STEELE COUNTY SOIL & WATER CONSERVATION DISTRICT

COMPREHENSIVE PLAN
2012-2016

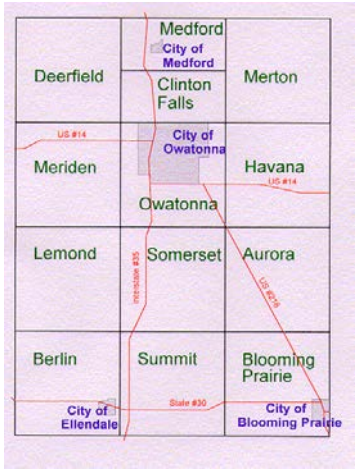
I. INTRODUCTION:

A. PURPOSE OF THE COMPREHENSIVE PLAN

The District has written this Comprehensive Plan as a guide in carrying out its activities in the years 2006 to 2010.

B. AUTHORIZATION AND JURISDICTION

The prime responsibilities of the Steele County Soil and Water Conservation District is to coordinate assistance on private lands to control erosion, prevent flooding, enhance wildlife, develop recreation, build the economic base and protect the welfare of the public.



The Steele County Soil and Water Conservation District is located entirely within Steele County and includes all land, public and private, towns and villages. The District was organized by local landowners under provisions of Minnesota State Law Chapter 40. It is a legal subdivision of State Government, operating under a charter issued by the Secretary of State on March 28, 1946.

C. ORGANIZATIONAL HISTORY

Originally, the District consisted of Medford, Clinton Falls, Owatonna, Meriden, Somerset, Havana and Merton Townships. The remaining townships were included in 1947. Cities and villages were included in 1972. The District is governed by a five-member board of elected supervisors who are responsible for directing all district activities.

II. CLIMATE, WATER SUPPLY & GEOLOGY AND SOIL SURVEY:

A. CLIMATE

Steele County has a cool, sub-humid, continental type of climate with wide variations in temperature from summer to winter. Generally, the soils are frozen to a depth of 2 to 3 feet for four to five months of the year. The depth to which frost penetrates depends mostly on the amount of snowfall late in the fall or early in the winter. The climate is essentially uniform for the county; however, differences in vegetation soil materials and relief can cause variations in the microclimate. Soils in the prairie regions are exposed to greater variations in temperature that those in the forest regions. Fine textured soils such as: Marna and Lura, warm up more slowly than moderately coarse textured soils such as: Esterville and Dickinson, because they contain more moisture. Dark colored soils such as: Clarion and Nicollet, absorb more heat from the sunlight than light colored Hayden soils. Soils on south and west facing slopes receive more sunlight than soils on north and east facing slopes; therefore, they tend to be drier.

B. WATER SUPPLIES AND GEOLOGY

Water supplies in Steele County are directly related to the thickness of the mantle of glacial drift and to the kind of rock formations that underlie the soils. The Paleozoic rocks that underlie the soils of Steele County are mainly of Cambrian and Ordovician Age. The rock formations directly beneath the glacial drift mantle are limestone and shale. The northern margin of Devonian (Cedar Valley) limestone that covers most of Freeborn and Mower Counties extends a short distance into the southern part of Steele County. These rocks all dip southwestward toward the trough of the Albert Lea-Austin basin. In the northern part of the county, the top of the Jordan sandstone is about 600 feet above sea level, but in the southwestern corner the same stratigraphic horizon is at an elevation of 300 feet. Since these rocks continue to upslope northeastward toward Red Wing, where the Jordan sandstone is 900 feet above sea level, the water in them is under high artesian pressure in this area of Steele County.

C. SOIL SURVEY

A soil association is a landscape that has a distinctive proportional pattern of soils. It normally consists of one or more major soils and at least one minor soil, and it is named for the major soils. The soils in one association may occur in another, but in a different pattern.

A map showing soil associations is useful to people who want a general idea of the soils in a county, who want to compare different parts of a county, or who want to know the location of large tracts that are suitable for a certain kind of land use. Such a map is a useful guide in managing a watershed, a wooded tract, or a wildlife area, or in planning engineering works, recreational facilities and community developments. It is not a suitable map for planning the management of a farm or field, or for selecting the exact location of a road, building, or similar structures because the soils in any one association ordinarily differ in slope, depth, stoniness, drainage and other characteristics that effect their management.

