8.0 Implementation Strategies

Developing and implementing programs and practices in the Upper Wabash River – Phase 2 project area is the primary objective to achieve the plan's goals; however resources, manpower, and equipment are all limiting factors. In order for the watershed management plan to be successful, costs associated with meeting the objectives must be considered. Additionally, project partners will prove to be valuable during implementation efforts through leveraging of funds and technical support. Measurements of success are also necessary, as they provide a way to evaluate progress towards each goal. These items have been incorporated into the action register (Pages 178-189) that provides the details of the tasks that need to be accomplished to meet the objectives and goals.

8.1 Objectives to Reach Goals

The UWRBC Steering Committee and stakeholders have identified the following objectives:

- Develop and promote a cost-share program for implementing BMPs.
- Work with landowners to install best management practices using the cost-share program.
- Develop and conduct a water quality monitoring program and public monitoring events.
- Develop and provide educational opportunities for stakeholder participation; including workshops and field days on water quality issues, BMPs, septic systems, etc.; hold events for stakeholder participation, such as river clean-ups, river floats or other activities.
- Promote current USDA Farm Bill, ISDA or other conservation programs.
- Work with partners, other groups and agencies to promote and install best management practices.

Indicators for water quality improvement such as water monitoring data, habitat and biological assessments, and pollutant load modeling will be used to evaluate progress and aid in the review of the effectiveness of the selected objectives. Social data will also be used to help track progress towards the goals and objectives.

8.2 Best Management Practices and Estimated Load Reductions

A variety of best management practices (BMPs) are available for on-the-ground implementation. Many of these practices result in the reduction of nutrients, *E. coli*, and sediment, as well as improve habitat and riparian corridors, and reduce flooding concerns. A list of BMPs developed by the Steering Committee was reviewed and the practices were evaluated for their effectiveness in reducing nutrients, *E. coli* and sediment.

The Steering Committee members, with technical assistance from NRCS and ISDA staff, identified a list of best management practices which could be used to achieve the water quality goals described in this plan (pages 165-167). Consideration was given to practices that are easily adopted or expanded. This list does not include all practices that could be beneficial, but is a starting point for developing future implementation programs. This list is primarily focused on practices for agricultural lands, which is the predominant land use in the Upper Wabash River – Phase 2 project area. Some practices can also be applied or adapted to urban areas. Additional practices or alternative technologies may be both possible and necessary to reach the water quality goals. Descriptions of the practices are included in Appendix I.

List of Best Management Practices

- Agronomy Consultations by a Certified Crop Advisor
- Amending Soil Properties with Gypsum Products
- Bottomland Timber Establishment
- Clearing and Snagging
- Conservation Cover
- Conservation Tillage-Residue and Tillage Management, Mulch Till and No Till/Strip Till
- Cover Crops
- Critical Area Planting
- Diversion
- Drainage Water Management
- Field Borders & Filter Strips
- Grassed Waterway & Grade Stabilization Structures
- Greenways and Trails
- Heavy Use Area Protection
- Livestock Exclusion (access control, fence, pipeline, watering facility, etc.)
- Low Impact Development Workshops
- Nutrient Management & Pest Management
- Open Channel – Two Stage Ditch
- Precision/Variable Rate Technology – Equipment Modifications
- Prescribed Grazing (fence, pipeline, watering facility, etc.)
- Rain Gardens & Rain Barrels
- Riparian Forest Buffer & Herbaceous Cover
- Roof Runoff Structure
- Septic System Care and Maintenance Workshops
- Stormwater Runoff Control
- Soil Sampling
- Stream Crossing (access road, fence)
- Tree and Shrub Establishment
- Underground Outlet (Blind inlet)
- Waste Utilization
- Water and Sediment Control Basin
- Wetland Creation, Enhancement and Restoration

The list of BMPs was compared and assigned to the critical land use areas for each pollutant of concern based on the benefit provided by the practice. Education and outreach programs are considered a suggested BMP for all critical areas. Region 5 Model load reduction estimates were then calculated for nitrogen, phosphorus, and sediment based on the implementation of a single BMP. In some instances data is not available to estimate load reductions for the BMP or management measure.

Table 8-1: Best Management Practices or Measures for Critical Areas with Expected Load Reductions

Critical Land Area	Reason for being Critical	Suggested BMP or Measure	Estimated Load Reduction for a single BMP*		
			Nitrogen lbs/yr	Phosphorus lbs/yr	Sediment tons/yr
Critical Area for Nutrients (nitrogen and phosphorus) High Priority Moser Lake, Dowty Ditch, Bender Ditch/ Griffin Ditch Medium Priority Johns Creek Low Priority Pleasant Run Ditch/Big Creek, Maple Creek, Stites Ditch	Fertilizer Application	Agronomy Consultations	N/A	N/A	N/A
		Amending Soil Properties with Gypsum Products	ND	ND	ND
		Nutrient Management (& Pest Management when required for practice implementation)	ND	ND	ND
		Precision/Variable Rate Technology	ND	ND	ND
		Soil Sampling	N/A	N/A	N/A
		Underground Outlet (Blind Inlet)	ND	ND	ND
		Drainage Water Management	ND	ND	ND
	Tillage Practices	Conservation Cover (20 ac.)	83	42	29
		Conservation Tillage - Mulch Till and No Till/StripTill (100 ac.)	304 – 333	152 – 166	115 – 124
		Cover Crops (100 ac.)	291	146	103
		Field Borders & Filter Strips (40 ac. benefitted)	152	77	51
		Grassed Waterway & Grade Stabilization Structures	171	85.5	85.5
		Riparian Forest Buffer & Riparian Herbaceous Cover (20 ac. benefitted)	48 – 83	24 – 42	19 – 29
	Livestock & Manure Application	Diversion (modeled as Gully Stabilization)	86.4	43.2	43.2
		Livestock Exclusion (modeled as Fence - 500 ft.)	76.5	38.3	38.3
		Prescribed Grazing (20 ac.)	68	34	25
		Stream Crossing	10.7	5.8	5.8
		Waste Utilization (management system - 50 dairy cattle on feedlot)	1803	195	N/A
	Urban	Low Impact Development Workshops	N/A	N/A	N/A
		Rain Gardens and Rain Barrels	N/A	N/A	N/A
		Septic System Care and Maintenance Workshop	N/A	N/A	N/A

