

## **Application Summary Awarded Projects – 2007**

### **7003 Clear Lake Watershed**

Clear Lake, Iowa's third largest natural lake, is a premier natural resource and popular recreational destination in north central Iowa. Despite the lake's already strong recreational use, water quality concerns have not allowed the lake to reach its full potential. Clear Lake is listed on Iowa's 2004 303(d) Impaired Waters List due to excessive levels of phosphorus, bacteria, and turbidity. Urban storm water runoff from the 8,600 acre watershed is a significant contributor to Clear Lake's impairment. Local communities have been working towards the goal of making improvements at all 30 storm water outlets that have a drainage area of five acres or more and have a cost effective solution. Many improvements have already been made, and now there are only seven storm water outlet sites remaining that still need protection in order to meet the goal. The storm water improvements have been very effective in reducing contaminants in urban runoff, achieving reduction levels in the 50% to 80% range. The proposed Clear Lake Storm Water Improvement Project will address the remaining seven outlet sites and take place over three years. The first year will consist of performing engineering and design of storm water best management practices (BMPs) at the seven outlet sites to determine if a cost effective solution exists for each. Years two and three will consist of installing two storm water improvements each year to implement the most cost effective BMPs at a minimum of four of the seven sites. The grant request addresses one of the main priorities of the Iowa Watershed Improvement Grant: storm water runoff.

### **7008 Yellow River Watershed/Direct Drain Project**

Two sections of the Yellow River have been named to the State of Iowa's 303d list of impaired waters. The listing reflects streams with pollution problems linked to habitat alterations, in addition to those with potential disease causing bacteria, viruses and parasites. This fact, combined with local knowledge of water quality problems, shows the need for land treatment practices and habitat improvement measures.

This project would target the Yellow River watershed, which totals approximately 49,800 acres. Areas that drain directly into the Yellow River mainstream will be targeted. Individually, these areas are too small to be considered sub-watersheds. This project will assess the drainage areas for active gullies and prioritize grade stabilization structures based upon severity and impact on the fishery. Funding would be utilized to target high priority grade stabilization structure sites and provide cost-share for those projects. A prerequisite for cost-share allocation is 75% of the land contributing to the drainage area must have some form of treatment in place. The Allamakee SWCD has received an EPA Region 7 Grant toward grade stabilization structures in the same area. Landowners have indicated that 75% cost-share is necessary to implement practices. To meet this request, the EPA funding would be used at a 15% cost-share rate if matched with 60% cost-share from WIRB funding. If matched with Federal EQIP funds, 25% of funds obtained from WIRB would be used. If other funds were depleted, WIRB funds would be utilized for the entire 75% cost-share.

### **7011 Keg Creek**

Mills County proposes to reduce the identified impairment of the watershed, Keg Creek, by eliminating one of the main reasons for the impairment – non-conforming, on-site septic tanks that allow effluent to drain into the creek from the unincorporated community of Mineola. This has been identified by the county as a major priority. Therefore, the county proposes to construct a collection system and lagoon treatment facility, which would eliminate effluent from draining into Keg Creek. Regional Water will own, operate, and manage the collection and treatment systems in Mineola for Mills County.

### **7013 Rathbun Lake Watershed**

The Rathbun Lake and Water Alliance and partners have implemented a uniquely effective approach to water quality protection through the Rathbun Lake Special Project. This approach is achieving a significant reduction in the sediment and phosphorus that impair water quality in Rathbun Lake and its tributaries as a result of the targeted application of best management practices (BMPs) for priority land in the watershed. This project application proposes to assist landowners to apply BMPs that will reduce sediment and phosphorus delivery from priority land in four targeted sub-watersheds as part of the Rathbun Lake Special Project. Features of this project are: (1) use of geographic information system (GIS) analysis to identify priority land that requires BMPs; (2) assistance for landowners to apply BMPs on 5,100 acres that will reduce the annual delivery of sediment by 8,130 tons and phosphorus by 35,980 pounds; (3) evaluation of the benefits from BMP application using GIS analysis and water quality monitoring; and (4) watershed outreach activities that encourage landowners to apply BMPs for priority land to protect water quality.

### **7014 South Raccoon/Maple River Junction**

The proposed project will include the construction of a sanitary sewer collection system and a community gravel filter wastewater treatment system in the un-sewered community of Maple River Junction in Carroll County. The system will be built to include approximately 1,150 feet of 4-inch sanitary sewer main, 3,540 feet of 4-inch service main and approximately 35 septic tanks. Some existing 4-inch PVC sewer piping as well as existing septic tanks in good condition will continue to be used in order to control capital costs.

