

# TATANKA RESOURCE CONSERVATION AND DEVELOPMENT AREA PLAN

Prepared by the Tatanka RC&D Council  
604 Coleman Avenue  
Post Office Box 68  
Bison, South Dakota 57620

Assisted by  
U.S. Department of Agriculture  
And cooperating federal, state and local agencies

Prepared Under Authority of the Agriculture and Food Act of 1981  
Public Law 97-98

U.S Department of Agriculture  
Natural Resources Conservation Service  
Bison, South Dakota

Revised October 2006

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## **PREFACE**

In 1995, the Corson, Dewey, Harding, Perkins, Tri-County, and Ziebach Conservation Districts began a partnership to accomplish conservation work across adjoining county boundaries. Using the RC&D concept, a joint board was formed, bylaws developed, and quarterly meetings were held.

In December 1998, the NRCS State Conservationist for South Dakota requested that the joint board consider a formal Resource Conservation and Development designation. Regional support for this designation was gathered over eleven public meetings (two per county and one area-wide) using the coordinated resource management process. Letters in support of the formation of an RC&D were obtained from the seven conservation districts in May 1999 and from county boards of commissioners, municipalities and tribes in December 1999.

The initial draft of application for RC&D program assistance was completed in May 2000. A second draft was completed in July along with a preliminary draft of the bylaws. Signatures from all 25 sponsoring units of government were submitted with final application for RC&D program assistance in October 2000.

The application was approved by the U.S. Secretary of Agriculture in spring of 2001. A coordinator was hired by the NRCS to assist the newly formed Tatanka RC&D Council in September 2001. Official office space was provided in the Bison Service Center. In August 2002 the Internal Revenue Service approved the Tatanka RC&D as a non-profit organization with 501(c)3 status.

The Executive Board and Sponsor representatives of the Council have provided input for this Area Plan. In addition, a public survey was developed and distributed between June and July 2006. The Tatanka RC&D believes that this plan addresses the fundamental issues facing rural communities within our jurisdiction. It is our wish that the Council be successful in working with all units of government and individuals to implement this plan.

Sincerely,

Arnold Schott  
President, Tatanka RC&D Council

## **AREA SPONSORS**

**Cheyenne River Sioux Nation**

**Standing Rock Sioux Nation**

**Board of Commissioners Representing Corson, Dewey, Harding, Perkins and Ziebach Counties**

**Conservation Districts Representing Corson, Dewey, Harding, Perkins and Ziebach, Standing Rock Sioux Nation and Tri-County**

**Bison Economic Development Committee**

**Lemmon Area Charitable and Economic Development Corporation**

**Incorporated Communities of Bison, Buffalo, Camp Crook, Dupree, Eagle Butte, Isabel Lemmon, McIntosh, McLaughlin, and Timber Lake**

## **USDA PARTNERSHIPS**

**Rural Development, NRCS Field Offices, Farm Service Agency and U.S. Forest Service**

## **VISION STATEMENT**

The Tatanka Resource Conservation and Development Council envisions a partnership of local groups such as tribes, conservation districts, county boards of commissioners and municipalities working to enhance conservation of natural resources, the quality of life and rural economic development.

## **MISSION STATEMENT**

To provide social and environmental benefits, rural economic development, and an enhanced quality of life for communities and surrounding areas, through cooperative efforts in RC&D project implementation.

## **PURPOSE OF THE COUNCIL**

Established in 2000, Tatanka RC&D Council, Inc. is a 501(c) 3 not-for-profit organization that addresses natural resource conservation and development issues in the counties of Corson, Dewey, Harding, Perkins and Ziebach. The council works with local, state, federal and tribal partners and other non-profit organizations to provide opportunities and solutions for the Area's needs and concerns. These partnerships are developed and maintained as a way to plan and implement projects for economic, environmental and social improvements in the five Tatanka counties. In order to accomplish our goals it is important that council members be aware of their role and responsibilities. This can be accomplished by participating in RC&D sponsored trainings and seminars, consider the appropriateness of forming committees to solve difficult tasks, formulate ideas to generate revolving funds needed to complete projects, and promote council activities to non-members, to mention just a few.

## **PURPOSE OF THE AREA PLAN:**

The Area Plan provides the Tatanka Council with a base from which good planning decisions can be made. It articulates a common vision for the future and informs residents and landowners of the Council's goals and actions they will act upon over the next five years. It also provides a means for the Council to communicate and coordinate between municipalities, special districts, and federal, regional, tribal reservation governments, and state agencies about key planning issues.

Identified resource concerns and problems have been outlined in this plan with goals, objectives and strategies developed to target these concerns. These opportunities and concerns will be used to develop a concise, accurate and timely annual plan of work; thereby providing the Council with productive leadership, coordination and participation in community and county projects designed to meet these goals over the next five years.

This document represents the five-year Area Plan for Tatanka RC&D, Inc. Implementation of this plan will provide increased rural economic development, improved understanding and use of natural resources, innovative agricultural techniques and improved quality of life for residents in the five county RC&D Area.

All programs and assistance of the Tatanka RC&D Council, Inc. are available without regard to race, color, national origin, gender, religion, marital or family status, political beliefs, sexual orientation or disability.

***The Tatanka RC&D Council, Inc. shall develop annually a Plan of Work based upon the needs, opportunities, objectives and strategies identified in the Area Plan. Both the Area Plan and the Annual Plan of Work shall be reviewed throughout the year to monitor progress in achieving goals and objectives developed by the Council. These Plans are intended as a roadmap to meeting the Council's long-term goal, but shall be flexible in order to accommodate changes in priorities, funding and partnerships. The Council shall revise each of the Plans as necessary based upon their determination of priority measures and upon the input from each of its sponsoring members.***

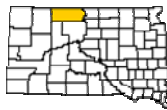
## AREA DESCRIPTION

The Tatanka RC&D area is located in the northwest corner of the State encompassing Corson, Dewey, Harding, Perkins and Ziebach Counties. The area covers 7.3 million acres or 16% of the total area of South Dakota. The climate is characterized by warm summers (70° F average) and very cold winters (16° F average). The total annual precipitation ranges from 13 to 17 inches on average. Of this, 80% usually falls between April and September.

Ranching (beef cattle and sheep) is the principle enterprise whereas 50% to 90% of farm income is derived from the sale of livestock and livestock products. Crops grown in the area are used either for livestock feed or sold as a cash crop. 75% to 90% of the area is in native grass and is used for range. The remaining percentage is principally cropped in wheat, oats and alfalfa.

Soil is the most important natural resource. It provides a growing medium for crops and for grasses grazed by livestock. Other important natural resources include water (recreation), sand and gravel (generally unsuitable as construction material or concrete aggregate but suitable as sub-grade material for roads), and wildlife (the level of wildlife production depends on essential habitat containing both food and cover. The variety and adequacy of habitat plantings, introduced and native, is closely associated with suitability of the soil). Rangeland wildlife includes antelope, white-tailed deer, mule deer, pheasant, sharp-tailed grouse, gray partridge, song birds and a variety of mammals and fish.

