

Small Community Wastewater Needs in Minnesota



**Final Report
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Minnesota Pollution Control Agency

Acknowledgement

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Executive Summary

The Minnesota Pollution Control Agency (MPCA) recognizes that small communities (also called micro-communities) face unique challenges in finding wastewater management solutions. These issues are typically long-term in nature and difficult to solve. This report represents an initial step towards meeting the overall goal of working proactively with small communities to address these important public health and water quality issues.

This report contains a summary of small community wastewater improvements completed during the past 12 years. It also contains an assessment of current small community wastewater needs and a strategy to help meet those needs. This report is considered a living document and is expected to change over time.

Over the past 12 years, 111 small communities made significant progress toward resolving their wastewater issues. These communities have a collective population of approximately 32,009 and generate about 700 million gallons of wastewater annually. The Southeast and Southwest Regions completed the greatest number of wastewater improvements.

Statewide, approximately 65 percent of improvement efforts were undertaken by incorporated communities and 35 percent were undertaken by unincorporated communities. In some unincorporated areas, sanitary districts or subordinate service districts were established to construct and operate wastewater-treatment facilities. Other unincorporated areas were annexed into an existing treatment system.

Communities completed several types of wastewater management improvements, including installation of new individual and cluster subsurface sewage treatment systems (SSTS), connection to existing treatment facilities, construction of new stabilization ponds and construction of other wastewater treatment facilities. Sewer connections to existing treatment facilities were frequently used in the Southeast and Northeast Regions. New wastewater stabilization ponds were most common in the Southwest Region.

To get a better picture of the current situation, the MPCA developed a small community wastewater needs survey and distributed it to counties in 2006 and 2007. Responses to the survey revealed 1,025 small communities, a total population of 108,970, with wastewater management needs. These communities collectively produce 2.3 billion gallons of sewage each year.

The Southeast Region identified the fewest needs (78 communities) while the Northwest Region identified the greatest (378 communities). Of the 1,025 communities, 103 are incorporated (cities) while 922 are unincorporated areas. Of the 103 incorporated areas, 77 communities (75 percent) are whole cities while 26 communities (25 percent) are smaller areas within a city. Of the 922 unincorporated areas, 688 (75 percent) are lake communities, 174 (19 percent) are small cross-road communities, 48 (five percent) are subdivisions and 12 (one percent) are other community types.

Survey responses identified 33 areas with known or suspected community surface discharges, also known as community straight pipes. Approximately 94 percent of the community straight pipes were reported from Southern Minnesota. Counties also reported an estimated 73

communities with some possible individual straight pipes. The Southwest and North Central regions identified the majority of these sites.

After identifying the needs of small communities in the state, the next step was to develop a strategy to help meet those needs. The main goal of the Small Community Wastewater Strategy is to eliminate the discharge of raw or partially settled sewage into surface waters or onto the ground surface from the 106 small communities with suspected community straight pipes or individual straight-pipes. This strategy compliments the MPCA's 2006 Strategic Plan goal *to reduce from 39 percent to five percent the discharge of raw or partially settled sewage into surface waters or onto the ground surface*. The plan is to meet this goal by December 31, 2014. On this timeline, wastewater management issues in 15 communities would need to be addressed each year.

Developing priorities, identifying barriers and determining key partners are imperative to the success of the Small Community Wastewater Strategy. Statewide priorities should include consideration of impaired waters, receiving environments, community size and readiness, volume of sewage generated, and local priorities. In addition, adequate funding and coordination among agencies is essential.

The Small Community Wastewater Strategy's three objectives and 14 action items are outlined in detail in the report.

Background

Wastewater is the spent or used water from homes, communities, farms and businesses that contains enough harmful material to damage ground water and/or surface water quality. Since metals, organic pollutants, sediment, bacteria and viruses may all be found in wastewater, untreated wastewater can cause serious harm to the environment and threaten human health.

Early settlers did not have running water, and outhouses were the norm. With the advent of indoor plumbing, water use (and the need to treat water contaminated with human waste) increased dramatically. Early developments discharged wastewater to cesspools which often had outlet pipes leading to ditches and creeks. In the 1930s, the Works Progress Administration built rudimentary wastewater collection and treatment systems in many small Minnesota towns. Most rural residences were left out of this development and continued to discharge untreated wastewater to Minnesota's ground water and increasingly contaminated surface waters.

The 1960s brought increased environmental awareness. Wastewater treatment was mandated by the U.S. Congress in the federal Clean Water Act (CWA) of 1972. This act made the goal of "fishable and swimmable" waters a national priority. The CWA was enacted at a time when threats to water quality from "end-of-pipe" or point-source pollution were severe. By the time this landmark law was enacted at the federal level, Minnesota had already established the Water Pollution Control Board. The board was the predecessor to the Minnesota Pollution Control Agency (MPCA), established by the Minnesota Legislature in 1967 to control municipal and industrial discharges to waters of the state. The CWA led to a substantial federal program that directed money to the states to build and maintain municipal sewage-treatment plants.

When the CWA was enacted in 1972, wastewater point-source pollution contributed to more than half of the water pollution problem in Minnesota. Due to the investment in wastewater control over the past 30 years, it is estimated that point sources today contribute approximately 14 percent of the state's water-pollution problem and nonpoint sources contribute approximately 86 percent of the problem [from 2000 Section 305(b) report from the MPCA to the U.S. Environmental Protection Agency (EPA)]. Nonpoint sources include contaminants in untreated rural sewage and urban and agricultural runoff.

Wastewater treatment issues are varied in Minnesota. The needs of larger cities are quite different than those of small communities. Small communities simply lack the capacity to pay for capital improvements and costs associated with operation and maintenance of a wastewater system. Furthermore, issues in the northern, forested lake regions differ from those in more urbanized and agricultural regions. In agricultural regions, where the land was drained for crop production, tile lines installed in the 1940s and 1950s were commonly used to convey sewage away from homes and businesses. This practice occurred before sanitation codes were developed. It was common for small, rural communities to route their wastewater through tile lines to the edge of town, combining sewage with groundwater and stormwater. This has resulted in the "community" straight pipes that occur in Minnesota and in many other states. These pipes convey raw sewage from multiple homes and businesses into a common collection system of drainage pipes. Community straight pipes are more common in agricultural cross-road communities than in small, rural communities located in forested lake regions.

The issues faced by lakeshore communities differ from those of cross-road communities. Lakeshore community problems include small lots, old systems, poor soils, surfacing of sewage in yards, and from individual straight pipes or "cheater" lines off hydraulically overloaded systems. Many lots cannot accommodate modern septic systems that meet the requirements of current codes due to small lot size and inadequate soils. Development pressures abound in lake communities, adding to the problem of conversions of modest, family cabins into large, year-round homes that occupy a large footprint on small lake lots.

Plan to Address Wastewater-treatment Problems

The MPCA recognizes that wastewater-treatment problems are a community issue. The issue is frequently long term in nature and difficult (and costly) to resolve. The MPCA recognizes that impairments of surface waters, delineated through Total Maximum Daily Load (TMDL) studies, are due in part to improperly treated sewage from homes and businesses. A team was established to document the nature and extent of wastewater management issues and to develop a more proactive strategy of dealing with them.

The first step in this effort was to develop a list of accomplishments over the past 12 years. A list of improvements was assembled using information from various sources, including the MPCA's database, Delta, records of sewer extension permits, interviews with regional compliance and engineering staff, and contacts with county officials. The Twin Cities Metro Area was not included in this list of accomplishments.

The second step was to develop an updated list of small-community wastewater needs. A listing of “unsewered” wastewater needs, originally developed in 1996-1997, required updating. A small community wastewater needs survey was developed and distributed to counties in 2006.

The third step was to identify barriers, determine key partners, and develop a strategy to work proactively with small communities. Since incorporated cities and unincorporated communities face different challenges, the strategy had to consider those differences. Stakeholder involvement is critical in the implementation of this strategy. Coordination is needed among multiple organizations if this effort is to be successful.

The goal of this effort is to eliminate the surface discharge of untreated wastewater from existing community straight pipes and from individual straight pipes and surfacing systems. To succeed, affordable, yet sustainable, wastewater management solutions that protect public health and the environment are needed.

12-year Summary of Wastewater Improvements

This section summarizes wastewater improvements made by Minnesota’s small communities during the past 12 years, from 1996-2007. The Twin Cities Metro Area was not included in this summary. Wastewater improvements generally occurred in three community types including, rural cross-road communities, groupings of homes in or near cities and lakeshore communities. Populations in the identified communities ranged from 13 to 3,300 people. Over the past 12 years, 111 small communities made significant progress toward resolving wastewater management issues (Table 1).

Table 1. Small community wastewater improvement efforts by MPCA region, 1996-2007

MPCA Region	No. of Communities	Range in Population	Estimated Population	Wastewater Treated Annually (Million Gal.)*
Southwest (MPCA Marshall)	26	31-505	4,106	89.9
Southeast (MPCA Rochester)	46	13-3,300	12,176	266.7
North Central (MPCA Brainerd)	10	20-1,179	3,186	68.6
Northwest (MPCA Detroit Lakes)	10	45-254	1,584	34.7
Northeast (MPCA Duluth)	19	25-2,211	10,957	240.0
Total	111	13-3,300	32,009	700

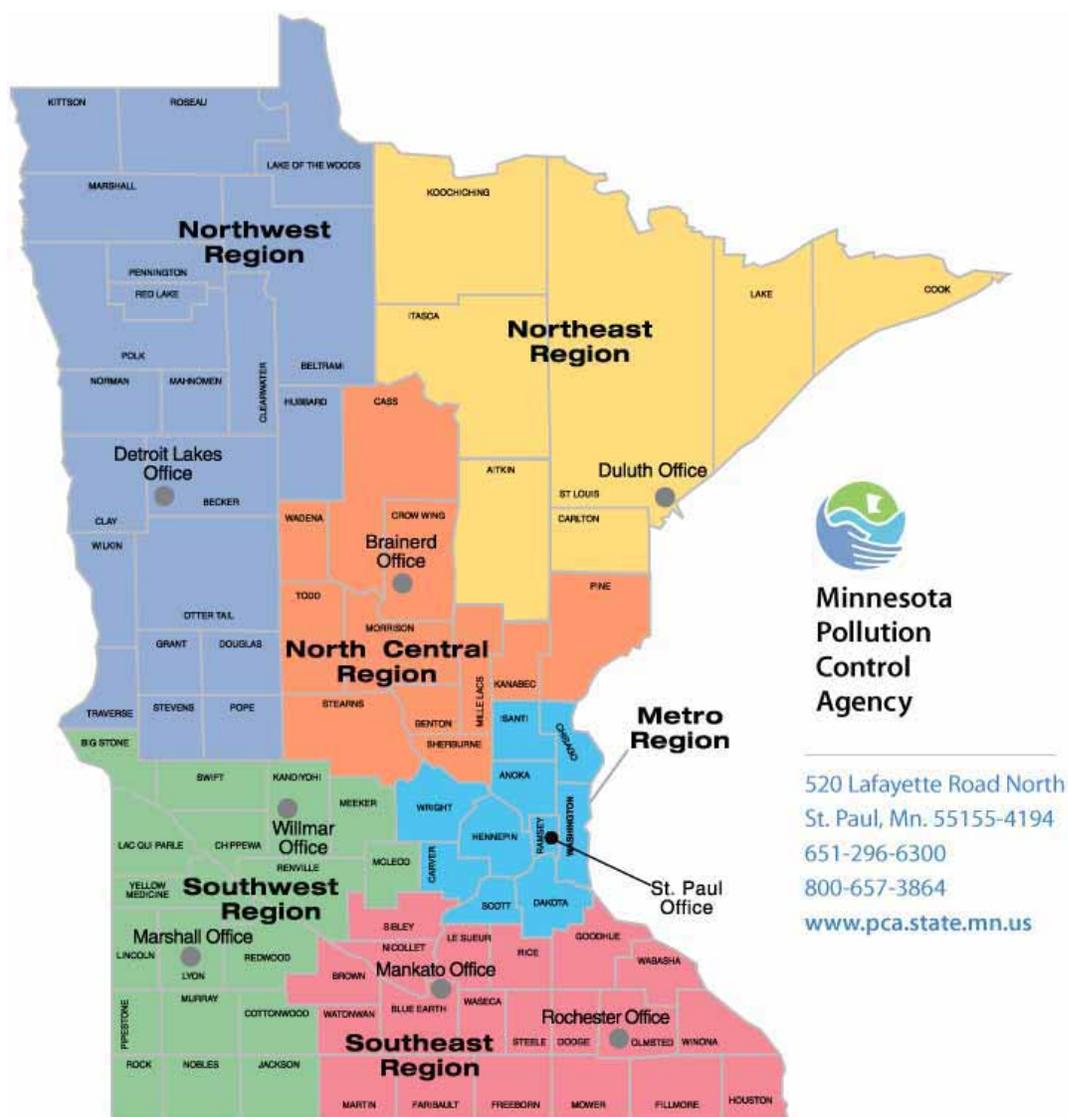
* Wastewater flows were estimated at 60 gallons per person per day for 365 days per year.

The 111 communities have a collective population of approximately 31,954 and generate about 700 million gallons of wastewater annually. Of the wastewater improvement efforts, 72 projects (65 percent) were in incorporated communities while 39 projects (35 percent) were in unincorporated communities. In some unincorporated areas, sanitary districts and subordinate service districts were established to construct and operate wastewater-treatment facilities. Other unincorporated areas were annexed to a city.

Regional Improvements

This section briefly summarizes wastewater improvements accomplished in each MPCA region of the state (Figure 1). Successful efforts used to assist small communities in resolving wastewater problems are identified. However, a summary of improvements in the Twin Cities Metro Area was not completed as part of this effort.

Figure 1. MPCA Twin City Metro Area and Greater Minnesota Regions



Southwest Region (MPCA Marshall and Willmar Offices)

In the Southwest Region, which covers 18 counties, 26 small communities with surface discharges were eliminated from the list of those with wastewater needs during this 12-year period (Table 2). This represents treatment of nearly 90 million gallons of sewage generated by about 4,106 people each year. All 26 communities had straight pipes that conveyed untreated or minimally treated wastewater onto the ground surface or directly into surface waters. These discharges likely contributed significant pollutant loads to receiving waters.

Table 2. Small community wastewater improvements, Southwest Region, 1996-2007

County	Community Name	Population	System Type*
Big Stone	Big Stone Hutterite	100	Ponds
Big Stone	Correl	45	SSTS (mounds)
Big Stone	Johnson	31	SSTS (individual)
Cottonwood	Bingham Lake	169	Connect Windom WWTP
Cottonwood	Delft Sanitary District	100	Wetland
Kandiyohi	Pennock	505	Ponds
Kandiyohi	Prinsburg	445	Wetland - sand filter
Lac Qui Parle	Boyd	190	Connect Clarkfield WWTP
Lac Qui Parle	Nassua	82	Connect Marietta WWTP
Lyon	Garvin	149	Ponds
McLeod	Plato	331	Connect Glencoe WWTP
Meeker	Cedar Mills	52	Wetland (pond)
Murray	Avoca	137	Ponds
Murray	Dovray	63	SSTS (cluster)
Murray	Iona	161	Ponds
Nobles	Leota Sanitary District	300	Ponds
Nobles	Lismore	224	Ponds
Pipestone	Ihlen	101	SSTS (cluster)
Pipestone	Woodstock	121	Ponds
Redwood	Delhi	70	Sand filter
Redwood	North Redwood	206	Connect Redwood Falls WWTP
Redwood	Revere	103	Ponds
Renville	Lake Allie ESSD	100	Wetland (golf course irrigation)
Rock	Kenneth	50	SSTS (cluster)
Swift	Clontarf	164	Ponds
Swift	Sunburg	107	Ponds
Total	26 communities	4,106	

* WWTP = wastewater-treatment plant ; SSTS = subsurface sewage-treatment system

About 90 percent of these small communities were incorporated (cities) and the rest (10 percent) were unincorporated areas. Two sanitary districts and one subordinate service district were organized to provide the legal, managerial, operational and maintenance requirements for wastewater treatment in three communities. Nearly 85 percent of the facilities were constructed and operated under a state permit. Fifteen percent of the communities obtained county construction permits for individual and community soil-based treatment systems with design flows less than 10,000 gallons per day.

A variety of technologies were used to correct wastewater problems. Some examples include the relatively simple soil-based individual septic system, community soil-based treatment systems, systems with permitted surface discharges or re-use (i.e., golf course irrigation) and conveyance to neighboring wastewater-treatment facilities. New wastewater stabilization ponds were the most common single type of facility constructed in the Southwest Region. A breakdown of the general classes of treatment technologies used is as follows.

- Eleven new wastewater ponds
- Five new treatment facilities - wetlands, sand filters, re-use
- Five connections to existing wastewater-treatment facilities
- Five new subsurface sewage-treatment systems (SSTs) — individual and cluster soil-based treatment systems

Various methods were used to encourage, or more forcefully persuade, small communities to provide adequate wastewater treatment for their residents and businesses. Appendix A contains a more complete description of approaches used in the Southwest Region to resolve lingering wastewater issues. MPCA staff used phone calls and meetings with mayors, county officials and other community leaders to determine the best actions for eliminating straight pipe discharges including, on occasion, elevated enforcement action.

Counties and cities played significant roles in initiating wastewater improvements in at least 12 small communities. The MPCA was involved directly with projects in at least 16 small communities. Regional compliance staff recognized the need to work with straight-pipe communities. However, due to time constraints, staff chose to work with a few (typically one to three) small communities at a time. When enforcement actions were used, the actions were typically nonmonetary in nature, with the intent to specify corrective actions and lay out compliance schedules to correct the surface discharge of raw sewage.

Southeast Region (MPCA Rochester and Mankato Offices)

In the Southeast Region, which covers 20 counties, 46 small community wastewater improvement projects were completed. These communities represent a collective population of 12,176 and generate about 267 million gallons of sewage annually (Table 3). Populations ranged from 22 to 3,300 people. About 46 percent (or 21 communities) were incorporated cities and 54 percent (25 communities) were unincorporated areas.

Table 3. Small community wastewater improvements, Southeast Region, 1996-2007

County	Community	Population	System Type**
Blue Earth	Pemberton	249	Ponds
Blue Earth	Lehillier	350	Connect Mankato WWTP
Blue Earth	Skyline	1,125	Connect Mankato WWTP
Brown	Evan	92	Ponds
Brown	Searles	137	Ponds
Faribault	Delavan	206	Ponds
Faribault	Frost	242	Ponds
Faribault	Walters	88	Ponds
Fillmore	Granger	22	SSTS (individual)
Fillmore	Rushford Village	604	Connect Rushford WWTP
Freeborn	Conger	185	Ponds
LeSueur	Kilkenny	157	Ponds
LeSueur	Lake Washington	822	Connect Mankato WWTP
LeSueur	Lake Sakatah	150	Connect Waterville WWTP
Martin	12 small communities	242	SSTS (individual)
Mower	Lansing Township	200	Ponds
Mower	Sargeant	78	Ponds
Mower	Belleman's Addition	55	Connect Austin WWTP
Mower	Dinsmore Addition	115	Connect Austin WWTP
Mower	Taopi	68	SSTS (individual)
Nicollet	St. George	65	Gravel filter/wetland
Nicollet	Courtland	559	Connect New Ulm WWTP
Olmsted	Chester Heights	201	Connect Rochester WWTP
Olmsted	Marion	63	Connect Rochester WWTP
Rice	Nerstrand	236	Sand filter
Rice	Dundas	679	Connect Northfield WWTP
Sibley	Green Isle	299	Connect Arlington WWTP
Wabasha	Hammond	242	Gravel filter
Wabasha	Millville	171	SSTS (individual and cluster)
Watonwan	Darfar*	138	SSTS (individual and cluster)
Watonwan	Lewisville*	249	Sand filter
Winona	Elba	227	SSTS (individual)
Winona	Garvin Heights	60	Connect Winona WWTP
Winona	Gillmore Valley	500	Connect Winona WWTP
Winona	Goodview	3,300	Connect Winona WWTP
Total	46 communities	12,176	

*Small communities with reported issues to resolve in 2007-2008

**WWTP = wastewater-treatment plant; SSTS = subsurface sewage-treatment system

Of the 46 communities, an estimated 12 communities had straight pipes that conveyed untreated or inadequately treated wastewater into surface waters. These straight-pipe communities had populations of 22 to 249 and likely contributed significant pollutant loads to the region's surface waters. The remaining communities were characterized by outdated, malfunctioning septic systems serving older residences, typically on small lots with soil conditions unsuitable for a modern septic system. These communities ranged in size from 60 to 3,300 people. Although it is difficult to determine the environmental impacts from discharge of inadequately treated wastewater on surface waters and ground water from these communities, it was likely significant based on the population.

In the Southeast Region, sewer extensions to existing facilities and construction of individual and cluster subsurface sewage treatment systems were the most commonly used methods to solve wastewater problems. Other facilities constructed were wastewater stabilization ponds and sand filters. A breakdown of general classes of treatment technologies used is as follows.

- Fifteen connections to existing wastewater-treatment facilities
- Seventeen new SSTs — individual and cluster soil-based treatment systems
- Ten new wastewater ponds
- Four new treatment facilities — gravel filter, sand filter, constructed wetlands

The Southeast Region has employed a number of methods to address unsewered problems since the early 1990s. Staff involvement with these projects included the following: public education, community assistance, and in some cases, low-level enforcement actions. Low level enforcement included both Letters of Warning (LOWs) and Notices of Violations (NOVs). The efforts of counties should also be recognized for community wastewater improvement projects. See Appendix B for additional information on approaches used in the Southeast Region.

