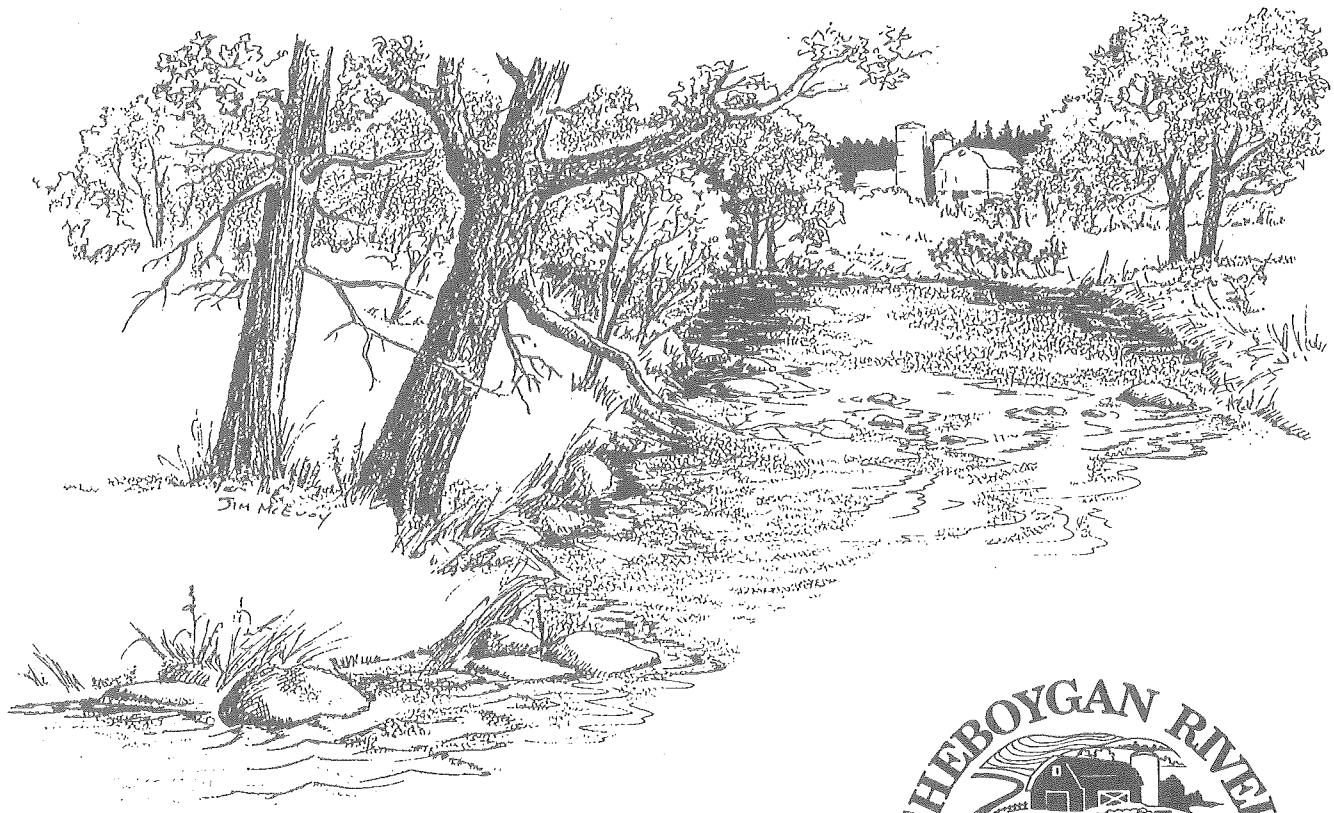
Nonpoint Source Control Plan for the Sheboygan River Priority Watershed Project



PROJECT SUMMARY

This plan was prepared under the provisions of the Wisconsin Nonpoint Source Water Pollution Abatement Program by the Wisconsin Department of Natural Resources, the Department of Agriculture, Trade and Consumer Protection, and the Land Conservation Departments of Sheboygan, Fond du Lac, Calumet and Manitowoc Counties.