### Corson County



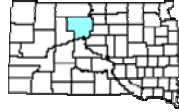
Corson County is in the north-central part of the State with a total area of 1.6 million acres. The entire county lies within the Standing Rock Indian Reservation; of which 550,000 acres is administered by the Bureau of Indian Affairs. According to the 2000 census, the county population is 4,181.

McLaughlin, the largest town, has a population of 775. McIntosh, the county seat, has a population of 217. Transportation routes include State Highways 63, 65, and 1806 and U.S. Highway 12. Burlington Northern/Sante Fe rail service is available.

The landscape consists of rolling smooth hills and ridges to the east and nearly level plateaus and isolated buttes to the west. The major drainage is the Grand River which flows east through the county; draining into Lake Oahe.

Population, percent change, April 2000 to July 2005	4.5%
Native American, 2004	64.4%
White persons, 2004	34.1%
Persons of Hispanic origin	3.4%
High school graduates, 2000	76.0%
Bachelor's degree or higher, 2000	11.3%
Households, 2000	1,271
Median household income, 2003	\$22,683
Persons below poverty, 2003	27.5%
Persons per square mile, 2000	1.7

## Dewey County

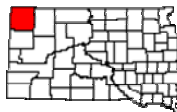


Dewey County is in the north-central part of the State with a total area of 1.5 million acres, of which, 55,104 acres is inland water, mainly Lake Oahe. The entire county lies within the Cheyenne River Indian Reservation. According to the 2000 census, the county population was 5,972. Timber Lake is the county seat (pop. 443). The largest town is North Eagle Butte with a population of 619. Transportation routes include U.S Highway 212 and State Highways 20 and 63.

The landscape is a broad plain interrupted by deeply entrenched streams and drainage ways and by buttes that rise 100 feet or more above the plain. The major drainage in the northern portion of the county is the Moreau River which flows east through the county; draining into Lake Oahe. The eastern and southern portions of the county are drained by tributaries that flow into Lake Oahe from the Cheyenne River and Missouri River Valleys.

Population, percent change, April 2000 to July 2005	3.2%
Native American, 2004	73.5%
White persons, 2004	24.9%
Persons of Hispanic origin	2.2%
High school graduates, 2000	77.4%
Bachelor's degree or higher, 2000	12.2%
Households, 2000	1,863
Median household income, 2003	\$26,294
Persons below poverty, 2003	25.1%
Persons per square mile, 2000	2.6

## Harding County



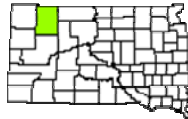
Harding County is in the northwest corner of the State with a total area of 1.7 million acres. This acreage includes 6,750 acres of water. Approximately 29,880 acres is administered by the Bureau of Land Management and 73,529 acres by the U.S. Forest Service. According to the 2000 census, the county population was 1,353. Buffalo is the county seat with Camp Crook being the only other incorporated town in the county. Transportation routes include State Highways 20 and 79 and U.S. Highway 85.

The landscape is nearly level to moderately steep, though several prominent buttes rise above the surrounding landscape. The western portion of the county is drained by the Little Missouri River. The southern portion is drained by the North Fork of the Moreau River. The central and north-central portions are drained by the South Fork of the Grand River and by the larger perennial streams, such as Bull Creek, Clarke Fork Creek, and Big Nasty Creek.

Population, percent change, April 2000 to July 2005	-10.0%
Native American, 2004	1.3%

White persons, 2004	98.1%
<u>Persons of Hispanic origin</u>	<u>1.1%</u>
High school graduates, 2000	87.8%
<u>Bachelor's degree or higher, 2000</u>	<u>17.8%</u>
Households, 2000	525
Median household income, 2003	\$30,907
<u>Persons below poverty, 2003</u>	<u>12.7%</u>
Persons per square mile, 2000	0.5

**Perkins County**

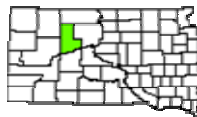


Perkins County (2<sup>nd</sup> largest in SD) is in the northwest corner of the State with a total area of 1.8 million acres, of which, 10,830 acres is inland water. According to the 2000 census, the county population was 3,363. Lemmon, the largest town, has a population of 1,398. Bison, the county seat, has a population of 373. Transportation routes include State Highways 20, 73, and 75. Rail service in the north county is available.

The landscape is characterized as gently rolling with a few prominent buttes and ridges. This broad plateau is a drainage divide between the Grand and Moreau River systems.

Population, percent change, April 2000 to July 2005	-10.1%
Native American, 2004	1.8%
White persons, 2004	97.5%
<u>Persons of Hispanic origin</u>	<u>0.9%</u>
High school graduates, 2000	80.3%
<u>Bachelor's degree or higher, 2000</u>	<u>14.6%</u>
Households, 2000	1,429
Median household income, 2003	\$28,936
<u>Persons below poverty, 2003</u>	<u>13.8%</u>
Persons per square mile, 2000	1.2

**Ziebach County**



Ziebach County is in the northwestern part of South Dakota. It has a total of 1.2 million acres, which includes about 2,388 acres of water. The entire county is in the Cheyenne River Indian Reservation. The extreme northern part, however, is in the Standing Rock Indian Reservation. About 550,000 acres is administered by the Bureau of Indian Affairs. This land is intermingled with private land throughout the county. According to the 2000 census, the county population was 2,519. Dupree, the county seat and largest town, has a population of 434. Transportation routes include State Highways 20, 34, 63 and 65 and U.S. Highway 212. Many rural areas are served by gravel roads.

The landscape is nearly level to strongly sloping. A few prominent buttes rise above the surrounding landscape. The north half of the county is drained by the Moreau River and its tributaries. The southern half is drained by the Cheyenne River and its tributaries. The Moreau and Cheyenne Rivers are both perennial and flow easterly into Lake Oahe

Population, percent change, April 2000 to July 2005	4.4%
Native American, 2004	73.4%
White persons, 2004	26.4%
Persons of Hispanic origin	1.5%
High school graduates, 2000	71.4%
Bachelor's degree or higher, 2000	12.0%
Households, 2000	741
Median household income, 2003	\$17,753
Persons below poverty, 2003	33.0%
Persons per square mile, 2000	1.3

# GOALS, OBJECTIVES & STRATEGIES

## Goals

Goals are broad end statements that, when attained result in achievement of the vision. Goals are usually long-term and represent global visions.

