

Big Walnut Creek Watershed Cost-Share Program

Prepared By:

Big Walnut Creek Watershed Alliance
Steering Committee

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Introduction

The purpose of this document is to provide cost share guidance to those involved with the implementation of best management practices (BMPs) in priority (critical) subwatersheds as determined in the Big Walnut Creek Watershed Management Plan (January 2009).

Watershed Location

The Big Walnut Watershed is located in the west central portion of Indiana approximately 50 miles west from Indianapolis. It encompasses 271,267 acres, or 424 square miles, of land across portions of five counties – Boone, Clay, Hendricks, Parke, and Putnam. The majority of the watershed is located within Putnam County. US Highway 36 runs east-west through the central portion of the watershed, dividing it in half. Greencastle is the largest city located within the watershed area as it is the county seat of Putnam County. Other notable towns within the watershed include Jamestown, Lizton, North Salem, Bainbridge, Fillmore, and Cloverdale. See Appendix A for watershed map.

Brief History of the Big Walnut Watershed

The Big Walnut Watershed has been studied for decades by several well-known biological scientists. Thomas Simon and Dr. James Gammon have researched the Big Walnut Creek to much extent. Their work has focused primarily on fish habitat and communities within the Big Walnut and Deer Creek Watersheds. Dr. Gammon's works on Big Walnut Creek date as far back as 1967. Volunteer stream monitoring data is also available dating back to 2002. Several other scientists and conservation groups have expressed interest in protecting and managing Big Walnut watershed resources as well. Some of these scientists include staff from the Indiana Department of Natural Resources Division of Nature Preserves (IDNR-DNP), The Nature Conservancy (TNC), and the Central Indiana Land Trust (CILT). Several natural resource professionals concur that elements of the Big Walnut Watershed are unique, high quality, and regionally significant from an ecological perspective.

Watershed Description

The Big Walnut Watershed encompasses approximately 271,267 acres, or 424 square miles, of land across portions of five counties – Boone, Clay, Hendricks, Parke, and Putnam. The topography of the watershed ranges from flat rolling agricultural fields to undulating hills and valleys. The Big Walnut Watershed is comprised of four smaller 10-digit watersheds (HUC numbers 0512020301, 0512020302, 0512020303, 0512020304).

The watershed includes two major streams - Big Walnut Creek and Deer Creek. The headwaters of the watershed begin in Boone County, just south of Lebanon and flow southwesterly, through northwest Hendricks County and then on through Putnam County. Deer Creek flows into Mill Creek. Mill Creek continues westward where it meets with Big Walnut Creek and the Eel River begins here at the confluences of Big Walnut Creek and Mill Creek.

Target Areas

The cost-share program outlined in this document will target best management practice (BMP) implementation in the high priority subwatersheds (12 digit HUCs: West Fork Big Walnut Creek 05120203104, Clear Creek 051202030402, Deweese Branch 051202030303, Dry Branch 051202030404, Owl Branch - Deer Creek 051202030302, Snake Creek 051202030405) first. These subwatersheds were determined to be high priority based on data analysis of a number of parameters. The Big Walnut Creek Watershed Management Plan discusses the parameters and methods used to determine priority (January 2009, pgs 66-73).

Then, secondarily, or upon facing difficulty in the high priority subwatersheds, BMP projects will be implemented in the moderate priority subwatersheds (12 digit HUCs: Eldin Ditch 051202030101, Headwaters - Little Walnut Headwaters - Little Walnut 051202030202, Owl Creek 051202030201). The green colored subwatersheds, shown in Appendix A, (12 digit HUCs: Bledsoe Branch 051202030403 and Town of Barnard 051202030401) are known to be high quality areas due to the large network of public protected lands. Therefore, these subwatersheds are excellent potential sites for BMP demonstration projects. Collectively, these priority subwatersheds (Appendix A) were established by the Big Walnut Creek Watershed Management Plan (January, 2009, pgs 66-73).