The resources and time available to devote to these projects were very limited, which made it difficult to coordinate efforts with county staff and other agencies. There were a couple of notable exceptions. For some time, the Midwest Assistance Program (MAP) worked very closely with the MPCA in the Southeast Region. This joint effort ultimately resulted in the completion of three important projects. The MPCA also worked closely with several counties to identify problem areas and help cities develop and implement solutions. As with the joint MAP efforts, these too were very successful. However, due to limited staff resources, lack of an organized and systematic process and time, and minimal involvement by other agencies and local units of government, many of the projects took years to complete. A good example of this type of effort is Belleman's Addition, spanning 10 years from recognition of the problem in 1996 to completion of construction in 2006.

Since the mid-1990s, a number of changes have occurred that dramatically affected many of the unsewered communities in the Southeast. First, expansion of major wastewater-treatment facilities in Mankato and New Ulm provided capacity to increase their service areas and provide wastewater treatment for outlying unsewered areas. Second, a desire for residential and commercial growth spurred a number of communities to actively seek solutions to their wastewater needs. Third, many of the counties began to aggressively address unsewered issues because of changes to Minnesota Rules Chapter 7080 and the availability of limited grant funds.

Finally, in 2003, the University of Minnesota (U of M) Small Community Assistance Program created the Southeast Minnesota Wastewater Initiative or “Sewer Squad.” This initiative, funded through a 319 Grant and the Zumbro/Root River Joint Powers Board, provided education and technical support to communities in southeastern Minnesota. The Sewer Squad has played — and continues to play — an important role in the region by assisting communities in taking the first steps to address their wastewater-treatment needs. Its efforts have been instrumental in the completion of several projects during the past three years.

Wastewater-improvement projects completed in the Southeast Region over the last decade were considerable and likely resulted in improvements to area ground and surface water quality. However, many of the area streams, rivers and lakes remain on the Impaired Water List and much work remains to be done.

North Central Region (MPCA Brainerd Office)

In the North Central Region, which covers 11 counties, 10 small communities completed wastewater-improvement projects. These communities represent a collective population of 3,186 and generate an estimated 70 million gallons of sewage annually (Table 4). Seventy percent of the communities were incorporated cities and the remaining 30 percent were unincorporated areas. Half the facilities were constructed and operated under a state permit and the remaining half were constructed under local permits for individual and cluster septic systems.

Table 4. Small community wastewater improvements, North Central Region, 1996-2007

County	Community	Population	System Type
Cass	Ten Mile Lake	60	SSTS** (cluster)
Cass	Federal Dam	117	Sand filter
Cass	East Gull Lake	843	Ponds and mechanical plant
Cass	Shingobee Island	42	SSTS** (cluster)
Cass	Wabedo Township	20	SSTS** (cluster)
Crow Wing	Crosslake	1,179	Mechanical plant
Crow Wing	Emily	647	Ponds and Rapid Infiltration Basins
Pine	Henriette*	83	SSTS** (cluster)
Stearns	Roscoe	140	SSTS** (cluster)
Stearns	Springhill*	55	Constructed wetland, drip dispersal
Total	10 communities	3,186	

*Small communities with reported issues to resolve in 2007-2008

**SSTS = subsurface sewage-treatment system

Subsurface sewage treatment systems, both individual and cluster, were the most common wastewater management improvements used to in the North Central Region, followed by construction of new treatment facilities, including sand filters, mechanical facilities, and

constructed wetlands. New wastewater stabilization ponds were used by two communities. A breakdown of general classes of treatment technologies used is as follows.

- Five new SSTSs — individual and cluster soil-based treatment systems
- Three new treatment facilities — mechanical plants, sand filter, wetland with drip dispersal
- Three new wastewater ponds

Improvement projects occurred through county efforts for at least four known communities: Ten Mile Lake, Federal Dam, Shingobee Island, and Wabedo Township. Cass County recognized that wastewater improvements were needed, and successfully worked with communities to establish management structures, help find funding, and assist communities through permitting, construction and management. Cass County should be recognized for its efforts in organizing these communities, establishing management structures, obtaining funding, constructing wastewater infrastructure, and addressing the issue of ongoing system operation and maintenance.

Northwest Region (MPCA Detroit Lakes Office)

In the Northwest Region, 10 small communities with a total population of 1,584 have resolved or are working to resolve their wastewater issues (Table 5). Collectively, this represents over 34 million gallons of sewage generated annually.

In the Northwest Region, there were a few communities with some straight pipes that conveyed untreated, or minimally treated, wastewater onto the ground surface or directly into surface water. In other situations, malfunctioning and old septic systems were common or the community felt a need to upgrade facilities to provide services for growth and development. The population in these communities ranged from 45 to 254.

Table 5. Small community wastewater improvements, Northwest Region, 1996-2007

County	Community	Population	System Type
Becker	Wolf Lake*	45	SSTS** (cluster)
Hubbard	La Porte	160	SSTS** (cluster)
Kittson	Lake Bronson	254	Ponds
Mahnomen	Bejou	250	Ponds
Marshall	Strandquist	88	SSTS**(cluster)
Marshall	Viking	95	Activated sludge, sand filter with UV
Norman	Gary	241	Ponds
Pope	Villard	247	Ponds with spray irrigation
Pope	Farwell/Kensington	74	Ponds
Traverse	Dumont*	130	SSTS ** (cluster)
Total	10 communities	1,584	

*Small communities with reported issues to resolve in 2007-2008

**SSTS = subsurface sewage-treatment system

All of the communities in the Northwest Region with improvements to their wastewater-treatment capabilities were incorporated cities. Most communities (90 percent) were constructed and operated under a state permit; one was regulated under a county construction permit. A variety of wastewater technologies were used, although ponds were most frequently employed. A breakdown of general classes of treatment technologies used is as follows.

- Five new wastewater ponds
- Four new SSTSs — cluster soil-based treatment systems
- One new treatment facility — activated sludge with sand filtration

Northeast Region (MPCA Duluth Office)

In the Northeast Region, which covers seven counties, there were 19 wastewater-improvement projects representing a collective population of 10,957 people and nearly 240 million gallons of sewage treated annually (Table 6). The most widely used method for wastewater improvements was the construction of collection systems to existing facilities. Six areas near Duluth were connected to the Western Lake Sanitary District (WLSSD) treatment plant, while five communities were connected to other existing treatment facilities.

Table 6. Small community wastewater improvements, Northeast Region, 1996-2007

County	Community	Population	System Type**
Aitkin	Palisade*	118	Wetland and sand filter
Aitkin	Tamarack*	59	Wetland and activated sludge
Aitkin	McGrath*	65	SSTS (cluster mounds)
Aitkin	Aitkin	67	Connect Aitkin WWTP
Cook	Pike Lake	133	Upgrade SSTS around lake
Cook	Caribou Lake	348	Upgrade SSTS around lake
Itasca	Grand Rapids, annexed	242	Connect Grand Rapids WWTP
Koochiching	Rainy Lake, Jack Fish	625	Connect N. Koochiching SD
Lake	Town of Silver Creek	617	Ponds with drip at surface
St. Louis	Grand Lake	25	SSTS (cluster wetlands)
St. Louis	Crane Lake, west	524	Sand filter with P-removal
St. Louis	Hermantown extensions	2,205	Connect WLSSD
St. Louis	Hibbing extensions	250	Connect Hibbing WWTP
St. Louis	Fayal Township	2,211	Connect Gilbert WWTP
St. Louis	Pike Lake Area SD	1,200	Connect WLSSD
St. Louis	Duluth/North Shore SD	1,290	Connect WLSSD
St. Louis	Knife River SD	485	Connect WLSSD
St. Louis	Fond du Lac	390	Connect WLSSD
St. Louis	Proctor extensions	102	Connect WLSSD
Total	19 communities	10,957	

*Small communities with reported issues to resolve in 2007-2008

**SSTS = subsurface sewage-treatment system; WWTP = wastewater-treatment plant; SD = sanitary district; WLSSD = Western Lake Superior Sanitary District

Sewer extensions to existing plants accounted for 83 percent of wastewater improvements based on estimated population. In six communities, new treatment facilities were constructed that included three incorporated areas (McGrath, Palisade and Tamarack) and three unincorporated areas (Crane Lake West, Silver Creek Township, and Grand Lake). Two lake communities in Cook County (Pike Lake and Caribou Lake) undertook systematic compliance inspections to facilitate the upgrade of individual septic systems. A breakdown of general classes of treatment technologies used is as follows.

- Eleven connections to existing wastewater-treatment facilities
- Three new treatment facilities — sand filters, wetlands
- Four new SSTs — cluster soil-based treatment systems
- One new wastewater pond with surface dispersal using drip tubing

Seven sanitary districts were used or formed during this time, including the Western Lake Superior Sanitary District, North Koochiching Sanitary District, Duluth/North Shore Sanitary District, Pike Lake Sanitary District, Knife River Sanitary District, Crane Lake Sanitary District, and Tofte-Schroeder Sanitary District. A homeowners association was established at Grand Lake in St. Louis County. All areas, except Caribou Lake in Cook County, Pike Lake in Cook County, and Grand Lake in St. Louis County, were constructed under a state permit.

Many projects were undertaken in the region because grant funds were available for wastewater infrastructure improvements. University of Minnesota Small Community Wastewater Program staff worked with some small communities in the region. However, there has been no coordinated effort among various stakeholders to proactively work with small communities in the Northeast Region.

Counties play an important role in wastewater improvements for private infrastructure. Cook County has implemented improvement projects on area lakes. In 2002, the county established a systematic compliance effort around high-priority lakes. Out of 850 lakes, Cook County identified five priority lakes, including Pike, Caribou, Devils Track, Poplar and Gunflint. Systematic compliance inspections were completed around Pike Lake in 2003 and around Caribou Lake in 2005. Compliance inspections began on Devils Track Lake in 2006. Following compliance inspections, Cook County officials notify property owners that upgrades (which are the owners' responsibility) are required. Cook County funds a portion of this effort, including developing proposals, hiring and coordinating with licensed individual sewage-treatment system (ISTS) contractors to perform compliance inspections, and working with property owners when upgrades are required. Pike, Caribou and Devils Track Lakes are reported to have nearly 400 septic systems.

St. Louis County participated in a pilot project in 1996 when the Grand Lake wetland cluster system was designed, constructed and monitored for several years. The county also began a point-of-sale program in 2000 that required mandatory compliance inspections and the replacement of systems. Between 2000 and 2007, an estimated 1,800 septic systems were upgraded in the county through the point-of-sale program, at no cost to taxpayers. An estimated \$18 million was spent upgrading septic systems through the county point-of-sale requirements at

an estimated cost of \$10,000 per system. St. Louis County also recognized the importance of working with small communities and has an employee designated to work on small communities' wastewater issues.

Summary of Improvements 1996-2007

Wastewater improvements for 111 small communities occurred over the past 12 years. This equates to wastewater improvements in nine small communities each year, on average, over the past 12 years. Several organizations have helped small communities in this effort, including the MPCA, individual counties, Midwest Assistance Program (MAP), and the University of Minnesota (U of M) Sewer Squad. There are, however, communities with new facilities that continue to have operational issues and efforts are under way to resolve them with funding provided by the Minnesota Legislature.

The most common improvement methods for small communities (Table 7) were upgrading septic systems, followed by connections to existing wastewater-treatment facilities and construction of new stabilization ponds. Sewer connections to existing treatment facilities were more frequently used in the Southeast and Northeast Regions as compared to other regions. New ponds were more commonly used in the Southwest and Southeast Regions than other regions. Other new treatment facilities accounted for 16 improvement projects in Minnesota.

In southern Minnesota, the regions were successful in eliminating straight pipe surface discharges from at least 38 small communities. To move small communities ahead, MPCA compliance and enforcement staff typically worked with a few communities at a time using education, telephone calls and meetings with mayors and county staff, and elevated enforcement techniques. The Southeast Region saw the greatest number of projects due, in part, to the efforts of the University of Minnesota Sewer Squad funded by a 319 Grant. The Sewer Squad is significant because it provides an organized approach to work directly with communities. Joint efforts between the MPCA and MAP were also successful in helping small communities.

Table 7. Wastewater treatment improvement types by MPCA region, 1996-2007

MPCA Region	Connect to Existing Facility	New Stabilization Ponds	Other New Treatment Facilities	SSTS* (Individual & Cluster Systems)	Total
SW	5	11	5	5	26
SE	15	10	4	17	46
NC	0	2	3	5	10
NW	0	5	1	4	10
NE	11	1	3	4	19
Total	31	29	16	35	111

*SSTS = subsurface sewage-treatment system

The situation was somewhat different in northern Minnesota. In many cases, consultants worked directly with communities. In other areas, counties took the lead and played a crucial role in resolving problems, particularly in unincorporated lake communities. Counties used several

techniques, including whole lake compliance inspections (and upgrades), and allowed the use of cluster soil-based treatment systems in appropriate locations. Point-of-sale programs that require mandatory compliance inspections and replacement of systems are another effective tool used by counties.

Obstacles to resolving wastewater problems include the lack of funding to build effective wastewater facilities, from the relatively simple individual on-site systems to centralized, mechanical treatment works. Another significant obstacle is a lack of time and resources by both MPCA and county staff to work cooperatively with small communities. To improve effectiveness, an organized and coordinated effort among various entities is needed.

2006-2007 County Survey

Content and Distribution

A small community wastewater needs survey was developed and distributed to counties outside the Twin Cities Metro Area in May 2006 and to metro area counties in October 2006. A few counties responded to the survey in the fall of 2007 to qualify for Clean Water Legacy funding for septic system related grants. The survey is presented in Appendix C.

The purpose of the survey was to develop an updated, comprehensive listing of small communities with wastewater needs. The survey was completed by county ISTS staff that had knowledge of possible wastewater issues related to the use of on-site systems in the county or lack thereof, of a modern on-site system.

The survey recognized a small community as a cluster of five or more homes and businesses, on lots typically less than one acre in size, suspected or known to be in need of effective wastewater treatment. These could be groups of homes and businesses, without centralized wastewater treatment, and could include the following.

- Incorporated cities
- Areas within incorporated cities
- Unincorporated villages
- Manufactured home parks
- Subdivisions
- Lake shore developments
- Other clusters of homes and businesses

Unincorporated villages or communities are described as areas outside of city limits having homes and businesses. These areas include small, rural cross-road communities with groups of homes and businesses, typically located on a highway or on the intersection of two major roads; lake communities where homes and businesses surround lakes in shoreland areas or close to lakes and rivers and subdivisions located outside city limits, typically platted areas occupied by homes.

Wastewater-treatment areas of concern could be due to the following: no system, straight pipes and other surfacing systems, old systems, poor soils, or small lots. The survey included an inventory table for the county to complete critical information, along with a map to identify communities with wastewater needs. The counties were asked to outline each area on a map and assign a number to it. Requested information included the following.

- Estimated number of homes, businesses and population
- Whether the area is incorporated or unincorporated
- Unit of government
- Effort(s) needed to fix problems
- Receiving environment impacted
- County priority
- Nature of the problem

Survey data were entered into spreadsheets for each county. Where data were missing from a survey form, attempts were made to fill in missing information. For example, where estimated number of residences was missing, the number was obtained by viewing aerial photographs on the internet and counting the number of structures (or boat docks for lake properties) in the area identified on the county map.

The nature of wastewater problems were identified by counties according to the following categories:

1. Community straight pipes	Areas where individual homes and businesses drain their sewage to a common drainage pipe that collects sewage from the community and discharges to surface waters without proper treatment
2. Individual straight pipes	Areas where individual homes and businesses discharge directly to the ground surface, into a tile line, into a ditch or wetland, or into other surface waters
3. Sewage surfacing in yards	Areas where sewage comes to the surface in yards, either seasonally or year-round
4. Poor soils	Areas where poor soil conditions make it difficult to construct an individual system on each lot
5. Small lots	Small lots make it difficult to construct individual systems on each lot. This could be due to shape of the lot, rugged topography, and bluffs.
6. Other reasons	Examples include old systems, such as cesspools and drywells in karst area; known well contamination; and development pressures.
7. Unknown	Unknown reasons and development pressures

Population was obtained by either using census data for incorporated areas or by estimating population based on 2.5 persons per residence. The survey should provide a reasonable estimate of the number of small communities with identified wastewater needs. Annual residential flow

for each community was estimated by assuming 60 gallons per day per person for 365 days per year. Commercial flows (businesses) were not estimated and not included in wastewater flow estimates. Receiving environments were identified as those “nearby downstream areas” that could be impacted by wastewater flows, and included lakes, rivers, streams, creeks, wetlands, ditches and tile lines, and ground water. Finally, the counties prioritized wastewater issues using the following categories very high-, high-, medium-, or low-priority.

Survey Results

Seventy five of Minnesota’s 87 counties completed the wastewater survey (Figure 2). A summary of survey results statewide, and for each region, is shown in Table 8. Detailed county summaries are provided in Appendix B. Survey results do not include data from 12 counties because they did not respond to the survey. Ramsey County was not surveyed because that county lacks a subsurface sewage treatment system (SSTS) program. Finally, the data do not include information from townships and cities that administer their own SSTS programs.

Statewide Summary Results

The survey identified 1,025 small communities with wastewater needs, estimated to generate over 2.3 billion gallons of wastewater annually. The Southwest Region identified the fewest wastewater needs (78 communities) but has the greatest number of community and individual straight pipe communities. The Northwest Region identified the greatest needs (378 communities) but the fewest straight pipe communities.

The following provides a tabulation of the *total number of communities* reported to have some type of wastewater need by region, listed from the greatest to the lowest reported number of small communities with wastewater needs:

Region	No. of Communities
Northwest	378
North Central	195
Twin Cities Metro Area	136
Southeast	130
Northeast	108
Southwest	78
Total	1,025

Of the 1,025 reported communities, 103 are incorporated (cities) while 922 communities are unincorporated areas. Of the 103 incorporated areas, 77 communities (75 percent) are whole cities while 26 communities (25 percent) are portions of a city. Of the 922 unincorporated areas, 688 (75 percent) are lake communities, 174 (19 percent) are small cross-road communities, and 48 (five percent) are subdivisions.

Figure 2. Reported small community wastewater needs in Minnesota from county survey

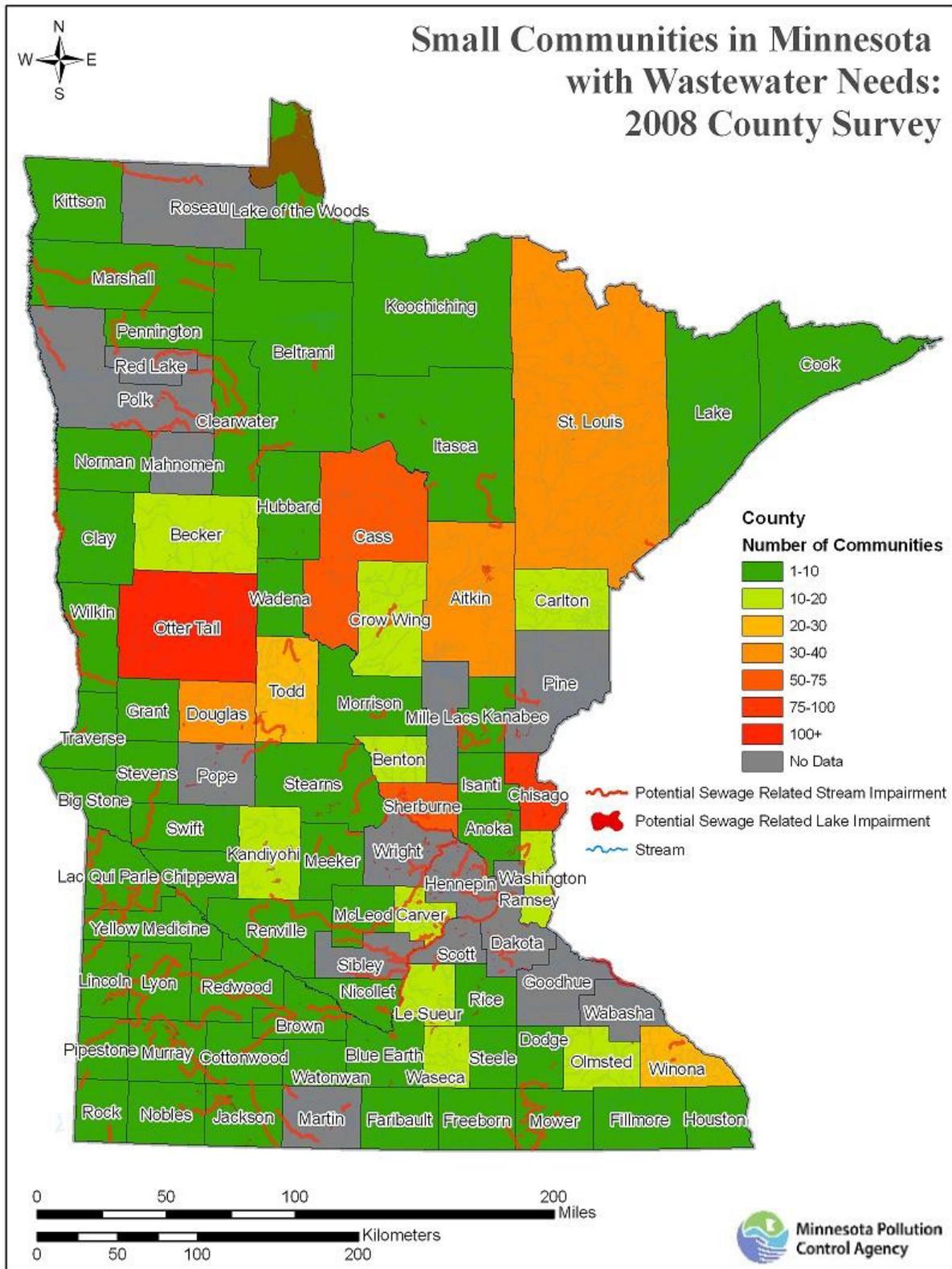


Table 8. Survey results summarized by region and statewide¹

	Metro Area	SE Region	SW Region	NE Region	NW Region	NC Region	Total
No. of reporting counties	5 of 10	18 of 20	18 of 18	7 of 7	18 of 21	9 of 11	75 of 87
No. of communities identified	136	130	78	108	378	195	1,025
Range in community size	10-1,891	8-1,695	13-975	5-500	4-2,080	3-3,952	3-3,952
Est. population of areas²	18,772	13,980	10,313	12,522	26,282	27,101	108,970
No. of incorporated areas	31	14	17	5	15	21	103
No. of incorporated cities	22	9	16	4	15	11	77
No. of infill communities³	9	5	1	1	0	10	26
No. of unincorporated areas	105	116	61	103	363	174	922
No. of unincorporated cross-road communities⁴	4	77	27	13	18	35	174
No. of lake communities⁵	90	18	28	83	330	139	688
No. of unincorporated subdivisions⁶	4	21	6	2	15	0	48
Other communities (on other surface water features)⁷	7	0	0	5	0	0	12
No. of community straight pipes	1	18	13	1	0	0	33
No. of individual straight pipes	6	11	27	4	1	24	73

¹ Survey results do not include data from 12 counties: 11 counties did not respond to multiple requests for information and 1 county (Ramsey) was not surveyed because it has no ISTS program.

