

IOWA URBAN CONSERVATION

2018 Iowa Urban Conservation Program Newsletter

CELEBRATING 10 YEARS OF EXCELLENCE IN SUSTAINABLE PRACTICES

The Urban Conservation Program was created in 2008 and has made great strides by improving Iowa's water quality and benefiting citizens that live in and around our state. Urban Conservationists have worked hard to create unique solutions for diversified communities across Iowa. With dedication and expertise, Iowa's urban and rural landscapes have been transformed to model the forward-thinking values Iowans care about. Sustainability is at the core of our mission to improve water quality and reduce flooding. To do this, we've spent the last 10 years building partnerships with a variety of organizations that value Iowa's natural landscape as much as we do.

We offer our thanks to the Water Quality Initiative (WQI), Iowa Economic Development Authority (IEDA), Department of Natural Resources and Iowa Finance Authorities' State Revolving Fund (SRF) Sponsored project program for sharing our commitment to a more sustainable Iowa and supporting our mission. We also offer our thanks to the countless local city governments for their part in implementing stormwater management practices and continuing to educate the people of Iowa.

Ten years ago, efforts focused on educating the public and piloting management practices in communities. Today, stormwater management practices are located in neighborhoods, cities' infrastructure, schools and colleges, and local businesses. Rain gardens, bioretention cells, soil quality restorations, and native landscaping are all popular choices for developers and homeowners. Improvements have been made possible from \$3.3 million in WQI, over \$10 million from the IEDA, and \$68 million through the SRF.

There are ten sites we are particularly excited about after ten years of installing urban practices. These sites represent the best of what our program has to offer communities. Like all of our projects, these practices exemplify what it means to be of the highest function and aesthetic quality. Celebrate with us by reading about our successful projects, both old and new, and how these projects impact people across Iowa. Contact an Urban Conservationist to learn more about how to start your next project or go to www.cleanwateriowa.org to read more success stories across the state.



**INTRODUCING
PAUL MILLER**

The newest member of the Iowa urban conservation team is Paul Miller. Paul started at the beginning of this year as the State Urban Conservationist. He worked over the last 35 years with the USDA Natural Resources Conservation Service in five offices across the state providing technical assistance on conservation planning and practice implementation.

For the last 16 years, Paul worked in the Polk County NRCS office which provided an opportunity to assist customers and work with other team members on urban projects. Paul is excited to work with the conservation team and our partners to continue to grow and expand the urban conservation program and implement new storm water management methods and practices across the state.



TEN CITIES, ONE MISSION

INFRASTRUCTURE IN AN URBAN SETTING

SUCCESS STORIES IN URBAN CONSERVATION PROJECTS



Bee Branch in Dubuque



Stormwater wetland outlet near residential area in Easter Lake

DUBUQUE

Dubuque found itself situated in between rural and urban conservation needs. Between Catfish Creek and Bee Branch, the city needed stormwater conservation to accommodate both types of Iowa landscapes.

Initial phases of the Bee Branch project were finished ahead of schedule and \$800,000 dollars under budget, according to the City of Dubuque. The project's focus is to filter stormwater without flooding nearby properties but also features a trail system, an outdoor amphitheater, and gardens in the urban setting. They also experimented with floating islands in the river running directly through their city, meant to filter stormwater already in the river.

Through collaboration, Dubuque has been able to make impacts within its own unique city, as well as make larger impacts throughout the entire watershed by purposefully working outside of city bounds.

EASTER LAKE

The Easter Lake Restoration project was years and millions of dollars in the making. This progressive project included partnerships with local businesses and residents to improve stormwater wetlands, dredging of the lake, soil restorations, and native landscaping. Additionally, many residents elected to install rain gardens or rain barrels in their own yards.

“The best way for an urban homeowner to manage stormwater runoff on their property is through soil quality restoration,” said Easter Lake Watershed Coordinator Julie Perreault. “The practice is very low cost and helps reduce stormwater runoff while also giving the resident a nicer, healthier lawn.”