### **7017 Little Clear Lake Watershed**

Little Clear Lake is a 162 acre natural lake located in the western part of Pocahontas County. The lake has a 375 acre watershed that is gently rolling with nearly 84% of the watershed in row crop production. The lake is listed on the Iowa DNR's impaired waters list due to nutrients, siltation and exotic species (purple loosestrife). These impairments have been verified with in-lake monitoring and landowner conversations as well as watershed modeling. The watershed models estimates that the average sheet and rill erosion is 1.74 tons/acre/year and sediment delivery is .12 tons/acre/year with a total of 44 tons/year being delivered to Little Clear Lake. The goal of the Little Clear Lake Watershed Protection Plan is to (1) reduce sediment delivery to Little Clear Lake by 60%, or 26.5 tons annually, by installing best management practices within the watershed. Doing this will control nearly 100% of the lake's drainage area; and (2) initiate an information and education campaign for residents within the Little Clear Lake watershed which will ultimately prepare the residents and landowners for future project implementation. In an effort to control sediment and nutrient loading the Little Clear Lake Watershed Protection Plan has

included 3 sediment catch basin sites and 5 grade stabilization structures, which function to stabilize concentrated flow areas.

#### **7020 Hurley Creek Watershed/McKinley Lake**

The Hurley Creek Watershed is a micro-watershed of approximately 2,211 acres (3.5 square miles), which drains into the Platte River southwest of Creston. The watershed is 64% urban and 36% rural. The urban area includes the bulk of the town of Creston (population 7,597) and the rural area is just north of Creston, which includes the origin of Hurley Creek. Hurley Creek Watershed was examined for improvements following a citizens group in 2004 determined a need and desire to make McKinley Lake, a 65 acre city-owned lake, a quality fishery and viable swimming lake, as it once was. As part of a major park improvement project over ten-plus years, the watershed improvement project is undertaken to reduce pollution entering the lake. In 2006, IOWATER volunteers, under guidance of the town's consultants, sampled the stream in 8 locations throughout the year, a total of 92 samples. The samples, along with visual inspections of the creek, found three major impairments: 1) high *E. coli* levels, 2) severe erosion, and 3) storm water management. Using the Watershed Project Planning Protocol, the consultant and a volunteer committee of interested citizens determined that five physical and three administrative actions should be undertaken. The request will help: identify sources of *E. coli* and reduce its delivery into the watershed, control animal access, manage storm water, implement stream-bank stabilization, educate the public, and develop miscellaneous small projects on specific properties.

#### **7021 Sand Creek Watershed**

Sand Creek is the most significant recreational fishery in Delaware County because of its location to Manchester and Lake Delhi. It is a feeder stream for game fish to the main stem of the Maquoketa River which is limited by the dams at Manchester and Lake Delhi. Sand Creek encompasses 16,045 acres and is dominated by row crop agriculture. It is being impacted by sediment, nutrients and *E. coli* bacteria. Sand Creek will be a good example for habitat impaired watershed.

The purpose of this project is to decrease the amount of sediment and nutrients reaching Sand Creek and to increase the habitat in Sand Creek to make it a better spawning and growing area for the fish and the food chain for the fish.

The objectives of this project are to reduce sediment delivery by 40%, to improve in-stream habitat on 40% of identified critical areas and implement an information/education program. The project will install 3,800 acres of new no-till planting, 6 water and sediment control basins, 4,000 feet of terraces, 20,000 feet of improved or new waterways, 3,200 feet of streambank/habitat enhancement, 4,500 feet of livestock exclusion fencing and 6 acres of wetlands.

#### **7024 Volunteer Creek Watershed**

The City of Carlisle (City) is strongly committed to developing and implementing watershed-based conservation sensitive design strategies that effectively address the negative aspects of contemporary storm water management techniques.

The Volunteer Creek Watershed (Watershed) potentially receives 1,200 tons of sediment per year from agricultural land. The City desires to convert an ineffective storm water detention basin into a bioswale and construct a sediment detention basin with a natively vegetated buffer to

control sediment discharge in the Lake Red Rock Flood Pool. The City also desires to develop and implement innovative watershed-based engineering and conservation sensitive design strategies within the Watershed. These innovative strategies will decrease storm water flow parameters (i.e. peak flow, detention time, etc.) and improve water quality in the Watershed. The City is requesting \$367,500 over 2 years for the activities outlined in the grant narrative.