² Estimates of populations were difficult to determine for unincorporated areas because no census data are available for those areas. However, population in incorporated areas was typically based on U.S. Census data.

³ Infill communities are individual homes or groups of homes and businesses located in a municipality.

⁴ Unincorporated cross-road communities are groups of homes and businesses found in the country, typically located on a highway or at the intersection of two major roads.

⁵ Lake communities are homes and businesses that surround a lake in the shoreland zone or near a lake.

⁶ Unincorporated subdivisions are typically platted areas occupied by homes outside of municipal boundaries.

⁷ Other communities are communities located close to wetlands, brooks, streams, rivers, or other surface water features.

One hundred and six (106) straight-pipe communities were identified through the survey. Of these, 33 communities were identified with known or suspected surface discharges using community straight pipes. Counties also reported 73 other communities with some suspected individual straight pipes that discharge wastewater to the surface. These communities typically have a mix of straight pipes, old systems, and more modern septic systems.

The following tabulation shows the *number of straight pipes* (both community and individual straight-pipes) reported by counties in each region, from the greatest to the lowest reported number of small communities:

Region	No. of Communities
Southwest	40
Southeast	29
North Central	24
Metro Area	7
Northeast	5
Northwest	1
Total	106

Most of the suspected or known straight pipe communities are located in southern Minnesota. The Southwest Region identified 40 communities with straight pipes while the Southeast Region has 29 straight pipe communities. The fewest communities with straight pipes were reported in the Northwest Region.

Small Community Wastewater Needs by Region

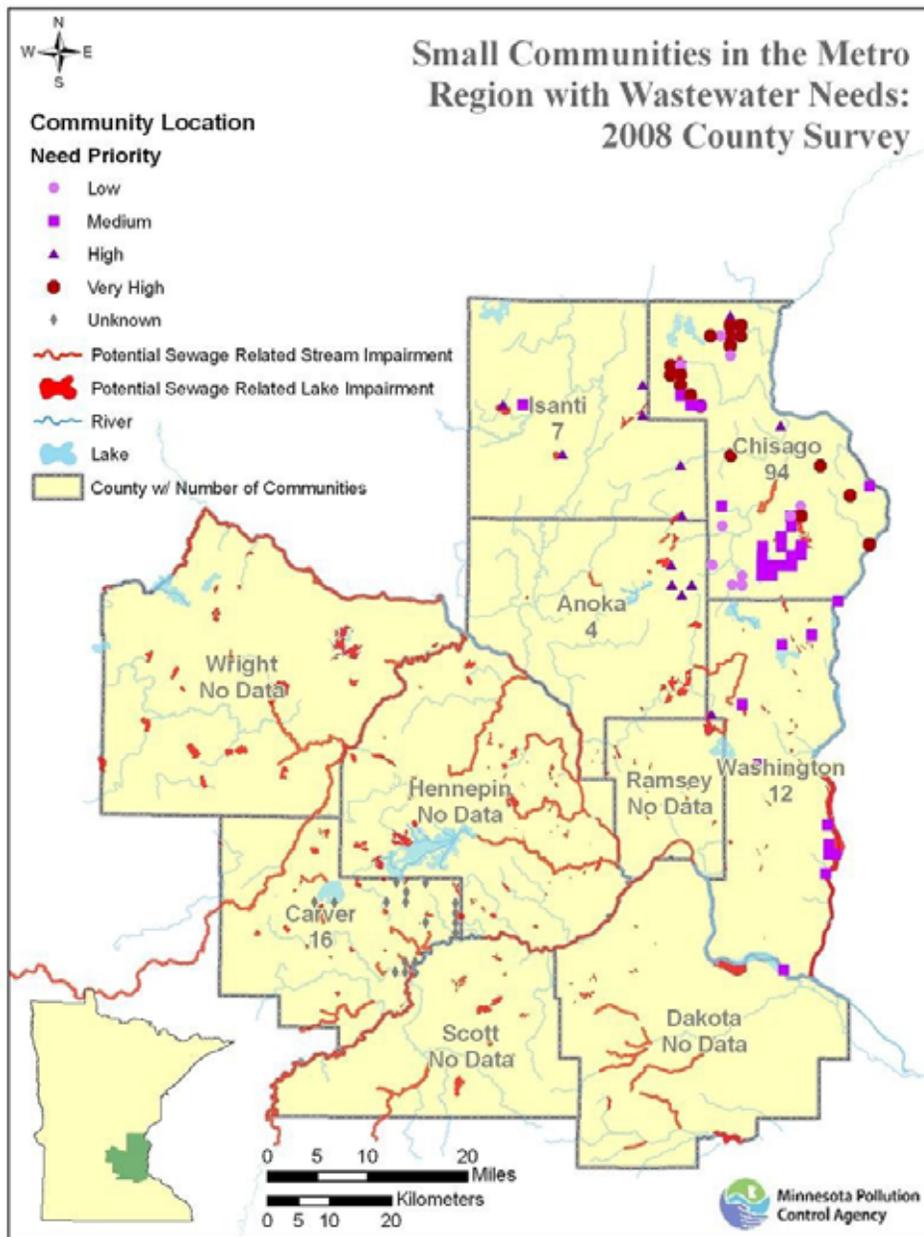
The following section briefly describes areas with wastewater needs by region. A map and summary of wastewater needs are shown for each region. Detailed information, by county, is provided in Appendix D.

Twin Cities Metropolitan Area

Five of the 10 Twin City Metropolitan Area counties (Anoka, Carver, Chisago, Isanti and Washington) responded to the survey (Figure 3). Ramsey County was not sent a survey questionnaire because it does not have a subsurface sewage treatment system (SSTS) permit and inspection program. Scott County indicated the information was on its Web site. Dakota County indicated townships should be surveyed since townships are responsible for the SSTS program except in shoreland areas. Hennepin and Wright counties did not respond to the survey.

Within the five responding counties, 136 communities with a population of 18,772 have some type of wastewater need. Of the 136 communities, 105 are unincorporated areas and 31 are incorporated. Of the 105 communities in unincorporated areas, there are 90 lake communities. The remaining communities are cross-road communities, subdivisions, or communities located on or near wetlands, brooks or streams.

Figure 3. MPCA Metro Area: Identified small community wastewater needs

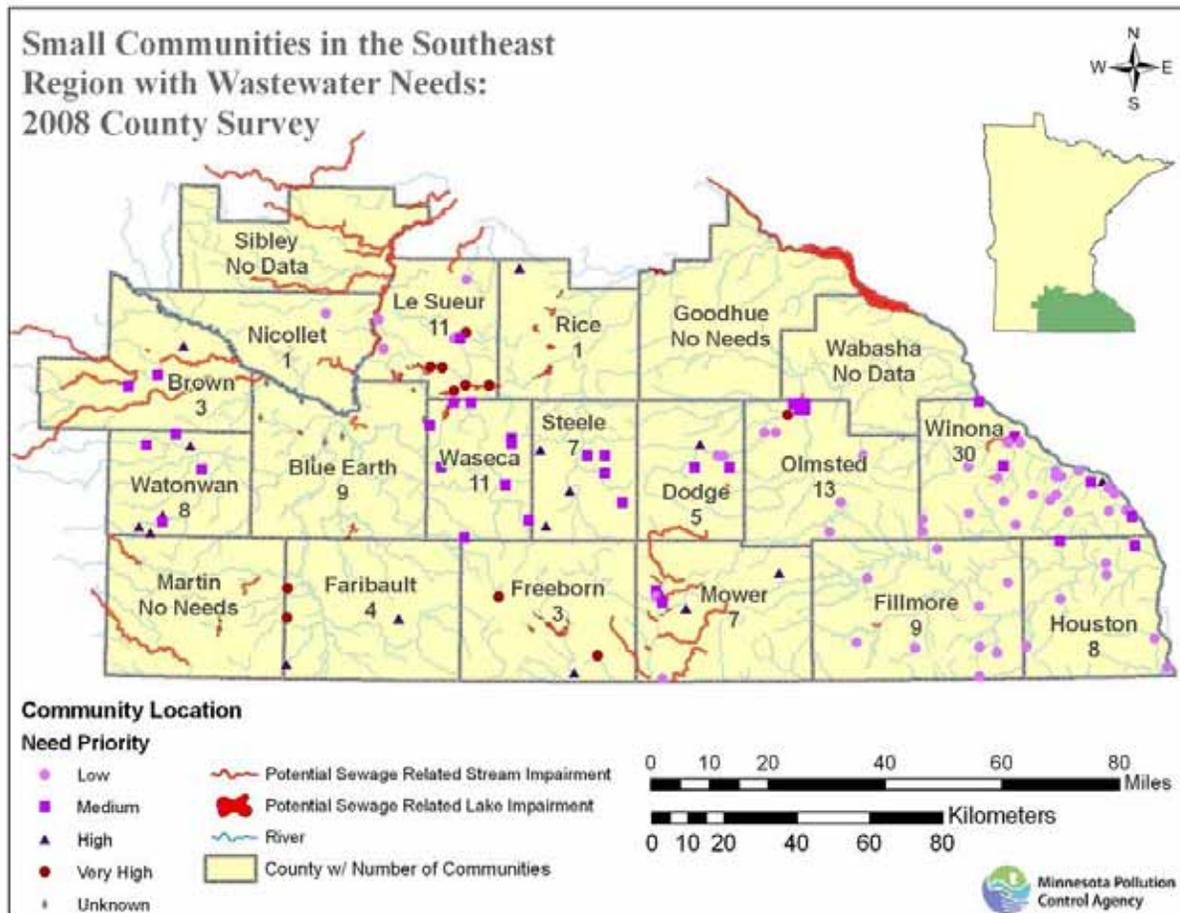


Of the communities that responded to the survey, only one community straight pipe was identified; six communities with some percentage of individual straight pipes are suspected to occur (based on neighboring county-wide inventory with a failure rate of nine percent). Only five counties responded to the survey; one of these (Anoka) listed needs only within shoreland areas and for food, beverage and lodging facilities. For this reason, other community and individual straight pipes could exist within the metro area. The Metropolitan Council has a comprehensive use plan for seven of the 10 Twin Cities Metro Area counties. The plan regulates growth and development within the metro region.

Southeast Region

The MPCA received survey results from county staff for 18 of the 20 counties in the Southeast Region (Figure 4). Two counties did not respond to the survey (Wabasha and Sibley); this is shown as “No Data” in Figure 4. Furthermore, two counties (Goodhue and Martin) reported “No Needs” shown on the regional map on Figure 4. One of the counties that indicated they had no needs, Martin County, provided a list of 26 communities that had been fixed, with 12 communities containing five homes or more; this was included earlier in the report on Table 3 that summarized wastewater improvements in the Southeast Region.

Figure 4. MPCA Southeast Region: Identified small community wastewater needs

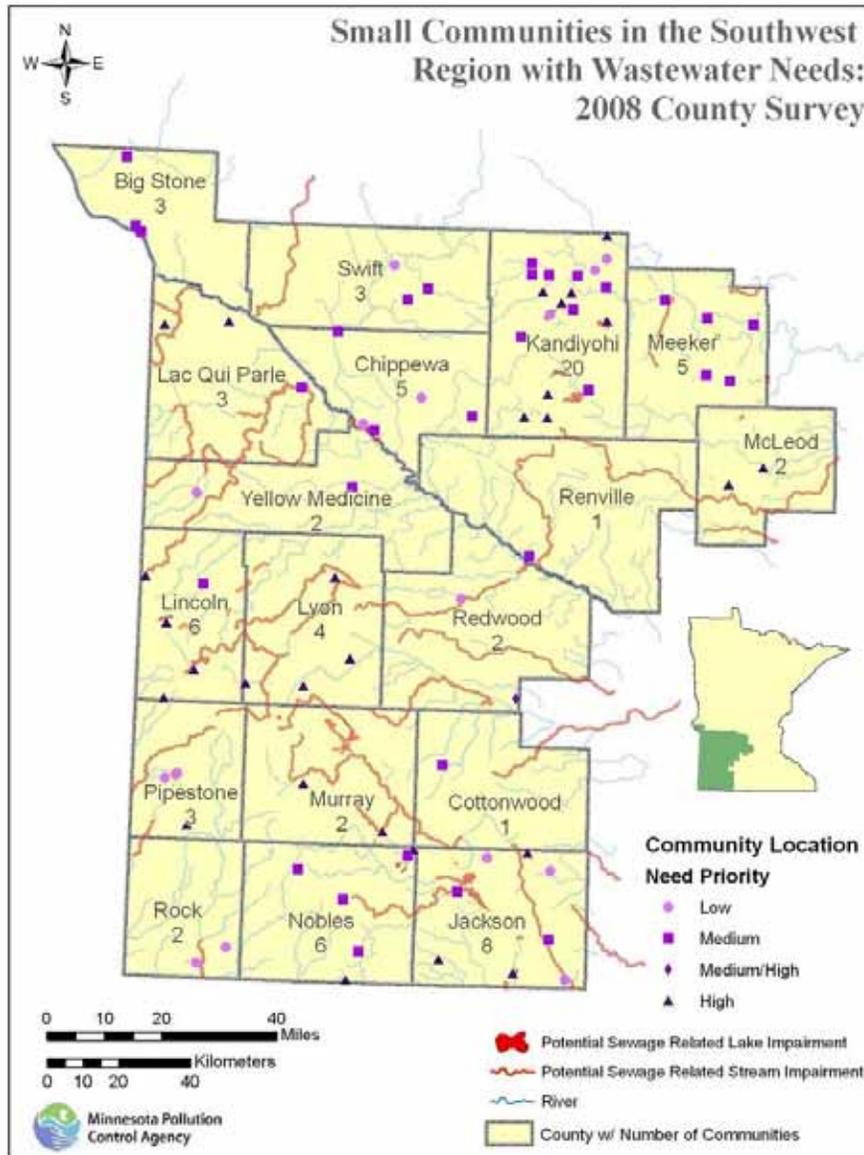


One hundred thirty (130) small communities with wastewater needs were identified in the Southeast Region. The total population of the 130 communities is estimated at 13,970. Communities range in population from eight to 1,695 people. There are 14 incorporated communities and 116 unincorporated communities with wastewater needs. Nearly 90 percent of the communities with wastewater needs in the Southeast Region are unincorporated areas. Of the 116 unincorporated areas, 77 communities (67 percent) are rural cross-road communities; this community type has the greatest need in the Southeast Region. There are 29 small communities with straight pipes. Of these, 18 have a community straight pipe while the remaining 11 have individual straight pipes.

Southwest Region

The MPCA received survey results from county staff for all 18 counties in the Southwest Region (Figure 5). Seventy-eight small communities with various types of wastewater needs were identified in the survey. Population of the 78 small communities is estimated at 10,313. Nearly 80 percent of the communities with wastewater needs in the Southwest Region are unincorporated areas.

Figure 5. MPCA Southwest Region: Identified small community wastewater needs



Seventeen of the small communities are incorporated municipalities. Sixteen of these municipalities indicated community or individual straight pipes and one larger municipality had “infill” wastewater need for older homes within the city limits. Sixty-one of the small

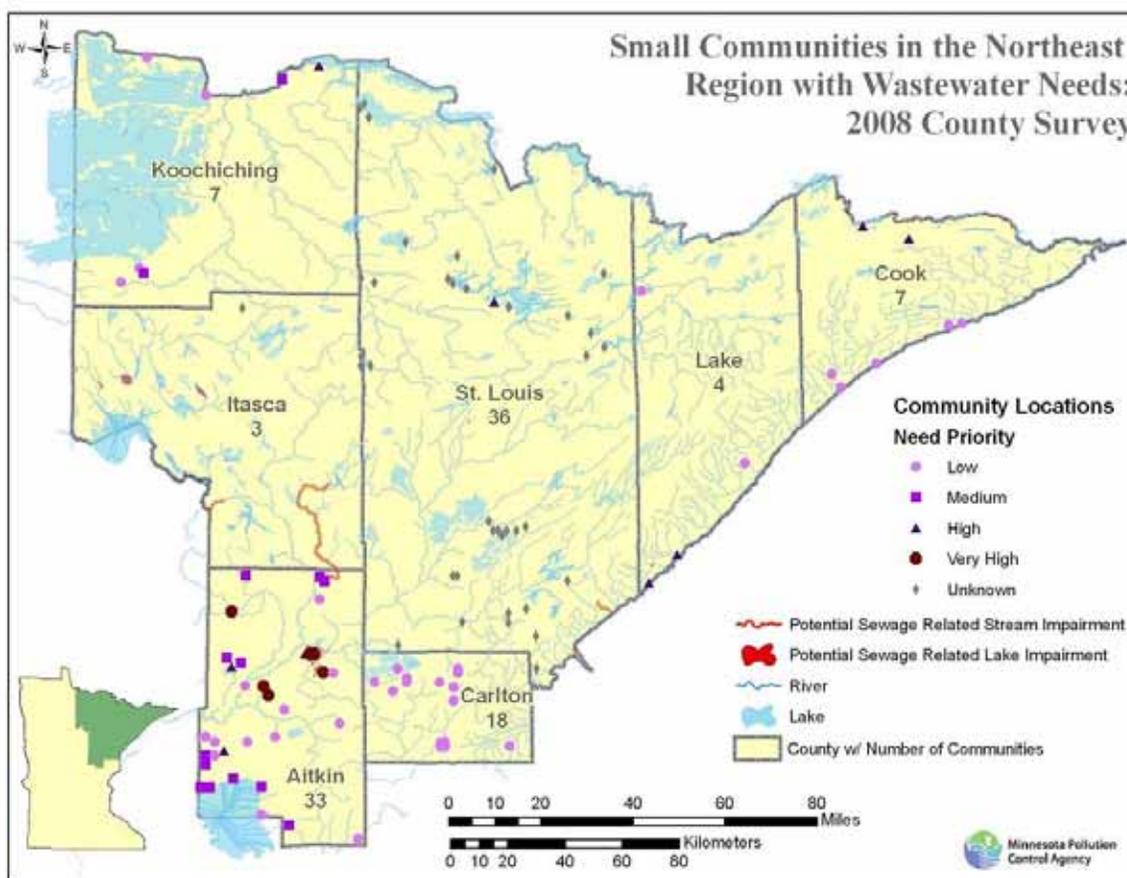
communities are unincorporated areas. These unincorporated areas included 28 lake communities, 27 cross-road communities, and six subdivisions.

The primary concern in the Southwest Region is small communities with community and individual straight pipes. There are 13 community straight pipes and 27 communities with individual straight pipes indicated in the survey.

Northeast Region

Seven counties in the Northeast Region identified 108 small communities with various types of wastewater needs (Figure 6). Five communities are incorporated cities and 103 areas are unincorporated. Four of the five municipalities are small communities; one larger municipality had “infill” wastewater needs for older homes scattered throughout the city. Population of the communities is estimated to total 12,522.

