

Watershed Improvement Review Board
Final Report

Project Name: Upper Catfish Creek Watershed Project

Project Number: 6003-02

Soil & Water Conservation District: Dubuque

Reporting Period: January 1st 2007 – December 31st 2010

Reporting Individual: Eric Schmechel

Preparer's Signature:

Project Summary: During the past three years, the Upper Catfish Creek Watershed Project has had a great deal of success dealing with many different obstacles pertaining to water quality. Back in 2007, Upper Catfish was a one of the few urban projects in the state, although quickly became one of the key pilot projects in the state dealing with Stormwater and urban conservation practices. Four main objectives were set back in 2007 and the district feels they have done an excellent job accomplishing these goals. Our original goals were:

- 1) Create Urban Site Demonstration Models – there is a key need for residential models to be developed that will show what type of Best Management Practices can be managed either through retrofitting or new construction.
 - Several different demonstration sites have been established in the 9300 acre watershed. The Swiss Valley Nature Center became our demonstration “hub” as several different urban BMPs were installed during there during the past three years. These would include rain gardens, pervious asphalt, infiltration trench, native landscaping, and permeable paver walkways.
- 2) County-Wide Land Use Criteria –the need to establish uniform criteria between municipalities and rural areas when making decisions.
 - A key component to the Upper Catfish Creek Watershed has been the development of a county wide erosion control/stormwater ordinance. One of the topics this ordinance covers is land use decisions. The ordinance covers conservation design subdivisions, low impact developments, and all the different practices that go into making sound land use decisions.
- 3) Info and Ed – workshops and site demonstrations will also play a key to provide developers, engineers, and concerned citizens the importance of land use decisions.
 - Several different workshops have been conducted throughout the three years. These include, septic system workshops (3), Low Impact Development Workshops (3), landowner workshops (2), demonstration days (5). Signages, along with other press-related media newsletters and newspaper articles have been developed throughout the life of this project.
- 4) Compliance and Enforcement –Both the City of Dubuque and Dubuque County expressed the need for more follow-up to be conducted at development sites to ensure soil erosion, water quality issues, and septic system placement.
 - This is a continued goal that has been brought up at several different Dubuque Co. and City of Dubuque meetings. Once the ordinance is passed, the district believes the appropriate steps will be taken to ensure compliance within both the City of Dubuque and Dubuque County.

Financial Accountability

| Example Summary: Watershed Improvement Funds | | | |
|---|----------------------------------|----------------------------------|-----------------------------|
| Grant Agreement Budget Line Item | Total Funds Approved (\$) | Total Funds Expended (\$) | Available Funds (\$) |
| Travel/Training | 1500 | 728.80 | 771.20 |
| Supplies | 1750 | 691.26 | 1058.74 |
| Information/Education | 3000 | 1300 | 1700.00 |
| Contractual Administrative * | 14635 | 14635.00 | 0.00 |
| Infiltration Trench | 4500 | 3877.50 | 622.50 |
| Rain Garden | 2025 | 1525.00 | 500.00 |
| Permeable Paving * | 14715 | 12225.71 | 2489.29 |
| Septic System Maintenance | 2100 | 1700.00 | 400.00 |
| Septic System Replacement | 3500 | 3500.00 | 0.00 |
| Native Seeding | 1125 | 651.00 | 474.00 |
| Difference | 48850 | 40834.27 | 8019.73 |

*Transferred 10% from Permeable Paving to Contractual Expense. WIRB Board approved an additional \$335 transfer from Permeable Paving to Contractual Expense.

Example Summary: Total Project Funding

| Funding Source | Total | | | |
|-----------------------|--------------------|--|--|--|
| | Actual (\$) | | | |
| WIRB | 40,834.27 | | | |
| 319 * | 41,827.00 | | | |
| EQIP * | 47,362.50 | | | |
| Recipient | 48,956.21 | | | |
| | | | | |
| Totals | 178,979.98 | | | |

*These funds relate to projects completed within the Upper Catfish Creek Watershed boundaries that were separate from the WIRB funded projects.

Environmental Accountability

Practices that have been installed during the past three years, using WIRB funding include:

| BMP Type or Activity | Original Project Goals for Upper Catfish Creek Watershed Project (Approved Application Goal) | Percent Completion | Actual Project Accomplishments 2007-2010 |
|-----------------------------|---|--|---|
| Newsletter development | Quarterly (2/year) | 100% (2/year) | 6 Newsletters Completed |
| Field Days | 2/year | 140% (3/yr) | 3/year |
| Rain Gardens | 3 | 100% (3 total) | 3 completed |
| Native Landscaping | 3 acres | 100% (3 acres total) | 3 acres |
| Permeable Pavement | 3,000 sq ft. | 150% (4,500 sq ft installed) | 4,500 sq ft. Completed |
| Septic System Vouchers | 21 Vouchers | 80% (7/year; 21 total) | 17 Vouchers Completed |
| Septic System Replacement | 1 Septic System | 100% (1 System during three year period) | 1 Septic System fully upgraded |
| Contractor-engineering | Development of Stormwater Ordinance | 100% | Development of Stormwater Ordinance Completed. Waiting for County to pass as ordinance. |
| Infiltration Trench | 1 Trench | 100% (1 Infiltration Trench) | 1 Infil. Trench Installed |
| | | | |
| | | | |

- I. Water Monitoring.** During the past three years, we have been fortunate enough to have a great deal of partnerships to help monitor water quality in Upper Catfish Creek. The University of Dubuque has become a key organization to help monitor. During the fall of each year, students were monitoring water quality (using IOWATER protocols and parameters). IDNR also played a major role in helping monitor thermal pollution in Upper Catfish. For the past five years, IDNR installed thermal sensors; that took water temperature in Catfish Creek every hour, from May – Nov. Using this data, we are better able to determine increases or decreases in thermal pollution throughout the stream. Currently, the overall water quality health in the Upper Catfish Creek is in good health. We have not seen any significant pollutant spikes or major thermal increases over the

past three year. The district plans to continue monitoring both thermal pollution and other pollutant parameters after this project is over.

