CARVER SOIL & WATER CONSERVATION DISTRICT

2016 - 2025 COMPREHENSIVE PLAN

I. Introduction

A. Purpose of the Comprehensive Plan

This document has been developed by the Carver Soil & Water Conservation District (SWCD) board and staff as a guide to program development and implementation. It is meant to be a planning tool and overall general description of SWCD activities. The comprehensive plan will guide the Carver SWCD in effectively implementing conservation programs in Carver County. This comprehensive plan covers a time frame of 2016 – 2025. Updates to polies and programs will be made as needed during the 10 year time frame.

The mission statement of the Carver SWCD is "*Providing high quality assistance to the land managers and citizens of Carver County for the protection of land and water resources."*

Over the years, the District has successfully adapted to the changing landscape and the needs of our constituents, which is still true today. The Carver SWCD often evaluates the effectiveness of programs and makes adjustments to meet the resource needs. In March of 2014 the board and staff held a strategic planning session to discuss new and emerging issues, as well as existing programs. The results of that strategic planning session helped guide the Objectives, Strategies, and Actions section of this comprehensive plan.

B. Organizational History

The Carver Soil and Water Conservation District has nearly 70 years of history of locally led conservation in Carver County. Local people organized the Carver SWCD in 1946 under the Minnesota Soil Conservation District Law as amended. It is a legal subdivision of the State Government, operating under Minnesota Statutes (103C), with a charter issued by the Secretary of State on November 12, 1946. The District boundaries are the same as Carver County boundaries.

The District was established to assist land users to plan and apply conservation practices that would control excessive erosion on their farms. As cities developed and expanded, technical assistance for soil suitability, erosion and storm water control was provided. Advisory assistance was given to other governmental units who are responsible for resource management so the best decisions are made for the resource base.

A lot has changed in Carver County since the time of the early settlers. The small family farms that raised everything from a few chickens, hogs, cows, small grain, alfalfa, and corn;

has nearly completely vanished. The noticeable impact to soil and water resources is that with less small grain and alfalfa, the potential for soil erosion is much greater. Contour farming and contour strips were once a large part of the agricultural landscape in Carver County, now they are few and far between.

District programs have changed along with the changing landscape. Buffer strips, and wetland restorations have been a large part of our workload in recent years. Urban conservation practices have also increased dramatically as cities within the county have grown. The population of Carver County is expected to more than double by 2030, urban BMP's will play a significant role in protecting water quality.

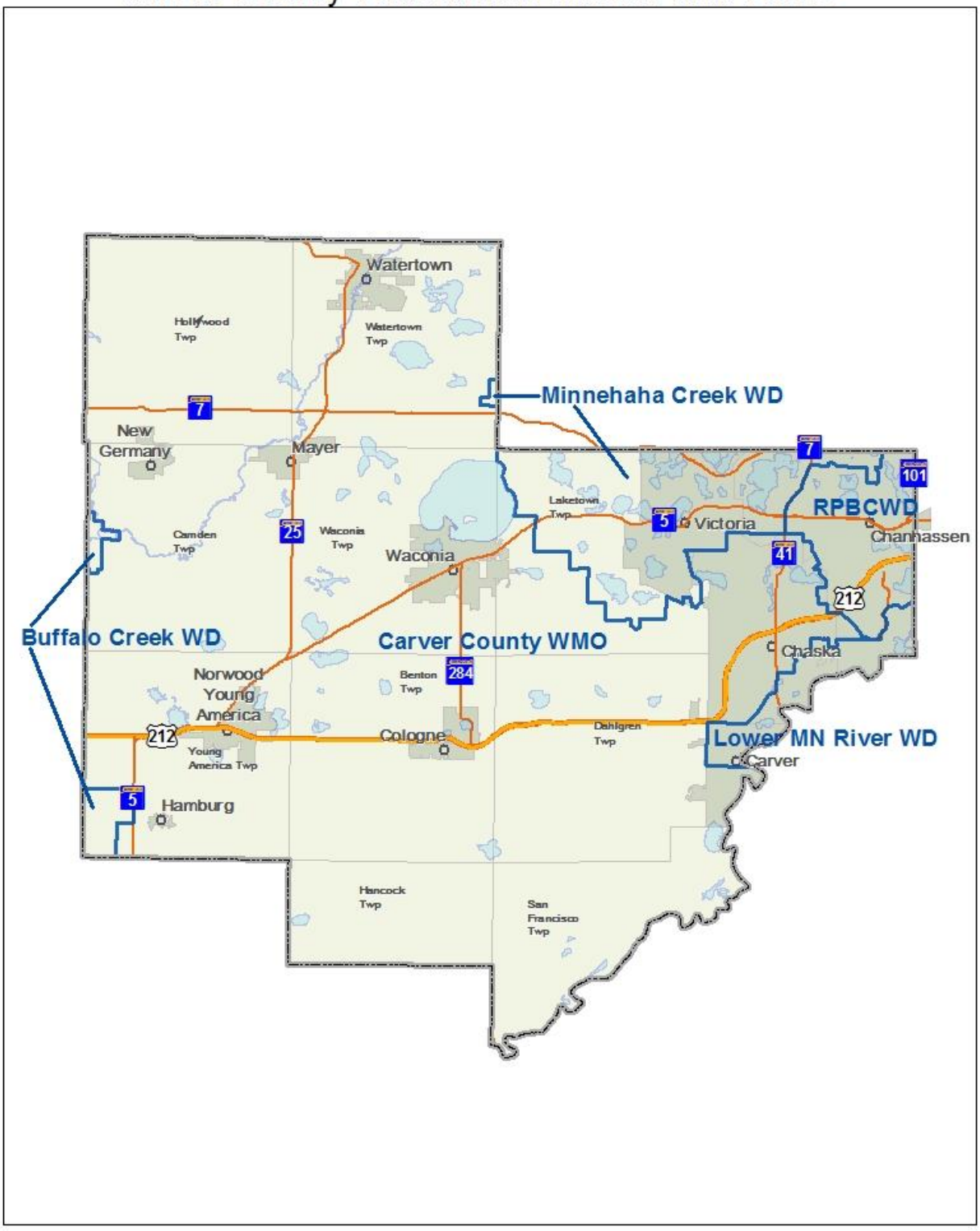
C. Authorization and Jurisdiction of the District

