



RURAL COMMUNITY SEWERS:

IOWA TOWNS COMMIT TO CLEANER WATER

ENVIRONMENTAL SERVICES DIVISION | WWW.IOWADNR.GOV

Towns and villages across the state that once had grossly inadequate and outdated sewage treatment are making strides to protect public health and water quality. These rural communities — small cities, unincorporated villages and subdivisions alike — have worked with residents, agencies and other organizations to find affordable options for their citizens. The process takes time, but the benefits are worth it. In many of the following pieces, you'll read how a community stopped sewage from running through a city park or residents' yards. See how your neighbors made it work.

LEIGHTON | Mahaska County

Treatment problems aren't always as obvious as they were in Leighton. "You didn't have to know much about environmental regulation to know something was not right when you saw red in the creek," says Ted Petersen, supervisor of the DNR's Des Moines field office. The town of about 150 used only private septic systems. While some were adequate, others were not — like the meat locker, where blood would go to a septic system, which sent it to a tile line and into a creek that ran just south of town. After the DNR investigated a complaint about the red creek, the city worked with its residents, who voted to build a sewer. "They were more proactive than most communities and kept people well-informed and involved in the decisions," says Randy Pleima, Leighton wastewater operator and Mahaska Rural Water general manager. After about four years of planning, a lagoon system owned and managed by Mahaska Rural Water took over treatment of the town's sewage. Leighton residents now pay only a \$15 monthly sewer bill.

GREENVILLE | Clay County

A city park is no place for sewage. But in Greenville, private septic tanks in the town of 93 were sending partially treated sewage to tile lines and into Willow Creek, which winds through the middle of town and the city park before meeting up with the Little Sioux River downstream. "The city really took this on themselves," says Tom Roos with the DNR Spencer field office. The city government hired Iowa Lakes Regional Water to take them — and residents — through the process. While the first plan called for a lagoon, the town ultimately landed on a constructed wetland. Existing septic tanks were replaced and now go to the wetland, which treats about 10,000 gallons of wastewater a day. With aeration and native plants and flowers, the wetland looks nice and no, it doesn't smell. Funding assistance came from USDA Rural Development and a Community Development Block Grant. "The creek was gray, smelly and nasty before," says the DNR Spencer office supervisor. "It took three or four years to work on funding, but the town and mayor were supportive."

CONROY | Iowa County

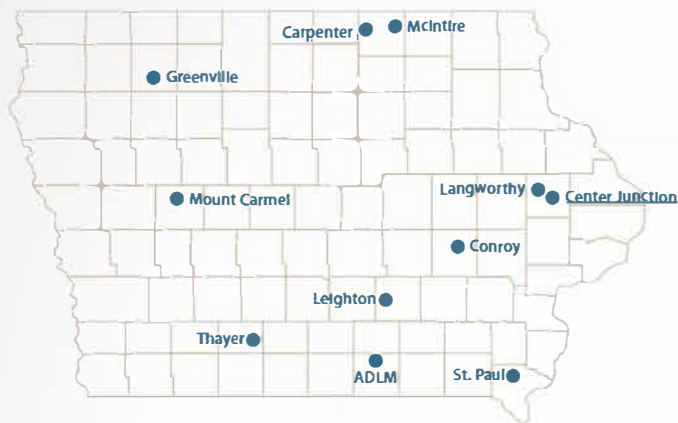
When toilet paper coming from a tile line greeted an IOWA-TER water monitoring volunteer in 2004, it started a county-wide effort to affordably sewer unincorporated Conroy and clean up Clear Creek. With samples indicating human sewage in the water, the DNR issued a notice of violation. The county board of supervisors and citizens organized meetings, which created a strong partnership. "Conroy was in need of good quality water and also had a wastewater issue," said Chad Coburn with the Poweshiek Water Association, which offered experience securing grants and working



James Martin, watershed coordinator, watches a crew close a septic tank and create a connection to the new Conroy sewer system. Photo courtesy Lynn Betts, IDALS-DSC

with engineers. The first steps were to form a sewer district, then acquire land and easements for 83 home hookups and the treatment lagoons. In 2008, they installed the new system and plugged the old septs. While additional work continues to improve the greater watershed, monitoring shows the Conroy effort greatly reduced local bacteria issues. "It's made a big improvement in that area of the watershed," said Steve Johnston, NRCS district conservationist for Iowa County.