Engaging residents of a community on stormwater management can provide fruitful results, as Easter Lake demonstrates by having numerous raingardens and soil quality restoration projects.



Arnold's Park Rain Gardens

ARNOLD'S PARK

Stormwater management projects set out to protect and enhance our most precious resource, water. In the Iowa Great Lakes, water is also intrinsically linked to one of their biggest industries, tourism. Arnold's Park chose to prioritize sustainability through stormwater management. Over the last ten years, numerous bioretention cells and permeable paver projects have been installed in and around the areas surrounding the Arnold's Park Amusement Park, with the goal of keeping phosphorus out of the lake.

Water monitoring was performed on three of the bioretention cells. Results showed they were effective in removing phosphorous as well as removing other pollutants from the runoff water.



This multi-stage outlet at Prairie Trail in Ankeny provides very effective stormwater management on a large scale

ANKENY

Ankeny has been a leader in progressive stormwater management techniques for many years. The city has implemented multiple bioretention cells, rain gardens, and stormwater wetlands. They have chosen to grow their infrastructure in sustainable ways, making Ankeny the community with the most stormwater wetlands in Iowa.

Ankeny implemented a variety of practices in Summerbrook Park that include bioretention cells, native landscaping, stream stabilization, soil quality restoration, and permeable pavement. Signs illustrate the practices and their water quality benefits as well as things people can do at home.

Prairie Trail Development was designed so stormwater would slowly flow through the landscape while being treated for water quality and managed for flood protection. A treatment

train of stormwater practices treat and manage all rain events. The practices also provide many public amenities and look like lakes, wetlands, and parks to most people.

Many of Prairie Trail's growing retail boutiques, dining and entertainment venues overlook one of two large ponds. These ponds are part of the integrated stormwater system and features a multi-staged outlet to release water into Saylor Creek.

Multi-staged outlets accommodate the treatment and slow release many types of rainfall events of all sizes. Typical stormwater outlets only treat the largest flooding events. These events are the least likely to occur and allow the unregulated and untreated release of all other rainfall events. Ankeny is a great example of the progressive stormwater management systems that will soon be a standard approach to stormwater management.



Storm Lake wetland

STORM LAKE

Storm Lake was the first to have “developed the policies, refined the practices, and still take a very active role in updating the policies,” said Jay Michels, Storm Lake's engineer. Michels' engineering firm designed the Minnesota Stormwater Manual and used their expertise to help Storm Lake to be the model stormwater community it is today.

Storm Lake applied this knowledge to diverse practices, including detention basins, permeable paver projects, flood controls, rain gardens, and wetlands.