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NONPOINT SOURCE CONTROL PLAN FOR THE SHEBOYGAN RIVER PRIORITY WATERSHED PROJECT

PROJECT SUMMARY

The Wisconsin Nonpoint Source Water Pollution Abatement Program

July 1993

This Plan Was Cooperatively Prepared By:

The Wisconsin Department of Natural Resources;
The Wisconsin Department of Agriculture, Trade, and Consumer Protection;
The Calumet, Fond du Lac, Manitowoc, and
Sheboygan County Land Conservation Departments;
The University of Wisconsin Extension Service;
The cities of Sheboygan, Sheboygan Falls, and Kiel;
The villages of Kohler and Elkhart Lake; and
The Sheboygan River Watershed Citizen's Advisory Committee.

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Watershed Plan Credits

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SUMMARY

Introduction

The Sheboygan River Priority Watershed Project Plan assesses the rural and urban nonpoint sources of pollutants in the Sheboygan River Watershed and guides the implementation of nonpoint source control measures. These control measures are needed to meet specific water resources objectives for the Sheboygan River, its tributaries and lakes in the watershed, and to improve the quality of the near shore waters of Lake Michigan. This summary document provides an overview of the information contained in the watershed plan.

Rural nonpoint sources of pollutants most commonly found in this watershed include:

- sediment from cropland erosion
- polluted runoff from barnyards and feedlots
- sediment from eroding streambanks
- runoff from areas winter-spread with livestock manure.

Urban nonpoint pollutant sources include:

- construction sites
- freeways
- industrial areas
- commercial areas
- residential areas

Major pollutants from urban sources are sediment, phosphorus and heavy metals. The purpose of this project is to reduce the amount of pollutants originating from both rural and urban nonpoint sources that reach the surface waters and groundwater within the Sheboygan River Priority Watershed Project area.

The plan was prepared by the Wisconsin Department of Natural Resources (DNR) and the Department of Agriculture, Trade, and Consumer Protection (DATCP); and the following:

- The Land Conservation Departments of Sheboygan, Fond du Lac, Manitowoc and Calumet counties
- The cities of Sheboygan, Sheboygan Falls, and Viel
- The villages of Kohler and Elkhart Lake
- The University of Wisconsin Extension Service
- The Sheboygan River Watershed Citizen's Advisory Committee

The DNR selected the Sheboygan River Watershed as a priority watershed project through the Wisconsin Nonpoint Source Water Pollution Abatement Program. It joins 40 similar watershed projects statewide where nonpoint source control measures are being planned and implemented. The Nonpoint Source Water Pollution Abatement Program was created in 1978 by the State Legislature. The program provides financial and technical assistance to landowners and local governments to reduce nonpoint source pollution.

The project is administered on the state level by DNR and DATCP. Each county land conservation department (LCD) will administer the appropriate rural portions of the project on the local level with assistance from UW-Extension and the Soil Conservation Service (U.S. Department of Agriculture). The urban portions of the project will be administered by the respective municipalities.

General Watershed Characteristics

The Sheboygan River Watershed is located in east-central Wisconsin and drains an area of land situated between Lake Winnebago and Lake Michigan. The watershed is a sub-basin of the larger Sheboygan River drainage basin which includes, along with the Sheboygan River, the Pigeon River, Mullet River, Onion River, Black River, and direct tributaries to Lake Michigan. The Sheboygan River Watershed drains approximately 245 square miles or about 157,100 acres. Surface water in the watershed drains via the Sheboygan River in an easterly direction into Sheboygan Harbor and Lake Michigan.

The watershed lies in portions of four counties: Sheboygan, Fond du Lac, Calumet, and Manitowoc. Table 1 shows the distribution of land area and population among these counties.

Sheboygan County has the largest contributing drainage area with 52 percent of the watershed (127 square miles). Thirty percent of the watershed lies in Fond du Lac County (74 square

miles), eleven percent (27 square miles) in Manitowoc County, and 7 percent (17 square miles) in Calumet County make up the remainder of the watershed.

The population of the Sheboygan River Watershed is estimated at 69,338 people. The majority (about 81 percent) reside in incorporated areas, with most concentrated in the metropolitan area containing the cities of Sheboygan, Sheboygan Falls, and Kiel, and the village of Kohler (table 2). The fastest growing urban areas in the watershed in the last decade were the villages of Kohler and Elkhart Lake, and the city of Sheboygan Falls.

