

2020 NEWSLETTER

URBAN CONSERVATION



IOWA DEPARTMENT OF
**AGRICULTURE &
LAND STEWARDSHIP**

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ABOUT THE URBAN CONSERVATION PROGRAM



The Urban Conservation Program continues to expand across the state by providing technical assistance and information to communities, developers, consultants and homeowners.

An increase in stormwater wetlands have been seen over the past few years, serving as a great way for communities to treat runoff from larger drainage areas.

This is one of many practices that urban conservationists are using to assist rural and urban communities in improving water quality, reduce erosion and flooding risks.

More information on the urban conservation program can be found at cleanwateriowa.org.



STORMWATER WETLANDS FOR WATER QUALITY AND RUNOFF MANAGEMENT

Urban areas with impervious surfaces such as buildings, houses, streets and parking lots can generate large quantities of runoff during rain storms. This runoff picks up pollutants and flows into local water bodies without being treated, negatively affecting water quality. Communities across Iowa are utilizing stormwater wetlands as part of their management strategies. A stormwater wetland is a man-made management practice that provides a natural way to treat and remove pollutants from urban runoff before it enters a stream, river or lake.

In this newsletter, we highlight communities' efforts to implement wetlands and improve their water quality.



STORM LAKE RENOVATES LAGOON INTO WATER QUALITY WETLAND SITE

What was once a lime lagoon that belonged to the water treatment plant is now the Abner Bell stormwater wetland in Storm Lake, Iowa.

The City of Storm Lake received a Water Quality Initiative (WQI) grant from the Iowa Department of Agriculture and Land Stewardship in 2016 to construct the wetland and bioretention cells. The 1.12 acre wetland catches 160 acres worth of pollutants, sediment and runoff that would otherwise go into Little Storm Lake and Storm Lake.

The rest of the \$336,750 project was funded by the City of Storm Lake and numerous sponsors, including the Iowa Economic Development Authority (IEDA), Iowa League of Cities, University of Iowa Hydraulic Lab/Nutrient Removal Center, Natural Resource Conservation Service, Buena Vista Soil and Water Conservation District, Tyson-Poultry, and Buena Vista University.

The goal of this project is to improve water quality in the North Raccoon River Basin and to target both urban and agricultural runoff before it reaches the watershed. Two subdivisions, an elementary and middle school, as well as agricultural areas drain into the wetland.

The wetland is in a Wildlife Management Area, which makes it a recreational hot spot for Storm Lake residents and visitors alike. It's also a place to enjoy wildlife and a variety of plant species.

The City of Storm Lake created a stormwater management plan in 2015, which called for the construction of the wetland and installation of bioreactors, bioswales, rain gardens and other projects to help the community achieve its stormwater management goals.

Through these projects, Storm Lake has accrued over 220 acres of flood control, sediment control and nutrient removal. From an environmental perspective as well as an educational perspective, the Abner Bell wetland takes a comprehensive approach to addressing water quality in Storm Lake.

READLYN

The City of Readlyn worked with neighboring farmers to construct a stormwater wetland on the southwest edge of town. The wetland project is funded through the Water Quality Initiative and State Revolving Fund Sponsored Project, and captures and treats runoff from two-thirds of the city's stormwater drains.

Engineering firm Shrive-Hattery, who has worked on many stormwater management projects throughout Iowa, helped bring the wetland to life.

Readlyn's wetland features a forebay. Shrive-Hattery engineer Luke Monat explained that "the wetland was intentionally designed in a way that makes it easy for the community to maintain and clean it, which will maximize the life of the wetland itself."

The money saved on maintenance will be used to develop a high quality vegetative community surrounding the wetland, according to Monat.