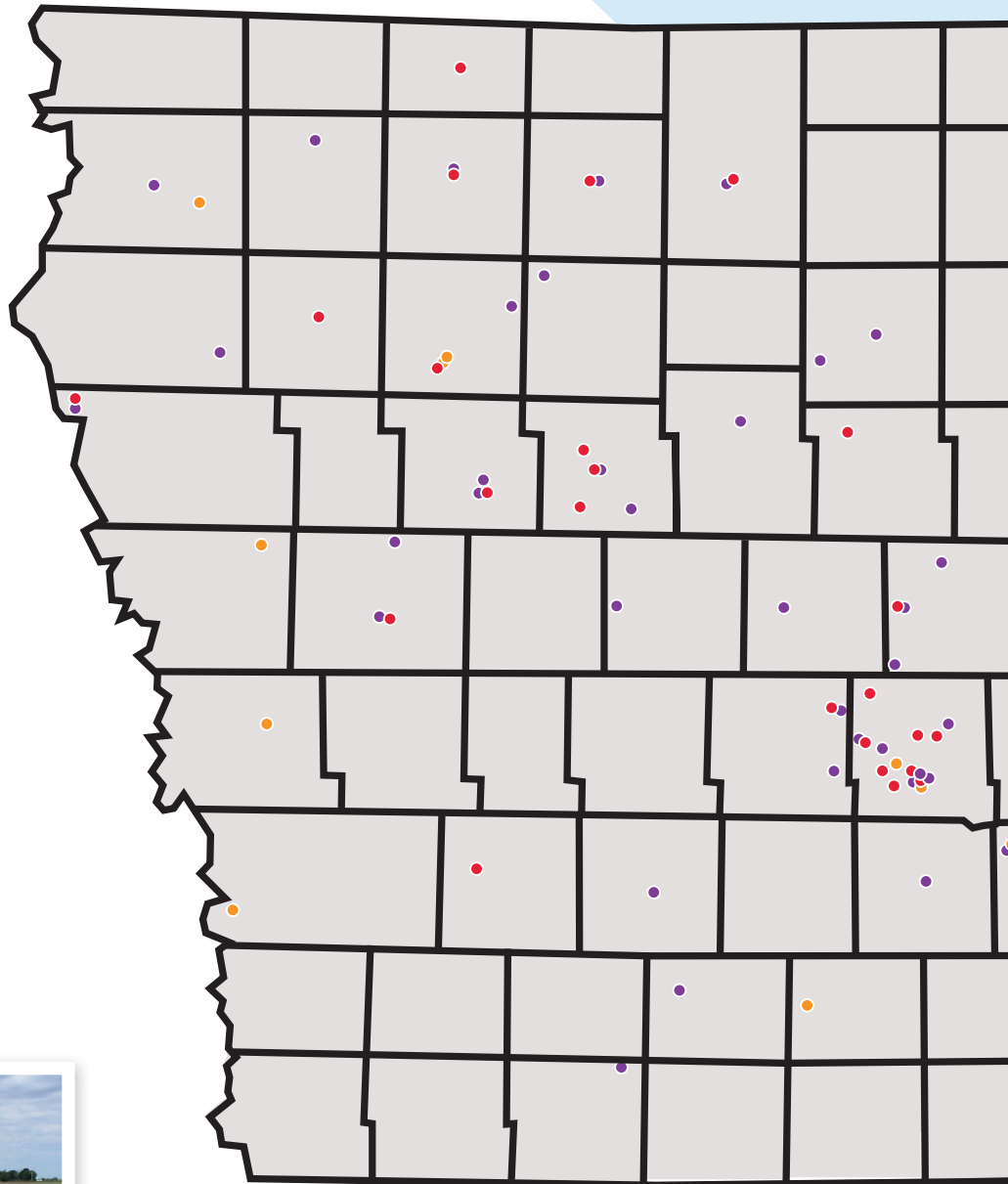
Any community where water quality or flooding is an issue would benefit from learning from Storm Lake. Storm Lake was involved in both WQI and SRF projects, as well as receiving FEMA funding.

State Revolving Fund
 \$68 million completed or
 in progress and planning stages

URBAN CONSERVATION PROJECTS

- Albert City
- Algona
- Ames
- Blakesburg
- Buffalo
- Burlington
- Calamus
- Cedar Rapids
- Central City
- Charles City
- Clarion
- Clinton
- Coralville
- Creston
- Davenport
- Denison
- Des Moines (4)
- DNR State Parks
- Donnellson
- Dubuque (3)
- Durant
- Dyersville
- Eagle Grove
- Epworth
- Fairbank
- Fort Dodge (2)
- Fort Madison (2)
- Granger
- Greenfield
- Grimes
- Grinnell
- Hampton
- Hills
- Indianola
- Johnston
- Kalona
- Keokuk (3)
- Keota
- Kingsley
- Kiron
- Lake View (2)
- Laurens
- Lenox
- Lohrville
- Marshalltown
- Monona (2)
- Mount Pleasant
- Newhall

