Section X: Watershed Management Plan Implementation

The overall goal of the Eagle Creek Watershed Alliance is to improve water quality in the Eagle Creek Watershed. Given the rapid rate of urbanization in the watershed, without significant investment in watershed Best Management Practices and education and outreach programs, it is likely that water quality will continue to degrade. Our ultimate goal is to have Eagle Creek Watershed meet state water quality standards, reduce nutrient loads to the point that Eagle Creek Reservoir's trophic status can be improved to mesotrophic with an associated decrease in algal blooms, and improve both riparian and aquatic habitat so that macroinvertebrates and fish populations native to the watershed can thrive.

To achieve these water quality goals and maintain them in a sustainable fashion, the Eagle Creek Watershed Alliance envisions a multi-pronged approach to water resource sustainability. The first approach is through a series of watershed Best Management Practices and associated demonstration projects. BMP installation projects will be implemented throughout Eagle Creek Watershed, with concentrated efforts focused in Little Eagle Branch – Headwaters, Fishback Creek (Eagle Creek Reservoir), Mounts Run – Neese Ditch subwatersheds, and Eagle Creek Reservoir – School Branch.

Water Quality Action Register

Water quality improvement will focus on load reductions (Goals 1 – 4). As the majority of loading for most contaminants in most subwatersheds occurred during event flows, a reduction in the number of times event flow contaminant concentration exceeds water quality indicator thresholds should result in a decrease in the contaminant load and an improvement in watershed water quality. Therefore, water quality improvement in Eagle Creek Watershed focuses on restoring natural stream water filters (riparian buffers) and, ultimately, wetlands. Both of these remediations should slow and/or reduce water run-off to streams and remove *E. coli*, pesticides and herbicides, sediment, and nutrient from the water before the water enters the stream. Water quality improvement will also be achieved through source reductions: reducing sediment load from livestock facilitated bank erosion through the installation of fencing along stream corridors, reducing agricultural chemical usage and run-off through the promotion of Whole Farm Planning, and reducing nutrient load from point sources through cooperative initiatives and improved technology. An action register for implementation details the plan for water quality improvements (Table X-1).

Education and Outreach Action Register

Concomitant with the *in-situ* remediation projects, several complimentary watershed education projects will be initiated (Goal 5). These will include:

(1) Establishing a Water Quality Awareness Day of watershed-wide water quality testing. The project will be coordinated through CEES' environmental service learning program in partnership with DNR's Hoosier Riverwatch program and the World Water Quality Monitoring Day.
(2) Creating and delivering watershed education programs in cooperation with Indy Parks Hub Naturalist Program and Veolia Water's Watershed Initiative. Education and outreach specialists from Indy Parks, Veolia Water, CEES, and the watershed coordinator will create program materials and partner in program delivery. This program will target schools, homeowner groups, park patrons, and developers in an effort to prevent further degradation of resources.
(3) Raising awareness about watersheds through watershed informational signage at a subset of the 44 major roadway stream crossings in Eagle Creek Watershed. The watershed coordinator and ECWA will work with state, city and county departments of transportation to install signs identifying the stream reach and the watershed name.
(4) Encouraging septic system maintenance through the creation of a septic system information campaign. This program will disseminate information in the form of brochures to homeowners and businesses that service septic systems. The watershed coordinator, ECWA, and county boards of health will work together to educate septic system owners on problems with malfunctioning septic systems and maintenance requirements, ensuring that homeowners are informed and in compliance with septic system regulations adopted by Indiana in 1990 (Rule 410 IAC 6-8.1)
(5) Promoting watershed stewardship by creating and distributing a set of watershed and NPS pollution informational brochures for the general public that address the scope of the problem and the role of the individual in reducing water quality impacts. Distribution will be via mailings, educational program offerings, county park entrance stations and nature centers, libraries, and businesses catering to recreational users. Additional educational materials will be created for the new nature center at Eagle Creek Park via ongoing educational program development.
(6) Increasing the availability of watershed water quality data, issues, and events by upgrading and maintaining an enhanced web presence for the alliance and reestablishing a semi-annual watershed newsletter.
(7) Developing relationships that foster corporate and group stewardship by offering and promoting workshops to developers, planners and homeowners associations focused on the economic value of wetlands and the use of wetlands for watershed management.

An action register for implementation details the plan for education and outreach efforts (Table X-1).

