

## Appendix A

### The Eagle Creek Watershed Taskforce

While the monitoring program was in progress, efforts were underway to gather a group of individuals to provide the nucleus of the Eagle Creek Watershed Steering Committee. Individuals were also focused on recruiting individuals to serve on a Technical Committee and an Education/Outreach Committee, and a Public Relations Committee. These would be subcommittees of the Steering Committee. During the later half of the summer and the fall of 1997, this diverse group met monthly to begin the process of melding their urban, suburban, and agricultural viewpoints into a cohesive whole. While the individual-member make-up tended to vary at each meeting, the group had a strong technical component via various agency representations. The next largest representation was from the agricultural community, followed by developers, and a small general homeowner contingent.

This group met monthly through the late summer and fall of 1997, working develop a common vision that could be expressed as a mission statement. This was the crucial first step in melding together the diverse nature of this group. This process was also used to identify the six major items of concern of the Task Force. These would be used as a framework in later meetings to develop a set of specific goals and objectives and during the development of the watershed management plan.

Concurrent with the formation of the Task Force, a database of over 100 individuals from federal, state and local government agencies as well as community associations, environmental groups and agricultural associations was created. This database was primarily used to notify individuals of meetings and current issues. In addition to mailings and articles in local newspapers, public tours of septic fields and ECWTF sample sites provided information on particular areas of environmental concern.

**Eagle Creek Watershed Taskforce -- Timeline**

**1995 & 1996** due to the timing and intensity of spring rains in relation to the agricultural producers' activities in the fields, the levels of triazines in the Eagle Creek Reservoir's untreated water exceeded the Environmental Protection Agency's (EPA's) drinking water quality standard for most of each year.

**1997**

Spring, Indiana Farm Bureau hired a watershed coordinator to begin a watershed group to investigate water quality issues in the Eagle Creek Watershed

Summer, while a list of stakeholders and steering committee was being developed a water sampling program, with "in-kind" testing by the Indianapolis Water Company was initiated.

Fall & Winter, regular monthly meetings of the steering committee and various technical subcommittees took place. 319 grant for funding the watershed coordinator was approved and work on Watershed Management Plan began.

**1998**

Data continued to be gathered as well as work on management plan. In the fall the watershed task force in combination with the Heartlands Group of the Indiana Sierra Club sponsored a tour of failing septic systems in the watershed in Boone County

**1999**

Data collection and work on the management plan continued.

**2000 & 2001**

319 grant obtained for bio-assay of 20 sites in the Eagle Creek Watershed.

**2002**

A 319 grant was submitted for a DNA ribotyping study of E. Coli. This grant was also supported by funding from the Sierra Club. Another 319 grant was submitted to begin phase I implementation for BMP's in the watershed. This grant wasn't successful due to lack of supporting data in the watershed management plan.

**2003**

319 grant for ribotyping of E. Coli study was completed. Work continued on revising the management plan to get it to support the 319 BMP grant that had been conditionally accepted.

**2004**

The taskforce was unsuccessful in obtaining the 319 BMP grant.

## Appendix B

### Eagle Creek Watershed Alliance

#### Eagle Creek Watershed Taskforce

Sharon Adams – Boone County Health Dept. – environmental health  
Laura Bieberich – IDEM – grant and department liaison  
Greg Bright – Commonwealth Bio-monitoring – bio assays  
Chuck Brinkman – Zionsville citizen  
Dennis Carrell – Frontier Co-op – GIS Field Support  
Bonny Elifritz – IDEM – watershed coordinator  
John Pankhurst – Eagle Creek Park Foundation Advisory Committee  
Dale Pershing – Veolia Water - Indianapolis – technical water quality  
Glenn Pratt – Environmental interests  
Jim Ray – Zionsville Town Council – governmental interests  
Adam Rickert – Marion County Health Department – level 2 testing  
Gerald Shelburne – Boone County SWCD  
John South – Hamilton County SWCD – soils and urban components  
George Tikijian – Zionsville Parks Dept. – governmental interests  
John Ulmer – Sierra Club – citizen/environmental inputs

#### Central Indiana Water Resources Partnership

##### *Veolia Water Indianapolis*

Jhani Laupus – Watershed Initiative  
Dale Pershing – Technical Water Quality

##### *Center for Earth and Environmental Science*

Lenore P. Tedesco - Director  
Lora Shrake – Research Scientist, Watershed Studies  
Denise Lani Pascual – Research Scientist, Limnologist  
Bob E. Hall – Technologist, GIS and Land-use  
Leda R. Casey – Graduate Student, Watershed Studies  
Kara Salazar – Education Outreach  
Robert C. Barr – Contractor