Critical Land Area	Reason for being Critical	Suggested BMP or Measure	Estimated Load Reduction for a single BMP*		
			Nitrogen lbs/yr	Phosphorus lbs/yr	Sediment tons/yr
Critical Area for *E. coli*	Fertilizer Application	Drainage Water Management	ND	ND	ND
		Precision/Variable Rate Technology	ND	ND	ND
		Underground Outlet (Blind Inlet)	ND	ND	ND
<u>High Priority</u> Dowty Ditch	Livestock & Manure Application	Diversion (modeled as Gully Stabilization)	86.4	43.2	43.2
<u>Medium Priority</u> Pleasant Run Ditch/Big Creek, Moser Lake, Johns Creek, Bender Ditch/ Griffin Ditch,		Livestock Exclusion (modeled as Fence - 500 ft.)	76.5	38.3	38.3
		Prescribed Grazing (20 ac.)	68	34	25
		Stream Crossing	10.7	5.8	5.8
		Waste Utilization (management system - 50 dairy cattle on feedlot)	1803	195	N/A
<u>Low Priority</u> Maple Creek, Elkenberry Ditch, Stites Ditch, Headwaters Rock Creek	Tillage Practices	Field Borders & Filter Strips (40 ac. benefitted)	152	77	51
		Riparian Forest Buffer & Riparian Herbaceous Cover (20 ac. benefitted)	48 83	24 42	19 29
	Residential	Septic System Care and Maintenance Workshop	N/A	N/A	N/A
Critical Area for Sediment	Tillage Practices	Amending Soil Properties with Gypsum Products	ND	ND	ND
		Bottomland Timber Establishment/ Tree and Shrub Establishment (20 ac. treated)	48	24	19
		Conservation Tillage - Residue & Tillage Management, Mulch Till and No Till/Strip Till (100 ac.)	304 – 333	152 – 166	115 – 124
<u>High Priority</u> Stites Ditch		Cover Crops (100 ac.)	291	146	103
		Field Borders & Filter Strips (40 ac. benefitted)	152	77	51
<u>Medium Priority</u> Pleasant Run Ditch/Big Creek, Maple Creek, Johns Creek, Dowty Ditch Bender Ditch/ Griffin Ditch,		Grassed Waterway & Grade Stabilization Structures	171	85.5	85.5
		Riparian Forest Buffer & Riparian Herbaceous Cover (20 ac. benefitted)	48 – 83	24 – 42	19 – 29
		Underground Outlet (Blind Inlet)	ND	ND	ND
		Water and Sediment Control Basin	SS	SS	SS
	In-stream Erosion	Clearing and Snagging	ND	ND	ND
		Open Channel – Two Stage Ditch	67.2	33.6	33.6
	HEL/PHEL	Conservation Cover (40 ac.)	155	78	53
<u>Low Priority</u> Moser Lake, Elkenberry Ditch	Livestock	Critical Area Planting (2 ac.)	10	5	4
		Diversion (modeled as Gully Stabilization)	86.4	43.2	43.2
		Heavy Use Area Protection (1 ac.)	12	6	6
		Prescribed Grazing (20 ac.)	68	34	25
		Stream Crossing	10.7	5.8	5.8
	Urban	Low Impact Development Workshops	N/A	N/A	N/A
		Stormwater Runoff Control	ND	ND	ND

Critical Land Area	Reason for being Critical	Suggested BMP or Measure	Estimated Load Reduction for a single BMP*		
			Nitrogen lbs/yr	Phosphorus lbs/yr	Sediment tons/yr
Critical Area for Habitat & Biology <u>High Priority</u> Pleasant Run Ditch/Big Creek, Moser Lake, Maple Creek, Johns Creek, Stites Ditch <u>Medium Priority</u> Elkenberry Ditch, Headwaters Rock Creek	Low habitat evaluation scores and biotic assessment	Bottomland Timber Establishment/ Tree and Shrub Establishment (20 ac. treated)	48	24	19
		Critical Area Planting (2 ac.)	10	5	4
		Field Borders & Filter Strips (40 ac. benefitted)	152	77	51
		Greenways and Trails (1 ac.)	11	5	6
		Riparian Forest Buffer & Riparian Herbaceous Cover (20 ac. benefitted)	48 – 83	24 – 42	19 – 29
		Wetland Creation, Enhancement and Restoration (20 ac. Benefitted)	68	34	25
**All load reductions are Region 5 Model calculation examples.* *ND = No data to perform calculations; N/A = Not applicable for Region 5 Model; SS = site specific.*					

Based on the estimated load reductions and the percentages of land use in the project watershed, the practices that would make the most impact in reducing nutrients and sediment are conservation tillage, cover crops, filter strips and field borders, conservation cover, grassed waterways, and waste management practices. A combination of practices on the same parcel of land would be even more effective in the overall load reductions in the project area.

8.3 Action Register and Schedule

The Action Register will help guide the implementation of both on-the-ground land use management practices and education and outreach activities of the UWRBC. It identifies the scheduled objectives, milestones, estimated costs, and potential project partners for each of the goals in this watershed management plan.

Included in the action register is the development and promotion of a cost-share program, an education and outreach (E & O) program, and water quality monitoring to measure possible reductions in pollutants. The costs are based on the salary for the watershed coordinator and water quality consultants to conduct a three-year cost-share/implementation project, education and outreach activities and water quality monitoring program. Practice implementation costs are based on NRCS Conservation Activity Plan and Technical Service Provider payment rates.

