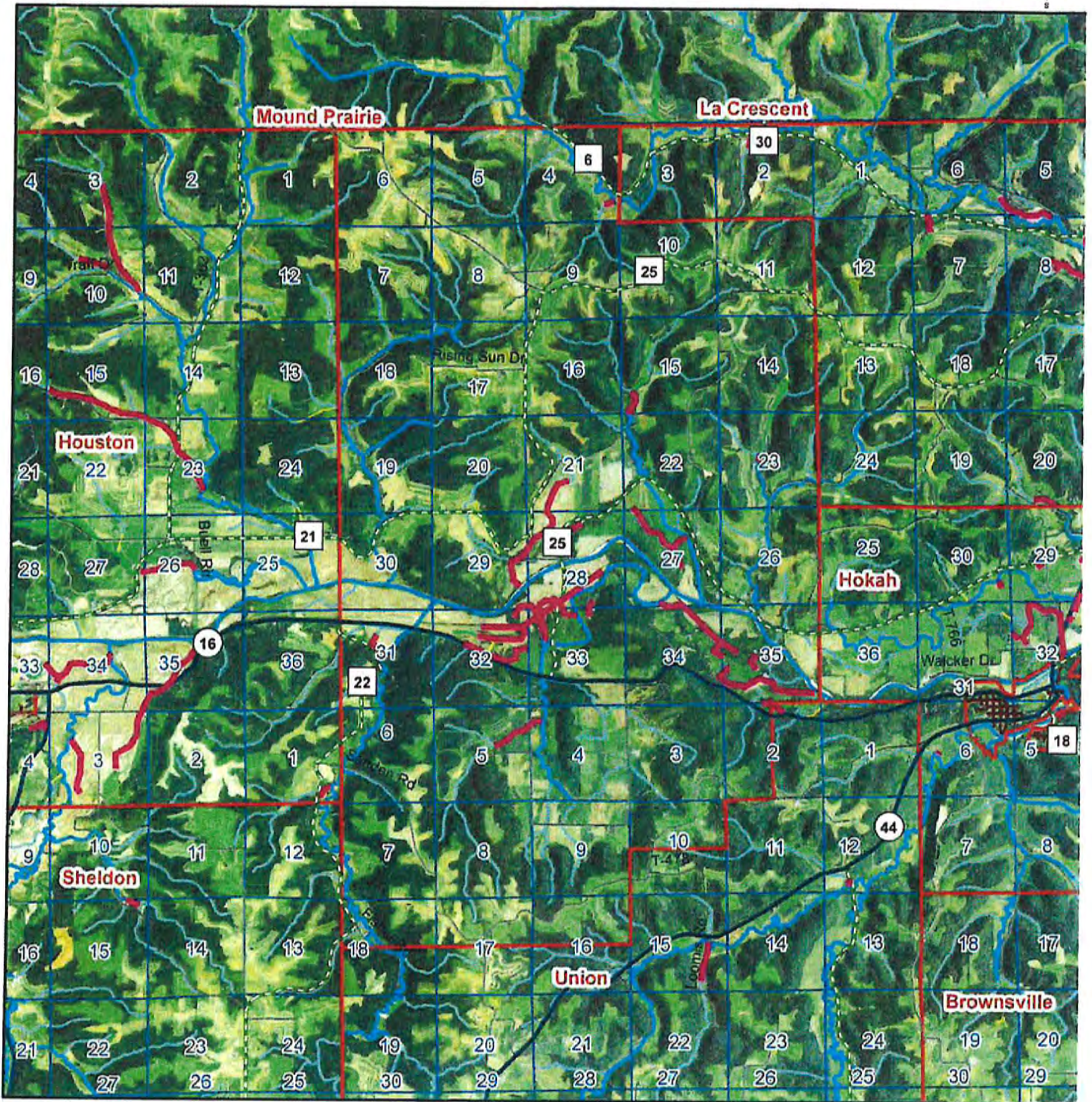
Maps are for graphical purposes only. They do not represent a legal survey.

Date: 3/2/2017



# OTHER WATERS

## Houston County



1:89,190

1 inch equals 7,432 feet

Feet  
 60 0 60



Maps are for graphical purposes only. They do not represent a legal survey.

Date: 3/2/2017

"INTRODUCTION"

Crooked Creek Watershed is located in Houston County, the most southeastern county in Minnesota. The watershed drains a 70 square mile area into the Mississippi River.

The watershed is 13 miles long and four to seven miles wide.

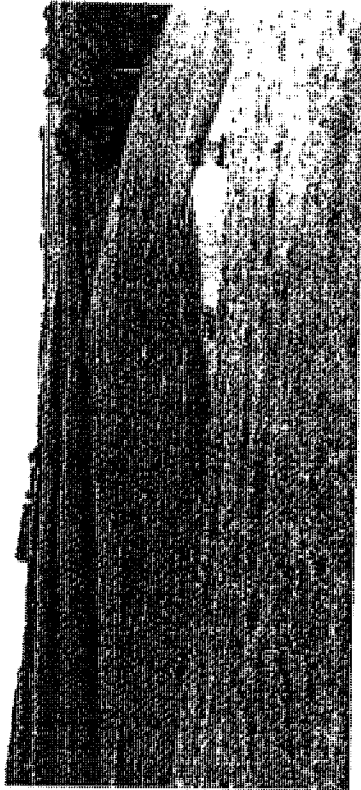
The topography in the watershed is characterized by deeply entrenched narrow stream valleys. The valley walls are very steep, rising 300 to 400 feet above the valley floor. This makes Houston County one of the most scenic areas in the state.

There are 207 farms in the Crooked Creek Watershed averaging 220 acres in size. These farms consist of 23,000 acres of cropland, 9,000 acres of pasture and 11,000 acres of woodland. The farmers living in the watershed have applied 85% of the conservation practices needed for erosion and runoff control on their farms. These conservation practices along with good farm management practices have given the farmers of Houston County the honor of having the highest corn yield in the state, which is 105 bushels per acre.



CONSERVATION WORKING FOR YOU





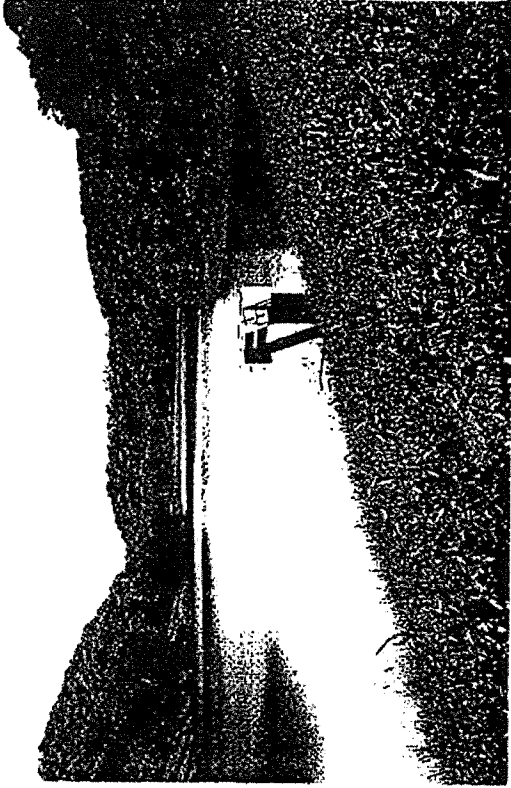
"PL 566 WATERSHED PROMOTES CONSERVATION PRACTICES"

The farmers in this watershed are to be commended for the conservation practices they have applied. The practices in this watershed are a visible sign of their effort to improve the environment.

Some of the major practices are:

- Contour Strip.....8,000 acres
- Contour Farming.....14,000 acres
- Field Terraces.....500,000 feet
- Diversion Terraces.....35,000 feet
- Waterways.....158 acres
- Ponds.....42 ponds
- Grade Stabilization Structures.....34
- Floodwater Retarding Structures.....10
- Wildlife Upland Management.....107 acres
- Tree Planting.....428 acres

This watershed is a good example of local people and government agencies working together.



R-2

This dam is 40 feet high. It took 79,000 cu. yds. of earth to build and it cost about \$100,000. The dam has a drainage area of 2,000 acres. The permanent lake is 8 acres and during flood time increases to 20 acres.

The land around the lake has been purchased by the Minnesota Department of Natural Resources, Division of Lands and Forestry. This area is being used by the public as it is one of the most scenic areas in the state. The Division of Fish and Game has stocked the lake with trout, which provides good fishing.



R-3

This is the largest floodwater dam in the watershed. There are 8,100 acres draining into a permanent lake of 30 acres. This lake will cover 90 acres during flood periods. It took 230,000 cu. yds. of earth to build the dam which is 46 ft. high at an approximate cost of \$340,000.

The lake has been stocked with trout by the Minnesota Department of Natural Resources, Division of Fish and Game. This dam and the others will improve seven miles of Crooked Creek trout habitat by reducing flooding and sedimentation.



R-4

#### FLOODWATER CONTROL DAM

This dam is 46 ft. high and contains 86,200 cu. yds. of earth. The pond for floodwater is 27 acres. The drainage area for this structure is 3.9 sq. miles or 2,700 acres. This dam also reduces flooding and sedimentation down stream.

The cost was approximately \$100,000.

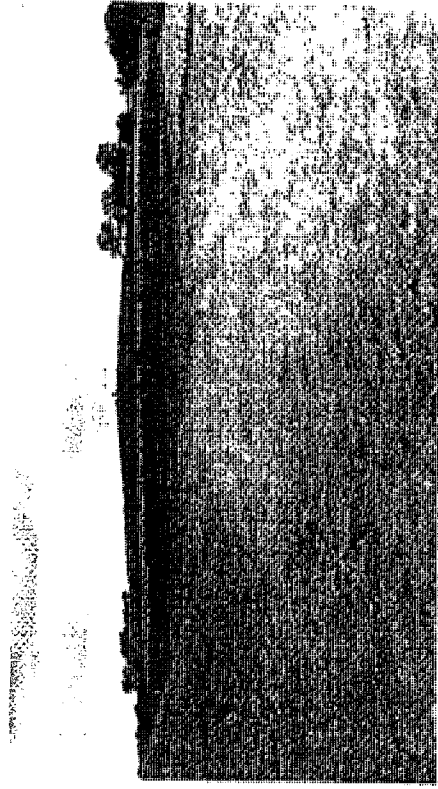




#### R-1 FLOODWATER CONTROL DAM

This dam was constructed 43 feet high to hold back the excess water which the conservation practices in the watershed could not control. It took 48,900 cu. yds. of earth to construct this dam at a cost of approximately \$55,000. The pool behind the dam when filled with water will cover 22 acres of land.

There are 2,100 acres of watershed above the dam. This dam now holds back the excess runoff which in the past has caused severe damage to cropland, pasture, trout streams, roads and bridges down stream.



#### S-2

This is the largest waterway that was installed. It has a 100 foot bottom.

#### OTHER WATERWAY STRUCTURES

There are three grade stabilization structures which have been installed S1A - S1B and S-3 and a waterway above S1A, also some streambank control measures. The trout stream improvement will be done by the Department of Natural Resources with assistance of Public Law 566 funds.

## "SPONSORS"

Sponsors of the Crooked Creek Watershed project were the Root River Soil and Water Conservation District Supervisors and the Houston County Board of Commissioners.

