This subwatershed is primarily rural with land use divided as follows:

agricultural	45%
woodland	45%
wetland	3%
other*	8%

* grassland, quarries, and scattered residences

Water Resources Conditions

Weister Creek flows southeast 7.8 miles to the Kickapoo River. The stream is managed as a Class III brown trout fishery. The 1990 fish survey found 52 brown trout ranging from 4.5 - 14.4 inches, and 9 minnow and other forage species. Weister Creek was stocked in 1990 with 800 fingerling and 1100 9-inch brown trout. The stream HBI (Hilsenhoff Biotic Index) was 4.90, indicating some organic pollution, and the Habitat Rating was "good".

Water resource problems include severe flooding, sedimentation of riffle and pool areas and lack of instream fish cover. Streambank erosion is medium to heavy and the stream is wide and shallow. Land use in the stream corridor is cultivated fields, open pasture and woodland.

Creek 26-15 (Clark Creek, township of Clinton, Vernon County) is a high gradient 2.0 mile tributary of Weister Creek. Creek 26-15 is identified as a forage fishery. The 1990 fish survey found 8 brown trout ranging from 6.5 - 15.4 inches and 8 minnow and other forage species. The dominant substrate types in Creek 26-15 are coarse gravel and sand.

Water resource problems include streambank erosion and sedimentation of riffle and pool areas. Primary land use in the stream corridor is open pasture.

Twenty-four Valley Creek is a 2.0 mile tributary of Weister Creek. The stream is managed as a Class III brook and brown trout stream and was stocked in 1990 with 600 fingerling and 300 9-inch brown trout. The 1990 fish survey found 15 brown trout, ranging from 8 -15.5 inches, and 9 minnow and other forage species. The dominant bottom substrate is coarse gravel with lesser amounts of rubble and sand.

Water resource problems include severe flooding, streambank erosion and sedimentation of riffle and pool areas. Primary land use in the stream corridor is open pasture and woodland.

Water Resource Objectives

The following water resource management objectives are recommended for the Weister Creek subwatershed:

1. Improve fish habitat to increase carryover of adult trout in Weister Creek and Twenty-four Valley Creek.

2. Improve fish habitat by reducing sediment and organic loading to the subwatershed streams.

Pollutants from Nonpoint Sources

Eroding Uplands (sediment and nutrients)

Erosion from upland sources comprises approximately 42% of the sediment making its way into the streams in this subwatershed. Much of that erosion takes place on upland crop fields and is transported by runoff to the nearby waterways and streams. More than 1,300 acres of grazed woodlots contribute a substantial amount of sediment to the streams as well.

Eroding and Trampled Streambanks (sediment and direct habitat impairment)

Streambank erosion and deposition accounts for 31% of the sediment being directly loaded into the streams in the Weister Creek subwatershed. Hundreds of eroded sites, analyzed during the inventory, deposit over 2,000 tons of soil per year into Weister Creek and it's tributaries. As a result water quality is threatened and trout habitat is severely impaired.

Eroding Gullies (sediment and nutrients)

Gully erosion accounts for the remaining 27% of sediment being deposited into the streams in this subwatershed. These gullies, though small and seemingly harmless, contribute approximately 1,800 tons of soil per year to Weister Creek. They most often occur in small drainage areas on ridge tops at cropland and steep wooded hillside boundaries.

Animal Lots (oxygen demand and nutrients)

Manure from animal lots and winter spread fields are the most probable source of oxygen demanding substances having an impact on water quality. The Weister Creek subwatershed has a relatively large number of barnyards in comparison with the other subwatersheds involved in the project. Forty-six animal lots contribute 1640 lbs. of phosphorus into Weister Creek and its tributaries.

Winter Spread Manure (oxygen demand and nutrients)

Winter spread manure on "critical" acres (fields over 6% slope) threatens water quality in the Weister Creek subwatershed, primarily during spring runoff conditions. Presently, manure is being spread on approximately 500 "critical" acres.

Other Potential Sources of Water Pollution

This section describes several activities in the Middle Kickapoo River Watershed, other than nonpoint sources of pollutants, which have the potential to affect surface or groundwaters. The activities listed below are all regulated by the State of Wisconsin through the DNR. Unlike nonpoint sources of pollutants, there are required conditions that must be met and which are defined in a permit issued for each facility. These regulations are established so that the water quality impacts from each operation are minimized. If the conditions are being met, it is likely that there are no significant water quality concerns at the site.

Municipal Wastewater Treatment Facilities

village of Ontario

The treatment plant for Ontario was constructed in 1981 with a design capacity that should provide adequate treatment capacity through the next ten years. The discharge is chlorinated for bacteria control.

village of La Farge

This activated sludge, extended aeration plant discharges directly to the Kickapoo River. The plant receives a significant quantity of wastewater from one industrial discharger. Toxics monitoring has not shown any problem with this discharge. The plant is designed for the year 2000 and should be adequate. The discharge is chlorinated for bacteria control.

village of Viola

The lagoon system plant for Viola discharges directly to the Kickapoo River. The 20-year design life extends to the year 2002. Treatment is adequate. The discharge is chlorinated for bacteria control.

Industrial Wastewater Treatment Facilities

Trout Palace

This private operation located in Vernon County uses settling tanks and some landspreading for wastewater processing. Sampling results for recent months show the discharge has adequate dissolved oxygen concentrations, and relatively low temperatures.

Wisconsin Hill and Valley Cheese Factory

This is located in Vernon County. This discharge began in 1983 with landspreading of 7000 gallons per day. There is no direct discharge to surface waters.

Land Disposal Facilities

The landfills located in the Middle Kickapoo River watershed are relatively small landfills most commonly known as "town dumps". All landfills in the project area are now closed. Prior to covering and closure, the wastes in these landfills were burned. The closure process included a consideration of the potential for groundwater contamination. Although there is no certainty about eventual contamination, the landfills are not expected to present a problem. No groundwater monitoring is being conducted at any of the landfill sites.

town of Whitestown

Located in Vernon County (NE, NW, S33, T14N, R2W) This landfill closed in 1989.

village of LaFarge

Located in Vernon County (SE, SW, S33, T13N, R2W) This landfill closed in 1990.

town of Jefferson

Located in Monroe County (NE, SW, S20, T15N, R3W) Closed in 1990.

town of Union

Located in Vernon County (SE, NW, S14, T13N, R1W) Closed in 1990.

village of Ontario

Located in Monroe County (SW, NW, S34, T15N, R2W) Closed in 1990.

town of Union

Located in Vernon County (SW, SE, S16, T13N, R1W) Closed in 1978.

CHAPTER FOUR
Recommended Management Actions: Control Needs and Eligibility for Cost Share Funding

Introduction

This chapter describes the management actions developed to meet the pollution reduction goals established during the water resource appraisal process. Also described below are the criteria which will determine the eligibility of each pollutant source for cost share funding through the Nonpoint Source Program.

Management Categories

Nonpoint source control needs are addressed by assigning "management categories" to each major nonpoint source of pollution site (barnyards, manure-spreading, upland fields, gullies, streambank erosion or habitat degradation sites). Management categories define which nonpoint sources are eligible for financial and technical assistance under the priority watershed project. Categories are based on the amount of pollution generated by a source, and the feasibility of controlling it. Management category eligibility criteria are expressed in terms of tons of sediment delivered to surface waters from eroding uplands and streambanks; length of streambank erosion site; pounds of phosphorus delivered to surface waters annually from animal lot and winter spread manure runoff; number of gullies present; and whether or not cattle are permitted access to a surface water. A definition of each management category is given below. Following this are the criteria used to define the management categories for each pollutant source for this project described below.

The criteria used to define these management categories must be confirmed at the time of a site visit by the county staff. A source may be put into a different management category depending on the conditions found at the time of the site visit. A source may be revised up to the point that a landowner signs a cost share agreement. Any sources, requiring controls, created by a landowner after the signing of a cost share agreement must be controlled at the landowners' expense.

Management Category I

Nonpoint sources included in this category contribute a significant amount of the pollutants impacting surface waters. A reduction in their pollutant load is essential for achieving the water quality objectives in the watershed project.

Nonpoint sources in Category I are eligible for funding and/or technical assistance under the priority watershed project. As a condition of funding, all sources in Management Category I must be controlled if a landowner wishes to participate in any aspect of the watershed project.

Management Category II

Nonpoint sources in this category collectively contribute less of the pollutant load than those in Management Category I. These nonpoint sources are identified and included in cost-sharing eligibility to provide additional pollutant reduction in the event that all sources in Management Category I are not controlled. If all "Category I" sources and 50% of "Category II" sources are controlled, 13 of the 14 subwatersheds will meet or exceed the water resource objectives for pollutant control. The Otter Creek subwatershed will be within an estimated 5% margin of error of meeting objectives. In many subwatersheds, control of Category I sources will be sufficient to achieve the resource objectives.

Nonpoint sources in Category II are eligible for funding and/or technical assistance under the priority watershed project. Controlling sources in this category is not mandatory for a landowner to be funded for controlling other sources.

Management Category III

Nonpoint sources of pollution in this category do not contribute a significant amount of the pollutants impacting surface waters and are not eligible for funding and/or technical assistance under the priority watershed project. Other Departmental programs (e.g. wildlife and fisheries management) can, if warranted, assist county project staff to control these sources as implementation of the integrated resource management plan for this watershed. Other federal programs may also be applicable to these sources.

Criteria For Eligibility of Nonpoint Pollutant Sources

Croplands and Other Upland Sediment Sources

	Eligibility Criteria		USLE
Management Category	Sediment Delivery (tns/ac/yr)	Soil Loss (tns/ac/yr)	Design Target (tns/ac/yr)
I	over 0.2 &	over "T"	"T"
II	over 0.2 &	under "T"	N/A
II	under 0.2 &	over "T"	"T"
III	under 0.2 &	under "T"	N/A

There are two ways that a participating landowner can meet the upland sediment control requirements as defined in the above box:

- The installation of Best Management Practices (BMPs) on all Management Category I fields to meet the design target. (Management Category II fields are also eligible for cost shared BMPs although it is not required).

- In meeting the upland sediment control requirements for a landowner, the county may wish to use a "whole farm approach". Under this system, the amount of sediment that is controlled through meeting the Management Category I criterium listed in the box above is calculated for a landowner. This "farm target number" must then be met through any combination of sediment control measures applied to any of the lands on the farm. The best management practices are eligible for cost sharing as long as high cost practices (terraces or agricultural sediment basins) are not used on fields fitting the Management Category II criterium.

Either of these alternatives may be used throughout the watershed depending on which system best suits the needs of a participating landowner.

In addition, if a grazed woodlot is determined to have a sediment delivery rate greater than or equal to .2 T/acre/year, total exclusion through fencing, or some other means, of the woodlot will be required.

The number of acres eligible for funding of control practices, the tons of sediment controlled, and the percent reduction for each management category is shown in table 4-1.

table 4-1. Rural Uplands Targeted for Sediment Control

Subwatershed	Total Upland Sediment (tons/yr)	Management Category I			Management Category II			Mgt. Cat. III (acres)
		Acres	Control (tons/yr)	Control %	Acres	Control (tons/yr)	Control %	
Bear Creek	2,390	1,382	930	39%	897	165	7%	12,395
Billings Creek	4,491	2,629	1,818	40%	1,389	267	6%	10,686
Brush Creek	6,300	3,290	2,704	43%	2,145	413	7%	13,095
Camp Creek	1,034	303	235	23%	1,405	211	20%	8,700
Chadwick Hollow	711	311	210	30%	93	22	3%	6,386
Cheyenne Valley	1,829	1,329	907	50%	460	64	3%	5,383
Elk Creek	1,254	545	351	28%	689	77	6%	8,718
Goose Creek	402	123	122	30%	457	52	13%	3,288
Hay Valley	2,016	1,355	880	44%	668	171	8%	9,420
Jug Creek	769	449	398	52%	67	21	3%	2,816
Otter Creek	3,108	1,732	863	28%	919	184	6%	10,014
Viola	739	309	173	23%	530	97	13%	5,999
Warner Creek	3,949	2,419	2,183	55%	790	160	4%	12,205
Weister Creek	2,817	2,238	1,065	38%	1,066	184	7%	9,729
total:	31,809	18,414	12,839	40%	11,575	2,088	7%	118,834

Animal Lot and Winter Spread Manure Runoff

The barnyard eligibility is based on the management objectives determined as a result of the water resources appraisal report. Subwatersheds with streams able to support trout reproduction, and streams where the objective is to establish a wild trout fishery, will be considered "high level" management subwatersheds. Subwatersheds where the objective is to maintain a forage fishery, or to increase carry over of adult trout, will be considered "moderate level" management subwatersheds. The management category criteria and water resource objectives are described below.

An estimate of the number of critical acres currently being winter spread with manure was calculated based on herd size, cropping patterns, and topography. Critical acres are defined as those lands of greater than 6% slope or which are flood prone. The data indicated that approximately 3700 critical acres are currently being used for spreading manure during winter months. It is also estimated that each critical acre may be responsible for one pound of phosphorus runoff per year.

High Level Management Subwatersheds

The following are considered high level management subwatersheds:

Bear Creek
Billings Creek
Camp Creek
Cheyenne Valley
Elk Creek
Jug Creek

The water resource objective for high level management subwatersheds is to reduce phosphorus loading by 60%.

Moderate Level Management Subwatersheds

The following are considered moderate level management subwatersheds:

Brush Creek
Chadwick Hollow
Goose Creek
Hay Valley
Otter Creek
Viola
Warner Creek
Weister Creek

The water resource objective for moderate level management subwatersheds is to reduce phosphorus loading by 50%.

Management Category I

All barnyards were ranked in descending order of phosphorus contribution based on inventory results. Management Category I barnyards are those largest phosphorus contributors most critical to control in order to achieve the water resource objective for phosphorus reduction. Category I barnyards shall be controlled to 10 pounds or less phosphorus on an annual basis.

All Category I project participants who are installing any type of barnyard system are required to implement and adhere to an SCS 590 nutrient management plan. In determining Category I barnyards, the contribution of phosphorus from winter spread manure on critical acres, and the estimated control achieved through SCS 590 nutrient management plans, was included with phosphorus loading and control attributable to the animal lots. The SCS 590 nutrient management plan will be used to determine the need for, and appropriateness of, additional short term stacking or manure storage needs.

Management Category II

Management Category II will consist of any barnyard which is contributing greater than or equal to 35 pounds of phosphorus annually and is not already identified as Category I based on ranked phosphorus contributions.

Category II barnyards will be designed to a level of 20 pounds of phosphorus annually if this level of control is achievable through clean water diversions. If clean water diversions alone can not attain a level of control equal to or less than 20 pounds, then the design level for a more extensive control system shall be 10 pounds of phosphorus annually. All Category II project participants who are installing barnyard systems other than clean water diversions are also required to implement and adhere to an SCS 590 nutrient management plan. Landowners who are installing clean water diversion systems are eligible for nutrient management cost share assistance.

The number of landowners eligible for cost share assistance under Category II is limited to 30. The status and appropriateness of this limit will be reviewed during the annual project evaluation meetings.

The number of barnyards, the associated critical acres, and the amount of phosphorus targeted for control is shown on table 4-2.

table 4-2. Barnyards Targeted for Runoff Control

Subwatershed	Total Phos. (lbs.)	Management Category I			Management Category II			Mgt. Cat. III (yards)
		Yards (#)	Control (lbs.)	Control (%)	Yards (#)	Control (lbs.)	Control (%)	
Bear Creek	207	4	145	70.2%	2	20	9.8%	11
Billings Creek	1,381	13	1,060	76.8%	7	69	5.0%	42
Brush Creek	979	18	489	50.0%	14	116	11.8%	72
Camp Creek	540	2	446	82.7%	0	0	0.0%	12
Chadwick Hollow	34	1	15	45.8%	1	10	31.3%	3
Cheyenne Valley	631	6	461	73.1%	5	59	9.4%	12
Elk Creek	107	4	64	59.3%	0	0	0.0%	16
Goose Creek	138	2	117	84.7%	0	0	0.0%	5
Hay Valley	355	7	288	81.2%	1	17	4.7%	5
Jug Creek	127	1	114	89.9%	0	0	0.0%	0
Otter Creek	229	8	119	51.7%	0	0	0.0%	15
Viola	6	0	0	0.0%	0	0	0.0%	4
Warner Creek	245	5	137	56.0%	3	26	10.4%	14
Weister Creek	336	13	168	49.9%	0	0	0.0%	30
total:	5,315	84	3,623	68.2%	33	317	6.0%	241

Streambank Erosion

Streambank erosion control measures and cattle access restrictions are eligible for cost share funding throughout the watershed where there is active streambank erosion and/or unrestricted livestock access to a stream. These measures are required of participating landowners if Category I criteria are applicable. These measures are eligible, but not required, where Category II criteria apply.

Limited term grazing will be required as a management practice throughout the watershed project area where bottomland pastures are used for grazing. County LCD staff will develop limited term grazing program requirements based on guidelines contained in SCS technical guide 510. Livestock numbers recommended in the guide may be reduced as necessary to achieve management objectives. Lands with bank heights greater than three feet may be exempt from this requirement if cattle access is not contributing to the streambank erosion problems.

As a general guideline, a cost effectiveness figure of $25/ton of soil saved should be used to determine the practicality of controlling sediment from a particular streambank site. In

computing the cost effectiveness for the use of riprap, a 25 year design life should be taken into account.

Controlling streambank erosion along the Kickapoo River will be particularly difficult. A large portion of the total streambank along the Kickapoo River is federal land and is managed by the U.S. Army Corps of Engineers. As such, it is outside of the cost sharing eligibility of the Wisconsin Nonpoint Source Pollution Abatement Program. This plan stresses the importance of each unit of government acting responsibly to control nonpoint sources from lands managed for the public good. Private lands along the Kickapoo River are likely to be subject to cost effectiveness criteria due to large bank heights and overall cost to the landowner.

table 4-3 shows the estimated number of streambank sites eligible for funding, the tons of sediment controlled, the length of the streambank sites controlled, and the percent reduction in sediment loading and degraded streambank length. Management category criteria are listed below.

Management Category I

- All participating landowners throughout the watershed project will be required to control 60% of the sediment loading and 40% of the length of streambank sites adjacent to agricultural lands (cropped fields, pastured lands, and livestock access areas). Any combination of structural streambank controls, fencing, and grazing management techniques may be used to achieve the required level of control.

- Streambank sites selected for control for any given landowner shall be determined so as to first control those sites contributing the largest sediment load and affecting the greatest length.

- In high level management subwatersheds (see section 2. Animal Lot Runoff above) each participating landowner with streambank sites will be required to have installed fish habitat structures commonly known as "L.U.N.K.E.R.S." structures on at least one of the streambank sites to be controlled. This requirement applies to all creeks and tributaries capable of supporting trout populations as determined by the DNR Area Fish Manager.

- Fencing to restrict livestock access to streambanks shall be required where holding areas are in close proximity to the streambank.

Management Category II

All streambank sites in the watershed project not included in Category I requirements will be considered Category II sites and shall be eligible for funding subject to cost effectiveness criteria.

table 4-3. **Streambank Sites Targeted for Sediment Control**

Management Category I*

Subwatershed	Total # of all Degraded Sites**	Length of Degraded Sites (ft.)	Length of Degraded Agri. Sites (ft.)	Estimated Length Controlled (ft.)	Sediment Loading Agri. Sites (tons)	Estimated Tons of Sediment Controlled	Estimated # of Sites For Fish Structures
Bear Creek	252	11,020	4,590	1,615	547	291	20
Billings Creek	689	98,858	20,227	7,854	1,693	1,041	25
Brush Creek	930	145,672	53,695	26,398	5,051	3,129	-
Camp Creek	167	9,720	3,770	1,490	609	352	10
Chadwick Hollow	56	5,018	5,018	2,328	245	165	-
Cheyenne Valley	257	20,653	11,167	5,582	835	536	9
Elk Creek	87	18,780	2,300	905	380	209	7
Goose Creek	44	2,850	640	280	46	25	-
Hay Valley	21	1,035	0	0	0	0	-
Jug Creek	41	2,035	835	350	24	13	6
Otter Creek	176	16,025	9,592	3,875	1,155	713	-
Viola	0	-	-	-	-	-	-
Warner Creek	580	45,281	19,468	8,285	1,386	803	-
Weister Creek	309	31,729	10,405	4,725	1,332	790	-
Kickapoo River	426	68,300	27,886	11,154	3,590	2,154	-
total:	4,035	476,976	169,593	74,841	16,893	10,221	77

* all sites not included in Category I are considered to be Category II

** eroded, trampled, or slumped

Gully Erosion Control

Gully erosion control measures are eligible for cost share funding throughout the watershed if the gully is determined to be contributing sediment to surface waters. These measures are required of participating landowners if Category I criteria are applicable. These measures are eligible, but not required, where Category II criteria apply.

