

# WORKING FOR CLEAN WATER

2011 WATERSHED IMPROVEMENT SUCCESSES IN IOWA



clean water  
*starts with you.*

IOWA DNR WATERSHED IMPROVEMENT



# Working for clean water

2011 IOWA WATERSHED SUCCESSES

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*Cover: Paddling the Cedar River in Charles City*

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Charles City paddling photos courtesy Charles City Chamber of Commerce  
Middle Raccoon River paddling photo courtesy Iowa Tourism Office  
Great egret photo (at left) by Lowell Washburn

# From the Director

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Iowans are learning that their neighborhoods extend far beyond the block or the fence line as they come together as common citizens of our state's watersheds. Partnering with countless organizations, groups and government agencies, individual citizens and businesses are developing innovative new ways to improve our state's lakes, rivers and streams. All with a watershed approach — making changes on the land to improve water quality.

Success in improving our waters requires not only personal changes in our homes, in our businesses and on our fields, but strong partnerships. With a partnership approach, we can pool resources, generate new ideas and raise support and awareness. When many people make individual efforts, it culminates in a much greater end result.

As you'll see in the following features, water quality improvement in Iowa is built on a solid foundation of traditional conservation approaches based on strong watershed and community research. The most successful efforts are led by groups and communities partnering with organizations like the DNR to put together comprehensive, long-term plans to improve the land and water. These groups develop innovative ways to strengthen how Iowans value our waters and to make actual changes in water quality.

With renewed interest in our waters comes many benefits for our communities. Better water quality often translates into a better quality of life for residents. Kids have cleaner water to swim and play in. Drinking water can improve and the impact of flooding may decrease. Hunters take note of improved wildlife habitat. Economic development picks up as tourists come to town to investigate the improved fishing or to put in the kayak.

Future efforts to protect our lakes, rivers and streams will grow upon today's innovative efforts. By taking a strategic approach — identifying waterbodies most in need of help and developing watershed management plans to solve problems — Iowans can continue to make a difference in their water quality and their newest neighborhood, their watershed.



A handwritten signature in black ink, which reads "Roger L. Lande". The signature is written in a cursive, flowing style.

Roger L. Lande  
Director, Iowa Department of Natural Resources



**We all live in a watershed**, an area of land that drains to a lake or stream. What we do on that land — whether a backyard, farm, small business or factory site — affects the health of our lakes, streams and rivers. Clean water starts with us.

When water runs off the land, it can carry pollutants with it. For example, motor oil can wash off our driveways and into storm sewers, which dump directly into a lake or stream without treatment. Rainfall can send loads of exposed soil from fields and bare ground into our waterways. If we don't make changes to the way we manage the land to keep soil, nutrients and other materials where they belong, they'll end up in our water.

Iowans are coming together in communities across the state to improve their local lakes, streams and rivers. They're investigating problems and creating long-term plans to improve and protect their water. They're working with the DNR and other local, state and federal agencies, which provide technical know-how, planning guidance and financial assistance. Local watershed leaders work one-on-one with landowners, homeowners and volunteers to make changes on the land and in our homes to improve the quality of water entering our lakes, streams and rivers. These organized efforts offer Iowans access to better resources and funding assistance to make improvements on their property that protect water quality.

While the Watershed Improvement Program heads up these watershed efforts for the DNR, projects are a collaborative effort with many DNR programs and other partners. Fisheries staff do in-stream and in-lake work that, together with better water quality, helps fish and aquatic life thrive. Wildlife staff work with landowners to install buffer strips and vegetation that provide habitat for pheasant, turkey and other wildlife while protecting streams. Our foresters help Iowans plant trees to stabilize streambanks. Our geology, water monitoring and water quality staff help identify problems and offer solutions. The DNR also works with a number of partners, such as the Iowa Department of Agriculture and Land Stewardship - Division of Soil Conservation (IDALS-DSC), the USDA Natural Resources Conservation Service (USDA-NRCS) and Iowa Soil and Water Conservation Districts.

The U.S. Environmental Protection Agency, through Section 319 of the Clean Water Act, provides DNR watershed improvement funding. DNR Watershed Improvement often funds local watershed efforts in cooperation with other DNR programs, IDALS, USDA-NRCS and soil and water conservation districts.