The technical help and cost sharing of the project measures were provided by the U. S. Soil Conservation Service under Public Law 566. Application for help was made by the local people to the State Soil Conservation Committee in 1956. The Crooked Creek Watershed District was established in 1959 for the purpose of constructing and maintaining the project. The Crooked Creek Watershed was authorized for construction March 14, 1961. All the work has been completed except for the trout stream and streambank improvement, which is scheduled to be completed in 1973.

Other government agencies assisting with the development and planning of the Watershed project are: The Forest Service, Agricultural Extension Service, Agricultural Stabilization and Conservation Service and the Minnesota Department of Natural Resources.

# Houston County Local Water Management Plan

## Priority Concerns Scoping Document

March 2005

The priority concerns scoping document for the Houston County Local Water Management Plan was developed in accordance with the changes to the Comprehensive Local Water Management Act; Statutes: 103B.304 – 103B.355. This scoping document lists the priority concerns the Houston County Water Management Task Force has chosen along with a detailed account of how the concerns were identified and selected.

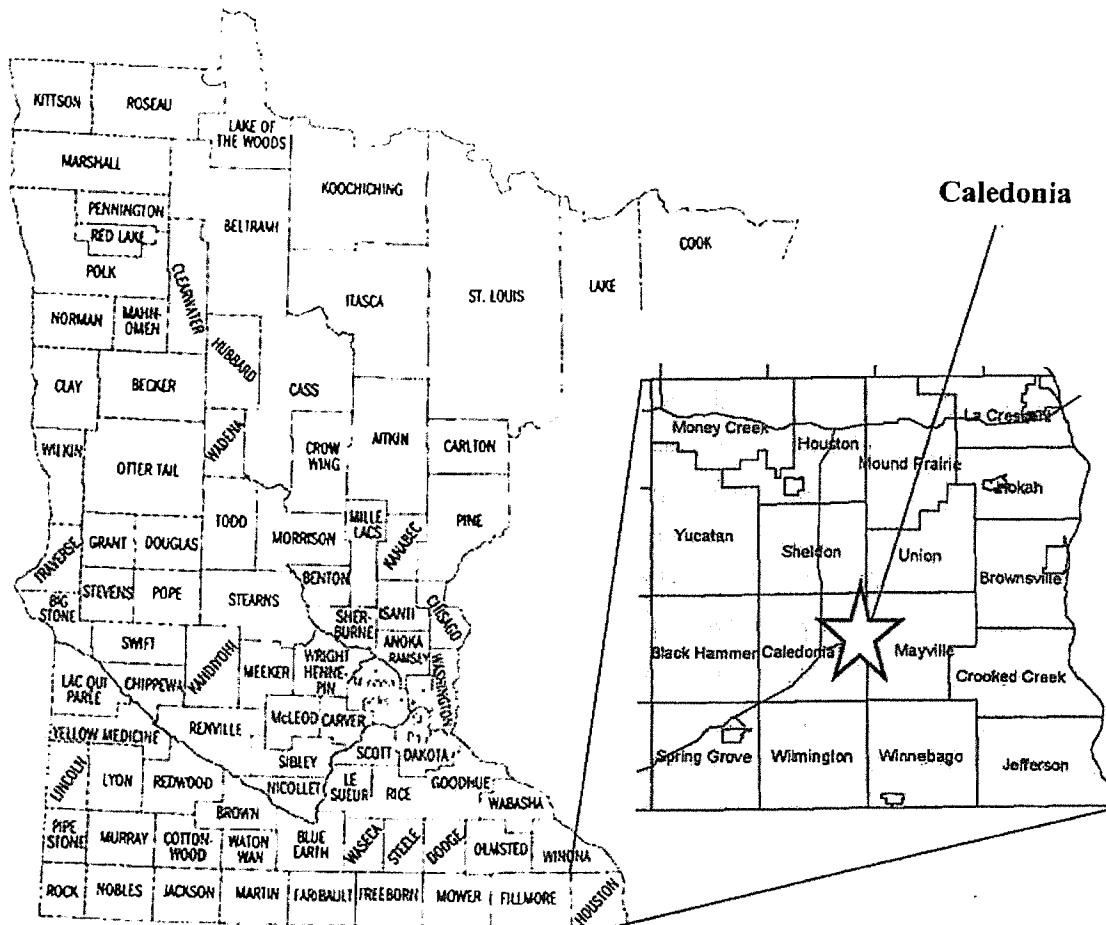
# Table of Contents

<b>Introduction</b>	<b>3</b>
<b>Land Use</b>	<b>3</b>
<b>Climate</b>	<b>3</b>
<b>Local Government Unit</b>	<b>4</b>
<b>Physiography</b>	<b>4</b>
<b>Watersheds</b>	<b>4</b>
<b>Priority Concerns</b>	<b>6</b>
<b>Public Input Sessions for Water Plan Update</b>	<b>6</b>
<b>Issues Identified by Stakeholders</b>	<b>7</b>
<b>Attachment #1</b>	<b>8</b>
<b>List of Participants / Affiliated Organizations</b>	<b>8</b>
<b>Appendix #1</b>	<b>9</b>
<b>List of Local Government and State Agencies Comments</b>	<b>9</b>
<b>I. Environmental Quality Board</b>	<b>9</b>
<b>II. Caledonia Township</b>	<b>9</b>
<b>III. Minnesota Department of Natural Resources</b>	<b>9</b>
<b>IV. Minnesota Department of Agriculture</b>	<b>9</b>
<b>V. Board of Water &amp; Soil Resources</b>	<b>9</b>
<b>VI. Minnesota Pollution Control Agency</b>	<b>9</b>

## Introduction

Houston County is located in the extreme southeastern corner of Minnesota, bordered by the Mississippi River to the East, and the state of Iowa to the South. Fillmore County and Winona County are neighbors to the West and North, respectively.

The population of the county is 19,965<sup>1</sup>. Houston County is experiencing stable to moderate growth.



### **Land Use**

The county is primarily a rural county with a strong agricultural base of dairy, beef, hogs, corn, beans, and alfalfa/grass hayland. A shift in recent years from small family farms to larger livestock and cash grain operations and rural residential and recreational land owners, has led to revisions in land-use ordinances.

### **Climate**

Houston County's average annual precipitation is 34 inches. Approximately 71% or 24" of that precipitation usually falls in April – September. This relatively high precipitation, together with the steep topography, creates a high potential for soil erosion and flash flooding.

<sup>1</sup> Minnesota State Demographic Center, 2003 Population Estimates

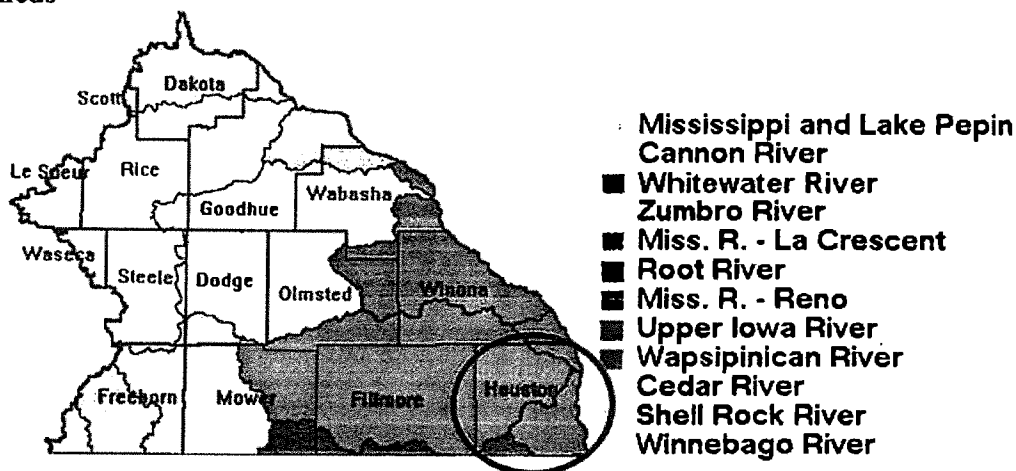
### Local Government Unit

Houston County is responsible for the Local Water Management Plan, implemented through an advisory board appointed by the County Commissioners with administrative assistance provided through the Root River Soil and Water Conservation District. The original plan was adopted on April 11, 1990, and was updated in 1995 and 2000. The current plan will expire on December 13, 2005.

### Physiography

On the western edge of the driftless region of the upper Mississippi Valley, Houston County has the most rugged topography of any county in Southern Minnesota. The steep terrain restricts farming to the narrow ridge tops and broad valleys, separated by slopes of 30 – 70%, reserved primarily for forestland and remnant prairie communities.

### Watersheds



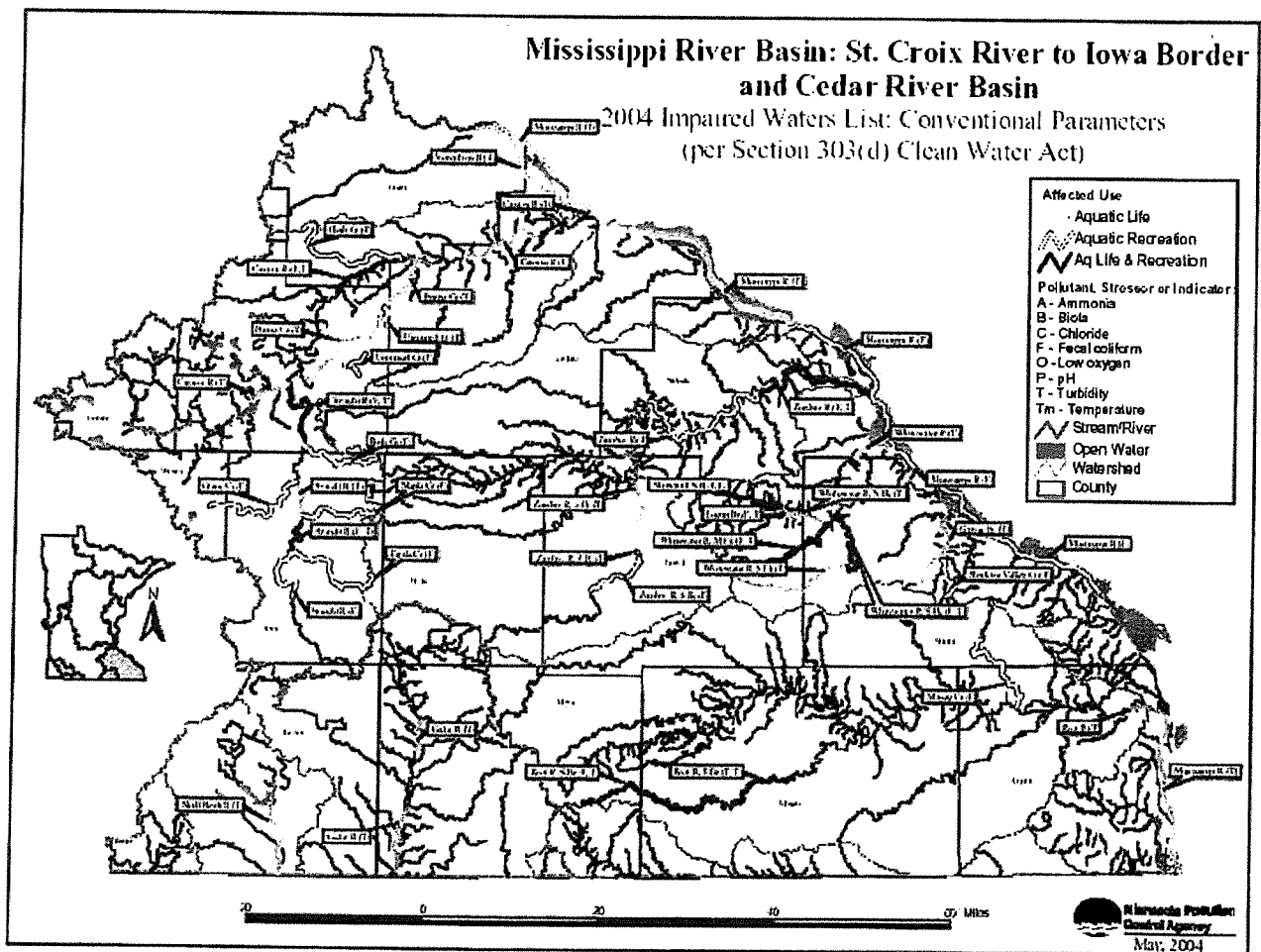
Sixty percent of the county drains to the Root River. This watershed is influenced by runoff from portions of Fillmore, Olmstead, Mower, and Winona Counties. Lower reaches of the Root are listed as impaired waters for turbidity and fecal coliform.