## Objectives

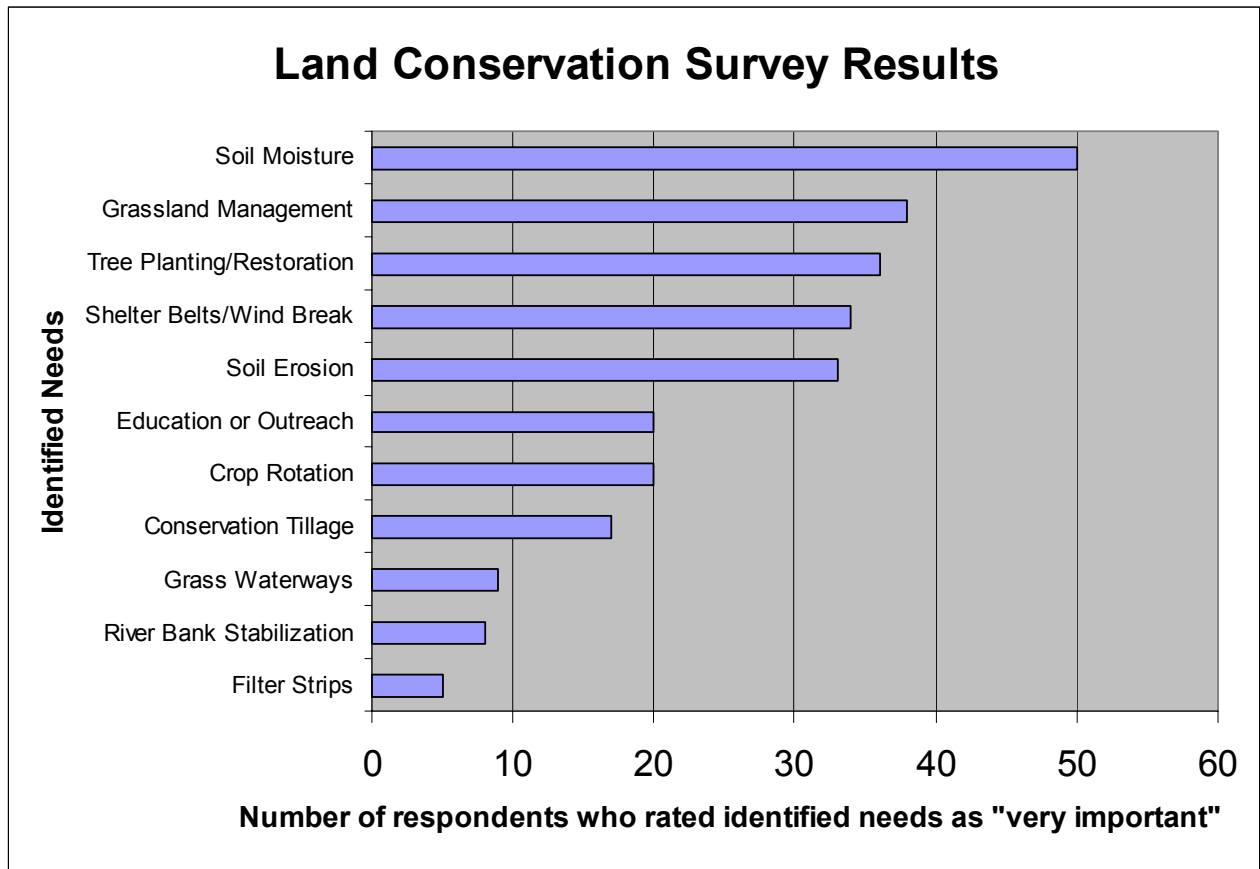
Objectives are specific, measurable achievements that have a defined completion date. When objectives are met they result in the accomplishment of a defined goal.

## Strategies

Strategies are the kinds of activities and individual projects that the Tatanka Council envisions pursuing in order to accomplish objectives.

## Land Conservation

Land conservation addresses erosion control and sedimentation



NEED: The South Fork drainage of the Grand River contains erosive soils, which contribute sediment and suspended solids that often produce high TSS levels. These largely natural sources are aggravated by agricultural and grazing practices such as streamside grazing and cropping. Much of the water quality problems in the Moreau River drainage derives from erosive Cretaceous shales that also mineralize the water, which leads to high levels of TDS primarily in the form of sulfate, iron,

manganese, sodium and other minerals. Recent drought conditions have greatly diminished the capacity of grasslands to sustain 'normal' cattle numbers, plus a rancher's ability to store adequate water supplies.

**OPPORTUNITY:** Utilize the resources, knowledge and programs provided by local, state and federal resource groups to implement practices that lead to healthy soils and the reduction of erosion and sedimentation.

**GOAL: Assist area landowners and producers to apply conservation measures that protect and improve soil conditions**

**OBJECTIVE 1: Sponsor two regional grassland management seminars and two cropland farming seminars that target techniques and technology aimed at enhancing a producer's ability to make informed management decisions**

STRATEGY 1: Coordinator will partner with NRCS, Conservation Districts, SD Cooperative Extension, SD Department of Agriculture and University personnel to initiate seminars

STRATEGY 2: Council members will work through coordinator to identify management needs in each county

STRATEGY 3: Council members will assist in generating support for seminars

**OBJECTIVE 2: For the purpose of improving grassland communities and water quality, council members will identify disturbed areas such as prairie dog colonies and/or cattle access areas along riparian corridors and coordinate with the RC&D office to rehabilitate three sites**

STRATEGY 1: Council members will work through coordinator to generate support and to identify potential sites that will meet this objective

STRATEGY 2: Coordinator will partner with federal, state and local agencies and willing landowners to coordinate and implement activities

**OBJECTIVE 3: Conduct two Watershed Assessments and use results to inform the public and prioritize those areas in which soil erosion can be reduced on cropland or grazed land by 5%**