## Appendix C

### Windshield Surveys for Eagle Creek Watershed

**Subwatershed:**

**Site Location:**

**No. Pictures taken at this site:**

- |   |      |        |          |        |
|---|------|--------|----------|--------|
| 1. Is there bank erosion?<br>Comments:  | None | Slight | Moderate | Severe |
| 2. Livestock have access to streams?<br>Comments:   | Yes  | No     |          |        |
| 3. Is there trash in stream?<br>Comments:   | None | Slight | Moderate | Severe |
| 4. Is there adequate riparian buffer (25')?<br>Comments:  | Yes  | No     |          |        |
| 4. What is surrounding land use? Crops, pasture, development, etc?<br>If pasture, what type of animals? |      |        |          |        |
| 5. Any Confined Animal Feeding Operations?<br>Type of animal:   | Yes  | No     |          |        |
| 6. Are there pipes flowing directly into stream?<br>How many?   | Yes  | No     |          |        |

General Notes/Comments:

## Appendix D

### Benchmark Analysis: Tier 1

MCHD Data		[E.coli] ≥ 235 CFU†			[DO]<4 mg/L			[TDS]>750 mg/L			6 > pH > 9		
Stream	Subwatershed	N	#	%	N	#	%	N	#	%	N	#	%
Finley Creek	Finley Creek	3	3	100%	88	5	6%	88	0	0%	88	0	0%
Finley Creek	Finley Creek	15	4	27%	135	3	2%	133	0	0%	130	0	0%
Long Branch	Long Branch				133	12	9%	133	0	0%	129	0	0%
Fishback Creek	Fishback Creek				136	11	8%	135	0	0%	131	0	0%
Fishback Creek	Fishback Creek				157	8	5%	156	0	0%	154	0	0%
School Branch	School Branch				140	8	6%	140	0	0%	135	0	0%
School Branch	School Branch				158	4	3%	158	0	0%	153	0	0%
Little Eagle Creek	Little Eagle Creek - Woodruff Branch				136	0	0%				131	0	0%
Little Eagle Creek	Little Eagle Creek	37	29	78%	19	7	37%	19	0	0%	18	0	0%
Eagle Creek	Long Branch & Irishman Run	40	22	55%	196	3	2%	196	0	0%	191	0	0%
Eagle Creek	Long Branch & Irishman Run	39	19	49%	197	5	3%	195	0	0%	192	0	0%
Eagle Creek	Reservoir	33	1	3%	191	4	2%	192	0	0%	186	0	0%
ECWTF Data		[E.coli] ≥ 235 CFU†			[DO]<4 mg/L			[TDS]>750 mg/L			6 > pH > 9		
Stream	Subwatershed	N	#	%	N	#	%	N	#	%	N	#	%
School Branch	School Branch	122	92	75%									
Fishback Creek	Fishback Creek	119	77	65%									
Irishman Run	Irishman Run	122	95	78%									
Eagle Creek	Long Branch	122	82	67%									
Eagle Creek	Jackson Run	122	64	52%									
Eagle Creek	Mounds Run & Finley Creek	122	76	62%									
Little Eagle Creek	Little Eagle Creek - Woodruff Branch	122	83	68%									
Mounds Run	Mounds Run	122	102	84%									
Finley Creek	Finley Creek	122	89	73%									
Eagle Creek	Dixon Branch	122	92	75%									
CIWRP 2003 Data		[E.coli] ≥ 235 CFU†			[DO]<4 mg/L			[TDS]>750 mg/L			6 > pH > 9		
Stream	Subwatershed	N	#	%	N	#	%	N	#	%	N	#	%
School Branch	School Branch	9	6	67%	9	0	0%	9	0	0%	9	0	0%
Fishback Creek	Fishback Creek	9	6	67%	9	0	0%	9	0	0%	9	0	0%
Eagle Creek	Long Branch & Irishman Run	9	6	67%	9	0	0%	9	0	0%	9	0	0%
Eagle Creek	Long Branch & Irishman Run	8	6	75%	8	0	0%	8	0	0%	8	0	0%
Eagle Creek	Mounds Run	8	5	63%	8	1	13%	8	0	0%	8	0	0%
Little Eagle Creek	Little Eagle Creek - Woodruff Branch	8	6	75%	8	0	0%	8	0	0%	8	0	0%
Finley Creek	Finley Creek	7	5	71%	7	1	14%	7	0	0%	7	0	0%
Eagle Creek	Eagle Creek Watershed - South of ECR Dam	2	2	100%	2	1	50%	2	0	0%	2	0	0%

† Threshold set by US EPA and IAC drinking water standard.