The historic course of the River has been altered through ditching and dikes/levies and the adjacent flood plains developed into primarily agricultural use. The area is prone to frequent flooding do to breaches in the dike, ice dams on bridges, and influx of Mississippi backwaters.

The remainder of the County is divided into 3 watersheds, the upper Iowa, upper Mississippi Reno, and the upper Mississippi La Crescent. The upper Iowa contains sub watersheds of Bear Creek, Bea Creek, and Dorchester Creek in the southwest and south central part of the county. Although located in the upper reaches of the watershed, some areas are subject to flash flooding, particularly in Dorchester, Iowa and portions of the Bear Creek. Bear Creek is currently in the construction phase of a PL-566 flood control project. This watershed has features consistent with the “Decorah Edge” and is also highly prone to sinkholes and other Karst features.

The upper Mississippi - Reno is a very rural watershed, divided into the sub watersheds of the Crooked Creek and the Winnebago Creek. Winnebago Creek experiences frequent flash flooding and high erosion rates. Local attempts to secure funding for flood control have been unsuccessful. Crooked Creek has a Watershed District and several flood control projects were installed in the 1960's. These structures are approaching their design life span. This reach of the Mississippi River is listed as impaired waters.

The upper Mississippi – La Crescent Watershed is a rapidly developing watershed near La Crescent, which is bedroom community for La Crosse, WI. Primary issues include residential development on steep slopes, development pressure on wetlands/surface water resources, and storm water run-off.



## **Priority Concerns**

A series of public input sessions were held, as well as invitations for comment to local units of government, neighboring counties and state agencies in identifying/developing priority issues. The following is a chronology of these events.

September 7, 2004	Resolution by County to update Water Plan
September 15, 2004	Notice to local governments & state agencies
November 4, 2004	Review of comments by Water Plan Committee (see Appendix 1)
December 3, 2004	Reviewed issues with adjacent counties (Winona, & Fillmore)
January 12, 2005	Article in Caledonia Argus inviting comments
January 19 & 26, 2005	Public notice in the Caledonia Argus
January 26 & 31, 2005	3 Public Input Sessions (see attachment 1)
February 3, 2005	Review of comments by Water Plan Committee
February 9, 2005	Article in Caledonia Argus regarding plan update
March 3, 2005	Draft Scoping Document approved by Water Plan Committee

### **Public Input Sessions for Water Plan Update**

Sixteen individuals participated in three public input sessions held regarding the update of Houston County's Comprehensive Water Management Plan. Following a review of Houston County's existing plan, updates were given on progress and past projects by U.S. Fish and Wildlife Service, Houston County Environmental Services, Houston County Feedlot Officer, Root River Soil and Water Conservation District, and Houston County Highway Department.

Participants then discussed future changes to the Water Plan, along with proposed comments from local and state agencies. Few changes were suggested to the current plan. The current plan includes the following 5 main goals: 1) Improve Surface Water Quality in Rivers & Streams in Houston County, 2) Manage Storm Water Runoff to minimize risk to human life, property, and the environment, 3) Protect ground water in order to maintain an adequate supply of safe drinking water for current and future generations, 4) Optimize Recreational Uses of Water Resources, and 5) State mandated additions to Comprehensive Water Plan.

Suggestions were made to consider moving protecting drinking water safety to the number one priority. Another suggestion was made to review the city land use plans to ensure compatibility with the county plan. Stream monitoring was also discussed.



### **Issues Identified by Stakeholders**

Issues identified by the Water Plan Committee as priority concerns in conjunction with public input are:

1. Protect ground water in order to maintain an adequate supply of safe drinking water for current and future generations.
2. Improve surface water quality in rivers and streams in Houston County.
3. Manage storm water runoff to minimize risk to human life, property, and the environment
4. Optimize recreational uses of water resources
5. Review of city & township ordinances for compliance.

While these issues may vary in priority from one watershed to the next, each of these items is considered a high-priority in each watershed.

## **Attachment #1**

### **List of Participants / Affiliated Organizations**

Ralph Tuck	Root River SWCD, District Manager
Ryan Henry	Houston County News
Jan Lee Buxengard	Spring Grove Herald
Jim Nissen	U.S. Fish and Wildlife Service
Vernon Fruechte	Root River SWCD, Supervisor
Ervin Barth	Citizen
Kenneth Meyer	Citizen Advisory Council/Water Plan Committee
Francis Bruening	Citizen Advisory Council/Water Plan Committee
Allen Henke	Houston County Highway Department
Rick Frank	Houston County Environmental Services
Ann Thompson	Houston County Commissioner
Sue Sheehan	Root River SWCD, Secretary
Dave Heiler	Caledonia Argus
Jim Solum	Citizen Advisory Council/Water Plan Committee
Wayne Feldmeier	Citizen Advisory Council/Water Plan Committee

## **Appendix #1**

### **List of Local Government and State Agencies Comments**

#### **I. Environmental Quality Board**

1. Ground Water Contamination Susceptibility  
*(see Issue #1 and Issue #5)*
2. TMDL – Impaired Waters  
*(see Issue #2)*
3. Ground Water Availability  
*(see Issue 1)*
4. MCD Population Extrapolations for Houston County  
*(see Page 3)*

#### **II. Caledonia Township**

1. Formation of Winnebago Watershed  
*(see Issue #3)*

#### **III. Minnesota Department of Natural Resources**

1. Holding Water on the Landscape  
*(see Issue #3)*
2. Groundwater Protection in Karst Areas  
*(see Issue #1)*
3. Mississippi River Floodplain Management  
*(see Issue 3 and Issue 4)*
4. Trout Stream Protection  
*(see Issue 2, 4, and 4)*

#### **IV. Minnesota Department of Agriculture**

1. Soil and Water Conservation Practices and Structures  
*(see Issue 2 and 3)*
2. Manure Management and ISTS  
*(see Issue 1 and 2)*
3. Pesticides  
*(see Issue 1)*

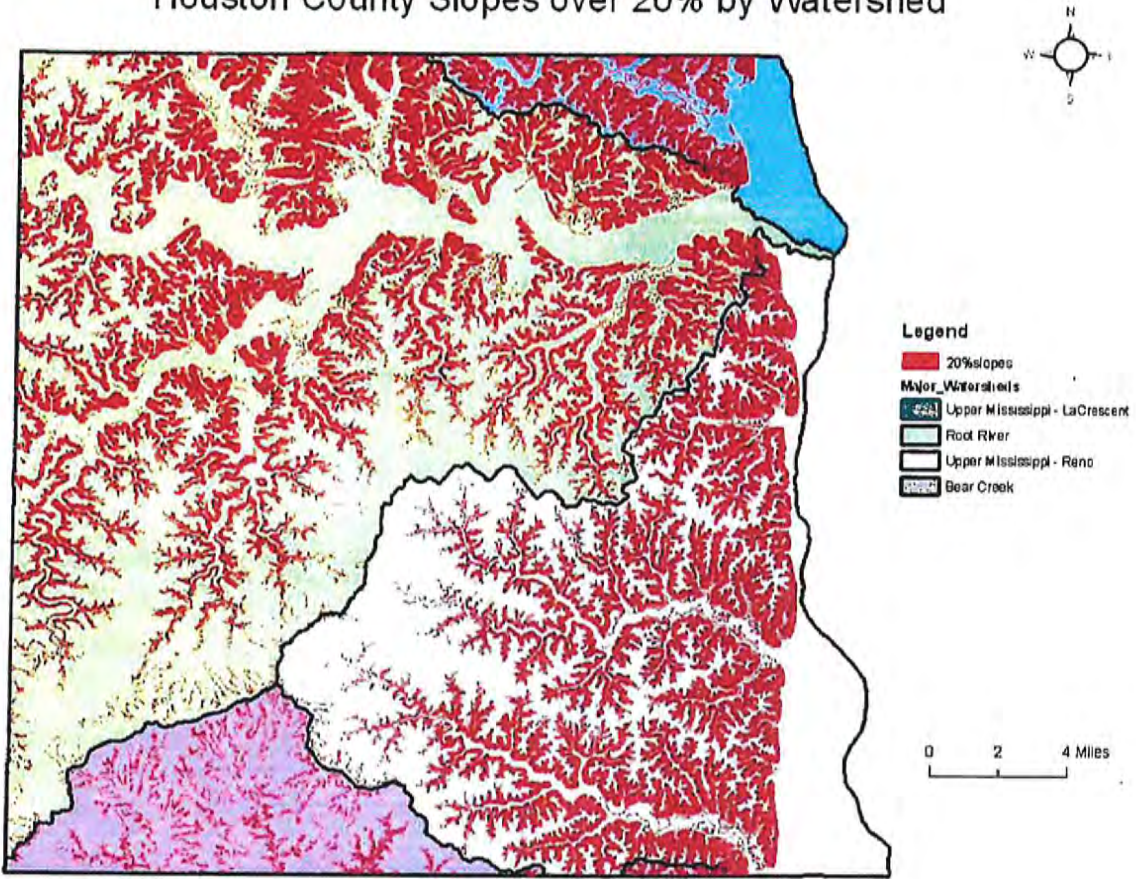
#### **V. Board of Water & Soil Resources**

1. Manage rural and urban storm water runoff and erosion control to improve water quality and minimize flood damage.  
*(see Issue 3)*
2. Manage the surface and ground water quality interconnections in this karst geology to improve water quality.  
*(see Issue 1 and 2)*
3. Implement comprehensive nutrient management practices in selected rural and urban areas.  
*(see Issue 1 and 2)*