FEATURED *Rural Communities*



Many more Iowa rural communities, from subdivisions and neighborhoods to small cities, have made the move to community sewer systems. For more information, visit the DNR website at www.iowadnr.gov/Environmental-Protection/Water-Quality/Rural-Community-Sewers.

MOUNT CARMEL | *Carroll County*

Nine years in the making, it took only 60 days to construct septic systems in Mount Carmel. The efforts followed a DNR complaint investigation showing high levels of fecal coliform bacteria in Storm Creek. Despite a stream clogged with gray filamentous algae, many residents were not happy about having to upgrade their septic systems. The county hired an engineering firm and applied for funding assistance, discovering that a central wastewater treatment lagoon was not feasible. After many funding rejections the county worked with USDA, the DNR and the county sanitarian, Carey Kersey, to design individual septic systems. Still 11 homes needed to share yard space for secondary treatment. The county purchased an acre of hay ground and installed three shared cluster systems. The county owns, inspects and repairs all septic systems in the town. "It was a challenge to secure residents' support," Kersey says. "It was difficult to convince people septic tanks and laterals were a permanent solution and would work." In return, the residents agreed to pay \$35 per month for services and become more mindful of how they use their new systems to avoid problems such as backups.

CENTER JUNCTION | *Jones County*

The town of Center Junction knew it needed to do something when complaints of raw sewage entering streams were coming in to the DNR. It hired an engineer to do planning and had started exploring funding options. When one funding source expressed concern over the town of 131's capacity to manage a system, the Eastern Iowa Regional Utility Service System (EIRUSS) stepped in to help. EIRUSS helped organize the project, worked with the engineer, hired an operator, secured a community block development grant and USDA grant and loan, acquired land for the new sewer system, and monitored construction and financing. "Management takes time and expertise, and cities and counties are glad to have someone to go to for that expertise," says Mike Wade of the DNR's Manchester field office. Most importantly, EIRUSS took on the management and operation of the system when it went online. The city, which has a drinking water system, handles billing for both water and sewer. "We did this to assist the city to solve the problem," says EIRUSS' Larry Nagle.

CARPENTER | *Mitchell County*

Financial and planning assistance made it possible for the city of Carpenter to address treatment issues that affected Deer Creek since the 1980s. In 2001, the city began working with the Midwest Assistance Program to get an engineering study done, which would help the town apply for grants. "It took several years, but they were actively pursuing it," says Glenn Carper of the DNR's Mason City field office. "We realize it's hard for small towns and we give them time to seek funding. We won't make them build something they can't pay for." With assistance from the U.S. Department of Agriculture and the Iowa Watershed Improvement Review Board, the town installed a collection system and lagoon. Mitchell County manages the system for now, until the city has the resources to do it on its own. For residents, cost was the biggest concern, but the town knew it had to do something. "Some people were glad to see it coming because of the time of transfer law and some saw it as the right thing to do," says Mark Ross, Mitchell County sanitarian.

MCINTIRE | *Mitchell County*

"We're in the 21st century, but we have towns with 19th century sewage treatment," said the supervisor in the DNR's Mason City field office. Potential health issues made McIntire, population 173, a DNR enforcement priority in 2003. A small stream runs through town and the sewage pipes were sticking out of the stream banks, giving children and pets access to raw sewage. Many of the 67 homes in town had septic systems, but only 14 worked properly. Water sampling confirmed there were bacteria problems that the town needed to address.

In June 2005, DNR specialists explained monitoring results, health issues and potential technical and financial solutions. Townspeople responded four months later, voting 46 to five to upgrade the septic systems. However, some homes didn't have room for leach fields. The final plan included upgrading existing septic systems, installing new systems and for those with less room – pooling resources. The city closed three drinking water wells to make room for wastewater treatment. So some homes not only shared drinking water wells, but also shared cluster systems with leach fields in above-ground mounds. The project took about six years after the vote to complete. Costing about \$5,000 per system in 2008, the new and upgraded systems treat 6.2 million gallons of sewage annually. Treating the sewage protects water in town and in the Wapsipinicon River – a small river known for its trout fishery just upstream. Who knows? A few years from now, perhaps the trout will move downstream.