### **Partner group initials used in this booklet:**

County Conservation Board (CCB) ♦ Iowa Department of Agriculture and Land Stewardship (IDALS) - Division of Soil Conservation (DSC) ♦ Iowa Department of Natural Resources (DNR) ♦ Iowa Department of Transportation (DOT) ♦ Iowa State University (ISU) ♦ Soil and Water Conservation District (SWCD) ♦ U.S. Department of Agriculture (USDA) ♦ USDA Farm Services Agency (USDA-FSA) ♦ USDA Natural Resources Conservation Service (USDA-NRCS) ♦ USDA Resource Conservation and Development (RC&D) ♦ U.S. Environmental Protection Agency (EPA) ♦ Resource Enhancement and Protection (REAP) ♦ Watershed Improvement Review Board (WIRB) ♦ Conservation Reserve Program (CRP)



# Charles City reconnects with river

**After Cedar River floodwaters hit hard in 2008, even washing away the century-old suspension bridge, you wouldn't expect Charles City to think highly of the river.**

Instead, the town made the Cedar a destination and works to protect its water quality. The vision of a downtown whitewater park began in 2006 and soon grew into a full-blown riverfront redevelopment. "The community was looking for a way to capitalize on the Cedar," said City Administrator Tom Brownlow. With grants and local donations, Charles City hired a respected Colorado firm to design the whitewater course. Plans came together to turn a little-used park into a major draw with a boat launch, amphitheater, ravine play area, stormwater fountain and labyrinth. Ensuring the safety of paddlers and tubers meant removing the old low-head "beauty" dam, despite some anglers' reservations. However, removing the dam allowed fish back upstream and created habitat. Now, Brownlow says people fish downtown "a dozen at a time," including out-of-towners. "You come out here any day and you'll see fishermen upstream and downstream of where that dam was," he said.

The park officially opened in summer 2011, drawing residents riverside, luring kayakers from Iowa, Nebraska, Minnesota and Wisconsin, even garnering attention from the coasts. "I was impressed with the community coming out to watch the boaters and use the river. I saw kids out fishing, older folks out for a stroll. Everyone was extremely nice and welcoming," said Marijo Bosiljevac, an Omaha area paddler. "It was clear from the start that the investment in the river created a beautiful and usable space for the community." The city estimates that the course, which covers 26 acres of ground and 11 acres of water, will have an economic impact of \$764,000 annually, even without a charge to use the course. Visitors camp a few blocks away and then bike to a downtown pub or restaurant, just off the river. Outfitters and other businesses are showing interest in the park's success.

Charles City also explores ways to improve the river's water quality. A historic neighborhood just upstream, where homes and infrastructure date back 100 years, had street and basement flooding. By repaving the 15-block area with cobblestone-looking permeable pavers and adding vegetated bioretention strips, rainfall now soaks through into the ground, instead of running off into the storm sewer. The pavers and plants slow runoff and filter pollutants before they reach the river. "We were wanting to make road improvements for a long time, but we had no money to do underground work in that area," said Brownlow. "These grant monies bring it in lower than regular road projects." The new system can soak up a two-year storm event, 2.98 inches of rain in 24 hours, before any rainfall hits a storm sewer. The system can handle up to 7 inches of rain in one day at one intersection. Before, no area intersections could handle a two-year rain. The system should last 50 years and will likely cut nitrogen reaching the river from the neighborhood by 65 to 100 percent and phosphorus from 30 to 65 percent. "In general, response has been very positive," Brownlow said. Neighbors have noticed less flooding and less street refreezing after thaws, and one real estate agent told Brownlow neighborhood homes are now worth more. A second phase of the project will repave another 6.5 blocks, including four blocks of Clark Street from the newly rebuilt suspension bridge to downtown.



*Tom Brownlow on a Charles City street paved with pervious pavers.*

## Project partners:

- Iowa DNR
- City of Charles City
- Iowa Economic Development Authority
- Iowa Department of Cultural Affairs
- State Revolving Fund
- Floyd County Community Foundation
- I-JOBS
- Charles City residents and businesses



# Farmers help namesake creek

Farmers and residents along Farmers Creek in Jackson County remember the fun they had as kids fishing the creek, not finding dead fish along the banks. But by the late 1990s, that's what the creek had become. Twice within a three year period, high levels of ammonia and low oxygen levels from livestock and dairy operations killed more than 137,000 fish in the stream. Monitoring data landed the creek on the state's impaired waters list in 2002, and the creek sent significant amounts of sediment and nutrients to the Maquoketa River.

