WIRB
Final Report

Project Name: **Walnut Creek Watershed Project**

Project Number: **8018-010**

Huc # :**10240002- West Nishnabotna River Basin**

Soil and Water Conservation District: **Montgomery & East Pottawattamie**

Planning Period: **July 1, 2009 to June 30, 2012**

Date Report Prepared: **January 3, 2012**

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INTRODUCTION

Walnut Creek is a tributary to the West Nishnabotna River in Southwest Iowa. The 144,000 acre watershed is long and narrow in shape, averaging four miles wide and flowing through six counties, stretching sixty-two miles from its headwaters in Shelby County to its confluence with the West Nishnabotna River in Fremont County. Soils in the watershed are loess derived making them extremely fertile and erosive.

As throughout much of the region, sediment delivery to the stream is the primary resource concern. Although tillage practices employed on row crop land is generally good, the number of acres and shape of the watershed are conducive to a high delivery rate of sediment to the stream. Therefore, despite the fact that there is a great deal of reduced and no-till practices in the watershed, sheet and rill erosion on cropland is the main soil and water resource concern. Sediment delivery to Walnut Creek from cropland is aggravated by erosion in areas of concentrated flow throughout the watershed. Due to the slope of the landscape, outside the floodplain, classic and ephemeral gully erosion is a significant problem.

Another major source of sediment delivery to the stream stems from erosion that takes place in the stream corridor itself. Walnut Creek is significantly incised but in most areas, due to prior channelization, stream channel degradation and other modifications have taken place in the corridor. Despite all of these modifications, the streambed is beginning to reach equilibrium and the floodplain is being restored. Occasionally, however, high flows reap havoc in the corridor and undermine the stream bank resulting in significant sediment loads being delivered to the stream once again. Although grade has been controlled in the main channel by in-stream grade control structures, there is significant grade differential between the areas of concentrated flow and the main channel itself. These areas are currently experiencing severe head cutting.

Flooding is also a major concern in the Walnut Creek basin. Flash flooding damages homes, roads, bridges, and cropland in the watershed. The most significant area of impact occurs well downstream in Fremont County where Walnut Creek outlets into the West Nishnabota River.

The net result of all these processes is that in many reaches of Walnut Creek sediment has smothered rock substrate, destroying critical fish and aquatic life habitats. Walnut Creek is designated as Class B(WW) stream. Uses include wildlife, fish, aquatic and semi-aquatic life. All uses are listed as partially supporting.

Upon completion of a comprehensive watershed assessment, a 40,000 acre priority area was selected to focus conservation efforts. In July of 2009 the Montgomery and East Pottawattamie Soil and Water Conservation Districts were awarded a grant from the Watershed Improvement Review Board to begin working on the above described issues. The following is the final report of the practices installed through the use of that grant.

FINANCIAL ACCOUNTABILITY

The primary cost share mechanism used in this grant was the Watershed Improvement Review Board funds contributing $467,904.67 or 36% of the total funds expended. Private landowners contributed $526,090.58 or 40% of the total funds expended. Funding from the Environmental Quality Incentive Program totaled $133,151.90 and the Iowa Financial Incentive program totaled $97,486.61. Total dollars expended equaled $1,298,310.47.

Funds Expended by Line Item

Grant Agreement Budget Line Item	Total Funds Approved($)	Total Funds Expended ($)	Total Funds Obligated ($)	Available Funds ($)
Terrace Systems	$343,125	$340,433.84	$0	$2,691.16
Grade Stabilization Structures	$56,250	$52,697.05	$0	$3,552.95
Waterways	$39,204	$23,897.78	$0	$15,306.22
3/4 time project coordinator	$50,876	$50,876	$0	$0
Totals	$489,455	$467,904.67	$0	$21,550.33
Difference				

Funding Expended by Source

	Cash		In-Kind Contributions		Total	
Funding Source	Approved Application Budget ($)	Actual ($)	Approved Application Budget ($)	Actual ($)	Approved Application Budget ($)	Actual ($) Expended
WIRB	$489,455	$467,904.67			$489,455	$467,904.67
HCA	$350,000	$8,500			$350,000	$8,500
LOST	$52,836	5,715.00			$52,836	$5,715.00
EQIP	$492,922	$133,151.90			$492,922	$133,151.90
CRP	$3,240	$58,911.71			$3,240	$58,911.71
Landowner	$420,466	$526,090.58			$420,466	$526,090.58
319/WSPF	443,000	0			$443,000	0
IFIP		$97,486.61				$97,486.61
PF		$550				$550
Totals	$2,251,920	$1,298,310.47			$2,251,920	$1,298,310.47