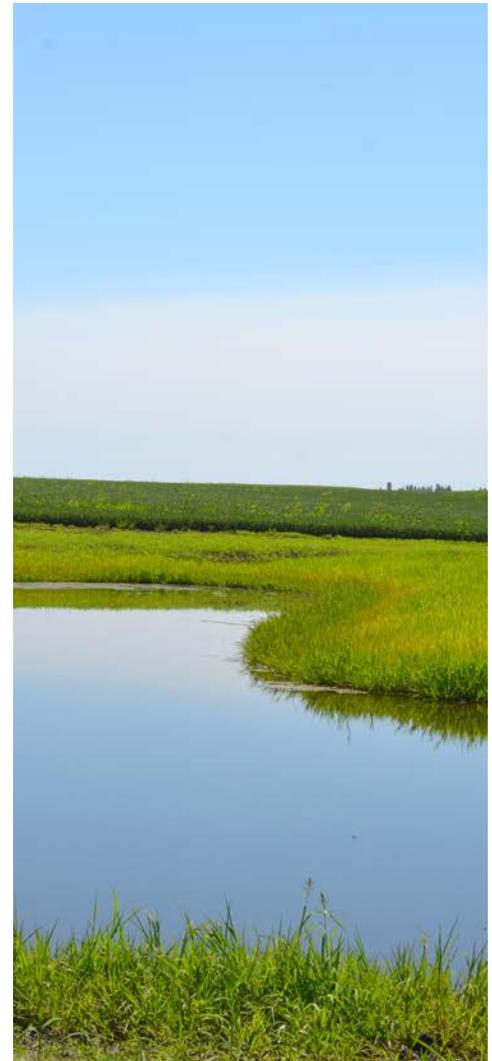
This is one of many urban conservation projects that are directly connected to rural Iowa.

"There are adjacent agricultural grounds we didn't want to interfere with," said Monat. "We are working with adjacent landowners and the Bremer County NRCS to ensure all residents of Readlyn will benefit from this project."

The USDA's Natural Resources Conservation Service was an integral part of the conservation planning process with the adjoining landowners.

"The landowners were really great to work with," said Chad Gilles, NRCS Resource Conservationist. "We were meeting with them initially because they were concerned about the water coming from the City onto their property. The adjoining landowners were onboard with the wetland project because it will benefit them in the future by controlling runoff."

City employees and residents alike consider the project a success and decided to construct another conservation practice adjacent to the wetland.



"Urban Conservationist Amy Bouska has been a big help with both technical assistance and coordination. Having all the stakeholders work together has made this project successful. This stormwater wetland will not only be a water quality improvement, but an amenity for the town."

Luke Monat,
Engineer,
Shrive-Hattery

LENOX SETS EXAMPLE WITH WATER QUALITY PROJECT

Lenox's new stormwater wetland brings functionality and intrigue to the rural Iowa community. The City also installed a new bioswale as a part of its growing effort to enhance water quality. The City implemented these practices using funds from the Sponsored Projects program through the Clean Water State Revolving Fund administered by the Iowa Department of Natural Resources and the Iowa Finance Authority.

Jeff Godwin of Snyder and Associates engineered the wetland in Lenox.

"It's a pretty typical wetland but it is kind of unique because it's a small town doing this type of project, which is not common in rural Iowa yet," said Godwin. Technical assistance on the design was provided by Derek Namanny, Urban Conservationist at the Iowa Department of Agriculture and Land Stewardship.

The wetland is located near the south edge of the city as well as the school, which creates opportunities for the small community to learn about the benefits the wetland and bioswale projects reap for the environment. Lenox will also serve as an example by showing other small towns how they can take action to improve water quality.

"We did something different on the upper end of the wetland to construct some small levies," said Godwin. "This forces the water to take on a more circular path to increase flow lengths and travel times. By storing the water for a little bit longer, sand, salt and other contaminants settle into the soil instead of running into the stream."

The wetland is also home to an array of plant and wildlife species making it a functional and beautiful sight to see in the small town.





DES MOINES IMPROVES WATER QUALITY WITH FOURMILE CREEK WETLAND

Within the Des Moines metro area, a new stormwater wetland was constructed to improve water quality and meet the goals of the Fourmile Creek Watershed management plan.

Fourmile Creek Watershed Management Authority, Polk Soil and Water Conservation District, and the City of Des Moines partnered with the Iowa Department of Agriculture and Land Stewardship on this \$150,000 Water Quality Initiative (WQI) sponsored project.

With the goals of improving water quality, reducing flooding in a way that was aesthetically pleasing and increasing community awareness, the Watershed Management Authority constructed this wetland on land owned by the City of Des Moines. The Fourmile Creek wetland will treat stormwater from a 46-acre residential area which previously experienced flooding issues.