Residents knew something had to change in the 17-mile-long stream. Working with the Jackson SWCD, they formed a watershed advisory board, which set a goal of reducing the amount of sediment and nutrients reaching the stream by 40 percent over three years, which would improve conditions for aquatic life in the creek. "Most of them remember what it used to be like as kids and are trying to take it back to what it used to be," said Michelle Turner, who led the effort to work with landowners to make changes on the land to improve water quality. Producers, adopting more than 75 conservation practices through the Farmers Creek watershed project, reduced sediment reaching the stream by 6,827 tons per year. That's enough soil to fill a 2-mile-long line of dump trucks. They reduced phosphorus reaching the creek by 4.5 tons per year, a cut of 50 percent.

One of those farmers, Ernie Felderman, bought his farm in 1992 and started doing conservation work right away "to save the land from going into Farmers Creek," he said. Through the watershed project, he added a pond and four grade stabilization basins and improved his timber stands. He aims to slow water down before it reaches the creek, which runs through his farm, to "help out other people down the line."

Though the organized watershed project for Farmers Creek has ended, the effort continues among landowners. "The program is over, but we're seeing continued interest in making improvements in that area, even with reduced cost-share assistance," said Turner, who works with the SWCD. "Landowners are spreading the word."

Dennis Bradley, who farms the land he grew up on and fished the creek as a child with his grandfather, put in grassed waterways and ponds to control soil erosion. "It's to hold soils where they ought to be," he said. As a contractor, he helped build many of the project's new practices in the watershed. Now, he sees more grasses along the streambanks and less pasturing along the stream.

The changes on the land helped aquatic life in the stream bounce back, including smallmouth bass. The improvements paved the way for a first-of-its-kind effort to restock native freshwater mussels in the creek. Mussels, which filter the water and serve as sensitive indicators of water quality, have steadily dwindled in Iowa streams and rivers in the past few decades. The DNR and U.S. Fish and Wildlife Service placed 847 mussels in Farmers Creek. They continue to monitor the population and hope to see the first generation of wild mussels in 2012.



*Ernie and Janice Felderman worked with Michelle Turner, right, to keep valuable soil out of Farmers Creek.*

## Project partners:

- Iowa DNR
- IDALS-DSC
- Jackson SWCD
- Landowners
- WIRB
- USDA-NRCS
- USDA-FSA
- Jackson CCB
- U.S. Fish and Wildlife Service
- Genoa National Fish Hatchery
- Limestone Bluffs RC&D
- ISU Extension
- Jackson County Supervisors
- Jackson County Engineering Office
- IOWATER
- Izaak Walton League
- Conservation Districts of Iowa



# Locals take pride in Lake Macbride

**Lake Macbride means something different to everyone who has walked its banks or floated its waters.** It's a place to paddle, a great fishing spot, a camp, a neighborhood, a place to watch raptors and much more. So when it came time to do something about the lake's water quality, it took a multi-faceted approach.

The DNR drew down the lake's water level for two years to improve fish habitat and water quality. With 60,000 cubic yards of dirt from digging bays and deepening the shoreline, the DNR built underwater reefs in deeper water for fish habitat. The deeper bays and 110,000 tons of rock, used to stabilize 12 miles of shoreline, worked to reduce bank erosion from wave action. A 930-foot silt dike on the lake's north arm keeps sediment and nutrients from washing into the lake after a big rain.

Now, you can see an average of 7 or 8 feet down into the water. That water clarity leads to more vegetation, which creates better fish habitat and absorbs extra nutrients. "People are telling me it's the best fishing they've ever had here," said Paul Sleeper, DNR fisheries biologist. "The walleye fishing is just tremendous. Overall, use is up in the park, from boaters, kayakers and anglers on the lake and in the campground and beach." A major watershed effort to protect that in-lake work aimed to reduce sediment and nutrients reaching the lake. With about 85 percent of the watershed in rural areas, project coordinator Amy Bouska reached out to farmers and landowners to install ponds, grassed waterways, basins, prairie plantings, filter strips, wetlands and more. After assessing the watershed, "We looked at the needs of the land and the farmer's goals to select the right practices," said Bouska, with IDALS. An advisory committee made up of urban and rural residents helped lead the effort as well. "We encouraged everybody in the watershed to do what they could. Most people are pretty conscientious of trying to keep the lake clean," said Ed Ulch, a farmer who served on the advisory committee. "Macbride is a key recreation area to this community. It's a pristine lake that's always been highly regarded. We take pride in our community."