Table X-1: Action Register

Timelines (Start/Finish)	Description	Participants	Cost*	Goal(s)
2002-2005+ (pre-grant)	▪ Monitor water quality and land-use/land cover changes in the Watershed (on-going throughout grant period).	CEES, ECWTF, and VWI	100k	n/a
2004 – 2005 (pre-grant)	▪ Assess water quality degradation in the Watershed and determine possible contaminant sources.	CEES and ECWTF	20k	n/a
2004 – 2005 (pre-grant)	▪ Complete update of watershed plan ▪ Enhance Eagle Creek Watershed Alliance (ECWA) partnerships and stakeholder involvement ▪ Begin quarterly ECWA meetings	CEES and ECWTF	20k	n/a
2005 – 2007? (pre-grant)	▪ Partner with IDEM on Eagle Creek EPA Region V Accountability Pilot.	ECWA and IDEM	NA	1, 2, 3, and 4
9/2005 – 12/2005	▪ Create and fill position of Watershed Coordinator. Funded for 3 years.	CEES	134k	1, 2, 3, 4, and 5
9/2005 -12/2005	▪ Create and fill position of "Farmer Promoter." Funded for 3 years.	Coordinator and Boone County SWCD	26k	1, 2, 3, 4, and 5
1/2006	▪ Write first interim report	Coordinator	n/a	n/a
1/2006 – 3/2006+	▪ Launch new website and create connectivity to WINS (on-going updates)	CEES and ECWTF	10k	5
1/2006	▪ Create educational and technical subcommittees for ECWA	ECWA	n/a	5
1/2006 – 3/2006+	▪ Hold quarterly education subcommittee meetings and begin production of educational materials (on-going throughout grant period)	ECWA Education Subcommittee	n/a	5
1/2006 – 3/2006	▪ Hold quarterly technical subcommittee meetings, identify targets (e.g., number and location of unsewered homes and failing septic systems) for education and outreach, and assist in EPA Region V Accountability Pilot (on-going throughout grant period).	Coordinator, Farm Promoter, ECWA Technical Subcommittee, NRCS, and SWCD	n/a	1, 2, 3, 4, and 5
1/2006 – 3/2006 1/2006 – 3/2006+	▪ Complete Criteria 3 Feasibility Evaluation for Critical Areas by identifying landowners and stakeholders amenable to BMP installation (e.g., buffers and fencing) ▪ Promote BMPs and whole farm planning to reduce use of agricultural chemicals and increase no-till tillage practices (on-going throughout grant period).	Farm Promoter, Coordinator, ECWA Technical Subcommittee, County Drainage Boards, NRCS, and SWCD	5k 50k	1, 2, 3, 4, and 5
4/2006 – 11/2006+	▪ Implement demonstration BMPs in Fishback (Eagle Creek Reservoir), Mounts Run – Neese Ditch, and Eagle Creek Reservoir – School Branch subwatersheds: grass and tree riparian buffer projects and fencing.	Farm Promoter, Coordinator NRCS HHRC&D, and CEES	300k	1, 2, 3, 4 and 5

Table X-1: Action Register (continued)

Timelines (Start/Finish)	Description	Participants	Cost*	Goal(s)
4/2006 – 6/2006+	▪ Initiate on-going BMP monitoring and evaluation program	CEES	50k	1, 2, 3, and 4
4/2006 – 6/2006	▪ Work with land developers to promote proper sediment trap usage.	Coordinator and developers	5k	3
7/2006 – 6/2006	▪ Identify and build relationships with point source dischargers to encourage load reductions	Coordinator	5k	4
7/2006 – 6/2006+	▪ Install watershed educational displays in Eagle Creek Park Nature Center ▪ Begin production of watershed educational materials (such as ECWA newsletter) and prepare for Water Quality Awareness Day, public watershed meetings, watershed and BMP tours, field demonstrations, and other community events such as county fairs (on-going throughout grant period).	CEES, Coordinator, ECWA Education Subcommittee, IndyParks	300k 40k	5
7/2006	▪ Write second interim report	Coordinator	n/a	5
7/2006 – 12/2006	▪ Implement watershed signage program	Coordinator, Indiana Dept. of Transportation	5k	5
1/2007	▪ Write third interim report	Coordinator	n/a	5
1/2007 – 3/2007	▪ Begin production of septic system informational brochures and compile mailing lists of homeowners with septic systems. ▪ Prepare Wetland Workshop.	Coordinator, ECWA Educational Subcommittee, County Health Departments	10k 28k	1, 4, and 5
4/2007 – 6/2007+	▪ Distribute septic system brochures (on-going throughout grant period).	Coordinator, ECWA Educational Subcommittee, County Health Departments	5k	1 and 5
7/2007	▪ Write fourth interim report	Coordinator	n/a	5
7/2007 – 9/2007	▪ Prepare Phase II implementation grant	Coordinator and ECWA	n/a	n/a
10/2007 – 12/2007	▪ Present program results to Upper White River Watershed Alliance Annual Meeting	Coordinator	n/a	5

Table X-1: Action Register (continued)

Timelines (Start/Finish)	Description	Participants	Cost*	Goal(s)
1/2008	▪ Write fifth interim report	Coordinator	n/a	5
1/2008 – 3/2009	▪ Present results to Upper White River Watershed technical committee	Coordinator and Farm Promoter	n/a	5
4/2008 – 6/2008	▪ Evaluate program	Coordinator, Farm Promoter, and ECWA	n/a	n/a
7/2008 – 9/2008	▪ Write final report.	Coordinator	n/a	5
2008+	▪ Constructed Wetlands plan development and installation	Coordinator, Farm Promoter, ECWA Technical Subcommittee, CEES	1.0 mil	1,2,3, and 4
2008+	▪ Stream Restoration plan development, initiation, and implementation for 50% of headwater streams (~100 miles of stream): - Bank Stabilization (20k/mile)° - Channel Rehabilitation (20k/mile)° - Riparian Reforestation (20k/mile)°	Coordinator, Farm Promoter, ECWA Technical Subcommittee, and CEES	 200k 200k 200k	1,2,3, and 4
2008+	▪ Sustainable Development plan development, initiation, and implementation.	Coordinator, ECWA Technical Subcommittee, and ECWA Educational Subcommittee	150k	1,2,3,4, and 5
2008+	▪ Wetland Workshops plan development, initiation, and implementation.	Coordinator, ECWA Educational Subcommittee, and CEES	112k	5
2008+	▪ Stormwater Management plan development, initiation, and implementation.	Coordinator, ECWA Technical Subcommittee, and ECWA Educational Subcommittee	150k	1,2,3, and 4
2008+	▪ Whole Farm Management plan development, initiation, and implementation.	Coordinator, Farm Promoter, and ECWA Educational Subcommittee	150k	1,2,3, and 4

* k = $1,000

° Blair, 2004. Costs adjusted for Indiana topography and hydrology.