Figure 6. MPCA Northeast Region: Identified small community wastewater needs



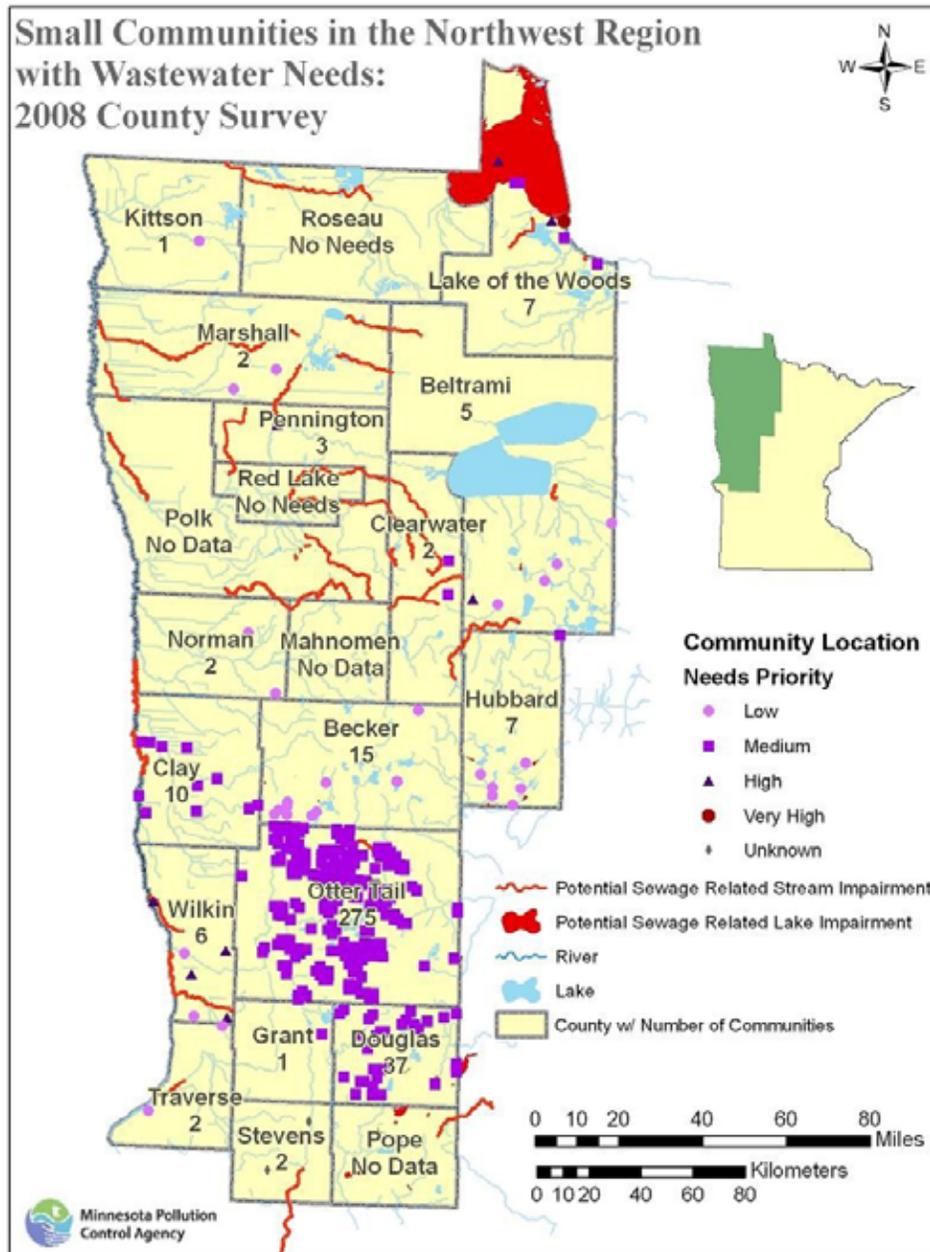
Only one suspected community straight pipe discharge was identified through the survey. Four communities may have some individual straight pipes. Unlike some other regions, artificial drainage via tile lines is not common. This is a forested region where the soils have not been tilled for crop production. However, individual straight pipes may be present in a number of communities. Of the unincorporated communities, 83 are lake communities and 13 are cross-road communities (a few of these cross-road communities are also close to a lake). In northeast

Minnesota, lake communities were identified as having the largest single need for improvements to their wastewater infrastructure.

Northwest Region

The MPCA received survey results from 18 counties in the Northwest Region (Figure 7). Of the 18 counties, two counties (Red Lake and Roseau) reported they had no small community wastewater needs; this is reflected in Figure 7 as “No Needs.” Three counties did not respond to the survey (Mahnomen, Polk and Pope) and have “No Data” on the regional map.

Figure 7. MPCA Northwest Region: Identified small community wastewater needs



The survey identified 378 small communities with various types of wastewater needs in the Northwest Region. An estimated 9,391 residences and 84 businesses were identified in these communities. The population of the 378 small communities is estimated to total 26,282. Collectively, the communities generate about 302 million gallons of wastewater per year.

Of the 15 cities, one city was reported to contain some individual straight pipes; small lots are also identified as an issue. In the remaining 14 cities, poor soils, small lot size, old systems, and surfacing of some systems were cited as issues in the communities.

Wastewater needs were identified in 363 unincorporated areas, which include 330 lake communities, 18 cross-road communities, and 15 subdivisions. The counties have jurisdiction over all but five of these communities. Ottertail County's map is more detailed since county staff provided more refined information. This is reflected in a greater number of small developed lots reported.

No community straight pipe discharges were identified through the survey. Unlike some other regions, artificial drainage via tile lines is not widespread; the soils have not been extensively tiled for crop production. However, individual or shared straight pipes may be present in a number of communities.

The primary concern in the Northwest Region is small communities with small lots and poor soils. Lake communities were identified as having the largest single need for improvements to their wastewater infrastructure.

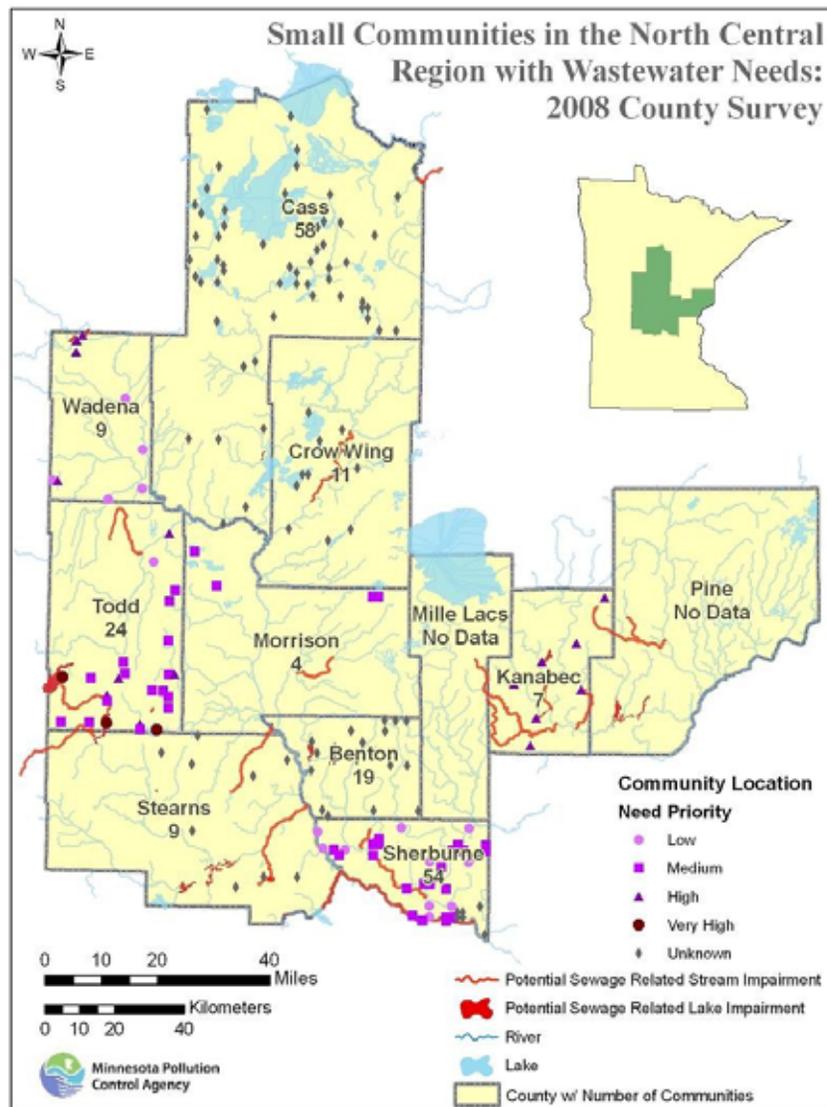
North Central Region

In the North Central Region, 195 small communities with wastewater needs were identified through the survey (Figure 8). The MPCA received survey results from county staff for nine of the 11 counties in the region. Two counties, Mille Lacs and Pine, did not submit survey data. The population for 195 small communities is estimated at 27,101, plus an additional 178 businesses. Collectively, the communities are estimated to generate more than 619 million gallons of waste per year.

There are 21 incorporated cities with wastewater needs. Of the 21 communities, 11 are entire communities while 10 are infill areas within the boundaries of cities. The remaining 174 communities are unincorporated rural areas, including 139 lake communities and 35 cross-road communities.

Twenty-four communities with individual straight pipes were identified in the survey. These straight pipes often discharge to tile lines and to the county ditch system. There were no community straight pipe discharges identified through the survey. In the North Central Region, lake communities were identified as having the largest single need for improvements to their wastewater infrastructure.

Figure 8. North Central Region: Identified small community wastewater needs



Small Community Wastewater Strategy

The MPCA recognizes that small communities (also called micro-communities) face different challenges than larger communities. What has been successful in larger cities may be prohibitively expensive in small communities as economics of scale disappear. Foremost to solving a small community problem is effective leadership, affordability, and availability of funding. A coordinated effort is needed among multiple organizations to assist small communities. Adequate funding is required for wastewater planning, establishment of management entities, capital costs for construction, and ongoing operation and management.

Goals

The primary goal of the Small Community Wastewater Strategy is to eliminate the discharge of raw or partially settled sewage into surface waters or onto the ground surface from suspected community straight pipes and individual straight pipes. The plan is to meet this goal by December 31, 2014. To achieve this goal statewide, 15 communities would require the construction of new wastewater infrastructure, each year, over the next seven years. A second goal of this strategy is to work more proactively with lake communities that have a variety of wastewater needs.

Setting priorities and working effectively with the identified communities are crucial to the success of this strategy. The process to determine priorities includes consideration of impaired waters and receiving environments, size of the community, volume of sewage generated, local priorities, community readiness, and funding. Funding is very important. The Small Community Wastewater Strategy includes three main sections.

1. Eliminate community straight pipes, in both incorporated and unincorporated communities
2. Develop stronger local wastewater programs to eliminate individual straight pipe discharges
3. Help communities in need of assistance (identified as #4 and #5 in the survey) through an effective working relationship with partners

Priorities

The following types of small communities are the highest priorities, although impaired waters and receiving environments need to be considered.

1. Communities with a common straight pipe discharging to surface waters in both incorporated and unincorporated areas
2. Communities with individual straight pipe discharging to surface waters or to the ground surface
3. Lake communities that use some type of subsurface system, but have poor soil conditions and lots too small for effective individual on-site sewage-treatment systems

Communities with straight pipes were identified as the highest priority because raw sewage is a very significant public health concern. Raw sewage can be linked to the transmission of disease, and impact water quality by affecting levels of pollutants reaching impaired waters. It is surprising that, even today in Minnesota, small communities lack basic sanitation.

The MPCA recognizes that incorporated and unincorporated communities have different needs. The strategy addresses some of these differences. Incorporated communities have governmental officials (mayor, city council), taxing authority and staff to deal with wastewater issues. Conversely, unincorporated communities have no unit of government, structure, or ability to obtain money, unless the 'larger' county or township government makes it a priority to assist rural residents in resolving their wastewater issues. Unincorporated areas are a group of residents living in a community, typically an older community, established before modern codes were put in place. The communities typically have lower incomes than the larger, incorporated

communities. Unincorporated communities lack the capacity to do things collectively; they need some type of organizational structure with the capacity to manage their wastewater effectively.

Input from key stakeholders is critical for successful implementation of this strategy. The strategy should be reviewed by MPCA management and by key stakeholders. Some of the stakeholders include counties, cities and town, funding agencies, such as USDA Rural Development, Public Facilities Authority, Corps of Engineers, Midwest Assistance Program, Regional Development Commissions, Engineering Councils, Soil Scientists, Minnesota Onsite Wastewater Association (MOWA), University of Minnesota Onsite Sewage Treatment Program, Minnesota Environmental Partnership (MEP), and the SSTS Advisory Committee.

The strategy to eliminate surface discharges should include the following considerations.

- Understanding barriers that make it difficult or impossible for small communities to solve their problems and eliminating these barriers
- Identifying key organizations and groups that need to play roles in helping small communities and what those roles and responsibilities will be, including the role of the MPCA
- Determining how the organizations and groups will collaborate to successfully assist small communities

Barriers

To be successful, a strategy must consider potential barriers to implementation. Small communities typically face multiple barriers including the following excerpted from a communication with Brent Parker, Iowa Department of Natural Resources, in 2006.

- Insufficient funding – low income of residents, low funding availability, and high costs for conventional wastewater collection and treatment
- Lack of management entities – limited capacity of small communities, especially unincorporated communities, to work through the issue, resolve it, and manage wastewater treatment systems
- Lack of technical support – by both public and private design practitioners, engineers, soil scientists, and service providers. There is a general lack of training and understanding of alternative technologies and soil-based treatment systems and lack of standards, similar to Ten State Standards
- Lack of community decision making support – there is no process in place to support small communities in helping them make sound decisions in wastewater planning and implementation
- Lack of coordination and misunderstanding – there has been no coordinated effort among the multiple organizations and groups. Different groups have their own set of biases when working with small communities. Coordination among participants is needed and agreement that there are a range of options
- Capacity impediments – lack of capacity at state and local level to provide adequate support of this issue; lack of knowledge and will by locally elected officials

- Regulatory impediments – including both the process, rules, and lack of governing body. Regulatory impediments include the MPCA, capacities of counties to work on this issue, and interaction among counties and their respective townships and cities as it relates to local ISTS ordinances and jurisdiction
- Lack of political and social will – stakeholder groups can provide effective leadership and communication to obtain financial support for this effort. Small communities need a reasonable level of funding for wastewater infrastructure improvements. People used to paying nothing for wastewater disposal may object to paying anything.

Strategy Part 1

Identify key partners, their roles and responsibilities and establish a process for collaboration among partners.

Identify key partners (i.e., the MPCA, counties, townships, cities, funding agencies, regional development commissions, joint powers boards, University of Minnesota Small Community Assistance, and private consultants) and what individual roles and responsibilities will be. Develop memoranda of understanding or cooperative agreements to solidify partnerships. Partners could develop a statewide work plan of priority communities each year. Regular meetings are needed to exchange information and coordinate activities.

Action 1. Identify roles and responsibilities of stakeholders. Establish a working committee that meets regularly. Develop a comprehensive, statewide work plan and prioritize communities.

Action 2. Develop a memorandum of understanding or cooperative agreement to solidify partnerships. Have facilitators available to provide educational and technical assistance. Develop a process to maintain effective communication, including regular meetings and an electronic bulletin board where questions from partners can be posted.

Action 3. Build political will. Legislators need to understand the issues and provide adequate funding. Stakeholders, including governmental organizations, environmental groups, and professional organizations, need to support this effort.

Action 4. Obtain sufficient funding. Upfront costs associated with small community wastewater planning include education, facilitation, evaluation of existing systems, evaluation of options, development of preliminary engineering reports and establishment of sanitary districts or other responsible management entities. Funding sources for upfront costs, financial incentives and construction activities are important to the success of the strategy. Counties have identified that a grant program is needed, especially for low-income residents.

Strategy Part 2

Determine how MPCA will work internally to proactively help solve wastewater issues for incorporated communities and unincorporated areas.

Regional teams will work directly with small communities. Individual work plans will reflect this effort. A guidance document to explain how to work with small communities is needed. Expertise in the establishment of responsible management entities is needed to help communities get organized to manage wastewater effectively.

Action 1. Establish MPCA teams in each region. Regional teams function under varying levels of organizational formality. The regional team's main function is to rank and prioritize projects and work with communities. The teams should be composed of MPCA personnel including the municipal unit supervisor, staff from point-source compliance, point source engineer,

ISTS, TMDL, and watershed staff. The teams could likely be expanded to include external partners, such as county staff for unincorporated areas, city staff for incorporated cities, funding entities, University of Minnesota Small Community facilitators, Regional Development Commissions, Midwest Assistance and others.

Action 2. Determine team responsibilities in individual work plans. Distribute workload requirements and use a cooperative approach. Meet as regional teams and as a group periodically to discuss process, progress, and issues. Pursue opportunities for improved coordination among related MPCA programs.

Action 3. Develop a guidance document that describes how to work with small communities based on collective years of varied experience and successes. Develop expertise on how to establish effective sanitary districts, subordinate service districts, and other responsible management entities.

Action 4. Identify how and when MPCA enforcement tools may be used to seek compliance, in both incorporated and unincorporated areas. Determine how the MPCA intends to implement compliance and enforcement measures to encourage action to resolve illegal surface discharges. Create a list of compliance and enforcement options and include them within the MPCA document, *Enforcement Response Plan*. Identify how the 2006 Straight Pipe Act can be used as a compliance-seeking tool.

Action 5. Collect data to document improvements in surface water quality following the elimination of straight-pipe surface discharges. Document the impact of eliminating illegal surface discharges through surface water quality monitoring. A monitoring plan for high-priority straight-pipe discharges is needed.

Strategy Part 3

Provide effective support to local programs and efforts to solve wastewater issues.

Action 1. Provide sound decision-making guidance to counties and lake communities and direct appropriate resources to ensure that unincorporated communities get the needed help. Determine how the MPCA proposes to help counties and lake communities (through lake associations or other property owner groups). Identify and enlist local “sparkplugs.” Determine what roles MPCA staff in nonpoint-source programs will have. The University of Minnesota Small Community facilitators may be the first stop for information. Develop a *technical* guidance manual to work with communities on the decision-making process.

Action 2. Provide sound technical support. Develop design guidance documents for alternative and innovative wastewater treatment and collection technologies for small communities and decentralized systems. Provide training to consultants and counties on small-system technologies from site evaluation and design through operation and maintenance.

Action 3. Disseminate county pilot project outcomes and provide funds to counties. Identify successes in Minnesota that we can share with other counties to help address individual systems with straight-pipes or surface failures; provide case studies. Distribute information through the MPCA Web site, MPCA Subsurface Sewage Treatment System (SSTS) Report, Minnesota Onsite Wastewater Association (MOWA) newsletter, workshops for local units of governments, conferences, and reports. Replicate county pilot projects in high-priority watersheds and provide funds to counties. Encourage counties to adopt point-of-sale programs.

Action 4. Build community capacity and establish responsible management entities, utility management organizations or sanitary districts and provide implementation funds. The purpose of these entities would be to provide wastewater-management services to small communities that typically do not have the capacity to accomplish this effectively. This structure would be similar to EPA's Model 3, Model 4 or Model 5, privately or publicly owned and operated by the entity. Systems could include individual sewage systems, clusters or treatment plants, all managed by the entity.

Action 5. Develop tools, regional workshops and educational events for small communities. Coordinate efforts between MPCA and U of M. Assemble organizations, contacts, planning documents, etc. Hold regional workshops for small communities and planning commissions. Develop a track for the annual wastewater conference, MPCA sponsored conferences, and other venues. Post information on the MPCA Web site.

Tools and Resources for Small Communities

This section of the report provides a partial listing of Web sites that contain wastewater information that small communities might find useful. The Web sites provide general information education for homeowners, options for wastewater treatment, technical information, and funding resources.

Minnesota Pollution Control Agency

www.pca.state.mn.us/water/wastewater.html

www.pca.state.mn.us/programs/ists/index.html

Minnesota Rural Water Association

www.mrwa.com/

Minnesota Regional Development Organizations

www.mrdo.org/

Midwest Assistance

map@map-inc.org

USDA Rural Development

www.rurdev.usda.gov/MN/

Public Facilities Authority

www.deed.state.mn.us/Community/assistance/pfa.htm

University of Minnesota

<http://septic.umn.edu/scwep/index.html>

Small Flows Clearinghouse

www.nesc.wvu.edu/nsfc/nsfc_index.htm

www.nesc.wvu.edu/nsfc/NODP_products.htm

This is a series of products available from the National Onsite Demonstration Program's (NODP) Phase IV project. The “Tool for Communities” series is designed to assist communities address on-site/decentralized wastewater-management issues.

Environmental Protection Agency

www.epa.gov/owm/index.htm

<http://cfpub.epa.gov/owm/septic/index.cfm>

Stakeholder Input

Limited stakeholder input was obtained in developing this report. A meeting was held with the Partner’s Group in 2006. The Partner’s Group represents several organizations that work with small communities on wastewater issues. Several reviewers provided comments on the draft report. The draft report was posted on the MPCA website in February 2008. Participating counties were notified via email of the draft report and asked to provide comments. A few counties provided comments. Presentations were made at various meetings and conferences. The strategy outlined in this report is considered a starting point to systematically address the issue. It is expected to change as implementation continues and additional information is obtained.

Next Steps

The following are the next steps expected to occur in 2008:

- This report will be placed on the MPCA Web site and distributed to counties and other interested parties in February. It will be updated as needed in the future to reflect strategy changes and to provide updates on implementation.
- The establishment of MPCA regional teams began in November 2007. By May 2008, supervisors will meet with regional staff to introduce them to the small community regional team concept.
- Regional teams will ‘get to work’ and begin to develop implementation strategies for each region. Each region is expected to have some unique approaches in prioritizing, working with external partners and the communities. There will be an assigned state and regional leader to coordinate and report on statewide and regional activities and progress.
- The state unsewered coordinator will consult with regional leaders on the various activities, issues and progress. The coordinator will prepare an annual update addressing the progress of this effort. This information will be shared with interested parties.
- Develop and implement a Communication Plan so information from the report can be distributed and communicated to the people of Minnesota.

Appendix A. Approaches in the Southwest Region

The Southwest Region has historically taken an active approach in resolving straight pipe unsewered community wastewater treatment needs. The Region has utilized a Regional Team approach.

Historically, the Regional Team has functioned under varying levels of organizational formality. The Regional Team's main functions are to rank and prioritize which projects will be added to the current work plan, distribute work load requirements, and to work together to resolve issues. The current team, under the direction of the Municipal Unit Supervisor, includes point source compliance staff, located in the Marshall and Willmar offices, a point source engineer, and an individual sewage treatment system (ISTS) staff person.