Management Category	Criteria
I	Participating landowners will be required to control 60% of the number of gullies on their property as determined by a site visit.
II	All remaining gullies not required by Category I.

Estimates prepared by LCD staff indicate that 60% of the gullies in the watershed could be controlled through low and medium cost management practices. The intent of the requirement to control 60% of the gullies on each participating landowners property is to eliminate the small and medium size gullies which have the greatest potential to contribute even larger sediment loads in the future if allowed to continue forming. Therefore, the sediment load reduction estimates that will be calculated as a part of Chapter 7 requirements will in fact be minimum estimates based on current gully size.

If attaining 60% control on a property would require controlling gullies in wooded areas, then it is recommended a cost effectiveness factor of $25/ton of soil saved (using a 10 year practice design life) be used to determine the practicality of controlling the site.

table 4-4. Gully Erosion Targeted for Sediment Control

Subwatershed	Estimated Total # of Gullies	Estimated Gully Sediment (tons/yr)	% of Total Sediment Loading	Management Category I*			Mgt. Cat. II # of Gullies
				Estimated # of Gullies	Sediment Controlled (tons/yr)	% of Total Sed. Controlled**	
Bear Creek	646	2,027	40.8%	388	1,216	24.5%	259
Billings Creek	648	2,031	24.7%	389	1,219	14.8%	259
Brush Creek	816	2,556	18.4%	490	1,534	11.0%	327
Camp Creek	459	1,438	46.7%	275	863	28.0%	184
Chadwick Hollow	299	938	49.5%	180	563	29.7%	120
Cheyenne Valley	316	991	27.1%	190	595	16.3%	127
Elk Creek	438	1,375	45.7%	263	825	27.4%	176
Goose Creek	170	534	54.4%	103	320	32.6%	68
Hay Valley	504	1,971	49.4%	302	1,183	29.7%	201
Jug Creek	147	460	36.7%	88	276	22.0%	59
Otter Creek	558	1,750	29.1%	334	1,050	17.5%	223
Viola	301	945	56.1%	180	567	33.7%	120
Warner Creek	679	2,129	28.5%	408	1,277	17.1%	272
Weister Creek	574	1,801	30.3%	345	1,81	18.2%	229
total:	6,556	20,946	30.0%	3,935	12,569	18.0%	2,623

table 4-4 shows the estimated number of gullies eligible for funding, the tons of sediment controlled, and the percent reduction in sediment loading.

Logging Roads and Access Roads

Logging roads and access roads throughout the watershed will be eligible for best management practice cost-sharing where it is determined that the road is contributing significant amounts of sediment to surface waters. These measures are required of participating landowners if Category I criteria are applicable. These measures are eligible, but not required, where Category II criteria apply. Roads which are not contributing sediment to surface water will not be eligible. BMPs for logging and access road treatment may require the use of alternative design criteria under NR 120.15.

Because woodlands and access roads were not inventoried during the planning phase of this project, the determination of the significance of erosion occurring as a result of logging roads or access roads will be made during the site visit to determine which BMPs are needed to establish a cost share agreement. Professional judgement will be used based on the criteria listed below.

Management Category I

Sites that will be considered Category I must meet the following criteria:

* the road, or any part of the road that drains to the problem area, has a slope greater than 13%;

* the road, or the gully from the road, occurs within 100 feet of a dry run, point of channelized flow, or surface water;

* an adequate buffer of at least 100 feet of grass meadow is not present between the road, gully, or channelized flow and the surface water resource.

Management Category II

* all logging or access roads which do not meet Category I requirements, but are still contributing sediment to surface water.

Nutrient and Pesticide Infiltration to Groundwater

Because of the physical characteristics of the watershed (topography, soils, bedrock, and land use) and the results of the well sampling, it is likely that current fertilizer and pesticide applications and management are having an impact on the groundwater quality.

Proper nutrient management has been identified as one of the project's objectives. Several information and education activities are directed towards nutrient management. Also, the animal lot and winter spread manure management criteria requires that SCS 590 nutrient management plans be implemented and adhered to. Pesticide management standards are being developed and this plan may be amended to provide for these standards.

Sinkholes

Sinkholes will be evaluated by LCD staff on a case by case basis. In the event that a sinkhole is located such that it could provide a direct conduit to groundwater for nonpoint pollution generated from an existing source (i.e. nearby barnyard, manure stack, direct drainage from a cropped field, etc.), the sinkhole shall be considered Category I. All other sinkholes would be considered Category II, although the practicality and cost of control shall be considered by DNR, DATCP, and LCD staff when making an eligibility decision.

Ordinances

Manure Storage Ordinance

Monroe, Richland, and Vernon Counties are to enact a manure storage ordinance which implements requirements outlined by DATCP in Chapter 92.16 Wisconsin Statutes. This ordinance will be required for grant eligibility.

The ordinance is to be administered by Monroe, Richland, and Vernon Counties and developed before the end of the project period.

Construction Site Erosion Control Ordinance

Monroe, Richland, and Vernon Counties have researched the significance of nonpoint source pollution from construction site erosion. Information on residential and commercial development was collected using the number of septic system permits issued for rural projects, and the number of building permits issued for projects occurring in the villages of La Farge, Ontario, and Viola. The review of this information indicated that construction sites do not appear to present a significant enough nonpoint source in the watershed at this time to warrant that an ordinance be required for grant eligibility. However, the DNR strongly encourages and recommends that all counties adopt construction site erosion control ordinances for preventative reasons.

At this time, the DNR is recommending to the counties and villages that they voluntarily practice construction site erosion control according to published guidelines, and encourage citizens and construction firms in the watershed to do the same. The DNR will require an annual review of the number of development projects taking place in the watershed, and may periodically inspect projects under construction. If this information, or the inspections, reveal that impacts are occurring which may affect this project's ability to achieve the water resource objectives, an amendment to this watershed plan may be proposed which would require a construction site erosion control ordinance to be adopted.

Easements

Criteria for Eligibility of Easements

Nonpoint Source Program funds may be used to purchase land easements in order to support specified best management practices. These practices, all of which involve the establishment of permanent vegetative cover, include:

- shoreline buffers,
- critical area stabilization,
- wetland restoration.

Currently, there are no streams in the Middle Kickapoo Watershed that have been designated for easement eligibility under Wisconsin's Stewardship program. In the future, this program may be a potential source of funds for easement acquisition.

NOTE: In addition to the criterium described below, the landowners must control all "Management Category I" sources (through a Cost Share Agreement) to be eligible for an easement through the Middle Kickapoo River Priority Watershed Project.

Easements to Support Critical Area Stabilization and Shoreline Buffers

The following guidelines and criteria are for the purchase of easements used to support critical area stabilization, and shoreline buffers, exclusive of wetland restoration. Guidelines for using easements to support wetland restoration are presented later in this chapter.

- Riparian lands along "high priority" water resources: These are the highest priority areas for obtaining easements to support critical area stabilization and shoreline buffer practices and include those streams that are most sensitive to nonpoint pollution. These water resources will experience added benefits of permanent vegetative cover, enhancements to aquatic habitat, and, if agreed to by the landowner, improved public access to surface waters.

  In this watershed "high priority" waters are the perennial streams in the high level management subwatersheds identified in chapter 4, section 2, Animal Lot Runoff. These high level management subwatersheds include:

  Bear Creek
  Billings Creek
  Camp Creek
  Cheyenne Valley
  Elk Creek
  Jug Creek

  These high level management subwatersheds have perennial streams able to support trout reproduction, or have the potential to establish a wild trout fishery. Easement

acquisition in these subwatersheds would aid greatly in achieving water resource objectives.

Easements to allow the establishment of permanent vegetative cover in these subwatersheds will be considered even though other lower cost practices, such as changes in crop rotation, reduced tillage, contour plowing, or contour strips may provide an adequate level of control. Easements in these areas will also be considered as a cost-effective alternative to more expensive practices such as cropland terraces or agricultural sedimentation basins.

- Other Portions of the Watershed: Easements may also be used to support critical area stabilization and shoreline buffers in other portions of the watershed, although additional restrictions apply.

  In these areas, the easement must offer pollution control at a cost that is competitive with that of other controls, as required by NR 120. For example, the easement should be lower or similar in cost to expensive practices (such as terraces or agricultural sediment basins) for continuous row crops where the only other alternative is retiring the land.

  Easements may not be purchased with program funds to establish shoreline protection or critical area stabilization practices outside high priority areas if significantly lower cost practices, such as changes in crop rotation, reduced tillage, contour plowing, or contour strips provide an adequate level of control.

Easements to Support Wetland Restoration

Easements may be used to support eligible wetland restoration projects. The cost-effectiveness criterion for using wetland restoration is relaxed everywhere in the watershed, being similar to the criterion for easements for shoreline buffers and critical area stabilization in areas adjacent to "high priority waters."

If wetland restoration does not involve the purchase of an easement, then the LCD may sign a cost share agreement for the required costs and proceed to implement the practice. Further discussion on the Wetland Restoration Practice is given below.

Administration of Easements

Easements shall be for a period of no less than 20 years, although perpetual easements are preferred. The easement will be developed as an agreement separate from the cost sharing agreement for the best management practice.

Easements may be contracts between the landowner and the DNR, or between the landowner and the local unit of government. The local unit of government will retain responsibility for identifying how the easement will be used in controlling targeted pollution sources. Final approval of the easement rests with the DNR's Bureau of Water Resources Management.

To initiate the process, the local unit of government shall forward the easement proposal to the DNR District Nonpoint Source Coordinator. The Nonpoint Source Coordinator will be responsible for obtaining review comments from local DNR staff including those from Wildlife Management, Fish Management, and Water Regulation and Zoning. The Nonpoint Source Coordinator will then forward the proposal to DNR bureau offices for Water Resources Management, Property Management, and other disciplines as appropriate.

Estimated Need for Easements

The estimated number of acres needed to control targeted pollution sources located adjacent to "high priority waters" is shown in table 5-?. No estimate is available for other easement needs.

Criteria for Eligibility of Wetlands Restoration

Wetland restoration is an eligible best management practice for the purpose of controlling nonpoint sources of pollution. Secondary benefits of wetland restoration may be enhancement of fish and wildlife habitat. However, the primary justification for restoration under this nonpoint source pollution control project must be water quality improvement.

Wetland restoration includes

The plugging or breaking up of existing tile drainage systems, the plugging of open channel drainage systems, other methods of restoring the pre-development water levels of an altered wetland, and the fencing of livestock out of a wetland.

Wetland restoration is an eligible practice when applied to any of the following:

- Cultivated organic soils with tile or open channel drainage systems discharging to a stream or tributary.

  Wetland restoration will reduce the amount of nutrients and pesticides draining from the altered wetland to a water resource. Establishing permanent vegetation and disabling the drainage system will control this pollutant source.

- Pastured wetlands riparian to streams, or tributaries.

  Eliminating livestock grazing within wetlands will reduce the organic and sediment loading to the wetland and adjacent water resource, and reduce the direct damage to the wetland from the livestock. Livestock exclusion by fencing will control the pollutants and restore the wetland.

- Prior converted wetlands down slope or up slope from fields identified as critical upland sediment sources through the WIN model.

Restoration of wetlands in these situations will do one of two things: 1) create a wetland filter which reduces the pollutants from an up slope field(s) to a water resource; or 2) reduce the volume and/or velocity of water flowing from an up slope wetland to a down slope critical field.

Two eligibility conditions must be met to use wetland restoration in this situation:

a) All upland fields draining to the wetland must be controlled to a soil loss rate that is less than or equal to the soils "T" value.

b) One or more of these same fields must still have a sediment loss rate (after the application of any erosion control measures) greater than the 0.2 tons/acre/year sediment delivery rate used for upland erosion eligibility.

CHAPTER FIVE
Local Government's Implementation Program

Introduction

This chapter identifies the means for implementing the management actions for nonpoint source control described in Chapter IV, and describes the county's nonpoint source implementation strategy for rural areas. Included in the implementation program for rural areas is an information and education strategy. The success of this priority watershed project depends on the aggressive implementation of these nonpoint source control strategies.

More specifically this chapter identifies:

- The agencies and units of government responsible for carrying out the identified tasks;
- The best management practices (BMPs) necessary to control pollutants on the critical sites identified in Chapter 4;
- The cost-share budget;
- The cost containment policies;
- The cost-share agreement reimbursement procedures including administrative procedures for carrying out the project;
- Staffing needs including total hours per year and number of staff to be hired;
- Schedules for implementing the project;
- The involvement of other programs;
- The information and education activities that will be carried out in the project area; and
- The project budget including the expense for cost-sharing; staffing for technical assistance, administration, and the information and education program.

Project Participants: Roles and Responsibilities

Landowners and Land Operators

Owners and operators of public and private lands are important participants in the priority watershed program. They will adopt BMPs which reduce nonpoint sources of water pollution and protect and enhance fish, wildlife and other resources. Landowners and land operators in the Middle Kickapoo Watershed eligible for cost-share assistance through the priority watershed program include: 1) individuals; 2) Vernon, Richland and Monroe counties; 3) other governmental units described in NR 120.02(19); 4) corporations; and 5) the State of Wisconsin.

Vernon, Richland and Monroe counties are the primary units of government responsible for implementing this plan in rural areas.

The Vernon, Richland and Monroe County Land Conservation Committees (LCC) will act for the respective County Boards and be responsible contractually and financially to the State of Wisconsin for management of the project in areas with rural land uses. The county LCCs will coordinate the activities of all other local agencies involved with the rural portion of the project.

The specific responsibilities for these counties are defined in the Wisconsin Administrative Rules, s. NR 120.04, and are summarized below:

- Identify in writing a person to represent the county during implementation of the project.
- Contact all owners or operators of lands identified as significant nonpoint sources within one year of signing the nonpoint source grant agreement. The counties' strategies for contacting landowners are included in this chapter.
- Develop farm conservation plans consistent with the needs of the project.
- Enter into nonpoint source cost-share agreements with eligible landowners and enforce the terms and conditions of cost-share agreements as defined in s. NR 120.13, Wisconsin Administrative Code.
- For lands the county owns or operates, to enter into cost-share agreements with DNR to correct identified nonpoint sources and fulfill their obligations as a cost-share recipient.
- Design best management practices and verify proper practice installation.
- Reimburse cost share recipients for the eligible costs of installing BMPs at the rates consistent with administrative rules and established in this plan.

- Prepare and submit annual work plans for activities necessary to implement the project. The Vernon, Richland and Monroe County LCDs shall submit a workload analysis and grant application to the DATCP (DATCP) as required in s. Ag. 166.50.

- Prepare and submit to the DNR (DNR) and the DATCP (DATCP) the annual resource management report required under s. NR 120.21(7) to monitor project implementation by tracking changes in the nonpoint source inventory, and quantifying pollutant load reductions which result from installing BMPs. Staff from the agencies will assist county staff in developing procedures.

- Participate in the annual watershed project review meeting.

- Conduct the information and educations activities identified in this plan for which they are responsible.

DNR

The role of the DNR (DNR) is identified in s. 144.24, Stats. and s. NR 120, Wis. Adm. Code. (NR 120) The Department has been statutorily assigned the overall administrative responsibility for the Wisconsin Nonpoint Source Pollution Abatement Program. The Department's role is summarized below.

Project Administration

Project administration includes working with the counties to ensure that work commitments required during the 8-year project implementation phase can be met. The DNR will participate in the annual work planning process with the county.

The Department reviews cost-share agreements signed by the county and the participating landowners for installing BMPs. The DNR provides guidance when questions arise concerning the conformance of proposed activities with the statutes, administrative rules, and the watershed plan.

Financial Support

Financial support for implementation of the priority watershed project is provided to each county in two ways: a local assistance grant agreement, and a nonpoint source grant agreement. These agreements are described later in this chapter.

The DNR may also enter into cost-share agreements directly with local or state units of government for the control of pollution sources on land the governments own or operate.

Project Evaluation

The DNR has responsibility for priority watershed project monitoring and evaluation activities. These efforts determine if changes in water quality occur as best management practices and other pollution controls are installed or implemented. The water quality evaluation and monitoring strategy for the Middle Kickapoo River Watershed is included in Chapter VIII. The DNR documents the results of monitoring and evaluation activities in interim and final priority watershed project reports.

Technical Assistance

The DNR provides technical assistance to the county on the design and application of best management practices. This assistance is primarily for urban areas.

Other Responsibilities: These include:

- The appropriate District Nonpoint Source Coordinator to arrange for DNR staff to assist county staff with site reviews to determine the impacts of nonpoint sources on wetlands and/or groundwater quality.

- Assisting county staff to integrate wildlife and fish management concerns into selection and design of BMPs.

DATCP

The role of the DATCP (DATCP) is identified in s. 144.25, stats., ch. 92 stats., and NR 120. In summary, the DATCP will:

1. Manage a training program for the staff involved with project implementation.

2. Cooperate with the University of Wisconsin - Extension to act as a clearinghouse for information related to agricultural best management practices, sustainable agriculture, and nutrient and pest management.

3. Assist the counties to carry out the information and education activities or tasks described in this plan.

4. Assist county staff to identify watershed participants subject to federal or state conservation compliance programs.

5. Assist counties, if requested, to develop a manure storage ordinance.

6. Assist county staff to complete annual workload analyses and grant applications for work conducted under the priority watershed project.

7. Participate in the annual project review meetings.

8. If the need arises, assist in developing technical standards for agricultural BMPs, and provide technical assistance to county staff concerning application of these practices.

9. Assist county staff to evaluate the site specific practicality of implementing rural best management practices.

Other Agencies

The Middle Kickapoo Watershed Project will receive assistance from the agencies listed below.

Soil Conservation Service (SCS)

This agency works through the local LCC to provide technical assistance for planning and installing conservation practices. The local SCS personnel will work with the county staff to provide assistance with technical work when requested by the Land Conservation Committee and if SCS staff time is available. Personnel from the Area SCS office will provide staff training and engineering assistance for best management practices. Efforts will be made by DATCP to assist SCS to coordinate the Middle Kickapoo Priority Watershed Project with the conservation compliance and other conservation provisions of the 1985 and subsequent Federal Farm Bills.

University of Wisconsin Extension (UWEX)

County and Area Extension agents will provide support in developing and conducting a public information and education program aimed at increasing voluntary participation in the project. This will include assistance to carry out the information and education activities identified in this plan.

Agricultural Stabilization and Conservation Service (ASCS)

ASCS administers most of the federal programs aimed at the stabilization of the prices paid producers for agricultural products and administers federal funds for rural soil and water and other resource conservation activities. The Agricultural Conservation Program (ACP) which is administered by ASCS will, to the extent possible, be coordinated with the Middle Kickapoo Priority Watershed Project. In addition other conservation incentives such as the Conservation Reserve Program (CRP) will be used whenever possible to control critical nonpoint sources of pollution.

Agricultural Best Management Practices (BMPs)

BMPs Eligible For Cost-Sharing And Their Rates

Best management practices are those practices identified in NR 120 which are determined in this watershed plan to be the most effective controls of the nonpoint sources of pollution. The practices eligible for cost-sharing under the Middle Kickapoo Priority Watershed Project are listed in table 5-1. The cost share rates for each BMP are in the table below.