High Priority

051202030104 West Fork Big Walnut Creek – Total suspended solids, total phosphorus, nitrate, biochemical oxygen demand, dissolved oxygen, livestock in streams, macroinvertebrates, buffers, confined feeding operations, and NPDES noncompliance

051202030302 Owl Branch – Total suspended solids, *E. coli*, total phosphorus, nitrate, biochemical oxygen demand, macroinvertebrates, livestock in streams, confined feeding operations, NPDES noncompliance, and significant waters users

051202030303 Deweese Branch – Deer Creek – Totals suspended solids, total phosphorus, nitrate, biochemical oxygen demand, macroinvertebrates, and NPDES noncompliance

051202030402 Clear Creek – Totals suspended solids, *E. coli*, dissolved oxygen, macroinvertebrates, biochemical oxygen demand, livestock in streams, buffers, and NPDES noncompliance

051202030404 Dry Branch – Big Walnut Creek – Total suspended solids, *E. coli*, total phosphorus, nitrate, biochemical oxygen demand, macroinvertebrates, livestock in streams, confined feeding operations, NPDES noncompliance, and significant water users

051202030405 Snake Creek – Big Walnut Creek – Total suspended solids, *E. coli*, dissolved oxygen, macroinvertebrates, livestock in streams, and NPDES noncompliance

Moderate Priority

051202030101 Edlin Ditch – Total suspended solids, *E. coli*, nitrate, macroinvertebrates, and buffers

051202030201 Owl Creek – Confined feeding operations, NPDES noncompliance, and significant waters users

051202030202 Headwaters Little Walnut Creek – Dissolved oxygen, macroinvertebrates, livestock in streams, and confined feeding operations

High Quality Areas

051202030401 Town of Barnard – Big Walnut Creek

051202030403 Bledsoe Branch – Big Walnut Creek

Target Audience

Both urban and agricultural audiences/communities will be targeted for implementing Best Management Practices. Urban communities will consist of individual landowners, municipalities and corporate applicants, such as contractors and developers. Agricultural communities will consist of owners and producers of farmland and livestock operations. All landowners interested in cost-share funds will be required to fill out the cost-share application (Appendix B) and the project budget and maintenance agreement form (Appendix C). All applications will be ranked using Appendix D.

Best Management Practices Available

Best Management Practices have been selected to target pollutants and problems identified in the Big Walnut Creek Watershed Management Plan (Section 12, Tables 20 & 21, pgs 82, 93-96). Appendix E of this document lists the best management practices (BMPs) available for cost-share funding in the Big Walnut Watershed according to the program outlined in this document. Also outlined in Appendix E are the cost-share percentages available for the practices, as well as payment cost caps per practice. The individual BMPs are further described in the glossary, Appendix F.

No maximum dollar amount has been established for which an individual cost-share recipient can receive. BWCWA will cost share individual projects at 75%; however, cost caps have been set for certain practices (ie fencing, plantings, etc.). When circumstances warrant, payment caps can be adjusted on a case by case basis at the discretion of the BWCWA Steering Committee. The applicant will need to make a written request to the Steering Committee for such a cap adjustment. The request should include the rationale for the adjustment.

Cost-share funds will not be used to obtain any state and/or federally required permits. Consultants will be sought in order to obtain any necessary permits. Any required permit application fees are the responsibility of the applicant to acquire. However, any consulting fees incurred in order to gather data or complete analysis/modeling necessary to garner the permits can be cost-shared at 75%.

Agricultural BMPs will be installed based on NRCS standards. Equipment available for Cost-Share funding can include modifications to seeding equipment for no-till practices or nutrient applications. The Greencastle NRCS Tech Team is committed to helping review and approve the installation of agricultural BMP practices. Urban BMPs will utilize the City of Indianapolis' Technical Design Standards (<http://www.sustainindy.org/sustainable-infrastructure.cfm> (under the section Green Supplemental Document)) as baseline guidance; however, all urban BMPs will be designed and stamped by a licensed professional engineer. IDEM will review all proposed urban practice on a case-by-case basis. Cost share funds cannot be used to pay for urban practices that are primarily used to create a water quantity benefit or a minimum water quality benefit that may be required by local ordinances. Section 319 funds may not be used to implement projects for the purpose of meeting any State Rule or National Pollutant Discharge Elimination System (NPDES) Storm Water Program requirements.

A maintenance agreement with the landowner will be required as part of the program. Required maintenance commitments are outlined in the Estimate and Maintenance Agreement Form (Appendix C).

Program Advertisement

The methods listed below will be used to advertise the Big Walnut Creek Cost-Share Program:

- Newsletters
- News Articles
- Public Meetings
- One-on-one contact
- Brochures
- Website

Review Process

The Watershed Coordinator and Agricultural Liaison will work together to administer the both the Agricultural Cost-Share Program and the Urban Cost-Share Program. This includes all paperwork involved in the program. They will work with individual applicants to assure proper completion of the application (Appendix B), and review the Project Budget and Maintenance Agreement Form (Appendix C). Once applications have been received, they will go through the following review process:

1. Application will be ranked based on the established Ranking Sheet (Appendix D) by the Agricultural Liaison.
2. Applications and ranking sheets will be distributed to the Cost-share Subcommittee for Review.
3. Field visits may be made at the discretion of the subcommittee.