Table 8-2: Action Register and Schedule of UWRBC Activities

Action Register and Schedule					
5-year Nutrient Goals: Reduce nitrate loading by 12% (11,708,813 lbs/yr) and reduce the annual average concentration of nitrate by 17% (3.0 mg/L) by 2020. **Reduce phosphorus loading by 10% (226,619 lbs/yr) and reduce the annual average concentration by 14% (0.05 mg/L) by 2020.**					
Objectives	**Target Audience**	**Milestones**	**Estimated Costs**	**Potential Partners/ Technical Assistance**	**Potential Funding Sources**
Develop Nutrient and Pest Management plans and implement on 2,500 acres of cropland.	Agricultural Landowners & Operators	Develop and promote cost-share program beginning in 2015.	$15,000/yr*	Technical Service Providers, NRCS, ISDA, SWCDs, Purdue Extension, Ag Vendors	IDEM 319 Grants, NRCS Farm Bill Programs and initiatives, ISDA Clean Water Indiana Grants
		Personal visits with landowners.	$10,000/yr*		
		Conduct E&O program featuring BMPs beginning in 2015.	E&O program		
		Provide cost-share for agronomy consultations and development of nutrient and pest management plans on 500 acres annually. ($15.50/ac)	$38,750		
		Provide cost-share for small farm producers to conduct soil sampling on 500 acres annually. ($1/ac)	$2,500		
		Identify alternate funding sources to increase participation.	E&O program		
		Conduct water quality monitoring to measure possible reductions.	13,000/yr*		
Amend Soil Properties with Gypsum Products on 1,000 acres of cropland.	Agricultural Landowners & Operators	Develop and promote cost-share program beginning in 2015.	$15,000/yr*	NRCS, ISDA, SWCDs, Purdue Extension, Ag Vendors	IDEM 319 Grants, NRCS Farm Bill Programs and initiatives, ISDA Clean Water Indiana Grants
		Personal visits with landowners.	$10,000/yr *		
		Conduct E&O program featuring BMPs beginning in 2015.	E&O program		
		Using all funding sources, annually implement 500 acres of gypsum applications. ($35/ac)	$35,000		
		Conduct water quality monitoring to measure possible reductions.	13,000/yr*		
Increase Conservation Tillage - residue and tillage management, mulch till and no till/strip till by 5,000 acres.	Agricultural Landowners & Operators	Develop and promote cost-share program beginning in 2015.	$15,000/yr*	NRCS, ISDA, SWCDs, CTIC, CCSI, Purdue Extension	IDEM 319 Grants, NRCS Farm Bill Programs and initiatives, ISDA Clean Water Indiana Grants
		Personal visits with landowners.	$10,000/yr *		
		Conduct E&O program featuring BMPs beginning in 2015.	E&O program		
		Using all funding sources, annually implement 1,000 acres of conservation tillage. (avg. $20/ac)	$100,000		
		Provide cost-share for equipment modifications. (avg. $4,000 each)	$20,000		
		Identify alternative funding sources to increase participation.	E&O program		
		Conduct water quality monitoring to measure possible reductions.	13,000/yr*		

Objectives	Target Audience	Milestones	Estimated Costs	Potential Partners/ Technical Assistance	Potential Funding Sources
Implement Precision/ Variable Rate Technology for fertilizer and manure application on 1,000 acres.	Agricultural Landowners & Operators	Develop and promote cost-share program beginning in 2015.	$15,000/yr*	NRCS, ISDA, SWCDs, Purdue Extension, Ag Vendors	IDEM 319 Grants, NRCS Farm Bill Programs and initiatives, ISDA Clean Water Indiana Grants
		Personal visits with landowners.	$10,000/yr *		
		Conduct 1 public meeting program featuring BMPs beginning in 2015.	$10,000/yr*		
		Provide cost-share for equipment modifications. (avg. $7,500 each)	$37,500		
		Identify alternative funding sources to increase participation.	E&O program		
		Conduct water quality monitoring to measure possible reductions.	13,000/yr*		
Implement cover crops on 2,500 acres.	Agricultural Landowners & Operators	Develop and promote cost-share program beginning in 2015.	$15,000/yr*	NRCS, ISDA, SWCDs, CCSI, Purdue Extension, Ag Vendors	IDEM 319 Grants, NRCS Farm Bill Programs and initiatives, ISDA Clean Water Indiana Grants
		Personal visits with landowners.	$10,000/yr *		
		Conduct 1 field day featuring BMPs beginning in 2015.	E&O program		
		Promote Soil Health with partners.	E&O program		
		Using all funding sources, implement cover crops on 500 acres annually. (avg. $40/ac)	$100,000		
		Identify alternative funding sources to increase participation.	E&O program		
		Conduct water quality monitoring to measure possible reductions.	13,000/yr*		
Increase landowner awareness of Drainage Water Management practices (Underground Outlet-blind inlet, Saturated Buffers, etc.).	Agricultural Landowners & Operators; County Surveyors; Tile Installers; Contractors	Develop and promote cost-share program beginning in 2015.	$15,000/yr*	NRCS, ISDA, SWCDs, Purdue Extension, Purdue Extension WQ Program, TNC, LICA	IDEM 319 Grants, NRCS Farm Bill Programs and initiatives, ISDA Clean Water Indiana Grants
		Personal visits with landowners.	$10,000/yr *		
		Conduct E&O program featuring BMPs beginning in 2015.	E&O program		
		Develop survey to evaluate barriers to using practices.	E&O program		
		Using all funding sources, install one drainage water mgmt. practice.	$3,000		
		Conduct water quality monitoring to measure possible reductions.	13,000/yr*		
Increase the use of Field Borders, Filter Strips, Conservation Cover, Riparian Forest Buffers and Riparian Herbaceous Cover on 100 acres.	Agricultural Landowners & Operators	Develop and promote cost-share program beginning in 2015.	$15,000/yr*	NRCS, ISDA, SWCDs, Purdue Extension, DNR	IDEM 319 Grants, NRCS Farm Bill Programs and initiatives, ISDA CREP and Clean Water Indiana Grants, LARE Grants,
		Personal visits with landowners.	$10,000/yr *		
		Conduct E&O program featuring BMPs beginning in 2015.	E&O program		
		Using all funding sources, implement buffer practices on 20 acres annually. ($9/ac to $825/ac.)	$10,000		
		Identify alternative funding sources to increase participation.	E&O program		
		Conduct water quality monitoring to measure possible reductions.	13,000/yr*		