Table 1. Distribution of the Sheboygan River Watershed Land Area and Population

	Land Area		Population	
County	Area Within Watershed (square miles)	Percent Watershed	Population Estimate	Percent Population
Calumet	17	7%	3,834	5%
Manitowoc	27	11%	1,228	2%
Fond du Lac	74	30%	5,616	8%
Sheboygan	127	52%	58,660	85%
Total	245	100%	69,338	100%

Source: DNR Sheboygan River Urban and Rural Inventories

Table 2. Watershed Population Estimates

	Population	Percentage of Watershed Populations
city of Sheboygan	43,646	63%
city of Sheboygan Falls	5,580	8%
city of Kiel	3,118	4%
village of Kohler	1,793	3%
village of Elkhart Lake	1,075	2%
village of Mt. Calvary	636	<1%
village of St. Cloud	568	<1%
Unincorporated areas	12,922	19%
Total	69,338	100%

Source: Department of Transportation Demographic Services Center, 1989 official estimates

The remainder of the watershed population (about 19 percent) live outside incorporated areas in small enclaves of residential development around lakes, or on farmsteads. Many of the rural townships have experienced slight population declines over the last decade. However, overall, populations in all four counties have remained stable or have increased slightly.

Land uses in the watershed are mostly rural. Agricultural uses and related open space account for 68 percent of the drainage area. Woodlands cover eight percent. The remaining rural land use includes wetlands and surface water, which comprises about 15 percent of the watershed area (table 3).

Table 3. Land Use in the Sheboygan River Watershed

Land Use	Percent of Watershed
Agricultural	
pasture, grazed woodlot	1%
cropland	61%
Grassland	5%
Woodland	8%
Urban and Developing	9%
Wetlands and Surface Water	15%

Urban land uses (including developing areas) occupy about nine percent of the watershed or approximately 13,946 acres. Most of the urban land (76 percent or 10,530 acres) consists of the Sheboygan metropolitan area. According to projections, the urbanized area population is expected to increase at an overall rate of approximately three percent per year in the next 20 yea). About one percent of the land in the watershed is currently under development.

Most of the land in the watershed is used for agricultural purposes, although the percentage of land in farms has declined over the past decade, a trend which is occurring throughout the state. Milk production and dairy products are the predominant industry in all four counties in the watershed. Manufacturing accounts for a large share of employment in the watershed (about 40 percent), but is limited for the most part to the cities of Sheboygan, Sheboygan Falls, and the village of Kohler.

The watershed may be divided into three distinct regions based on surface features formed by glacial drift deposits. Soil types vary within the watershed. Soils in the western portion tend to be loamy and light to medium textured, with patches of poorly drained areas. A narrow central band of steep hills is associated with the Kettle Moraine in this region. Poorly drained soils occur in low portions of this region where vast areas of peat and muck deposits are common. Soils in the eastern third of the watershed are "heavy" clay soils that tend to have poor infiltration and poor percolation, but are of high fertility. Following rainfall, the streams of the watershed exhibit a distinct red color from the suspended silts and clays.

Water Resources

For the purposes of this project, the watershed has been divided into 21 subwatersheds. All of the subwatersheds convey surface water directly or via tributaries into the Sheboygan River, except the Little Subwatershed which is internally drained. The Sheboygan River originates as a trout stream in Fond du Lac County and flows generally eastward before entering Lake Michigan at the city of Sheboygan Harbor.

Approximately 232 miles of streams drain the Sheboygan River Watershed. The Sheboygan River main stem accounts for approximately 81 miles. The Sheboygan River main stem and its tributaries exhibit wide variance in water quality. The overall water quality in the Sheboygan River Basin is described as fair to poor, and is not meeting its biological or recreational potential.

Water resource appraisals indicate there are currently 3.9 miles of Class I trout water (Millhome Creek, Schuett Creek, and a headwaters segment of the South Branch of the Sheboygan River), and about 1.8 miles of Class II trout water (Feldner's Creek and a headwaters segment of the South Branch of the Sheboygan) in the watershed. These streams are only partially meeting their potential. They suffer from sedimentation and altered flows that result from channelization, altered wetlands and spring sources, and streambank and habitat degradation from agricultural sources.

All main stem segments of the Sheboygan River are classified as warmwater sport fisheries, with diverse assemblages of both sport and forage fish species. The actual biological communities present in these segments vary according to natural and man-altered habitat conditions and by changes in water quality resulting from point and nonpoint source pollutants.