### **7025 College Creek (Establishing and Monitoring Stabilization Practices for Water Quality Enhancement)**

With this application, the College Creek sub-watershed in Ames represents both regional collaboration and locally directed action to improve an Iowa watershed. Already completed watershed assessment identified more than 4,000 tons/yr of sediment delivered from within the Ames city limits due to degraded stream conditions. The water quality enhancement goal of this project is reducing sediment delivery specifically from unstable streambanks and degrading stream channels on College Creek, one of four Ames tributaries to Squaw Creek. The project will also redirect urban storm water runoff into engineered infiltration systems, intercepting it from storm drains entering College Creek. This application builds on storm water runoff demonstration projects and research already funded in the College Creek sub-watershed by EPA Region 7 and Iowa DNR. Public outreach, one of the key elements of this project, is built into every phase from engineering design feedback to construction. Innovative neighborhood learning circles are utilized to educate residents and share public feedback with project engineers to ensure that project elements are both technically appropriate and socially acceptable. All practices proposed in this project-stream stabilization, storm water infiltration, and neighborhood learning circle techniques-have already been successfully demonstrated in the College Creek sub-watershed by the City of Ames in partnership with Iowa State University.

### **7031 Brushy Creek Watershed – Des Moines Water Works**

Brushy Creek is a tributary of the Raccoon River, which is a regular source of drinking water for over 400,000 Iowans. Regular monitoring by Des Moines Water Works (DMWW) and Agriculture's Clean Water Alliance (ACWA) over the last eight years has shown the stream to be highly impaired for *coliform* bacteria and nitrate. Both Brushy Creek and the Raccoon River are on the 303(d) impaired waterbody list. A December 2005 fish kill in Brushy Creek resulted in administrative actions against seven livestock producers. Several open feed lots exist in the watershed. The community of Roselle (in the Brushy Creek watershed) has been identified by IDNR as unsewered, and many dwellings throughout the watershed discharge untreated human waste. No Watershed Improvement Association (WIA) exists in this sparsely-populated area.

This outcome-based project will:

- Enhance nutrient and manure management to reduce agricultural inputs to the stream.
- Assess the amount of human waste reaching the stream from Roselle.
- Engage and inform local residents so a WIA can be formed.
- Monitor performance through a rigorous water and soil testing program.

This project embraces a concept of participation from all levels of government, commodity organizations, and the private sector. The largest drinking water utility in the state will lead and administer this effort. The participating parties will work to establish a functioning WIA so that progress achieved through this project will be robust and long-lasting. The participants believe this will be the most effective approach to correct the situation, and will serve as a model for other problem watersheds throughout the state.

### **7032 Dry Run Creek Sub-Watershed – Floyd SWCD**

This watershed project will provide technical and financial assistance to improve surface and groundwater quality. This will be accomplished by installing an alternative tile outlet for three agricultural drainage wells and providing incentives to implement nutrient and pest management.

#### **7042 Kettle Creek Watershed – City of Ottumwa**

The urban portion of the Kettle Creek Watershed is experiencing severe bank and bed erosion due to unchecked stormwater runoff and a steep stream slope. The Kettle Creek Urban Watershed Improvement Project will reduce sediment input to the stream by stabilizing the stream bed with rock-riffle stream stabilization structures and stream bank improvements at select locations.

Other components of the watershed are being addressed for excess sediment loads including the agricultural portion by constructing sediment detention basins, and the urban stormwater component by separating the existing combined sanitary and stormwater systems. The benefits of the watershed improvements components will be realized by all the residents of Kettle Creek Watershed as well as the citizens of Ottumwa.

#### **7032 Macbride – Johnson SWCD**

Lake Macbride is considered to be one of the top four lakes for fishing in the State of Iowa. It is widely used by the public and contributes significant economical benefits to the county. Lake Macbride is situated in the North Corridor which is one of the fastest growing areas in the state. The lake has a surface area of 940 acres and drains 16,205 acres.

Lake Macbride is on the Iowa 303(d) list for excessive sediments and nutrients. In 2001, Lake Macbride State Park received over 2.5 million dollars from the Marine Fuel Tax and Fish and Wildlife Trust to install 2 silt basins and stabilize over 12 miles of shoreline in the lake. Also in 2001, the Johnson County SWCD received WSPF allocation from DSC to address agriculture and urban runoff issues in the watershed. Section 319 funding was received in 2002 to continue watershed efforts to the present. A watershed assessment was completed in 2003 to guide watershed activities. In 2005, a TMDL was completed for the lake. Since 2001, over \$645,000 dollars has been spent by landowners and funding partners to install conservation practices in the watershed. Watershed efforts have resulted in the reduction of over 4,200 tons of soils from being delivered into Lake Macbride. Nutrient reductions have also occurred from the development of nutrient management plans on 2,000 acres.

