IMPLEMENTATION: ONGOING ACTIVITIES

This section identifies other activities and programs in Redwood County which may contribute to the work of the local water management plan but are not reflected in the selected Priority Concerns. These include activities and programs of the Redwood County Environmental Office and the Redwood-Cottonwood Rivers Control Area (RCRCA).

Redwood County is currently in the process of rewriting its existing County Comprehensive Plan which includes Land Use Plans. For additional information on these plans or for copies, contact the Redwood County Environmental Office at 507-637-4023 or on the web at www.co.redwood.mn.us, and RCRCA at 507-637-2142 or www.rcrca.com .

REDWOOD COUNTY ZONING ORDINANCE:

The Redwood County Zoning Ordinance is adopted for the purpose of: protecting the public health, safety, comfort, convenience and general welfare; dividing the unincorporated portions of the county into zones and districts and regulating therein the location, construction, reconstruction, alteration and use of structures and land; promoting orderly development of the residential, business, industrial, recreational and public areas; providing for adequate light, air and convenience of access to property by regulating the use of land and buildings and the bulk of structures in relationship to surrounding properties; limiting congestion in the public right-of-ways; providing for the administration of this Ordinance and defining the powers and duties of the administrating officer as provided herein; prescribing penalties for the violation of the provisions in this Ordinance or any amendment to this Ordinance.

The following issues of the Zoning Ordinance are addressed in this section:

* Flood Plain District
* Scenic River District
* Agricultural District
* Rural Residential District
* Urban Expansion District
* Highway Service Business District
* Industry District
* Feedlot Regulations
* Individual Sewage Treatment Systems
* Shoreland Ordinance

"FP" FLOOD PLAIN DISTRICT

The flood hazard areas of Redwood County, Minnesota, are subject to periodic inundation which results in potential loss of life, loss of property, health and safety hazards, disruption of commerce and governmental services, extraordinary public expenditures or flood protection and relief, and impairment of the tax base, all of which adversely affect the public health, safety, and general welfare.

Implementation: Ongoing Activities

The ordinance is based upon a reasonable method of analyzing flood hazards which is consistent with the standards established by the Minnesota Department of Natural Resources.

The "S" SCENIC RIVER DISTRICT is intended to preserve and protect those rivers and adjacent lands which possess outstanding scenic, recreational, natural, historical, scientific, and similar values, to reduce the effects of overcrowding and poorly planned development of such adjacent lands, to prevent pollution, to provide ample space on lots for sanitary facilities, to preserve natural beauty and quietude, to maintain property values and to promote the general welfare.

The "A" AGRICULTURAL DISTRICT is intended to provide a district which will allow extensive areas of the county to be retained in agricultural use; control scattered non-farm development, preserve woodland sand other areas of aesthetic and scenic value, which, because of their physical features, are desirable as water retention areas, habitat for plant and animal life, green space or other environmental uses beneficial to the county.

The "R-1" RURAL RESIDENTIAL DISTRICT is intended to provide a district which occurs in the small unincorporated villages and rural residential subdivisions allowing low density residential development and on-lot utilities where municipal or community utility systems are not available.

The "UE" URBAN EXPANSION DISTRICT is intended to provide an area adjacent to incorporated municipalities which is designed to:

- Contain and manage urban development within planned urban areas where basic services such as sewers, water facilities and police and fire protection can be provided efficiently and economically.
- Conserve resources by encouraging orderly development of land.
- Preserve farmland and open space
- Make more economical use of local tax dollars in locating facilities and providing services for the benefit of all citizens within the urban growth area.
- Provide property owners greater security in long-range planning and investments.
- Make it possible for utility extensions, transportation facilities and schools to be designed and located so as to match population growth more closely.
- Preserve and enhance the livability of the area.

HIGHWAY SERVICE BUSINESS DISTRICT

The Highway Service Business District is intended to provide a district which will allow highway-oriented businesses closely related to existing urban areas. The trade area population served by these establishments requires easy access; therefore, it is desirable to group the uses at locations along major traffic routes providing for appropriate and adequate access ways. These uses should be designed to standards that will not impair the traffic carrying capabilities of abutting roads and highways.

The "I -1" INDUSTRY DISTRICT is intended to provide a district for a broad range of industrial activities. Because of their potential adverse effects on other county land uses, these industrial developments should be located in areas capable of providing adequate utilities and transportation facilities and standards should be applied to control noise, odor, dust, smoke, glare or other hazards.