Design and installation of all BMPs must meet the conditions listed in NR 120. Generally these practices use specific standard specifications included in the SCS Field Office Technical Guide. In some cases additional specifications may apply. The applicable specifications for each BMP can be found in NR 120.14. The Department may approve alternative best management practices and alternative design criteria based on the provisions of NR 120.15 where necessary to meet the water resource objectives.

table 5-1. State Cost-Share Rates for Best Management Practices

BEST MANAGEMENT PRACTICE	STATE COST SHARE RATE
Contour Farming	50% [1*]
Contour Strip Cropping	50% [1*]
Field Diversions and Terraces	70%
Grassed Waterways	70%
Reduced Tillage	50%
Critical Area Stabilization	70% [2]
Grade Stabilization Structures	70%
Agricultural Sediment Basins	70%
Shoreline and Streambank Stabilization	70%
Shoreline Buffers	70% [2]
Barnyard Runoff Management	70%
Animal Lot Relocation	70%
Manure Storage Facilities	70% **
Livestock Exclusion from Woodlots	50%
Wetland Restoration	70% [2]
Sinkhole & Crevice Treatment	70%
Nutrient and Pesticide Management	50% [3]
Logging and Access Road Treatment	70%

1. Flat rates for these BMPs can be found in table 5-2
2. Easements may be entered into with landowners identified in the watershed plan in conjunction with these BMPs. See Chapter IV for where easements may apply.
3. Spill control basins have a state cost-share rate of 70%

* Wildlife habitat restoration components of this practice are cost-shared at 70%.

** Maximum cost share amount is $10,000 including no more than $5,000 for manure transfer equipment (Legislation is proposed to change these amounts. If the legislation is adopted, the cost share amount will correspond with the new statutory language.)

table 5-2. Practices Using a Flat Rate for state Cost-Share Funding

BEST MANAGEMENT PRACTICE	FLAT RATE
Contour Farming	$ 6.00/ac.
Contour Strip Cropping	$12.00/ac.
Reduced Tillage	$15.00/ac. [1]
Reduced Tillage	$45.00/ac. [2]
Fencing:	
Multi-Strand Barbed Wire	$12.60/rod
High tensile	$14.00 rod
Single strand electric	$ 8.40/rod

1 Reduced tillage systems for short crop rotations, and establishment of forages and small grains (includes no-till). One year only.
2 Reduced tillage systems for continuous row cropping over three years (excluding no-till).

Following is a brief description of some of the most commonly used cost-shared BMPs included in table 5-1. A more detailed description of these practices can be found in NR 120.14.

- Contour Farming - The farming of sloped land so that all operations from seed bed preparation to harvest are done on the contour.

- Contour Strip-cropping - Growing crops in a systematic arrangement, usually on the contour, in alternate strips of close grown crops, such as grasses or legumes, and tilled row crops.

- Reduced Tillage - A system which leaves a roughened surface and at least 30% crop residue on the soil surface after crops are planted.

- Critical Area Stabilization - The planting of suitable vegetation on critical nonpoint source sites and other treatment necessary to stabilize a specific location.

- Grassed Waterways - A natural or constructed channel shaped, graded and established with suitable cover as needed to prevent erosion by runoff waters.

- Grade Stabilization Structure - A structure used to reduce the grade in a channel to protect the channel from erosion or to prevent the formation or advance of gullies.

- Livestock Exclusion from Woodlots - The exclusion of livestock from woodlots to protect the woodlots from grazing by fencing or other means.

- Shoreline and Streambank Stabilization - The stabilization and protection of stream and lake banks against erosion and the protection of fish habitat and water quality from livestock access. This practice includes rock riprap, shaping and seeding, streambank fencing and fish habitat structures. This practice may include pasture pumps for watering livestock excluded from water bodies.

- Terraces - A system of ridges and channels with suitable spacing and constructed on the contour with a suitable grade to prevent erosion in the channel.

- Field Diversions - This purpose of this practice is primarily to divert water away from areas it is in excess, or is doing damage, to where it can be transported safely.

- Barnyard Runoff Management - Structural measures such as filter systems and/or diversions to redirect surface runoff around the barnyard, and collect, convey or temporarily store runoff from the barnyard.

- Manure Storage Facility - A structure for the storage of manure for a period of time that is needed to reduce the impact of manure as a nonpoint source of pollution. Livestock operations where this practice applies are those where manure is winter spread on fields that have a high potential for runoff to lakes, streams and groundwater. The facility is needed to store and properly spread manure according to a nutrient management plan.

- Agricultural Sediment Basins - A structure designed to reduce the transport of sediment eroded from critical agricultural fields and other pollutants to surface waters and wetlands.

- Shoreline Buffers - A permanently vegetated area immediately adjacent to lakes, streams, channels and wetlands designed and constructed to manage critical nonpoint sources or to filter pollutants from nonpoint sources.

- Animal Lot Relocation - Relocation of an animal lot from a critical site such as a floodway to a suitable site to minimize the amount of pollutants from the lot to surface or groundwater.

- Wetland Restoration - The construction of berms or destruction of the function of tile lines or drainage ditches to create conditions suitable for wetland vegetation.

- Sinkhole & Crevice Treatment - The protection of groundwater by diverting surface runoff away from critical sites.

- Nutrient Management - The management and crediting of nutrients for the application of manure and commercial fertilizers, and crediting for nutrients from legumes. Management includes the rate, method and timing of the application of all sources of nutrients to minimize the amount of nutrients entering surface or groundwater.

- Pesticide Management - The management of the handling, disposal and application of pesticides including the rate, method and timing of application to minimize the amount of pesticides entering surface and groundwater.

- Logging and Access Road Treatment - The use of previously described BMPs, possibly with alternative design criteria, to eliminate and prevent the erosion and gully formation due to logging and access roads.

- Limited Term Grazing - A grazing plan developed using SCS 510 as a general guideline, and generally used in conjunction with other streambank and woodlot protection BMPs, to ensure the protection of surface waters from livestock.

BMPs Not Cost-Shared

BMPs not cost-shared, but which shall be included on the cost share agreement if necessary to control the nonpoint sources, are listed in NR 120.17. Several examples are included below.

a. That portion of a practice to be funded through other programs.
b. Practices previously installed and necessary to support cost-shared practices.
c. Changes in crop rotations and other activities normally and routinely used in growing crops or which have installation costs that can be passed on to potential consumers.
d. Changes in location of unconfined manure stacks involving no capital cost.
e. Manure spreading management.
f. Other activities the DNR determines are necessary to achieve the objectives of the watershed project.

Activities and Sources Of Pollution Not Eligible For Cost Share Assistance

Priority watershed cost-share funds cannot be used to control sources of pollution and land management activities specifically listed in NR 120.10(2). The following is a partial list of ineligible activities most often inquired about for cost-sharing in rural areas.

a. Operation and maintenance of cost-shared BMPs,
b. Actions which have drainage of land or clearing of land as the primary objective,
c. Practices already installed,
d. Activities covered under the Wisconsin Pollution Discharge Elimination System (WPDES) Program or covered in other ways by Chapter 147 of Wis. Stats. (including livestock operations with more than 1,000 animal units, or livestock operations issued a notice of discharge under ch. NR 243),
e. Septic system controls or maintenance,
f. Dredging activities,
g. Silvicultural activities,
h. Bulk storage of fertilizers and pesticides,
i. Activities and structures intended primarily for flood control,
j. Practices required to control sources which were adequately controlled at the time the cost-share agreement was signed,

k. Other practices or activities determined by DNR not to meet the objectives of the program.

Cost-Share Budget

Costs of Installing BMPs

The quantity and type of management practices that are required to meet this projects water quality objectives are listed in tables 5-3, 5-3a, 5-3b, and 5-3c. The capital cost of installing the BMPs are listed in this table assuming landowner participation rates of 100% and 75%. Also included are the units of measurement and cost share amount per unit for the various BMPs.

The capital cost of installing the Best Management Practices in Vernon, Richland and Monroe counties is approximately $9.3 million, $2.6 million, and $1.9 million, respectively, assuming 100% participation.

* State funds necessary to cost-share this level of control would be about $6.4 million, $1.8 million, and $1.3 million for Vernon, Richland and Monroe counties, respectively.

* The local share provided by landowners and other cost-share recipients would be about $2.8 million, $0.7 million and $0.6 million, respectively.

At a 75% level of participation, the state funds needed to cover capital installation would be about $4.8 million, $1.3 million and $1.0 million for Vernon, Richland and Monroe counties, respectively.

Easement Costs

Chapter IV identifies where nonpoint source program funds can be used to purchase easements. The estimated cost for purchasing easements on eligible lands in Vernon, Richland and Monroe counties is shown in table 5-3 through 5-3c. At 100% participation, the estimated purchase price of easements on eligible lands would be $67,000, $19,000 and $14,000 in Vernon, Richland and Monroe counties, respectively. At 75% participation, the cost would be $50,250, $14,250 and $10,500; respectively. The easement costs would be paid for entirely by the state.

table 5-3. Estimated Cost-Share Budget Needs for Rural Management Practices in the Middle Kickapoo Watershed

				100% Participation		75% Participation	
Cost/Unit	Total Cost(1)			State Share	Local Share	State Share	Local Share
*Best Management Practices							
Upland Sediment Control							
Change in Crop Rotation	15,000 ac	NA(3)	0	0	0	0	0
Contour Cropping	1,000 ac	$6	6,000	6,000	(2)	4,500	(2)
Contour Strip Cropping	3,000 ac	$12	36,000	36,000	(2)	27,000	(2)
Reduced Tillage (4)	1,500 ac	$45	67,500	67,500	(2)	50,625	(2)
Reduced Till. (5)	3,000 ac	$15	45,000	45,000	(2)	33,750	(2)
Critical Area Stabilization	400 ac	$800	320,000	224,000	96,000	168,000	72,000
Grass Waterways	400 ac	$2,800	1,120,000	784,000	336,000	588,000	252,000
Field Diversions & Terraces	15,000 ft	$3	45,000	31,500	13,500	23,625	10,125
Grade Stabilization	3,300 ea	$3,000	6,900,000	4,830,000	2,070,000	3,622,500	1,552,500
Agricultural Sediment Basin	8 ea	$3,000	24,000	16,800	7,200	12,600	5,400
Nutrient & Pest. Mngmt.	12,000 ac	$25	300,000	150,000	(2)	112,500	(2)
Shoreline Buffers (6)	70 ac	$150	10,500	7,350	3,150	5,512	2,363
Wetland Restoration	12 ea	$3,000	36,000	25,200	10,800	18,900	8,100
Sinkhole & Crevice Trtmt.	200 ea	$1,000	200,000	140,000	60,000	105,000	45,000
Animal Waste Mngmt. Yard Runoff							
Complete System	71 ea	$25,000	1,775,000	1,242,500	532,500	931,875	399,375
Clean Water Diversion	46 ea	$5,000	230,000	161,000	69,000	120,750	51,750
Manure Storage Facility (7)	80 ea	$18,000	1,440,000	800,000	640,000	600,000	480,000
Manure Spreading Mngmt.	0 ac	NA	0	0	0	0	0
Streambank Erosion Control							
Shape and Seeding	22,074 ft	$4	88,296	61,807	26,489	46,355	19,867
Fencing	58,000 ft	$2	116,000	81,200	34,800	60,900	26,100
Riprap	37,883 ft	$20	757,660	530,362	227,298	397,772	170,474
Livestock/Machinery Crossing	146 ea	$2,500	365,000	255,500	109,500	191,625	82,125
Subtotal:			13,881,956	9,495,719	4,236,237	7,121,789	3,177,178
*Easements	100 ac	$1,000	100,000	100,000	0	75,000	0
TOTALS			13,981,956	9,595,719	4,236,237	7,196,789	3,177,178

(1) Total cost to control identified critical pollution sources
(2) Local share consists of labor and any additional equipment costs.
(3) NA means that cost share funds are not available for this practice.
(4) This practices is reduced tillage on continuous row, or long rotational croplands.
(5) This practice is reduced tillage, including no-till, on short rotation croplands or for establishing forage crops.
(6) Shoreline Buffer practice needs will be determined during implementation.
(7) Maximum cost-share is $10,000 of which a maximum of $5,000 can be for waste transfer.

table 5-3a. Estimated Cost-Share Budget Needs for Rural Management Practices in Vernon County

				100% Participation		75% Participation	
Management Needs	Number	Cost/Unit	Total Cost (1)	State Share	Local Share	State Share	Local Share
*Best Management Practices							
Upland Sediment Control							
Change in Crop Rotation	10,050 ac	NA(3)	0	0	0	0	0
Contour Cropping	740 ac	$6	4,440	4,440	(2)	3,330	(2)
Contour Strip Cropping	2,010 ac	$12	24,120	24,120	(2)	18,090	(2)
Reduced Tillage (4)	1,005 ac	$45	45,225	45,225	(2)	33,919	(2)
Reduced Till. (5)	2,010 ac	$15	30,150	30,150	(2)	22,613	(2)
Critical Area Stabilization	268 ac	$800	214,400	150,080	64,320	112,560	48,240
Grass Waterways	268 ac	$2,800	750,400	525,280	225,120	393,960	168,840
Field Diversions & Terraces	10,050 ft	$3	30,150	21,105	9,045	15,829	6,784
Grade Stabilization	1,541 ea	$3,000	4,623,000	3,236,100	1,386,900	2,427,075	1,040,175
Agricultural Sediment Basin	5 ea	$3,000	15,000	10,500	4,500	7,875	3,375
Nutrient & Pest. Mngmt.	8,040 ac	$25	201,000	100,500	(2)	75,375	(2)
Shoreline Buffers (6)	47 ac	$150	7,050	4,935	2,115	3,701	1,586
Wetland Restoration	8 ea	$3,000	24,000	16,800	7,200	12,600	5,400
Sinkhole & Crevice Trtmt.	134 ea	$1,000	134,000	93,800	40,200	70,350	30,150
Animal Waste Mngmt. Yard Runoff							
Complete System	48 ea	$25,000	1,200,000	840,000	360,000	630,000	270,000
Clean Water Diversion	31 ea	$5,000	155,000	108,500	46,500	81,375	34,875
Manure Storage Facility (7)	54 ea	$18,000	972,000	540,000	432,000	405,000	324,000
Manure Spreading Mngmt.	0 ac	NA	0	0	0	0	0
Streambank Erosion Control							
Shape and Seeding	14,790 ft	$4	9,160	41,412	17,748	31,059	13,311
Fencing	40,000 ft	$2	80,000	56,000	24,000	42,000	18,000
Riprap	25,382 ft	$20	507,640	355,348	152,292	266,511	114,219
Livestock/Machinery Crossing	98 ea	$2,500	245,000	171,500	73,500	128,625	55,125
Subtotal:			9,321,735	6,375,795	2,845,440	4,781,846	2,134,080
*Easements	67 ac	$1,000	67,000	67,000	0	50,250	0
TOTALS			9,388,735	6,442,795	2,845,440	4,832,096	2,134,080

(1) Total cost to control identified critical pollution sources
(2) Local share consists of labor and any additional equipment costs.
(3) NA means that cost share funds are not available for this practice.
(4) This practices is reduced tillage on continuous row, or long rotational croplands.
(5) This practice is reduced tillage, including no-till, on short rotation croplands or for establishing forage crops.
(6) Shoreline Buffer practice needs will be determined during implementation.
(7) Maximum cost-share is $10,000 os which a maximum of $5m000 can be for waste transfer.

table 5-3b. Estimated Cost-Share table are Budget Needs for Rural Management Practices in Monroe County

				100% Participation		75% Participation	
Management Needs	Number	Cost/Unit	Total Cost (1)	State Share	Local Share	State Share	Local Share
*Best Management Practices							
Upland Sediment Control							
Change in Crop Rotation	2,100 ac	NA(3)	0	0	0	0	0
Contour Cropping	0 ac	$6	0	0	(2)	0	(2)
Contour Strip Cropping	420 ac	$12	5,040	5,040	(2)	3,780	(2)
Reduced Tillage (4)	210 ac	$45	9,450	9,450	(2)	7,088	(2)
Reduced Till. (5)	420 ac	$15	6,300	6,300	(2)	4,725	(2)
Critical Area Stabilization	56 ac	$800	44,800	31,360	13,440	23,520	10,080
Grass Waterways	56 ac	$2,800	156,800	109,760	47,040	82,320	35,280
Field Diversions & Terraces	2,100 ft	$3	6,300	4,410	1,890	3,308	1,418
Grade Stabilization	322 ea	$3,000	966,000	676,200	289,800	507,150	217,350
Agricultural Sediment Basin	1 ea	$3,000	3,000	2,100	900	1,575	675
Nutrient & Pest. Mngmt.	1,680 ac	$25	42,000	21,000	(2)	15,750	(2)
Shoreline Buffers (6)	10 ac	$150	1,500	1,050	450	788	338
Wetland Restoration	2 ea	$3,000	6,000	4,200	1,800	3,150	1,350
Sinkhole & Crevice Trtmt.	28 ea	$1,000	28,000	19,600	8,400	14,700	6,300
Animal Waste Mngmt. Yard Runoff							
Complete System	10 ea	$25,000	250,000	175,000	75,000	131,250	56,250
Clean Water Diversion	6 ea	$5,000	30,000	21,000	9,000	15,750	6,750
Manure Storage Facility (7)	11 ea	$18,000	198,000	110,000	88,000	82,500	66,000
Manure Spreading Mngmt.	0 ac	NA	0	0	0	0	0
Streambank Erosion Control							
Shape and Seeding	3,090 ft	$4	12,360	8,652	3,708	6,489	2,781
Fencing	8,000 ft	$2	16,000	11,200	4,800	8,400	3,600
Riprap	5,303 ft	$20	106,060	74,242	31,818	55,682	23,864
Livestock/Machinery Crossing	20 ea	$2,500	50,000	35,000	15,000	26,250	11,250
Subtotal:			1,937,610	1,325,564	591,046	994,173	443,285
*Easements	14 ac	$1,000	14,000	14,000	0	10,500	0
TOTALS			1,951,610	1,339,564	591,046	1,004,673	443,285

(1) Total cost to control identified critical pollution sources
(2) Local share consists of labor and any additional equipment costs.
(3) NA means that cost share funds are not available for this practice.
(4) This practices is reduced tillage on continuous row, or long rotational croplands.
(5) This practice is reduced tillage, including no-till, on short rotation croplands or for establishing forage crops.
(6) Shoreline Buffer practice needs will be determined during implementation.
(7) Maximum cost-share is $10,000 os which a maximum of $5m000 can be for waste transfer.

table 5-3c. Estimated Cost-Share Budget Needs for Rural Management Practices in Richland County

				100% Participation		75% Participation	
Management Needs	Number	Cost/Unit	Total Cost (1)	State Share	Local Share	State Share	Local Share
*Best Management Practices							
Upland Sediment Control							
Change in Crop Rotation	2,850 ac	NA(3)	0	0	0	0	0
Contour Cropping	260 ac	$6	1,560	1,560	(2)	1,170	(2)
Contour Strip Cropping	570 ac	$12	6,840	6,840	(2)	5,130	(2)
Reduced Tillage (4)	285 ac	$45	12,825	12,825	(2)	9,619	(2)
Reduced Till. (5)	570 ac	$15	8,550	8,550	(2)	6,413	(2)
Critical Area Stabilization	76 ac	$800	60,800	42,560	18,240	31,920	13,680
Grass Waterways	76 ac	$2,800	212,800	148,960	63,840	111,720	47,880
Field Diversions & Terraces	2,850 ft	$3	8,550	5,985	2,565	4,489	1,924
Grade Stabilization	437 ea	$3,000	1,311,000	917,700	393,300	688,275	294,975
Agricultural Sediment Basin	2 ea	$3,000	6,000	4,200	1,800	3,150	1,350
Nutrient & Pest. Mngmt.	2,280 ea	$25	57,000	28,500	(2)	21,375	(2)
Shoreline Buffers (6)	13 ac	$150	1,950	1,365	585	1,024	439
Wetland Restoration	2 ea	$3,000	6,000	4,200	1,800	3,150	1,350
Sinkhole & Crevice Trtmt.	38 ea	$1,000	38,000	26,600	11,400	19,950	8,550
Animal Waste Mngmt. Yard Runoff							
Complete System	13 ea	$25,000	325,000	227,500	97,500	170,625	73,125
Clean Water Diversion	9 ea	$5,000	45,000	31,500	13,500	23,625	10,125
Manure Storage Facility (7)	15 ea	$18,000	270,000	150,000	81,000	112,500	60,750
Manure Spreading Mngmt.	0 ac	NA	0	0	0	0	0
Streambank Erosion Control							
Shape and Seeding	4,194 ft	$4	16,776	11,743	5,033	8,807	3,775
Fencing	10,000 ft	$2	20,000	14,000	6,000	10,500	4,500
Riprap	7,198 ft	$20	143,960	100,772	43,188	75,579	32,391
Livestock/Machinery Crossing	28 ea	$2,500	70,000	49,000	21,000	36,750	15,750
Totals:			2,622,611	1,794,360	760,751	1,345,770	570,563
*Easements	19 ac	$1,000	19,000	19,000	0	14,250	0
TOTALS			2,641,611	1,813,360	760,751	1,360,020	570,563

(1) Total cost to control identified critical pollution sources
(2) Local share consists of labor and any additional equipment costs.
(3) NA means that cost share funds are not available for this practice.
(4) This practices is reduced tillage on continuous row, or long rotational croplands.
(5) This practice is reduced tillage, including no-till, on short rotation croplands or for establishing forage crops.
(6) Shoreline Buffer practice needs will be determined during implementation.
(7) Maximum cost-share is $10,000 os which a maximum of $5m000 can be for waste transfer.