4. Estimates will be sought and the Project Budget and Maintenance Agreement Form will be signed.
5. Once applications have been approved by the Cost-share Subcommittee, and summary of the planned project will be submitted to the Steering Committee.

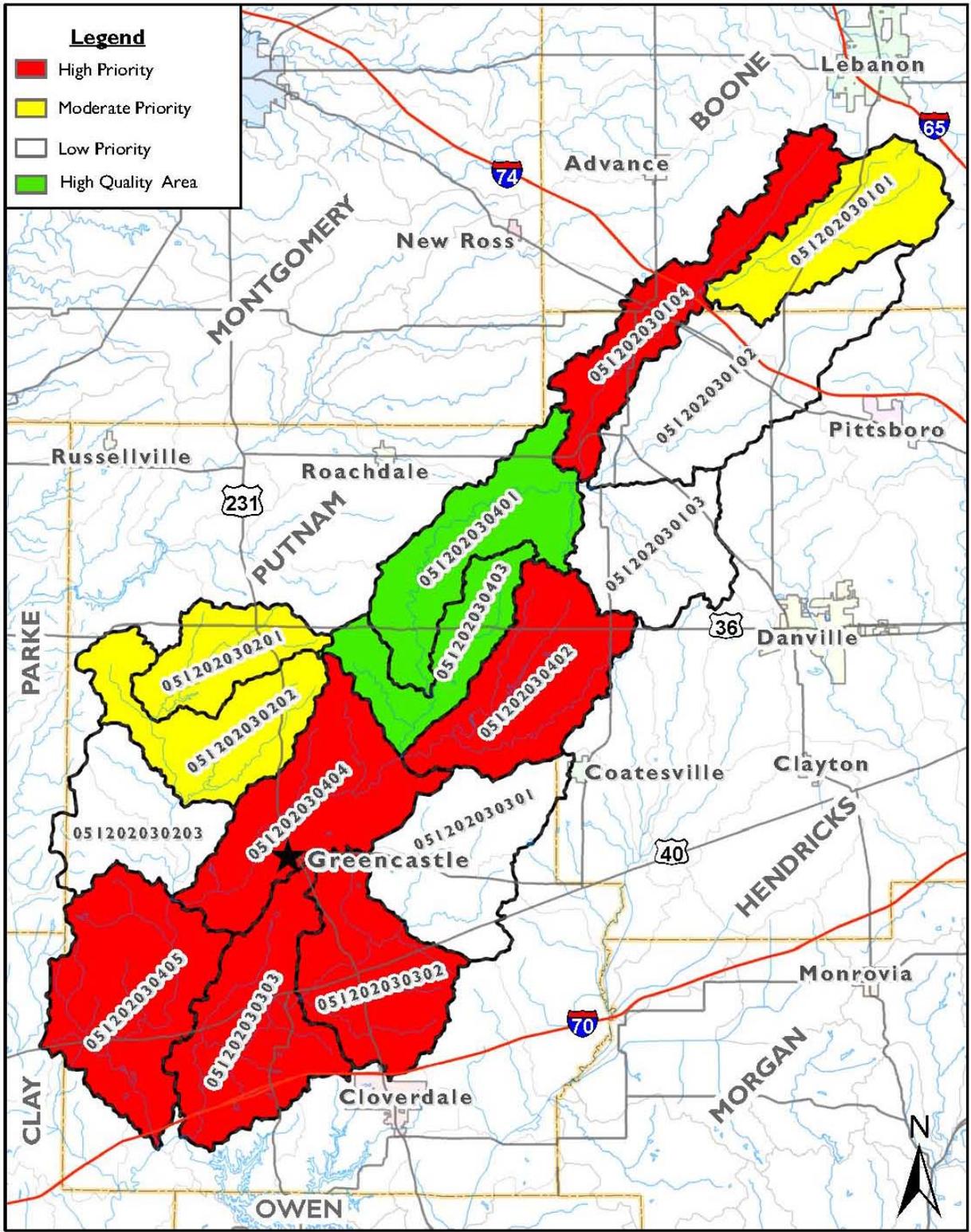
Project Implementation Process

1. A 319A Form must be signed by the landowner for agricultural cost-share practices. A 319U Form must be signed by the landowner for non-agricultural cost-share practices.
2. A site/plan map, any required nutrient and pest management plans, and copies of bills or receipts must accompany the 319 forms. Cost share payments will be made on a reimbursement basis upon submission of receipts and proof of local match.
3. When applicable, a load reduction estimation should also accompany the forms.