Segments from Sheboygan Falls to Lake Michigan experience seasonal runs of salmon and trout from Lake Michigan. A fish consumption advisory has been in effect since 1978 for the lower Sheboygan River and harbor, and a waterfowl advisory was placed on the lower Sheboygan River in 1987 because of PCBs (polychlorinated biphenyl) found in animal tissues.

Six natural lakes (larger than 20 acres) and 12 impoundments (ten on the Sheboygan River) are located in the Sheboygan River Watershed.

Approximately 24,000 acres of productive wetlands remain within the Sheboygan River watershed. The area covered by wetlands represents a significant portion of the watershed (15 percent) and amounts to roughly three percent of the total wetlands remaining in the state. Two major wetland complexes, Sheboygan Marsh (14,000 acres), and Kiel Marsh (approximately 800 acres) are present in the watershed. These are very important wildlife and fishery recreational areas.

Sources of Pollution

Rural Nonpoint Pollutant Sources

The land conservation departments collected data on all agricultural lands, barnyards, manure storage sites, and streambanks in the watershed. These data were used to estimate the pollutant potentials of these nonpoint sources. The amount of phosphorus carried in runoff from each barnyard to a receiving creek was calculated. The amount of sediment reaching streams from eroding agricultural lands and streambanks was also determined. In the Sheboygan River Watershed, 95 percent of the sediment deposited in streams annually is derived from agricultural upland erosion.

The results of the investigations of rural nonpoint sources are summarized below:

Barnyard Runoff Inventory Results:

- 286 barnyards were assessed, of which 217 have runoff that reaches streams.
- 67 barnyards were identified as being internally drained and will be further investigated for the potential to adversely impact groundwater.

Manure Spreading Inventory Results:

- 285 livestock operations produce 176,600 tons of manure.
- About 1,992 acres have high pollution potential.
- 7,000 acres of suitable land are needed to safely spread this manure.

Streambank Erosion Inventory Results:

- 220 miles were inventoried, excluding the mainstream in the Kohler and Oxbow subwatersheds.
- There are approximately eight miles of eroding sites, involving 175 sites.
- 619 tons of sediment reach streams from eroding sites.
- The Wilson, Maple Comer and Airport subwatersheds have the highest rates of erosion per stream mile.

- 76 percent of the sediment from streambank erosion is from Weeden's Creek (Wilson Subwatershed) and the Sheboygan River and its tributaries in Airport and South Branch subwatersheds.

- Sediment from streambank erosion constitutes only about four percent of that from upland sources.

- Stream-side and streambed degradation resulting from cattle access amounts to about seven miles of habitat, especially along the South Branch and North Branch of the Sheboygan River in Fond du Lac County.

Upland Sediment Inventory Results:

- 145,879 acres were inventoried.

- 13,575 tons of sediment are delivered to streams, of which 95 percent is from cropland.

- The highest sediment delivery rates are found in the Franklin, Wayside Park, Maple Comers and Airport subwatersheds.

Urban Nonpoint Pollutant Sources

Urban nonpoint sources include runoff from existing urban areas such as established commercial, industrial, institutional, freeways and residential land uses and runoff from areas where new urbanization is anticipated.

An inventory of existing 1988 and planned year 2010 conditions was conducted with the aid of land use inventory data gathered from the city of Kiel 50-year Comprehensive Plan, the city of Sheboygan future land use map, and the city of Sheboygan Falls and village of Kohler public works departments. The delivery of urban pollutants to streams from existing urban areas was calculated using an urban runoff model which uses information regarding landuses, stormwater conveyance, and urban housekeeping practices. Three pollutants (sediment, phosphorus, and lead) were chosen to characterize the sources and severity of urban nonpoint pollution. Although urban nonpoint modelling was not conducted, the village of Elkhart Lake was also investigated for the impacts of runoff on Elkhart Lake.

The results of the investigations of urban nonpoint sources are summarized below:

Combined Pollutant Results:

- The city of Sheboygan contributes more than 50 percent of the estimated urban sediment, phosphorus, and lead loads that originate in urban areas and are delivered annually to streams in the watershed and near shore waters of Lake Michigan. This

is not surprising since the city of Sheboygan is the largest urban area in the watershed.

Sediment:

- The total sediment load from urban areas in the watershed is 3,924 tons/year (about 22 percent of the total sediment load from both rural and urban sources).