With a number of lakefront homes along Macbride, the project also needed to reduce runoff from residential lawns. Bouska, along with volunteers and the advisory committee, worked with homeowners to test yards' soil to determine the best type of fertilizer and with a local store to carry phosphorus-free fertilizer before it was common. Homeowners could proudly display a yard sign if they did 10 things on a conservation list, which ranged from soil testing and aeration to composting and using native plants. Residents in the Cottage Reserve subdivision also stepped up to halt erosion along a road into their neighborhood. "Wave action was sloughing off the bank each year, and it was getting close to the road. Here's this big long stretch where nothing's being done," said Ken Hook, an advisory council member who has lived on the lake for 17 years. With his wife, Jan, and other neighbors, they talked with the DNR, Army Corps of Engineers, Johnson County and others to make progress. Bouska secured a grant to help pay for the repair, including stabilizing an additional 1,400 feet of shoreline with rock to save the road. "If we hadn't stayed on top of it that road would have fallen in," said Jan. "We just love the place. We wouldn't want to live any other place. It gets in your blood."



*Ken and Janice Hook, Amy Bouska, Rob Winstead, Paul Sleeper and Mike Gardner worked together to stabilize the shoreline.*

## Project partners:

- Iowa DNR
- IDALS-DSC
- Johnson SWCD
- USDA-NRCS
- Lake Macbride Watershed Advisory Committee
- Landowners and operators
- REAP
- WIRB
- EPA
- USDA-FSA
- Johnson County Secondary Roads
- Johnson County Board of Supervisors
- City of Solon
- Johnson County ISU Extension
- University of Iowa Urban and Regional Planning Program
- Solon Community School District



# Master plan to guide river's future

**With limited funding for water quality improvement, watershed planners want to learn the best practices and places to have the biggest impact.**

"Our goal was to create a road map for water quality improvement," said Adam Kiel, DNR Raccoon River basin coordinator, about an innovative master plan for the Raccoon watershed. "It will help prioritize subwatershed projects so that areas having the greatest impact on water quality will be tackled first. It can also serve as a prototype for other large-scale watershed planning efforts in Iowa."

During an 18-month process, a range of landowners, farmers, environmental advocates and experts, along with policy makers and Iowa State University scientists, came together to develop the plan. Now Raccoon River watershed residents and stakeholders have a guide to improve water quality on a large scale through changes in managing both agricultural and urban areas. The plan focuses on strategies to reduce nitrogen, phosphorus, sediment and bacteria. Reducing nitrogen can improve drinking water downstream, where Des Moines periodically uses the world's largest nitrate removal facility to treat its water. The group expects that their recommended practices will also benefit aquatic life and wildlife. "We are losing life in the Raccoon River each year. It will take a major attitude change on the part of Iowa citizens to save the river from further degradation," Mike Delaney, Raccoon River Watershed Association vice president, said of the plan. "Members of the RRWA enjoy paddling, fishing, hunting and many other outdoor activities in the watershed. The Raccoon River master plan lays out ways that this natural resource can be returned to a previous level of health and productivity."

The plan presents nine recommendations to improve the entire Raccoon River watershed. These begin with adding a watershed-wide planning organization to coordinate watershed issues, building public awareness and accountability, and providing education and outreach to farmers and landowners, explaining how managing for nutrient conservation differs from managing for soil conservation. The watershed-wide organization should have tools to identify the most susceptible areas and which control strategies will provide the best result. And, it would continue to assess long-term water quality status and trends, share what subwatershed projects learn as they progress, and serve as an information depository residents can go to for help with subwatershed improvement. Kiel emphasizes that projects will still be locally led, just as in the past. "Each subwatershed has varying conditions," explains Kiel. "The master plan will help identify strategies to get the best results for these conditions."

There is no simple or single solution to improving water quality in the Raccoon River. The challenge calls for strong private sector leadership and conservation planning services, new technologies that will improve water quality where it is most compromised, and ongoing outreach and education campaigns to support this effort. "Agren's methodology focused on problem solving, rather than defining specific water quality targets," said Jamie Ridgely of Agren, which developed the plan. "Our focus was to better understand and recommend solutions to overcome barriers to water quality improvements in the Raccoon. This plan identifies common needs and is broadly supported by experts and the watershed stakeholders."