The six soil associations in Steele County are each described in the following pages. The terms for textures used in the descriptive heading for several of the associations apply to the surface layer. For example, in the title for Association I, the word "loamy" refers to the texture of the surface layer.

The names of soil associations in Steele County do not match those of Dodge County, the adjoining county to the east, because of refinements in classification and redefinition of series descriptions. Soils along the county line are similar except for the difference in name.

SOIL ASSOCIATIONS:

1. **WEBSTER-CLARION-NICOLLET ASSOCIATION**. Poorly drained to well drained, nearly level to rolling, loamy soils.

This association consists of nearly level to rolling or undulating soils that have short, complex slopes. These soils are intermingled with soils in depressions and in low-gradient swales. Summits of the rises commonly are only ten to twenty feet higher that the bottoms of the swales. Areas of this association in southwestern Berlin Township contain somewhat circular hills that have smooth side slopes and nearly level tops. A small lacustrine area is west and south of Havana station. This association occupies about 26% of the county.

The major soils formed in calcareous, loamy glacial tills, and they have a black or very dark brown surface layer. The poorly drained, nearly level Webster soils occupy about 31% of the association; the well-drained, gently undulating and rolling Clarion soils occupy about 28%; and the moderately well-drained or somewhat poorly drained, gently undulating and nearly level Nicollet soils occupy about 14%. The calcareous Storden soils occur with the Clarion soils in some of the steeper areas where the slopes are convex.

Very poorly drained Glencoe soils in depressions occupy about 10% of the association. The remaining 17% of the association consists of small areas of poorly drained and very poorly drained Biscay, Canisteo, Madelia soils and Muck: well-drained Dakota, Lester and Wadena soils; somewhat excessively drained Esterville and Storden soils; and moderately well-drained or somewhat poorly drained LeSueur soils. Corn and soybeans are the principal field crops and canning peas, green beans and squash are grown as special crops. Management consists of controlling erosion and the height of the water table, keeping the surface layer in good tilth, and properly fertilizing the organic soils.

2. **LESTER-WEBSTER-LESUEUR ASSOCIATION**. Well drained to poorly drained, nearly level to rolling, loamy soils.

This association consists of gently undulating, rolling, and nearly level soils that have short slopes and that are intermingled with soils in depressions and in low-gradient swales. Summits commonly rise 10 to 40 feet above the low areas. In southwestern Berlin Township, there are somewhat circular hills with smoothly sloping sides and nearly level tops. This association occupies about 35% of the county. The major soils are formed in calcareous, loamy glacial till, and they have a very dark gray or black surface layer. The well drained, gently undulating to rolling Lester soils occupy about 34% of the association. The calcareous Storden soils occur with the Lester soils in some of the steeper areas where slopes are convex. The poorly-drained, nearly level Webster soils occupy about 24% of the association, and the moderately well drained to somewhat poorly drained, nearly level to gently undulating LeSueur soils occupy about 16%.

Glencoe soils make up about 6% of the association. The remaining 20% consists of poorly drained Biscay and Dundas soils; very poorly drained Muck; well-drained Bixby, Hayden, and Wadena soils; and somewhat excessively drained Burnsville, Storden and Esterville soils.

Corn, soybeans oats and alfalfa are the principal field crops and canning peas, green beans and squash are grown as special crops. Management needs consist of erosion and the height of the water table, keeping the surface layer in good tilth, and properly fertilizing the organic soils.

3. **LERDAL-KILKENNY-SHIELDS ASSOCIATION**. Poorly-drained to well-drained, nearly level to rolling, loamy and clayey soils.

This association consists of nearly level, rolling and gently undulating soils that have short complex slopes. These soils are intermingled with soils in depressions and low-gradient swales. Summits of the rises commonly are 10 to 20 feet higher than the nearly level soils and swales in the more sloping areas and 2-10 feet above them in the more nearly level areas. This association makes up about 4% of the county. The major soils formed in 3-10 feet of shaly, calcareous, fine-textured till. Their surface layer is black or very dark gray. The somewhat poorly drained, gently undulating Lerdal soils occupy about 25% of the association; the well-drained, gently undulating to rolling Kilkenny soils occupy about 20%; the somewhat poorly-drained, nearly level Shields soils occupy about 12%; and the poorly-drained, nearly level Marna soils occupy about 11%.