- The most important source of sediment reaching surface waters from urban areas in the watershed is erosion from construction sites (which make up less than one percent of the urban land in the watershed). It was estimated that construction erosion contributed 2,697 tons of sediment to surface waters in the watershed. This is nearly 70 percent of the total from all urban nonpoint sources.

Phosphorus and Lead:

- Overall, contributions of phosphorus and lead to the Sheboygan River from urban areas are relatively low. Freeways, industrial areas, commercial areas, and high density residential areas are the greatest contributors of lead (as well as sediment) on a per-acre basis. However, as these types of land uses increase, increased levels of lead and other heavy metals may be anticipated.

- Medium density residential areas can generate significant quantities of lead.

Other Urban Pollutants:

- Medium density residential areas are significant sources of pesticides and bacteria. In addition, data from other urban areas have often identified various household or automotive maintenance products which have been dumped into the storm sewer systems. These contaminants are delivered directly to streams and lakes.

Pollutant Reduction Levels

To improve water quality in the Sheboygan River system, and ultimately the near shore waters of Lake Michigan, this plan calls for:

- A 50 percent reduction in the sediment reaching streams.

- A 50 percent reduction in the phosphorus loading to the main stem segments of the river is needed to reduce the nutrients which cause excessive weed and algae growth.

- Varying amounts of needed sediment and nutrient reductions have been determined for water resources other than the main stem segments.

- For urban sources, the following reduction levels have been established:

  For the communities of Sheboygan, Sheboygan Falls, and Kohler (as a group) the urban nonpoint source control targets are:

  a. a 50 percent reduction of the 1988 sediment load from the incorporated area

  b. a 40 percent reduction of the 1988 heavy metal load (as measured in lead) to reduce the potential of violating the state water quality standards in the stormwater

  For the city of Kiel, the urban nonpoint source control targets are:

  a. a 50 percent reduction of the 1988 sediment load from the incorporated area

  b. a 50 percent reduction of the 1988 heavy metal load (as measured in lead) to reduce the potential of violating the state water quality standards in the stormwater

Management Actions

Management actions are carried out through the installation of practices called Best Management Practices (BMPs). In rural areas, these BMPs may range from alterations in farm management (changes in manure-spreading, crop rotations) to engineered structures (diversions, sediment basins, manure storage facilities), and they are generally tailored to specific landowner situations. The county land conservation departments will assist owners, managers, and renters of agricultural lands in constructing Best Management Practices. In urban areas, control practices may range from hydrologic alterations designed to detain pollutants or slow flows (wet detention ponds, grassed swales) to housekeeping practices (reducing sources of pet waste, road salts, lawn fertilizers and pesticides) to governmental controls (construction site erosion ordinances). The DNR and others will assist local units of government in the development of urban nonpoint pollutant source control measures.

Cost-share funds for installing pollutant control measures will be targeted at sources which contribute the greatest amounts of pollutants. Landowner and municipality eligibility for cost sharing of these practices will depend on whether pollutant loads from their lands fall into the established pollutant reduction ranges set for each nonpoint source category. Cost-share funds will be available through the Wisconsin Nonpoint Source Water Pollution Abatement Program for certain management actions. As shown in table 4, cost-share rates for rural BMPs range

from 50 percent to 70 percent. Cost-share rates for urban BMPs are shown in table 5 and rates for other urban activities are shown in table 6.

The following is a brief description of critical nonpoint pollutant sources, project eligibility criteria, and BNP design targets for the project.

Agricultural Lands:

Almost 16,500 of the most critical upland agricultural acres have been targeted for the highest level of pollutant control. When controlled, these acres will reduce the contribution of sediment from this source by 42 percent.

An additional 17,000 acres are also eligible under this project for sediment control. The installation of BMPs on these acres would control an additional ten percent of the sediment originating from upland sources.

The Best Management Practices identified by the county land conservation departments emphasize both improving farm management and controlling pollutants. Table 4 shows the eligible practices and cost-share rates.

Animal Lots:

Out of 286 barnyards inventoried, 219 were assessed for possible impacts on surface waters. Of the 219 barnyards, 116 lots have been identified as needing pollutant controls. Fifty-nine of these lots are considered the most critical and will receive the highest priority, and the 57 additional lots will be eligible to receive cost-share funds for control practice installation, although these are not as critical.

Sixty-seven internally drained barnyards will be evaluated for groundwater pollution potential and cost sharing eligibility during the implementation phase of the project.