FEEDLOT REGULATIONS
Redwood County has written its own ordinance for Animal Confinement Feedlots. All existing and new feedlots in Redwood County must comply with the minimum standards contained in Minnesota Rules Chapter 7020 in addition to and in conjunction with those established by the county.

INDIVIDUAL SEWAGE TREATMENT SYSTEMS
The improper location, design, installation, use and maintenance of individual sewage treatment systems aversely affect the public health, safety and general welfare by discharge of inadequately treated sewage to the ground, surface water and ground waters. In accordance with the authority granted in Minnesota Statutes, chapters 103F, 103g, 115 and 116, the Minnesota Pollution Control Agency provides minimum standards and criteria for individual sewage treatments systems, and thus protects the surface waters and ground waters of the state, and promotes the public health, safety and general welfare.

SHORELAND ORDINANCE
The uncontrolled use of shorelands of Redwood County affects the public health, safety and general welfare not only by contributing to the pollution of public waters, but also impairing the local tax base. Therefore, it is in the best interest of the public health, safety and welfare to provide for wise subdivision, use and development of shoreland and public waters. The Minnesota Legislature has delegated responsibility to local governments of the state to regulate subdivision, use and development of shorelands of public waters and thus preserve and enhance the quality of surface waters, conserve the economic and natural environmental values of shoreland, and provide for the wise use of waters and related land resources. This responsibility is hereby recognized by Redwood County.

REDWOOD-COTTONWOOD RIVERS CONTROL AREA:

The Redwood-Cottonwood Rivers Control Area (RCRCA) is an eight county non-regulatory joint powers organization which was established in 1983. RCRCA works to enhance and protect the Redwood and Cottonwood Rivers by making land use changes that improve water quality.

Its purpose is to develop and implement plans for the Redwood River and Cottonwood River watersheds to:

- Protect property, streams and lakes from sedimentation and pollution
- Maintain and improve the quality of water in streams, lakes and ground water

- Protect property from flood damages
- Control erosion of land
- Improve recreational and wildlife opportunities

Members include the counties and soil and water conservation districts of Brown, Cottonwood, Lincoln, Lyon, Murray, Pipestone, Redwood, and Yellow Medicine. It is governed by a sixteen member Board of Directors which meets monthly.

Cottonwood River Restoration Project

Goals:

- To achieve the highest water quality attainable for ecoregion streams.
- To have watershed residents take an active role in enhancing and protecting the Cottonwood River.
- To develop the Cottonwood River as a major recreational resource within the Minnesota River Basin.

Objectives:

- Make the Cottonwood River from Sanborn to Flandrau Park navigable and canoe accessible.
- Increase game fish populations in the main stem from near Lamberton to Flandrau State Park.
- Produce and construct trails, signage, kiosks and outdoor learning centers.
- Establish, train, and support a group of volunteers to monitor watershed health.
- Accelerate adoption of best management practices (BMPs) in high priority areas.
- Help watershed residents understand the connection between their actions and water quality.
- Strengthen cooperation between agencies and units of government that address water quality issues.
- Collect and distribute credible information about water resources in the watershed.
- Work with municipalities and unsewered communities to develop point source reduction plans.
- Develop and implement plans to address total maximum daily load (TMDL) requirements.

Goals and objectives for the Cottonwood River Watershed are based on sampling results, land use assessments, and judgments about reasonable expectations for rivers and streams in this region of the state. In setting goals and objectives, consideration is given to four important watershed characteristics. First, agriculture is the predominant land use in the watershed and improvements to water quality will necessarily require changes in agricultural practices. Second, pollutant transport in the watershed is primarily affected by uncontrolled runoff. Third, the Cottonwood River holds enormous potential for being a recreational resource, but past and present conditions prevent it

from being used to its full potential. And, fourth, watershed residents through their involvement and actions hold the key to protecting and enhancing the Cottonwood River.

Executive Summary:

The purpose of a the initial phase of this project between 1997 and 1999 was to document factors affecting sediment and nutrient transport to the Cottonwood River, and to determine reductions necessary to meet both main stem and tributary goals. The study defined characteristics of specific pollutants, the processes affecting their transport, and appropriate measures to reduce their delivery to the Cottonwood River. Priority management areas were selected based on relative contributions to the total sediment and nutrient load in the River. Attitudes and opinions of watershed residents were explored as they relate to water quality and measures for its protection.