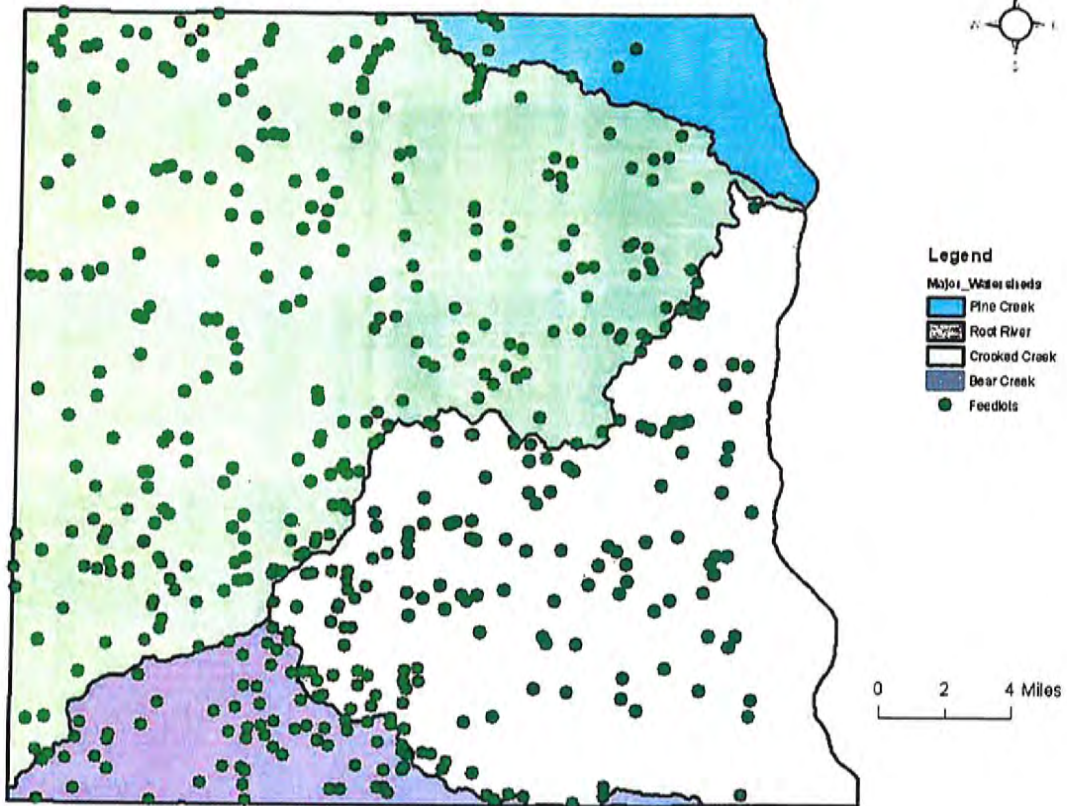
#### **VI. Minnesota Pollution Control Agency**

1. Impaired Waters/Total Maximum Daily Loads (TMDL)  
*(see Issue 2)*
2. Trout Streams  
*(see Issue 2 and 4)*
3. Karst Landscape Management  
*(see Issue 1)*
4. Erosion and Runoff Control  
*(see Issue 2 and 3)*
5. Feedlots and Land Application of Manure  
*(see Issue 1)*
6. Other Factors to Consider  
*(see Issue 1 and 2)*

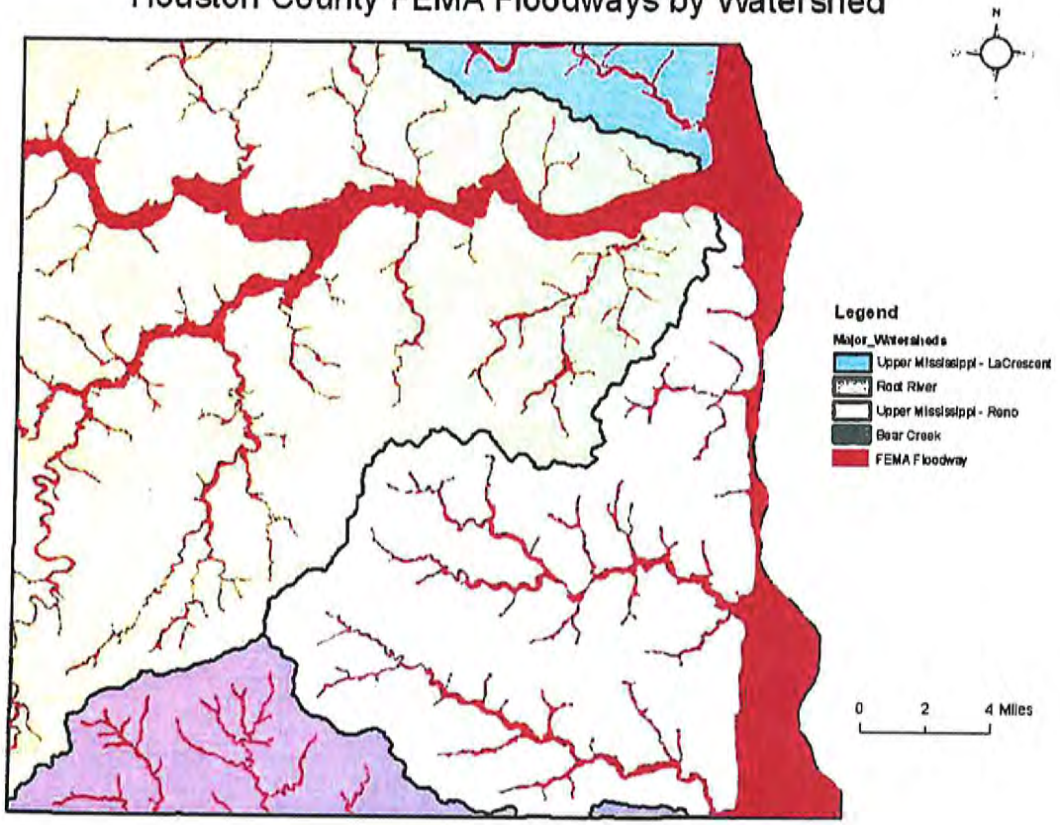
### Houston County Slopes over 20% by Watershed



### Houston County Feedlots by Watershed



### Houston County FEMA Floodways by Watershed





(Attachment #6)

*Protecting, maintaining and improving the health of all Minnesotans*

**DATE:** December 13, 2006

**TO:** Licensed and Registered Well Contractors  
Mr. Michael Wiste, Spring Grove Township  
Mr. Paul Morken, City of Spring Grove  
Mr. Richard Frank, Houston County  
Advisory Council on Wells and Borings

**FROM:** John Linc Stine, Director  
Environmental Health Division  
P.O. Box 64975  
St. Paul, Minnesota 55164-0975

**SUBJECT:** Notice of Designation of a Special Well Construction Area in Spring Grove Township and the City of Spring Grove, Houston County \_\_\_\_\_

The Minnesota Department of Health (MDH) is designating a SPECIAL WELL CONSTRUCTION AREA (SWCA), which includes the city of Spring Grove and an area bordering the city to the north, east, and south of the city, in Houston County (Figure 1). The SWCA designation, which becomes effective January 1, 2007, applies to the construction, repair, modification, and sealing of wells and borings, and remains in effect until further notice.

#### **SITE HISTORY**

The city of Spring Grove is the third largest city in Houston County and is located along State Highway 44, approximately 15 miles southwest of Caledonia. In 1984, routine monitoring of the Spring Grove municipal wells identified contamination by 1,1,2-trichloroethylene (TCE) in Municipal Well Number 3 located in easternmost Spring Grove. Subsequent sampling of private wells and monitoring wells identified TCE contamination in all three municipal wells and a number of private wells, particularly east and southeast of the city.

The source of contamination was identified as the site of the Northern Engraving Corporation (NEC), which had previously been used by Control Data Corporation (now Ceridian) as a printed circuit board plant.

A number of remedial actions have been taken, including:

- Installation of an air stripper on Municipal Well Number 3 in 1989.

Licensed and Registered Well Contractors  
Mr. Michael Wiste, Spring Grove Township  
Mr. Paul Morken, City of Spring Grove  
Mr. Richard Frank, Houston County  
Advisory Council on Wells and Borings  
Page 2  
December 13, 2006

- Pumpage of Recovery Well Number 5A, starting in 1991, with conversion to a dual-phase, vapor extraction system in 2000. Discharge is treated by carbon treatment before discharge to sanitary sewer.
- Pumpage of Municipal Well Number 1, starting in 1989, with discharge to storm sewer and Seven Mile Creek (Aeration reduces TCE contamination).
- Conversion of a private well to a monitoring well/recovery well, with pumping and discharge to the sanitary sewer system, starting in 1993.
- Excavation of 30-35 cubic yards of TCE-contaminated soil at the NEC facility in 2000, and capping the remaining source area soils with asphalt.
- Installation of carbon treatment systems on six private wells used for potable water supply (currently four wells are still in use).

In July 2000, the Minnesota Pollution Control Agency (MPCA) requested that the MDH consider establishing a SWCA for Spring Grove. In 2002, the United States Environmental Protection Agency (USEPA) reevaluated the health risks associated with TCE, the primary contaminant of concern in Spring Grove. Subsequently, the MDH issued an interim recommended exposure limit of 5 micrograms/liter (5 µg/l). Ongoing monitoring conducted by Gannett Fleming, consultant to Northern Engraving Corporation (NEC) and Ceridian Corporation (CDC), indicates that the extent of groundwater contamination has stabilized and does not appear to be migrating. However, TCE at concentrations exceeding 5 µg/l persists in groundwater in and near Spring Grove.

#### **SITE HYDROGEOLOGY**

The city of Spring Grove is located on a bedrock plateau, with deeply incised valleys radiating out to the north and the south, with a drop in elevation on the order of 200-250 feet. This area is within the "driftless" area, and the unconsolidated materials consist of approximately 10-15 feet of loess on top of bedrock.

The first bedrock within the city of Spring Grove is the Galena limestone. The first bedrock in the valleys near the city is St. Peter sandstone or Shakopee dolomite (part of the Prairie du Chien group). Groundwater within the Galena limestone, Platteville limestone, and St. Peter sandstone is perched, the units are not fully saturated, and they generally have not been used for water supply.

Prior to implementation of state-wide well regulation in 1974, the construction of many wells simply involved placement of casing to rock, with open-hole completion through all of the geologic units from the Galena limestone through the Prairie du Chien group.



Licensed and Registered Well Contractors  
Mr. Michael Wiste, Spring Grove Township  
Mr. Paul Morken, City of Spring Grove  
Mr. Richard Frank, Houston County  
Advisory Council on Wells and Borings  
Page 3  
December 13, 2006

This construction method perforated two major regional confining layers--the Decorah shale and the Glenwood shale, which normally would provide excellent protection of the underlying hydrogeologic units from surface contamination migrating downwards. Even wells that were cased through these confining layers may not have been grouted to seal the annular spaces, making them, in effect, multiaquifer wells. It appears that multiaquifer wells on or near the NEC site may have played some role in contamination migrating at least into the Prairie du Chien group. These well construction problems also create uncertainty as to exactly where the TCE contamination occurs, since any water sample from a particular well may reflect contributions from more than one aquifer.

#### **PUBLIC HEALTH CONCERNS**

The primary contaminant of concern within the SWCA is TCE. TCE was most commonly used as a degreasing agent for cleaning metal parts and surfaces. Exposure to high levels of TCE in drinking water can damage the liver, kidneys, immune system, and nervous system. Exposure to low levels of TCE over a long period of time may be linked to an increased risk of several types of cancer. TCE may also harm a developing fetus if consumed in high concentrations by an expectant mother. The interim recommended exposure limit for TCE in drinking water is 5µg/l.