Cost Containment

Cost Containment Procedures

Chapter NR 120 requires that cost containment procedures be identified in this plan. The cost containment procedures to be used by Vernon, Richland and Monroe counties are described below.

Cost-share payments will be based on actual installation costs. If actual installation costs exceed the amount of cost-sharing determined by the bidding, range of costs and average cost methods the amount paid the grantee may be increased with the approval of the appropriate land conservation committee. Appropriate documentation regarding the need for changes will be submitted to DNR.

Bids

Competitive bids will be required in Vernon, Richland and Monroe counties for all structural BMPs with estimated total costs, as determined by the project technicians, exceeding $5,000. Individual counties may use a lesser amount for determining when to require bids. The bidding process requires the cost share recipient to receive a minimum of two itemized bids from qualified contractors. The cost share recipient must provide copies of the bids to the county prior to initiating construction. In cases where the cost share recipient provides proof that bids were requested from a minimum of three qualified contractors but only one bid was received, the county will determine if the bid constitutes an appropriate cost for the project. If no bids are received or if the lone bid is not deemed appropriate, Vernon, Richland and Monroe counties will limit cost sharing based on average costs.

Average Costs

Average costs will be used in Vernon, Richland and Monroe counties for all structural BMPs with an estimated cost equal to or less than $5,000 and for all non-structural BMPs not using a flat rate unless the cost share recipient decides, and the county agrees, to bid the installation of the BMPs. If the county has chosen a lesser dollar amount for requiring bids, that value shall also be used for determining when average costs would be used.

The average cost list will be reviewed periodically and appropriate changes made. If changes are made the list will be forwarded to DNR and DATCP for final approval before the changes are used for calculating cost share agreements and payments.

Flat Rates

BMPs using flat rates are shown in table 5-2. The rates shown are the state's share of the practice installation costs.

Cost-Share Agreement Reimbursement Procedures

Nonpoint Source Grant Agreement and Administration

General Information

The Nonpoint Source Grant Agreement is the means for transmitting funds from the DNR (through the Nonpoint Source Program) to Vernon, Richland and Monroe counties for use in funding the state's share of cost share agreements. Cost share agreements are the means to transmit funds from the counties to the landowners.
A portion of the Nonpoint Source Grant is forwarded to Vernon, Richland and Monroe counties to allow the county to set up an "up front" account. Funds from this account are used by the county to pay landowners after practices are installed under the project. As this account is drawn down, the county will request reimbursements from DNR to replenish the account. The counties will submit reimbursement requests on a quarterly basis. This reimbursement schedule will insure that the "up front" account balance is maintained at an adequate level. The NPS Grant Agreement will be amended annually to provide funding needed for cost sharing for the year. The funds obligated under cost share agreements must never exceed the total funds in the NPS Grant Agreement.

Fiscal Management Procedures, Reporting Requirements

Counties are required by NR 120 to maintain a financial management system that accurately tracks the disbursement of all funds used for the Middle Kickapoo Watershed Project. The records of all watershed transactions must be retained for 3 years after the date of final project settlement. A more detailed description of the fiscal management procedures can be found in NR 120.25 and NR 120.26.

Cost Share Agreement and Administration

Purpose and Responsibilities

Consistent with s. 144.25, Stats. and NR 120, Wis. Adm. Code, cost-share funding is available to landowners for a percent of the costs of installing BMPs to meet the project objectives. Landowners have three years after formal approval of the watershed plan to enter into cost-share agreements. Practices included on cost-share agreements must be installed within the schedule agreed to on the cost-share agreement. Unless otherwise approved, the schedule of installing BMPs will be within 5 years of signing of the cost-share agreement. Practices must be maintained for a minimum of ten years from the date of installing the final practice included in the cost-share agreement.

The cost-share agreement is a legal contract between the landowner and the county. The agreement includes the name and other information about the landowner and grant recipient, conditions of the agreement, the practices involved and their location, the quantities and units of measurement involved, the estimated total cost, the cost share rate and amount, the timetable for installation, and number of years the practice must be maintained. The

agreements also identify and provide information on practices not cost-shared through the nonpoint program but that are essential to controlling pollution sources (such as crop rotations). Once it is signed by both parties, they are legally bound to carry out the provisions in it.

If landownership changes, the cost-share agreement remains with the property and the new owner is legally bound to carry out the provisions. NR 120.13(9) and (10) has more information on changes of landownership and the recording of cost-share agreements.

Local, state, or federal permits may be needed prior to installation of some BMPs. The areas most likely to need permits are zoned wetlands and the shoreline areas of lakes and streams. These permits are needed whether the activity is a part of the watershed project or not. Landowners should consult with the County Planning and Zoning Department or the Land Conservation Department offices to determine if any permits are required. The landowner is responsible for acquiring the needed permits prior to installation of practices.

The cost-share agreement binds the county to provide the technical assistance needed for the planning, design, and verification of the practices on the agreement, and to provide the cost-share portion of the practice costs.

Counties are responsible for enforcing compliance of cost-share agreements to which they are a party. Where DNR serves as a party to an agreement with a unit of government, the DNR will take responsibility for monitoring compliance. The responsible party will insure that BMPs installed through the program are maintained in accordance with the operation and maintenance plan for the practice for the appropriate length of time. Vernon, Richland and Monroe counties will check for compliance with practice maintenance provisions once every three years after the last practice has been installed. The county must check maintenance at its own expense after the Nonpoint Source Agreement has lapsed.

Landowner Contact Strategy

The following procedure will be used to make landowner contacts.

a) During the first three months of the implementation period, all landowners or operators with eligible nonpoint sources will receive from the county a mailing explaining the project and how they can become involved.

b) After the initial landowner mailings, county staff will make personal contacts with all landowners that have been identified as having critical nonpoint sources of pollution. These contacts will occur within a year of receiving the Nonpoint Source Agreement.

c) The county will continue to make contacts with eligible (Management Category I and II) landowners and operators until they have made a definite decision regarding participation in the program.

d) The county will contact all eligible landowners (as defined in c above) not signing cost-share agreements by personal letter six months prior to the end of the cost-share sign up period.

Procedure for Developing a Cost Share Agreement

Eligibility for cost-sharing is verified following a site visit, using the criteria described in Chapter 4.

The development of farm conservation plans will be the primary method used to develop cost-share agreements. These plans are specific to a particular landowner and are a comprehensive approach to the abatement of the nonpoint sources of pollution, and the conservation of soil and other resources. The farm plan takes into consideration the sustainability of the agricultural resources and the management decisions of the owner or operator.

The cost share agreement specifies the items listed in the farm conservation plan that are necessary to reduce the nonpoint sources of pollution. The conservation plan and cost share agreement will document existing management which must be maintained to protect water quality.

The following procedure will be used by the county for developing and administering agreements. Below are the steps from the initial landowner contact through the completion of BMP maintenance.

1. Landowner and county staff meet to discuss the watershed project, NPS control practice needs, and coordination with conservation compliance provisions if applicable.

2. Landowner agrees to participate with the watershed project.

3. A farm conservation plan is prepared by the county.

4. The landowner agrees with the plan, a Cost Share Agreement is prepared and both documents are signed by the landowner and the county. A copy of the Cost Share Agreement (CSA) is sent to the DNR Western District Nonpoint Source Coordinator and a copy given to the landowner. The CSA will be recorded by the county with the County Register of Deeds.

5. Practices are designed by the county, or their designee, and a copy of the design is provided to the landowner.

6. Landowner obtains two or more bids or other information required in the cost containment policy.

7. Amendments to the CSA are made if necessary.

8. The county staff oversee practice installation.

9. The county verifies the installation.

10. The landowner submits paid bills and proof of payment (canceled checks or receipts marked paid) to the county.

11. Land Conservation Committees or their designated representative and if required, county boards, approve cost-share payments to landowners.

12. Checks are issued by the county to the respective landowners and project ledgers are updated.

13. The county records the check amount, number, and date.

14. DNR reimburses the county for expended cost-share funds.

Identifying Wildlife and Fishery Needs

The Vernon, Richland and Monroe county staffs will consult with DNR's Western District wildlife management and fisheries management staff to optimize the wildlife and fish management benefits of nonpoint source control BMPs. Specifically, the county staff will contact DNR staff if in the county's opinion: Fence rows, rock piles, wetlands, or other wildlife habitat components will be adversely affected by installation of agricultural BMPs.

The DNR staff will assist county staff by:

- Identifying streambank protection practices that benefit fish and wildlife.

- Identifying wildlife habitat components that could be incorporated into vegetative filter strips along streams or in upland areas.

- Recommending wildlife habitat components and reviewing placement of agricultural sediment basins to assure that negative impacts on stream fish and aquatic life do not occur.

- Providing technical assistance when the installation of BMPs will require the removal of obstructions or other wildlife habitat by proposing measures to minimize impact on wildlife habitat.

- Helping to resolve questions concerning effects of agricultural nonpoint source BMPs on wetlands.

Submittal to the DNR

Cost-share agreements do not need prior approval from DNR, except in the following instances:

- where cost-share funds are to be used for practices on land owned or controlled by the county.

- for agreements or amendments where the cost-share amount for all practices for a landowner exceeds $50,000 in state funds.

- for grade stabilization structures and agricultural sediment basins with embankment heights between 15 and 25 feet and impoundment capacities of 15 to 50 acre feet.

- for streambanks to be controlled using riprap or other materials with banks over 6 feet high.
- for animal lot relocation.
- for roofs over barnyards or manure storage facilities.

Local Assistance Grant Agreement Administration

General Information

The Local Assistance Grant Agreement (LAGA) is a grant from the DNR to Vernon, Richland and Monroe counties for support of staff and support costs to carry out this watershed plan. Each county will have its own agreement. Consistent with NR 120, the counties will use funds from the LAGA for additional staff to implement the project and conduct information and education activities. Other items such as travel, training, and certain office supplies are also supported by the LAGA. Further clarification of eligible costs supported by this grant is given in NR 120.14(4) and (6).

Grant Agreement Application Procedures

An annual review of the Local Assistance Grant Agreement is conducted through the development of an annual workload analysis by the county. This analysis estimates the work needed to be accomplished each year. The workload is provided to DATCP and DNR for review and clarification. Along with the workload analysis, a grant application form is sent. Funds needed to complete the agreed upon annual workload are amended to the local assistance grant agreement.

Fiscal Management Procedures, Reporting Requirements

Vernon, Richland and Monroe counties are required by NR 120 to maintain a financial management system that accurately tracks the disbursement of all funds used for the Middle Kickapoo Watershed Project. The records of all watershed transactions must be retained for 3 years after the date of final project settlement. A more detailed description of the fiscal management procedures can be found in NR 120.25 and NR 120.26.

NR 120 requires quarterly reports to DATCP from each county in accordance with s. Ag. 166.40(4) accounting for staff time, expenditures, and accomplishments regarding activities funded through the watershed project. Reimbursement requests may be included with the submittal of the quarterly project reports.

Staffing Needs

Budget and Staffing Needs

This section estimates the funding and staffing required to provide technical assistance for the rural portion of this project. These estimates are based on needs identified for Vernon, Richland and Monroe counties.

Staff Needs

table 5-4 lists the total estimated staff needed to implement the project in Vernon, Richland and Monroe counties; respectively. Figures are provided for both the 50% and 75% levels of participation. A total of about 160,000 staff hours are required in Vernon county, 55,000 in Richland and 25,000 staff hours in Monroe county to implement this plan at a 75% landowner participation rate. This includes 4,263 staff hours in Vernon, 449 in Richland and 331 staff hours in Monroe county to carry out the information and education program.

The Land Conservation Department in Vernon County will employ 3 project staff, and Richland and Monroe counties will each employ 1 project staff during the first year of the project. The workload estimate in table 5-4 is not feasible at the present time. The counties will assess the number and type of staff required for the remainder of the project based on the experience gained during the first year of implementation.

Staffing Costs

The estimated cost for staff at this landowner participation rate (see table 5-5) is approximately $2.6 million, $1.0 million and $.50 million; respectively, in Vernon, Richland and Monroe counties. All of these costs, with the exception of some direct cost items, would be paid for by the state.

Schedules

Grant Disbursement and Project Management Schedule

Implementation may begin upon approval of this watershed plan by the Vernon County Board; Richland County Board; Monroe County Board; DATCP; and the DNR. The priority watershed project implementation period lasts eight years. It includes an initial three year period for contacting eligible landowners and signing cost-share agreements. Practices on any cost-share agreement must be installed within a five year period.

Under extenuating circumstances, the initial period for entering into cost-share agreements can be extended by DNR for a limited period of time if it will result in a significant increase in nonpoint source control. Limited extensions for the installation period for practices on individual cost-share agreements must also be approved by DNR and DATCP.

table 5-4. Estimated County LCD Staff Needs for Project Implementation

		MONROE COUNTY		RICHLAND COUNTY		VERNON COUNTY	
Activity	Project Years When Work Will Be Done	75% Landowner Participation (Staff Hours)	50% Landowner Participation (Staff Hours)	75% Landowner Participation (Staff Hours)	50% Landowner Participation (Staff Hours)	75% Landowner Participation (Staff Hours)	50% Landowner Participation (Staff Hours)
Project & Financial Mgmt.	1-8	2,800	2,800	5,500	5,500	5,000	5,000
Information & Education Program	1-8	331	331	449	449	4,263	4,263
Pre-Contact Office Inventory; Landowner Contacts, & Progress Tracking & Update Inventory	1-8	1,238	825	1,658	1,106	2,545	1,697
Conservation Planning; Cost Share Agrmt. Development	1-3	825	550	1,106	737	4,212	2,808
Plan Revisions & Status Review & Monitoring	1-8	225	150	302	201	921	614
Practice Design & Installation	1-8						
Upland Sediment Control		13,967	9,311	37,073	24,715	118,174	78,782
Barnyard Runoff Control		921	614	2,109	1,406	6,318	4,212
Manure Spreading Mgmt. & Storage		660	440	1,800	1,200	4,455	2,970
Streambank Erosion Control		2,844	1,896	3,887	2,591	13,538	9,025
Training	1-8	1,200	1,200	1,280	1,280	1,600	1,600
Total LCD Workload		25,010	18,117	55,163	39,185	161,026	110,972
Estimated Staff required for Years 1-3:		4,238 per yr	3,014 per yr	9,229 per yr	6,465 per yr	27,684 per yr	19,015 per yr
Estimated Staff Required for Years 4-8:		2,459 per yr	1,815 per yr	5,495 per yr	3,958 per yr	15,595 per yr	10,785 per yr

Source: DNR; Wisc. DATCP; and Land Conservation Department of: Monroe, Richland and Vernon Counties.

table 5-5. Total Project Costs at 75% Landowner Participation Rate

	MONROE COUNTY	RICHLAND COUNTY	VERNON COUNTY	WATERSHED TOTAL
Item	Costs (State Share)	Costs (State Share)	Costs (State Share)	Costs (State Share)
Cost Share Funds: Practices	994,173	1,345,770	4,781,846	7,121,789
Cost Share Funds: Easements	10,500	14,250	50,250	7,500
Local Assistance Staff Support	467,323 *	1,030,759 *	2,632,772 *	4,130,853
Information/Education Direct	400	3,200	61,508	65,108
Other Direct (travel, supplies, etc.)	28,000	3,800	134,000	200,000
	$1,500,396	$2,431,979	$7,660,376	$11,592,750

* Salary + Indirect = $34,000/year

Source: DNR; Wisc. DATCP; and Land Conservation Department of: Monroe, Richland and Vernon Counties.

table 5-6a. Grant Disbursement Schedule at 75% Landowner Participation Rate for Monroe County

	Project Year			
Item	1	2	3	3-8
Cost Share Funds: Practices	$198,835	$397,669	$397,669	$0
Cost Share Funds: Easements	2,100	4,200	4,200	0
Local Assistance Staff Support	77,906	77,906	77,906	233,605
Information/Education Direct	80	80	80	160
Other Direct (travel, supplies, etc.)	4,500	4,500	4,500	14,500
TOTAL	$283,420	$484,355	$484,355	$248,265

Source: DNR; Wisc. DATCP; and Land Conservation Department of: Monroe, Richland and Vernon Counties.

table 5-6b. Grant Disbursement Schedule at 75% Landowner Participation Rate for Richland County

Item	Project Year 1	2	3	3-8
Cost Share Funds: Practices	$269,154	$538,308	$538,308	$0
Cost Share Funds: Easements	4,750	4,750	4,750	0
Local Assistance Staff Support	169,654	169,654	169,654	521,797
Information/Education Direct	600	600	600	1,400
Other Direct (travel, supplies, etc.)	6,500	6,500	6,500	18,500
TOTAL	$450,658	$719,812	$719,812	$541,697

Source: DNR; Wisc. DATCP; and Land Conservation Department of: Monroe, Richland and Vernon Counties.

table 5-6c. Grant Disbursement Schedule at 75% Landowner Participation Rate for Vernon County

Item	Project Year 1	2	3	3-8
Cost Share Funds: Practices	$956,369	$1,912,738	$1,912,738	$0
Cost Share Funds: Easements	16,750	16,750	16,750	0
Local Assistance Staff Support	508,907	508,907	508,907	1,106,052
Information/Education Direct	11,000	11,000	11,000	28,508
Other Direct (travel, supplies, etc.)	25,000	25,000	25,000	59,000
TOTAL	$1,518,026	$2,474,395	$2,474,395	$1,193,560

Source: DNR; Wisc. DATCP; and Land Conservation Department of: Monroe, Richland and Vernon Counties.

The disbursement of the grants (Local Assistance and Nonpoint Source) to Vernon, Richland and Monroe counties will be based on an annual workload analysis and grant application process. The estimated grant disbursement schedule based on 75% participation by eligible landowners can be found in tables 5-6a, 5-6b, and 5-6c.

Total Project Cost

The total state funding required to meet the rural nonpoint source pollution control needs at a 75% level of landowner participation is presented table 5-5. This figure includes the capital cost of practices, staff support, and easement costs presented above. The estimated cost to the state would be $7.6 million, $2.4 million and $1.5 million in Vernon, Richland and Monroe counties, respectively.

Involvement of Other Programs

Coordination With State and Federal Conservation Compliance Programs

The Middle Kickapoo Watershed Project will be coordinated with the conservation compliance features of the Wisconsin Farmland Preservation Program (FPP) administered by DATCP, and the Federal Food Security Act (FSA) administered by the Soil Conservation Service. DATCP will assist Vernon, Richland and Monroe counties and the SCS offices to identify landowners within the watershed that are subject to the compliance provisions of FPP and FSA. Conservation Farm Plans were completed for all landowners in FSA on December 31, 1989. Vernon and Monroe counties completed FPP plans by the end of 1989, and Richland completed FPP planning by the end of 1990.

There will be a need to implement the conservation plans, and in the future, amend these plans during the implementation phase of the watershed project. Watershed project supported staff will revise the conservation plans developed for FPP, and will inform SCS of changes in FSA plans resulting from management decisions and the installation of BMPs for nonpoint source pollution abatement. This comprehensive approach to farm planning will facilitate consideration of the various goals and objectives for all the programs which the landowner participates.