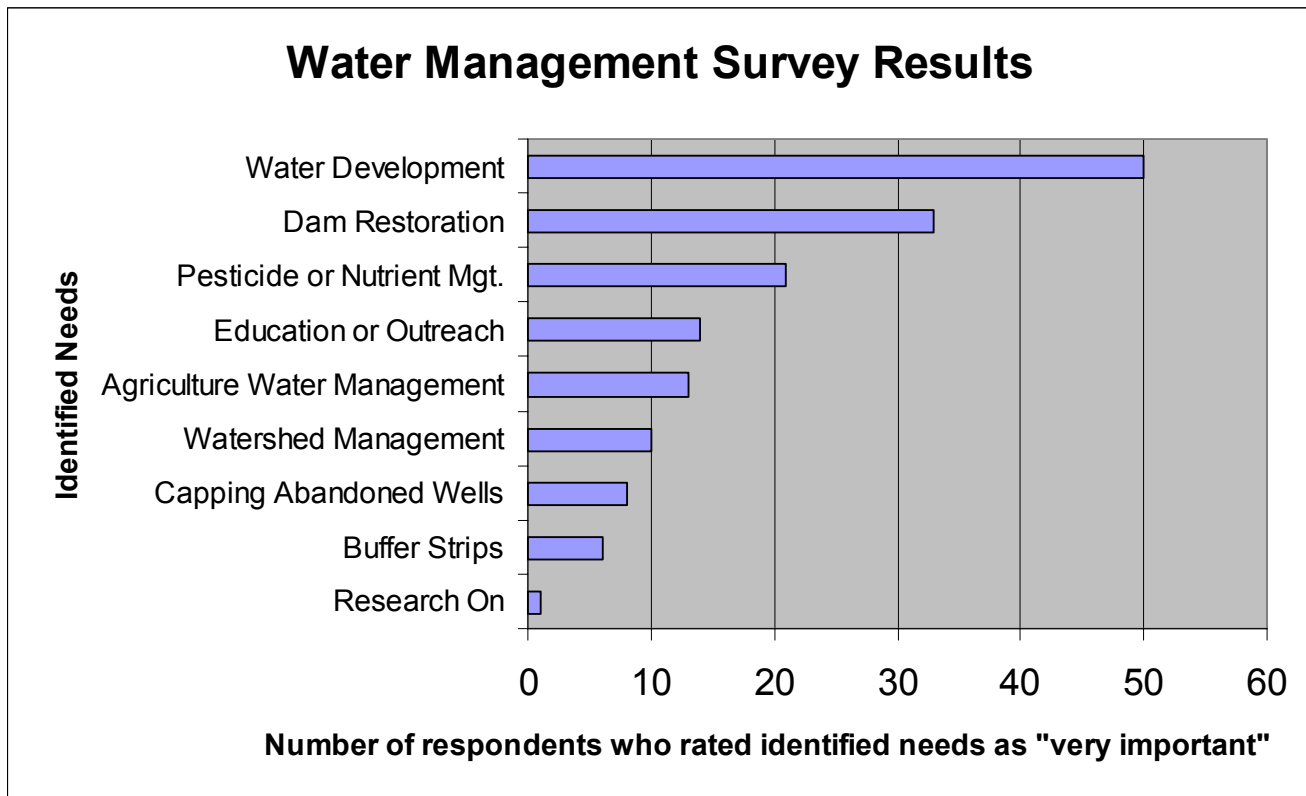
STRATEGY 1: Coordinator will partner with SD DENR and others to coordinate the implementation of Watershed Assessments

STRATEGY 2: Coordinator will organize two public meetings that will provide the results of the Watershed Assessment

STRATEGY 3: Coordinator will write five informational articles in local and regional newspapers and Council members will distribute any educational material at local fairs or livestock auctions in their area.

## Water Management

Water management addresses environmental or conservation benefits such as the conservation, use and quality of water for domestic or agricultural use; mitigate flooding; repair and improve reservoirs; improve agriculture water management; and water quality



**NEED:** Water quantity and quality for livestock use is a serious concern for producers in the northwest region of South Dakota. Through verbal communication, fire protection measures have also been identified as a need. The Grand River and the Moreau River Basins are high priority areas for the South Dakota Department of Environment and Natural Resources due to TMDL findings. These watersheds are not meeting their water quality beneficial uses due to elevated levels of bacteria, dissolved oxygen, nutrients, accumulated sediment, sodium adsorption ratio, temperature, and total suspended solids.

**OPPORTUNITY:** Comprehensive watershed planning, undertaken by local residents and based on local natural conditions, provides a basic tool for communities to manage for reliable and adequate supplies of clean water. Tatanka RC&D will work with professionals in their field to expand council knowledge on the issues of concern to landowners and producers regarding water resources in our area.

**GOAL: Improve the Quality and Quantity of Our Water Resources**

**OBJECTIVE 1: Sponsor two public forums (one covering Perkins and Harding counties; one covering Corson, Dewey and Ziebach counties) that brings together regional representatives from Rural Water Districts, Water Development Districts, US Geological Survey and others to discuss current state of water quality and quantity problems and options (solutions) to address those problems**

STRATEGY 1: Coordinator will collaborate and organize forum events

STRATEGY 2: Council members will sponsor and provide support for these events

**OBJECTIVE 2: Utilize various federal and state programs to develop ten water enhancement projects (two per county) to benefit rural fire protection and/or wildlife over the next five years**

STRATEGY 1: Coordinator will work with adjacent rural fire districts to identify strategic locations and plan for water development that will benefit the turn-around time for filling tankers

STRATEGY 2: Council members will work to gain support from identified landowners

STRATEGY 3: Coordinator will utilize programs and funding sources to build water storage facilities

**OBJECTIVE 3: Identify and map specific point and non-point sources of pollution in two priority watersheds and implement three conservation measures per watershed such as riparian tree plantings or buffers along identified impaired waterway over the next five years**

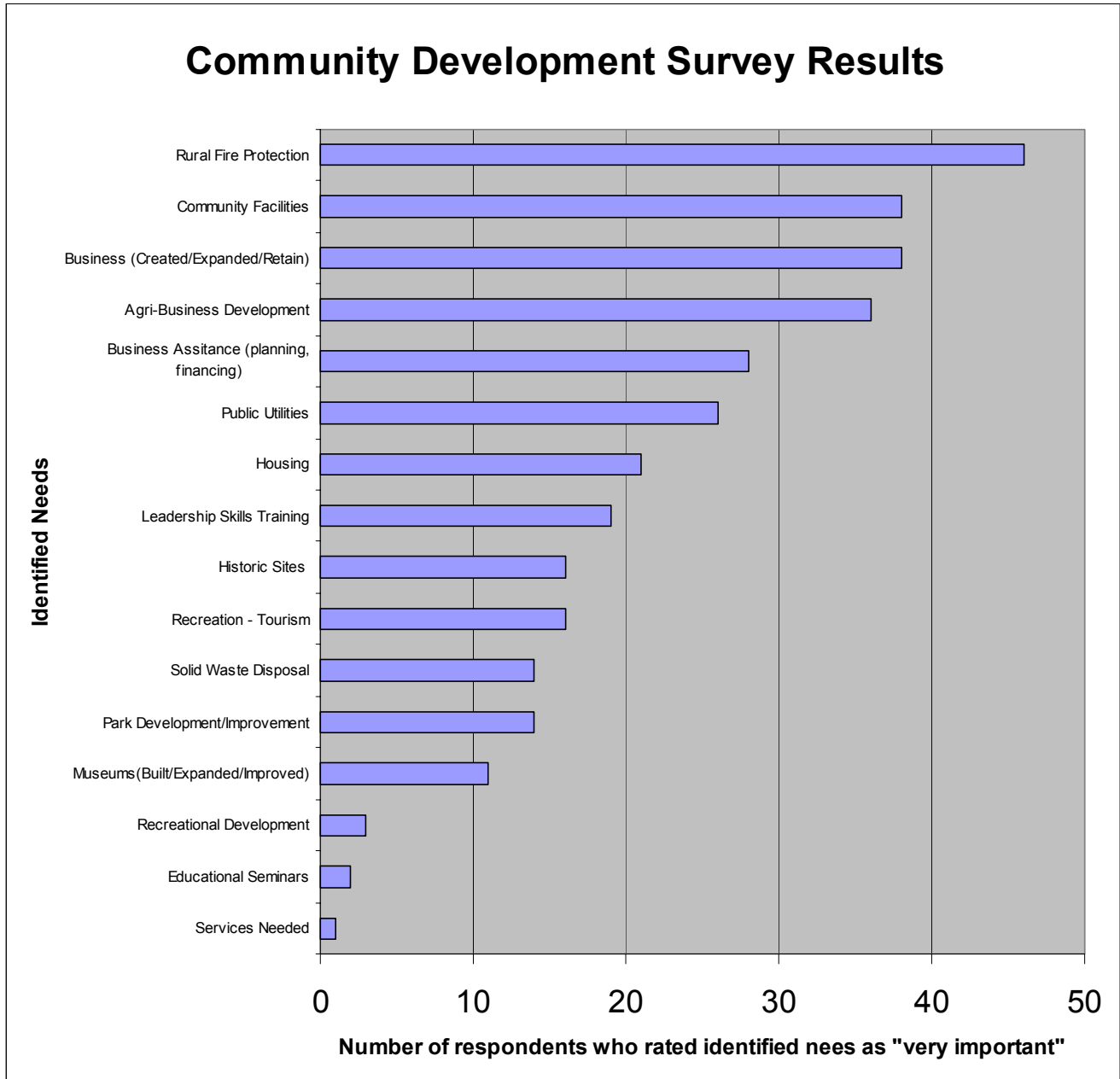
STRATEGY 1: Coordinator will partner with the NRCS and the SD Department of Environment and Natural Resources to develop informational report describing water quality findings and develop fact sheets describing individual water quality problems related to nutrients and/or pesticides