The District is in the process of wrapping up watershed efforts on private land. A series of 13 structures is planned to be installed in the state park over the next several years. One of the last remaining items that still needs addressed is 1,400 feet of eroding shoreline adjacent to Lake Macbride along Cottage Reserve Road. The road is under the jurisdiction of the Johnson County Board of Supervisors. Both the Board of Supervisors and the IDNR are willing to contribute substantial dollars to address the 250 tons of soil that are being directly delivered to Lake Macbride each year.

#### **7039 Miners Creek – City of Guttenberg**

This project brings together rural and urban partners to address the impairment of Miners Creek, a cold water trout stream in Northeast Iowa. It eliminates point source pollution contributions from

the City of Guttenberg, decreases non-point source pollution and increases in-stream and near stream habitat in the Miners Creek Watershed. It specifically eliminates sewage and storm water runoff from the City of Guttenberg into Miners Creek; it develops, enhances and preserves wetlands; reduces direct livestock access to the stream through rotational grazing systems; completes stream bank stabilization and in-stream habitat creation; targets upland land treatment; and promotes targeted application of continuous CRP and forestry practices. This project recognizes that non-point source pollution improvements could be hampered by point source pollutants that inhibit biologic reproduction and survival. It takes appropriate measures to improve all aspects of the stream ecosystem.

#### **7043 North Fork Maquoketa River Headwaters – Coffee Creek Watershed Improvement Association**

The North Fork Maquoketa River Headwaters (NFMRH) has been identified as impaired by nutrients, episodic slugs of ammonia and sediment. The NFMRH TMDL plan calls for a “phasing approach” to manage water quality when the origin is non-point source contaminants. This project will address phase 1 using performance reward program for targeted cooperators to improve environmental index scores using cost-share, EQIP practices and flexible management alternatives. Pre-project assessments suggest that rewards should target refined management of erosion-prone fields and farms with livestock populations, which contribute to the P and N loads responsible for fertilizing filamentous algae blooms that depress dissolved oxygen concentrations in the NFMRH. The Phosphorus Index, Soil Conditioning Index and cornstalk nitrate test will be used by producers to determine effective alternatives, such as no-till planting, to reduce nutrient and sediment delivery. These environmental indexes will be especially useful for livestock producers in the livestock dense watershed. This project will extend a NRCS-sponsored Conservation Innovation Grant currently offered to producers in the Coffee Creek sub-watershed to a three-year, watershed-wide effort that will be necessary to make significant improvements in environmental management.

#### **7040 Saylor Creek Sub-Watershed – City of Ankeny**

The Saylor Creek Watershed is located in central Polk County, beginning in the center of the City of Ankeny and ending at the outlet to the Des Moines River south of Saylorville Lake. The focus of this project is the portion of the creek located within the City of Ankeny, specifically located within the former ISU research farm. The former farm is located north and west of the central campus of Des Moines Area Community College and south of the John Deere Ankeny Works.

The former research farm is now owned by DRA Properties and is currently under construction to be a 1,100 acre mixed-use development, called Prairie Trail, which could be home to 7,000 to 8,000 people. As part of the development, the City of Ankeny would like to re-establish Saylor Creek within Prairie Trail to ensure the creek is unimpaired by the impending urban development in the watershed. The City of Ankeny adopted conservation design elements into the development plan specifically for storm water runoff and stream bank erosion. The addition of over 7,000 people within the Saylor Creek watershed creates a potential future impairment to the creek due to increases in impervious surfaces. The increase in storm water quantity as well as sediment and other pollutants in that runoff has the potential to cause impairment of the Saylor Creek Watershed and to create additional impairment to the Des Moines River downstream.

With the Prairie Trail development, the City of Ankeny and other area stakeholders have an opportunity to display how “best management practices” (BMPs) can reduce storm water runoff and improve the quality of that runoff in an urban setting. Conservation design is a new approach to storm water management that addresses the negative impacts of storm water runoff and turns

them into a positive. The master plan for Prairie Trail will incorporate bioretention cells, bioswales, buffer strips, rain gardens, as well as native plant landscaping to slow storm water runoff and naturally clean sediment out of the water before it reaches Saylor Creek.

In 2006, the Iowa Watershed Improvement Board awarded Iowa Heartland RC&D \$500,000 toward Phase 1 of the Saylor Creek Improvement Project. Phase 2 is a continuation of that project by means of creek bed restoration to stabilize, protect and maintain the integrity of the creek and extend the storm water "treatment train" system within Prairie Trail. The extensive use of conservation storm water management for Prairie Trail is unique for urban development in Iowa.

The City of Ankeny would like to continue the Saylor Creek Improvement Project and use support from the Iowa Watershed Improvement Board in addition to a commitment of land from DRA Properties to create an example of how "best management practices" for water quality and quantity can be used in a unique urban setting. Prairie Trail should become the model of how Iowa communities can incorporate conservation design into urban development.