Appendices

- A. Map of Watershed Location and Target BMP Areas
 - B. Cost-Share Application
 - C. Project Budget and Maintenance Agreement Form
 - D. Ranking Sheet
 - E. Best Management Practices (BMPs) Available for Cost-share Funding
 - F. Glossary of Best Management Practices
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Appendix A: Map of Watershed Location and Target BMP Areas



HUC 12 Target Priority Watersheds
 Big Walnut Creek Watershed
 Boone, Clay, Hendricks, Parke, & Putnam Counties, Indiana

Appendix B: Cost-Share Application.

**Application for Big Walnut Creek Watershed
Cost-Share Program**

General Policies

All cost share practices shall be designed and installed according to NRCS design and standard specifications. Producer is responsible for obtaining any required State and local permits. A consultant will be hired for the producer if requested or deemed necessary by the Cost-Share Subcommittee due to complexity or timeframe concerns. Permit application fees are not eligible cost share items. Cost share caps may be adjusted by the Big Walnut Creek Watershed Alliance at their discretion based on practice criteria and funding availability.

All Practices will be installed based on NRCS standards or per City of Indianapolis design details for urban projects. Should no standard exist, IDEM will review the proposed practice or process on a case by case basis.

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1. Applicant Name: (Last, First, MI)

 2. Tax ID:

 3. Street Address: (Number, Street, City, State, Zip)

 4. Phone: (Home) (Work) (Mobile)

 5. Email:

 6. Are you the: Landowner____ Land User____

 7. Project Name (last name or property name):

 8. Project Address/Location:

Farm No. _____	Tract No. _____
Field No. _____	Section No. _____
Township No. _____	Range No. _____
Physical Township _____	Watershed _____

 9. Are there any easements, legal drains, or right-of ways on or adjacent to the property?

Yes____ No____

10. Is there a septic field on the property that has been maintained within the last 3 years (please provide a copy of the receipt)?

Yes___ No___

11. Is the applicant willing to use this site for education/demonstration purposes?

Yes___ No___

12. How close is your proposed project to a body of surface water (stream, river, pond, etc.)?

Adjacent___ 500-1000 ft ___ >1000 ft ___

13. Are any permits required for the proposed activity? Yes___ No___
If yes, have the permits already been obtained? Yes___ No___

14. Have you ever applied for a cost-share program and been denied?

Yes___ No___

15. Is manure applied to surface of land? Yes___ No___

16. Does the land applied for include an animal feeding operation (AFO)?

Yes___ No___

If yes, approximately how many animals are there? _____

What type(s) of animals? _____

17. If yes to question 13, has this AFO been designated a concentrated animal feeding operation (CAFO)? Yes___ No___

18. Describe the resource concerns (erosion, pesticides, nutrients) this project would address for cropland.

19. Describe the resource concerns the project would address for habitat.

20. Describe the resource concerns the project would address for storm water.

- 21.** Is the proposed project required to meet Phase II stormwater quality requirements? Yes___ No___
- 22.** Is there a documented conservation plan for the project area?
Yes___ No___
- 23.** Number of project acres?
- 24.** Number of acres impacted?
- 25.** Project Description:
- 26.** Supporting Documentation (Attach any maps, conservation plans, photos, plat of survey, etc. that might support your application and document the need for the proposed conservation project):

Appendix D: BWCWA Cost-Share Ranking Sheet

BIG WALNUT CREEK COST-SHARE PROGRAM RANKING SHEET		
	Points Available	Points Awarded
Considerations for All Projects		
1. Watershed Location		
Practice is located in a high priority (red) watershed	2 pts	
Practice is located in a moderate priority (yellow) watershed	1 pt	
2. Distance to creek, stream, ditch (blue line on topographic map) or waterbody		
Adjacent to stream	2 pts	
500-1000 ft	1 pt	
Greater than 1000 ft	0 pts	
3. Distance to protected area such as State controlled preserves, county park land, land controlled by The Nature Conservancy		
Within 1/2 mile	2 pts	
Greater than 1/2 mile, but less than 3/4 mile	1 pt	
Greater than 3/4 mile	0 pts	
4. Discharges to 303d stream (listed as State impaired stream by IDEM)		
	2 pts	
5. Working in coordination with neighboring landowners		
	2 pts	
6. No other cost share programs are available for this practice		
	2 pts	
7. Location is publicly accessible or highly visible		
	2 pts	
8. Practice is located less than 2 miles from another practice		
	2 pts	
9. Land has environmentally sensitive areas (surface water inlets, wetlands, unique habitat or species) on-site or adjacent		
	2 pts	
10. Practice location will buffer aging septic system run-off		
	1 pt	
11. Project provides educational opportunity or includes educational components		
	2 pts	