*A stream in the Raccoon River watershed.*

## Project partners:

- Planning process participants:
  - local, state and federal agencies
  - universities
  - conservation, recreation, environmental, agricultural and other organizations
  - public utilities
  - landowners and operators
  - watershed residents
- Iowa DNR
- Missouri and Mississippi Divide RC&D
- Agren, Inc.
- ISU Center for Agriculture and Rural Development
- U.S. EPA

*With funding from the U.S. EPA and the American Reinvestment and Recovery Act, the DNR awarded a grant to M&M Divide RC&D, with a subcontract to Agren Inc., to develop the master plan.*



# Conservation ethic grows on urban roof

**Residents of Cedar Rapids' Water Tower Place were already thinking about replacing their rock roof with a green roof system, but the floods of 2008 cinched the decision.** The condominium association agreed to use their new green roof to demonstrate how urban buildings can help protect water quality in the Cedar River.

First, they selected a green roof tray system. Plants grow in 2-foot by 1-foot trays that are 4 inches to 6 inches deep, depending on the plant species in the tray. In this case, 40 sedum varieties and 15 Iowa native plants were chosen for their low growth habit, easy care and drought resistance. With installation completed in October 2010, the plants came through their first winter in good shape, creating a lush garden the next summer.

Water Tower Place residents Ann Knierim and Ruth Fox facilitated the random design of the green roof garden. "The use of trays with fully established plants means if a plant dies it can be easily removed," said Knierim. "It's nearly weed-free. And, neither wind nor precipitation can erode the soil."

A thick rubber roof membrane underlying the planting areas adds an additional benefit. The green roof is expected to last 10 to 15 years longer than traditional roof systems.

Although not the cheapest option to install, the green roof has long-term energy savings. A study by Oak Ridge National Laboratory and the Single Ply Roofing Industry organization found that similar green roof systems in Tennessee reduced heat gain by 61 percent and heat loss by 40 percent. Water Tower Place resident Judith Whetstine, who has a condo on the top floor, believes the green roof lowered interior temperatures this summer. "Our evidence is anecdotal, but we believe the extra layer of insulation helped lower our power bills this winter as well," said Whetstine.

But does the green roof make a difference for the Cedar River watershed? Jon Gallagher, resource conservationist in Linn County, says the green roof can reduce stormwater runoff from a 1.25-inch rainfall by 50 to 80 percent. "Any stormwater that runs off will be filtered and cleaner because it has passed through the green roof system," Gallagher said.

"The publicity our green roof generates has made a difference in community awareness of the necessity of stormwater management," added Whetstine. "Plus, we have this pleasant, soothing oasis in the middle of a city concrete island. The green roof is a popular place for parties, and clean water is coming out of our single roof drain."

Water Tower Place is located at 900 Second Street SE in downtown Cedar Rapids. For more information, visit <http://wtpgreenroof.org>.



*Water Tower Place homeowner Ann Knierim waters plants on the Cedar Rapids building's green roof.*

## Project partners

- Iowa DNR
- Linn SWCD
- USDA-NRCS
- I-JOBS
- Water Tower Place residents
- Green AmeriCorps volunteers
- Roof Top Sedums LLC
- T&K Roofing and Sheet Metal Company



# Small town embraces park, lake

Not every park is lucky enough to have 300 caretakers, but the small town of Diagonal takes a lot of pride in the Fogle Recreation Area and Fogle Lake.

The park bursts with amenities, with the campground, cabins and 3-D archery range at the top of the list. There's a sand volleyball court, three shelter houses, new shower house and a walking trail. And it's all there because of volunteers. The maintenance, from mowing to trail grooming, and improvements to the park all come about through volunteer labor, local donations and grants. While the DNR owns the land as part of a DNR wildlife management area and DNR fisheries handles the lake, the city of Diagonal takes care of the park's maintenance and operation. A five-member park board handles decision-making and meets monthly to coordinate volunteer efforts. Often that means approving residents' requests to proceed with their own improvement projects. "It's a unique situation. The whole community is involved," said city council member Jim Norris. "That's just the way everyone is. They take a lot of pride in maintaining what we have."