Objectives	Target Audience	Milestones	Estimated Costs	Potential Partners/ Technical Assistance	Potential Funding Sources
Restrict livestock access from 1,000 feet of watershed streams and increase Prescribed Grazing and Waste Utilization on 500 acres.	Landowners with livestock; livestock access to watershed streams	Develop and promote cost-share program beginning in 2015.	$15,000/yr*	NRCS, ISDA, SWCDs, Purdue Extension	IDEM 319 Grants, NRCS Farm Bill Programs and initiatives, ISDA Clean Water Indiana Grants, LARE Grants
		Personal visits with landowners.	$10,000/yr *		
		Conduct E& O program featuring BMPs beginning in 2015.	E&O program		
		Using all funding sources, implement livestock exclusion practices (fence, stream crossings, etc.) on 1,000 feet of streams, and prescribed grazing and waste utilization on 500 ac. over 5 years.	Exclusion: $10,000 Grazing: $14,000 Waste Utilization: $23,500		
		Identify alternative funding sources to increase participation.	E&O program		
		Conduct water quality monitoring to measure possible reductions.	13,000/yr*		
Develop a Low Impact Development educational program.	Urban residents; Contractors; Developers	Conduct 1 public meeting featuring BMPs beginning in 2015.	E& O program	SWCDs, Purdue Extension, Area Plan Commission	IDEM 319 Grants, ISDA Clean Water Indiana Grants, Private Grants
		Survey local contractors on use of low impact development measures	E&O program		
Promote Rain Gardens and Rain Barrels.	Urban and rural residential landowners	Develop and promote cost-share program beginning in 2015.	$15,000/yr*	SWCDs, Purdue Extension	IDEM 319 Grants, , ISDA Clean Water Indiana Grants, Private Grants
		Conduct E&O program featuring BMPs beginning in 2015.	E&O program		
Increase awareness of septic system problems and maintenance.	Rural residential landowners	Develop and promote cost-share program beginning in 2015.	$15,000/yr*	SWCDs, Purdue Extension, IOWPA, Health Departments	IDEM 319 Grants, Private Grants
		Conduct 1 workshop program featuring BMPs beginning in 2015.	E&O program		

* One cost-share program, one education and outreach (E&O) program, and one water quality monitoring (WQM) program will be developed covering all strategies. Development and promotion of the cost-share program is 37.5% of the Watershed Coordinator (WC) salary. The personal landowner visits are 25% of the WC salary. Education and outreach costs are 25% of the WC salary, as well as costs to conduct meetings, field days, workshops or other events. The water quality monitoring program costs include 12.5% salary for the WC and costs for consulting services for monitoring and laboratory services.

Action Register and Schedule

5-year *E. coli* Goal: Reduce *E. coli* average concentrations so that the exceedances of the state standard of 235 cfu/100mL occurs in no more than 35% of monitoring samples by 2020.

Objectives	Target Audience	Milestones	Estimated Costs	Potential Partners/ Technical Assistance	Potential Funding Sources
Increase landowner awareness of Drainage Water Management practices (Underground Outlet-blind inlet, Saturated Buffers, etc.).	Agricultural Landowners & Operators; County Surveyors; Tile Installers; Contractors	Develop and promote cost-share program beginning in 2015.	$15,000/yr*	NRCS, ISDA, SWCDs, Purdue Extension, Purdue Extension WQ Program, TNC, LICA	IDEM 319 Grants, NRCS Farm Bill Programs and initiatives, ISDA Clean Water Indiana Grants
		Personal visits with landowners.	$10,000/yr *		
		Conduct E&O program featuring BMPs beginning in 2015.	E&O program		
		Develop survey to evaluate barriers to using practices.	E&O program		
		Using all funding sources, install one drainage water mgmt. practice.	$3,000		
		Conduct water quality monitoring to measure possible reductions.	13,000/yr*		
Implement Precision/ Variable Rate Technology for fertilizer and manure application on 1,000 acres.	Agricultural Landowners & Operators	Develop and promote cost-share program beginning in 2015.	$15,000/yr*	NRCS, ISDA, SWCDs, Purdue Extension, Ag Vendors	IDEM 319 Grants, NRCS Farm Bill Programs and initiatives, ISDA Clean Water Indiana Grants
		Personal visits with landowners.	$10,000/yr *		
		Conduct E&O program featuring BMPs beginning in 2015.	E&O program		
		Provide cost-share for equipment modifications. ($7,500 each)	$37,500		
		Identify alternative funding sources to increase participation.	E&O program		
		Conduct water quality monitoring to measure possible reductions.	13,000/yr*		
Implement livestock practices (fencing, diversion, waste utilization, etc.) at 5 "hobby farm" locations.	Livestock "hobby farms"	Develop and promote cost-share program beginning in 2015.	$15,000/yr*	NRCS, ISDA, SWCDs, Purdue Extension	IDEM 319 Grants, NRCS Farm Bill Programs and initiatives, ISDA Clean Water Indiana Grants
		Personal visits with landowners.	$10,000/yr *		
		Conduct E&O program featuring BMPs beginning in 2015.	$10,000/yr*		
		Using all funding sources, annually implement livestock practices on 1 hobby farm. ($5,000 to $6,000 ea)	$20,000 - $30,000		
		Conduct water quality monitoring to measure possible reductions.	13,000/yr*		
Increase the use of Field Borders, Filter Strips, Conservation Cover, Riparian Forest Buffers and Riparian Herbaceous Cover on 100 acres.	Agricultural Landowners & Operators	Develop and promote cost-share program beginning in 2015.	$15,000/yr*	NRCS, ISDA, SWCDs, Purdue Extension, DNR	IDEM 319 Grants, NRCS Farm Bill Programs and initiatives, ISDA CREP and Clean Water Indiana Grants, LARE Grants
		Personal visits with landowners.	$10,000/yr *		
		Conduct E&O program featuring BMPs beginning in 2015.	E&O program		
		Using all funding sources, implement buffer practices on 20 acres annually. ($9/ac to $825/ac.)	$10,000		
		Conduct water quality monitoring to measure possible reductions.	13,000/yr*		