A point source compliance staff person typically takes the lead on projects initiated by the MPCA that involve incorporated municipalities with straight pipe discharges. The ISTS staff person, permit writers and non-point staff are consulted and included in discussions on a frequent basis. Staff work on no more than two or three projects at a time as projects can be time consuming and regular work plans need to be taken into consideration. As the project progresses, the point source compliance staff become less involved and more time commitment is required from the MPCA review engineer assigned to the team. The MPCA review engineer takes the lead role of working with the unsewered community's consultant engineer. This includes ranking the project on the Project Priority List (PPL), facility plan review, plan and spec approval, and one-year start up items and submittals.

Workload priority ranking is dependent on the size of the unsewered community, the receiving stream, and when assistance has been requested either by the unsewered community, county or Southwest Region nonpoint staff. Total Maximum Daily Load (TMDL) projects also influence the ranking of unsewered communities. A good example would be the dissolved oxygen TMDL affecting the lower Minnesota River Basin. Three unsewered communities in the Southwest Region have been identified in Appendix F of the Minnesota River Basin General Phosphorous Permit. These unsewered communities, all incorporated municipalities with straight pipe discharges, are considered a high priority. Additional unsewered communities may also be added to Appendix F in the future and these projects will also be considered a high priority.

The Southwest Region has found that there is no standard cookbook method of resolving issues. Some projects require a lot of compliance staff time commitment which can involve attending several meetings along with an enforcement action. Typically, the enforcement action is a Notice of Violation (NOV) with a series of corrective actions. Some projects are initiated by a few phone calls to the city, and external partners. These projects can require very little compliance staff time commitment. All scenarios typically require a high amount of the MPCA review engineer staff time commitment.

It is important to have good external partners in the region. The Southwest Region has found that MPCA does not need to have all of the answers, but needs to provide guidance and information to the unsewered community. In recent years, the Southwest Region has depended on Regional Development Commissions, the area assigned USDA Utilities and the area Community Facility

Specialists to help the unsewered communities through the planning and funding process. In previous years, Midwest Assistance Program (MAP) has been involved. Most projects are worked in cooperation with the governing County Environmental staff. The success of resolving unsewered community wastewater treatment needs can be predetermined by the type of team approach that is initially put in place.

Typical projects in the Southwest Region involve an incorporated municipality (city) ranging in size from 50-500 people. The city has a combined sanitary and stormwater sewer collection system that it maintains. Each residence has a septic tank that discharges to the combined sewer. The septic tanks are not regularly maintained and pumping does not occur on a regular basis. The collection system typically discharges into a drainage ditch on the edge of the community.

The Southwest Region has also resolved several projects that involve unincorporated communities (such as a village). Typically, the village has system problems similar to those of a city but there is no city government. These villages are required to form Sanitary Sewer Districts or Joint Powers Boards if they want to apply for public funding, have taxing authority, and have the ability to establish a governing authority to operate the proposed wastewater facility.

Typical Case Study scenario with escalated MPCA involvement:

1. The city is contacted and a city council meeting is scheduled with other external partners; county, USDA, Regional Development Commissions, etc. It is essential to obtain background information and locate and sample the discharge location before the city council meeting, if possible.
2. An MPCA personnel introduces themselves to the city council and the city is requested to share information regarding its current system.
3. The city is informed of its alleged violations of Minnesota Rules or Statutes pertaining to the city-wide sanitary collection system that the city is operating for the discharge of inadequately treated wastewater. If available, discharge sample results and documentation are shown to the city.
4. The city is presented with information regarding other communities in the area that have resolved their issues in recent years.
5. County, USDA, and Regional Development Commissions personnel introduce themselves to the city and provide information.
6. The county becomes more involved if the community is unincorporated and the forming of a sanitary sewer district is required.
7. The city is typically sent an NOV enforcement action. Prior to and following the issuance of the NOV, the regional team works with the city to monitor compliance, guide the city through the corrective action requirements of the NOV, and point the city in the right direction to obtain available resources.

8. The NOV typically contains the following corrective actions:

- Immediately upon receipt of this notice, the city shall impose a prohibition on all new connections and shall not connect any additional homes or businesses to the existing combined sanitary sewer and stormwater-collection system.
- Immediately upon receipt of this notice, the city shall retain records of any repair or replacement work done on any existing septic tank or its connection into the city collection system. The records shall be retained until the city begins use of a permitted wastewater-treatment facility and shall be made available for inspection by the MPCA upon request.
- Commencing within 90 days after receipt of this notice, the city shall have the sewage solids from all of the septic tanks within the city pumped by a licensed individual sewage treatment system pumper contractor on a yearly basis until the city constructs a permitted wastewater-treatment facility. The city shall maintain records of the date the septic tank was pumped, the address of the home the septic tank serves, and the licensed pumper who pumped the tank. The records shall be retained until the city begins use of a permitted wastewater-treatment facility, and shall be made available for inspection by the MPCA upon request.
- Within 30 days after receipt of this notice, the city shall retain an engineering consultant for the purpose of reviewing wastewater treatment and collection system options.
- Within 90 days after receipt of this notice, the city shall submit a schedule to achieve compliance with discharge standards. The schedule should include a timetable with start and completion dates for the following: city analysis of wastewater treatment options; a plan of action to retain funding; submission of a permit application to the MPCA; hiring or contracting with a certified operator to operate the constructed wastewater-treatment facility. The funding portion of the submission should include a timetable for making contact with various entities such as USDA Rural Development, the Minnesota Department of Trade and Economic Development and the regional development commission to analyze funding options. The city's schedule shall achieve compliance with federal and state rules, regulations and statutes for the treatment of its wastewater within 36 months.

Appendix B. Approaches in the Southeast Region

In the Southeast Region MPCA staff initiated an unsewered program in the early 1990's. At that time, the program was not considered an MPCA agency priority so no formal plan was established. Compliance and enforcement staff, acting as the lead for unsewered issues, were charged with complaint investigation and follow up duties.

Most of the early wastewater projects were initiated based on complaints. The projects completed during this time period were more the result of staff persistence and trial and error than from any organized approach. Nevertheless, there were valuable lessons learned during this period and that knowledge has formed the basis for the current process employed in Southern Minnesota. That process is described in Appendix A and it fairly depicts the approach currently utilized by MPCA staff in the Southeast Region.

Additionally, it is important to note that in 2003, the University of Minnesota Small Community Assistance Program created the Southeast Minnesota Wastewater Initiative or "Sewer Squad". This initiative, funded through a 319 grant and the Zumbro/Root River Joint Powers Board, was intended to provide education and technical support to communities in southeast Minnesota. The effort has now grown to other areas of the state and plays an important role by assisting communities in taking the first steps to address their wastewater treatment needs. An important lesson learned in the Southeast Region has been that it is absolutely crucial that compliance and enforcement staff form strong working relationships with both internal and external partners.

The Sewer Squad typically plays the role of educator, community advocate and facilitator in helping small communities acknowledge that they have a problem. The group provides guidance and support to small communities through the planning process. They are generally considered an unbiased entity by small communities since they will not gain financially. Furthermore, the University is trusted because they have no regulatory authority, while the MPCA is viewed as a regulator bringing potential enforcement action if the community does nothing or takes too long.

Appendix C. Survey Distributed to Counties in 2006

Dear County Officials:

RE: Listing of Wastewater Needs in Small Communities — also called “Straight Pipes” and Suspected or Known Septic System Problem Areas

The Minnesota Pollution Control Agency (MPCA) is developing an updated, comprehensive listing of “small communities” not serviced by centralized wastewater treatment systems. The intent of this effort is to develop a three-fold proactive strategy to:

- ❑ Identify the treatment need
- ❑ Estimate financial need
- ❑ Plan for timely, cost-effective solutions

This is a renewed effort to begin to identify the need in our state. Your help is critical!

A “small community” is being recognized by the MPCA as a cluster of five (5) or more homes and businesses, on lots typically less than one (1) acre in size, suspected or known to be in need of effective wastewater treatment. These are groups of homes and businesses without centralized wastewater treatment, and could include the following areas: incorporated cities, areas within incorporated cities, unincorporated villages, manufactured home parks, subdivisions, lake shore developments, and other clusters of homes and businesses. Wastewater treatment areas of concern could be due to the following reasons: no system, ‘straight’ pipes and other surfacing systems, old systems, poor soils or small lots.

Enclosed for your information is the previous list of suspected problem areas for your county, originally developed in 1997, and added to over the years. You may be able to use this ‘dated’ list as an aid in identifying current areas with wastewater needs.

After the county wastewater information is compiled, a stakeholder group is planned to be formed to help develop a proactive strategy to resolve these types of wastewater problems. If you have questions about the purpose of this effort, or how it may be used, please contact me at (xxx) xxx-xxxx.

We very much appreciate your time and assistance in tabulating this important information. We’ll be in contact with you to see if you have questions. Please return the contact information sheet, maps (showing the small communities on either a county map or on plat maps), and as much information on the attached inventory table(s), by May 31, 2006.

CONTACT INFORMATION

County Name: _____ - _____ Date: _____
Person filling out Survey: _____ Phone # _____

Does your county have a designated staff person working with small communities on wastewater issues?

_____ Yes, Name: _____
_____ No

Contact Person(s) working on ISTS issues:

Name: _____ Position: _____

Mailing Address: _____

_____ City: _____ Zip Code: _____

Phone #: ()-____-_____ Fax #: ()-____-_____ e-mail: _____

Name: _____ Position: _____

Mailing Address: _____

_____ City: _____ Zip Code: _____

Phone #: ()-____-_____ Fax #: ()-____-_____ e-mail: _____

Name: _____ Position: _____

Mailing Address: _____

_____ City: _____ Zip Code: _____

Phone #: ()-____-_____ Fax #: ()-____-_____ e-mail: _____

Sanitary Districts/Subordinate Service Districts/Joint Powers in your County:

Name: _____	Contact: _____

Mailing Address: _____	
City: _____	Zip Code: _____
Phone #: ()-____-_____	Fax #: ()-____-_____ e-mail: _____
Name: _____	Contact: _____
Mailing Address: _____	

City: _____	Zip Code: _____
Phone #: ()-____-_____	Fax #: ()-____-_____ e-mail: _____

Suggested Procedure to Identify County Identified Small Community Wastewater Inventory

A small community with wastewater needs is a cluster of five (5) or more homes and businesses, on lots typically less than one (1) acre in size, suspected or known to be in need of effective wastewater treatment. The areas could include incorporated cities, areas within incorporated cities, unincorporated villages, manufactured home parks, subdivisions, lake shore developments, or other clusters of homes and businesses. These areas could be due to the following reasons: no system, ‘straight’ pipes or other surfacing systems, old systems, poor soils, or small lots.

Please use a county map or plat maps to identify these small communities in need. If possible, please outline each area with potential wastewater needs on the map and assign a unique county number to each area, using your designated state county number followed by a (–) and then a number, starting with the number 1 (87-1, 87-2, 87-3 and so forth). Then, complete the accompanying inventory table as best as possible. The left side of the table, ‘CRITICAL INFORMATION,’ is the most important information needed at this time. The right side of the table, ‘LESS CRITICAL INFORMATION,’ would be considered less important, if you don’t have time to complete this information.

Key to Complete the Small Community Wastewater Inventory

Name of Small Community or Area	Name of the area or locally used name
I.D. Number on Map	Use a number to identify each community on the Plat map or County map (87-1, 87-2, 87-3); outline or highlight each Community on the map.
Estimated Number of Residences/Homes	Number of dwellings estimated within the community
Estimated Number of Businesses	Number of businesses estimated within the community
Estimated Population	Estimated population or an estimate using 2.5 people per residence, census data, or other means. Example: 36 homes x 2.5 people per home = 90 people
Problem Type (1 through 7)	<p>Try to characterize the nature of the problem(s) in each community, as follows:</p> <p><u>1 = Community straight pipe</u> — These are areas where individual homes and businesses drain their sewage to a common drainage pipe that collects sewage from the community and discharges it into surface waters without proper treatment.</p> <p><u>2 = Individual straight pipes</u> — These are areas where individual homes and businesses discharge directly to the ground surface, into a tile line, into a ditch or wetland, or into other surface waters. Includes systems with ‘cheater lines.’</p> <p><u>3 = Sewage surfacing in yards</u> — These are areas where sewage comes to the surface in the residents yards, either seasonally or much of the year.</p> <p><u>4 = Poor soils</u> — These are areas where poor soil conditions make it difficult to construct an individual system on each lot.</p> <p><u>5 = Small lots</u> — These are areas where small lots make it difficult to construct an individual system on each lot. Could also be due to the shape of the lots, rugged topography, and bluff line issues.</p> <p><u>6 = Other reasons</u> — For example: old systems, such as cesspools and drywells in a karst area; known well contamination from on-site systems.</p> <p><u>7 = Specific reason unknown at this time and development pressures</u></p>
Incorporated or Unincorporated	Identify if the area is an incorporated area, an area within a larger incorporated area, or an unincorporated area.

(continued on next page)

Unit of Government	Specify the governmental unit responsible for permitting wastewater treatment within the area, such as: County, Tribal, State, City, Township, Sanitary District, or other legal entities.
Type of Effort(s) to Fix Problem	<p>Identify if any effort(s) are being made to resolve the problems in the community:</p> <ol style="list-style-type: none"> 1. = Holding tanks have been installed 2. = Upgrades through building permits 3. = Upgrades through Point-of-Sale program 4. = Systematic survey to assess systems 5. = Facility planning in progress 6. = Meeting with community to educate 7. = Lake association educating 8. = Other things being done (specify) 9. = No effort
Impact on Receiving Environment or Public Health	Identify the direct impact of the wastewater discharge to a specific water body, public health concern, or specific groundwater issue.
County Priority	<p>If available, rank the priority (very high, high to low priority) by the county staff to fix the identified wastewater problems, County Water Plan, or other process. Very high priorities would be your TOP priorities to get fixed.</p> <ul style="list-style-type: none"> • Very high priority (V. HIGH) • High priority (HIGH) • Medium priority (MED) • Low priority (LOW)

Example of completed spreadsheet

----- MOST CRITICAL INFORMATION -----							
Name of Community	ID No. on Map	Estimated No. of Residences	Estimated No. of Businesses	Population	Suspected or Known Problem	Incorporated or Unincorporated	Unit of Government
Clear Lake West side	1-1	28	0	28 x 2.5 = 70	5 = Small lots	Unincorp	County
Georgetown	1-2	15	1	33	2 = Individual straight pipes	Unincorp	City
Lake Lanair South side	1-3	120	3	275	3 = Sewage surfacing in yards	Unincorp	Township
Popple	1-4	60	2	180	1 = Community straight pipe	Unincorp	Sanitary District
Macey	1-5	17	0	45	1 = Community straight pipe	Unincorp	Joint Powers Board
Karstville	1-6	45	5	130	4 = Poor soils/systems	Unincorp	Subordinate Service Districts

Appendix D. Summary of Survey Results, Reported by County

Aitkin County

All of Aitkin County was included in the survey results. County ISTS staff identified **33 areas** with wastewater needs. These areas, where lots are small and soil or site conditions are problematic for individual on-site wastewater-treatment systems, are typically considered septic system problem areas. In these areas, variances for building permits are common because setbacks to structure, surface water, lot line, etc. cannot be met. Holding tanks are commonly installed as temporary wastewater measures, relying on the proper disposal of holding tank waste via land application. Many on-site systems have been upgraded in the county through point-of-sale and building permits.

The following is an overview of small community wastewater needs in Aitkin County, as identified by county ISTS staff in 2006:

- Thirty-three areas, all unincorporated, were identified.
- Thirty communities (90%) are located on a lake, with a mix of permanent homes, cabins or seasonal homes, and scattered businesses.
- Three areas (10%) are small, cross-road communities: Lawler, Jacobson and Swatara.
- Six areas were identified by county ISTS staff as high-priority areas, likely in need of small, cluster-type treatment systems due to small lots with inadequate soil conditions.
- One thousand one hundred sixty-five (1,165) residences and 66 businesses were estimated in these 33 areas; with an estimated population of 2,900 residents and unknown number of business patrons.
- Collectively, the residences potentially generate 79 million gallons of wastewater annually.
- Most common problems identified were small lots and inadequate soil conditions; three communities are suspected of having wastewater that discharge to the surface.
- The greatest number of homes and businesses are located on Mille Lacs Lake, Big Sandy Lake and Hill Lake.
- Big Sandy Lake Association has begun planning to work on wastewater issues.

Anoka County

Anoka County identified **four areas** with wastewater needs. Only shoreland areas were included in the survey results. The areas identified are typically areas with small lots and located on lakes. In Anoka County, on-site systems are typically upgraded through point-of-sale and when building permits are issued.

The following is an overview of small community wastewater needs in Anoka County, as identified by county staff in 2006:

- Four areas were identified as high-priority communities.
- All four areas are unincorporated, predominately lake communities; because Anoka County delegates most of its authority to cities except for lake shore communities.
- Communities range from 50 to 175 homes; most common problems identified are small lots. Efforts to fix these problems will be done by upgrading through permitting.
- Four hundred fifty (450) residences and one business were estimated in these four areas; with an estimated population of 1,125 residents.
- Collectively, the residences potentially generate over 31 million gallons of wastewater annually.
- No community was identified as having wastewater that discharges to the surface.

Becker County

Becker County ISTS staff identified **15 areas** with wastewater needs. The entire county was included in the survey results. These areas are typically considered “septic system problem areas,” where lots are small and soil or site conditions are problematic or individual on-site wastewater-treatment systems. In these areas, variances for building permits are common because setbacks to structure, surface water, lot line, etc. cannot be met. Holding tanks are commonly installed as temporary wastewater measures, relying on the proper disposal of holding tank waste via land application. Many on-site systems have been upgraded in Becker County through building permits. The county does not have a point-of-sale requirement.

The following is an overview of small community wastewater needs in Becker County, as identified by county ISTS staff in 2006:

- Fifteen areas, all are unincorporated, were identified.
- All 15 communities are located on a lake or river, with a mix of permanent homes, cabins or seasonal homes, and scattered businesses.
- The county has jurisdiction over all of the communities.
- County ISTS staff identified all 15 areas as low-priority, likely in need of small, cluster-type treatment systems due to small lot size.
- One thousand three hundred one (1,301) residences and one business were estimated in these 15 areas; with an estimated population of 5,208 residents and an unknown number of business patrons.
- Collectively, the residences potentially generate 35 million gallons of wastewater annually.
- Most common problems identified were small lots.
- The greatest number of homes and businesses are located on Big and Little Cormorant lakes.

Beltrami County

Beltrami County ISTS staff identified **5 areas** with wastewater needs. All of Beltrami County was included in the survey results. These areas are typically considered ‘septic system problem areas’ where lots are small and soil or site conditions are problematic for individual onsite wastewater treatment systems or systems are cesspools. In these areas, variances for building permits are common because set backs to structure, surface water, lot line, etc. cannot be met. Holding tanks are commonly installed as temporary wastewater measures, relying on the proper disposal of holding tank waste via land application. Many onsite systems have been upgraded in Pennington County through building permits. Beltrami County does have a point of sale program for shoreland areas.

The following is an overview of small community wastewater needs in Beltrami County, as identified by county ISTS staff in 2007:

- Five areas, all incorporated, were identified.
- Three of these cities (Wilton, Turtle River, and Tenstrike) are located on a lake or stream.
- The county has jurisdiction over all of the cities.
- Two hundred fifty-six (256) residences were estimated in these five areas, with an estimated population of 653 residents and 14 commercial businesses.
- Collectively, the residences potentially generate more than 17 million gallons annually.
- Most common problems identified were non-compliant cesspools.

Benton County

Benton County ISTS staff identified **19 areas** with wastewater needs. All of Benton County was included in the survey results. These areas are typically considered “septic system problem areas,” where lots are small and soil or site conditions are problematic for individual, on-site wastewater-treatment systems. In these areas, variances for building permits are common because set backs to structure, surface water, lot line, etc. cannot be met. Holding tanks are commonly installed as temporary wastewater measures, relying on the proper disposal of holding tank waste via land application. Many on-site systems have been upgraded in Benton County through point-of-sale and building permits.

The following is an overview of small community wastewater needs in Benton County, as identified by county ISTS staff in 2006:

- Of the nineteen areas that were identified; all but two (Gilman and Ronneby) are unincorporated.
- Sixteen areas are small, cross-road communities or joint powers agreement areas (cities of Sauk Rapids and St Cloud).
- The county has jurisdiction over all but three of the communities (Ronneby, Sauk Rapids and St Cloud).
- Three communities are located on a lake or river, with a mix of permanent homes, cabins or seasonal homes, and scattered businesses (Little Rock Lake and St Francis River).
- Three hundred forty-six (346) residences and 43 businesses were estimated in these 19 areas; with an estimated population of 965 residents and unknown number of business patrons.
- Collectively, the residences potentially generate 26 million gallons of wastewater annually.
- Most common problems identified were small lots and inadequate soil conditions.
- Problems areas are currently being addressed by using holding tanks and through point-of-sale upgrades.

Big Stone County

Big Stone County Environmental staff identified **three areas** with wastewater needs. All of Big Stone County was included in the survey results.

The following is an overview of small community wastewater needs in Big Stone County, as identified by county ISTS staff in 2006:

- Three areas were identified as medium-priority communities.
- One area (Barry) was incorporated; two areas (Meadowbrook subdivision and Bayview subdivision) are unincorporated. Meadowbrook and Bayview are Big Stone Lake subdivisions.
- All three areas are listed as having “other” reason identified as the suspected problem.
- Seventy-four residences were reported in these three areas; with an estimated population collectively.
- The residences potentially generate nearly 4 million gallons of wastewater annually.