The remaining 32% of the association consists of poorly-drained Canisteo, Dundas and Webster soils; very poorly-drained Glencoe and Lura soils and Muck; moderately well-drained and somewhat poorly-drained LeSueur soils; and well-drained Lester and Hayden soils.

Corn, soybeans, alfalfa, and oats are the main crops. Management needs consist of controlling erosion and the height of the water table and keeping the surface layer in good tilth.

4. **HAYDEN-WEBSTER-LESTER ASSOCIATION**. Well-drained and poorly drained, nearly level to steep, loamy soils.

This soil association consists of nearly level, gently undulating, rolling, and steep soils that have short, complex slopes. These soils are intermingled with soils in depressions and in low-gradient swales. Summits of the rises commonly are from 15 to 40 feet higher than the bottoms of the swales. Adjacent to the valley of the Straight River, slopes are longer and are dissected at intervals by deep, narrow ravines. This association occupies approximately 13% of the county.

The major soils formed in calcareous, loamy glacial till. They have a dark grayish-brown, very dark gray, or black surface layer. The well-drained, gently undulating to steep Hayden soils occupy about 44% of the association; the poorly-drained, nearly level Webster soils occupy about 14%; and the well-drained, gently undulating to steep Lester soils occupy about 10%.

The remaining 32% of the association consists of well-drained Bixby and Lamont soils; somewhat excessively drained Burnsville, Esterville and Storden soils; excessively drained Chelsea soils; moderately well-drained to somewhat poorly-drained LeSueur soils; poorly-drained Dundas and Canisteo soils; and very poorly drained Glencoe soils and Muck.

Corn, soybeans, alfalfa and oats are the principal crops. Management needs consist of controlling erosion and the height of the water table, keeping the surface layer in good tilth and properly fertilizing the organic soils.

5. **MAXCREEK-MOLAND-MERTON ASSOCIATION**. Poorly-drained to well-drained, nearly level to gently undulating, mainly silty soils.

This soil association consists of nearly level, gently undulating, and rolling soils that are intermingled with soils in moderate-gradient swales and in a few closed drainage ways. Summits commonly are from 5 to 15 feet above the swales. This association occupies approximately 7% of the county.

The major soils formed in a silty mantle and the underlying friable, calcareous loam or light clay loam till. A coarse textured layer, or pebble band, commonly separates these two materials. The major soils have a black surface layer. The poorly drained, nearly level Maxcreek soils occupy about 31% of the association. The well-drained Moland soils occupy about 18%; they are gently undulating in most places, but are nearly level near the village of Blooming Prairie. The moderately well drained, nearly level to gently undulating Merton soils occupy about 17% of the association.

The well drained; gently undulating to rolling Blooming soils occupies about 10% of the association and occurs near lakes and major drainage ways. The remaining 24% consist of poorly drained Canisteo soils; somewhat poorly drained Havana soils, and moderately well drained to somewhat poorly drained Newry soils.