**Benchmark Analysis: Tier 2**

<b>MCHD Data</b>		[Atrazine ] ≥ 3 ppb†			[NO3-N] ≥ 10 mg/L†			[TSS] > 263 mg/L			[TotP] > 0.125 mg/L			[TotN] > 2.75 mg/L		
Stream	Subwatershed	N	#	%	N	#	%	N	#	%	N	#	%	N	#	%
Finley Creek	Finley Creek	85	7	8%	87	4	5%									
Finley Creek	Finley Creek	135	12	9%	137	4	3%									
Long Branch	Long Branch	136	9	7%	137	2	1%									
Fishback Creek	Fishback Creek	135	14	10%	136	12	9%									
Fishback Creek	Fishback Creek	156	14	9%	155	5	3%									
School Branch	School Branch	139	22	16%	138	23	17%									
School Branch	School Branch	157	19	12%	158	17	11%									
Little Eagle Creek	Little Eagle Creek - Woodruff Branch	139	13	9%	140	1	1%									
Little Eagle Creek	Little Eagle Creek															
Eagle Creek	Long Branch & Irishman Run	162	18	11%	164	5	3%									
Eagle Creek	Long Branch & Irishman Run	161	19	12%	166	3	2%									
Eagle Creek	Reservoir	162	29	18%	166	1	1%									
<b>ECWTF Data</b>		[Atrazine ] ≥ 3 ppb†			[NO3-N] ≥ 10 mg/L†			[TSS] > 263 mg/L			[TotP] > 0.125 mg/L			[TotN] > 2.75 mg/L		
Stream	Subwatershed	N	#	%	N	#	%	N	#	%	N	#	%	N	#	%
School Branch	School Branch	122	20	16%	122	38	31%									
Fishback Creek	Fishback Creek	119	26	22%	119	19	16%									
Irishman Run	Irishman Run	122	42	34%	122	20	16%									
Eagle Creek	Long Branch	122	19	16%	122	14	11%									
Eagle Creek	Jackson Run	122	19	16%	122	15	12%									
Eagle Creek	Mounts Run & Finley Creek	122	18	15%	122	22	18%									
Little Eagle Creek	Little Eagle Creek - Woodruff Branch	122	29	24%	122	6	5%									
Mounts Run	Mounts Run	122	9	7%	122	32	26%									
Finley Creek	Finley Creek	122	23	19%	122	16	13%									
Eagle Creek	Dixon Branch	122	33	27%	122	20	16%									
<b>CIWRP 2003 Data</b>		[Atrazine ] ≥ 3 ppb†			[NO3-N] ≥ 10 mg/L†			[TSS] > 263 mg/L			[TotP] > 0.125 mg/L			[TotN] > 2.75 mg/L		
Stream	Subwatershed	N	#	%	N	#	%	N	#	%	N	#	%	N	#	%
School Branch	School Branch				9	2	22%	9	0	0%	8	6	75%	9	7	78%
Fishback Creek	Fishback Creek				9	0	0%	9	1	11%	9	5	56%	9	7	78%
Eagle Creek	Long Branch & Irishman Run				9	0	0%	9	1	11%	9	5	56%	9	7	78%
Eagle Creek	Long Branch & Irishman Run				8	0	0%	8	1	13%	8	4	50%	8	5	63%
Eagle Creek	Mounts Run				8	1	13%	8	1	13%	8	4	50%	8	6	75%
Little Eagle Creek	Little Eagle Creek - Woodruff Branch				8	0	0%	8	1	13%	8	5	63%	8	4	50%
Finley Creek	Finley Creek				7	0	0%	7	1	14%	7	4	57%	7	4	57%
Eagle Creek	Eagle Creek Watershed - South of ECR Dam				2	0	0%	2	0	0%	2	0	0%	2	0	0%

† Threshold set by US EPA and IAC drinking water standard.