12. Governing entities (County Surveyor, DNR, MS4, etc.) are aware and in agreement of project (if applicable)	1 pt	
13. Necessary permits are in place, easily sought, or unnecessary	1 pt	
Agricultural Projects		
1. Cover Crops		
Cover crop following soybeans	2 pts	
Cover crop following corn	1 pt	
New to practice	2 pts	
2. Eliminating livestock from stream or ditch		
Limiting livestock to no closer than 100 feet	3 pts	
Limiting livestock to no closer than 50 feet	2 pts	
Limiting livestock to no closer than 30 feet	1 pt	
Limiting greater than 15 animals from stream	2 pts	
3. Alternative Livestock Water Source developed or planned	2 pts	
4. Composting Facility for Livestock on-site or planned	2 pts	
5. Heavy Use Area on-site or planned	2 pts	
6. Prescribed Grazing Plan implemented or planned	1 pt/10 acres treated	
7. Nutrient and/or Pest Management incorporated	1 pt/acre	
9. Completing a Resource Management System (multiple resource concerns addressed)	3 pts	
10. Conservation Cropping System being applied (no-till/strip-till, nutrient management, & cover crop) all items do not need to be cost share items, but must be in place	2 pts	
Urban Projects		
1. High visibility for education/awareness	3 pts	
2. Addresses an existing drainage problem	2 pts	
3. Project will detain/retain stormwater locally or regionally	2 pts	

4. Project will exceed/enhance regulated Phase II water quality projects	2 pts	
5. Project will enhance ground water recharge	2 pts	
6. Project will treat water quality from hot spot location (e.g. gas station)	2 pts	
Universal Projects		
1. Tree Planting		
Tree planting on non-cropland	1 pt	
Tree planting on cropland	2 pts	
Tree planting 2.0 acres or less	1 pt	
Tree planting on 2.1 to 5.0 acres	2 pts	
Tree planting on 5.1 to 10.0 acres	3 pts	
2. Streambank Stabilization		
Stabilization done in conjunction with Conservation Reserve Program practice CP-20 or CP-21	2 pts	
3. Stream Buffer		
Greater than 20 feet, but less than 40 feet	1 pt	
Greater than 40 feet, but less than 60 feet	2 pts	
Greater than 60 feet	3 pts	
Greater than 1000 ln. feet or greater than 1 acre total	3 pts	
Headwater location	3 pts	
4. Critical Area Seeding	2 pts for each acre or fraction of an acre	
5. Closure of Water Well planned	2 pts	
TOTAL		

Appendix E: Best Management Practices (BMPs) Available for Cost-Share Funding

Conservation Practice	Pollutants Addressed	BWCWA % Cost-Share	Big Walnut Cap	Notes
GENERAL PRACTICES				
Filter Strips (393)	sediment, nutrients	75%	\$109/ac - cool season; \$195/ac - warm season	
Riparian Forest Buffer(391)	sediment, nutrients	75%	\$399/ac	
Riparian Herbaceous Cover (390)	sediment, nutrients	75%		
Streambank and Shoreline Protection (580)	sediment, nutrients	75%	75% of cost, no cap	Permit may be needed; consult with IDEM Project Manager before implementing
Stream Channel Stabilization (584)	sediment, nutrients	75%	75% of cost, no cap	Permit may be needed; consult with IDEM Project Manager before implementing
Wetland Restoration (657) and Creation (658)	sediment, nutrients, E.coli	75%		Permit may be needed; consult with IDEM Project Manager before implementing
Critical Area Treatment & Seeding (342)	sediment, nutrients	75%	\$622/ac.	
Grade Stabilization Structure (410):	sediment, nutrients	75%		Consult with IDEM Project Manager before implementing; permit may be needed
<i>Rock chute</i>		75%		
<i>Straight pipe</i>		75%		
<i>Concrete tow wall</i>		75%		
Pipeline (516)	E.coli, nutrients, sediment	75%	\$0.88/ft	In conjunction with Watering Facility (614)
Tree and Shrub Establishment (612)	sediment, nutrients	75%	\$399/ac; second yr weed control \$34/ac	Minimum 1 ac