So when 150 acres of land adjacent to the lake went up for sale in 2010, the community pooled its resources to buy the land, a critical part of Fogle Lake's watershed. Locals wanted to see the land stay enrolled in the Conservation Reserve Program and planted to native grasses, which help soak up runoff and filter out excess nutrients before they reach the lake. "Fogle has naturally good water quality, but it would go down if that land was put in row crop," said DNR fisheries biologist Gary Sobotka. Residents and local groups – the Lions Club, Pheasants Forever, Whitetails Unlimited, the Ringgold Outdoor Alliance, the archery club and others – raised \$15,000 toward the land and then donated the parcel to the DNR. "The last thing anybody wanted to see was a decrease in water quality in the lake if it was farmed again," said Norris.

A popular fishing lake, Fogle hosts an annual ice fishing tournament and also serves as an outdoor classroom for the local school district's paddleboating program. "We wanted to make the lake better for a longer time," said Jason Smith, a member of the park board. The community raised money to help the DNR stock walleye in the lake when the bluegill population started to cause problems, Smith added.

Attracting people to the park — residents and visitors alike — drives volunteer efforts. "It's pretty priceless to see people coming back to the park," said Norris. He also helps run the park's archery range, which works with the local school's archery program. For Norris, it's important to get kids outside, and that's the norm in Diagonal. About half of students in grades 3 through 12 participate in the archery program. The campground stays busy, and the new land addition has drawn in hunters for Iowa's first mourning dove season. The park board and community volunteers have more improvements slated, including an upgraded electrical system, more campsites, and new basketball and horseshoe courts. "It says a lot for their community to make that commitment to the park," said Sobotka. "This town of 300 gets things done."



## Project partners:

- Iowa DNR
- City of Diagonal
- Diagonal residents
- Lions Club
- Pheasants Forever
- Whitetails Unlimited
- Ringgold Outdoor Alliance
- Diagonal Maroons Archery



# Making a commitment to Spring Branch

More than 600,000 fish depend on the Spring Branch Creek watershed as they incubate and hatch at the DNR Manchester Trout Hatchery before being stocked in more than 60 Iowa trout streams each year.

With clean water crucial to the hatchery's success, landowners continue to protect the watershed more than 10 years after a watershed project ended. "Trout are the canaries in the coal mine of the fish world," said hatchery biologist Dave Marolf. "Water quality is critical, especially at Manchester because this is Iowa's only public trout hatchery. Trout are especially intolerant of poor water quality."

To improve and protect Spring Branch, the Delaware SWCD launched a three-year project in 1995 to cut sediment washing into the stream by 50 percent and manure reaching the stream by 70 percent. The project worked to encourage responsible use of fertilizer and pesticides, and to promote economically and environmentally sound farming practices in the 12,000-acre Delaware County watershed. Landowners changed tillage practices, improved pastures, stabilized 2,880 feet of streambank and added grassed waterways, filter strips, contour strips and more. "Spring Branch was very successful in that it brought up the level of awareness of water quality issues — 70 percent of landowners did something," said Mike Freiburger of IDALS, who coordinated the watershed effort. By 1998, efforts from the project reduced sediment reaching the stream by 8,000 tons — enough to fill a line of dump trucks reaching the entire fishable length of the stream.

Still, water quality improvement isn't a one-time fix. "Watershed improvement is definitely a long-term process. Sometimes it feels like we take a step backward just as we go forward a step," said DNR fisheries biologist Dan Kirby, noting the 2008 floods, and policy and economic factors. "We still have sediment concerns through the watershed. However, cooperation with local landowners helps us keep up with the need for quality water and the demand for blue ribbon trout fishing."

Those landowners continue to build on the initial project's work, maintaining and adding conservation practices, and improving public fishing access to one of the Midwest's best trout populations. Partnering with the DNR through a stream access program, landowners allow the DNR to make streambank and in-stream habitat improvements and to stock trout, while providing public access.

Ed and Renee Tibbott continue the work Renee's father began to protect the stream. "There were tree stumps along the bed of the stream. It had eroded out 10 feet from the existing bank," said Renee of the stream, which leads from their pasture into the adjacent hatchery grounds. Their latest work includes armoring a bend in the creek and adding habitat, including placing large limestone blocks in the stream. They added a stream crossing too. The Tibbotts, who also own a campground near the creek, say that fishing has improved. "It's developing into a good stream. We can see how the conservation features are supposed to work," said Ed. "We have kids from Waterloo who fished here a couple of years ago and now they've remarked how much better it was for fishing."