Some eroding uplands in Management Categories I and II may need control, in addition to that required for meeting sediment delivery targets, in order to meet soil erosion program goals established through other state and federal programs. Where this occurs, technical and financial assistance from the Nonpoint Source Program can be used to support practice design and installation on these critical lands. This assistance applies only where the additional control needed to meet soil erosion goals can be achieved using low cost practices.

Information and Education Program

Program Objectives

Before a problem can be effectively taken on, it first must be recognized and understood. Nonpoint source water pollution control efforts are often hindered by the public's lack of awareness of nonpoint source water pollution problems and their limited understanding of what causes nonpoint source water pollution and how it impacts upon the environment.

In order to achieve the water quality goals set forth in this plan, the Information and Education Program has been designed to achieve the following objectives:

- Resource appreciation: Watershed clientele will gain a greater appreciation of the water resources in the Middle Kickapoo River watershed and will come to a better understanding of how the quality of water resources directly affects the quality of life.

- Problem recognition: Watershed clientele will gain a greater awareness of nonpoint source water pollution and how such pollution interferes with the health and utility of streams, lakes and groundwater. Impacts of nonpoint source water pollution on wildlife, recreation, drainage, health and the economy will be stressed.

- Solution awareness: Watershed clientele will gain greater awareness of Best Management Practices (BMPs), and gain an understanding of how BMPs are installed and operate. Special emphasis will be given to the cost/benefit economics of applying BMPs.

- Project awareness: Watershed clientele will become fully acquainted with the Middle Kickapoo River Priority Watershed Project, including:
  - Project purpose, operation and benefits
  - Local ownership of the Project
  - Specifics on how the Project can assist with BMP application

Target Audiences

Target audiences for the Information and Education Program can be divided into two groups, those who will need to act, and those who can support change:

Those who will need to act:

Watershed landowners
- ag. owner/operators
- ag. absentee owners
- rural small scale/non-ag.
- Amish community
- Army Corp of Engineers
- State Park (DNR)

Operators of watershed land
- renter farmers
- loggers
- contractors

County and town government
Elected officials

Those who can support change:

Agri-business (Co-op's)
Banks and loan institutions
Business and industry organizations
Farm organizations
Youth (FFA, 4-H, schools)
Teachers and youth leaders
Outdoor sports organizations
Conser./environmental organizations
Recreation industry
Religious organizations
Print, radio and TV media
Builders and contractors
General public
Civic service organizations

Mediums for Message Delivery

The following have been identified as being effective mediums to "get the message out":

Print media:

Agri-view
Broadcaster/Censor - Viroqua
Cashton Record
Country Today
Countyline Con. - Ontario
Epitaph News - La Farge
Foxie Shopper
Kendall Keystone
La Crosse Tribune
Monroe Co. Democrat
Observer - Richland
Sentry Enterprise - Hillsboro
Sparta Herald
Tomah Journal
Westby Times

Radio:

WCOW - Sparta
WHLA - La Crosse
WIZM - La Crosse
WKFT - La Crosse
WRCO - Richland
WVRQ - Viroqua

Television:

Channel 8 - La Crosse
Channel 19 - La Crosse
Channel 31 - La Crosse

Newsletters:

ASCS
Agri-business
Electric Cooperatives
Kickapoo Forestry Notes
Kickapoo Valley Association
Land Conservation Depts.
Monroe Co. Forester
N. WI Tobacco Cooperative
Production Credit Assoc.
UWEX - Agriculture
UWEX - Family Living
UWEX - 4-H/Youth

Private schools:

Pleasant Ridge - Viroqua
Bethlehem Baptist - Viroqua
St. Mary's - Norwalk
Sacred Heart - Cashton
Amish Community Schools

Higher education institutions:

Fennimore SWTC
La Crosse WWTC
Viroqua WWTC
UW Center - Richland
UW Center - La Crosse

Youth programs:

4-H - Monroe County
4-H - Richland County
4-H - Vernon County
Boy Scouts
Girl Scouts

Farm organizations:

Coulee Region Organic Pool
Council on Cooperatives
Farm Bureau
Farmer's Union
Guernsey Breeders
Holstein Breeders
Jersey Breeders
NFO
N. WI Tobacco Coop

Public schools/FFA/ Vo-Ag:

Norwalk/Ontario district
Cashton district
Hillsboro district
Kickapoo district
La Farge district
Royal district
Viroqua district
Westby district

Recreation industry:

Canoe outfitters
- Brush Creek Campground
- Mick's Canoe Rental
- Mr. Duck Canoe Rental
- Paddle Inn Canoe Rental
Horseback riding stables
Kickapoo Valley Association
Motels/Bed & Breakfast's
Vernon Co. Tourism Council

Government agencies:

ASCS - USDA
Co. Land Conservation Depts
County UWEX offices
DATCP
DILHR
DNR
Co. Emergency Government
Farmers Home Adm. - USDA
Production Credit Assoc.
SCS - USDA
U.S. Army Corps of Eng.

Outdoor/environmental org.:

Vernon Co. Conser. Alliance
Ducks Unlimited
National Wild Turkey Fed.
National Wildlife Federation
Nature Conservancy

Recreation industry:

Pheasants Forever
Ruffed Grouse Society
Trout Unlimited
24 - Valley Sportsman Club
Rolling Hills Sportsman Club
Viola Sportsman Club
Westby Rod and Gun
West Fork Sportsman Club

Other:

Agri-businesses
Churches
Extension Homemaker Clubs
Service organizations
- Eagles
- Kiwanis
- Lions
- VFW

Business/Industry Assoc.:

Hillsboro Chamber of Com.
Viroqua Chamber of Com.

Information and Education Activities

Direct contacts to community, business and media leaders

Watershed staff will make direct contacts with members of the press, agricultural businesses and federal, state, and county government leaders at the start of Project implementation to assure the purpose and operation of the Project are understood. Contacts can be made either in person or over the telephone.

Objective(s): Project awareness

Audience: Federal, state and county and town government, agri-businesses, financial institutions and area newspapers, radio and TV.

Schedule: Initial contacts to be completed during first three months of Project implementation. Annual up-dates will be required as personnel changes occur.

Assignments:

Agency	'91	'92	'93	'94	'95	'96	'97	'98	'99
CAC	4	4	4						
LCD	20	2	2	2	2	2	2	2	2
UWEX/Co.	20								
Total Hrs.	44	6	6	2	2	2	2	2	2

Materials: Project brochure, handout materials, etc.

Budget: No direct costs.

Direct contacts with watershed clientele Mass media coverage

Watershed staff will make direct "one-on-one" contacts with watershed clientele who are eligible for Project participation.

Objective(s): Problem recognition, Solution awareness, Project awareness

Audience: Watershed clientele with nonpoint source problems identified as critical in the Project Plan.

Schedule: Individual contacts will be made with the estimated 300 watershed clientele at least once during the Project's three year sign-up period.

Assignments:

Agency	'91	'92	'93	'94	'95	'96	'97	'98	'99
LCD	75	225	75	75					
UWEX/Co.	25	100	25	25					
Total Hrs.	100	325	100	100					

Materials: Project brochure, BMP fact sheets, etc.

Budget: No direct costs.

Project newsletter

Objective(s): Resource appreciation, Problem recognition, Solution awareness, Project awareness

Audience: Watershed clientele, organizations, businesses, schools, units of government and members of the media.

Schedule: Four issues per year (September, December, March and June) during 1991-94; two issues per year (November, March) during 1995-99.

Assignments:

Agency	'91	'92	'93	'94	'95	'96	'97	'98	'99
DNR	6	12	12	6	6	6	6	6	6
LCD	44	88	88	44	44	44	44	44	44
SCS	3	3	3	3	3	3	3	3	3
UWEX/Co.	12	24	24	12	12	12	12	12	12
UWEX/Dist.	32	64	64	32	32	32	32	32	32
UWEX/NPM	3	3	3	3	3	3	3	3	3
Total Hrs.	100	194	194	100	100	100	100	100	100

Materials: Stories, photos, graphics, etc.

Budget:

Item	'91	'92	'93	'94	'95	'96	'97	'98	'99
Production	. . . Costs covered in Madison . . .								
Postage	484	800	800	440	440	440	484	484	484
Annual totals	484	800	800	440	440	440	484	484	484

Project total: $ 4,856.00

Utilization of existing newsletters

When possible, Project information will be distributed through existing newsletters that reach the Project's target audiences, e.g., newsletters from ASCS, LCD, UWEX, DNR, REA, and Cooperatives.

Objective(s): Resource appreciation, Problem recognition, Solution awareness, Project awareness

Audience: General public with emphasis on watershed clientele

Schedule: Publish one Project related article in a non-Project newsletter each quarter during 1991-94.

Assignments:

Agency	'91	'92	'93	'94	'95	'96	'97	'98	'99
UWEX/Co.	6	24	24	18					
Total Hrs.	6	24	24	18					

Materials: Newsletter contacts, stories, graphics, pictures, etc.

Budget: No direct costs.

Printed materials

Objective(s): Solution awareness, Project awareness

Audience: Watershed clientele

Schedule:
Project brochure: 9/92 (2,000 copies)
Project folder: 9/92 (300 copies)
Barnyard runoff BMP fact sheet: 9/92 (300 copies)
Waste storage BMP fact sheet: 9/92 (300 copies)
Rural Con. Prac. for Cleaner Water: 9/92 (600 copies)
Integrated Res. Management fact sheet: 11/92 (300 copies)
Well water quality fact sheet: 11/92 (1,200 copies)

Assignments:

Agency	'91	'92	'93	'94	'95	'96	'97	'98	'99
DNR		10							
LCD		2							
UWEX/Co.		2							
UWEX/Dist.		32							
Total Hrs.		46							

Materials: Text, photos, graphics

Budget:

Item	'91	'92	'93	'94	'95	'96	'97	'98	'99
Brochure		. . . Cost covered in Madison . . .							
Folder		. . . Cost covered in Madison . . .							
Barnyard f/s		. . . Cost covered in Madison . . .							
Manure f/s		. . . Cost covered in Madison . . .							
Rural Cons. f/s		. . . Cost covered in Madison . . .							
Integ. Res. f/s		. . . Cost covered in Madison . . .							
Well Water f/s		75							
Annual totals		75							

Project total: $ 75.00

Mass media coverage

Objective(s): Resource appreciation, Problem recognition, Solution awareness, Project awareness

Audience: General public with emphasis on watershed clientele

Schedule: News articles: As needed, with a target of 3 articles/quarter 1991-94. Proposed series of articles on the Kickapoo Valley, including local history, Nuzem Grant, forestry, recreation and dam project.

Radio spots: As needed, with a target of 3 spots/quarter '91-94

TV coverage: As opportunities occur, with a target of being covered once during 1992-93

Assignments:

Agency	'91	'92	'93	'94	'95	'96	'97	'98	'99
DNR	3	12	12	9					
LCD	3	9	9	6					
SCS	2	8	8	6					
UWEX/Co.	8	32	32	24					
Total Hrs.	16	61	61	45					

Materials: Stories, information, and shooting locations

Budget: No direct costs.

Presentations to groups

Objective(s): Resource appreciation, Problem recognition, Solution awareness, Project awareness

Audience and Schedule:

Monroe County Board: 9/91, 9/92, 9/93, 8/94 (annual updates)
Richland County Board: 9/91, 9/92, 9/93, 8/94 (annual updates)
Vernon County Board: 9/91, 9/92, 9/93, 8/94 (annual updates)
village Boards (3 total): 9 - 11/91
Kickapoo Valley Association: 11/91
Project Area town Boards (14 total): '92 - '93
Interest groups on request (est. 2 per year 91 - 94)

Assignments: LCD will handle all of the county and village board meetings. LCD and UWEX will share 50/50 presentations to interest groups. UWEX district staff will assist with development of presentation materials.

Agency	'91	'92	'93	'94	'95	'96	'97	'98	'99
DNR/Wildlife		42	42						
LCD	24	54	54	12					
UWEX/Co.	8	4	4	4					
UWEX/Dist.	16								
Total Hrs.	48	96	96	16					

Materials: Slide show, videos, handout materials

Budget:

Item	'91	'92	'93	'94	'95	'96	'97	'98	'99
Slide show	200								
Annual totals	200								

Project total: $ 200.00

Project display

A Project display board will be developed for exhibit at county fairs and meetings, and in bank lobbies, libraries and other similar public locations.

Objective(s): Problem recognition, Solution awareness, Project awareness

Audience: General public

Schedule: Have display developed by 9/91

Assignments: LCD will take responsibility for staffing the display at county fairs (120 hrs/year), and for transportation of the display between other locations (50 hrs/year). UWEX district staff will assist with display development.

Agency	'91	'92	'93	'94	'95	'96	'97	'98	'99
LCD	170	170	170	50					
UWEX/Dist.	24								
Total Hrs.	194	170	170	50					

Materials: Display board (already purchased), display materials

Budget:

Item	'91	'92	'93	'94	'95	'96	'97	'98	'99
Display materials	500	325	250						
table	170								
Annual totals	670	325	250						

Project total: $ 1,245.00

Nutrient and pesticide management demonstration plot

Objective(s): Solution awareness

Audience: Watershed crop farmers

Schedule: One plot per season during 1991-92. At the conclusion of the 1992 season, the usefulness of continuing Nutrient and Pesticide Management (NPM) demonstrations will be evaluated by the Project Team. Additional years of NPM demonstrations will be funded if the Project Team concludes that they would significantly aid in meeting Project objectives.

Assignments:

Agency	'91	'92	'93	'94	'95	'96	'97	'98	'99
LCD	10	10							
SCS	4	4							
UWEX/Co.	48	48							
UWEX/Dist.	24	24							
UWEX/NPM	200	200							
Volunteers	24	24							
Total Hrs.	310	310							

Materials: Cooperating farmer, scouting services, soil and tissue tests, signs, film, publicity materials, field day refreshments, etc.

Budget:

Item	'91	'92	'93	'94	'95	'96	'97	'98	'99
NPM demo plot	1,500	1,575							
Annual totals	1,500	1,575							
Project total:	$ 3,075.00								

Watershed tours

Objective(s): Problem recognition, Solution awareness, Project awareness

Audience: State, county and town officials, media groups, school groups, etc.

Schedule: One per year during 1992-94

Assignments:

Agency	'91	'92	'93	'94	'95	'96	'97	'98	'99
CAC		4	4	4					
DNR		8	8	8					
LCD		16	16	16					
SCS		4	4	4					
UWEX/Co.		8	8	8					
UWEX/Dist.		8	8	8					
Total Hrs.		48	48	48					

Materials: Bus, cooperating landowners, sound system, handouts, etc.

Budget:

Item	'91	'92	'93	'94	'95	'96	'97	'98	'99
Bus rental		105	110	115					
Refreshments		68	70	72					
Annual totals		173	180	187					

Project total: $ 540.00

Workshops and field days

Objective(s): Solution awareness, Project awareness

Audience: Watershed clientele with identified nonpoint source problems

Schedule:
One BMP demonstration field day: '91
Four BMP demonstration field days: '92
Well abandonment/sinkhole workshop: '92
Streambank habitat restoration: '92
Two BMP demonstration field days: '93
Logging road erosion control: '93

Assignments:

Agency	'91	'92	'93	'94	'95	'96	'97	'98	'99
DNR	16	40	24						
LCD	40	70	70						
SCS	8	20	16						
UWEX/Co.	50	70	50						
UWEX/Dist.	10	20	18						
Volunteers	16	40	24						
Total Hrs.	140	260	202						

Materials: Cooperating landowners, handouts, sound system, visuals, refreshments, etc.

Budget:

Item	'91	'92	'93	'94	'95	'96	'97	'98	'99
Printed materials	60	200	90						
Postage for flyers	120	500	240						
Refreshments	120	450	180						
Mileage for specialist	100	350	100						
Annual totals	400	1,500	610						

Project total: $ 2,510.00

Project participant signs

Objective(s): Project awareness

Audience: General public

Schedule: Erected as participants sign contracts

Assignments:

Agency	'91	'92	'93	'94	'95	'96	'97	'98	'99
LCD		12							
UWEX/Dist.		4							
Total Hrs.		16							

Materials: 200 signs, approximately 2' X 3'

Budget:

Item	'91	'92	'93	'94	'95	'96	'97	'98	'99
Signs - 200		3,000							
Annual totals		3,000							

Project total: $ 3,000.00

Canoe launch educational signs

Objective(s): Resource appreciation, Problem recognition, Solution awareness, Project awareness

Audience: Recreational users of the Kickapoo River

Schedule: Three erected by 5/92

Assignments:

Agency	'91	'92	'93	'94	'95	'96	'97	'98	'99
LCD		16							
UWEX/Dist.		12							
Total Hrs.		28							

Materials: Cooperating liveries, signs, informational brochures

Budget:

Item	'91	'92	'93	'94	'95	'96	'97	'98	'99
Interpretive signs - 3		600							
Annual totals		600							

Project total: $ 600.00

Youth programming - elementary/secondary schools

Objective(s): Resource appreciation, Problem recognition, Solution awareness, Project awareness

Audience: Fifth and sixth grade students

Schedule: Distribute educational material annually to area schools as they are developed and provided by state DNR and UWEX staff. Program materials to be developed in 1992. Distribution of materials to begin in 1993.

Assignments:

Agency	'91	'92	'93	'94	'95	'96	'97	'98	'99
DNR		16							
LCD			10	10	10	10	10	10	10
UWEX/Dist.		16							
Total Hrs.		32	10	10	10	10	10	10	10

Materials: Curriculums, lesson materials, teaching tools, etc.

Budget:

Item	'91	'92	'93	'94	'95	'96	'97	'98	'99
Lesson materials			500						
Annual totals			500						

Project total: $ 500.00

Youth programming - 4-H/FFA/Vo-Ag projects

Objective(s): Resource appreciation, Problem recognition, Solution awareness, Project awareness

Audience: Watershed youth involved in 4-H, FFA and Vo-Ag programming

Schedule: Develop water resources projects for use by 4-H, FFA, and Vo-Ag

Assignments:

Agency	'91	'92	'93	'94	'95	'96	'97	'98	'99
DNR		16	16	16					
LCD		16	16	16					
UWEX/Co.		16	16	16					
Total Hrs.		48	48	48					

Materials: Curriculum, lesson materials, etc.

Budget:

Item	'91	'92	'93	'94	'95	'96	'97	'98	'99
Lesson materials		200	200	200					
Annual totals		200	200	200					

Project total: $ 600.00

Nutrient and pesticide management/groundwater protection training

Intensive one-on-one training concentrating on decreasing surface and groundwater pollution by increasing the efficient use of animal waste, commercial fertilizer and field applied pesticides. Ten selected project contract holders will engage in one-on-one training with a crops and soils specialist each year for an initial two year trial period. A different group of ten farmers will be worked with each year so that a total of twenty farmers will have received training at the end of the two year trial. The training is anticipated to have a "multiplier effect", reaching a wider audience as the twenty selected project contract holders share their training experience with others.

Topics to be covered in this training include:

- Proper soil testing for N, P, K and pH
- Understanding and using soil test recommendations
- N crediting for manure and legumes in rotation
- Calibration of manure and fertilizer applicators
- Crop budgeting; concepts of maximum Y vs. maximum return
- Techniques that can lead to reduced pesticide use
- Pesticide applicator calibration
- Record keeping
- Analysis of farmstead for potential groundwater contamination

At the end of the two year trial period, the one-on-one program delivery approach will be evaluated by the Project Team. If the approach is found to be cost-effective and producing results consistent with project objectives, additional funds may be made available through the Nonpoint Source Program for its continuance.

Objective(s):	Problem recognition, Solution awareness
Audience:	Project participants who grow crops
Schedule:	Individual training with ten contract holders per year for the years of 1992 and 1993. The program may be continued for additional years upon positive evaluation of the initial two year trial period.
Assignments:	1,040 hours per year during 1992 and 1993. It has yet to determined how this activity will be staffed. Possible options include: 1. A half-time crops and soils agent hired by one of the county UW Cooperative Extension offices. 2. A half-time crops and soils technician hired by one of the county Land Conservation Departments. 3. A private crops and soils consultant contracted by the Project. 4. Use of existing LCD and UW-Extension staff.
Materials:	Field equipment (walk wheel, scales, soil probe, etc.), office equipment (office space, desk, files, computer), and supplies. Materials to be provided by County LCDs.
Budget:	$37,355 (based on half-time salary and benefits for 1992 and 1993.