STRATEGY 2: With assistance from council representatives, the coordinator will present findings to local interest groups

STRATEGY 3: Based on identified need, council representatives will assist coordinator in working with those landowners to gain their support in implementing projects and to assist in the distribution of educational material to the general public

## Community Development

Community development addresses the development of resource-based industries; development of adequate rural water and waste disposal systems; improvement of recreation facilities, improvement in the quality of rural housing; promotes food security, economic development and education; provides for adequate health and educational facilities; and provides for essential transportation and communication needs



NEED: The quality of life in Corson, Dewey, Harding, Perkins and Ziebach counties depends, in part, on the quality of the facilities, schools, recreational resources, and infrastructure. The availability and level of service of these facilities should be consistent, reliable, and adequate for area residents. Factors considered critical to the success of an economically sustainable community include: An understanding of the local economy, economic development capacity, and supporting infrastructure; Local leadership

that is effective at stimulating cooperation among key players; Flexibility of vision to adapt to changing circumstances and to take advantage of unexpected opportunities and diversification.

**OPPORTUNITY:** The RC&D Council and Coordinator will work together and collaborate with local, state and federal agencies to identify opportunities to improve area services and entrepreneurial enterprises through trainings, research, and grant writing activities. The Council and Coordinator will also work to provide appropriate facilities for the long-term development of the region, which in turn will offer stability for area residents.

**GOAL: Provide Necessary Economic and Community Development Opportunities**

**OBJECTIVE 1: Assist willing community groups throughout the five-county area to conduct community assessments and/or participate in community leadership projects whose purpose is to promote and obtain needed businesses**

STRATEGY 1: Coordinator will assist the South Dakota Rural Development Council with a community assessment in order to understand the process

STRATEGY 2: Coordinator will work through council representatives to organize and train community development groups that in turn will identify its community assets

STRATEGY 3: Coordinator will work with community development groups and tribal districts to acquire identified community businesses

**OBJECTIVE 2: Assist communities to obtain needed infrastructure, equipment, and facilities that promote the health, safety, and well-being of area residents. This will entail seeking out funding opportunities through project partners to upgrade or build one needed facility (such as housing, health care, senior living or community rec. centers) per county over the next five years**

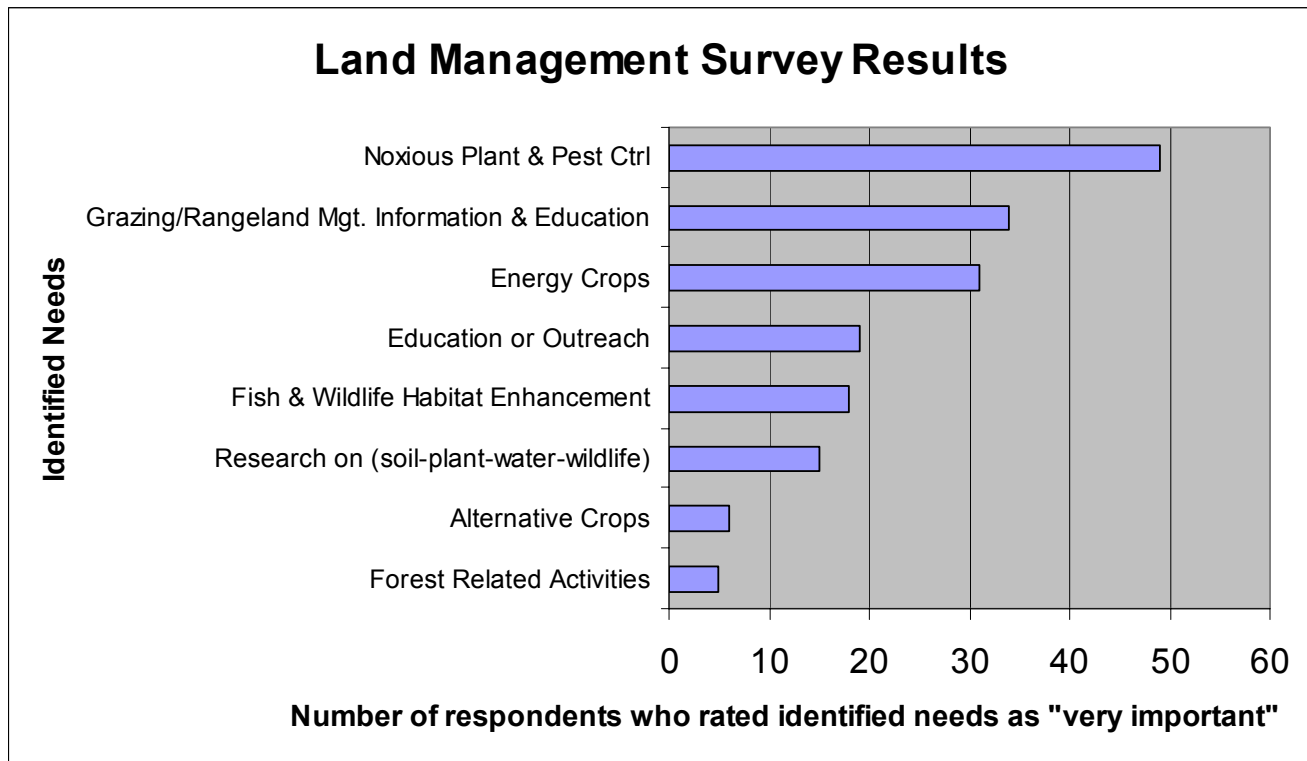
STRATEGY 1: Coordinator will work through Council representative to identify projects that meet this objective