Conservation Practice	Pollutants Addressed	BWCWA % Cost-Share	Big Walnut Cap	Notes
Diversion (362)	sediment, nutrients, E.coli	75%		Permit may be needed
Stream Restoration (daylighting) (NRCS Publication NEH-654)	sediment, nutrients	75%	\$100/ft	Permit may be needed; http://www.nrcs.usda.gov/technical/ENG/stream-docs.html
AGRICULTURAL PRACTICES				
Alternative Watering System (614):	E.coli, nutrients, sediment	75%		Requires fencing out of stream (IDEM)
<i>Spring Development</i>		75%	\$1094/each	
<i>Watering Facility Portable</i>		75%	\$94/each	
<i>Ball or Fountain tank</i>		75%	\$615/each	
Cover Crops (340)	sediment, nutrients	75%	\$25/ac	
No-Till* (equipment modification or pre-emergent chemicals) (329)	sediment, nutrients	75%	\$22/ac	
Nutrient Management Planning (Row Crop) (590)	sediment, nutrients	75%	\$4/ac basic; \$15/ac high	
Comprehensive Nutrient Management Plan	sediment, nutrients, E.coli	90%		Use TSP process to perform CNMPs; CNMPs pay at 90%
Pest Management Planning (Row Crop) (595)	nutrients, E.coli,	75%	\$2/ac basic; \$10/ac precision	
Waste Storage Facility (313):	E.coli, nutrients	75%		No new facilities; Not installed at CAFOs; Above & beyond permit requirements
<i>concrete pit</i>		75%	\$0.71 cu ft	
<i>earthen pit</i>		75%	\$0.14/cu ft	
<i>dumpster/trailer</i>		75%		
Pasture/Hayland Seeding (512)	sediment, nutrients	75%	\$60/ac interseeding; \$123/ac cool or warm season	

Conservation Practice	Pollutants Addressed	BWCWA % Cost-Share	Big Walnut Cap	Notes
Streambank Crossing (578)	sediment, nutrients, E.coli	75%	75% of cost, no cap	Requires fencing animals from stream; permit may be needed
Streambank Fencing (382)	sediment, E.coli	75%	\$0.55/ft	Requires grazing plan; permit may be needed; no temporary fencing (IDNR-LARE)
Grassed Waterways (412)	sediment, nutrients	75%		Use native vegetation
Two-Stage Agriculture Ditch (582)	sediment, nutrients	75%	TBD by NRCS, 75% total cost	Permit may be needed
Heavy Use Area Protection (561)	sediment, nutrients	75%	\$0.50/sq ft	
Livestock Composting Facility (317)	nutrients, E.coli,	75%	\$0.50/ sq ft	Livestock must currently be present on the property
Prescribed Grazing Plan (528)	sediment, nutrients, E.coli	75%	\$17/ac.	Livestock must currently be present on the property
Water and Sediment Control Basin (638)	sediment, nutrients	75%		A Nutrient and Pest Mgmt Plan (590 & 595) must have been completed or be completed in conjunction with the WASCOB. Must be used in conjunction with a grassed waterway (412).
URBAN PRACTICES				Consult with IDEM Project Manager before implementing
Bioretention/Rain Garden (City of Indianapolis Technical Design Standards)	sediment, nutrients	75%	\$15/sq ft	Section 4.5, pgs 82-95
Bioswale/Swales (City of Indianapolis Technical Design Standards)	sediment, nutrients	75%	\$7/sq ft	Section 4.7, pages 104-111
Infiltration Basin or Trench (City of Indianapolis Technical Design Standards)	sediment, nutrients	75%	\$5/sq ft	Section 4.8, pages 113-119

Conservation Practice	Pollutants Addressed	BWCWA % Cost-Share	Big Walnut Cap	Notes
Media Filtration – Sand Filter (City of Indianapolis Technical Design Standards)	sediment, nutrients	75%	\$7/sq ft	Section 4.10, pages 130-138
Permeable Pavement (City of Indianapolis Technical Design Standards)	sediment, nutrients	75%	\$8/sq ft	Section 4.2, pages 47-63
Naturalize/Retrofit Wet Detention Basin** (City of Indianapolis Technical Design Standards)	sediment, nutrients	75%	\$15/ln ft	Section 4.12, pages 145-153; preliminary cost estimates have been given in linear feet; permit may be needed
Green Roof (City of Indianapolis Technical Design Standards)	sediment, nutrients	75%	\$20/sq ft	Section 4.1, pages 32-45
Parking Lot Retrofits/Curb Cuts (City of Indianapolis Technical Design Standards)	sediment, nutrients	75%	\$7/sq ft	Section 4.9, pages 121-129

*No-till equipment modifications include, but are not limited to the following: chaff spreader on combine, no-till coulter, row cleaners, split nitrogen applications, variable rate phosphorus, potassium, and lime applications.