**Benchmark Analysis: Tier 3**

MCHD Data Stream	Subwatershed	[NO3-N] > 1.0 mg/L			Dosat > 125%			pH > 8.3		
		N	#	%	N	#	%	N	#	%
Finley Creek	Finley Creek	87	69	79%	88	21	24%	88	2	2%
Finley Creek	Finley Creek	137	102	74%	135	19	14%	130	4	3%
Long Branch	Long Branch	137	61	45%	133	7	5%	129	1	1%
Fishback Creek	Fishback Creek	136	110	81%	136	23	17%	131	7	5%
Fishback Creek	Fishback Creek	155	112	72%	157	6	4%	154	8	5%
School Branch	School Branch	138	114	83%	140	25	18%	135	2	1%
School Branch	School Branch	158	124	78%	158	4	3%	153	7	5%
Little Eagle Creek	Little Eagle Creek - Woodruff Branch	140	8	6%	136	17	13%	131	4	3%
Little Eagle Creek	Little Eagle Creek	0	0		19	0	0%	18	1	6%
Eagle Creek	Long Branch & Irishman Run	164	162	99%	196	10	5%	191	2	1%
Eagle Creek	Long Branch & Irishman Run	166	25	15%	197	4	2%	192	1	1%
Eagle Creek	Reservoir	166	119	72%	191	41	21%	186	79	42%

ECWTF Data Stream	Subwatershed	[NO3-N] > 1.0 mg/L			Dosat > 125%			pH > 8.3		
		N	#	%	N	#	%	N	#	%
School Branch	School Branch	122	83	68%						
Fishback Creek	Fishback Creek	119	86	72%						
Irishman Run	Irishman Run	122	106	87%						
Eagle Creek	Long Branch	122	83	68%						
Eagle Creek	Jackson Run	122	90	74%						
Eagle Creek	Mounts Run & Finley Creek	122	89	73%						
Little Eagle Creek	Little Eagle Creek - Woodruff Branch	122	79	65%						
Mounts Run	Mounts Run	122	93	76%						
Finley Creek	Finley Creek	122	88	72%						
Eagle Creek	Dixon Branch	122	90	74%						

CIWRP 2003 Data Stream	Subwatershed	[NO3-N] > 1.0 mg/L			Dosat > 125%			pH > 8.3		
		N	#	%	N	#	%	N	#	%
School Branch	School Branch	9	9	100%	9	0	0%	9	0	0%
Fishback Creek	Fishback Creek	9	7	78%	9	0	0%	9	0	0%
Eagle Creek	Long Branch & Irishman Run	9	7	78%	9	1	11%	9	0	0%
Eagle Creek	Long Branch & Irishman Run	8	6	75%	8	0	0%	9	0	0%
	Mounts Run	8	7	88%	8	1	13%	8	0	0%
	Little Eagle Creek - Woodruff Branch	8	6	75%	8	0	0%	8	0	0%
	Finley Creek	7	5	71%	7	1	14%	7	0	0%
	Eagle Creek Watershed - South of ECR Dam	2	2	100%	2	0	0%	2	0	0%

## Appendix E

### Annual Load Reduction Targets for Eagle Creek Watershed

Scenario		Sediment (tons/yr)			Total P (pounds/yr)			Total N (pounds/yr)		
		Mean	% Reduction (from baseline)	% daily samples ≤ benchmark	Mean	% Reduction (from baseline)	% daily samples ≤ benchmark	Mean	% Reduction (from baseline)	% daily samples ≤ benchmark
<b>Baseline</b>		26000	-	90	120000	-	42	1780000	-	36
<b>Target</b>		18628	28.4%	100	50000	58.3%	100	1136000	36.2%	100
Buffer Strips (miles)	2 mi in Boone County	25977	0.1%	-	119964	0.0%	-	1779930	0.0%	-
	2 mi in Hendricks County	25956	0.2%	-	119941	0.0%	-	1779885	0.0%	-
Conservation Tillage (acres)	300 acres in Hendricks County	25635	1.4%	-	119537	0.4%	-	1779075	0.1%	-
	1100 acres in Hamilton County	25205	3.1%	-	118882	0.9%	-	1777767	0.1%	-
	3500 acres in Boone County	24332	6.4%	-	117451	2.1%	-	1774909	0.3%	-

Scenario		E.coli (mCFU/yr)			Atrazine (Kg/yr)		
		Mean	% Reduction (from baseline)	% daily samples ≤ benchmark	Mean	% Reduction (from baseline)	% daily samples ≤ benchmark
<b>Baseline</b>		8000	-	31	299	-	85
<b>Target</b>		1528	80.9%	100	180	39.8%	100