Objectives	Target Audience	Milestones	Estimated Costs	Potential Partners/ Technical Assistance	Potential Funding Sources
Increase awareness of septic system problems and maintenance	Rural residential landowners	Develop and promote cost-share program beginning in 2015.	$15,000/yr*	SWCDs, Purdue Extension, IOWPA, Health Departments	IDEM 319 Grants, Private Grants
		Conduct 1 workshop program featuring BMPs beginning in 2015.	E&O program		
		Conduct water quality monitoring to measure possible reductions.	13,000/yr*		

* One cost-share program, one education and outreach (E&O) program, and one water quality monitoring (WQM) program will be developed covering all strategies. Development and promotion of the cost-share program is 37.5% of the Watershed Coordinator (WC) salary. The personal landowner visits are 25% of the WC salary. Education and outreach costs are 25% of the WC salary, as well as costs to conduct meetings, field days, workshops or other events. The water quality monitoring program costs include 12.5% salary for the WC and costs for consulting services for monitoring and laboratory services.

Action Register and Schedule

5-year Sediment Goal: Reduce average concentrations of turbidity measurements by 15% by 2020.

Objectives	Target Audience	Milestones	Estimated Costs	Potential Partners/ Technical Assistance	Potential Funding Sources
Amend Soil Properties with Gypsum Products on 1,000 acres of cropland.	Agricultural Landowners & Operators	Develop and promote cost-share program beginning in 2015.	$15,000/yr*	NRCS, ISDA, SWCDs, Purdue Extension, Ag Vendors	IDEM 319 Grants, NRCS Farm Bill Programs and initiatives, ISDA Clean Water Indiana Grants
		Personal visits with landowners.	$10,000/yr *		
		Conduct E&O program featuring BMPs beginning in 2015.	E&O program		
		Using all funding sources, annually implement 500 acres of gypsum applications. ($35/ac)	$35,000		
		Conduct water quality monitoring to measure possible reductions.	13,000/yr*		
Implement Bottomland Timber Establishment/ Tree and Shrub Establishment on 50 acres of floodplain areas.	Agricultural Landowners & Operators; Landowners of floodplain areas.	Develop and promote cost-share program beginning in 2015.	$15,000/yr*	NRCS, ISDA, SWCDs, Purdue Extension, DNR	IDEM 319 Grants, NRCS Farm Bill Programs and initiatives, ISDA CREP and Clean Water Indiana Grants, LARE Grants,
		Personal visits with landowners.	$10,000/yr *		
		Conduct E&O program featuring BMPs beginning in 2015.	E&O program		
		Using all funding sources, annually implement bottomland timber and tree and shrub establishment practices on 10 acres. ($825/ac)	$41,250		
		Identify alternative funding sources to increase participation.	E&O program		
		Conduct water quality monitoring to measure possible reductions.	13,000/yr*		

Objectives	Target Audience	Milestones	Estimated Costs	Potential Partners/ Technical Assistance	Potential Funding Sources
Increase Conservation Tillage - residue and tillage management, mulch till and no till/strip till by 5,000 acres.	Agricultural Landowners & Operators	Develop and promote cost-share program beginning in 2015.	$15,000/yr*	NRCS, ISDA, SWCDs, CTIC, CCSI, Purdue Extension, Ag Vendors	IDEM 319 Grants, NRCS Farm Bill Programs and initiatives, ISDA Clean Water Indiana Grants
		Personal visits with landowners.	$10,000/yr *		
		Conduct E&O program featuring BMPs beginning in 2015.	$10,000/yr*		
		Using all funding sources, annually implement 1,000 acres of conservation tillage. (avg. $20/ac)	$100,000		
		Provide cost-share for equipment modifications. (avg. $4,000 each)	$20,000		
		Identify alternative funding sources to increase participation.	E&O program		
		Conduct water quality monitoring to measure possible reductions.	13,000/yr*		
Implement cover crops on 2,500 acres.	Agricultural Landowners & Operators	Develop and promote cost-share program beginning in 2015.	$15,000/yr*	NRCS, ISDA, SWCDs, CCSI, Purdue Extension, Ag Vendors	IDEM 319 Grants, NRCS Farm Bill Programs and initiatives, ISDA Clean Water Indiana Grants
		Personal visits with landowners.	$10,000/yr *		
		Conduct E&O program featuring BMPs beginning in 2015.	E&O program		
		Promote Soil Health with partners.	E&O program		
		Using all funding sources, annually implement cover crops on 500 acres. (avg. $40/ac)	$100,000		
		Identify alternative funding sources to increase participation.	E&O program		
		Conduct water quality monitoring to measure possible reductions.	13,000/yr*		
Increase the use of Field Borders, Filter Strips, Conservation Cover, Riparian Forest Buffers and Riparian Herbaceous Cover on 100 acres.	Agricultural Landowners & Operators	Develop and promote cost-share program beginning in 2015.	$15,000/yr*	NRCS, ISDA, SWCDs, Purdue Extension, DNR	IDEM 319 Grants, NRCS Farm Bill Programs and initiatives, ISDA CREP and Clean Water Indiana Grants, LARE Grants
		Personal visits with landowners.	$10,000/yr *		
		Conduct E&O program featuring BMPs beginning in 2015.	E&O program		
		Using all funding sources, annually implement buffer practices on 20 acres. ($9/ac to $825/ac.)	$10,000		
		Conduct water quality monitoring to measure possible reductions.	13,000/yr*		