Blue Earth County

The following is an overview of small community wastewater needs in Blue Earth County, as identified by county ISTS staff in 2006:

- Blue Earth County ISTS staff identified **9 areas**, all unincorporated, with wastewater needs.
- All 9 areas were noted as “Unknown” by county ISTS staff for priority areas.
- Four hundred ninety eight (498) residences and 15 businesses were estimated in these 9 areas; with an estimated population of 1,378 residents and unknown number of business patrons.
- The potential residential wastewater flow was calculated at over 30 million gallons per year.
- Receiving environments for all 9 areas were listed as “Unknown” by county ISTS staff.

Brown County

The following is an overview of small community wastewater needs in Brown County, as identified by county ISTS staff in 2006:

- Brown County ISTS staff identified **three areas** with wastewater needs.
- All three areas are unincorporated.
- County ISTS staff identified one area, Essig, as a high-priority area. The remaining two areas are listed as medium-priority areas.
- Thirty residences and two businesses were estimated in these three areas; with an estimated population of 75 residents and unknown number of business patrons.
- The potential residential flow was calculated at 1.6 million gallons each year.
- Suspected problems include systems discharging to the surface and issues related to older systems.
- Receiving environments for all areas were listed as “Unknown” by county ISTS staff.

Carlton County

Carlton County ISTS staff identified **18 areas** with wastewater needs. Three areas, including the City of Cloquet, City of Wright, and Thomson Township were not included in the survey because they regulate on-site systems rather than do the county. Sixteen areas are lake communities and two areas are river communities. The county uses a variety of tools to upgrade systems, including the installation of holding tanks on small lots, upgrades through building permits and point of sale. Furthermore, education through lake associations helps to facilitate system replacements. Lastly, the City of Wright is in the planning process to upgrade its wastewater infrastructure.

The following is an overview of small community wastewater needs in Carlton County, as identified by county ISTS staff in 2006:

- Eighteen areas were identified; all but one community is unincorporated
- Sixteen areas are located on a lake and two areas are located near a river.
- All areas were identified by the county as low priority.
- Two hundred sixty-eight (268) residences and nine businesses were estimated in these 18 areas; with an estimated population of 676 residents and unknown number of business patrons.
- Collectively, the residences potentially generate over 15 million gallons annually.
- Most common problems identified were small lots and inadequate soil conditions.
- The City of Wright has begun planning to resolve its wastewater issues.

Carver County

Carver County identified **16 areas** with wastewater needs. These areas are typically considered areas where there are no permit records (as of November 9, 2006) and the lots are small and soil conditions may be problematic. In Carver County, on-site systems are typically upgraded through point-of-sale and at the time building permits are issued.

The following is an overview of small community wastewater needs in Carver County, as identified by county staff in 2006:

- Sixteen areas were identified as high-priority communities.
- Fourteen areas are incorporated; two areas are unincorporated.
- Predominately infill communities and subdivisions (areas of scattered homes in the more densely populated areas and homes in subdivisions), some homes are located on, or near, a lake or other surface water.
- Communities range from five to 29 homes; most common problems identified are small lots and problem soils.
- One hundred fifty (150) residences and no businesses were estimated in these 16 areas; with an estimated population of 379 residents.
- Collectively, the residences potentially generate over 10 million gallons of wastewater annually.
- No community was identified as having wastewater that discharges to the surface.

Cass County

Cass County ISTS staff identified **58 areas** with wastewater needs. The entire county was included in the survey results. These areas are typically considered “septic system problem areas,” where lots are small and soil or site conditions are problematic for individual on-site wastewater-treatment systems. In these areas, variances for building permits are common because setbacks to structure, surface water, lot line, etc. cannot be met. Holding tanks are commonly installed as temporary wastewater measures, relying on the proper disposal of holding tank waste via land application. Many on-site systems have been upgraded in Cass County through point-of-sale and building permits.

The following is an overview of small community wastewater needs in Cass County, as identified by county ISTS staff in 2006:

- Of the 58 areas identified; all but two (Chickamaw Beach and Federal Dam) are unincorporated.
- Fifty-five communities are located on a lake, with a mix of permanent homes, cabins or seasonal homes, and scattered businesses.
- Three areas are small cross-road communities (Leader, Highways 371 & 200, and Town of Boy River).
- The county has jurisdiction of all but two of the communities (Federal Dam and Chickamaw Beach).
- One thousand nine hundred fifty-one (1,951) residences and 36 businesses were estimated in these 58 areas, with an estimated population of 5,223 residents and unknown number of business patrons
- Collectively, the residences potentially generate 142 million gallons of wastewater annually.
- Most common problems identified were small lots and inadequate soil conditions.
- The greatest number of homes and businesses are located on Leech Lake and Placid Reservoir.

Chippewa County

Chippewa County Environmental staff identified **five areas** with wastewater needs. All of Chippewa County was included in the survey results.

The following is an overview of small community wastewater needs in Chippewa County, as identified by county ISTS staff in 2006:

- All five areas were identified as low- to medium-priority communities.
- All five areas are unincorporated. Bunde, Gluek, Wegdahl and Hagen/Big Bend are villages. Countryside Acres is a mobile home park.
- Bunde, Gluek and Hagen/Big Bend have straight pipes identified as the suspected problem. Bunde has small lots identified, and Countryside Acres has unknown identified as the suspected problems.
- Seventy-one residences and four businesses were reported in these five areas; with an estimated population of 220.
- Collectively, the residences potentially generate nearly 5 million gallons of wastewater annually.

Chisago County

Chisago County identified **94 areas** with wastewater needs. These areas are typically areas with small lot sizes and located on area lakes. In Chisago County, on-site systems are typically upgraded through building permits.

Here's an overview of small community wastewater needs in Chisago County, as identified by county staff in 2006:

- Ninety-four areas were identified as medium- or high-priority communities.
- Six areas are incorporated; 88 areas are unincorporated.
- Lake lots predominate; while some of the other areas include other water bodies (i.e., rivers, streams and wetlands) and infill communities and subdivisions.
- Communities range from two to 84 homes; most common problems identified are poor soils, small lots, and other reasons. These problems will be fixed by installing holding tanks, upgrades through building permits, and upgrades through the point-of-sale program.
- One thousand six hundred sixty-nine (1,669) residences and 33 businesses were estimated in these 94 areas; with an estimated population of 4,200 residents.
- Collectively, the residences potentially generate 115 million gallons of wastewater annually.
- One community/development was identified as having wastewater that discharges to the surface.

Clay County

Clay County ISTS staff identified **11 areas** with wastewater needs. The entire county was included in the survey results. These areas are typically considered septic system problem areas, where lots are small and soil or site conditions are problematic for individual on-site wastewater-treatment systems. In these areas, variances for building permits are common because setbacks to structure, surface water, lot line, etc. cannot be met. Holding tanks are commonly installed as temporary wastewater measures, relying on the proper disposal of holding tank waste via land application. Many on-site systems have been upgraded in Clay County through point-of-sale and building permits.

The following is an overview of small community wastewater needs in Clay County, as identified by county ISTS staff in 2006:

- Eleven areas, all unincorporated, were identified.
- Four communities are located on a lake or river, with a mix of permanent homes, cabins or seasonal homes, and scattered businesses.
- Seven areas are small, cross-road communities.
- The county has jurisdiction over all 11 of the identified communities.
- Two hundred ninety-three (293) residences and nine businesses were estimated in these 11 areas; with an estimated population of 734 residents and unknown number of business patrons.
- Collectively, the residences potentially generate 8 million gallons of wastewater annually.
- The most common problems identified were small lots with poor soils, but four communities were identified as having surfacing sewage.
- The greatest number of homes and businesses are located on Turtle Lake and in the community of Boutons.

Clearwater County

Clearwater County ISTS staff identified **two areas** with wastewater needs. The entire county was included in the survey results. These areas are typically considered “septic system problem areas,” where lots are small and soil or site conditions are problematic for individual on-site wastewater treatment systems. In these areas, variances for building permits are common because setbacks to structure, surface water, lot line, etc. cannot be met. Holding tanks are commonly installed as temporary wastewater measures, relying on the proper disposal of holding tank waste via land application. Many on-site systems have been upgraded in the county through building permits. Clearwater County does not have a point-of-sale program.

The following is an overview of small community wastewater needs in Clearwater County, as identified by county ISTS staff in 2006:

- Two areas (Leonard and Shevlin), both incorporated, were identified.
- Leonard is located on West and East Four Legged Lake, with a mix of permanent homes, cabins or seasonal homes, and scattered businesses.
- Each of the cities has its own jurisdiction.
- The two areas identified have an estimated population of 194 residents and unknown number of business patrons.
- Collectively, the residences potentially generate 5 million gallons of wastewater annually.

Cook County

Cook County identified **seven areas** with wastewater needs. The entire county was included in the survey results. These areas were identified because many of them have small lots; soil or site conditions are problematic in some cases. Upgrades have occurred through point-of-sale and building permit requirements or through systematic surveys.

The following is an overview of small community wastewater needs in Cook County, as identified by county ISTS staff in 2006:

- Seven areas, all unincorporated, were identified.
- All communities are located on a lake or are close to Lake Superior.
- The county identified two priority lakes: Poplar Lake and Gunflint Lake.
- The Tofte-Schroeder Sanitary District completed a preliminary survey and has identified needs — hopes to manage on-site systems (similar to the Otter Tail model).
- Five hundred forty (540) residences and 44 businesses are estimated to be in these seven areas, with an estimated population of 1,362 residents.
- Collectively, the residences potentially generate 27 million gallons of wastewater annually.

Cottonwood County

Cottonwood County Environmental staff identified **one area**, Double Lake, with wastewater needs. All of Cottonwood County was included in the survey results.

The following is an overview of small community wastewater needs in Cottonwood County, as identified by county ISTS staff in 2006:

- Double Lake is unincorporated and is listed as a medium priority.
- The suspected problem identified at Double Lake is straight pipes.
- Double Lake had five residences listed, with an estimated population of 15.
- Collectively, the residences potentially generate 328,500 gallons of wastewater annually.

Crow Wing County

Crow Wing County ISTS staff identified **11 areas** with wastewater needs. All of Crow Wing County was included in the survey results. These areas are typically considered “septic system problem areas,” where lots are small and soil or site conditions are problematic for individual on-site wastewater-treatment systems. In these areas, variances for building permits are common because setbacks to structure, surface water, lot line, etc. cannot be met. Holding tanks are commonly installed as temporary wastewater measures, relying on the proper disposal of holding tank waste by land application. Many on-site systems have been upgraded in Crow Wing County through point-of-sale and building permits.

The following is an overview of small community wastewater needs in Crow Wing County, as identified by county ISTS staff in 2006:

- Eleven areas, all unincorporated, were identified.
- The county has jurisdiction over all the identified areas except for Barrows, which is in Fort Ripley Township.
- One area (Barrows) is a small, cross-road community.
- Ten communities are located on a lake or river with a mix of permanent homes, cabins or seasonal homes, and scattered businesses.
- Four hundred twenty-five (425) residences and an unknown number of businesses were estimated in these 11 areas; with an estimated population of 1,063 residents and unknown number of business patrons.
- Collectively, the residences potentially generate 29 million gallons of wastewater annually.
- The most common problems identified were small lots, old systems and inadequate soil conditions.

Dakota County

No survey results were submitted.

Dodge County

The following is an overview of small community wastewater needs in Dodge County, as identified by county staff in 2006:

- Dodge County identified **five areas** with wastewater needs.
- One area was ranked high-priority, two were ranked medium-priority, and two were ranked low-priority communities by county staff.
- Two areas were identified as unincorporated cross-road or infill communities and three were identified as incorporated communities.
- Communities range from three to 56 homes. The problems identified included individual straight pipe discharges; small lot size (which makes it difficult to construct an individual system on a lot (although sometimes it could be due to the shape of the lot, rugged topography, and bluffs); poor soils (areas where poor soil conditions make it difficult to construct individual systems); old systems; and unknown reasons or development pressures.
- One hundred twelve (112) residences and two businesses were identified in the five areas; with an estimated population of 280 residents and an unknown number of business patrons.
- The potential residential wastewater flow was calculated at 6 million gallons per year.
- Two communities were identified as discharging to the surface and three communities were identified as discharging to groundwater.

Douglas County

Douglas County ISTS staff identified **37 areas** with wastewater needs. All of Douglas County was included in the survey results. These areas are typically considered “septic system problem areas,” where lots are small and soil or site conditions are problematic for individual on-site wastewater-treatment systems. In these areas, variances for building permits are common because setbacks to structure, surface water, lot line, etc. cannot be met. Holding tanks are commonly installed as temporary wastewater measures, relying on the proper disposal of holding tank waste via land application. Many on-site systems have been upgraded in Douglas County through point-of-sale and building permits.

The following is an overview of small community wastewater needs in Douglas County, as identified by county ISTS staff in 2006:

- Thirty-seven areas, all unincorporated, were identified.
- Thirty-two communities are located on a lake or river, with a mix of permanent homes, cabins or seasonal homes, and scattered businesses.
- Five areas are small cross-road communities.
- The county has jurisdiction over all 37 communities.
- In these 37 areas, 1,394 residences were estimated, with an estimated population of 3,485 residents and unknown number of business patrons.
- Collectively, the residences potentially generate 77 million gallons of wastewater annually.
- The most common problems identified were small lots and poor soils.
- The greatest number of homes/businesses is located on Lake Miltona, Lobster Lake, Chippewa Lake, and Lake Osakis.

Faribault County

Here's an overview of small community wastewater needs in Faribault County, as identified by county staff in 2006:

- **Four areas** with wastewater needs were identified. All four areas are unincorporated.
- All identified areas are high priority.
- Cross-road communities (groups of homes and businesses found in the country, typically located on a highway or at the intersection of two major roads) predominate.
- The communities range from 10 to 50 homes. The most common problem identified is individual straight pipes (individual homes and businesses discharge directly to the ground surface, into a tile line, into a ditch or wetland, or into an other surface water).
- Ninety-seven (97) residences and 15 businesses were estimated in these four areas, with an estimated population of 243 residents.
- The potential residential wastewater flow was calculated at 6.7 million gallons per year.
- All communities were identified as having wastewater that discharges to the surface.

Fillmore County

The following is an overview of small community wastewater needs in Fillmore County, as identified by county staff in 2006:

- **Nine areas** with wastewater needs were identified.
- All nine areas were identified as low-priority communities.
- All nine areas were identified as unincorporated cross-road communities.
- The communities range from seven to 20 homes. The most common problems identified are small lots, which make it difficult to construct an individual system on a lot (but it could also be due to the shape of the lot, rugged topography, and bluffs), and old systems, such as cesspools and drywells.
- One thousand fifty (1,050) residences and 52 business were identified in the nine areas; with an estimated population of 2,743 residents.
- The potential residential wastewater flow was calculated at 60 million gallons per year.
- Two of the communities were identified as discharging to surface waters, one community was identified as discharging to groundwater, and the discharges from the remaining six communities were not identified.

Freeborn County

The following is an overview of small community wastewater needs in Freeborn County, as identified by county staff in 2006:

- **Three areas** with wastewater needs were identified.
- Two of the identified areas are incorporated municipalities and one is an unincorporated cross-road community.
- All identified areas are high priority for the county.
- The communities range in size from 29 to 37 homes. The most common problem identified is community straight pipes (homes and businesses drain their sewage to a common drainage pipe that discharges to surface waters) and one area with poor soil conditions (which make it difficult to construct an individual system on each lot).
- One hundred two (102) residences and 21 businesses were estimated in these three areas; with an estimated population of 256 residents.
- The potential residential wastewater flow was estimated at 5.6 million gallons per year.
- Two communities were identified as having wastewater that discharges to the surface and one community discharges to the groundwater.

Goodhue County

Goodhue County reported it had no wastewater needs.

Grant County

Grant County ISTS staff identified **one area** with wastewater needs. All of Grant County was included in the survey results. The identified area is considered a “septic system problem areas,” where lots are small and soil or site conditions are problematic for individual on-site wastewater-treatment systems. Variances for building permits are common because setbacks to structure, surface water, lot line, etc. cannot be met. Holding tanks are commonly installed as temporary wastewater measures, relying on the proper disposal of holding tank waste via land application. Many on-site systems have been upgraded in Grant County through building permits. The county does not have a point-of-sale program.

The following is an overview of small community wastewater needs in Grant County, as identified by county ISTS staff in 2006:

- One area was identified as having wastewater needs: the unincorporated community of Erdahl.
- Erdahl is not located on a lake or river.
- Erdahl has eight residences, with an estimated population of 20.
- Collectively, the residences potentially generate 219,000 gallons annually.

Hennepin County

No survey results were submitted.

Houston County

The following is an overview of small community wastewater needs in Houston County, as identified by county staff in 2006:

- Houston County identified **eight areas** with wastewater needs.
- All areas were identified as medium- to low-priority communities.
- One incorporated area and seven unincorporated areas were identified.
- The areas identified are predominantly unincorporated cross-road communities.
- The communities range from eight to 60 homes. The most problem identified is small lot size (This makes it difficult to construct an individual systems on a lot, and may be due to lot shape, rugged topography, and bluffs.) and old systems, such as cesspools and drywells.
- Two hundred three (203) residences and nine businesses were identified in the eight areas; with an estimated population of 508 residents.
- The potential residential wastewater flow was calculated at 11 million gallons per year.
- Four of the communities were identified as discharging to surface waters, two communities were identified as discharging to groundwater, and two communities were identified as discharging to wetlands.

Hubbard County

Hubbard County ISTS staff identified **seven areas** with wastewater needs. All of Hubbard County was included in the survey results. These areas are typically considered “septic system problem areas,” where lots are small and soil or site conditions are problematic for individual on-site wastewater-treatment systems. In these areas, variances for building permits are common because setbacks to structure, surface water, lot line, etc. cannot be met. Holding tanks are commonly installed as temporary wastewater measures, relying on the proper disposal of holding tank waste via land application. Many on-site systems have been upgraded in Hubbard County through building permits. The county does not have a point-of-sale program.

The following is an overview of small community wastewater needs in Hubbard County, as identified by county ISTS staff in 2006:

- Seven areas were identified; all communities are unincorporated.
- All communities except one (Green Acres) are located on a lake or river, with a mix of permanent homes, cabins or seasonal homes, and scattered businesses.
- The county has jurisdiction over all of the communities.
- All areas were identified as low-priority areas, likely in need of small cluster-type treatment systems due to small lots with inadequate soil conditions.
- Three hundred nine (309) residences and five businesses were estimated in these seven areas; with an estimated population of 774 residents and an unknown number of business patrons.
- Collectively, the residences potentially generate 8 million gallons of wastewater annually.
- The most common problem identified was small lot size.
- The greatest number of homes and businesses are located on Long Lake.

Isanti County

The following is an overview of small community wastewater needs in Isanti County, as identified by county staff in 2007:

- **Ten areas** with wastewater needs were identified in Isanti County.
- Seven areas are identified as high priority areas and three areas are medium priority communities.
- Eight communities are unincorporated areas; two communities include both incorporated and unincorporated areas.
- Six lake and two river communities are identified.
- The communities range from 150 to 600 residences. The most common problems are small lots followed by poor soil conditions.
- Two thousand nine-hundred ten (2,910) residences and five businesses were estimated to occur in eight of the ten areas, with an estimated population of 8,370. In two areas, the number of residences and businesses were not determined by Isanti County.
- The estimated residential wastewater flow was 79.7 million gallons per year in eight of the ten communities.
- Five areas were identified as communities suspected of having some individual straight pipes. Based on neighboring counties, the county stated that perhaps 9% of systems could be considered imminent public health threats.

Itasca County

Itasca County ISTS staff identified **three areas** with wastewater needs. These areas include one small city, Effie, and two lake communities. The only area not included in the survey was the City of Cohasset, which administers its own ISTS program. The City of Effie was constructing their wastewater facility in 2007. County staff recognized this as an incomplete survey. The 3 areas identified in the survey are currently involved in wastewater facility planning or in actual construction.

The following is an overview of small community wastewater needs in Itasca County, as identified by county ISTS staff in 2006:

- Of the three areas identified, one is incorporated and two are unincorporated.
- Two are lake communities and one (Effie) is a small city.
- The City of Effie has 35 homes with an estimated population of 89 residents. The statistics on the two lake communities are unknown.
- Small lots were identified as an issue in both lake communities.

Jackson County

Jackson County Environmental staff identified **eight areas** with wastewater needs. All of Jackson County was included in the survey results.

The following is an overview of small community wastewater needs in Jackson County, as identified by county ISTS staff in 2006:

- Wilder and portions of the cities of Jackson and Lakefield are incorporated. Petersburg and Bergen are unincorporated villages and three unincorporated subdivisions on Round Lake, Loon Lake, and Fish Lake
- The three unincorporated subdivisions on Fish, Loon and Round lakes were identified as high-priority communities. Portions of the cities and Lakefield and Jackson with no sewage connections were identified as medium-priority areas. The other three areas, Wilder, Bergen and Petersburg, were identified as low priority.
- The subdivisions on Fish Lake and Loon Lake have been in the planning process with the county's Zoning Office. All eight of the sites have been identified as having community or individual straight pipes as suspected problems.
- There were 237 residences and 19 businesses reported in these eight areas, with an estimated population of 494.
- Collectively, the residences potentially generate nearly 11 million gallons of wastewater annually.

Kanabec County

Kanabec County ISTS staff identified **seven areas** with wastewater needs. All of Kanabec County was included in the survey results. These areas are typically considered septic system problem areas where lots are small and soil or site conditions are problematic for individual on-site wastewater treatment systems. In these areas, variances for building permits are common because set backs to structure, surface water, lot line, etc. cannot be met. Holding tanks are commonly installed as temporary wastewater measures, relying on the proper disposal of holding tank waste via land application. Many on-site systems have been upgraded in the county through point-of-sale and building permits.