Project Impact

Repeat "Farm Practices in Wisconsin" survey to determine changes in knowledge levels and adaption of improved resource management techniques.

Objective(s): Resource appreciation, Problem recognition, Solution awareness, Project awareness

Audience: Watershed clientele

Schedule: Initial survey: 2/91
Final assessment survey: 2/96

Assignments:

Agency	'91	'92	'93	'94	'95	'96	'97	'98	'99
UWEX/Dist.						16			
UWEX/NPM						220			
Total Hrs.						236			

Materials: Survey tool, mailing lists, maps, ASCS forms, etc.

Budget:

Item	'91	'92	'93	'94	'95	'96	'97	'98	'99
FAT Survey						3,700			
Annual totals						3,700			

Project total: $ 3,700.00

Promotional materials

Objective(s): Project awareness

Audience: General public

Schedule: Project hats: 8/91
Project picnic and special awards materials: 9/92

Assignments:

Agency	'91	'92	'93	'94	'95	'96	'97	'98	'99
LCD		8							
UWEX/Dist.		8							
Total Hrs.		16							

Materials: Designs, awards, supplies

Budget:

Item	'91	'92	'93	'94	'95	'96	'97	'98	'99
Hats - 100		350							
Picnic and awards		1,380							
Annual totals		1,730							

Project total: $ 1,730.00

table 1. Agency assignment hours

Assignments: Agency	'91	'92	'93	'94	'95	'96	'97	'98	'99
CAC	4	8	8	4					
DNR	25	156	114	39	6	6	6	6	6
LCD	390	686	510	231	56	56	56	56	216
SCS	29	39	31	13	3	3	3	3	3
UWEX/Co.	193	328	183	91	12	12	12	12	12
UWEX/Dist.	118	184	106	24	32	48	32	32	32
UW/NPM	203	203	3	3	3	223	3	3	3
Unassigned		1,040	1,040						
Volunteers	40	64	24						
Total Hrs.	1,002	2,708	2,019	405	112	348	112	112	272

table 2. Activity Budget

Item	'91	'92	'93	'94	'95	'96	'97	'98	'99
Leader contacts									
Clientele contacts									
Project newsletter	484	800	800	440	440	440	484	484	484
Other newsletters									
Printed material		75							
Mass media									
Presentations	200	200							
Project display	670	325	250						
NPM plots	1,500	1,575							
Tours		173	180	187					
Field days	400	1,500	610						
Participant signs		3,000							
Landing signs		600							
School programs			500						
Youth programs		200	200	200					
NPM ed. program		1854	018,815						
FAT survey						3,700			
Promo materials		1,730							
Annual totals ($)	325	428,718	21,355	827	440	4,140	484	484	484

CHAPTER SIX
Integrated Resource Management

Introduction

The integration of resource management activities in the Middle Kickapoo River Priority Watershed will coordinate existing federal, state, and local programs. The ability to integrate programs will help achieve the best possible management of land and water resources in the project area. There are a number of specific program activities which will need coordination in the project and will involve several different agencies.

Stewardship Program

This program is funded through the Stewardship legislation of 1990. Streams of a high priority nature will be recommended for this program. The acquisition of easements in this program will be coordinated by the DNR fish manager and are designed to acquire riparian land rights for the purpose of protecting important streams that are threatened by urban or agricultural land uses. Funding for the stewardship program is separate from the priority watershed project. Currently, there are no streams in the Middle Kickapoo River watershed designated for Stewardship funding. However, this program is a potential source for funding easement acquisition in the future. Easements are available through a separate provision of NR 120 and are discussed in detail in Chapter 4.

Agricultural Programs

USDA programs like the conservation reserve program (CRP), and the Agricultural Conservation Program (ACP) provide funding for projects that have a direct impact on water quality. Although these programs are not targeted towards water quality, the continued or expanded use of them should help in protecting water resources. These programs will continue to be used in the project area and will provide additional funding to landowners.

DNR Resource Management Programs

The Wisconsin DNR forestry and wildlife objectives for the Middle Kickapoo River watershed project have been identified and implementation activities developed. Some of these activities have a very direct relationship to water quality while others are more indirect

as a result of improved resource management. General information and education activities described in chapter 5 will be used to help implement resource management objectives. These activities are listed at the end of this chapter. Staff time requirements are listed in chapter 5.

Forestry Management

Objective #1

Protecting grazed woodlots from further access by livestock.

* The priority watershed project has included the use of woodlot fencing as a cost sharable practice.
* The County LCD will make referrals to the DNR forester whenever landowner contacts reveal needs for woodlot protection from livestock access.
* The DNR forester will make a personal contact with the landowner after referral from the County LCD.
* Information and education activities will be used to encourage landowners to protect woodlands from livestock damage.

Objective #2

Enter eligible woodlands into forest management programs such as the Managed Forest Law and the American Tree Farm System.

* At the time of landowner contact, the County LCD staff will refer landowners to the county forester for a followup contact.
* The potential of woodlands to be eligible for forestry programs will need to be determined initially by the County LCD.
* A brief training session will be provided by the DNR foresters so that county staff will be able to recognize the potential eligibility of a landowner for a forestry program.
* Information and education activities will be used to make landowners aware of the Managed Forest Law and American Tree Farm System.

Objective #3

Plant trees on non-productive fields, pasture, and CRP acreage.

* The use of trees for establishing critical area control is encouraged and is provided for in NR 120.14(11). For conditions which do not meet project eligibility criteria (tree planting on non-eroded areas) a specific information and education effort is planned.
* County LCD staff will make referrals to the DNR foresters wherever conditions favorable to tree planting occur.

Objective #4

Advocate proper planning, construction, and maintenance of logging and skidding trails to prevent soil and water erosion.

* Soil erosion in logging areas has been identified as a water quality problem and presents a need for water quality protection. The best management practices used to control this kind of problem are either included in chapter 5 or will be pursued through the alternative design procedures in NR 120.15.
* County LCD staff will use eligibility criteria for cost sharing existing erosion problems in logging operation areas within the project. The criteria is explained in chapter 4 under management actions.
* An information and education activity has been identified for this objective.

Objective #5

Support information and education efforts about forest regeneration and proper harvesting techniques.

* The implementation approach for this objective is included in the information and education plan.

Objective #6

Foster participation in the Agricultural Conservation Program (ACP) forestry practices administered by ASCS.

* The implementation approach for this objective is included in the information and education plan.

Wildlife Management

Objective #1

Protect remaining stands of deciduous bottomland hardwoods from forest fragmentation.

* For those areas that are defined as wetlands, easements may be available through the priority watershed program. The County LCD staff will evaluate the potential of protecting these areas by easement acquisition, or even by cost sharing for wetland restoration if eligible.
* Information and education activities are planned for this objective.

Objective #2

Enroll all eligible farmed wetlands into the Wetlands Reserve Program of the 1990 farm bill.

* The implementation approach for this objective will include a specific information and education activity.

Objective #3

Promote the use of no-till and conservation tillage systems to provide additional wildlife food and cover on agricultural lands.

* The use of tillage systems are cost sharable activities and are included in chapter 5 as available best management practices.

Objective #4

Promote roadside mowing according to a plan which is beneficial to wildlife.

* The implementation approach for this objective include information and education activities and direct contacts with the town boards.
* The County LCD staff and the wildlife managers will attend one town board meeting for each township during the first two years of the project. At the meeting, they will present information on beneficial roadside management alternatives.

Objective #5

Restore the wetland basis not eligible for the wetland reserve program.

* The implementation activity identified for this objective is providing wetland restoration as a cost sharable best management practice. Guidelines for wetland restoration are included in chapter 4.
* Easement acquisitions will assist in meeting this objective.

Objective #6

Promote the Purple Loosestrife program.

* The control of this plant is an objective of the wildlife management program. The plant is a problem because of its propensity to displace more desirable vegetation especially in wetland environments. The plants value as wildlife cover or food is minimal and it is considered a nuisance invader. The implementation approach for this objective is a specific information and education activity.

Objective #7

Encourage upland nesting cover establishment.

* For some land management practices, planting of desirable species that benefit nesting cover will be used.
* Assistance in identifying desirable species for planting will be provided by DNR wildlife managers.
* The use of beneficial plant species will be encouraged by the County LCD staff.
* Cost sharing for wildlife plantings will be available through the critical area stabilization management practice.

Objective #8

Promote tree harvest operations which are conducive to oak, aspen, and alder regeneration.

* In cases where County LCD staff recognize opportunities for timber management, they will make referrals to the DNR wildlife manager.
* The DNR wildlife manager will provide training information to allow LCD staff to recognize these timber management opportunities.

Objective #9

Encourage Osprey nesting platforms.

* Because the use of artificially constructed Osprey nesting platforms has proven to be effective in the re-establishment of this species, the County LCD staff will make referrals to the DNR wildlife managers of sites that may be suitable for nest construction.
* DNR wildlife managers will provide information to the county staff on appropriate site conditions necessary for Osprey nesting.

Objective #10

Ensure wildlife habitat re-creation where habitat is lost due to construction of Best Management Practices.

* Wildlife protection is required by administrative rule for a number of best management practices that will be installed in the project. Wildlife habitat shall be recreated to replace wildlife habitat lost through removal due to the construction of the following best management practices:

  - Contour and field stripcropping
  - Field diversions
  - Terraces
  - Grassed waterways
  - Critical Area Stabilization
  - Grade Stabilization Structures
  - Shoreline Buffers

  Assistance in recreating lost wildlife habitat will be provided by the DNR wildlife managers on an as-needed basis.

Fisheries Management

The fishery management objectives have been listed in chapter 3 under the specific water resource management objectives for the watershed. Water quality improvements will directly impact the state of fisheries in the project area; therefore, specific management objectives have been developed. In association with expected improvements in water quality and fisheries from the installation of pollution control practices is the additional improvement

expected through the installation of streambank structures designed to provide valuable fish habitat. NR 120.14(14)(b)i allows fish structures to be installed in conjunction with streambank stabilization using rock riprap.

Information and Education Activities

Information and education activities which will be used to help implement integrated resource management objectives include:

- information sharing through direct landowner contacts made by project staff,
- facilitate sharing of information between project area landowners,
- radio, television, and/or local press coverage when feasible,
- featuring practices on project tours and field days whenever practical,
- featuring practices on project's display exhibit,
- articles in the project's newsletter and other newsletters servicing the project area,
- distributing existing printed materials where feasible, and
- conducting a workshop on logging and access road erosion control in 1993.

Detailed information on staff time requirements and budget estimates is included in chapter 5.

CHAPTER SEVEN
Progress Assessments

Introduction

This chapter describes how progress will be monitored in the Middle Kickapoo River Priority Watershed Project. The strategy includes two components:

- administrative review,
- pollution reduction evaluation

Information on these components will be collected by the county Land Conservation Department (LCD) and reported to DNR and DATCP. Additional information on the numbers and types of practices on cost share agreements; funds encumbered on cost share agreements, and funds expended will be provided by DNR's Bureau of Community Assistance.

Upon completion of the landowner sign-up period, an interim report will be prepared cooperatively by the LCDs, cities/villages, DATCP, and DNR. This report will summarize the administrative, pollutant load reduction, and water quality information that is available at that time. The report will make preliminary conclusions on the success of the project to date and will recommend actions to be taken during the rest of the implementation phase.

Administrative

This component will focus on the progress of the counties in implementing the project. The project will be evaluated with respect to amount and types of BMPs on Cost Share Agreements and installed (accomplishment reporting), financial expenditures, and staff time spent on project activities.

Accomplishment Reporting

The Computer Assisted Management and Planning System (CAMPS) is a computer data management system that has been developed by the U.S. Soil Conservation Service (SCS). It is used by SCS, DNR and DATCP to meet the accomplishment reporting requirements of all three agencies. Data on administrative accomplishments will be collected by each county LCD using CAMPS, and will be provided to DNR and DATCP for program evaluation.

The County LCDs will provide the following data to DNR and DATCP on a quarterly basis:

- number of personal contacts made with landowners,
- completed I&E activities,
- number of farm conservation plans prepared for the project,
- number of cost share agreements signed,
- number of farm conservation plan and cost share agreement status reviews completed, and
- number of farms and acres of cropland checked for proper maintenance of Best Management Practices,

In addition to quarterly reports, County LCD representatives will meet with DNR and DATCP staff annually to review progress and plan for the next year.

Financial Expenditures

The LCD will provide the following financial data to DNR and DATCP on a quarterly basis:

- number of landowner cost share agreements signed,
- amount of money committed on cost share agreements,
- number of landowner reimbursement payments made, and amount paid for BMP installation
- expenditures for staff travel,
- expenditures for information and education program,
- expenditures for equipment, materials, and supplies,
- expenditures for professional services and staff support costs, and
- total project expenditures for LCD staff,
- staff training expenditures,
- interest money earned and expended, and
- total county LCD budget and expenditures on the project.

Time Spent On Project Activities

The LCD will provide time summaries to both departments for the following activities on a quarterly basis:

- project and fiscal management,
- clerical assistance,
- pre-design and conservation planning activities,
- technical assistance: practice design, installation, cost share agreement status review and monitoring,
- educational activities,
- training activities, and
- leave time.

Pollutant Reduction Evaluation

Purpose

The purpose of this evaluation component is to calculate reductions in the amount of key pollutants as a result of installing Best Management Practices. Five key sources have been identified for estimating changes in pollutant loads in the Middle Kickapoo River Watershed: upland sediment, runoff from barnyards, critical fields winter spread with manure, gully erosion, and streambank erosion. Tracking procedure for each source is described below.

Procedure

- Upland Sediment Sources

  The DNR will use the WIN (Wisconsin Nonpoint Source) model to estimate sediment reductions due to changes in cropping practices. Data for the WIN model will be provided quarterly by each county LCD through CAMPS, as described above.

- Barnyard Runoff

  Each county will use the BARNY (Modified ARS) model to estimate phosphorus reductions due to the installation of barnyard control practices. The county will report the information to DNR through CAMPS.

- Manure Spreading

  The county will record for each landowner, the actual number of critical acres which are no longer spread with winter manure. This change will be recorded using the CAMPS system. Also, the county staff shall record the number of SCS 590 nutrient management plans developed, the number of acres managed by the plans, and the average pounds per acre of nitrogen and phosphorus credited from manure and other sources.

- Gully Erosion

  The county will record for each landowner, the actual number of gullies present at the time of contact and the number of gullies to be controlled through Best Management Practices identified on the Cost Share Agreement.

- Streambanks

  The county LCD will calculate changes in streambank sediment in terms of tons of sediment and length of eroding sites. A tally will be kept of landowners contacted, the amount of streambank sediment being generated at the time of contact, changes in erosion levels estimated after installing Best Management Practices, and number of fish habitat structures installed.

CHAPTER EIGHT
Evaluation Monitoring Plan Summary

Introduction

The primary purpose of this monitoring plan is to evaluate how well the Middle Kickapoo River Priority Watershed project achieves identified objectives in selected water resources in the watershed. The plan identifies monitoring locations, methods and analysis techniques that will be used in the assessment. The principal methods to be employed in the assessment include 1) fishery surveys; 2) habitat evaluation; 3) macroinvertebrate sampling; 3) temperature and dissolved oxygen monitoring; 4) streamflow and water chemistry monitoring.

This chapter is a summary of the actual watershed monitoring plan, which is available at the DNR Western District Headquarters in Eau Claire and the Central Office in Madison.

Water Resources To Be Monitored

Water resources proposed for monitoring in the Middle Kickapoo watershed are shown in figure 1 and are as follows:

Cheyenne Valley Creek - is a 6.0 mile Class II trout stream with considerable potential for improvement through project implementation. A relatively high level of landowner participation is expected in the subwatershed, especially in the middle portion.

Billings Creek - is a 7.0 mile Class II trout stream that has some potential for improvement. A moderate level of participation is anticipated in the subwatershed.

Warner Branch - is a 3.0 mile Class III trout stream with considerable potential for improvement. A relatively high level of landowner participation is anticipated in the subwatershed.

Jug Creek - is a 3.6 mile tributary of the Kickapoo River with a forage fishery. Some habitat improvement is expected in the stream during the project. Monitoring will be related to the establishment of a wild trout fishery in the stream.

Camp Creek - is a 5.5 mile Class I trout stream with some potential for improvement. A relatively high level of landowner participation is anticipated in the middle portion of the subwatershed.

Brush Creek - is a 7.7 mile Class III trout stream that is severely impacted by nonpoint source pollution. Monitoring will be focused in a stream reach where landowner participation is expected to be relatively high, above the confluence of Upper Brush Creek.

Upper Brush Creek - is a severely impacted 2.6 mile Class III trout stream. Since a relatively low level of landowner participation is expected in this stream watershed, this site will be established as a control for monitoring activities.

Kickapoo River - will be monitored at the beginning and end of the implementation period to determine whether the project objective of reduced bacteria levels has been achieved.

Monitoring Techniques

A variety of monitoring methods will be used in assessing the effectiveness of the watershed project, including habitat evaluations, fishery surveys, macroinvertebrate sampling and physical, chemical and biological water quality monitoring.

Habitat Evaluation

Habitat availability is a major factor limiting trout fisheries in the Middle Kickapoo watershed. Since a primary objective of this watershed project is to improve trout habitat, much of the assessment effort will focus on factors directly or indirectly affecting the trout fishery. Several key habitat related factors that limit coldwater fisheries in the Middle Kickapoo watershed include; lack of suitable spawning substrate, scarcity of instream cover, elevated water temperatures and possibly occasional low D.O. conditions.

The U.S. Fish and Wildlife Service has developed a habitat evaluation procedure that focuses on habitat requirements of selected wildlife species. The end product of the procedure is a numerical habitat suitability index (HSI) on a 0.0 to 1.0 scale (Terrell, et al., 1982).

The HSI will be used to compare habitat conditions prior to, and after project implementation at several sites in the Middle Kickapoo watershed on the previously identified stream reaches. Habitat evaluation sites will primarily be located where BMP implementation is expected to measurably improve stream conditions. In most cases, significant improvements in the HSI can only be expected where BMPs directly affecting stream habitat, such as streambank fencing and barnyard management, are implemented.

Habitat evaluation will require collection of considerable physical data at each site. Because of the considerable data requirements, use of the HSI will be limited to fewer than 15 sites in the watershed. Precise sites for the HSI analysis will be identified after cost-share agreements have been signed for practices that will immediately benefit fish habitat. An HSI will be determined for each site before and several years after practices have been installed.

Fisheries

Electrofishing surveys were conducted in 1990 at 46 sites in 19 streams to assess pre-implementation fishery conditions in the watershed (see Middle Kickapoo River Appraisal Report). Single-run electrofishing surveys were run on several 1000' reaches of each stream studied. The fish survey results were used with other information to develop project objectives and an evaluation monitoring strategy. Additional fishery data will be collected at select sites to supplement HSI determinations and to help assess overall success of the watershed project.

Macroinvertebrate Sampling

Stream macroinvertebrates were sampled at 15 sites in the watershed in 1990 as part of the water quality appraisal. A Hilsenhoff Biotic Index (HBI) was determined for each site to assess water quality conditions.

The HBI primarily reflects long-term oxygen conditions in streams, but does not necessarily measure other habitat-related variables such as turbidity, toxics or sedimentation. Use of the HBI will generally be limited to sites where organic loading and low D.O. levels are likely to be of concern, such as below barnyards and/or pasture areas located in close proximity to streams. Other macroinvertebrate biometrics, such as diversity indices and functional feeding group analysis will also be used, where appropriate, to assess changes in water quality or habitat. Samples collected for HBI determinations can be used for these and other biometrics.

Dissolved Oxygen and Temperature

Dissolved oxygen and temperature data will be collected to determine whether these parameters are limiting to trout carryover or reproduction. Continuous D.O. and temperature monitoring will be conducted during summer low flow at selected stream sites using LICOR dataloggers and YSI D.O. meters. Water temperature extremes will be recorded with maximum/minimum thermometers placed in streams at other sites and recorded on a monthly basis. Dissolved oxygen and temperature monitoring will be conducted in the vicinity of HSI sites.