**Applications will only be considered to retrofit existing basins in order to add a water quality benefit. The grant cannot pay for practices that are primarily used to create water quantity benefit.

Appendix F: Glossary of Best Management Practices

A brief description of each Best Management Practice is listed below. For more information about each practice either refer to the NRCS Standard or the City of Indianapolis' Technical Design Standards Manual.

Alternative Watering System – The use of a livestock watering systems other than full access to a stream or nearby waterbody. Alternative systems may include: controlled direct access, gravity systems, solar powered pumps, nose pumps, etc. (NRCS Code 614).

Bioretention/Rain Garden – Utilizing biological systems to retain stormwater runoff and remove pollutants and nutrients by filtration through soil medium. (City of Indianapolis' Technical Design Standards)

Bioswale/Swales – A gently sloping channel filled with dense vegetation, compost and riprap designed to filter silt and pollution from runoff. Nutrients and pollutants are removed through biological processes. (City of Indianapolis' Technical Design Standards)

Comprehensive Nutrient Management Plan – Assessment addressing water quality criteria for animal feeding operations including the feedlot, production area, and land on which manure and organic by-products are being applied. Includes addressing soil erosion to reduce nutrient transport (NRCS Code 590).

Cover Crops – Grasses, legumes, forbs, or other herbaceous plants established for seasonal cover and conservation purposes (NRCS Code 340).

Critical Area Treatment & Seeding – To stabilize the soil, reduce damages from sediment and runoff to downstream areas, and improve wildlife habitat and visual resources (NRCS Code 342).

Diversion – A channel created to redirect surface water flow, which would otherwise contribute to erosion, to a stable area (NRCS Code 362).

Filter Strips – A strip or area of herbaceous vegetation situated between cropland, grazing land, or disturbed land (including forest land) and environmentally sensitive areas (NRCS Code 393).

Grade Stabilization Structure - In areas where the concentration and flow velocity of runoff is sufficiently high, an engineered structure such as a rock chute or block chute is required to control the grade and head-cutting of natural or artificial channels, thereby preventing

the advancement or formation of gullies. As with certain other practices, installation of these structures can result in a directed discharge of waterborne pollutants into receiving streams. For this reason, their construction should be accompanied by installation of appropriately designed filter strips which can trap sediment, nutrients, and pesticides upstream from the structure. These filter strips must be sized to allow for conformance with regulations pertaining to application setbacks for specific pesticides used in their vicinity (NRCS Code 410).

Grassed Waterways – A constructed shallow channel that is shaped and vegetated to provide for stable conveyance of runoff (NRCS Code 412).

Green Roof - An extension of the existing roof which involves a high quality water proofing and root repellent system, a drainage system, filter cloth, a lightweight growing medium, and plants in order to treat and retain stormwater. (City of Indianapolis' Technical Design Standards)

Heavy Use Area Protection – To stabilize facility areas frequently and intensely used by people, animals, or vehicles (NRCS Code 561).

Infiltration Basin – The creation of a shallow impoundment intended to infiltrate stormwater, allowing soil to filter pollutants from stormwater runoff. (City of Indianapolis' Technical Design Standards)

Infiltration Trench – The creation of an outlet-free, rock-filled, long, narrow trench that collects stormwater runoff and allows the water to move through the rocks and infiltrate into the soil. (City of Indianapolis' Technical Design Standards)

Livestock Composting Facility - A facility to process raw manure or other raw organic by-products into biologically stable organic material. (NRCS Code 317).

Media Filtration – Sand Filter – Media filters are two-stage constructed treatment systems, including a pretreatment settling basin and a filter bed containing sand or other filter media. The filters are not designed to treat the entire storm volume but rather the portion that tends to contain higher pollutant levels. Sand filters can be designed so that they receive flow directly from the surface (via inlets or even as sheet flow directly onto the filter bed) or via storm drain pipes. They can be exposed to the surface or completely contained in

underground pipe systems or vaults. (City of Indianapolis' Technical Design Standards)

Naturalized/Retrofit Wet Detention Basin - The creation or modification of a stormwater detention basin that improves or combines treatment of the existing basin with a native plant perimeter (including both wetland emergent plant zone and an upland prairie buffer). (City of Indianapolis' Technical Design Standards)

No-Till Cost-Share – Assistance with the expenses of no-till practices. No-till equipment modifications include, but are not limited to the following: chaff spreader on combine, no-till coulter, row cleaners, split nitrogen applications, variable rate phosphorus, potassium, and lime applications. (NRCS Code 329)

Nutrient Management Planning – Managing the amount, source, placement, form and timing of the application of nutrients and soil amendments (NRCS Code 590).