#### **BOUNDARIES OF THE SPECIAL WELL CONSTRUCTION AREA**

The location of the SWCA is shown on the attached map (Figure 1). This area includes Sections 11, 12, 13, and 14 of Township 101 North and Range 7 West. The entire limits of the city of Spring Grove are within the SWCA.

#### **REQUIREMENTS IN THE SPECIAL WELL CONSTRUCTION AREA**

1. All wells and borings regulated by the MDH are subject to the requirements of this SWCA. Wells include water-supply wells (domestic, public, irrigation, commercial/industrial, cooling/heating, remedial), monitoring wells, and dewatering wells. Borings include environmental bore holes, elevators, and vertical heat exchangers. Permit applications and notifications must be submitted to MDH.
2. Construction of a new well or boring, or modification of the depth of an existing well or boring, may not occur until plans have been reviewed and approved, in writing, by MDH. In addition to the normally required notification or permit application, the plan must include the following information: street address; well or

boring depth; casing type, diameter, and depth; construction method(s), including grout materials and grout methods; pumping rate, and; use.

3. Special well construction and/or monitoring requirements may be imposed on well or boring completion, location, and use in order to protect public health and groundwater quality, and to prevent contaminant migration. These requirements will be based on available knowledge of groundwater contamination and movement near the well site, and the proposed use and pumping rate of the well.
4. Under Minnesota Rules, part 4725.3050, subpart 7, item C.(3) a water-supply well for potable uses must not be completed in a limestone or dolomite unless these geologic units are overlain by at least 50 feet of unconsolidated material or insoluble rock that extends around the well for one mile radius. This rule requirement prohibits completing potable water-supply wells in the Galena limestone, Platteville limestone, and Prairie du Chien group within the designated SWCA.
5. No potable water-supply wells, except as provided in item 6, may be completed within the St. Peter sandstone or the Jordan sandstone within the limits of the city of Spring Grove. Potable water-supply wells within the city of Spring Grove must be completed within the Franconia formation or deeper. For purposes of this SWCA, potable uses include any consumptive or other uses involving human contact, including drinking, cooking, bathing, manufacturing or processing of food, drink, or pharmaceuticals, or to supply water to fixtures accessible to humans.
6. Approval of plans and specifications for construction or modification of a community public water-supply well and of the well site is required by Minnesota Rules, part 4725.5850. The MDH may consider completion of a community public water-supply well in the Jordan sandstone if the system operator/owner can demonstrate that the water delivered to the distribution system meets U.S. EPA Maximum Contaminant Limits (MCLs), either through treatment, blending with other sources, monitoring, or other mechanisms. The MDH regularly monitors public water supplies for contaminants. The MCL for TCE is 5 µg/l.
7. A well used for nonpotable purposes, or a regulated boring may be completed into the Galena limestone, Platteville limestone, St. Peter sandstone, Prairie du Chien group, Jordan sandstone, or deeper bedrock formations, in accordance with Minnesota Rules, Chapter 4725, anywhere within the SWCA, provided that the MDH and MPCA determine that use of the well or boring will not interfere with remediation efforts, cause further spread of contamination, or result in human exposure to contaminants at

Licensed and Registered Well Contractors  
Mr. Michael Wiste, Spring Grove Township  
Mr. Paul Morken, City of Spring Grove  
Mr. Richard Frank, Houston County  
Page 5  
December 13, 2006

concentrations exceeding MCLs levels, Minnesota Health Risk Limits (HRLs), interim recommended exposure limits, or other relevant public health standards.

8. Water-supply wells for potable purposes may be completed in the Jordan sandstone in those areas within the SWCA but outside the city of Spring Grove with the permission of the MDH. Before permission to construct the well is granted, the well owner must agree to pay the MDH for a volatile organic chemical (VOC) analysis on a water sample collected from the well prior to grouting the annulus of the casing. The well contractor must contact the MDH Rochester district office and arrange for district staff to collect a pre-grout sample and send the sample to the MDH laboratory for analysis. The well may not be grouted until analysis of the water sample indicates that contaminant levels are below HRLs or interim recommended exposure limits.
9. If VOC concentrations in the well water exceed interim recommended exposure limits, the contractor and the well owner, at the well owner's expense, have the option of inserting a packer to seal off the Jordan sandstone and having a water sample collected from below the packer for VOC analysis to obtain a representative sample of that aquifer. The contractor must contact MDH-Rochester district staff to arrange for MDH staff to take a sample and to send the sample to the MDH laboratory for analysis. The well may not be grouted until analysis of the water sample indicates that contaminant are levels below HRLs or interim recommended exposure limits.
10. If VOC concentrations exceed the HRLs or interim recommended exposure limits in the pregrout sample or, if performed, in the sample with packer, the contractor must remove the casing, continue drilling the well through the St. Lawrence formation and into the Franconia formation or deeper, install the casing into the Franconia formation or deeper, and grout the annular space around the casing from the bottom of the casing to the surface with neat cement.
11. For a water-supply well completed within the Jordan sandstone, the casing must extend a minimum of 10 feet into the formation.
12. If VOC testing indicates the presence of any VOC below HRLs or interim recommended exposure limits, the well owner must test the well again for VOC's one year following completion of the well. Samples must be analyzed by a laboratory certified by the MDH under Minnesota Rules, Chapter 4740. The well owner must report the results to the MDH Rochester district office within 30 days of receipt of the test results.

Licensed and Registered Well Contractors  
Mr. Michael Wiste, Spring Grove Township,  
Mr. Paul Morken, City of Spring Grove  
Mr. Richard Frank, Houston County  
Advisory Council on Wells and Borings  
Page 6  
December 13, 2006

13. Well and boring construction or reconstruction will not be approved if the MDH, in consultation with the MPCA, concludes that the proposed construction or reconstruction and the well use will interfere with remediation efforts, cause further spread of contamination, or result in human exposure to contaminants at concentrations exceeding MCLs, HRLs, interim recommended exposure limits, or other relevant standards.
14. Completion of wells and borings in bedrock formations below the St. Lawrence formation is allowed without any VOC testing requirement.
15. No well or boring in bedrock may be permanently sealed until after MDH has reviewed and approved, in writing, the plans for the proposed sealing. In addition to the required notification, the plan must include the following information: street address; original well/boring depth; current well/boring depth (if different); casing type(s), diameter(s), depth(s); methods of identifying and sealing any open annular space; methods for identifying and removing any obstructions; grout materials and grouting methods.
16. All provisions of Minnesota Rules, Chapter 4725, are in effect.

#### **PERSONS TO CONTACT**

For additional information regarding this SWCA, please contact Mr. Michael Convery of the MDH at 651/201-4586.

Plans for construction, modification, or sealing of wells and borings within the SWCA must be submitted to:

Mr. Chris De Mattos  
Minnesota Department of Health, Rochester district office  
18 Woodlake Drive Southeast  
Rochester, Minnesota 55904  
Chris.demattos@health.state.mn.us

Notifications for either construction, modification, or sealing of wells must still be mailed or faxed to the MDH central office at:

Minnesota Department of Health  
Well Management Section  
P.O. Box 64975  
St. Paul, Minnesota 55164-0975  
Fax Number: 651/201-4599

Licensed and Registered Well Contractors  
Mr. Michael Wiste, Spring Grove Township  
Mr. Paul Morken, City of Spring Grove  
Mr. Richard Frank, Houston County  
Advisory Council on Wells and Borings  
Page 7  
December 13, 2006

For information regarding health effects, please contact:

Ms. Rita Messing  
Minnesota Department of Health  
Site Assessment and Consultation Unit  
P.O. Box 64975  
St. Paul, Minnesota 55164-0975  
[Rita.messing@health.state.mn.us](mailto:Rita.messing@health.state.mn.us)

For information regarding the investigation, monitoring, and remediation of the  
Spring Grove groundwater contamination site, please contact:

Mr. Dan Card  
Minnesota Pollution Control Agency  
Remediation Division  
Superfund Section  
520 Lafayette Road North  
St. Paul, Minnesota 55155-4194  
Phone: 651/297-8379  
[Dan.card@pca.state.mn.us](mailto:Dan.card@pca.state.mn.us)

## REFERENCES

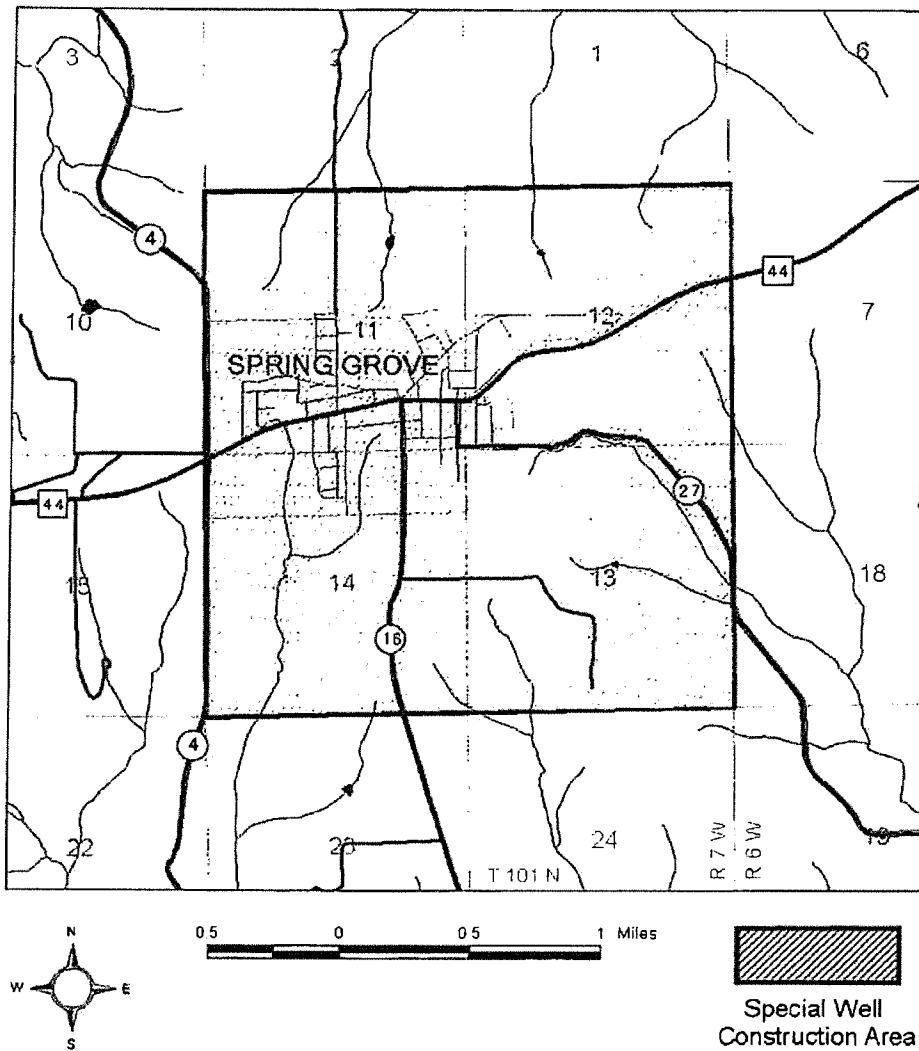
Gannett Fleming, Inc., 2006, 2005, 2004 Annual Monitoring Report for Spring Grove,  
Minnesota, Site, 34p.