The Cottonwood River Watershed encompasses 1,310 square miles, and is one of thirteen major watersheds in the Minnesota River Basin. The River originates on the Coteau des Prairies, flowing eastward approximately 150 miles to the Minnesota River, with a drop in elevation of about 750 feet. This topography results in periodic spring and summer flooding in the central portion of the watershed. At times, damages are severe. A related implication is rapid transport of sediment and attached nutrients from inadequately treated cropland during spring snowmelt and spring and summer rainfall events.

Nearly all wetlands have been drained by a highly efficient and interconnected artificial drainage system. This drainage system has allowed agriculture, the primary land use, to flourish. Corn and soybeans are the main crops grown in the watershed.

The study's primary research tool was a water quality monitoring program used to gather data at three main stem locations and six tributary sites. Streambank erosion assessments were made at several locations along the lower reach of the Cottonwood River. A fishery survey was used to assess populations and species diversity. Land use and physical characteristics of the watershed were analyzed through application of Geographic Information System (GIS) data layers. These evaluations were supplemented by field observations using the tailored integrated stream and watershed assessment (TISWA) methodology.

Annual sediment (TSS) loading from the Cottonwood River in 1997 was estimated at over 330,000 tons, or 252 tons per square mile. Total phosphorus (TP) was estimated at 505 tons. These are much higher figures than reported in earlier studies of the Cottonwood River. Highwater and Dutch Charley Creeks exhibited the largest sediment yield of all sampled tributaries, annually delivering approximately 136 tons per square mile, based on data collected in 1997 and 1998. Additionally, highest flow weighted mean concentrations of total suspended solids and total phosphorus of all sampling stations, including those on the main stem, were recorded on these two tributaries. Sleepy Eye Creek contributed a high nitrate nitrogen load during the study period, but a

much lower sediment load than expected. Throughout the study period, flow-weighted mean concentrations of sediment and nutrients on the main stem and most tributaries exceeded expected values for minimally impacted ecoregion streams.

Recreational opportunities on the Cottonwood River are limited by degraded water quality, channel obstructions, limited access, and a general lack of awareness by watershed residents. Potentially, the river is a major recreational resource.

Ten-year goals and objectives were established in the areas of water quality, public participation, and recreation. Main stem and tributary water quality goals will require

pollutant reductions of twenty-five to thirty percent. These will be accomplished by concentrating best management practices (BMPs) within priority management areas. The public participation goal will emphasize citizen involvement in watershed monitoring and observation activities. Developing means for people to personally experience the river will help achieve the recreational goal.

Project evaluation will be accomplished through continued water quality monitoring at five stations, citizen surveys, fishery and watershed inventories and assessments, and BMP tracking.

The estimated cost to carry out the six-year implementation plan is slightly under $10 million. About fifty percent of this amount will be used to convert cropland to permanent vegetation and wetlands. These funds will be derived from existing federal and state land retirement programs. Clean Water Partnership low interest loans will be used to upgrade septic systems, increase residue management, and reduce livestock impacts on water quality. State and federal cost-share funds will be used to cover costs related to other best management practices listed in the plan. Additional staff positions will be created to assess needs within priority management areas and work with landowners to select and implement appropriate practices.

Redwood River Clean Water Project

The Redwood River Clean Water Project is a six year program designed to improve water quality in the Redwood River and Lake Redwood.

Goals:

Redwood River:

- Reduce sediment and nutrients by 15%-30%
- Expand game fishery habitat and fishing opportunities
- Reduce peak flows and improve flow stability

Implementation: Ongoing Activities

Lake Redwood:

- Reduce sediment and nutrients by 15%-25%
- Capable of supporting a fish management program
- Stabilize lake levels

Objectives:

- Support restoration of 5000 acres of wetlands
- Create and maintain permanent buffer strips on all public watercourses
- Establish tillage practices of minimum or no-till on 90% of cropland in priority areas
- Design and install livestock waste management systems in priority areas

These goals and objectives are accomplished through one-on-one landowner contacts and an extensive information and education program that encourages implementation of best management practices on agricultural land.

Landowners who voluntarily choose to implement best management practices receive technical assistance and up to seventy-five percent cost share to help pay the cost of installing conservation practices. Effects of best management practices on water quality are monitored through a comprehensive monitoring and evaluation program.