Objectives	Target Audience	Milestones	Estimated Costs	Potential Partners/ Technical Assistance	Potential Funding Sources
Increase Grassed Waterway & Grade Stabilization Structures on 20 acres.	Agricultural Landowners & Operators	Develop and promote cost-share program beginning in 2015.	$15,000/yr*	NRCS, ISDA, SWCDs, Purdue Extension,	IDEM 319 Grants, NRCS Farm Bill Programs and initiatives, ISDA Clean Water Indiana Grants, LARE Grants
		Personal visits with landowners.	$10,000/yr *		
		Conduct E&O program featuring BMPs beginning in 2015.	E&O program		
		Using all funding sources, implement grass waterway and grade stabilization structures on 4 acres annually. (WW-$4,200/ac)	WW: $84,000; Structure $5,000 ea		
		Conduct water quality monitoring to measure possible reductions.	13,000/yr*		
Increase landowner awareness of Drainage Water Management practices (Underground Outlet-blind inlet, Saturated Buffers, etc.).	Agricultural Landowners & Operators; County Surveyors; Tile Installers; Contractors	Develop and promote cost-share program beginning in 2015.	$15,000/yr*	NRCS, ISDA, SWCDs, Purdue Extension, Purdue Extension WQ Program, TNC, LICA	IDEM 319 Grants, NRCS Farm Bill Programs and initiatives, ISDA Clean Water Indiana Grants
		Personal visits with landowners.	$10,000/yr *		
		Conduct E&O program featuring BMPs beginning in 2015.	E&O program		
		Develop survey to evaluate barriers to using practices.	E&O program		
		Using all funding sources, install one drainage water mgmt. practice.	$3,000		
		Conduct water quality monitoring to measure possible reductions.	13,000/yr*		
Promote Water and Sediment Control Basins and install practice if possible	Agricultural Landowners & Operators	Develop and promote cost-share program beginning in 2015.	$15,000/yr*	NRCS, ISDA, SWCDs, Purdue Extension	IDEM 319 Grants, NRCS Farm Bill Programs and initiatives, ISDA Clean Water Indiana Grants
		Personal visits with landowners.	$10,000/yr *		
		Conduct E&O program featuring BMPs beginning in 2015.	E&O program		
		Using all funding sources, install one WASCOB practice.	$3,000		
		Conduct water quality monitoring to measure possible reductions.	13,000/yr*		
Promote and complete Clearing and Snagging practice in 5 locations to reduce in-stream sedimentation.	Landowners along streams and river; County Surveyors	Develop and promote cost-share program beginning in 2015.	$15,000/yr*	NRCS, ISDA, SWCDs, Purdue Extension, County Surveyors	IDEM 319 Grants, NRCS Farm Bill Programs and initiatives, ISDA Clean Water Indiana Grants, Ditch Maintenance Funds
		Personal visits with landowners.	$10,000/yr *		
		Conduct E&O program featuring BMPs beginning in 2015.	E&O program		
		Using all funding sources, complete clearing and snagging at 5 locations. ($8,000/500 ft.)	$40,000		
		Conduct water quality monitoring to measure possible reductions.	13,000/yr*		

Objectives	Target Audience	Milestones	Estimated Costs	Potential Partners/ Technical Assistance	Potential Funding Sources
Increase awareness on the use of 2-stage ditches, and implement a 2- stage ditch as possible.	Landowners along streams and river; County Surveyors	Develop and promote cost-share program beginning in 2015.	$15,000/yr*	NRCS, ISDA, SWCDs, TNC, Purdue Extension, County Surveyors	IDEM 319 Grants, NRCS Farm Bill Programs and initiatives, ISDA Clean Water Indiana Grants, Ditch Maintenance Funds
		Personal visits with landowners.	$10,000/yr *		
		Conduct 1 field day program featuring BMPs beginning in 2015.	E&O program		
		Using all funding sources, implement two-stage ditches	Unable to determine		
		Conduct water quality monitoring to measure possible reductions.	13,000/yr*		
Implement livestock practices – stream crossing, prescribed grazing, waste utilization, diversion, critical area plantings, and/or heavy use area protection - at 5 locations.	Landowners with livestock	Develop and promote cost-share program beginning in 2015.	$15,000/yr*	NRCS, ISDA, SWCDs, Purdue Extension	IDEM 319 Grants, NRCS Farm Bill Programs and initiatives, ISDA Clean Water Indiana Grants
		Personal visits with landowners.	$10,000/yr *		
		Conduct E&O program featuring BMPs beginning in 2015.	E&O program		
		Using all funding sources, implement 500 acres/or 5 locations of prescribed grazing, waste utilization, diversions, etc. (Grazing $28/ac, diversion $6/ft, heavy use $1.50/ft2, waste utilization $47/ac)	Depending on practice installed		
		Conduct water quality monitoring to measure possible reductions.	13,000/yr*		
Investigate Low Impact Development programs.	Urban residents; Contractors; Developers	Survey local contractors on use of low impact development measures	E&O program	SWCDs, Purdue Extension, Area Plan Commission	IDEM 319 Grants, ISDA Clean Water Indiana Grants, Private Grants
Develop educational program and implement Stormwater Runoff Control practices as possible.	Urban, rural development sites; Contractors; Developers; City and Town Officials	Conduct E&O program featuring BMPs beginning in 2015.	E&O program	SWCDs, IDEM Rule 5 staff, Purdue Extension, Area Plan Commission	IDEM 319 Grants, ISDA Clean Water Indiana Grants, Private Grants
		Survey local contractors and developers on use of stormwater runoff control practices.	E&O program		

* One cost-share program, one education and outreach (E&O) program, and one water quality monitoring (WQM) program will be developed covering all strategies. Development and promotion of the cost-share program is 37.5% of the Watershed Coordinator (WC) salary. The personal landowner visits are 25% of the WC salary. Education and outreach costs are 25% of the WC salary, as well as costs to conduct meetings, field days, workshops or other events. The water quality monitoring program costs include 12.5% salary for the WC and costs for consulting services for monitoring and laboratory services.