- New London
- North Liberty
- Northwood
- Ogden
- Ottumwa
- Pleasantville
- Postville
- Readlyn
- Rockwell City
- Roland
- Ruthven
- Sanborn
- Scranton
- Seymour
- Sioux Center
- Sioux City (2)
- Slater
- Spencer
- Tiffin
- Wastewater
 Reclamation
 Authority (5)
- Waukee
- West Burlington
- Wilton
- Winthrop
- Wright County



Stormwater Wetland
 City of Spencer and
 Walmart Partnership

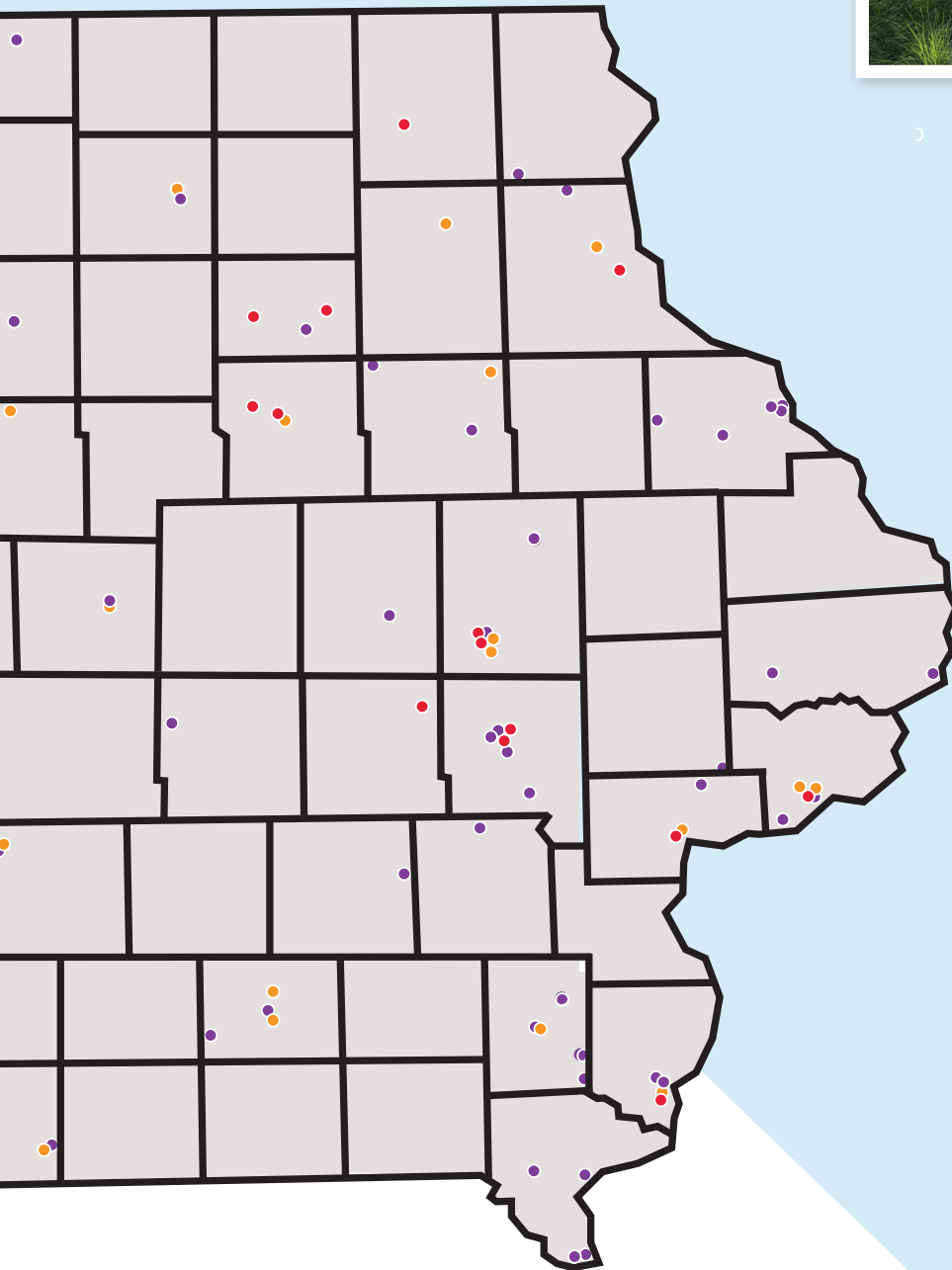
LEGEND

- State Revolving Fund
- Water Quality Initiative
- Iowa Economic Development Authority