The following is an overview of small community wastewater needs in Kanabec County, as identified by county ISTS staff in 2006:

- Seven areas, all unincorporated, were identified.
- The county has jurisdiction over all the identified areas except one in Arthur Township (Fish Lake and Snake River area).
- All seven communities are located on a lake, or river with a mix of permanent homes, cabins or seasonal homes, and scattered businesses.
- All areas were identified as high-priority areas, likely in need of small cluster-type treatment systems due to small lots with inadequate soil conditions.
- Six hundred fifty (650) residences and six businesses were estimated in these seven areas, with an estimated population of 1,625 residents and an unknown number of business patrons.
- Collectively, the residences potentially generate 44 million gallons of wastewater annually.
- The most common problem identified was small lot size.
- Quamba has a small community grant.

Kandiyohi County

Kandiyohi County Environmental staff identified **20 areas** with wastewater needs. All of the county was included in the survey results. Because it has many lakes, Kandiyohi County has a different emphasis on its wastewater needs than most of the counties in southwestern Minnesota.

The following is an overview of small community wastewater needs in Kandiyohi County, as identified by county ISTS staff in 2006:

- Fourteen of the 20 areas are lakes with seasonal and permanent residences. The county listed every residence on these lakes as having wastewater needs.
- Three of the areas (Hawick, Roseland and Svea) are unincorporated villages. Svea and Roseland have received Notices of Violation (NOVs). Both communities are in the planning stages. Svea is involved with a regionalization effort with Blomkest. This project is ranked fifth on the 2008 PPL list.
- Two of the areas (Blomkest and Regal) are incorporated cities. Blomkest has received an NOV and is regionalizing with Svea.
- There were 2,389 residences and five businesses reported in these six areas, with an estimated population of 5,968.
- Collectively, the residences potentially generate 131 million gallons of wastewater annually.

Kittson County

Kittson County ISTS staff identified **one area** with wastewater needs. The entire county was included in the survey results. This area is typically considered a “septic system problem area,” where lots are small and soil or site conditions are problematic for individual on-site wastewater-treatment systems. Variances for building permits are common because setbacks to structure, surface water, lot line, etc. cannot be met. Holding tanks are commonly installed as temporary wastewater measures, relying on the proper disposal of holding tank waste by land application. Many on-site systems have been upgraded in Kittson County through building permits. The county does not have a point-of-sale program.

The following is an overview of small community wastewater needs in Kittson County, as identified by county ISTS staff in 2006:

- One unincorporated area was identified on Lake Bronson (Lake Bronson Cabin Association)
- The community is located on a lake, with a mix of permanent homes, cabins or seasonal homes, and scattered businesses.
- The county has jurisdiction over the community.
- This area is identified as a low-priority area, likely in need of small cluster-type treatment systems due to small lots with inadequate soil conditions.
- Twenty-five residences were estimated to be in this one area; with an estimated population of 62 residents and an unknown number of business patrons.
- Collectively, the residences potentially generate 0.7 million gallons of wastewater annually.
- The most common problem identified was small lots.

Koochiching County

Koochiching County identified **seven areas** with wastewater needs. The entire county was included in the survey. The most common issues in providing for wastewater treatment are poor soils (clay) and small lots. Although Koochiching County does not have a local ISTS ordinance, it issues construction permits and provides some construction inspections under delegation of Chapter 7080.

The following is an overview of small community wastewater needs in Koochiching County, as identified by county staff in 2006:

- Seven areas were identified as communities with wastewater needs.
- There are four cross-road communities: Mizpah and Gemmel in southern Koochiching County and Birchdale and Loman in northern Koochiching County.
- There are two lake communities: one area includes Dark and Clear lakes, the second lake community is on Rainy Lake.
- There is one subdivision (Meadowview Point) with wastewater needs near the City of International Falls.
- Six areas are unincorporated; one is incorporated.
- The number of residences is estimated at 380 with 11 businesses. The total population is estimated at 965.
- Collectively, the residences potentially generate 26 million gallons of wastewater annually.
- Rainy Lake, east of Ranier, with an estimated population of 625, or about 250 homes is the county's highest priority.

Lac Qui Parle County

Lac Qui Parle County Environmental staff identified **three areas** with wastewater needs. The entire county was included in the survey results.

The following is an overview of small community wastewater needs in Lac Qui Parle County, as identified by county ISTS staff in 2006:

- Three areas were identified as medium- to high-priority communities
- One area (Louisburg) was incorporated; 2 areas (Village of Lac Qui Parle and the Village of Rosen) are unincorporated.
- The suspected problem in Louisburg and Rosen is unsuitable soils. Lac Qui Parle Village has "other" reason identified as the suspected problem.
- Seventy residences, with an estimated population of 117, were reported in these three areas.
- Collectively, the residences potentially generate over 2 million gallons of wastewater annually.

Lake County

Lake County ISTS staff identified **four areas** with wastewater needs in September 2006. These areas are typically considered septic system problem areas.

The following is a snapshot of small community wastewater needs in Lake County:

- Four communities are located on, or near, a lake with a mix of permanent homes, cabins or seasonal homes, and scattered businesses. Two areas are on or very close to Lake Superior; two are on inland lakes.
- All four communities are unincorporated; one area has an established sanitary district.
- The 2 Lake Superior communities were identified by county ISTS staff as high-priority areas.
- Three hundred fifty-seven (357) residences and 11 businesses were estimated to be in these four areas; with an estimated population of 892 residents and an unknown number of business patrons.
- Collectively, the residences potentially generate 24 million gallons of wastewater annually.
- The most common problems identified were small lots and inadequate soil conditions; one community is suspected of having surface discharges.
- All four areas likely will require some type of collective wastewater needs.
- Preliminary wastewater planning has occurred in the Knife River-Larsmont Sanitary District.

Lake of the Woods County

Lake of the Woods County ISTS staff identified **seven areas** with wastewater needs. The entire county was included in the survey results. The identified areas are typically considered septic system problem areas, where lots are small and soil or site conditions are problematic for individual on-site wastewater-treatment systems. In these areas, variances for building permits are common because setbacks to structure, surface water, lot line, etc. cannot be met. Holding tanks are commonly installed as temporary wastewater measures, relying on the proper disposal of holding tank waste by land application. Many on-site systems have been upgraded in Lake of the Woods County through building permits. The county does not have a point-of-sale program.

The following is an overview of small community wastewater needs in Lake of the Woods County, as identified by county ISTS staff in 2006:

- Seven areas, all unincorporated, were identified.
- All seven communities are located on Lake of the Woods, with a mix of permanent homes, cabins or seasonal homes, and scattered businesses.
- The county has jurisdiction over all but one of the communities; Wheeler's Point is a sanitary district.
- Three areas were identified as very high- or high-priority areas, likely in need of small cluster-type treatment systems due to small lots with inadequate soil conditions.
- Four hundred twenty-six (426) residences and 16 businesses were estimated to be in these seven areas; with an estimated population of 1,100 residents and an unknown number of business patrons.
- Collectively, the residences potentially generate 11 million gallons of wastewater annually.
- The most common problems identified were small lots and poor soils.
- The greatest number of homes and businesses are located in Wheeler's Point on Lake of the Woods.

Le Sueur County

Le Sueur County identified **11 areas** with wastewater needs. Here's an overview of small community wastewater needs in Le Sueur County, as identified by county staff in 2007:

- Ten of the identified areas are unincorporated, one is incorporated.
- No straight pipes were identified.
- The suspected problem for all identified areas is small lots.
- County staff identified six areas as very-high priority, one medium-priority, and three as a low-priority.
- The estimated population of the 11 areas range from 30 to 1,695.
- Eight areas are identified as lake communities.
- Collectively, the residences potentially generate 73 million gallons of wastewater annually.

Lincoln County

Lincoln County environmental staff identified **six areas** with wastewater needs. The entire county was included in the survey results.

The following is an overview of small community wastewater needs in Lincoln County, as identified by county ISTS staff in 2006:

- Two of the areas (Wilno and Verdi) are unincorporated villages. Wilno was identified as a medium-priority community and Verdi as high-priority.
- Bayview and Benton Cove are subdistricts of Lake Benton. Jorgenson Beach is a subdistrict of Lake Hendricks, and Crain Subdistricts 1 and 2 are subdistricts of Lake Shaokatan. All four lake subdistricts are identified as high priorities.
- Straight pipes were identified as the suspected problem in the Village of Wilno. Poor soils were identified as the suspected problem in the other five areas.
- One hundred two (102) residences and two businesses, with an estimated population of 255, were reported in these six areas.
- Collectively, the residences potentially generate 8 million gallons of wastewater annually.

Lyon County

Lyon County Environmental staff identified **four areas** with wastewater needs. All of Lyon County was included in the survey results.

The following is an overview of small community wastewater needs in Lyon County, as identified by county ISTS staff in 2006:

- Florence is an incorporated city. Green Valley and Amiret are unincorporated villages and Kastjaga is a subdivision on the west side of Lake Yankton.
- All four areas were identified as high-priority communities.
- Straight pipes are the suspected problem in the City of Florence. The villages of Green Valley and Amiret have poor soils and small lots, and Kastjaga subdivision has small lots.
- The City of Florence has been listed as a priority unsewered community in the Minnesota River Basin General Phosphorous Permit. MPCA attended a city council meeting in Florence in 2007. The city is working with USDA and Southwest Regional Development to find a solution for its wastewater needs.
- There were 110 residences and 11 businesses in these four areas, with an estimated population of 275.
- Collectively, the residences potentially generate 6 million gallons of wastewater annually.

Mahnomen County

No survey results were submitted.

Marshall County

Marshall County ISTS staff identified **two areas** with wastewater needs. The entire county was included in the survey results. The identified areas are typically considered septic system problem areas, where lots are small and soil or site conditions are problematic for individual on-site wastewater-treatment systems. Holding tanks are commonly installed as temporary wastewater measures, relying on the proper disposal of holding tank waste via land application. Many on-site systems have been upgraded in Marshall County through building permits. The county does not have a point-of-sale program.

The following is an overview of small community wastewater needs in Marshall County, as identified by county ISTS staff in 2006:

- Of the two areas identified, one is incorporated and the other is unincorporated.
- Neither community is located on a lake or river.
- The county has jurisdiction over both communities.
- Both areas are low-priority areas.
- Seventy-one (71) residences and four businesses were estimated in these two areas, with an estimated population of 108 residents and an unknown number of business patrons.
- Collectively, the residences potentially generate 1.6 million gallons of wastewater annually.
- The greater number of homes and businesses are located in the City of Strandquist.

Martin County

Martin County reported that they had upgraded systems in 12 small communities with five homes or more. With those accomplishments, Martin County reported no immediate wastewater needs in small communities, as specified in the 2006 survey.

McLeod County

McLeod County environmental staff identified **two areas** with wastewater needs. All of McLeod County was included in the survey results.

The following is an overview of small community wastewater needs in McLeod County, as identified by county ISTS staff in 2006:

- The incorporated City of Biscay and the Lake Marion East subdivision are both identified as high-priority communities.
- Community straight pipe was identified as the suspected problem in the City of Biscay.
- In the Lake Marion East subdivision, small lots are the suspected problem.
- Seventy-one residences and three businesses were reported in these two areas, with a reported population of 154.
- Collectively, the residences potentially generate more than 3 million gallons of wastewater annually.

Meeker County

Meeker County Environmental staff identified **five areas** with wastewater needs. The entire county was included in the survey results.

The following is an overview of small community wastewater needs in Meeker County, as identified by county ISTS staff in 2006:

- Kingston is an incorporated city. Forest City and Mannannah are unincorporated villages. East Side Star Lake and Lake Minnie Belle are unincorporated subdivisions.
- All 5 areas were identified as medium-priority communities.
- Kingston, Forest City, and Mannannah were identified as having individual straight pipes and small lots as the suspected problem. East Side Star Lake was identified as having poor soils as the suspected problem. Lake Minnie Belle was identified as having small lots as the suspected problem.
- Two hundred forty (240) residences and two businesses were reported in these five areas, with an estimated population of 640.
- Collectively, the residences potentially generate 14 million gallons of wastewater annually.

Mille Lacs County

No survey results were submitted.

Morrison County

Morrison County ISTS staff identified **four areas** with wastewater needs. The entire county was included in the survey results. These areas are typically considered septic system problem areas where lots are small and soil or site conditions are problematic for individual on-site wastewater-treatment systems. In these areas, variances for building permits are common because set backs to structure, surface water, lot line, etc. cannot be met. Holding tanks are commonly installed as temporary wastewater measures, relying on the proper disposal of holding tank waste via land application. Many on-site systems have been upgraded in the county through point-of-sale and building permits.

The following is an overview of small community wastewater needs in Morrison County, as identified by county ISTS staff in 2006:

- Four areas, all unincorporated, were identified.
- The county has jurisdiction over all the identified areas.
- All four communities are located on a lake, or river with a mix of permanent homes, cabins or seasonal homes, and scattered businesses.
- All areas were identified as medium priority, likely in need of small cluster-type treatment systems due to small lots with inadequate soil conditions.
- Two thousand eight hundred thirty-four (2,834) residences and unknown number of businesses were estimated to be in these four areas, with an estimated population of 6,419 residents and an unknown number of business patrons.
- Collectively, the residences potentially generate 77 million gallons of wastewater annually.
- The most common problems identified were small lots and inadequate soil conditions.

Mower County

The following is an overview of small community wastewater needs in Mower County, as identified by county staff in 2006:

- **Seven areas** with wastewater needs were identified.
- Two areas were ranked high-priority, two were ranked medium-priority, and three were ranked low-priority communities by county staff.
- Six areas were identified as unincorporated cross-road or infill communities and one area were identified as a city.
- Communities range from 6 to 65 homes. The problems identified included community and individual straight pipe discharges, small lots (which make it difficult to construct an individual system on each lot; this could be due to shape of the lot, rugged topography, and bluffs); poor soils (areas where poor soil conditions make it difficult to construct individual systems), and unknown reasons or development pressures.
- One hundred sixty-two (162) residences and two businesses were identified in the seven areas; with an estimated population of 407.
- The potential residential wastewater flow was calculated at 8.9 million gallons per year.
- Four of the communities were identified as discharging to surface waters, and three communities were identified as discharging to groundwater.

Murray County

Murray County Environmental staff identified **two areas** with wastewater needs. All of Murray County was included in the survey results.

The following is an overview of small community wastewater needs in Murray County, as identified by county ISTS staff in 2006:

- Two areas were identified as high-priority communities.
- Hadley is incorporated; the other area, Lime Creek, is an unincorporated village.
- Both areas have community straight pipe identified as the suspected problem.
- Hadley is working with the University of Minnesota Extension/USDA pilot project to develop a treatment solution.
- Lime Creek has submitted plans and specifications to MPCA for placement on the PPL funding ranking list.
- Fifty residences and three businesses were reported in these two areas; with an estimated population of 90.
- Collectively, the residences potentially generate at nearly 2 million gallons of wastewater annually.

Nicollet County

The following is an overview of small community wastewater needs in Nicollet County, as identified by county ISTS staff in 2006:

- Nicollet County ISTS staff identified **one area** with wastewater needs.
- One area was identified; it is unincorporated.
- The area was identified as a low-priority area.
- Twelve residences and one business were estimated in this area; with an estimated population of 30 residents and unknown number of business patrons.
- The potential residential wastewater flow was calculated at 0.7 million gallons per year.
- The most common problems identified were small lots and issues relating to older systems.
- The receiving environment for the area was listed as “Groundwater.”

Nobles County

Nobles County Environmental staff identified **six areas** with wastewater needs. The entire county was included in the survey results.

The following is an overview of small community wastewater needs in Nobles County, as identified by county ISTS staff in 2006:

- Of the six areas, Bigelow, Dundee and Kinbrae are incorporated cities and Reading, St. Killian and Org are unincorporated villages.
- Bigelow and Dundee were identified as high-priority communities. The other four areas were identified as medium-priority communities.
- The MPCA has issued Notices of Violation to Bigelow and Dundee. Bigelow plans to construct during the summer of 2007. Dundee is still in the planning process. Both of these areas were identified as having a community straight pipe as the suspected problem.
- Kinbrae has a population of 18. Centralized collection does not appear to be a feasible option for Kinbrae. The city has a very viable restaurant that is currently meeting ISTS compliance with Nobles County. Kinbrae was identified as having a community straight pipe as the suspected problem.
- The other three areas were identified as having individual straight pipes as the suspected problems.
- There were 245 residences and 14 businesses reported in these six areas, with an estimated population of 555.
- Collectively, the residences potentially generate over 14 million gallons of wastewater annually.

Norman County

All of Norman County was included in the survey results. County ISTS staff identified **two areas** with wastewater needs. These areas are typically considered septic system problem areas where lots are small and soil or site conditions are problematic for individual on-site wastewater-treatment systems. In these areas, variances for building permits are common because set backs to structure, surface water, lot line, etc. cannot be met. Holding tanks are commonly installed as temporary wastewater measures, relying on the proper disposal of holding tank waste via land application. Many on-site systems have been upgraded in Norman County through building permits. The county does not have a point-of-sale program.

The following is an overview of small community wastewater needs in Norman County, as identified by county ISTS staff in 2006:

- Two areas were identified: Gary is incorporated and Flom is unincorporated.
- Neither of these communities is located on a lake or river.
- Both areas are small cross-road communities.
- The county has jurisdiction over Flom but Gary has its own jurisdiction.
- Both areas were identified by county ISTS staff as low-priority areas.
- One hundred twenty-five (125) residences and 26 businesses were estimated in these two areas, with an estimated population of 290 residents and an unknown number of business patrons.
- Collectively, the residences potentially generate 3 million gallons of wastewater annually.
- The most common problem in Flom is small lots. In Gary, the problems are surfacing sewage due to poor soils and old systems, such as cesspools and drywells.
- The greatest number of homes and businesses are located in Gary (population estimate of 100).

Olmsted County

The following is an overview of small community wastewater needs in Olmsted County, as identified by county staff in 2006:

- **Thirteen areas** with wastewater needs were identified.
- Two areas were ranked high-priority, five were ranked medium-priority, and six were ranked low-priority communities by county staff.
- Twelve areas were identified as unincorporated cross-road or infill communities and one was identified as an incorporated community.
- Communities range from six to 364 homes. The problems identified included small lots (Small lot size makes it difficult to construct an individual systems on a lot, or it may be due to shape of the lot, rugged topography, and bluffs); poor soils (Poor soil conditions make it difficult to construct individual systems.), old systems, and unknown reasons or development pressures.
- Six hundred seventy-one (671) residences and 26 businesses were identified in the five areas; with an estimated population of 1,678.
- The potential residential wastewater flow was calculated at 36 million gallons per year.
- All of the areas were identified as discharging to groundwater.

Otter Tail County

Otter Tail County ISTS staff identified **275 areas** with wastewater needs. The entire county was included in the survey results. These areas are typically considered septic system problem areas: where lots are small and soil or site conditions are problematic for individual on-site wastewater treatment systems. In these areas, variances for building permits are common because setbacks to structure, surface water, lot line, etc. cannot be met. Holding tanks are commonly installed as temporary wastewater measures, relying on the proper disposal of holding tank waste via land application. Many on-site systems have been upgraded in Otter Tail County through building permits.

The following is an overview of small community wastewater needs in Otter Tail County, as identified by county ISTS staff in 2006:

- Two hundred seventy-four (274) areas were identified; all are unincorporated.
- Two hundred fifty-nine (259) communities are located on a lake or river, with a mix of permanent homes, cabins or seasonal homes, and scattered businesses.
- Two areas are small cross-road communities.
- Thirteen areas are located at the edge of small towns
- The county has jurisdiction over all communities.
- Four thousand five hundred fifty (4,550) residences were estimated in these 275 areas; with an estimated population of 12,203 and unknown number of business patrons.
- Collectively, the residences potentially generate 133 million gallons of wastewater annually.
- The most common problems identified were small lots and poor soils.
- The greatest number of homes and businesses are located in the Battle Lake area.

Pennington County

Pennington County ISTS staff identified **three areas** with wastewater needs. All of Pennington County was included in the survey results. These areas are typically considered septic system problem areas where lots are small and soil or site conditions are problematic for individual on-site wastewater treatment systems. In these areas, variances for building permits are common because setbacks to structure, surface water, lot line, etc. cannot be met. Holding tanks are commonly installed as temporary wastewater measures, relying on the proper disposal of holding tank waste via land application. Many on-site systems have been upgraded in Pennington County through building permits. Pennington County does not have a point-of-sale program.

The following is an overview of small community wastewater needs in Pennington County, as identified by county ISTS staff in 2006:

- Three areas, all unincorporated, were identified.
- None of these communities is located on a lake or river.
- Two areas are subdivisions of Thief River Falls.
- The county has jurisdiction over all of the communities.
- Two of the areas were identified as high-priority areas, likely in need of small cluster-type treatment systems due to small lots with inadequate soil conditions.
- One hundred twenty-seven (127) residences were estimated in these three areas, with an estimated population of 318 residents and an unknown number of business patrons.
- Collectively, the residences potentially generate 3 million gallons of wastewater annually.
- Most common problems identified were high watertables and small lots.

Pine County

No survey results were submitted.

Pipestone County

Pipestone County Environmental staff identified **three areas** with wastewater needs. All of Pipestone County was included in the survey results.

The following is an overview of small community wastewater needs in Pipestone County, as identified by county ISTS staff in 2006:

- The three areas are the incorporated City of Trosky and the two unincorporated subdivisions of Pipestone North and Pipestone South.
- Trosky was identified as a high priority and the two subdivisions were identified as low priorities.
- Individual straight pipes were identified as the suspected problem in the two subdivisions. The suspected problems in Trosky are community straight pipes, individual straight pipes, and small lots.
- Pipestone County has been working through a point-of-sale process to eliminate the straight pipe discharges in Trosky. But small lots may be the limiting factor in resolving all of the needs in this community.
- Fifty-eight residences and one business were reported in these three areas, with an estimated population of 146.
- Collectively, the residences potentially generate 3 million gallons of wastewater annually.