Manure-spreading:

Sheboygan River project participants who winter-spread manure on more than 15 acres of "unsuitable" land will be targeted as the highest priority for control measures. Operators who winter-spread on seven to 15 acres will also be eligible. In this project "unsuitable" lands for winter manure spreading are those lands with greater than six percent slope or which are flood prone. The county LCDs will assist farm operators in preparing management plans for proper manure spreading. A manure management plan identifies the proper spreading periods, application rates, and acceptable fields for manure spreading. A small number of the manure management plans may identify needs for manure storage facilities to prevent winter manure spreading on unsuitable lands.

Table 4. State Cost-share Rates for Rural Best Management Practices	
Best Management Practice	State Cost-share Rate
Contour Farming	50% [1]
Contour Strip Cropping	50% [1]
Field 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%[3]
Livestock Exclusion from Woodlots	50%
Wetland Restoration	70% [2]
Roofs for Barnyard Runoff Management and Manure Storage Facilities	70%
Nutrient and Pesticide Management	50% [4]

1. Flat rates for these BMPs can be found in table 7-2. Wildlife habitat restoration components of this practice are cost-shared at 70 percent.

2. Easements may be entered into with landowners identified in the watershed plan in conjunction with these BMPS. See Chapter 6 of the draft plan for where easements may apply.

3. Maximum cost-share amount is $10,000 including no more than $5,000 for manure transfer equipment.

4. Spill control basins have a state cost-share rate of 70 percent.

Table 5. State Cost-share Rates for Urban Management Practices	
Best Management Practice	State Cost-share Rate
Critical Area Stabilization	70%[1]
Grade Stabilization Structures	70%
Shoreline and Streambank Stabilization	70%
Shoreline Buffers	70% [1]
Wetland Restoration	70% [1]
Structural Urban Practices	70% [2]
Upgraded Street Cleaning[3]	50%

1. Easements may be available in conjunction with these practices.
2. Applies only to structures for established urban areas.
3. Described in Appendix C of draft plan.

Source: Wisconsin Department of Natural Resources.

Table 6. Urban Implementation Activities Eligible for State Funding	
Activity	State Funding Rate
Develop Construction Erosion Control Ordinances	100%
Develop Stormwater Management Ordinances	100%
Engineering Feasibility Studies (Existing Urban Area)	100%[1]
Stormwater Management Studies (Planned Urban Area)	100%[1]
Design and Engineering for Structural BMPs	100%
Staff for Enforcing Construction Erosion and Stormwater Management Ordinances	100%[2]

1. Funding not available for drainage or flood control
2. Funding limited to 5 years. Staffing level based on approved work plan

Source: Wisconsin Department of Natural Resources.

Streambanks:

All project participants must restrict livestock access to perennial creeks in the watershed where there is evidence of trampling along the bank, damaged streambeds, or eroded streambanks from livestock. An estimated 44,000 feet of streambank in the watershed will require restricted cattle access.

In addition, all participants with identified eroding sites in the Maple Corner, South Branch Sheboygan, Wayside Park and Wilson subwatersheds must reduce streambank erosion by 75 percent. Participants in all other subwatersheds must reduce streambank erosion by 50 percent. Overall, approximately 400 tons per year of sediment must be controlled in the Sheboygan River Watershed. The restriction of livestock access may achieve all or part of this goal. Land acquisition in the form of easements may be used along the riparian lands of Cedar Lake, Wolf Lake, Wilke Lake, Elkhart Lake, South Branch Sheboygan River, Schuette Creek, Millhome Creek and Otter Creek.

Urban Practices:

The following two-step approach to controlling urban pollutant sources has been devised.

Adopting "Core" Elements

The "core" elements of the urban nonpoint source control program applicable to local units of government include basic measures that can be adopted without further technical study. Communities are eligible to receive technical and/or financial assistance through the priority watershed project provided they commit to implementing a core program consistent with attaining pollutant reduction goals and water resource objectives for existing urban land uses within the first three years of the project. Sites that are currently undeveloped are expected to be controlled as part of the cost of development and thus are not eligible for cost sharing.