PROJECTS ACROSS IOWA



Bioswale
Cedar Rapids, IA



Water Quality Initiative \$13 million completed or in progress and planning stages

- | | |
|------------------|-----------------|
| Algona | Grimes |
| Amana Colonies | Lake View |
| Ames(2) | Lohrville |
| Ankeny (2) | Muscatine |
| Arnold's Park | North Liberty |
| Atlantic | Readlyn |
| Burlington | Rockwell City |
| Black Hawk SWCD | Sioux City(2) |
| Cedar Falls | Slater |
| Cedar Rapids (2) | Spencer |
| Cherokee | Storm Lake (2) |
| Clive(2) | Twin Lakes |
| Coralville | Urbandale |
| Davenport | Waterloo |
| Denison | Webster City |
| Des Moines (4) | West Des Moines |
| Emmetsburg | Windsor Heights |
| Garnavillo | Winneshiek SWCD |
| Granger | |

Participating Institutions

- Coe College
- Cedar Falls Community Schools
- Hawkeye Community College
- University of Northern Iowa
- Northeast Iowa Community College

Iowa Economic Development Authority \$10 million completed or in progress

- | | | | |
|------------------|--------------|----------------|----------------|
| Burlington | Iowa Falls | Muscatine | Seymour |
| Cedar Rapids (6) | Garnavillo | Mount Pleasant | Storm Lake (3) |
| Charles City | Johnston | Murray | Waterloo |
| Council Bluffs | Lamont | Ottumwa (3) | West Union |
| Davenport (2) | Marshalltown | Orange City | Woodbine |
| Des Moines (2) | Mapleton | Pleasantville | |



Bioretention Cell
Johnston, IA



Coralville Bioretention Cells and Permeable Pavers

TEN YEARS, TEN CITIES STORMWATER MANAGEMENT PROJECTS ACROSS THE STATE

CORALVILLE

Featured in Coralville's premier residential area, bioretention cells and native landscaping add beauty to this urban outdoor shopping area. In the last year, Coralville has implemented progressive stormwater management ordinances and Amy Foster, Coralville's Stormwater Coordinator attests to the success of the legislation.

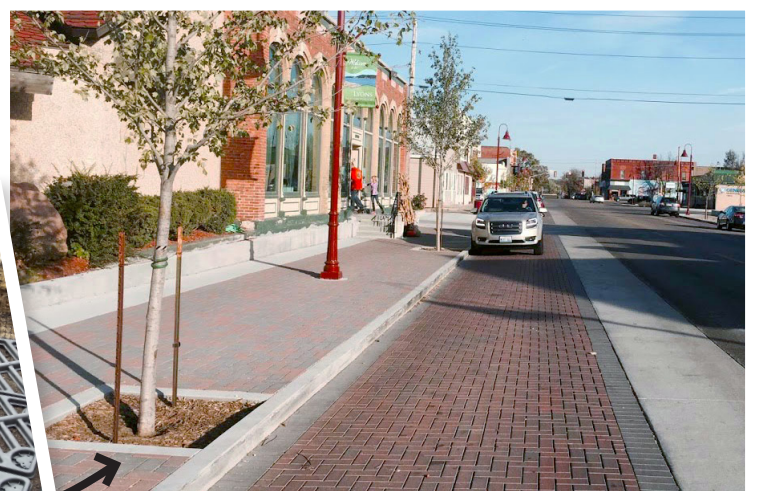
"Every project has to address stormwater, public or private. We have a pretty aggressive ordinance that requires new development and redevelopment to adhere to the water quality volume, channel protection volume and detention requirements," says Foster.