STRATEGY 2: Coordinator will work with local committees on the planning of projects prior to securing funding to implement projects

STRATEGY 3: Coordinator will assist community groups and tribal districts to find and obtain monetary resources to implement projects

## Land Management

Land management addresses farmland protection, energy conservation (including the production of energy crops) and the protection or enhancement of fish and wildlife habitat



**NEED:** In South Dakota, seven non-native plant species have been declared as invasive weeds. These species cause approximately \$140 million in annual losses to agriculture in the state. Because of these high losses, South Dakota, along with other western states, spends a premium amount each year to control them. Besides the losses to agriculture, non-native invasive weeds attack and cause significant disruption of natural ecosystems where these invasive species out-compete native plants that our wildlife depend on. Habitat loss along the prairie rivers of western South Dakota has affected the trumpeter swan, black tern, pearl dace and the northern river otter.

Biomass energy has the potential to supply a significant portion of America's energy needs, while revitalizing rural economies, increasing energy independence, and reducing pollution. Farmers would gain a valuable new outlet for their products. Rural communities could become entirely self-sufficient when it comes to energy, using locally grown crops and residues to fuel cars and tractors and to heat and power homes and buildings.

**OPPORTUNITY:** Use an integrated management approach to eradicate or control the spread of noxious weeds such as leafy spurge and Canadian thistle over the next five years. This approach may combine methods where it is deemed appropriate and effective. Proposed methods include: (1) Mechanical methods, such as hand pulling, mowing, or burning, (2) Re-vegetate, possibly after other treatments, to reduce noxious species, (3) Grazing with livestock such as goats or sheep, (4) Biological control through the use of predators, parasites, and pathogens, (5) Herbicide control using ground-based or aerial based application methods. It will also be important to work with regional weed control boards, interested parties and individuals to determine and prioritize those areas that could best benefit

from the above mentioned measures. One opportunity for energy crop development is to use land that is currently idle or poorly suited for food crops, such as that in the Conservation Reserve Program (CRP). This program encourages farmers and ranchers to adopt long-term conservation practices on environmentally sensitive land. In 2000, more than 34 million acres were enrolled in the CRP. Much of this land is already planted in native grasses and trees to help reduce erosion, protect water quality, and provide wildlife habitat. With careful management, farmers could harvest energy crops on some of this land. This would allow them to earn an income and reduce subsidy payments, while still maintaining the environmental benefits of the program.

**GOAL: Cultivate a regional approach regarding farmland and resource protection**

**OBJECTIVE 1: Support regional efforts to combat the spread of noxious weeds**

STRATEGY 1: Sponsor two educational workshops to inform area landowners of the techniques used to control and/or eradicate infested areas at the local level. This will include acquiring landowners support and training to locate and maintain accurate records of invasive weed infestations. Coordinator and/or council representatives will distribute any informational material at local fairs or livestock auctions in their area

STRATEGY 2: Council members will sponsor events that meet this objective

STRATEGY 3: Coordinator will assist local sponsor in partnering with cooperative extension, university researchers and county weed boards to meet this objective

**OBJECTIVE 2: Coordinate two demonstration projects with the South Dakota Game, Fish & Parks to establish the effectiveness of treating a non-cropped infested area that will benefit the landowner by prohibiting the spread of noxious weeds to surrounding land**

STRATEGY 1: Coordinator will partner with South Dakota Game, Fish & Parks to meet this objective

STRATEGY 2: Council representatives will assist in identifying project area

**GOAL: Determine the economic feasibility and grower acceptability of placing wind turbines to produce electricity and growing alternative crops to produce biomass energy**

**OBJECTIVE 1: Examine regional opportunities for biomass energy and wind power**

STRATEGY 1: Research federal and state incentive programs and emerging technology related to the production of biomass energy and wind power as a source of energy and economic development. By the summer of 2008, the coordinator will generate a detailed report of his finding and present it to the Board

# PROJECTED BUDGET

## Tatanka RC&D Area Plan October 1, 2006 through September 31, 2011

The following projected budget is based on historical accomplishments and activities identified in the Area Plan.

### Area Plan Implementation Costs:

#### Technical Assistance (Staff):

##### Tatanka RC&D Council and Staff:

Volunteers: 1500 hrs. @ \$15/hr.	\$	22,500.00
USDA-NRCS: 15,600hrs. @ \$30/hr.	\$	468,000.00

##### Project Partners:

Partner Staff: 104,000 hrs. @ \$20/hr.	\$	2,080,000.00
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#### Financial Assistance:

##### Tatanka RC&D Council:

Operating and Project Assistance	\$	13,000.00
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##### Projects:

Installation and Maintenance	\$	579,850.00
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<b>Total Cost - Area Plan Implementation</b>	<b>\$</b>	<b>3,163,350.00</b>
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### Source of Funds Needed For Area Plan Implementation:

The source of funds to implement this Area Plan will be:

Federal Sources..... 35%

(Environmental Protection Agency, US Department  
Of Agriculture, US Fish & Wildlife Service)

State Funds..... 30%

(Department of Environment and Natural Resources,  
Department of Agriculture, GOED, SD Game, Fish and  
Parks, SD Dept. of Tourism and Development)

Local government Funds..... 15%

Private Funds ..... 20%

(Private Foundations, Private Businesses, Land owners)

## ADOPTION of the AREA PLAN

- (1) "The Tatanka RC&D Council Inc. agrees that the RC&D program will be conducted in compliance with the nondiscrimination provisions as contained in Title VI and VII of the Civil Rights Act of 1964 as amended, the Civil Rights Restoration Act of 1987 (Pub. Law 100-259) and other nondiscrimination statutes; namely, Section 504, of the Rehabilitation Act of 1973, Title IX of the Secretary of Agriculture (7CFR - 15, Subparts A & B) which provide that no person in the United States shall, on the ground of race, color, national origin, age, sex, religion, marital status, or handicap/disability be excluded from participation in, or be denied the benefits of, or be otherwise subjected to discrimination under and program or activity receiving federal financial (or technical) assistance from the Department of Agriculture or any agency thereof."
- (2) The Tatanka RC&D Council Inc. agrees that the signing of this document constitutes agreement to comply with federal laws concerning restricting on lobbying, a drug-free work place, and responsibilities for non-procurement, suspension, and disbarment, and state review.
- (3) The Tatanka RC&D Council Inc. hereby adopts this RC&D Area Plan and agrees to effectively use the assistance provided by the United State Department of Agriculture to realize the goals and objectives outlined herein.