Polk County

No survey results were submitted.

Pope County

No survey results were submitted.

Ramsey County

Ramsey County does not have an ISTS ordinance or program; cities in Ramsey County administer septic systems.

Red Lake County

No survey results were submitted.

Redwood County

Redwood County Environmental staff identified **two areas** with wastewater needs. All of Redwood County was included in the survey results.

The following is an overview of small community wastewater needs in Redwood County, as identified by county ISTS staff in 2006:

- Of the two areas, Seaforth is incorporated. The other area, Sanborn Corner, is an unincorporated subdivision.
- Seaforth has individual straight pipes, small lots, and “other” reasons identified as the suspected problems.
- Sanborn Corner has individual straight pipes and small lots identified as the suspected problems.
- Seaforth is working with the University of Minnesota Extension/USDA pilot project to develop a treatment solution.
- Seaforth has been listed as a priority unsewered community in the Minnesota River Basin General Phosphorous Permit.
- Forty residences and six businesses were reported in these two areas; with an estimated population of 82.
- Collectively, the residences potentially generate nearly 2 million gallons of wastewater annually.

Renville County

Renville County Environmental staff identified **one area** with wastewater needs. All of Renville County was included in the survey results.

The following is an overview of small community wastewater needs in Renville County, as identified by county ISTS staff in 2006:

- The County Courts trailer park was identified as a medium-priority community.
- Country Courts has individual and community straight pipes identified as the suspected problems.
- Country Courts has 50 residences, with an estimated population of 125.
- Collectively, the residences potentially generate 1 million gallons of wastewater annually.

Rice County

The following is an overview of small community wastewater needs in Rice County, as identified by county staff in 2006:

- Rice County identified **one area**, Veseli Village, with wastewater needs.
- Veseli Village is an unincorporated cross-road community. It consists of 40 homes and two businesses, with a population estimated at 100.
- A community straight pipe and sewage surfacing from individual ISTSs are identified as the problems.
- Veseli Village is estimated to generate more than 2 million gallons of wastewater annually.
- Veseli Village is a high-priority community.

Rock County

Rock County Environmental staff identified **two areas** with wastewater needs. All of Rock County was included in the survey results.

The following is an overview of small community wastewater needs in Rock County, as identified by county ISTS staff in 2006:

- Both areas (the villages of Kanaranzi and Ash Creek) are unincorporated.
- Both areas were identified as low-priority communities.
- In both areas, individual straight pipes were identified as the suspected problem.
- Twenty residences and one business were reported in these two areas, with an estimated population of 51.
- Collectively, the residences potentially generate over 1 million gallons of wastewater annually.

Roseau County

No survey results were submitted.

Scott County

Scott County indicated the data was on its Web site at www.co.scott.mn.us.

Source: Scott County 2020 Comprehensive Plan Update (Section G):

G. Sanitary Sewer plan

Most of the population of Scott County is located within the incorporated cities of the county and is served by municipal sanitary sewer service. The townships in the county are not currently served by public sanitary sewer facilities with two exceptions: (1) the south shore of Spring Lake and (2) as proposed around Cedar Lake. Sewage treatment in the townships is achieved through individual sewage-treatment systems. In Scott County, there are approximately 7,000 systems in the townships with another 2,000 in the rural areas of the cities. The reason that municipal sewer service does not exist in the townships is primarily due to the low density of the population. With parcel sizes of 1 acre of non-hydric soil or larger, there is generally sufficient lot area for construction of an individual sewage-treatment system and an average-size house. As the county continues to grow, it is likely that areas within the Urban Expansion Areas will be added to the municipal service system. There may also be opportunities for townships to arrange for municipal sewer service to be extended into areas that would benefit from municipal service, such as lots with failing on-site systems. This plan also encourages the use of community sewage systems to reduce the potential for improperly maintained/failing systems and realize economies of scale. See Map VI-G-2 for a comparison of the numbers and locations of ISTSs within the metropolitan region.

Approximate numbers of ISTS by jurisdiction within the Metropolitan Area

Source: Metropolitan Council Web site:

www.metrocouncil.org/environment/Watershed/septicsys.jpg:

The County will consider alternatives to Individual Sewage Treatment Systems (ISTSs) that are approved by the Minnesota Pollution Control Agency for community type systems to allow for more judicious use of land. Community systems with community wells could be designed and operated under State law to serve independent communities. Currently there are three such community systems within the townships of the County that serve mobile home parks. In this case, the systems are privately owned and operated.

Scott County's Individual Sewage Treatment System (ISTS) Ordinance (see [-+](#)) is in effect throughout the County including all municipalities. Scott County has developed an ISTS Maintenance program to ensure that existing systems are properly maintained in accordance with Metropolitan Council requirements and Minnesota Pollution Control Agency Rules. The ISTS Maintenance Program involves routine notification (every three years) by the County to each ISTS owner of the need to have their septic tank inspected or pumped. The County maintains a database to help track compliance. The County tracks compliance through issuance of permits for septic tank pumping which are entered into a master data base. Follow-up notices and inspections are done on systems where no action was taken as determined by query of the database the year following notification.

Sherburne County

Sherburne County ISTS staff identified **54 areas** with wastewater needs. The entire county was included in the survey results. These areas identified are typically considered septic system problem areas where lots are small and soil or site conditions are problematic for individual on-site wastewater-treatment systems. In these areas, variances for building permits are common because set backs to structure, surface water, lot line, etc. cannot be met. Holding tanks are commonly installed as temporary wastewater measures, relying on the proper disposal of holding tank waste via land application. Many on-site systems have been upgraded in Sherburne County through point-of-sale and building permits.

The following is an overview of small community wastewater needs in Sherburne County, as identified by county ISTS staff in 2006:

- Of the 36 areas identified; all except eight areas in the City of Elk River are unincorporated.
- Nineteen communities are located on a lake or river, with a mix of permanent homes, cabins or seasonal homes, and scattered businesses.
- Nine areas are small cross-road communities.
- The county has jurisdiction over all but the eight areas in Elk River.
- Eighteen areas were identified as medium-priority areas, likely in need of small cluster-type treatment systems due to small lots with inadequate soil conditions.
- Two lots were identified by county ISTS staff as high priority.
- One thousand thirty-four (1,034) residences and four businesses were estimated in these 36 areas; with an estimated population of 2,529 and an unknown number of business patrons.
- Collectively, the residences potentially generate 69 million gallons of wastewater annually.
- The most common problems identified were old systems, such as cesspools and drywells.
- The greatest number of homes and businesses are located on Briggs/Julia/Rush Lakes, Little Elk Lake and Eagle Lake.

Sibley County

Sibley County did not respond to the survey.

St. Louis County

St. Louis County identified **36 areas** with wastewater needs. These areas are typically considered septic system problem areas where lots are problematic for individual on-site wastewater-treatment systems.

In the areas identified, the lots are typically small, and in many cases, the soil conditions are poor for on-site wastewater systems. Furthermore, in the City of Duluth, staff estimated that about 200 homes with old systems need modern wastewater-treatment systems. In Midway Township, along State Highway 35, an area with commercial development pressures and poor soil conditions was also identified as an area with wastewater needs.

On the lake areas identified, holding tanks are commonly installed because of small lots. Two lakes, including Aerie Lake and Caribou Lake, are in the wastewater facility planning process. The community of Cotton, which is located on Highway 53, is in the planning process and has an interest in installing a municipal-type facility.

In many areas of the county, on-site systems have been upgraded through various means, including the point-of-sale program, building permit process, and licensing of food, beverage and lodging facilities. The point-of-sale program, enacted in 2000, has upgraded over 1,000 systems. Other on-site systems have been replaced with sewer extensions to municipal wastewater plants, including the North Shore of Lake Superior, Pike Lake, Hermantown and St. Mary's Lake.

The following is a snapshot of suspected or known small community wastewater needs in St. Louis County as identified by county ISTS staff:

- Thirty communities with wastewater needs are located on a lake.
- Six areas are non-lake communities.
- Two areas are located in or near Duluth.
- All of the communities except Duluth are unincorporated.
- Six hundred seventy-eight (678) residences and 40 businesses were estimated to be in these 36 areas; with a population of 1,695 and an unknown number of business patrons.
- Collectively, the residences could generate nearly 41 million gallons of wastewater per year.
- Common problems are small lots with poor soil conditions; just a few areas are suspected to have wastewater discharging directly to the surface.

Stearns County

Stearns County ISTS staff identified **nine areas** with wastewater needs. All of Stearns County was included in the survey results. These areas are typically considered septic system problem areas where lots are small and soil or site conditions are problematic for individual on-site wastewater treatment systems. In these areas, variances for building permits are common because set backs to structure, surface water, lot line, etc. cannot be met. Holding tanks are commonly installed as temporary wastewater measures. Many on-site systems have been upgraded in Stearns County through point-of-sale and building permits.

The following is an overview of small community wastewater needs in Stearns County, as identified by county ISTS staff in 2006:

- Nine areas were identified; all except 1 are unincorporated (St Anthony).
- None of the communities are located on a lake or river.
- All of the areas are small cross-road communities.
- The county has jurisdiction over all of the communities.
- There were an estimated 251 residences and 33 businesses within these 9 areas; with an estimated population of 628 residents and unknown number of business patrons.
- Collectively, the residences potentially generate nearly 7 million gallons of wastewater annually.
- Most common problems identified were small lots and old systems, such as cesspools and drywells.
- The greatest number of homes and businesses are located in the town of Brockway.

Steele County

The following is an overview of small community wastewater needs in Steele County, as identified by county staff in 2006:

- **Seven areas** with wastewater needs were identified. All of these areas are unincorporated.
- Three areas were identified as high priority and four areas were identified as medium priority.
- All seven areas are unincorporated.
- Most of the communities are cross-road communities, with one lake community and one unincorporated subdivision.
- The communities range from 14 to 94 homes. The most common problems are community straight pipes, individual straight pipes, poor soils, and small lots
- Two hundred ninety-four (294) residences and 13 businesses were estimated to be in these seven areas; with an estimated population of 612.
- The estimated residential wastewater flow was 16 million gallons per year.
- Most of the communities were identified as discharging to surface waters. Two were identified as discharging to tile lines.

Stevens County

Stevens County ISTS staff identified **two areas** with wastewater needs. All of Stevens County was included in the survey results. The areas identified are typically considered septic system problem areas where lots are small and soil or site conditions are problematic for individual on-site wastewater-treatment systems. In these areas, variances for building permits are common because setbacks to structure, surface water, lot line, etc. cannot be met. Holding tanks are commonly installed as temporary wastewater measures, relying on the proper disposal of holding tank waste via land application. Many on-site systems have been upgraded in Stevens County through building permits. The county does not have a point-of-sale program.

The following is an overview of small community wastewater needs in Stevens County, as identified by county ISTS staff in 2006:

- Two areas, both unincorporated, were identified.
- Both areas are located on a lake, with a mix of permanent homes, cabins or seasonal homes, and scattered businesses.
- The county has jurisdiction over both communities.
- Both areas were identified as likely in need of small cluster-type treatment systems due to small lots with inadequate soil conditions.
- These two areas have estimated populations of 27 residents and 69 and an unknown number of business patrons.
- Collectively, the residences potentially generate 0.7 million gallons of wastewater annually.
- The most common problems identified were poor soils and small lots.
- Most of the residents (population of 20) live in T-Man's beach on Pomme de Terre Lake.

Swift County

Swift County Environmental staff identified **three areas** with wastewater needs. All of Swift County was included in the survey results.

The following is an overview of small community wastewater needs in Swift County, as identified by county ISTS staff in 2006:

- Three areas were identified as low- to medium-priority communities.
- One area, DeGraff, was incorporated. Two areas, Benson North Subdivision and the Village of Swift Falls, are unincorporated.
- All 3 communities have individual straight pipes identified as the suspected problem.
- Ninety-five residences were reported in these three areas, with an estimated population of 249.
- Collectively, the residences could potentially generate nearly 7 million gallons of wastewater annually.

Todd County

Todd County ISTS staff identified **24 areas** with wastewater needs. The entire county was included in the survey results. These areas are typically considered septic system problem areas where lots are small and soil or site conditions are problematic for individual on-site wastewater-treatment systems. In these areas, variances for building permits are common because set backs to structure, surface water, lot line, etc. cannot be met. Holding tanks are commonly installed as temporary wastewater measures, relying on the proper disposal of holding tank waste via land application. Many on-site systems have been upgraded in Todd County through point-of-sale and building permits.

The following is an overview of small community wastewater needs in Todd County, as identified by county ISTS staff in 2006:

- Of the 24 areas identified, all but two (the towns of Burtrum and West Union) are unincorporated.
- Nineteen communities are located on a lake or river, with a mix of permanent homes, cabins or seasonal homes, and scattered businesses.
- Five of the identified areas are small cross-road communities.
- The county has jurisdiction over all but one of the communities (Mound in the Township of Grey Eagle turned their township program over to the county in 2007).
- Lake Osakis, Sauk Lake, and Big Birch Lake were identified as very high-priority communities likely in need of small cluster-type treatment systems due to small lots with inadequate soil conditions.
- Three thousand one hundred twenty (3,120) residences and 50 businesses were estimated in these 24 areas; with an estimated population of 7,796 residents and an unknown number of business patrons.
- Collectively, the residences potentially generate 128 million gallons of wastewater annually.
- The most common problems identified were old systems with individual straight pipes and small lots.
- The greatest number of homes and businesses are located on Lake Osakis.

Traverse County

Traverse County ISTS staff identified **two areas** with wastewater needs. All of the county was included in the survey results. The identified areas are typically considered septic system problem areas where lots are small and soil or site conditions are problematic for individual on-site wastewater-treatment systems. In these areas, variances for building permits are common because setbacks to structure, surface water, lot line, etc. cannot be met. Holding tanks are commonly installed as temporary wastewater measures, relying on the proper disposal of holding tank waste via land application. Many on-site systems have been upgraded in Traverse County through point-of-sale and building permits.

The following is an overview of small community wastewater needs in Traverse County, as identified by county ISTS staff in 2006:

- Two areas, both unincorporated, were identified.
- One community is located on Lake Traverse, with a mix of permanent homes, cabins or seasonal homes, and scattered businesses.
- One area is a small cross-road community.
- The county has jurisdiction over the Lake Traverse area. The City of Tintah has its own jurisdiction
- Both areas were identified by county ISTS staff as low-priority areas, likely in need of small cluster-type treatment systems due to small lots with inadequate soil conditions.
- Two hundred fifty-six (256) residences and four businesses were estimated to be in these two areas; with an estimated population of 640 residents and an unknown number of business patrons.
- Collectively, the residences potentially generate 7 million gallons of wastewater annually.
- The most common problem in Tintah is poor soils. The most common problems identified around Lake Traverse are individual straight pipes, small lots, poor soils, and old systems.
- The greatest number of homes and businesses are located around Lake Traverse.

Wabasha County

No survey results were submitted.

Wadena County

Wadena County ISTS staff identified **nine areas** with wastewater needs. All of Wadena County was included in the survey results. These areas are typically considered septic system problem areas where lots are small and soil or site conditions are problematic for individual on-site wastewater-treatment systems. In these areas, variances for building permits are common because setbacks to structure, surface water, lot line, etc. cannot be met. Holding tanks are commonly installed as temporary wastewater measures, relying on the proper disposal of holding tank waste via land application. Many on-site systems have been upgraded in Wadena County through point-of-sale and building permits.

The following is an overview of small community wastewater needs in Wadena County, as identified by county ISTS staff in 2006:

- Nine areas were identified, all unincorporated except the Cities of Nimrod and Aldrich.
- Four communities are located on a lake or river, with a mix of permanent homes, cabins or seasonal homes, and scattered businesses/
- Five areas are small cross-road communities.
- The county has jurisdiction over all but two of the communities, Nimrod and Aldrich.
- Four areas were identified by county ISTS staff as high-priority areas, likely in need of small cluster-type treatment systems due to small lots with inadequate soil conditions.
- Three hundred thirty (330) residences and six businesses were estimated to be in these nine areas; with an estimated population of 855 and an unknown number of business patrons.
- Collectively, the residences potentially generate 9 million gallons of wastewater annually.
- The most common problem identified was small lot size.
- The greatest number of homes and businesses are located on Crow Wing River and Blueberry Lake.

Waseca County

The following is an overview of small community wastewater needs in Waseca County, as identified by county staff in 2006:

- Waseca County identified **11 areas** with wastewater needs.
- The 11 areas were identified as medium- to high-priority communities.
- All 11 areas are unincorporated.
- There is a mixture of unincorporated subdivisions, cross-road communities, and lake communities.
- The communities range from 12 to 75 homes. The most common problems identified are small lots (It is difficult to construct individual systems on a small lot, sometimes because of the shape of the lot, rugged topography, and bluffs.), individual straight pipes, community straight pipes, sewage surfacing in yards, and poor soils.
- One hundred ninety-nine (199) residences and no businesses were identified in the 11 areas, having an estimated population of 500.
- The potential residential wastewater flow was calculated at 14 million gallons per year.
- Most of the communities were identified as discharging to tile lines. Two of the communities' discharges were not identified.

Washington County

Washington County identified **12 areas** with wastewater needs. These areas are typically areas with small lot sizes located on lakes. In Washington County, on-site systems are typically upgraded through building permits.

Here's an overview of small community wastewater needs in Washington County, as identified by county staff in 2006:

- Twelve areas were identified as medium- to high-priority communities.
- Nine of these areas are incorporated, three are unincorporated.
- These are predominately infill communities (areas of scattered homes in the more densely populated areas and homes in subdivisions). Some homes are located on, or near, a lake or other surface water.
- The communities range from five to 652 homes. The most common problems identified are infill communities, lake lots, and small lots. Efforts to fix these problems will be done by upgrading through permitting.
- One thousand eight hundred twenty-two (1,822) residences and 76 businesses were estimated in these 12 areas; with an estimated population of 4,702 residents.
- Collectively, the residences potentially generate 128 million gallons of wastewater annually.
- No communities were identified as having wastewater that discharges to the surface.

Watonwan County

The following is an overview of small community wastewater needs in Watonwan County, as identified by county ISTS staff in 2006:

- **Eight areas** with wastewater needs were identified: five unincorporated and three incorporated.
- Four areas were identified by county ISTS staff as high-priority areas.
- The receiving environment for four of the areas was listed as “Groundwater.” These 4 areas were listed as “Medium” priority areas.
- Two hundred fifty-six (256) residences and two businesses were estimated to be in these eight areas, with an estimated population of 640 residents and an unknown number of business patrons.
- The potential residential wastewater flow was calculated at 14 million gallons per year.
- The most common problems identified were poor soil conditions; issues relating to older systems; and three communities are suspected of having wastewater that discharges to the surface.

Wilkin County

Wilkin County ISTS staff identified **six areas** with wastewater needs. All of Wilkin County was included in the survey results. These areas are typically considered septic system problem areas where lots are small and soil or site conditions are problematic for individual on-site wastewater-treatment systems. In these areas, variances for building permits are common because set backs to structure, surface water, lot line, etc. cannot be met. Holding tanks are commonly installed as temporary wastewater measures, relying on the proper disposal of holding tank waste via land application. Many on-site systems have been upgraded in Wilkin County through point-of-sale and building permits.

The following is an overview of small community wastewater needs in Wilkin County, as identified by county ISTS staff in 2006:

- Six areas, all incorporated were identified.
- Three communities are located on a lake or river, with a mix of permanent homes, cabins or seasonal homes, and scattered businesses.
- Three areas are small cross-road communities.
- The county has jurisdiction over all of the communities.
- Four areas were identified as high-priority areas, likely in need of small cluster-type treatment systems due to small lots with inadequate soil conditions
- One hundred sixty-four (164) residences and seven businesses were estimated in these six areas, with an estimated population of 425 residents and an unknown number of business patrons.
- Collectively, the residences potentially generate 4 million gallons of wastewater annually.
- The most common problems identified were surfacing sewage due to poor soils and small lots.
- The greatest number of homes and businesses are located in Foxhome.

Winona County

The following is an overview of small community wastewater needs in Winona County, as identified by county staff in 2006:

- Winona County identified **30 areas** with wastewater needs.
- One area was ranked as a high priority and the remaining 29 areas were identified as medium- to low-priority communities.
- Four incorporated communities and 26 unincorporated areas were identified.
- There is a mixture of incorporated communities, unincorporated subdivisions, and cross-road communities.
- Communities range from six to 175 homes. The most common problems identified are small lots (this as well as the shape of the lot, rugged topography, and bluffs may make it difficult to construct a system on each lot.), individual straight pipes, community straight pipes, sewage surfacing in yards, and poor soils.
- One thousand three hundred forty-six (1,346) residences and 101 businesses were identified in the 30 areas; with an estimated population of 3,365.
- The potential residential wastewater flow was calculated at 73.7 million gallons per year.
- Most of the communities were identified as discharging to groundwater. One community was identified as a straight pipe discharge.

Wright County

No survey results were submitted by Wright County.

Yellow Medicine County

Yellow Medicine County Environmental staff identified **two areas** with wastewater needs. All of Yellow Medicine County was included in the survey results.

The following is an overview of small community wastewater needs in Yellow Medicine County, as identified by county ISTS staff in 2006:

- In the City of Hazel Run, individual straight pipes and small lots were identified as the suspected problems.
- Sunset Drive is a subdivision of the City of Canby. Community straight pipes and small lots were identified as the suspected problems.
- Thirty-nine residences were reported in these two areas, with an estimated population of 84.
- Collectively, the residences potentially generate over 2 million gallons of wastewater annually.

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