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20-year Habitat and Recreation Goals: Restore natural habitat and protect natural land uses within stream and river corridors to meet their aquatic life use.

Develop partnerships with trail groups to install connecting trails and green space along the river corridor for recreational purposes.

Objectives	Target Audience	Milestones	Estimated Costs	Potential Partners/ Technical Assistance	Potential Funding Sources
Increase the use of Field Borders, Filter Strips, Conservation Cover, Riparian Forest Buffers and Riparian Herbaceous Cover on 100 acres.	Agricultural Landowners & Operators	Develop and promote cost-share program beginning in 2015.	$15,000/yr*	NRCS, ISDA, SWCDs, Purdue Extension, DNR	IDEM 319 Grants, NRCS Farm Bill Programs and initiatives, ISDA CREP and Clean Water Indiana Grants, LARE Grants
		Personal visits with landowners.	$10,000/yr *		
		Conduct E&O program featuring BMPs beginning in 2015.	E&O program		
		Using all funding sources, implement buffer practices on 20 acres annually. ($9/ac to $825/ac.)	$10,000		
		Identify alternative funding sources to increase participation.	E&O program		
		Conduct water quality monitoring to measure possible reductions.	13,000/yr*		
Implement Bottomland Timber Establishment/ Tree and Shrub Establishment on 50 acres of floodplain areas.	Agricultural Landowners & Operators; Landowners of floodplain areas	Develop and promote cost-share program beginning in 2015.	$15,000/yr*	NRCS, ISDA, SWCDs, Purdue Extension, DNR	IDEM 319 Grants, NRCS Farm Bill Programs and initiatives, ISDA CREP and Clean Water Indiana Grants, LARE Grants
		Personal visits with landowners.	$10,000/yr *		
		Conduct E&O program featuring BMPs beginning in 2015.	E&O program		
		Using all funding sources, implement buffer practices on 20 acres annually. ($9/ac to $825/ac.)	$10,000		
		Identify alternative funding sources to increase participation.	E&O program		
		Conduct water quality monitoring to measure possible reductions.	13,000/yr*		
Implement Critical Area Plantings on 3,000 feet of streambanks, or 4 acres of other areas needing stabilization to reduce erosion.	Agricultural Landowners & Operators; Landowners of floodplain areas; County Surveyors	Develop and promote cost-share program beginning in 2015.	$15,000/yr*	NRCS, ISDA, SWCDs, Purdue Extension, DNR, County Surveyors	IDEM 319 Grants, NRCS Farm Bill Programs and initiatives, ISDA CREP and Clean Water Indiana Grants, LARE Grants
		Personal visits with landowners.	$10,000/yr *		
		Conduct E&O program featuring BMPs beginning in 2015.	E&O program		
		Using all funding sources, implement critical area plantings on 3,000 feet of streambanks, or 4 acres of other areas needing stabilization. ($325/ac)	$1,500		
		Identify alternative funding sources to increase participation.	E&O program		
		Conduct water quality monitoring to measure possible reductions.	13,000/yr*		

Objectives	Target Audience	Milestones	Estimated Costs	Potential Partners/ Technical Assistance	Potential Funding Sources
Promote Greenways and Trails for outdoor recreation opportunities	Landowners, County Residents, Local Government	Conduct E&O program featuring BMPs beginning in 2015.	E&O program	IDNR, Local Government, Acres, Inc., local trail groups	IDNR Outdoor Recreation Grants, Private Grants
		Identify alternative funding sources for trail development	E&O program		
Increase Wetland Creation, Enhancement and Restoration on 20 acres for water storage and water quality improvement.	Agricultural Landowners & Operators; Suburban and rural landowners	Develop and promote cost-share program beginning in 2015.	$15,000/yr*	NRCS, ISDA, SWCDs, DNR, USF&W, TNC, Acres Inc.	IDEM 319 Grants, NRCS Farm Bill Programs and initiatives, ISDA CREP and Clean Water Indiana Grants, LARE Grants, Private Grants
		Personal visits with landowners.	$10,000/yr *		
		Conduct E&O program featuring BMPs beginning in 2015.	E&O program		
		Using all funding sources, implement wetland creation, enhancement and restoration on 20 acres. ($500 - $4,500/ac)	$10,000 - $90,000		
		Identify alternative funding sources to increase participation.	E&O program		
		Conduct water quality monitoring to measure possible reductions.	13,000/yr*		

* One cost-share program, one education and outreach (E&O) program, and one water quality monitoring (WQM) program will be developed covering all strategies. Development and promotion of the cost-share program is 37.5% of the Watershed Coordinator (WC) salary. The personal landowner visits are 25% of the WC salary. Education and outreach costs are 25% of the WC salary, as well as costs to conduct meetings, field days, workshops or other events. The water quality monitoring program costs include 12.5% salary for the WC and costs for consulting services for monitoring and laboratory services.

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5-year Flooding/Floodplain Management Goal: Increase stakeholder awareness of the benefits of upland storm water storage areas and floodplain management practices; such as riparian forest buffers, riparian herbaceous cover, bottomland timber establishment, 2-stage ditches, and wetland creation, enhancement and restoration by 2020.