Tatanka RC&D Council Inc., South Dakota

By: \_\_\_\_\_ Date: \_\_\_\_\_  
*President*

Attest: \_\_\_\_\_ Date: \_\_\_\_\_  
*Secretary*

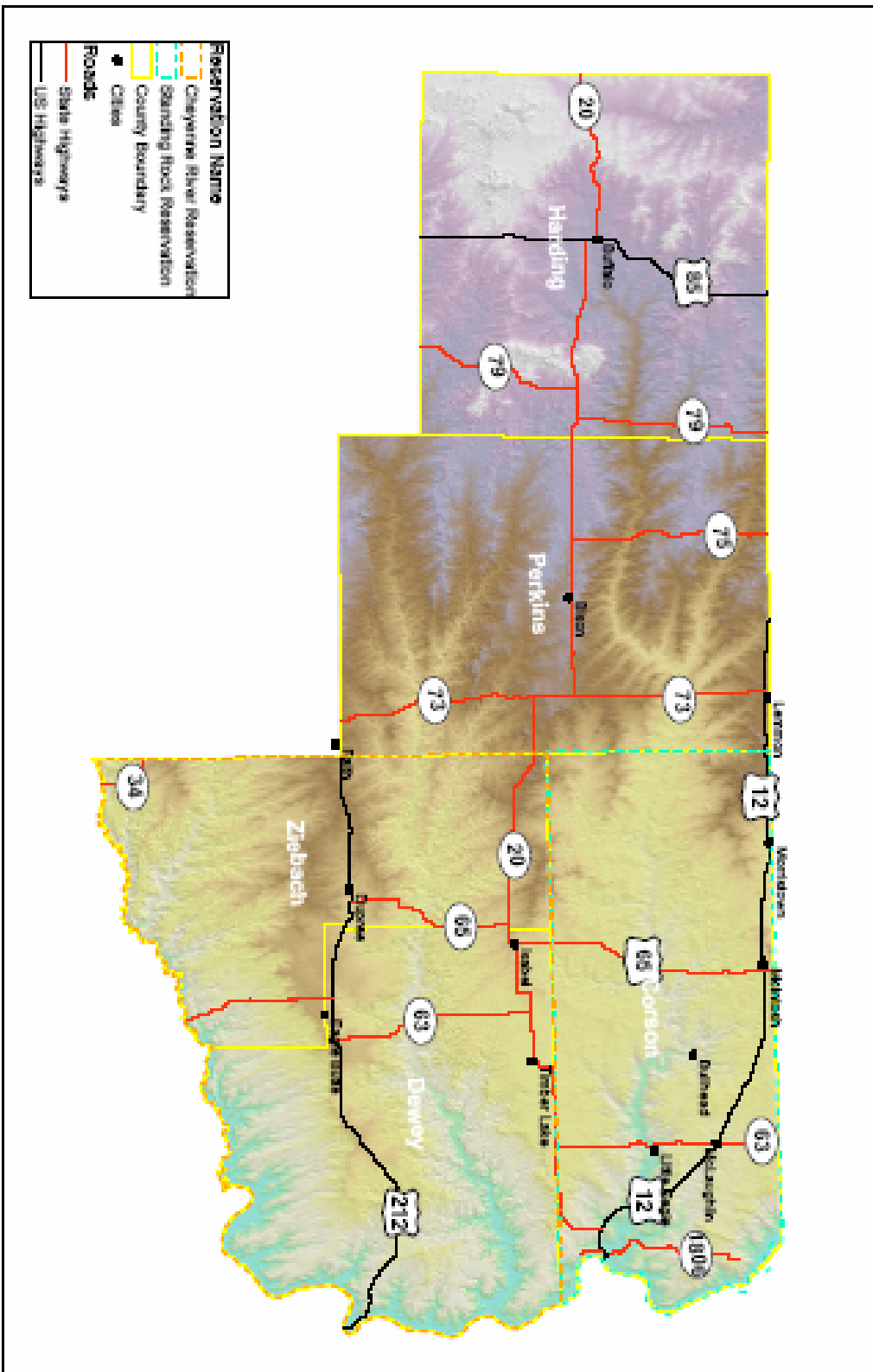
This action authorized at an official meeting of the Tatanka RC&D  
Council on \_\_\_\_\_.

U.S. Department of Agriculture-Natural Resources Conservation Service

Approved By: \_\_\_\_\_ Date: \_\_\_\_\_  
*State Conservationist*

APPENDIX A TATANKA RC&D COVERAGE AREA

Tatanka Resource Conservation & Development  
South Dakota



Source:  
50m Digital Elevation Model  
UTM Projection

Created by:  
USDA/ARS  
Rapid City FRO Staff  
Geographic Information Systems  
March 2004

## APPENDIX B

### THE 2004 SOUTH DAKOTA INTEGRATED REPORT FOR SURFACE WATER QUALITY ASSESSMENT

#### **Grand River Basin**

The Grand River basin covers 5,680 square miles in northwest South Dakota and southwest North Dakota. This is a sparsely populated region with a population density of approximately one person per square mile. The major income is derived from agriculture (83%). However, this basin possesses energy resources in commercial quantities. As of June 1995 there were 121 producing oil wells and 54 gas wells concentrated primarily in north central and southwest Harding County. The combined daily output of these well fields averaged 3,445 barrels of oil and 23.3 million cubic feet of natural gas.

In past decades, water quality within the North Fork Grand River drainage fluctuated widely but was usually only moderately impaired for designated beneficial uses. The North Fork generally supported assigned beneficial uses for most of the 1990s for all measured parameters, with the exception of the SAR, which was added to the monitoring schedule in the late 1990s. During this assessment, the North Fork was non-supporting for irrigation use due to a high SAR, TDS, and conductivity.

Apparently, high conductivity and TDS concentration are more or less typical of both North and South Fork drainages. The North Fork watershed drains the southern periphery of the North Dakota badlands which may be a major source of high levels of TDS and TSS. Much of the suspended sediment is normally deposited in Bowman Haley Reservoir upstream of Shadehill Reservoir, where dissolved salts may be concentrated by evaporation while the water is held in storage. The most common dissolved salts in the Shadehill Reservoir watershed are sodium sulfate and sodium bicarbonate.

The South Fork drainage contains erosive soils, which contribute sediment and suspended solids that often produce high TSS levels in the South Fork. These largely natural sources are aggravated by agricultural and grazing practices. Past observations indicated agricultural practices such as streamside grazing and cropping are continuing in the South Fork drainage. Similar to past reporting periods, the South Fork drainage did not support its beneficial uses in this current assessment due to excessive TSS and SAR. There were no other impairments noted.