## Project partners:

- Iowa DNR
- IDALS-DSC
- USDA-NRCS
- USDA-FSA
- Delaware SWCD
- ISU Extension
- West Delaware Middle School
- Conservation Technology Information Center
- Hawkeye Fly Fishing Association
- Trout Unlimited Driftless Area Restoration Effort



ST. PAUL'S  
CATHEDRAL  
AND  
GARDEN



# Cathedral heeds call to improve land

When it came time to replace the dilapidated asphalt parking lot at the Cathedral Church of St. Paul in downtown Des Moines, church members asked, “can’t we do something better?”

The flood of 2008, which didn’t reach the church but affected many of its downtown neighbors, was still fresh in people’s minds. The mature ash trees next to the lot should be protected, and it would be great to have an outdoor gathering space for contemplation and prayer like many Anglican cathedrals in England. “Cleaning and keeping the water on the land was a main focus,” said the Rev. Dr. Cathleen Bascom, dean of the church. “For us, the land is a gift from God. We’re called to tend our section of it and the people around us, too. We need to think about where the water is going and how it affects people downstream.”

In spring 2010, RDG Planning and Design met with church members and staff, architects and neighbors of the church to determine the cathedral’s needs and brainstorm solutions. Urban conservationists Jennifer Welch and Wayne Petersen assessed the church property for possible practices. Church members – ranging from attorneys and green builders to plant experts and architects – formed a project team to oversee the effort.

The group decided on regrading the parking lot and adding two sections of permeable pavers, which allow rainwater to soak into the ground, where filtration pipes carry rainwater to new rain gardens. A bioretention cell with native plants also collects and filters rainwater, and a gathering space and labyrinth provide a place for prayer and contemplation. Together, these practices reduce the amount of pollutants in runoff by 85 percent. “It keeps 12 private swimming pools’ worth of water out of the storm sewer every year,” Bascom said.

As the stormwater project started, the cathedral created an educational program with Orchard Place PACE Juvenile Center, the Des Moines Downtown School and Oakridge Neighborhood. The church hosts three learning events for kids each quarter, covering soil, roof systems, the social history of the land and more. Students, as well as youth from the church, helped plant the rain gardens.

Following the ribbon cutting in summer 2011, the gardens began to attract all types of visitors. “One of the earliest things I saw was birds and butterflies flocking here,” Bascom said. More people are walking the labyrinth or including a pass by the church on their lunch hour jogs, she added.

“A lot of people traverse that parking lot everyday and tell me how they appreciate the green space. It’s a utility space made beautiful,” said Elvin McDonald, a gardening expert and chair of the cathedral’s gardens committee. “The Episcopal Church is very conservation-minded,” he added, noting a focus on stewardship of the land. “If we don’t show that, how can we expect others to?”



## Project partners:

- Iowa DNR
- Cathedral Church of St. Paul
- I-JOBS
- Polk SWCD
- Episcopal Diocese of Iowa
- RDG Planning and Design
- REAP
- IDALS
- Private donors
- Bankers Trust
- State Revolving Fund
- Trees Forever
- Orchard Place
- Des Moines Downtown School
- Oakridge Neighborhood



# Crafting plans for future successes

**We're with you every step of the way.** When Iowans come together in their communities with the common goal of improving their lake, stream or river, the DNR and our partners can help you take action.

With DNR Watershed Planning Grants, local groups can receive funding, technical assistance and guidance to create a Watershed Management Plan. The plan assesses the watershed for problems, develops solutions and finds ways to involve your community in the effort. The plan, much like a road map, moves you toward success and helps you get back on track if detours pop up along the way.