The wetland will serve the people living within the Fourmile Creek watershed but will also benefit those living downstream. With the capacity to remove phosphorus, nitrogen and other pollutants, this wetland helps achieve the goals in the Nutrient Reduction Strategy.

Kieth Hubbard, Civil Engineer for the City of Des Moines, spoke to the city's philosophy on stormwater management. Hubbard mentioned the City of Des Moines has done smaller projects like bioreactors, biocells and permeable pavers but this is the first big wetland to be constructed in town.

"When constructing the wetland, you have to work with the grades and elevations and make sure the water can drain into the site," Hubbard said. "The technical expertise provided by Jennifer Welch, Urban Conservationist, was very valuable."

The project was completed in the fall of 2019 and serves as an example for other suburban communities in Iowa.

WEBSTER CITY ENHANCES WATER TRAIL WITH STORMWATER WETLAND

Riverside Park is a green haven within Webster City, neighboring the Boone River. Some of Iowa's most important water resources are housed within the Boone River. The city applied for and received a Water Quality Initiative Grant from IDALS to construct a stormwater wetland in 2015.

The project resides on a former campground that was transformed into a stormwater wetland and is now teeming with wildlife and vegetation. The wetland is also directly adjacent to the entrance of one of Iowa's first Water Trails, an attraction that gets used by over 130,000 people per year, according to the City.

Judy Joyce, engineer at Impact7G, spoke to the technical aspects of the Webster City stormwater wetland.

"The wetland itself has several different zones and varieties of vegetation," Joyce said. "Dividing the wetland into zones based on water depth and plant species is the key to treating the water effectively."

Conservation aficionado Brian Stroner, Webster City's Environmental Safety and GIS Coordinator, has been involved with the wetland project since 2015.

"It took at least two years to get to this point," Stroner said of the biodiverse and vegetated wetland. "The whole thing is home to wildlife now, including geese, turtles, frogs, fish, owls and herrings."

The Riverside Park wetland treats 32 acres of urban stormwater drainage flowing from its downtown commercial district. This impervious area contains many rooftops and pavement.

The stormwater runoff is naturally treated in the Riverside Park wetland before it flows into the Boone River. Four years since its inception, the Riverside Park stormwater wetland has proven to be a valuable and beautiful resource for the city.





OXBOWS RESTORED IN CENTRAL IOWA

Polk County is getting a renovation in a big way — oxbows across the county are being restored thanks to a Water Quality Initiative (WQI) grant from the Iowa Department of Agriculture in partnership with the Nature Conservancy and Polk Soil and Water Conservation District.

Oxbow restoration is a relatively new conservation practice that uses the natural landscape to remove 40 to 90 percent of nitrates in the water. Oxbows can also help with flood control.

“Oxbows are essentially disconnected stream meanders,” said John Swanson, a Polk County conservationist. “Over time, these wetlands fill with sediments and get degraded. It happens naturally, but in Iowa it happens a lot more rapidly because of runoff in urban areas and erosion in agricultural areas.”

Restoration of oxbows involves excavating the area down to the same depth as the adjacent stream channel to allow the constant flow of groundwater. A small connection to the stream is also made on one end of the oxbow to store floodwater. Along with the water quality and quantity benefits these restorations create, they also provide essential habitat for wildlife, including birds and fish.

The Nature Conservancy conducted a fish assessment on the oxbows it restored almost one full year after excavation. The report showed 1,900 fish and 23 different species residing in the oxbows, proving that these restorations support water quality and biodiversity.

“The oxbows themselves serve a lot of different functions,” Swanson said. “Oxbows are natural wetlands, which is a little different than a constructed stormwater wetland. We are restoring these natural structures.”

Within Polk and Dallas County, five oxbows were restored in early 2018, thanks to partnerships with the City of Urbandale, City of Clive, Walnut Creek Watershed Management Authority and Polk Soil and Water Conservation District. There are currently oxbow restoration projects in Johnston, Des Moines, West Des Moines, Clive and Ankeny, many of which are located in city parks.