Water Quality Monitoring

Monthly water quality samples will be collected during the first year of project implementation at sites in at sites in each of the study streams. Monitoring parameters will include temperature, D.O., pH, turbidity, suspended solids, and ammonia and nitrate-nitrogen. This water quality data will be used to calibrate the HSI models.

Bi-weekly bacteriological samples will be collected from 3 sites on the Kickapoo River and 5 sites on the other study streams. Samples will be collected by Vernon County staff and

analyzed by the State Lab of Hygiene for fecal coliform and fecal streptococcus levels before and after project implementation.

Continuous water quality monitoring using a permanent USGS stream gauging station was originally recommended for a site on Cheyenne Valley Creek. However, due to funding constraints, a USGS monitoring station will not be established for this project.

Workload Analysis

Implementation of this evaluation monitoring plan will primarily be the responsibility of District Water Resources Management staff. Assistance will be provided by the Vernon, Monroe and Richland County LCDs and the DNR LaCrosse Area Fish Manager.

The workload analysis focuses on the initial 3 years of project implementation, when most of the pre-implementation monitoring efforts will occur. A similar work effort is anticipated after project implementation is complete (approximately year 2000). Because of the uncertainty of when and where some of the monitoring will be conducted (depending on where BMPs are installed), much of the workload estimates represent a "best guess" (table 8-1).

table 8-1. Workload Estimates (in hours) for Monitoring in the Middle Kickapoo Watershed.

	FY92		FY93		FY94	
Monitoring Activity	FTE	LTE	FTE	LTE	FTE	LTE
Prelim. Site Evaluation	20	0	20	0	20	0
Habitat Evaluation	20	20	40	40	40	40
Fish Surveys	0	0	60*	60	40*	40
Macroinvertebrates	20	20	40	40	20	20
D.O. & Temp. Monitoring	10	10	20	40	20	20
Water Quality Monitoring**	0	0	10	120	0	0
Data Entry and Analysis	20	20	40	40	20	20
Totals:	90	70	230	340	160	140

* Includes DNR Area Fish Manager and District WRM staff.

** Does not include 80 hours needed by Vernon County staff for bacteria sampling in FY92.

Watershed mapping

County work plans and grant agreements should include time and funding to map BMP installations on USGS topographical maps as they occur in the study subwatersheds. The counties will be asked to provide the Department an annual map update of project implementation activities. This activity should require about 20 hours per year per county.

APPENDIX A
Watershed Planning Methods

This appendix describes the steps and procedures used to prepare this plan. These are:

- Evaluating water quality and aquatic habitat.
- Assessing pollution sources.
- Establishing water resource objectives.
- Establishing pollution reduction goals.
- Developing a nonpoint source control strategy.
- Involving the public and local units of government.

Evaluating Water Quality and Aquatic Habitat

The DNR (DNR) is responsible for: designating the biological and recreational uses that surface waters can support under proper management; prescribing the water quality required to sustain these designated uses; and indicating the methods to implement, achieve and maintain those conditions.

The DNR's Western District Water Resources and fisheries Management staff conducted investigations of the existing quality and natural resource conditions during 1990. Their purpose was to evaluate water quality problems and establish a basis for setting water resources management objectives. Detailed assessment results are documented in water resource appraisal reports.

Data Collection

The following is a summary of the four elements comprising the water quality and aquatic habitat investigation.

Subwatershed Delineation and Stream Segmentation: Prior to collecting field data, the watershed was divided into 14 hydrologic subwatersheds. This was accomplished using 1"=400' scale aerial photographs and 1"=2,000' (7.5 minute) U.S. Geological Survey quadrangle maps. These maps were also used to divide the perennial and intermittent stream network into segments. Stream segments were used to separate portions of waterways where

either natural conditions or human-induced changes resulted in pronounced differences in stream character and/or water quality.

Stream Habitat Evaluation

Information characterizing stream habitat—including flow rate and depth, substrate quality, channel configuration, stability, and water temperature—were collected using techniques that the DNR developed. The data were evaluated using DNR's Stream Classification Guidelines (Ball, 1982).

Water Quality Assessment

Surface water quality was assessed through review of historical water chemistry data and an evaluation of bottom dwelling animals (macroinvertebrates) using the Hilsenhoff Biotic Index (Hilsenhoff, 1982). Extensive bacteria (fecal coliform) surveys were conducted to assess the suitability of surface waters for recreational use. Private well samples were collected and analyzed for nitrate + nitrite and triazine herbicides. Analytical data were used to assess the quality of groundwater in the watershed.

Fisheries Resource Assessment

Fish communities were assessed qualitatively using a combination of historical data and information collected during this investigation. Resident fish populations in the streams, lakes, and impoundments were sampled using seines and electric shocking equipment.

Data Interpretation

The data described above were used to determine the existing and potential biological and recreational uses for surface waters. The existing uses reflect present biological and recreational conditions. Potential uses reflect biological and recreational conditions that could be achieved under prescribed types and levels of management. Even though existing and potential uses of a surface water are the same, management programs can result in significant changes in the quality of the aquatic environment. Use classifications and supporting water quality standards used in evaluating water resource conditions are discussed below.

Biological Stream Use Classification

Biological stream use classes describe the fish species or other aquatic organisms which a stream system supports. Designation is based on the ability of a stream to provide suitable habitat and water quality conditions for fish and other aquatic life. The following biological stream use classification system was used statewide and was applied to surface waters in the Middle Kickapoo River Watershed.

COLD= Cold Water Communities include surface waters capable of supporting a community of cold water fish and other aquatic life or serving as a spawning area for cold water fish species.
WWSF= Warm Water Sport Fish Communities include surface waters capable of supporting a community of warm water sport fish and/or serving as a spawning area for warm water sport fish.
WWFF= Warm Water Forage Fish Communities include surface waters capable of supporting an abundant diverse community of forage fish and other aquatic life.
LFF= Limited Forage Fish Communities

Discussions also include the "class" of trout streams based on the publication "Wisconsin Trout Streams" [DNR Publ. 6-3600(80)] and Outstanding/Exceptional Resource Waters, Wisconsin Administrative Code NR 102.20 and NR 102.11.

Class I trout streams are high quality, and populations are sustained by natural reproduction.
Class II trout streams have some natural reproduction but may need stocking to maintain a desirable fishery.
Class III trout streams have no natural reproduction and require annual stocking of legal-size fish to provide sport fishing.

Recreational Stream Use Classification

Recreational stream use classifications are described by a level of human body contact determined to be safe and reasonable. The system applies to all surface waters including those categorized as intermediate or marginal under the above referenced biological use classification system. Three designations are used under the recreational stream classification system. These designations are full body contact, partial body contact, and noncontact.

Full Body Contact: These waters are used for human recreation where immersion of the head is expected and occurs often. Recreation activities classified as full body contact include swimming, waterskiing, sailboarding and other similar activities.

Partial Body Contact: These waters are used for human recreation where immersion of the head is not frequent and contact is most often incidental or accidental. Recreational activities classified as partial body contact include boating, canoeing, fishing and wading.

Noncontact: These waters should not be used for human recreation. This category is used infrequently when extenuating circumstances such as high concentrations of in-place pollutants, an uncontrollable pollution source, or other conditions dictate that contact with the water would be an unnecessary health risk.

Water Quality Standards and Criteria

Surface water quality standards and criteria are expressions of the conditions considered necessary to support biological and recreational uses. Water quality standards for recreational and biological uses are contained in Chapters NR 102, NR 104, and NR 105 Wisconsin Administrative Code.

In addition to these standards, other criteria were used to assess the suitability of surface waters for recreational and biological uses. Data characterizing stream size and accessibility were used to help determine the suitability and types of recreation a stream is capable of supporting. Information on current recreational use of surface waters was also used to assess suitability of surface waters for recreation.

Additional information used to assess the suitability of surface waters for biological uses includes recommended maximum nutrient levels, suspended solids concentrations and the extent to which streambeds are clogged with sediment.

Groundwater quality standards for substances of public health concern and public welfare concern are contained in Chapter NR 140 Wisconsin Administrative Code. If well samples results exceeded the nitrate + nitrite ES, owners were sent a notice warning them that infants under six months and pregnant women should not drink the well water. At nitrate + nitrite levels greater than 40 mg/L, owners are eligible to apply for well compensation funds from the Bureau of Water Supply.

Assessing Pollution Sources

The purpose of the pollution source assessment is to identify the rural and urban sources and quantities of pollutants impacting surface waters. Rural and urban pollutant sources assessed for this watershed are discussed below.

Rural Nonpoint Sources

Excessive quantities of sediment, nutrients, oxygen demanding substances, pesticides and bacteria are pollutants carried in runoff draining agricultural areas. These pollutants degrade surface water quality thereby restricting recreational and biological uses. The principal rural nonpoint sources evaluated in preparing this plan include:

- Barnyards and livestock area runoff.
- Eroding uplands delivering sediment to surface waters.
- Eroding, slumping, or trampled streambanks.

- Areas contributing runoff of winterspread livestock manure.

- Gullies.

The Monroe, Richland and Vernon County project staff conducted inventories 1990. The DNR in cooperation with the DATCP (DATCP) and the Monroe, Richland and Vernon County project staff completed the data analyses. Inventory and evaluation procedures are summarized below.

Barnyard and Livestock Area Runoff

The County project staff mapped the locations of 353 barnyards in the watershed on 1"=400' scale aerial photographs. A field survey of each barnyard was conducted to collect information needed to determine its pollution potential.

The barnyard data was used in the "BARNY" Model (Baun, 1992), a modification of the animal lot runoff model, which the U.S. Department of Agriculture, Agricultural Research Service developed (Young, 1982). Information about the mass loading of total phosphorus annually was generated to evaluate the relative pollution potential of each barnyard. The livestock operations were ranked according to their potential to impact surface and/or groundwater quality.

Upland Erosion and Sediment Delivery

The county project staff conducted the inventory on about 168 square miles, or 100% percent of the watershed, using existing data and field investigations. Cropland, pastures, grasslands, woodlands and other open (non-urban) land uses were investigated. Existing data sources included site specific farm conservation plans, 1"=400' scale aerial photographs, and U.S. Geological Survey 1"=2,000' scale quadrangle maps. The information obtained for each parcel included size, soil type and erodibility, slope percent and length, land cover, crop rotation, present management, overland flow distance and destination, channel type and receiving water.

Upland erosion and sediment delivery was determined using the Wisconsin Nonpoint Source (WIN) Model (Baun & Snowden, 1987). The WIN model calculates the average annual quantity of eroded soil reaching surface waters from each farm field. The determination is made based on a "typical" year of precipitation. Estimated sediment delivery was used to assess the relative pollution potential of each farm field in the watershed.

Streambank Erosion

The County project staff and the DNR conducted field surveys on about 150 miles of perennial streams throughout the watershed. The method used is a modification of the streambank erosion analysis included in Phase II of the Land Inventory Monitoring process used by the U.S. Department of Agriculture, Soil Conservation Service. At locations where erosion was occurring, the following information was recorded:

- Length of trampled or eroding bank.

- Vertical height.
- Estimated annual rate of recession.
- Adjacent land uses.
- Potential management measures.

The amount of sediment lost annually was calculated for each erosion site. In addition, areas adjacent to streams impacted by livestock, but which were not necessarily eroding at a high rate, were also noted.

Runoff from Areas Winterspread with Livestock Waste

This analysis was done to estimate the pollution potential associated with winterspreading livestock waste in the watershed. The information collected for the barnyard and upland erosion surveys was used in this evaluation.

This analysis was completed using a three-step process. First, the number of acres that each livestock operation needed to landspread manure was calculated for a six-month period approximating when manure cannot be incorporated into the ground because of frozen or saturated conditions. The amount of manure that each operation generated was based on the number and type of livestock.

Second, the land available to each livestock operation for winterspreading was characterized according to its environmental sensitivity. Lands having slopes equal to or greater than six percent or located within the floodplain were considered to have a high potential to deliver landspread manure to lakes and streams during periods of spring thaw.

Third, the number of sensitive acres winterspread with manure was estimated for each livestock operation based on the number of acres needed for winterspreading and the proportion of lands available to the livestock operation determined to be environmentally sensitive. This number was used to indicate the relative pollution potential of each livestock operation due to runoff of winterspread manure.

Other Pollution Sources

Additional sources of surface water pollution beyond those discussed in this plan are degrading water quality in the watershed. These pollution sources have the potential of overshadowing improvements in water quality that might otherwise occur as a result of the priority watershed program. Some of these potential sources of water pollution are identified in chapter four of this plan.

In addition, the DATCP, the DNR, and the UWEX are cooperatively working through a technical committee to define fertilizer and pesticide use guidelines to minimize threats to

surface and groundwater quality. The results will be applicable statewide and will be incorporated into this watershed project when available.

Establishing Water Resource Objectives

Water resource objectives were established for each of the streams and lakes in the watershed. These objectives identify how the project is anticipated to change the quality of the aquatic environment for recreational and biological uses. Factors considered in establishing water resource objectives include: existing water quality and aquatic habitat; factors or pollutants that may be preventing the surface water from reaching its full potential of supporting biological and recreational uses; and the practicality of reducing pollutants.

Establishing Pollution Reduction Goals

Nonpoint pollution reduction goals are estimates of the level of nonpoint source control needed to meet the water quality and recreational use objectives identified in this plan. Pollution reduction goals and water resource objectives are established together since they are integrally related.

The nonpoint source pollution reduction goals in this plan specifically target the control of sediment and phosphorus in rural areas. Importantly, reducing the quantity of these substances reaching surface waters decreases the amount of other substances such as pesticides and bacteria which degrade water quality.

Developing a Nonpoint Source Management Strategy

The final step in the planning process is the development of a strategy for achieving the nonpoint source pollution reduction goals identified in the plan. Several items are addressed in developing the management strategy including:

- Critical nonpoint pollution sources.
- Effective management practices and guidelines for use of state cost-share funds for practice installation.
- Responsibilities, estimated workloads and work schedules for local implementing agencies, and guidelines for use of state funds to support local implementation activities.
- Estimated cost of installing practices and supporting staff at the local level.

- Information and education needs.

- Project evaluation needs.

Identification of critical nonpoint sources eligible for cost share and technical assistance under the Nonpoint Source Water Pollution Abatement (NPS) Program were determined by:

- Evaluating pollutant loading for each nonpoint source in each subwatershed.

- Determining the relative importance of controlling each source (barnyards, urban runoff, cropland erosion, streambanks, etc.) to achieving the water resource objectives.

- Developing criteria to determine which sources need to be controlled.

- Applying the criteria to determine eligibility for participation in the priority watershed project.

This evaluation was carried out on a subwatershed and watershed basis for the rural nonpoint sources. The result is a site specific ranking of nonpoint sources and a determination of assistance to be made available through the nonpoint source program for the control of NPS pollution, financial and technical.

Involving the Public and Local Units of Government

The DNR convened a citizen's advisory committee and several technical work groups to assist in preparing this watershed plan. The advisory committee contains representatives from counties, villages, and towns in the watershed, the local farmers, the UWEX, the DATCP, environmental groups and interested citizens. This advisory committee primarily provided policy guidance during the planning process and reviewed plan chapters.

Three types of technical work groups were convened to help with developing technical aspects of the plan—a water quality appraisal work group, a land resources work group and an information and education work group. These groups reviewed land and water resource assessment information, assisted in developing water resource objectives and pollution reduction goals and assisted in developing the pollution control strategy.

APPENDIX B
Glossary

AGRICULTURAL CONSERVATION PROGRAM (ACP):
A federal cost-sharing program to help landowners install measures to conserve soil and water resources. ACP is administered by the USDA ASCS through county ACP committees.

ALGAE:
A group of microscopic, photosynthetic water plants. Algae give off oxygen during the day as a product of photosynthesis and consume oxygen during the night as a result of respiration. Thus algae effect the oxygen content of water. Nutrient-enriched water increases algae growth.

AMMONIA:
A form of nitrogen (NH_3) found in human and animal wastes. Ammonia can be toxic to aquatic life.

AREA OF CONCERN:
Areas of the Great Lakes identified by the International Joint Commission (IJC) as having serious water pollution problems.

AREAWIDE WATER QUALITY MANAGEMENT PLANS (208 PLANS):
A plan to document water quality conditions in a drainage basin and make recommendations to protect and improve basin water quality. Each basin in Wisconsin must have a plan prepared for it, according to section 208 of the Clean Water Act.

AVAILABILITY:
The degree to which toxic substances or other pollutants that are present in sediments or elsewhere in the ecosystem are available to affect or be taken up by organisms. Some pollutants may be "bound up" or unavailable because they are attached to clay particles or are buried by sediment. The amount of oxygen, pH, temperature and other conditions in the water can affect availability.

BACTERIA:
Single-cell, microscopic organisms. Some can cause disease, and some are important in the stabilization of organic wastes.

BASIN PLAN:
See "Areawide Water Quality Management Plan".

BENTHIC ORGANISMS (BENTHOS):
The organisms living in or on the bottom of a lake or stream.

BEST MANAGEMENT PRACTICE (BMP):

The most effective, practical measures to control nonpoint sources of pollutants that runoff from land surfaces.

BIOACCUMULATION:

The uptake and retention of substances by an organism from its surrounding medium and from its food. Chemicals move through the food chain and tend to end up at higher concentrations in organisms at the upper end of the food chain such as predator fish, or in people or birds that eat these fish.

BIOCHEMICAL OXYGEN DEMAND (BOD):

A measure of the amount of oxygen consumed in the biological processes that break down organic matter in water. BOD5 is the biochemical oxygen demand measured in a five day test. The greater the degree of pollution, the higher the BOD5.

BIODEGRADABLE:

Waste which can be broken down by bacteria into basic elements. Most organic wastes such as food remains and paper are biodegradable.

BIOTA:

All living organisms that exist in an area.

BUFFER STRIPS:

Strips of grass or other erosion-resisting vegetation between disturbed areas and a stream or lake.

CATEGORICAL LIMITS:

All point source discharges are required to provide a basic level of treatment. For municipal wastewater treatment plants this is secondary treatment (30 mg/1 effluent limits for SS and BOD). For industry the level is dependent on the type of industry and the level of production. More stringent effluent limits are required if necessary to meet water quality standards.

CHLORINATION:

The application of chlorine to wastewater to disinfect it and kill bacteria and other organisms.

CLEAN WATER ACT:

See "Public Law 92-500."

CONSERVATION TILLAGE:

Planting row crops while disturbing the soil only slightly. In this way a protective layer of plant residue says in the surface; erosion is decreases.

CONSUMPTION ADVISORY:

A health warning issues by DNR and WDHSS that recommends that people limit the fish they eat from some rivers and lakes based on the levels of toxic contaminants found in the fish.

CONTAMINANT:

Some material that has been added to water that is not normally present. This is different from a pollutant, as a pollutant suggests that there is too much of the material present.

CONVENTIONAL POLLUTANT:

Refers to suspended solids, fecal coliforms, biochemical oxygen demand, and pH, as opposed to toxic pollutants

COST-EFFECTIVE:

A level of treatment or management with the greatest incremental benefit for the money spent.

CRITERIA:

See water quality standard criteria.

DISINFECTION:

A chemical or physical process that kills organism that cause disease. Chlorine is often used to disinfect wastewater.

DISSOLVED OXYGEN (DO):

Oxygen dissolved in water. Low levels of dissolved oxygen cause bad smelling water and threaten fish survival. Low levels of dissolved oxygen are often due to inadequate wastewater treatment. The DNR considers 5 ppm DO necessary for fish and aquatic life.

DREDGING:

Removal of sediment from the bottom of water bodies.

ECOSYSTEM:

The interacting system of biological community and its nonliving surrounding.

EFFLUENT:

Solid, liquid or gas wastes (byproducts) which are disposed on land, in water or in air. As used in the RAP generally means wastewater discharges.

EFFLUENT LIMITS:

The DNR issues WPDES permits that establish the maximum amount of pollutant that can be discharged to a receiving stream. Limits depend on the pollutant involved and the water quality standards that apply for the receiving waters.