The basic elements of the "core" program include:

- Developing, adopting, and enforcing a construction erosion control ordinance consistent with the "model" developed jointly by the Wisconsin League of Municipalities and the DNR. Construction erosion control practices should be consistent with the standards and specifications in the *Wisconsin Construction Site Best Management Practice Handbook.*

- Developing and implementing a community-specific program of urban housekeeping practices to reduce urban nonpoint source pollutants. This may include a combination of information and education efforts, adopting ordinances to regulate pet wastes, or changing the timing and scheduling of leaf and brush collection.

- Implementing an information and education program.

Adopting "Segmented" Elements

The "segmented" elements of the urban nonpoint source program include those requiring site-specific investigations prior to implementation (for example: the construction of detention ponds following the completion of an engineering feasibility study). Communities are eligible to receive cost sharing for "segmented" elements provided "core" elements have been developed and implementation has begun. Cost sharing will be limited to those elements of the segmented program completed within the eight-year implementation period of the project.

The higher costs of implementing this portion of the urban management program will require communities to budget expenditures over the course of several years. Best Management Practices implemented under this portion of the program may include detention ponds, infiltration devices, streambank erosion controls and other structural means for reducing urban nonpoint source pollutants. This element also includes changes in street sweeping schedules and equipment.

Eligible components of the "segmented" program include:

- Conducting detailed engineering studies to determine the best means of implementing community-specific nonpoint source control measures for identified existing land uses.

- Designing and installing structural urban Best Management Practices for existing urban areas.

- Developing management plans for planned future urban development. These plans will identify types and locations of structural urban Best Management Practices.

- Adopting and enforcing a comprehensive stormwater management ordinance encompassing current and planned future areas.

  In order to reach the goals targeted for urban areas, the key land uses in all of the communities which will need controls were identified. These land uses are industrial, commercial, multi-family residential and medium density residential. These land uses currently total 5,400 acres, with an additional 1,200 acres to be added by the year 2010.

Funds Needed for Cost Sharing, Staffing, and Educational Activities

Grants will be awarded to each county or municipality by the DNR for cost sharing, staff support and educational activities. Table 7 includes estimates of the financial assistance needed to implement needed nonpoint source controls in the Sheboygan River Watershed, assuming a 75 percent participation rate of eligible landowners.

Table 7. Cost Estimates for the Sheboygan River Project

		Total Cost	State Share
Rural:	Management Practices	$2,455,500	$1,055,800
	Easements	306,700	306,700
	Information/Education	39,100	39,100
	Staff Needs	1,206,000	1,206,000
	Other Direct Costs	160,000	160,000
	Subtotal	$4,167,300	2,767,600
Urban:	Management Practices*	$2,252,700	$1,144,800
	Staff Needs & Other Costs	- unknown at this time -	
	Total	$6,420,000	$3,912,400

* Does not include costs of land or storm sewer rerouting.

Project Implementation Schedule

Project implementation is scheduled to begin in January, 1991. The first three years of implementation is the period for participants to sign cost-share agreements. There is a five year period for practice installation. While an eligible landowner or operator has three years to determine whether to participate in the program, the installation of practices can begin as soon as a landowner has signed a cost-share agreement with the appropriate local governmental unit.

Information and Education

An information and education (I&E) program will be conducted throughout the project period with Sheboygan and Fond du Lac counties serving as leaders for the multi-county educational activities in the rural areas. In urban areas, each city will conduct an I&E program. University of Wisconsin-Extension staff will provide assistance. This program will be most intensive during the first four years of the project and the activities will taper of during the rest of the project. The activities will include Best Management Practice demonstrations, tours, newsletters, and public meetings.

Further Information

If you want more information about the Sheboygan Priority Watershed Project, or a copy of the watershed plan, contact:

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Project Evaluation

The evaluation strategy for the project involves the collection, analysis, and reporting of information so that progress may be tracked in three areas:

1. **Administrative** - This category includes the progress in providing technical and financial assistance to eligible landowners, and carrying out education activities identified in the plan. Progress in this area will be tracked by the LCD or municipality and reported to the DNR and DATCP quarterly.

2. **Pollutant Reduction Levels** - Reductions in nonpoint source pollutant loadings resulting from changes in land use practices will be calculated by the LCD or municipality and reported to DNR and DATCP at an annual review meeting.

3. **Water Resources** - Changes in water quality, habitat, and water resource characteristics will be monitored by the DNR during the first two years of implementation and at the end of the project period.