JLS:MPC:jmw  
cc: Dan Card, MPCA

Licensed Well Contractors  
Mr. Michael Wiste, Spring Grove Township  
Mr. Paul Morken, City of Spring Grove  
Mr. Richard Frank, Houston County  
Advisory Council on Wells and Boring  
Page 8  
December 13, 2006

**Figure 1**

**Special Well Construction Area  
Spring Grove, Houston County**



*Houston County*

*Comprehensive Land Use  
Plan*

*Adopted Dec. 8, 1998*

*Reviewed Oct. 7, 2008*

# Chapter 0100 ~ Land Use Plan

## Table of Contents

<b>SECTION 1 ~ INTRODUCTION.....</b>	<b>1</b>
0100.0101 PURPOSE OF PLANNING.....	1
0100.0102 MAJOR LAND USES .....	1
0100.0103 DISTINGUISHING NATURAL FEATURES .....	1
0100.0104 AGRICULTURAL LAND.....	1
0100.0105 URBAN GROWTH AREA.....	1
0100.0106 SUMMARY .....	2
<b>SECTION 2 ~ GENERALIZED COUNTY LAND USE PLAN .....</b>	<b>3</b>
0100.0201 GENERALIZED LAND USE PLAN .....	3
0100.0202 DEVELOPMENT ADJACENT TO INCORPORATED COMMUNITIES .....	3
0100.0203 EXISTING UNINCORPORATED DEVELOPMENT .....	3
<b>SECTION 3 ~ PROTECTION OF AGRICULTURAL LAND AND SENSITIVE AREAS.....</b>	<b>4</b>
0100.0301 LIMITING NON-FARM DEVELOPMENT .....	4
0100.0302 PURPOSES FOR LIMITING NON-FARM DEVELOPMENT .....	4
<b>SECTION 4 ~ URBAN FRINGE DEVELOPMENT.....</b>	<b>6</b>
0100.0401 URBAN FRINGE DEVELOPMENT.....	6
0100.0402 LA CRESCENT.....	6
0100.0403 CALEDONIA.....	6
0100.0404 HOUSTON .....	6
0100.0405 HOKAH.....	7
0100.0406 EITZEN .....	7
0100.0407 SPRING GROVE.....	7
0100.0408 BROWNSVILLE.....	7
0100.0409 MONEY CREEK, SHELDON, FREEBURG, RENO AND RICEFORD.....	7
<b>SECTION 5 ~ DEVELOPMENT GOALS AND POLICIES.....</b>	<b>8</b>
0100.0501 GENERAL GOALS AND POLICIES .....	8
0100.0502 AGRICULTURAL GOALS AND POLICIES .....	9
0100.0503 URBAN EXPANSION AREAS GOALS AND POLICIES .....	10
0100.0504 Unincorporated Communities.....	10
0100.0505 ECONOMIC DEVELOPMENT.....	11
0100.0506 RESIDENTIAL DEVELOPMENT .....	12
0100.0507 NATURAL RESOURCE PROTECTION .....	13
0100.0508 OPEN SPACE AND RECREATION DEVELOPMENT .....	14
0100.0509 PUBLIC FACILITIES .....	15
0100.0510 TRANSPORTATION .....	16
0100.0511 IMPLEMENTATION STRATEGIES.....	16
<b>SECTION 6 ~ REPEAL, ADOPTION &amp; EFFECTIVE DATE.....</b>	<b>17</b>
0100.0601 REPEAL .....	17
0100.0602 PLANNING COMMISSION.....	17
0100.0603 ADOPTION .....	17
0100.0604 EFFECTIVE DATE .....	17



## SECTION 1 ~ INTRODUCTION

### 0100.0101 PURPOSE OF PLANNING

In order to update and revise the existing zoning ordinance and subdivision regulations, it is necessary at the same time to develop some basic goals and growth policies for future development in the County. These goals and policies can then serve as a basis for the generalized land use plan and ordinances including the zoning districts and the performance standards in the zoning ordinance and subdivision regulations.

### 0100.0102 MAJOR LAND USES

Basically, Houston County is a rural County with a majority of the land consisting of agriculture or forest land. In fact, the County is somewhat unique among rural counties in that a majority of its land consists of forest land. Some of this forest land is part of the Richard Dorer Memorial Hardwood State Forest.

### 0100.0103 DISTINGUISHING NATURAL FEATURES

Perhaps the most distinguishing natural features in the County are the steep bluffs covered with hardwood forests and a number of major river corridors, streams, and lowlands cutting through the bluffs. Some of the streams represent environmentally sensitive areas in that they are classified as trout streams. The Mississippi River including a number of major sloughs run along the eastern border of the County and serves as a source of recreation as well as river commerce.

### 0100.0104 AGRICULTURAL LAND

Much of the agricultural land is located in the lowlands or on top of the bluffs. While the total amount of land in the County devoted to agriculture is less than half of the total, forty-three (43) percent agriculture and agricultural industries is a very important part of the rural communities located throughout the County.

In most of the townships in the County, the dominant land uses are hardwood forests or agriculture, with the amount of cultivated land in all of the townships with the exception of three townships. These townships are Caledonia, Wilmington, and Spring Grove located in the southwestern portion of the County. In contrast, the proportion of cultivated land in some of the townships in the eastern portion of the County is relatively small. For example, the proportion of cultivated land in La Crescent Township is less than twenty-five (25) percent.

### 0100.0105 URBAN GROWTH AREAS

Most of the urban growth in the County is currently taking place in or near some of the major cities such as Caledonia (County seat) and La Crescent.

**Parts 0100.0105 – 0100.0106**

This is especially true in relation to La Crescent and La Crescent Township in the northeastern portion of the County as growth continues to spill over from La Crosse, Wisconsin. Due to the fact that this area does not contain prime agricultural land, the County officials are likely to encourage growth to take place in this area or within the existing cities rather to scatter throughout the County.

**0100.0106 SUMMARY**

In summary, most of the land in the County consists of either agricultural land or environmentally sensitive areas such as the bluffs with the hardwood forests, rivers and trout streams and wetlands and sloughs adjacent to the Mississippi River. Most of the growth in the County is currently taking place in the north-eastern part of the County in or near La Crescent.

In view of the importance of agriculture to the local economy, the County officials have adopted a position of encouraging the protection of the agricultural land by strictly limiting urban development in the prime agricultural areas of the County. The County officials have also adopted the same position in relation to some of the environmentally sensitive areas such as the steep bluffs, trout streams and major watersheds to minimize soil erosion and potential pollution problems to the ground water supply. Thus, urban growth will be encouraged to continue in the north-eastern portion of the County and within the existing cities where services can be easily provided and where growth will not result in the loss of prime agricultural land or environmentally sensitive areas.

## SECTION 2 ~ GENERALIZED COUNTY LAND USE PLAN

### 0100.0201 GENERALIZED LAND USE PLAN

As was indicated previously, Houston County is essentially a rural County with most of the existing land uses consisting either of agricultural land or natural resource areas such as woodlands, steep bluffs, sloughs, rivers and trout streams.

**Subdivision 1. Preservation of Essential Agricultural Resources.** Agricultural production is an essential part of the local economy, both to the County as a whole as well as the township and cities. Thus, the County officials have determined to strictly regulate any non-farm development in the agricultural areas.

**Subd. 2. Protection Of Environmentally Sensitive Natural Resources.** Houston County has also determined that it is important to protect the environmentally sensitive areas such as the bluffs, woodlands and water resources from scattered urban growth to minimize pollution to the ground water supply, to minimize soil erosion and to preserve the wildlife habitat.

**Subd 3 Two Principal Land Uses.** For the reasons cited above, the County Board of Commissioners have designated most of the land throughout the County for agricultural and natural resource protection in this land use plan.

In order to effectively protect these areas, the zoning ordinance has designated most of the County for Agricultural Protection District, where a density control system (one non-farm dwelling unit per quarter quarter section) has been adopted. In addition, the floodplains and shorelands of the rivers and streams are being protected through adoption of state-mandated standards for these areas.

### 0100.0202 DEVELOPMENT ADJACENT TO INCORPORATED COMMUNITIES

Most of the urban development will be encouraged to take place in the northeastern part of the County, in or near, La Crescent to reinforce existing trends of growth moving into this area from La Crosse, Wisconsin. Most of this area is unsuitable for agricultural uses.

Urban growth will also be encouraged to take place either in or adjacent to the several cities in the County such as Caledonia, Houston and Hokah where urban services can be easily provided.

### 0100.0203 EXISTING UNINCORPORATED DEVELOPMENT

It should also be noted that existing subdivisions in various parts of the County have been included in both the land use plan and zoning ordinance. However, future proposed subdivisions in rural areas will be discouraged.

**SECTION ~ 3  
THE PROTECTION OF AGRICULTURAL LAND  
AND ENVIRONMENTALLY SENSITIVE AREAS**

**0100.0301 LIMITING NON-FARM DEVELOPMENT**

The Houston County Board has adopted land use regulations and ordinances which limit the density of development in the unincorporated areas of the County. In essence, this is accomplished by limiting the density of non-farm residential development to one (1) residential unit per quarter-quarter section (approximately 40 acres). The minimum lot size is one (1) acre to ensure that the private sewer systems will function properly.

**0100.0302 PURPOSES FOR LIMITING NON-FARM DEVELOPMENT**

The following are the major reasons for adopting this system of regulating development.

- 1. Agriculture is a Vital Part of the Local Economy.** Houston County is essentially a rural County which has and continues to be highly dependent upon an agricultural economy. This is true both in relation to agricultural production in the townships as well as agricultural related industries and businesses in the communities. Thus, it is of interest to both the County as well as the local communities to protect the existing agricultural land as a permanent and vital part of the local economy.
- 2. Prohibit Scattered Urban Development.** Another reason for adopting the density control system is to prohibit scattered urban development into the rural areas of the County with its consequent adverse effects on agriculture, rising service costs, etc.. Thus, urban developments are encouraged to take place within the existing communities where urban services can easily be provided or extended.
- 3. Minimize Urban/Rural Conflicts.** Scattered urban development in prime agricultural areas often results in conflicts between the urban land uses and agricultural production. Oftentimes, there are complaints from the occupants of non-farm residential units over the noise, smell and hours of operation from agricultural operations. In order to minimize this conflict, there is a need to carefully control the density of non-farm development.
- 4. Minimize Local Service Costs.** An increasingly important reason for regulating the density of urban development is to minimize public service costs such as road maintenance, etc. and the consequent increases in property taxes. Oftentimes, the occupants of non-farm dwellings demand the same level of services available in cities, especially related to road maintenance, snow removal, etc. This places an increasing burden on the township officials and results in higher property taxes which makes it difficult for farmers to continue farming.
- 5. Protect Woodland Areas.** Woodlands serve a vital function in terms of minimizing soil erosion and energy demands (windbreaks), as a means of minimizing excessive storm water runoff by absorbing storm water and as a continuous source of lumber and

firewood. Thus, it is vital to protect the woodlands by regulating the density of development in these areas.

**6. Protect Wetlands, Sloughs and Streams.** The sloughs and streams in the County serve an important function in terms of absorbing storm water runoff and snow melt, to act as a natural filter for the storm water and to serve as wildlife habitat. Thus, it is important to regulate development in these areas in order to minimize storm water runoff and consequent soil erosion and loss of wildlife habitat.