ENVIRONMENTAL PROTECTION AGENCY (USEPA):

The federal agency responsible for enforcing federal environmental regulations. The Environmental Protection Agency delegates some of its responsibilities for water, air and solid waste pollution control to state agencies.

ENVIRONMENTAL REPAIR FUND:

A fund established by the Wisconsin Legislature to deal with abandoned landfills.

EROSION:
The wearing away of the land surface by wind or water.

EUTROPHIC:
Refers to a nutrient-rich lake. Large amounts of algae and weeds characterize a eutrophic lake (see also "Oligotrophic" and "Mesotrophic").

EUTROPHICATION:
The process of nutrient enrichment of a lake loading to increased production of aquatic organisms. Eutrophication can be accelerated by human activity such as agriculture and improper waste disposal.

FECAL COLIFORM:
A group of bacteria used to indicate the presence of other bacteria that cause disease. The number of coliform is particularly important when water is used for drinking and swimming.

FISHABLE AND SWIMMABLE:
Refers to the water quality goal set for the nation's surface waters by Congress in the Clean Water Act. All waters were to meet this goal by 1984.

FOOD CHAIN:
A sequence of organisms in which each uses the next as a food source.

GREEN STRIPS:
See buffer strip.

GROUNDWATER:
Undergroundwater-bearing areas generally within the boundaries of a watershed, which fill internal passageways of porous geologic formations (aquifers) with water which flows in response to gravity and pressure. Often used by the source of water for communities and industries.

HABITAT:
The place or type of site where a plant or animal naturally lives and grows.

HEAVY METALS:
Metals present in municipal and industrial wastes that pose long-tern environmental hazards if not properly disposed. Heavy metals can contaminate ground and surface waters, fish and other food stuffs. The metals of most concern are: Arsenic, barium, cadmium, chromium, copper, lead, mercury, selenium and zinc (see also separate listings of these metals for their health effects).

HERBICIDE:
A type of pesticide that is specifically designed to kill plants and can also be toxic to other organisms.

INFLUENT:

Influent for an industry would be the river water that the plant intakes for use in its processing. Influent to a municipal treatment plant is untreated wastewater.

INTERNATIONAL JOINT COMMISSION (IJC):

An agency formed by the United States and Canada to guide management of the Great Lakes and resolve border issues.

LANDFILL:

A conventional sanitary landfill is "a land disposal site employing an engineered method of disposing of solid wastes on land in a manner that minimizes environmental hazards by spreading solid wastes in thin layers, materials at the end of each operating day". Hazardous wastes frequently require various types of pretreatment before they are disposed of, i.e., neutralization chemical fixation encapsulation. Neutralizing and disposing of wastes should be considered a last resort. Repurifying and reusing waste materials or recycling them for another use may be less costly.

LEACHATE:

The contaminated liquid which seeps from a pile or cell of solid materials and which contains water, dissolved and decomposing solids. Leachate may enter the groundwater and contaminate or drinking water supplies.

LOAD:

The total amount of materials or pollutants reaching a given local.

MACROPHYTE:

A rooted aquatic plant.

MASS:

The amount of material a substance contains after measured by its weight (in a gravitational field).

MASS BALANCE:

A study that examines all parts of the ecosystem to determine the amount of toxic or other pollutant present, its sources, and the processes by which the chemical moves through the ecosystem.

MESOTROPHIC:

Refers to a moderately fertile nutrient level of a lake between the oligotrophic and eutrophic levels. (See also "Eutrophic" and "Oligotrophic.")

MILLIGRAMS PER LITER (mg/1):

A measure of the concentration of substance in water. For most pollution measurement this is the equivalent to "parts per million".

NONPOINT SOURCE POLLUTION (NSP):

Pollution whose sources cannot be traced to a single point such as a municipal or industrial wastewater treatment plant discharge pipe. Nonpoint sources include eroding farmland and construction sites, urban streets, and barnyards. Pollutants from these sources reach water bodies in runoff, which can best be controlled by proper land management.

NPS:

See nonpoint source pollution.

OLIGOTROPHIC:

Refers to an unproductive and nutrient-poor lake. Such lakes typically have very clear water. (See also "Eutrophic" and "Mesotrophic.")

OUTFALL:

The mouth of a sewer, drain, or pipe where effluent from a wastewater treatment plant is discharged.

PATHOGEN:

Any infective agent capable of producing disease; may be a virus, bacterium, protozoan, etc.

PESTICIDE:

Any chemical agent used for control of specific organisms, such as insecticides, herbicides, fungicides, etc.

PH:

A measure of acidity or alkalinity, measured on a scale of 0 to 14 with 7 being neutral and 0 being most acid, and 14 being most alkaline.

PHOSPHORUS:

A nutrient that when reaching lakes in excess amounts can lead to overfertile conditions and algae blooms.

PLANKTON:

Tiny plants and animals that live in water.

POINT SOURCES:

Sources of pollution that have discrete discharges, usually from a pipe or outfall.

POLLUTION:

The presence of materials or energy whose nature, location, or quantity produces undesired environmental effects.

PRIORITY WATERSHED:

A drainage area about 100,000 acres in size selected to receive Wisconsin Fund money to help pay the cost of controlling nonpoint source pollution. Because money is limited, only watersheds where problems are critical, control is practical, and cooperation is likely are selected for funding.

PRODUCTIVITY:

A measure of the amount of living matter which is supported by an environment over a specific period of time. Often described in terms of algae production for a lake.

PUBLIC LAW 92-500 (CLEAN WATER ACT):

The federal law that set national policy for improving and protecting the quality of the nation's waters. The law set a timetable for the cleanup of the nation's waters and stated that they are to be fishable and swimmable. This also required all discharges of pollutants to obtain a permit and meet the conditions of the permit. To accomplish this pollution cleanup billions of dollars have been made available to help communities pay the cost of building sewage treatment facilities. Amendments in the Clean Water Act were made in 1977 by passage of Public Law 95-217, and in 1987.

PUBLIC PARTICIPATION;

The active involvement of interested and affected citizens in governmental decision-making.

PUBLICLY OWNED TREATMENT WORKS (POTW):

A wastewater treatment plan owned by a city, village or other unit of government.

RAP:

See Remedial Action Plan.

RECYCLING:

The process by which waste materials are transformed into new products.

REMEDIAL ACTION PLAN:

A plan designed to restore beneficial uses to a Great Lakes Area of Concern.

RESOURCE CONSERVATION AND RECOVERY ACT OF 1976 (RCRA):

This federal law amends the Solid Waste Disposal Act of 1965 and expands on the Resource Recovery Act of 1970 to provide a program which regulates hazardous wastes, to eliminate open dumping and to promote solid waste management programs.

RETRO-FIT:

The placement of an urban structural practice in an existing urban area, which may involve rerouting existing storm sewers and/or relocating existing buildings or other structures.

RIPARIAN:

Belonging or relating to the bank of a lake, river or stream.

RIPRAP:

Broken rock, cobbles, or boulders placed on the bank of a stream to protect it against erosion.

RULE:

Refers to Wisconsin administrative rules. See Wisconsin Administrative Code.

RUNOFF:

Water from rain, snowmelt, or irrigation that flows over the ground surface and returns to streams. Runoff can collect pollutants from air or land and carry them to receiving waters.

SECONDARY IMPACTS:

The indirect effects that an action can have on the health of the ecosystem or the economy.

SECONDARY TREATMENT:

Two-stage wastewater treatment that allows the coarse particles to settle out, as in primary treatment, followed by biological breakdowns of the remaining impurities. Secondary treatment commonly removes 90 percent of the impurities. Sometimes "secondary treatment" refers simply to the biological part of the treatment process.

SEDIMENT:

Soil particles suspended in and carried by water as a result of erosion.

SEPTIC SYSTEM:

Sewage treatment and disposal for homes not connected to sewer lines. Usually the system includes a tank and drain field. Solids settle to the bottom of the tank; liquid percolates through the drain field.

SLUDGE:

A byproduct of wastewater treatment; waste solids suspended in water.

SOLID WASTE:

Unwanted or discharged material with insufficient liquid to be free flowing.

STANDARDS:

See water quality standards.

STORM SEWERS:

A system of sewers that collect and transport rain and snow runoff. In areas that have separated sewers, such stormwater is not mixed with sanitary sewage.

SUSPENDED SOLIDS (SS):

Small particles of solid pollutants suspended in water.

TACs:

Technical advisory committees that assisted in the development of the Remedial Action Plan.

TOXIC:

An adjective that describes a substance which is poisonous, or can kill or injure a person or plants and animals upon direct contact or long-term exposure. (Also, see toxic substance.)

TOXIC SUBSTANCE:

A chemical or mixture of chemicals which through sufficient exposure, or ingestion, inhalation of assimilation by an organism, either directly from the environment or indirectly by ingestion through the food chain, will, on the basis of available information cause death, disease, behavioral or immunologic abnormalities, cancer, genetic mutations, or development of physiological malfunctions, including malfunctions in reproduction or physical deformations, in organisms or their offspring.

TOXICANT:

See toxic substance.

TREATMENT PLANT:

See wastewater treatment plant.

TROPHIC STATUS:

The level of growth or productivity of a lake as measured by phosphorus content, algae abundance, and depth of light penetration.

TURBIDITY:

Lack of water clarity. Turbidity is usually closely related to the amount of suspended solids in water.

UNIVERSITY OF WISCONSIN-EXTENSION (UWEX):

A special outreach, education branch of the state university system.

VARIANCE:

Government permission for a delay or exception in the application of a given law, ordinance or regulation. Also, see water quality standard variance.

WASTEWATER:

Water that has become contaminated as a byproduct of some human activity. Wastewater includes sewage, washwater and the water-borne wastes of industrial processes.

WASTE:

Unwanted materials left over from manufacturing processes, refuse from places of human habitation or animal habitation.

WASTEWATER TREATMENT PLANT:

A facility for purifying wastewater. Modern wastewater treatment plants are capable of removing 95 percent of organic pollutants.

WATER QUALITY AGREEMENT:

The Great Lakes Water Quality agreement was initially signed by Canada and the United States in 1972 and was subsequently revised in 1978 and 1987. It proves guidance for the management of water quality, specifically phosphorus and toxics, in the Great Lakes.

WATER QUALITY CRITERIA:

A measure of the physical, chemical or biological characteristics of a water body necessary to protect and maintain different water uses (fish and aquatic life, swimming, etc.).

WATER QUALITY STANDARDS:

The legal basis and determination of the use of a water body and the water quality criteria, physical, chemical, or biological characteristics of a water body, that must be met to make it suitable for the specified use.

WATER QUALITY STANDARD VARIANCE:

When natural conditions of a water body preclude meeting all conditions necessary to maintain full fish and aquatic life and swimming a variance may be granted.

WATERSHED:

The land area that drains into a lake or river.

WETLANDS:

Those areas that are inundates or saturated by surface or groundwater at a frequency and duration sufficient to support a variety of vegetative or aquatic life. Wetland vegetation requires saturated or seasonally saturated soil conditions for growth and reproduction. Wetlands generally include swamps, marshes, bogs and similar areas.

WISCONSIN ADMINISTRATIVE CODE:

The set of rules written and used by state agencies to implement state statutes. Administrative codes are subject to public hearing and have the force of law.

WISCONSIN NONPOINT SOURCE WATER POLLUTION ABATEMENT GRANT PROGRAM:

A state cost-share program established by the State Legislature in 1978 to help pay the costs of controlling nonpoint source pollution. Also known as the Priority Watershed Program.

WISCONSIN POLLUTANT DISCHARGE ELIMINATION SYSTEM (WPDES):

A permit system to monitor and control the point source dischargers of wastewater in Wisconsin. Dischargers are required to have a discharge permit and meet the conditions it specifies.

PRIORITY WATERSHED PROJECTS IN WISCONSIN
1992

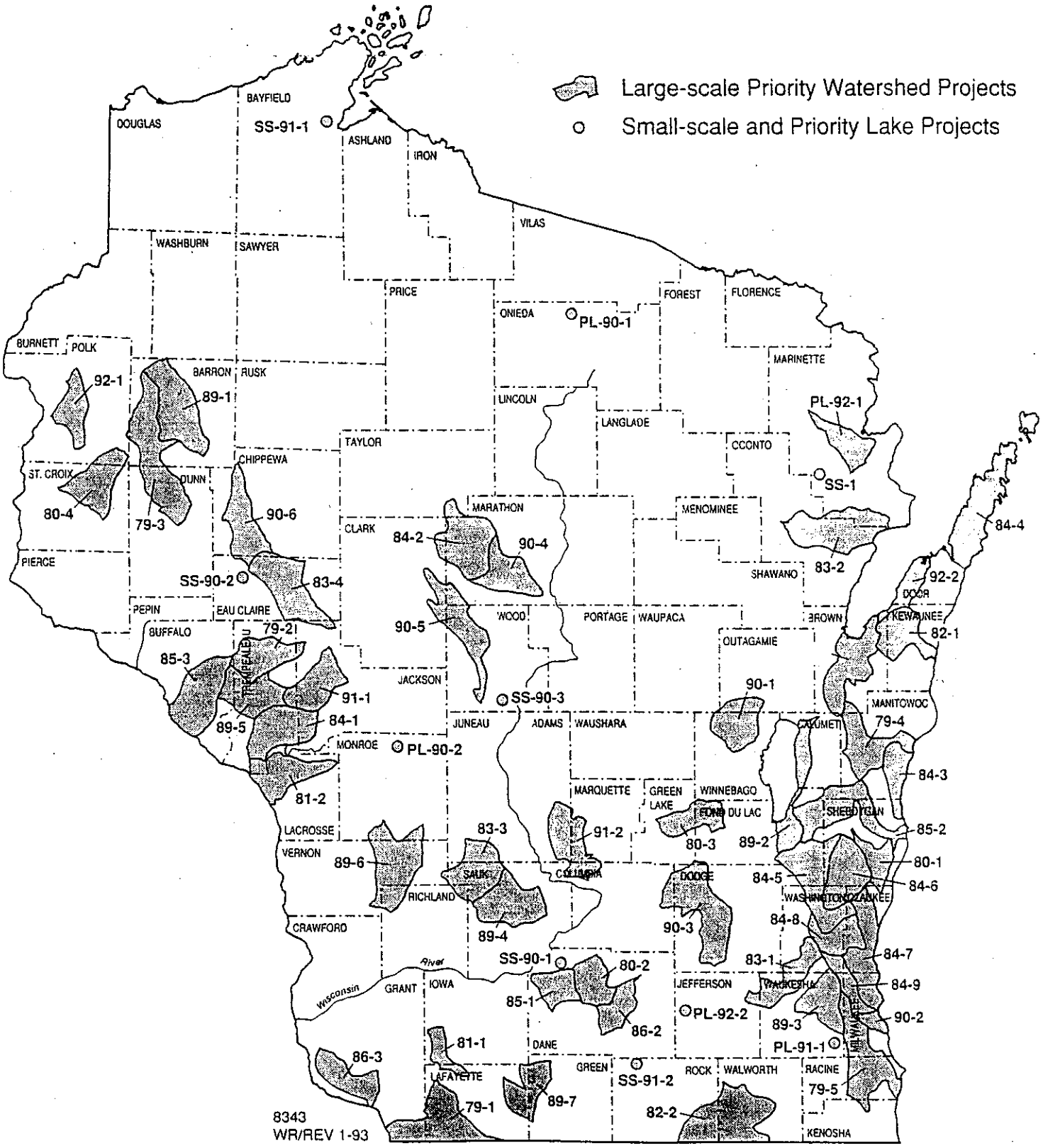
Map Number	Large-scale Priority Watershed Project	County(ies)	Year Project Selected
79-1	Galena River*	Grant, Lafayette	1979
79-2	Elk Creek*	Trempealeau	1979
79-3	Hay River*	Barron, Dunn	1979
79-4	Lower Manitowoc River*	Manitowoc, Brown	1979
79-5	Root River*	Racine, Milwaukee, Waukesha	1979
80-1	Onion River*	Sheboygan, Ozaukee	1980
80-2	Sixmile-Pheasant Branch Creek*	Dane	1980
80-3	Big Green Lake*	Green Lake, Fond du Lac	1980
80-4	Upper Willow River*	Polk, St. Crox	1980
81-1	Upper West Branch Pecatonica River*	Iowa, Lafayette	1981
81-2	Lower Black River	La Crosse, Trempealeau	1981
82-1	Kewaunee River*	Kewaunee, Brown	1982
82-2	Turtle Creek	Walworth, Rock	1982
83-1	Oconomowoc River	Waukesha, Washington, Jefferson	1983
83-2	Little River	Oconto, Marinette	1983
83-3	Crossman Creek/Little Baraboo River	Sauk, Juneau, Richland	1983
83-4	Lower Eau Claire River	Eau Claire	1983
84-1	Beaver Creek	Trempealeau, Jackson	1984
84-2	Upper Big Eau Pleine River	Marathon, Taylor, Clark	1984
84-3	Sevenmile-Silver Creeks	Manitowoc, Sheboygan	1984
84-4	Upper Door Peninsula	Door	1984
84-5	East & West Branch Milwaukee River	Fond du Lac, Washington, Sheboygan, Dodge, Ozaukee	1984
84-6	North Branch Milwaukee River	Sheboygan, Washington, Ozaukee, Fond du Lac	1984
84-7	Milwaukee River South	Ozaukee, Milwaukee	1984
84-8	Cedar Creek	Washington, Ozaukee	1984
84-9	Menomonee River	Milwaukee, Waukesha, Ozaukee, Washington	1984
85-1	Black Earth Creek	Dane	1985
85-2	Sheboygan River	Sheboygan, Fond du Lac, Manitowoc, Calumet	1985
85-3	Waumandee Creek	Buffalo	1985
86-1	East River	Brown, Calumet	1986
86-2	Yahara River - Lake Monona	Dane	1986
86-3	Lower Grant River	Grant	1986
89-1	Yellow River	Barron	1989
89-2	Lake Winnebago East	Calumet, Fond du Lac	1989
89-3	Upper Fox River (Ill.)	Waukesha	1989
89-4	Narrows Creek - Baraboo River	Sauk	1989
89-5	Middle Trempealeau River	Trempealeau, Buffalo	1989
89-6	Middle Kickapoo River	Vernon, Monroe, Richland	1989
89-7	Lower East Branch Pecatonica River	Green, Lafayette	1989
90-1	Arrowhead River & Daggets Creek	Winnebago, Outagamie, Waupaca	1990
90-2	Kinnickinnic River	Milwaukee	1990
90-3	Beaverdam River	Dodge, Columbia, Green Lake	1990
90-4	Lower Big Eau Pleine River	Marathon	1990
90-5	Upper Yellow River	Wood, Marathon, Clark	1990
90-6	Duncan Creek	Chippewa, Eau Claire	1990
91-1	Upper Trempealeau River	Jackson, Trempealeau	1991
91-2	Neenah Creek	Adams, Marquette, Columbia	1991
92-1	Balsam Branch	Polk	1992
92-2	Red River - Little Sturgeon Bay	Door, Brown, Kewaunee	1992

Map Number	Small-scale Priority Watershed Project	County(ies)	Year Project Selected
SS-1	Bass Lake*	Marinette	1985
SS-90-1	Dunlap Creek	Dane	1990
SS-90-2	Lowes Creek	Eau Claire	1990
SS-90-3	Port Edwards - Groundwater Prototype	Wood	1990
SS-91-1	Whittlesey Creek	Bayfield	1991
SS-91-2	Spring Creek	Rock	1991

Map Number	Priority Lake Project	County(ies)	Year Project Selected
PL-90-1	Minocqua Lake	Oneida	1990
PL-90-2	Lake Tomah	Monroe	1990
PL-91-1	Little Muskego, Big Muskego and Wind Lakes	Waukesha, Racine, Milwaukee	1991
PL-92-1	Lake Noquebay	Marinette	1992
PL-92-2	Lake Ripley	Jefferson	1992

* *Project completed*

Priority Watershed Projects in Wisconsin
1992



Our Mission:

To protect and enhance our Natural Resources—
our air, land and water;
our wildlife, fish and forests.

To provide a clean environment
and a full range of outdoor opportunities.

To insure the right of all Wisconsin citizens
to use and enjoy these resources in
their work and leisure.

And in cooperation with all our citizens
to consider the future
and those who will follow us.

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