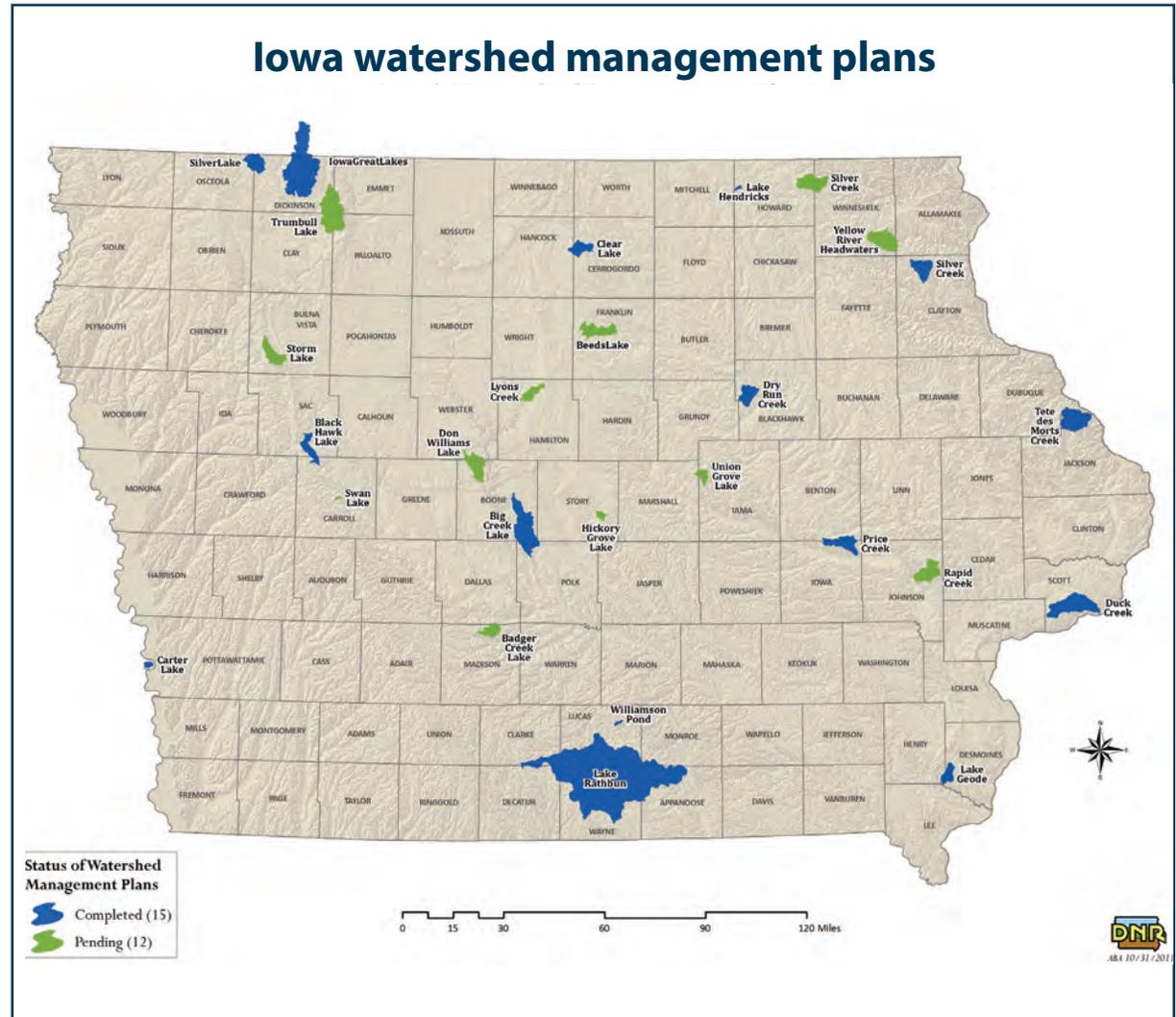
A number of Iowa watershed communities are paving the way, with 14 watershed management plans completed and another 12 under development. Since 2009, the DNR has awarded \$344,284 in grant funding to help Iowans gather information and create plans to improve their water quality.

Once you have a plan, you need to put it in action, and the DNR can help with our DNR Watershed Implementation Grants. Use these grants to launch your plan, making changes on the land to improve the water. Implementation Grants offer more than funding — DNR staff provide technical and outreach assistance, and guidance. Our partners, IDALS-DSC and NRCS, also offer additional grant funding and technical assistance.

“Sound planning is the foundation of any successful effort,” said Allen Bonini with the DNR’s Watershed Improvement Program. “Plans support long-term efforts and strategies to improve our water and keep it clean. As we help Iowa groups build solid Watershed Management Plans, we’re excited to see the successes down the road.”

**For more information about DNR Watershed Improvement:** Steve Hopkins at 515-281-6402 or [Stephen.Hopkins@dnr.iowa.gov](mailto:Stephen.Hopkins@dnr.iowa.gov) | [watershed.iowadnr.gov](http://watershed.iowadnr.gov)

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