II. Practices Installed. Best Management Practices in the Upper Catfish Creek Watershed project ranged from small urban BMPs, to large agricultural BMPs. WIRB funds mainly focused on the urban BMP side of things. Practices that were installed using WIRB funding were: rain gardens, septic system vouchers/replacement, infiltration trenches, and permeable pavement. Additional project partners include both WPF funding, and Section 319 funding. BMPs installed using these funds range from large grade stabilization structures to additional rain gardens and permeable pavement surfaces.

III. Educational Outreach. Over the course of the past few years, several educational workshops, field days, and outreach materials were used in the Upper Catfish Creek Watershed Project. Having strong partnerships across the area enabled the Soil & Water Conservation District to engage and sponsor annual Low Impact Development workshops. These workshops have been very successful, bringing in over 450-500 people from the surrounding community. Topics covered range from sediment and erosion control topics as well as LID related practices and programs (Rain Gardens, permeable pavements, etc).

As well as LID conferences, the district also hosted annual Septic System workshops – one day workshops that focused on septic system maintenance, installation, regulatory issues, and standards on today’s septic systems.

Several demonstrational field days were held throughout the watershed during the past three years. Most of the field days we hosted involved with partnerships created, and focused on BMPs that were successfully installed in the watershed. One example of this would be our permeable pavement field demonstration day.

IV. Pollutant Reductions. Based on the practices installed using WIRB funded projects, pollutant loading was reduced. Most of the practices that were installed were urban related practices, therefore pollution reductions are (at this time) still hard to estimate. Using infiltration related practices; we estimate that we reduced water volume (which, in turn, reduces pollutant loading) by 7,416, 824 gallons of water. Below is a breakdown:

- Gallons of water managed:
- Bio R = 1,425,480
- RG = 1,900,640
- Permeable Pavement (including North Fork Trails, City of Dubuque, and Upper Catfish Creek Watershed Projects) = 7,416,824
- Bioswales = 1,615,544

Using 319, WPF, and WSPF cost share-dollars, the estimated amount of sediment captured (to date) is roughly 864 tons of sediment. One of our original goals of the Upper Catfish Creek Watershed Project was to reduce sediment loading by 30% percent. This will easily be obtained – out of the 9300 acre watershed, we already have 2,402

drainage acres accounted for by installing grade stabilization structures; this account for 25.8% of the entire watershed. Additionally, we've installed over 2,000 feet of streambank stabilization, and several smaller sediment control structures. Currently, we are estimating our sediment loading to be reduced to nearly 40 percent (10 percent over our stated goal in our original application).

Program Accountability

- I. **Erosion and Sediment Control and Stormwater Manual.** As mentioned throughout this watershed project, developing and passing a county-wide erosion control/stormwater ordinance has been one of our top priorities. Using WIRB funds, the district carefully selected an environmental consulting firm, which we felt would meet the county's and district's needs. After a lengthy process of revisions and completions, we now have a final document that is in the process of being converted to a county ordinance format. This document accounts for both pre-construction related practices (sediment/erosion control) as well as, post-construction practices (Infiltration practices). A key component to this ordinance is the requiring new construction to infiltrate a certain rain event on each parcel of property. This ordinance would be one the first to be passed on the county level.

- II. **Challenges/Recommendations.** Like any other watershed project across the state, challenges arise. Through the use of federal, state, or local funding (cost-share) it can be challenging to communicate effectively with landowners or organizations. Deadlines exist in every project and being able to ensure conservation planning, understanding cost-share deadlines can be challenging, especially when each entity has a different deadline. One of the priorities in the Upper Catfish Creek Watershed project dealt with urban conservation related work. At the time this project started, there was very little technical advice on practices the district had cost-share available. Training was essential and we believe is a key need for urban watershed projects across the state.

Project Closeout

The Upper Catfish Creek has been a very successful watershed project. Much of the success of this project can be attributed to the diverse set of partnerships this project has established. With the City of Dubuque, Dubuque County, the Dubuque County Conservation Board, the Sierra Club, Audubon Society, and the University of Dubuque, the project's support was overwhelming. Our watershed met bi-monthly, and plans to continue to meet on a quarterly basis to keep discussing watershed related issues in the community. The Dubuque SWCD believes the Upper Catfish Creek watershed project was an excellent pilot (demonstration) project that is setting the standard for the rest of the community. Low impact development techniques/strategies are starting to be implemented throughout the community and will continue

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to gain momentum. As this watershed project is nearing its end; the district is planning to continue watershed related efforts on other priority waterbodies in the community.