THAYER | Union County

Roll down the car windows on a hot day in Thayer, Dan Olson recalls, and you could smell sewage. "There was sewage running in open ditches in front of houses," says Olson with the DNR's Atlantic office. An investigation in 2000 found the ditches sending sewage to an unnamed tributary of the Thompson River and Thayer Lake. Toys sitting in the ditches indicated children were playing in the wastewater.



Prior to a community sewer system, sewage ran through open ditches in Thayer. Here, a dump truck signaled that a child had played in wastewater from an inadequate septic tank in Thayer.

The town started to search for guidance and funds to install a community wastewater system in the late 1990s. The city turned to the Southern Iowa Rural Water Association, which conducted a preliminary engineering study and worked with residents to understand the need for a system. "It comes down to cost, voting with your billfold," says SIRWA's Dan McIntosh. "But once they heard all the facts, they were for it." The town of about 80 people voted to allow SIRWA to own and operate a collection system and lagoon, installed in 2006. A normal monthly sewer bill in Thayer runs about \$25. "It's a dramatically improved situation," says Olson.

LANGWORTHY | Jones County

A common tile line used to carry away sewage from homes in unincorporated Langworthy and right into Kitty Creek. The problem came to light when a septic review on a property for sale revealed the shared tile line. It also found the property's small lot size didn't provide room for the required secondary treatment following the septic tank. Water samples taken where the tile line entered the creek registered extremely high fecal bacteria counts, indicating that several houses were connected to the tile line. "The fecal count was in the millions," says Sue Ellen Hosch, environmental health specialist for Linn and Jones counties. The DNR issued a notice of violation to Jones County, requiring the county to address the problem. Hosch and the county worked with homeowners to see which septic systems needed upgrading. Within about two years, residents in the community of about 25 houses had upgraded to an approved system or a system already meeting standards. Some lots were too small to allow for a leach field or other secondary treatment, so the county worked with homeowners to install systems that shared secondary treatment.

ADLM | Appanoose, Davis, Lucas, Monroe counties

ADLM (standing for Appanoose, Davis, Lucas and Monroe counties) Environmental Health is a utility management organization that works with communities to make sewage treatment affordable and feasible. The counties work together to provide an economy of scale to plan, build and maintain a system – functions many small communities can't afford. Staffed by county sanitarians, ADLM's main goal is adequate sewage treatment for unincorporated communities. Its mission to protect Lake Rathbun is designed in three phases.

Phase I will sewer Iconium, which will pump wastewater liquids to Honey Creek Resort lagoons, according to Donnie Herteen, ADLM co-director. The added wastewater helps the lagoons run properly, residents pay about \$40 per month and water quality benefits. A no-interest loan from the State Revolving Fund helped pay for planning. ADLM received a USDA grant for 66 percent of construction costs and a USDA loan for remaining costs. Phase II is on hold, pending development. Phase III is in the planning stages, but will improve wastewater treatment for 750 north shore homes.

"I think there will be a tremendous public health benefit," Herteen says. He anticipates an economic benefit, too, as new homes can hook into the sanitary system. Another project will provide individual septic systems to 265 homes, mostly in Davis County. The USDA came to ADLM, asking for the organization's leadership on the nearly \$4 million project. "ADLM will own, operate and maintain the systems, while the homeowners pay a monthly bill," Herteen says.

ST. PAUL | Lee County

Several years ago, the 125 or so residents of St. Paul decided to improve their wastewater treatment. "The city stands out because they took the initiative to do something they thought was best for their community," says Jim Sievers of the DNR's Washington field office. There was no complaint and no enforcement actions. The city decided they needed a community wastewater treatment system and hired an engineer who designed a three-cell waste stabilization lagoon. This system stores and uses biological treatment on the waste for about six months at a time. Solids are settled out. In the spring and the fall, the treated liquids are released to a stream. "I think it's admirable that this small town did this because they wanted to, not because they had to do it," Sievers says.

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DNR ENVIRONMENTAL FIELD OFFICES

Info at www.iowadnr.gov/fieldoffice

IOWA UTILITY MANAGEMENT ORGANIZATIONS

Info on DNR website at www.iowadnr.gov/Environmental-Protection/Water-Quality/Rural-Community-Sewers