**7. Minimize Pollution Problems.** The density control system adopted by the County is also designed to minimize pollution problems from private sewer systems. This is the reason for a minimum lot size of one acre for residential dwellings.

**8. The Density Control System is the Best Approach Available.** The density control system of one non-farm dwelling per quarter-quarter section with a minimum lot size of one acre is the best system for protecting agricultural land and environmentally sensitive areas from scattered residential development.

The reason for this is that by controlling the density of development (one dwelling unit per quarter-quarter section) and at the same time requiring a minimum lot size of only one acre, there is a minimum amount of land removed from agricultural production.

In comparison, a minimum lot size system of 5-10 acres often results in removal of substantial amount of agricultural land. In addition, this land often is poorly maintained with substantial amount of weeds growing on the land.

## SECTION 4 ~ URBAN FRINGE DEVELOPMENT

### 0100.0401 URBAN FRINGE DEVELOPMENT

Several urban development projects either exist or have been proposed adjacent to some cities in the County. The cities of Caledonia and La Crescent have experienced development pressure.

While urban development will be encouraged to take place within the cities, in some cases this type of development will be encouraged in certain rural areas such as adjacent to La Crescent provided that adequate sanitary sewer service either is available or can safely be provided.

The following is a brief discussion of the more specific land use plans for the areas adjacent to some cities and the rural communities not presently incorporated.

### 0100.0402 LA CRESCENT

As noted above, much of the urban growth in the County has taken place adjacent to the City of La Crescent. This is an extension of the growth from La Crosse, Wisconsin. The County Board has determined as part of this Land Use Plan to encourage further growth in this area of the County since it will not have an adverse effect on agriculture.

The La Crescent Map shows much of the area north and west of the City designated for future urban residential development. In addition, some areas are designated for highway commercial and industrial development.

### 0100.0403 CALEDONIA

Caledonia, being the Houston County seat, has experienced some urban growth during the last few years, some of it taking place outside the City boundaries.

The Land Use Plan for the City recommends that future urban development take place within the City. There is a substantial amount of undeveloped land available within the City and to which public utilities can easily be provided. The only exception to this are two residential developments, one located immediately south of the City and the other north of the City adjacent to County Road 76 and an industrial development south of the City adjacent to County Roads 44 and 76.

### 0100.0404 HOUSTON

Two areas outside of the City have been designated in the land use plan for urban development. An area immediately north-east of the City adjacent to County Road 76 has been designated for industrial development and an area east of the City along Minnesota Trunk Highway 16 has been designated for highway commercial.

**0100.0405 HOKAH**

Hokah has a Land Use Plan which recommended that all future development take place within the City.

**0100.0406 EITZEN**

An area immediately south of the City adjacent to County Road 76 has been designated for highway commercial.

**0100.0407 SPRING GROVE**

Two areas outside of the City have been designated for urban development One area immediately east of the City adjacent to County Road 44 has been designated for industrial development. In addition, an area to the east of the City has been designated for urban development.

**0100.0408 BROWNSVILLE**

The City currently has a substantial amount of buildable land within the City and any future urban development has been recommended to locate within the City.

**0100.0409 MONEY CREEK, SHELDON, FREEBURG, RENO AND RICEFORD**

There are several rural, unincorporated communities located in various parts of the County. Most of these communities have not experienced any growth and the County officials are not actively encouraging future growth in these areas due to a lack of urban services. Most of these areas have been designated for residential development.

## SECTION 5 ~ DEVELOPMENT GOALS AND POLICIES

### 0100.0501 GENERAL GOALS AND POLICIES

**Subdivision 1. General Goals.** The following goals shall serve as guidance for the future development of Houston County:

**Goal 1. To Preserve Commercial Agriculture.** To preserve commercial agriculture as an essential long-term, permanent land use in the County.

**Goal 2. To Protect Natural Resource.** To protect the major natural resource areas of the County including the floodplains, trout streams, steep bluffs and hardwood forests, so they will serve as a basis for recreation and logging in the County.

**Goal 3. To Locate Urban Development Where Services Can Easily Be Provided.** To locate urban development near the major cities where services can easily be provided and extended.

**Subd. 2. Policies Intended To Implement General Goals.** The following policies are intended to implement the General Goals stated above:

**Policy 1. Preserve Historically Tilled Agricultural Land.** Enact programs to protect and preserve prime agricultural land which has been historically tilled.

**Policy 2. Allow Residential Development Only On Marginal Agricultural Soils And Adjacent To Communities From Which Public Utilities Can Be Easily Extended.** Locate rural housing development away from recognized commercial agricultural areas and into areas with marginal agricultural soil, and areas adjacent to existing cities where urban services can easily be extended.

**Policy 3. Preserve Historically Significant Areas.** Enact programs to preserve and protect historically significant areas throughout the County.

**Policy 4. Adopt State Standards For The Protection of Natural Resources.** Adopt State of Minnesota standards as minimum requirements for the protection of floodplains, solid waste disposal, feedlots, sanitary waste disposal, water quality standards, and other necessary pollution control measures.

**Policy 5. Enact Programs To Protect The Natural Resources.** Enact programs to protect the natural resources in the County. Use natural resource information as a basis for determining future areas for urban expansion.

**Policy 6. Protect Sensitive Natural Resources From Urban Development.** Enact programs to protect and preserve shorelands, floodplains, trout streams and steep bluffs from urban development which may be detrimental to the general public health and welfare.



**Policy 7. Prohibit Development In Unsuitable Areas.** Prohibit extensions of public services into areas where development should not occur due to natural and man-made constraints. Such areas include floodplains, steep bluffs, major forest and parks and wildlife areas.

**Policy 8. Adopt Utility Standards And Programs That Will Minimize Pollution.** Adopt utility standards and programs (sewer and water) that will minimize pollution problems and reinforce the County development policies.

**Policy 9. Allow Residential Development Only On Buildable Lots.** Allow rural housing, which is not scheduled to receive central sewage disposal service only in areas where the soils, topography and water table are such that the individual sewage disposal systems can properly function.

**Policy 10. Locate Transportation Facilities To Minimize Environmental Damage.** Locate transportation facilities in such a manner as to minimize environmental damage, and reinforce County growth policies and plans for the area. These uses include highways, airports, railroads and other modes of moving people and goods.

**Policy 11. Coordinate County And Cities Development Policies.** Coordinate County policies with the adopted policies of the cities for extension of their development into the rural areas.

#### **0100.0502 AGRICULTURAL GOALS AND POLICIES**

**Subdivision 1. Agricultural Goals.** The following goal shall serve as guidance for the future development of agriculture in Houston County:

**Goal 1. To Preserve Commercial Agriculture.** To preservation commercial agriculture as a viable, permanent land use and as a significant economic activity in the County.

**Subd. 2. Policies Intended to Implement Agricultural Goals.** The following policies are intended to implement the Agricultural Goal stated above:

**Policy 1. Preserve Prime Agricultural Land.** Protect and preserve prime agricultural land throughout the County by strictly limiting development in these agricultural areas.

**Policy 2. Promote Agriculture As Significant Economic Activity And Land Use.** Promote County and state legislation which will retain and promote agriculture as significant economic activity and land use in the County.

**Policy 3. Avoid Locating Major Public Facilities On Agricultural Land.** Encourage governmental units to avoid locating major public facilities, roads, and developments in good agricultural land areas.

**Policy 4. Promote Soil Erosion Control Practices.** Encourage farmers to adopt and maintain sound soil erosion control practices such as contour plowing, strip cropping, minimum tillage, shelter belts, etc..

**Policy 5. Require Site Specific Feedlot Management.** Carefully control the location of feedlots and other animal confinement areas in the County to minimize pollution and nuisance problems.

**Policy 6. Require Buildable Lots.** Require lot sizes of sufficient size to meet the MPCA and Houston County standards for private sewer systems.

### **0100.0503 URBAN EXPANSION AREAS GOALS AND POLICIES**

Areas adjacent to incorporated communities are most susceptible to urban growth pressures; therefore, distinct policies should be adopted to assure orderly and timely growth, and to retain the land for agriculture purposes until such time as conversion to another use is appropriate.

**Subdivision 1. Urban Expansion Area Goals.** The following goal shall serve as guidance for the future urban development in Houston County:

**Goal 1. Promote Orderly Development Around Cities.** Encourage the adoption of orderly annexation plans and urban growth districts around cities.

**Subd. 2. Urban Expansion Area Policies.** The following policies are intended to implement the Urban Expansion Goal stated above:

**Policy 1. Regulate Urban Expansion To Minimize Leap-Frog Development.** Carefully regulate urban expansion in the areas around the major cities including Caledonia and La Crescent to minimize leap-frog development.

**Policy 2. Establish An Urban Development Review Procedure.** Develop a review procedure between the cities and the County for all development proposed in this area.

**Policy 3. Allow Urban Development Only In Areas Scheduled For Public Services.** Allow urban development in an area only if the area is included in the City's Capital Improvements Program to provide public services such as sanitary sewers and highways.

**Policy 4. Base Urban Expansion On Long Range Planning Projections.** Base any additional future urban expansion area around the cities on projected land use needs as determined by population projections and urban growth trends.

### **0100.0504 UNINCORPORATED COMMUNITIES**

**Subdivision 1. Unincorporated Community Goals.** Unincorporated Communities in Houston County are unique in their development by having both residential and commercial areas. However, these areas do not have identifiable boundaries and are governed by the County.

Because of their unique situation, a series of policies for land use within these areas are needed and the zoning of each of the major land use categories must fall under specific districts.

The following goal shall serve as guidance for development in unincorporated communities:

**Goal 1. Develop Orderly Unincorporated Community Development And Redevelopment Plans.** Cooperatively plan the orderly development and redevelopment of unincorporated communities to minimize pollution and conflicts with agricultural uses.

**Subd. 2. Unincorporated Community Policies.** The following policies are intended to implement the Unincorporated Community Goal stated above:

**Policy 1. Apply Urban Land Use Controls When Needed.** Recognize unincorporated communities as urban type densities and apply appropriate land use controls.

**Policy 2. Community Sewer System Required For New Development.** Require all new urban density development in the unincorporated communities to install a Community Sewer System that meets the Minnesota Pollution Control Agency requirements, and the Houston County Sanitation Ordinance requirements. Urban densities are those identified in the Houston County Zoning Ordinance.

**Policy 3. Land Use District Conformance Required.** Require all new development to conform to the land use classification zoning district as established by the County.

**Policy 4. Non-Conforming Parcel Development.** Allow existing parcels of land not meeting minimum lot standards or density requirements to be developed providing they meet minimum standards for disposal of onsite sewage disposal.

## **0100.0505 ECONOMIC DEVELOPMENT**

**Subdivision 1. Economic Development Goals.** The following goals shall serve as guidance for economic development throughout the County:

**Goal 1. Diversified Economic Development.** Encourage and promote diversified economic development in order to provide for continued employment opportunities.

**Goal 2. Expansion Of Trade And Service Industries.** Encourage and promote the continued expansion of trade and service industries in the County.

**Goal 3. Location Of Commercial Facilities.** Encourage and promote the location of commercial facilities so as to provide reasonable access for the citizens to adequate supply of goods and services.

**Goal 4. Expansion Of Industrial Development** Encourage and promote the continued expansion of industrial development in the County to provide employment opportunities for the citizens.