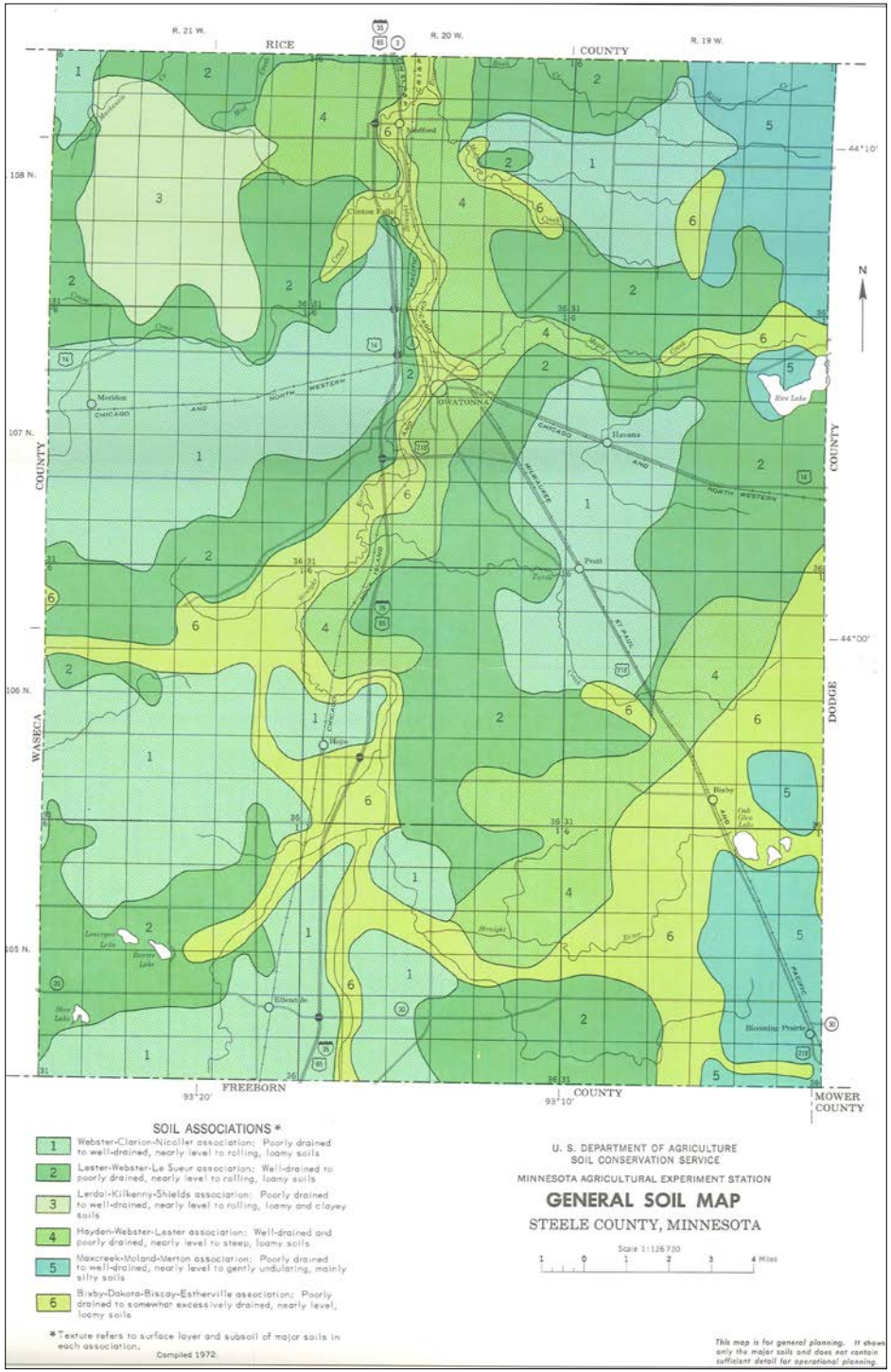
Corn and soybeans are the principal field crops. Canning peas, green beans and squash are grown as special crops. Management needs consist of: controlling erosion, height of the water table and keeping the surface layer in good tilth.

6. **BIXBY-DAKOTA-BISCAY-ESTERVILLE ASSOCIATION**. Poorly-drained to somewhat excessively drained, nearly level loamy soils. This association consists of dominantly nearly level soils that are intermingled with soils in swales and depressions. Slopes are gently undulating and rolling in a few areas near streams and drainage ways and where the broad areas of nearly level, poorly drained soils. This association occupies about 15% of the county. The major soils are formed in medium textured and moderately coarse textured material and the underlying sand or sand and gravel. They have a dark grayish-brown to black surface layer. Soils that have a surface layer of dark grayish brown are mostly along the eastern edge of the county. The well-drained Bixby, Dakota, Wadena, and Waukegan soils and the moderately well drained to somewhat poorly drained.

Hayfield soils occupy about 29% of the association. The poorly-drained Biscay, Colo, Hanska, and Kato soils and the somewhat poorly-drained Udolpho soils occupy about 23%; and the somewhat excessively-drained Esterville, Burnsville, and Dickinson soils occupy about 20%.

The poorly drained to very poorly drained, calcareous Kato, Calco, Lemond, and Mayer soils occupy about 10% of the association; and Alluvial land and the Terril soils occupy about 10%. Muck occupies about 8% of the association and, in a few places, is in tracts about 600 acres in size. In most places many of the soils, including droughty and wet soils, are intermingled, but a few large areas of nearly level soils are making up dominantly of one or two soils. The Hayfield, Kato, and Waukegan soils are along the eastern edge of the county.

Corn, soybeans, alfalfa, and oats are principal crops. The larger areas of Muck and Esterville soils are used for truck crops. Management needs consist of adequate drainage where needed, control of soil blowing, irrigation, diversification of crops and crop use, and proper fertilization of mucky and calcareous soils.