Objectives	**Target Audience**	**Milestones**	**Estimated Costs**	**Potential Partners/ Technical Assistance**	**Potential Funding Sources**
Increase the use of Field Borders, Filter Strips, Conservation Cover, Riparian Forest Buffers and Riparian Herbaceous Cover on 100 acres.	Agricultural Landowners & Operators	Develop and promote cost-share program beginning in 2015.	$15,000/yr*	NRCS, ISDA, SWCDs, Purdue Extension, DNR	IDEM 319 Grants, NRCS Farm Bill Programs and initiatives, ISDA CREP and Clean Water Indiana Grants, LARE Grants
		Personal visits with landowners.	$10,000/yr *		
		Conduct E&O program featuring BMPs beginning in 2015.	E&O program		
		Using all funding sources, implement buffer practices on 20 acres annually. ($9/ac to $825/ac.)	$10,000		
		Identify alternative funding sources to increase participation.	E&O program		
		Conduct water quality monitoring to measure possible reductions.	13,000/yr*		

Objectives	Target Audience	Milestones	Estimated Costs	Potential Partners/ Technical Assistance	Potential Funding Sources
Implement Bottomland Timber Establishment/ Tree and Shrub Establishment on 50 acres of floodplain areas.	Agricultural Landowners & Operators; Landowners of floodplain areas	Develop and promote cost-share program beginning in 2015.	$15,000/yr*	NRCS, ISDA, SWCDs, Purdue Extension, DNR	IDEM 319 Grants, NRCS Farm Bill Programs and initiatives, ISDA CREP and Clean Water Indiana Grants, LARE Grants
		Personal visits with landowners.	$10,000/yr *		
		Conduct E&O program featuring BMPs beginning in 2015.	E&O program		
		Using all funding sources, implement buffer practices on 20 acres annually. ($9/ac to $825/ac.)	$10,000		
		Identify alternative funding sources to increase participation.	E&O program		
		Conduct water quality monitoring to measure possible reductions.	13,000/yr*		
Promote Greenways and Trails for outdoor recreation opportunities	Landowners, County Residents, Local Government	Conduct E&O program featuring BMPs beginning in 2015.	E&O program	IDNR, Local Government, Acres, Inc., local trail groups	IDNR Outdoor Recreation Grants, Private Grants
		Identify alternative funding sources for trail development	E&O program		
Increase Wetland Creation, Enhancement and Restoration on 20 acres for water storage and water quality improvement.	Agricultural Landowners & Operators; Suburban and rural landowners	Develop and promote cost-share program beginning in 2015.	$15,000/yr*	NRCS, ISDA, SWCDs, DNR, USF&W, TNC, Acres Inc.	IDEM 319 Grants, NRCS Farm Bill Programs and initiatives, ISDA CREP and Clean Water Indiana Grants, LARE Grants, Private Grants
		Personal visits with landowners.	$10,000/yr *		
		Conduct E&O program featuring BMPs beginning in 2015.	E&O program		
		Using all funding sources, implement wetland creation, enhancement and restoration on 20 acres. ($500 - $4,500/ac)	$10,000 - $90,000		
		Identify alternative funding sources to increase participation.	E&O program		
		Conduct water quality monitoring to measure possible reductions.	13,000/yr*		

* One cost-share program, one education and outreach (E&O) program, and one water quality monitoring (WQM) program will be developed covering all strategies. Development and promotion of the cost-share program is 37.5% of the Watershed Coordinator (WC) salary. The personal landowner visits are 25% of the WC salary. Education and outreach costs are 25% of the WC salary, as well as costs to conduct meetings, field days, workshops or other events. The water quality monitoring program costs include 12.5% salary for the WC and costs for consulting services for monitoring and laboratory services.

Action Register and Schedule

Education and Outreach Programs and Activities

Objectives	Target Audience	Milestones	Estimated Costs	Potential Partners/ Technical Assistance	Potential Funding Sources
Host BMP field days, and workshops annually.	Community Residents, Landowners, Agricultural Producers	Conduct E&O program featuring BMPs beginning in 2015.	$6,000/yr*	NRCS, CTIC ISDA, CCSI, SWCDs, Purdue Extension, DNR, Ag Vendors, others	IDEM 319 Grants, Water Indiana Grants, Ag Vendors, Private Grants
		Identify additional partners for E&O programs.	E&O program		
		Identify alternative funding sources to increase BMP installation.	E&O program		
Continue routine water quality monitoring and Hoosier Riverwatch volunteer monitoring activities	Community Volunteers, Schools, FFA and other Youth Groups	Conduct E&O program featuring monitoring activities.	$2,000/yr*	ISDA, SWCDs, Hoosier Riverwatch	IDEM 319 Grants, SWCDs, Private Grants
		Identify funding sources to continue monitoring programs.	E&O program		
Develop strategies to reduce CSO impacts to waterways.	Waste treatment facilities, City and Town Officials	Conduct E&O program featuring BMPs beginning in 2015.	E&O program	SWCDs, Purdue Extension, Health Departments	City / Town Funding, User Fees
Provide opportunities for stakeholder involvement in environmental activities.	Community Volunteers, Businesses, Schools, FFA and other Youth Groups	Conduct E&O program featuring river clean-ups, water quality monitoring, canoe floats, and other events.	$1,000/yr*	ISDA, SWCDs, Hoosier Riverwatch, IDNR, Parks Department	SWCDs, Businesses, Private Grants
		Identify funding sources to continue programs.	E&O program		
Share and communicate activities on a regular basis.	Community members; Community groups; Local Government Officials	Conduct E&O program with updates to website, social media, newsletters, public meetings, media releases, fairs, river events, etc.	$500/yr*	NRCS, ISDA, SWCDs, IDNR, Parks Departments, and others	UWRBC Funding, Private Grants
Develop partner list and track stakeholder participation.	Community members	Conduct E&O program that will include developing partner list and track stakeholder participation.	$500/yr*	NRCS, ISDA, SWCDs	UWRBC Funding, SWCDs

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