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
	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

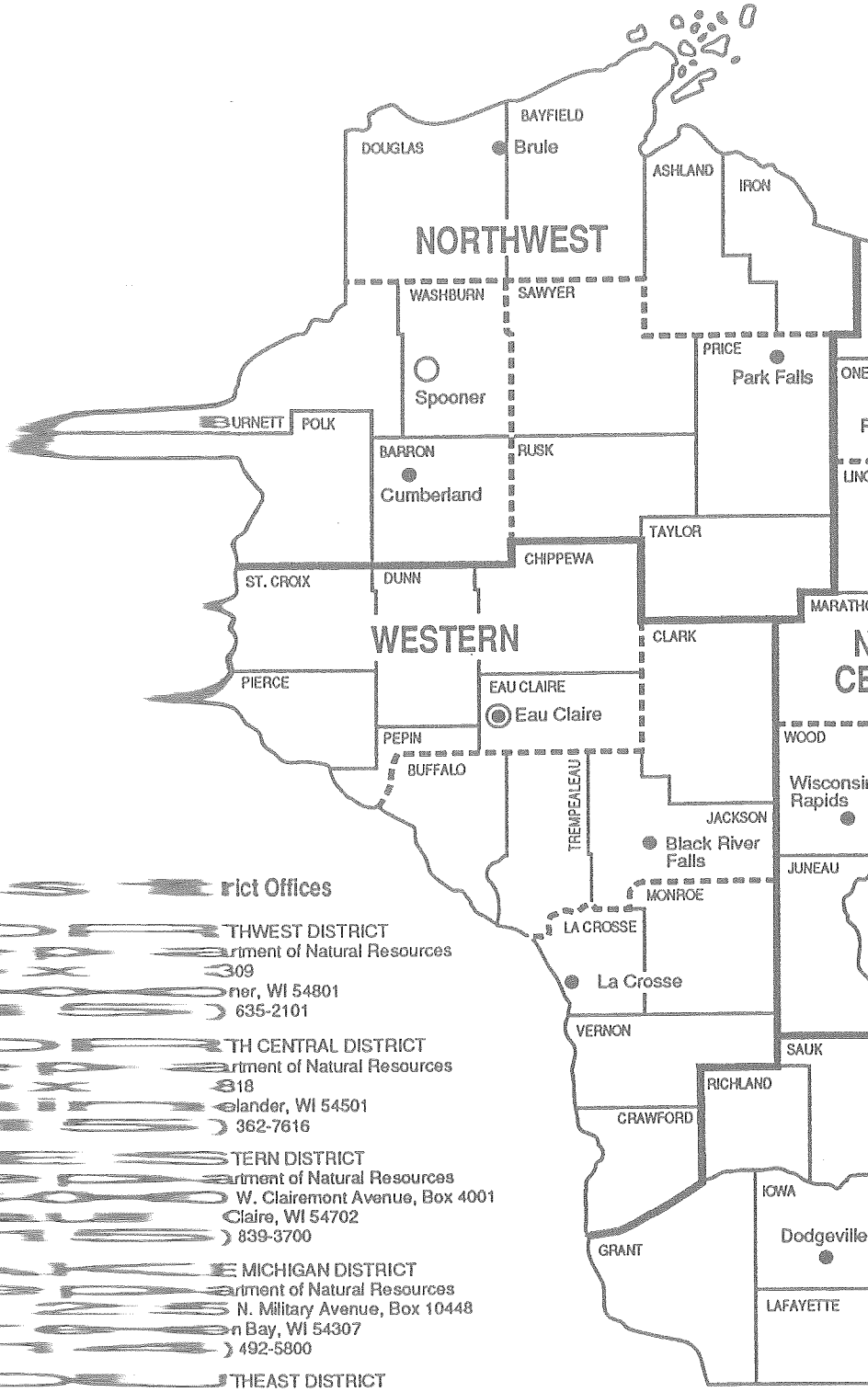
Map Number	Small-scale Priority Watershed Project	County(ies)	Year Project Selected
SS-1	Bass Lake*	Marinette	1985
SS-90-1	Dunlap Creek	Dane	1990
SS-90-2	Lowes Creek	Eau Claire	1990
SS-90-3	Port Edwards - Groundwater Prototype	Wood	1990
SS-91-1	Whittlesey Creek	Bayfield	1991
SS-91-2	Spring Creek	Rock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

NR Field Districts and Areas



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to use and enjoy these resources in
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And in cooperation with all our citizens
to consider the future
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