Parking Lot Retrofits/Curb Cuts - Retro-fit a parking lot so that capacity over flow will pass through curb cuts onto pervious pavement and/or to a bioretention area where it will be able to infiltrate. (City of Indianapolis' Technical Design Standards)

Pasture/Hayland Seeding – Establishing and re-establishing long-term stands of adapted species of perennial, biennial, or reseeding forage plants (Includes pasture and hayland renovation. Does not include grassed waterways or outlets on cropland.) (NRCS Code 512).

Pest Management Planning – Utilizing environmentally sensitive prevention, monitoring and suppression strategies, to manage weeds, insects, diseases, animals and other organisms (including invasive and non-invasive species), that directly or indirectly causes damage or annoyance (NRCS Code 595).

Pipeline – To convey water from a source of supply to points of use for livestock, wildlife, or recreation (NRCS Code 516).

Porous/Permeable Pavement – The use of pervious concrete over an open-graded stone base with a filter fabric to collect pollutants from "first flush" runoff. (City of Indianapolis' Technical Design Standards)

Prescribed Grazing Plan – Created to prolong the life of desirable forage species; maintain or improve the quality and quantity of forage;

provide soil protection and reduce water loss; and improve water quality (NRCS Code 528).

Riparian Forest Buffer– An area of predominately trees and/or shrubs located adjacent to and up-gradient from watercourses or water bodies (NRCS Code 391).

Riparian Herbaceous Cover – Establishment or management of grasses and forbs, tolerant of intermittent flooding or saturated soils, in the transitional zone between terrestrial and aquatic habitats (NRCS Code 390).

Stream Restoration (Daylighting) - 'Daylighting' restores the natural drainage system using surface waterways by removing them from the pipes in which they were entombed. It addresses flood control and storm water management objectives but also adds value by maximizing ecological and water quality benefits. (NRCS NEH-654).

Streambank Crossing – A trail or travel way constructed across a stream to allow livestock, equipment, or vehicles to cross with minimal disturbance to the stream ecosystem (NRCS Code 578).

Streambank Fencing – A constructed barrier to keep people and animals from entering the water body. (NRCS Code 382).

Streambank and Shoreline Protection - Using vegetation or structures to stabilize and protect banks of streams, lakes, estuaries, or excavated channels against scour and erosion (NRCS Code 580).

Stream Channel Stabilization – Using vegetation or structures to stabilize streams (NRCS Code 584).

Tree and Shrub Establishment – The establishment of a stand of trees to help to control erosion, conserve soil, and retain moisture. This can aid in flood reduction, sedimentation control, and wildlife habitat improvement. Water quality benefits can be derived from plantings adjacent to streams which provide shade and act as a food source, and reduce streambank erosion. Mature trees can also serve as barriers to erosion-causing winds. Professional assistance regarding species selection and planting regimes can be solicited from IDNR district foresters or private consulting foresters, and is encouraged. (NRCS Code 612)

Two-Stage Agriculture Ditch – The creation of a ditch with two stages (or benches) to improve water quality while maintaining the

necessary flow of the stream. The main channel will allow slight meandering within the ditch and will carry the effective discharge. The second stage will be designed to have a cross-sectional capacity to carry enough discharge to prevent over-bank flow and allow for nutrient assimilation. (NRCS Code 582)

Waste Storage Facility – Temporary storage of liquid or solid wastes as part of a pollution control system to conserve nutrients and protect the environment. A Comprehensive Nutrient Management Plan must be completed before commencing construction (NRCS Code 313).

Water Sediment Control Basin - An earth embankment or a combination ridge and channel generally constructed across the slope and minor watercourses to form a sediment trap and water detention basin. (NRCS Code 638)

Waterways – A natural or constructed channel that is shaped or graded to required dimensions and established with suitable vegetation (NRCS Code 412).

Wetland Creation – Create wetlands in areas where soils, hydrology, and vegetation can be met to meet wetland functions and values. Typically this practice applies to sites where no natural wetland occurred or where a wetland exists or existed and the wetland characteristics will be different from what historically existed (NRCS Code 658).

Wetland Restoration – Restore hydrologic conditions and hydrophytic plant community necessary for the reestablishment of wetlands for the benefit of wildlife and plants and animal biodiversity, reduce flooding, improve water quality, and provide other environmental benefits (NRCS code 657).