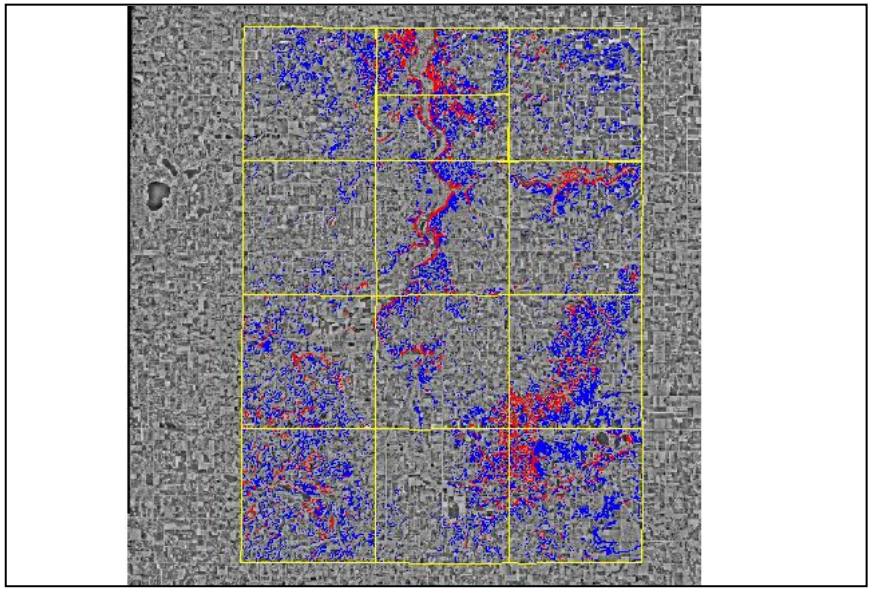


High Priority Erosion by Water & Wind

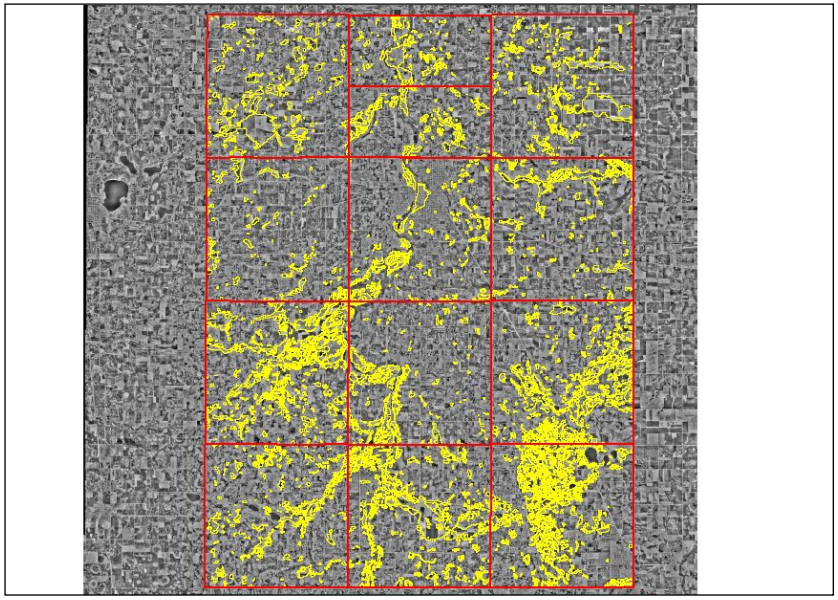
Erosion by water is a problem occurring throughout the County. Sheet erosion, which is the removal of a uniform layer of soil, is not readily visible, but can result in great soil loss. Rill erosion is visible and consists of a series of shallow rills several inches deep. Gully erosion, the most evident and visible, occurs most often near streams and ditches where a large difference in elevation exists. Gully erosion also occurs where a concentration of water flows over unprotected soil. Erosion by water on development sites and road construction sites is also a problem.

The Steele County Soil Survey indicates that 79,000 acres in the County have a potential toward slight to moderate erosion, and that 32,000 acres have a potential of moderate to severe erosion. Conservation practices, which will control this problem, are waterways, terraces, conservation tillage, erosion control structures, contour farming, crop rotation, and sediment control basins. Permanent cover consisting of grass or trees as a result of the Conservation Reserve or RIM Reserve Programs will greatly reduce water erosion.