**Goal 5. Minimize Conflict With Surrounding Land Uses.** Encourage and promote the location of commercial and industrial development to minimize conflict with surrounding land uses.

**Subd 2. Economic Development Policies.** The following policies are intended to implement the Economic Development Goals stated above:

**Policy 1. Diversified Economic Development.** Encourage programs that will promote diversified economic development in the County, including industrial, retail, trade, and service industries.

**Policy 2. Increase The Tax Base And Employment Opportunities.** Encourage industrial development in such a way as to enhance the tax base and increase employment opportunities while at the same time place minimal demands on the environment.

**Policy 3. Industrial Developments Location.** Encourage major industrial developments to locate in or near existing cities where public services (City sewer and water) can easily be extended and near places of good accessibility.

**Policy 4. Commercial Development Location.** Encourage major commercial developments (shopping centers) to locate in or near existing cities where public services (sewer and water) can easily be extended and near places of good accessibility.

**Policy 5. Scattered, And Strip Commercial Development.** Discourage unplanned, scattered, and strip commercial development that will have an adverse effect on existing commercial centers.

#### **0100.0506 RESIDENTIAL DEVELOPMENT**

**Subdivision 1. Residential Development Goals.** The following goals shall serve as guidance for Residential Development throughout the County:

**Goal 1. Housing Choices.** To provide a broad choice of housing types for all income groups.

**Goal 2. Access To Public And Private Facilities.** To provide convenient access for housing to public and private facilities and activities.

**Goal 3. Safe, Healthful And Blight-Free Housing.** To provide safe, healthful and blight-free residences and residential developments.

**Subd. 2 Residential Development Policies.** The following policies are intended to implement the Residential Development Goals stated above:

**Policy 1. Location Of Residential Subdivisions.** Encourage the location of residential subdivisions and major developments near existing cities where urban services can easily be provided.

**Policy 2. Scattered And "Leap-Frog" Development.** Discourage scattered and "leap-frog" residential development in commercial agricultural areas.

**Policy 3. Residential Site Design.** Encourage the use of natural resource information such as soils, topography, groundwater, etc., in residential site designs.

**Policy 4. Minimize Pollution Problems.** Prohibit the location of rural housing with septic tanks and drainfields in areas of steep slopes, high bedrock or water table to minimize pollution problems.

**Policy 5. Minimum Lot Sizes For Rural Housing.** Use soils and other-natural resource information as a basis for establishing minimum lot sizes for rural housing with septic tanks and drainfields.

**Policy 6. Manufactured Homes.** Encourage the location of manufactured homes within manufactured home parks where adequate services can be provided.

**Policy 7. Manufactured Home Parks.** Encourage the location of manufactured home parks in urban residential or mobile home residential districts which are served by central sewer and water services.

**Policy 8. Multi-Family Residential Development.** Only allow the location of multi-family residential development in areas where community sewer and water facilities are available.

**Policy 9. Innovative Site And Housing Unit Designs.** Develop and adopt provisions in development ordinances which encourage innovative site and housing unit designs.

**Policy 10. Rehabilitation Of Existing Older Homes.** Enact programs to encourage the rehabilitation of existing older homes.

#### **0100.0507 NATURAL RESOURCE PROTECTION**

**Subdivision 1. Natural Resource Protection Goal.** The following goal shall serve as guidance for Natural Resource Protection throughout the County:

**Goal 1. Protection Of Natural Resources.** Protect and enhance air, water, and land resources in the County as a vital ingredient of the quality of life.

**Subd. 2. Natural Resource Protection Policies.** The following policies are intended to implement the Natural Resource Protection Goal stated above:

**Policy 1. Land Management Practices.** Promote land management practices that protect the natural resources in the County including wetlands and sloughs, bluffs, woodlands, and prime agricultural areas.

**Policy 2. Woodlands And Hardwood Forests.** Protect the woodlands and hardwood forests in the County by carefully regulating the location and density of development and by prohibiting the clear-cutting of the woodlands. Woodlands need to be protected for the following reasons:

- (1) To absorb stormwater in order to minimize stormwater runoff and the consequent soil erosion.
- (2) To serve as a continuous source of lumber and firewood.
- (3) To serve as vegetation in order to retain a proper balance of nature.

**Policy 3. Wetlands And Sloughs.** Protect existing wetlands and sloughs in the County by prohibiting development and chaining of these areas. These areas need to be protected for the following reasons:

- (1) To absorb stormwater and snow melt and thereby minimizing rapid stormwater runoff or consequent soil erosions.
- (2) To act as a natural filter for stormwater runoff.
- (3) To serve as a wildlife habitat.

**Policy 4. Rivers And Trout Streams.** Promote the preservation and improvement of all rivers and trout streams in an unpolluted state by enforcing floodplain and shoreland ordinances.

**Policy 5. Soil Conservation And Erosion Control.** Promote soils conservation and erosion control practices in the County.

**Policy 6. Subdivision And Urban Development.** Encourage subdivisions and urban development to conform to the natural limitations presented by topography and soils so as to create the least potential for soil erosion.

**Policy 7. Feedlots And Animal Confinement Areas.** Control the location of feedlots and other animal confinement areas in the County to minimize pollution and nuisance problems.

**Policy 8. Solid Waste Disposal Sites.** Regulate the location of solid waste disposal sites to minimize pollution and nuisance problems.

## **0100.0508 OPEN SPACE AND RECREATION DEVELOPMENT**

**Subdivision 1. Open Space And Recreation Development Goals.** The following goals shall serve as guidance for Open Space and Recreation Development throughout the County:

**Goal 1. Parks And Open Space.** To provide sufficient parks and open space to meet the recreation needs of the citizens in the County.

**Goal 2. Recreation Facilities And Programs.** To provide recreation facilities and programs in the existing parks to meet the needs of all income and age groups.

**Subd. 2. Open Space And Recreation Development Policies.** The following policies are intended to implement the Open Space and Recreation Development Goals stated above:

**Policy 1. County Parks.** Establish sufficient County parks to compliment the state parks to meet the demands of citizens in the County.

**Policy 2. Recreation Facilities In Existing Parks.** Provide sufficient recreation facilities in the existing parks to maximize the use of the parks.

**Policy 3. Protection Of Natural Resource Areas.** Encourage the protection of natural resource areas (wetlands, floodplains, forests, steep slopes) through public acquisition for both active and passive recreation uses.

#### **0100.0509 PUBLIC FACILITIES**

**Subdivision 1. Public Facilities Development Goal.** The following goal shall serve as guidance for Public Facilities Development throughout the County:

**Goal 1. Maximizes Public Health, Safety And Welfare.** Provision of public facilities in a manner that maximizes public health, safety and welfare.

**Subd. 2. Public Facilities Development Policies.** The following policies are intended to implement the Public Facilities Development Goal stated above:

**Policy 1. Sites Unsuitable For On-Site Sewage Treatment Systems.** Discourage development in areas where on-site sewer systems are likely to malfunction due to poor soil characteristics.

**Policy 2. Standards Concerning On-Site Sewer Systems.** Enforce the Minnesota Pollution Control Agency's standards concerning on-site sewer systems.

**Policy 3. Utilities To Scattered Development.** Discourage extension of public utilities over large undeveloped parcels to serve small pockets of scattered development.

**Policy 4. Concentrate Major Land Uses Near Cities.** Concentrate major residential, commercial and industrial land uses near cities which have City sewer routes and water systems.

**Policy 5. Regulate The Location Of Essential Services.** Carefully regulate the location of oil pipelines and high voltage transmission lines in the County to minimize pollution problems and the impact on prime agricultural areas.

## 0100.0510 TRANSPORTATION

**Subdivision 1. Transportation Development Goal.** The following goal shall serve as guidance for Transportation Development throughout the County:

**Goal 1. Complementary To Land Use Policies.** A transportation system which compliments land use development and land use policies through the County.

**Subd. 2. Transportation Development Policies.** The following policies are intended to implement the Transportation Development Goal stated above:

**Policy 1. Reinforce The County's Growth Policies.** Develop a transportation system which reinforces the County's growth policies.

**Policy 2. Integrate Land Use And Transportation Plans.** Integrate land use and transportation plans to minimize the adverse effects of transportation systems (noise, air pollution) on the adjacent development.

**Policy 3. Location Of Transportation Facilities.** To the extent possible, avoid locating transportation facilities so as to adversely affect the natural resources and prime agricultural areas of the County.

**Policy 4. Safety, Accessibility, Environmental Protection And Cost.** Encourage the development of a transportation system which properly balances considerations of safety, accessibility, environmental protection and cost.

**Policy 5. Land Use Development At The Major Transportation Intersections.** Carefully control land use development at the major transportation intersections and interchanges to avoid compromising safety, accessibility and functions of the highways.

**Policy 6. Highways To Maximize Safety And Accessibility.** Encourages the development of a transportation system which properly integrates the various types and levels of highways (state, County, and local) to maximize safety and accessibility.

## 0100.0511 IMPLEMENTATION STRATEGIES

**Subdivision 1. Implementation of the County Goals and Policies.** The following strategies shall serve as guidance to implement the County Goals and Policies listed in Parts 0100.0501-0100.0510:

**Strategy 1. Adopt Official Controls.** Develop and adopt official controls and methods that will effectively implement the County's policies.

**Strategy 2. Coordinated Implementation To Balance Public And Private Interest.** Encourage effective and coordinated implementation methods that properly balance private incentives and the protection of the public interest.



**Strategy 3. Coordinate The Implementation of Official Controls.** Effectively coordinate the various public implementation tools such as regulatory devices (zoning ordinance, subdivision regulations, etc.) public acquisition, utility extensions (sewer, water, highways) and property tax policies.

**Strategy 4. Review And Revise Official Controls.** Update the County ordinances (zoning ordinances and subdivision regulations) on a periodic basis.

**SECTION 6 ~ REPEAL, ADOPTION AND EFFECTIVE DATE**

**0100.0601 REPEAL**

The Houston County Land Use Plan, adopted Nov 2, 1982, as amended, is hereby repealed upon the adoption and publication of this Plan. Any other plans or parts of plans of the County of Houston in conflict with the provisions of this Plan are hereby repealed.

**0100.0602 PUBLIC HEARING AND PLANNING COMMISSION RECOMMENDATION**

The Houston County Planning Commission, after proper notice and publication, held a public hearing on the adoption the this Plan on Sept 24 1998, at the Houston County Courthouse. After hearing public testimony and with due deliberation, the planning commission voted 5 Ayes and 0 Nays to recommend adoption of this Plan to the Houston County Board of Commissioners.

**0100.0603 ADOPTION**

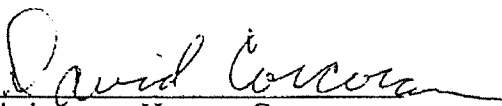
The Houston County Board of Commissioners, after proper notice and publication, held a public hearing on the adoption this Plan on Dec 8, 1998, at the Houston County Courthouse and with due deliberation, the Houston County Board of Commissioners voted 5 Ayes and 0 Nay to adopt this Plan.


**0100.0604 EFFECTIVE DATE**

This Plan shall be in full force and effect from and after Dec 8, 1998.

Adopted: Dec 8, 1998.

Published: Nov 24, 1998.

  
Chairperson, Houston County  
Board of Commissioners

Attest:   
County Auditor