Urban Conservationists specialize in helping communities draft legislation and bolster education in conjunction with cities like Coralville, to pioneer further change from the systemic level.



CLINTON

Clinton opted to use both the traditional permeable paver, as well as an alternative paver approach with plastic Silva cells and rocks as filters. While either option will filter out nutrients like phosphorus or nitrates, Silva cells allow the tree roots to grow through the paver system. The trees will not only provide aesthetic quality but help soak up and treat stormwater as well. Clinton is a great, enduring example of different structures for not only permeable pavers but for their bioretention cells and soil quality restoration projects.



Clinton Silva cells and Permeable Pavers

CHARLES CITY

Charles City decided to pursue a paver project to improve how the infrastructure handled excess water. The two-phase project spanned multiple residential blocks and went from impervious pavement to permeable pavers. Due to high percolation rates, this pilot project was a success for the city. Since then, the project has been used as a tour site for other cities and businesses interested in permeable pavers. It is also used as an educational site on water quality and stormwater conservation for the state of Iowa.



Charles City Permeable Pavers being laid

WEST UNION

West Union's paver project was throughout the downtown and was one of the most extensive paver projects in the state. Jon Biederman, the engineer on the project, said, "The paver and bioretention system has proven to accept most all rainfall with essentially zero surface runoff."

West Union has made a large impact on the water quality in their watershed, due to the scale of the project. Aside from their paver project, West Union has also installed many bioretention cells.

Biederman notes that not every community has to do large projects to see an impact, though. "Any community could benefit from similar type practices. A project does not need to be as extensive as the West Union project to still offer water quality and runoff benefits," he said.

These water quality projects make big impacts, both on a local level and across Iowa.



Permeable Pavers in West Union

DRY RUN CREEK

Dry Run Creek installed a diversity of stormwater management techniques to accomplish the goal of getting the rivers within the Dry Run Creek watershed off the state 303(d) list of impaired waterways.

According to Black Hawk Soil and Water Conservation District, the milestones set 13 years ago have been met or have exceeded the goals as of 2018. Since the beginning of implementation, over 1,800 tons of sediment was kept from entering the stream and over one mile of the streambank was stabilized.

These practices include bioretention cells, permeable pavers, native turf, green roofs, and bioswales leading to over 74 million gallons of water being infiltrated, instead of becoming urban runoff.

This success was made possible due to Black Hawk County embracing many different types of stormwater management practices, rather than just a single technique.



Dry Run Creek University Student Housing Bioswale



CITY OF AMES SETS AN EXAMPLE FOR GREEN INFRASTRUCTURE USE

The city of Ames has taken steps to demonstrate how green infrastructure can be incorporated in developments and retrofitted into existing sites. Ames City Hall is located downtown, where a high percentage of impervious surfaces collect stormwater and drain directly to Squaw Creek. The city used this highly visible location to retrofit an ultra-urban area with green infrastructure practices. This project improved water quality and reduced a large volume storm flow that contributes to flooding.



Bioretention cells were installed in the parking lot islands and along the parking lot edges to capture stormwater pollutants. The cells were planted to native areas by students in the Environmental Studies class at Ames High School. The students discussed green infrastructure in class lectures and will use the site for tours and continued education efforts. Ames also installed permeable pavers in parking stalls as well as extra subsurface storage under the parking lot to collect and hold a 100-year flood event.

Ames utilized the Water Quality Initiative program and sponsored project funds through the State Revolving Fund to pay for half of the stormwater practice installation and paid the other half from their city budget. The city hall area will be used as a green infrastructure educational site through signage, articles, tours, public events on site, and presentations. The City of Ames is commended for recognizing the need and taking steps to demonstrate how green infrastructure practices can benefit the community.



Meet Our Team!



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