Wind erosion is a problem throughout the county, but is most severe in areas of sandy and peat soils. The Steele County Soil Survey indicates that there are 26,000 acres of sandy and peat soils in Steele County. Field windbreaks, farmstead windbreaks and conservation tillage are the key practices targeted to control wind erosion. Permanent cover consisting of grass or trees as a result of the Conservation Reserve or RIM Reserve Programs will greatly reduce wind erosion.



HIGHLY ERODIBLE SOILS



WIND EROSION PROBLEM AREAS

STEELE COUNTY SWCD PROJECTED FIVE YEAR BUDGET
September 2012

REVENUES:	Amounts **2011****	Budgeted Amounts **2012****	Projected Amounts **2013***	Projected Amounts **2014**	Projected Amounts **2015**	Projected Amounts **2016**
Intergovernmental Rev.:				10%-state	14%-state	16%-state
State Grant	97,891	77,046	37,099	40,809	42,293	43,035
Federal	29,862	18,500	5,665	10,000	10,000	10,000
County Allocation	119,715	119,715	128,524	146,212	130,493	116,843
WCA and MAP Alloc.	6,000	9,088	8,200	8,200	8,200	8,200
Charges for Services	60,500	50,426	57,150	73,000	75,000	75,000
Clean Water fund T & A & misc.	10,000	0	0	10,000	15,000	20,000
Miscellaneous Revenue: USFWS	10,000	0	0	0	0	0
Interest	1,800	1,600	900	1,000	1,000	1,000
Other (MCIT)	2,000	3,800	3,000	3,000	3,000	3,000
Easement Maint. Program	0	29,224	15,000	0	0	0
Taken from Savings	5,100	6,781	11,000	0	0	0
TOTAL REVENUES:	**342,868**	**316,180**	**266,538**	**292,221**	**284,986**	**277,078**
EXPENDITURES:						
District Operations:						
Personal Services	191,599	199,780	181,498	184,921	186,986	188,578
Other Grants	0	0	0	0	0	0
Other Services	34,918	36,500	27,598	28,000	28,500	28,500
Supplies	3,000	2,500	2,250	2,300	2,500	2,500
Capital Outlay	0	0	0	20,000	10,000	0
Project Expenses – State	50,000	32,000	0	0	0	0
C/S Project	0	0	13,792	14,000	14,000	14,000
Project Expense District	33,489	45,400	41,400	43,000	43,000	43,500
Other	29,862	0	0	0	0	0
TOTAL EXPENSES:	**342,868**	**316,180**	**266,538**	**292,221**	**284,986**	**277,078**
Excess of Rev. Over (Under) Expenditures	BALANCED	BALANCED	BALANCED	BALANCED	BALANCED	BALANCED

* (Approved) ** (Actual Reports sent to BWSR) +2014 new truck (3 full time staff positions) +2015 update ranger

*** 2013 =2 ½ staff (mid-year plan to hire office assistant to work part-time to job share with current secretary, who is working ½ time on phased retirement.) *** 2014 -3 staff with sec. position as job share ***2015-3 staff with job share for Sec. retiring on July 1st

RESOLUTION 8-07-2012

ADOPTING THE

STEELE COUNTY

COMPRESHENSIVE LOCAL WATER MANAGEMENT PLAN

AS THE

COMPREHENSIVE PLAN OF THE STEELE COUNTY SWCD

Supervisor Kyle Wolfe offered resolution, No. 8-07-2012, and moved its adoption.

WHEREAS, the Steele County SWCD has been an active participant in the development and all updates of the Steele County Comprehensive Local Water Management Plan (CLWMP); and

WHEREAS, the Steele County CLWMP identifies the areas within the district where erosion, sedimentation, and related water quality problems are the most severe; and

WHEREAS, the Steele County CLWMP has been approved by the BWSR and has been determined to be in compliance with all laws and rules governing water in the State of Minnesota; and

WHEREAS, the Steele County CLWMP identifies high priority erosion, sedimentation, and water quality problems in accordance with BWSR rules and guidelines.

NOW THEREFORE BE IT RESOLVED:

THAT THE Steele County SWCD adopts the Steele County CLWMP as its Comprehensive Plan for the calendar years 2012 to 2016.

Supervisor Dave Melby seconded the adoption of the resolution, and it was declared adopted upon the following vote:

Ayes: All Nays: None

Daniel Hansen, Chairman Steele County SWCD Date

Daniel Hansen 8-7-2012