Approved WIRB contribution percentage 22 %
Actual WIRB contribution percentage 36%

ENVIRONMENTAL ACCOUNTABILITY

Project Goals:

The primary goal of the Montgomery and East Pottawattamie SWCDs' is to address the resource concerns discovered in the watershed assessment by controlling drainage as it enters Walnut Creek. This will not only curve the sediment load to the stream but will also slow the rate at which water enters and travels through the creek. The milestones established for this grant were to construct three hundred thousand feet of terraces and twenty acres of waterways on cropland, ten grade stabilization structures to control drainage, cutback areas, and gully erosion, and thirty acres of filter strips installed along riparian areas of Walnut Creek to control delivery to the stream and to aid in the stabilization of erosive stream banks. All of these practices should have reduced sediment delivered to Walnut Creek by 2,000 tons per year.

Ranking Method:

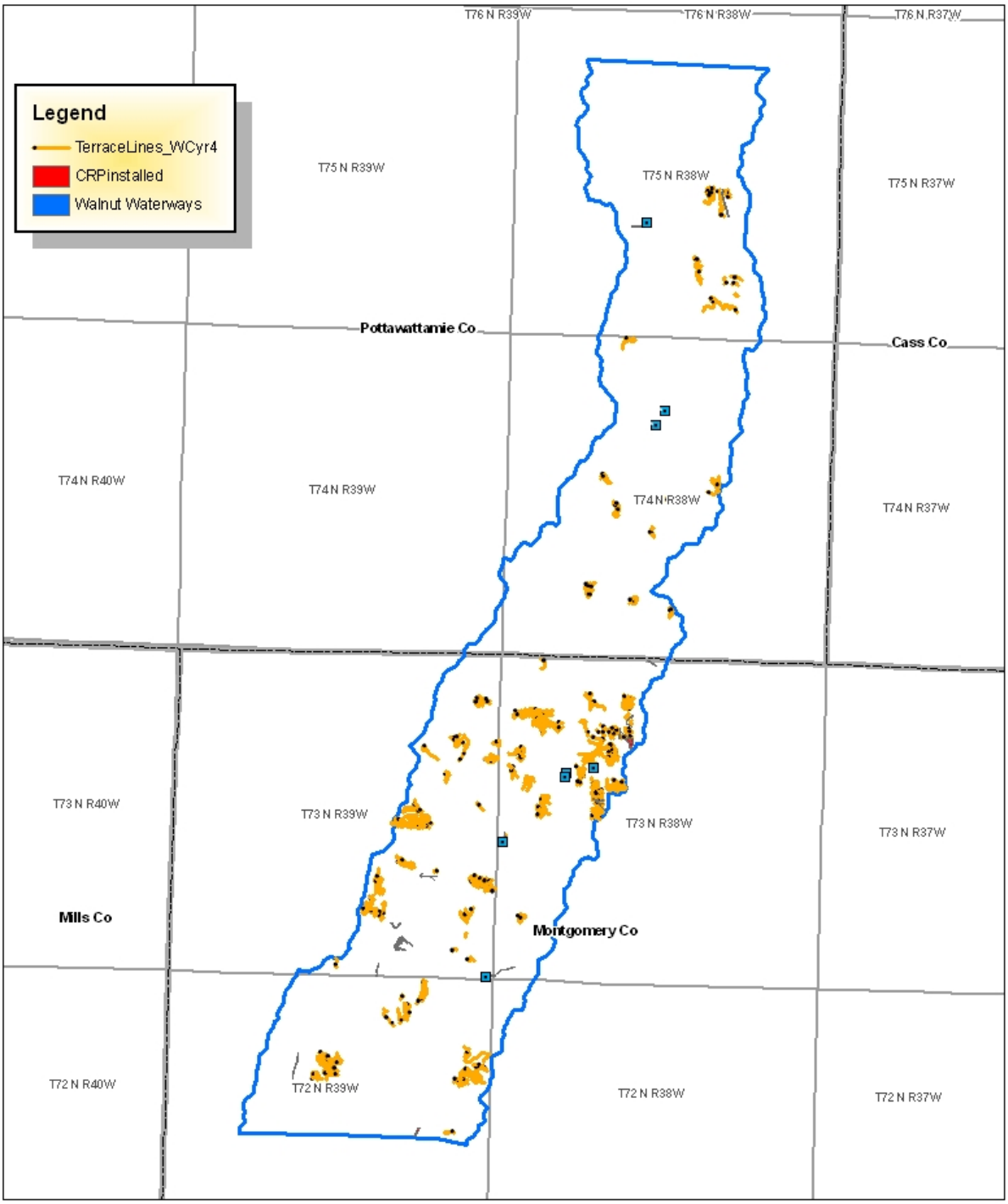
In order to prioritize what applications would be funded a formula which calculates the cost per sediment ton reduced was used to rank practice applications. RUSLE 2 was calculated for every practice according to their conservation plan and each project was run through the Division of Soil Conservation's Sediment Delivery Calculator. The cost of each project was then divided by the sediment delivery reduction to rank the cost per ton of sediment reduction. This approach posed an ethical dilemma in that the farmers which used tillage ranked higher than the farmers using no-till, despite the fact that those utilizing tillage presented more of a resource concern. Therefore, the SWCD's developed policy which required approved terrace applications to abide by complete no-till for the field in their conservation plan. This policy has worked well and no farmers to date have objected to the change.