The Grand River from the Shadehill Reservoir tail waters to 18 miles downstream is presently non-supporting of its beneficial use designations due elevated stream temperature, high pH, elevated TSS and SAR. Elevated water temperature and pH were typically the cause of nonsupport for this river segment in previous assessments. It should be noted again that the major tributaries to Shadehill Reservoir are typically high in TDS and/or TSS. The remaining length of the Grand River of nearly 84 miles was also rated as non-supporting during this current assessment due to excessive TSS, SAR, and fecal coliform bacteria.

Four lakes within the basin that were monitored under the statewide lakes assessment include Shadehill Reservoir (4,693 acres) and Flat Creek Lake (203 acres). Shadehill Reservoir is presently supporting all but one of its assigned beneficial uses and is meeting the water quality target criteria (TSI: <55). It has maintained a mesotrophic status for most of the past decade (TSI <50). The reservoir

is considered impaired for irrigation use due to natural limitations imposed by local soil-water incompatibility where high sodium concentration combined with the clayey characteristics of most soils in this region significantly reduce the acreages suitable for continuous irrigation. This condition is measured by the sodium adsorption ratio (SAR). A SAR value of 10 or greater indicates that a build-up of sodium will break down soil structure and cause serious problems for plant growth.

Although the latest (2002) TSI for Shadehill Reservoir increased to 48, the above trend may be evidence of fairly stable conditions in this large reservoir for the past eight years. However, sedimentation, suspended solids and, to a lesser extent, nutrient concentration appear to be gradually increasing in the main body of this large reservoir. Sedimentation at the two major reservoir inlets, particularly at the South Fork inlet, is progressing at a more rapid rate and may affect the recreational potential of the upper reservoir in a few years.

Water quality in nearby Flat Creek Dam had shown improvement between the early and mid 1990s (TSI: 76 (1991) to 63 (1994)). However, the most recent data available (2001) suggest that the reservoir had reverted to its former non-supporting status of 1991 (2001 TSI: 71). Causes of pollution to this small reservoir include nutrient enrichment and siltation. Agricultural activities maybe the problem sources in this drainage.

Gardner Lake in Harding County is presently rated as eutrophic according to limited recent data (2002). Not enough water quality data has been collected to chart reliable trends in this waterbody.

Lake Isabel is presently rated as hyper-eutrophic and as not supporting its fishable/swimmable uses. The combined TSI for the lake increased from 68 during the last assessment to 73 for the present report, suggesting a moderate decline in water quality from the late 1990s to the early part of this decade (2001).

Shadehill Reservoir is the only monitored lake in this basin that is presently meeting its water quality target criteria (TSI < 55) for reservoirs in the Northwestern Great Plains ecoregion.

## **Moreau River Basin**

This basin is located in the northwest part of South Dakota and drains an area of 5,037 square miles. As with the Grand River basin to the north, agriculture is the mainstay of this sparsely populated basin. Population density is approximately two persons per square mile. Approximately two-thirds of the basin's land is devoted to pasture and ranching operations. There was in past years considerable gas, oil, and coal exploration conducted in this river basin but few energy resources were discovered. At present there is only one producing oil well in the basin located near the western boundary of Dewey County. Average production is 13 barrels a day.

Water quality within this basin is marginal. Much of the sediment in the drainage comes from erosive Cretaceous shales that also mineralize the water. As in the adjoining Grand River basin to the north, this leads to high levels of TDS in the water of local streams, primarily sulfate, iron, manganese, sodium, and other metals and minerals.

During the winter months the Moreau River often freezes to the bottom following seasonal periods of low or no flow during late summer and fall.

During the previous six reporting periods and the present assessment the lower Moreau River is non-supporting of its beneficial uses due to TSS. Higher than average runoff from 1991 through 1999 was probably largely responsible for excessive TSS levels over the entire basin in the 1990s. A secondary problem in the upper and lower drainage of the Moreau River is the high SAR of watershed soils. This resulted in impairment for the irrigation use of Moreau River. This assessment the South Fork Moreau River is impaired by excessive TDS. Thunder Butte Creek, a tributary of the Moreau River, seemed to have fair to satisfactory water quality for assigned beneficial uses during the last two assessment periods but not enough samples have been collected for this current assessment cycle to clearly establish support status for this stream. In 1991, two small reservoirs in the river basin, Coal Springs Dam and Dewberry Lake were found to be hypereutrophic with TSIs of 71 and 81, respectively. Recent water quality data (2003) indicated Dewberry Lake has remained hypereutrophic (TSI: 94.7) due to high phosphorus and chlorophyll *a* levels. Previous data collected in 1991 indicated similar high concentrations of phosphorus in this reservoir. Coal Springs Dam is presently rated as impaired for its assigned beneficial uses (1991-TSI: 60). There appears to have been a moderate decline in phosphorus levels from 1991 to 1999.

## 2002 TMDL Waterbody List

2002 TMDL Waterbody List

Basin Name	Waterbody	Location	Map ID (App. A) for Listing	Source of Data	Beneficial Use	Reason for Listing	TMDL Priority
	Sylvan Lake	Custer County	L24	Lake assessment	2-7-8-9	TSI=63	1
<b>Grand River Basin</b>	<b>Streams</b>						
	Grand River	Shadehill Reservoir to Corson County line	S18	Monitoring Site DENR460640	3-8-9-10	pH Suspended solids Temperature	1
		Bullhead to mouth	S19	Monitoring Site DENR460945	4-8-9-10	Fecal Coliform Suspended solids	3
	Grand River, N Fork	ND border to Shadehill Reservoir	S20	Monitoring Site DENR460677	6-8-9-10	Sodium adsorption ratio	1
	Grand River, S Fork	Skull Creek to Shadchill Reservoir	S21	Monitoring Site DENR460678	5-8-9-10	Sodium adsorption ratio Suspended solids	1
	<b>Lakes</b>						
	Flat Creek Lake	Perkins County	L25	Lake assessment	5-7-8-9	TSI=69	3
	Lake Isabel	Dewey County	L26	Lake assessment	1-4-7-8-9	TSI=66	3
	Shadehill Reservoir	Perkins County	L27	Lake assessment	4-7-8-9-10	Sodium adsorption ratio	3
<b>Moreau River Basin</b>	<b>Streams</b>						
	Moreau River	Headwaters to near Iron Lightning	S25	Monitoring Site DENR460039	5-8-9-10	Suspended solids	3
		Green Grass to mouth	S26	Monitoring Site DENR460935	5-8-9-10	Sodium adsorption ratio Suspended solids	3
	Thunder Butte Creek	Near Bison	P62	Discharge permit SD0022411	6-8-9-10	Renewal of discharge permit with ammonia effluent limits	1
	<b>Lakes</b>						