Practices Installed/Environmental Benefits:

The following table quantifies the types and number of practices actually installed and their sediment delivery reduction:

Grant Agreement Conservation Practices & Activities	Unit	Approved Application Goal	Accomplishments	% Completion
Terrace Systems	Feet	309,346	241,978	78%
Grade Stabilization Structures	Num	10	7	70%
Waterways	Acres	20	12.9	64%
Filter Strips	Acres	30	5.5	18%
Sediment Delivery Reduction	Tons /Year	2,000	7,758 =485 dump trucks	387%
Phosphorous Reduction	Lbs/ Year	2,600	10,085	257%

Walnut Creek Completed Practices



PROGRAM ACCOUNTABILITY

Administration:

Practices were surveyed and designed according to NRCS specifications by qualified technical staff. Individual practices were ranked in order to prioritize. Cost share applications were administrated by both SWCDs' whom had administered these types of projects on numerous occasions in the past. Maintenance agreements for all practices were recorded at the courthouse. It is important to note that in kind contributions in the form of staff time from IDALS and NRCS were not accounted for in the financial portion of this document.

Deviations from original grant:

Many obstacles and challenges were encountered which changed how the original grant was planned. A special program was originally planned which utilized EQIP funding to give farmers in the watershed an incentive to perform no-till. This program was cancelled and we think was moved to another area of the state. We requested an official answer from the NRCS state office but have not received a reply as of the date this report revision was submitted. To offset this obstacle the district commissioners set a policy which stated that landowners who receive cost share for terraces had to no-till those acres. All landowners agreed without opposition.

Second the original project schedule called for WIRB funds to be used for practices in years one and two of the project with WSPF funds to come in during the third year. Due to untimely state budget constraints, no new WSPF projects were funded in the 2010 grant cycle, leaving the project short of funds for the third year of the project. To combat this budget shortfall the district used other funding sources such as EQIP and IFIP whenever possible. The districts also applied for and were granted two more WIRB projects. Utilizing other funding sources has enabled the districts to nearly accomplish their original terrace and structure goals. Practices applied with other WIRB grants are not accounted for in this report.

The project fell short on their waterway and filter strip goals. CRP funding was utilized for waterways whenever possible. CRP was also used for filter strips along with a $100 per acre incentive. As it turned out high commodity prices proved to deter most landowners from installing these practices. At one time we had nearly forty acres of filter strip applications. In the end the landowners backed out because they could make more money farming those areas. With the third WIRB grant the district will try to use terrace cost share as an incentive to establish filter strips by establishing a policy which says that if a perennial stream flows through the property being terraced the landowner must install CRP filter strips.

The Hungry Canyons Alliance pursued grants to modify two weir structures for fish passage. Those grants were not obtained. The Alliance will continue to pursue funding for those modifications.

Future Watershed Work:

Watershed work continues in the priority area through the use of two additional WIRB grants. Landowner interest is extremely high, especially in Montgomery County. Many landowners have installed practices without cost share. An amazing amount of work has been done in the past two years. The next two years will be much of the same. More attention should be paid to the northern portion of the priority area, an area with low landowner interest.