SWCDs are local units of government that manage and direct natural resource management programs at the local level. Districts work in both urban and rural settings, with landowners and with other units of government, to carry out a program for the conservation, use, and development of soil, water, and related natural resources.

One crucial niche districts fill is that of providing soil and water conservation services to owners of private lands. Privately owned lands make up 78 percent of the land surface in Minnesota. Managing these private lands, whether agriculture, forest, lakes, or urban, is key to Minnesota's quality of life.

Current state statute requires that all land in the 7 county metro area be covered by either a watershed district or water management organization (WMO). Carver County has parts of four watershed districts and one WMO. Riley Purgatory Bluff Creek Watershed District (RPBCWD) covers portions of Chanhassen and a small part of Chaska. Land within the RPBCWD drains into one of the three main creeks (Riley Creek, Purgatory Creek, Bluff Creek) and then into the Minnesota River. The Minnehaha Creek Watershed District (MCWD) covers western Chanhassen, Victoria, and much of Laketown Township. Land within the MCWD drains to Lake Minnetonka, outlets through Minnehaha Creek, and eventually drains to the Mississippi River. The Lower Minnesota River Watershed District (LMRWD) covers parts of Chaska and most of the City of Carver. Land within the LMRWD drains into the Minnesota River. The Buffalo Creek Watershed District (BCWD) covers two small portions of far western Carver County – one area is in Young America Township just west of Hamburg; the other area is in Camden Township where the Buffalo Creek drains into the Crow River. The rest of Carver County is covered by the Carver County Water Management Organization (CCWMO). Watershed Districts and the WMO have Implementation Plans that define how they will spend tax payer money on capital improvement projects or cost share projects within their jurisdictions. The SWCD is heavily involved in the development of those plans and is an active partner in project implementation.

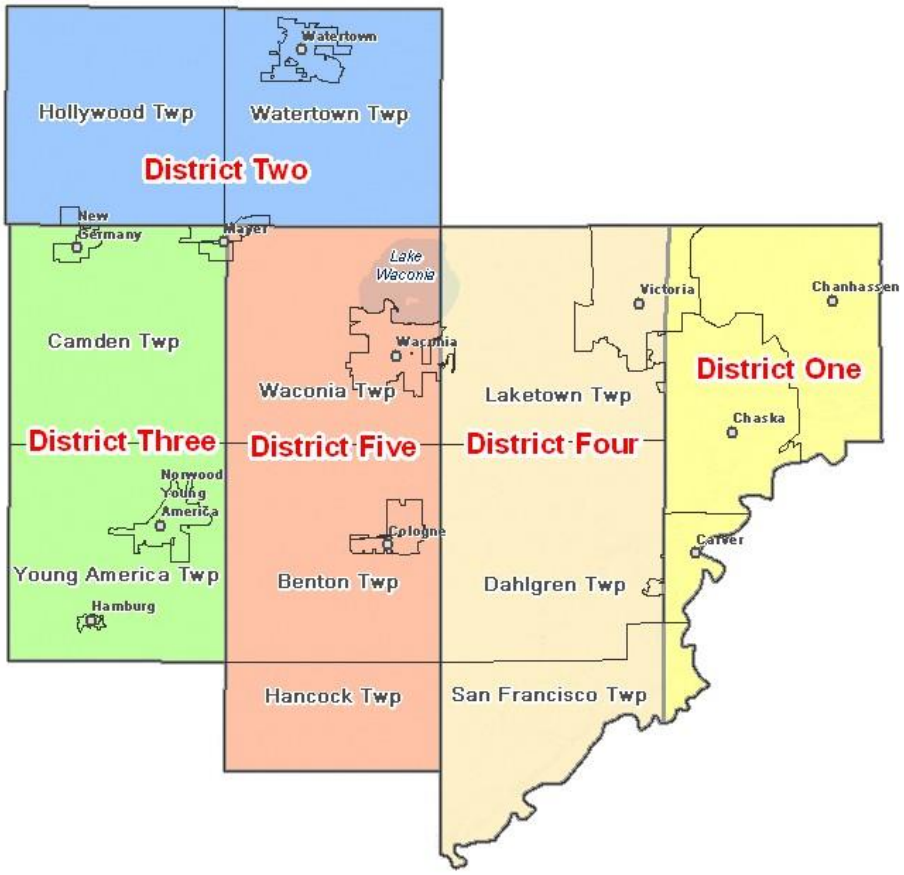
Carver County Watershed Districts and WMO



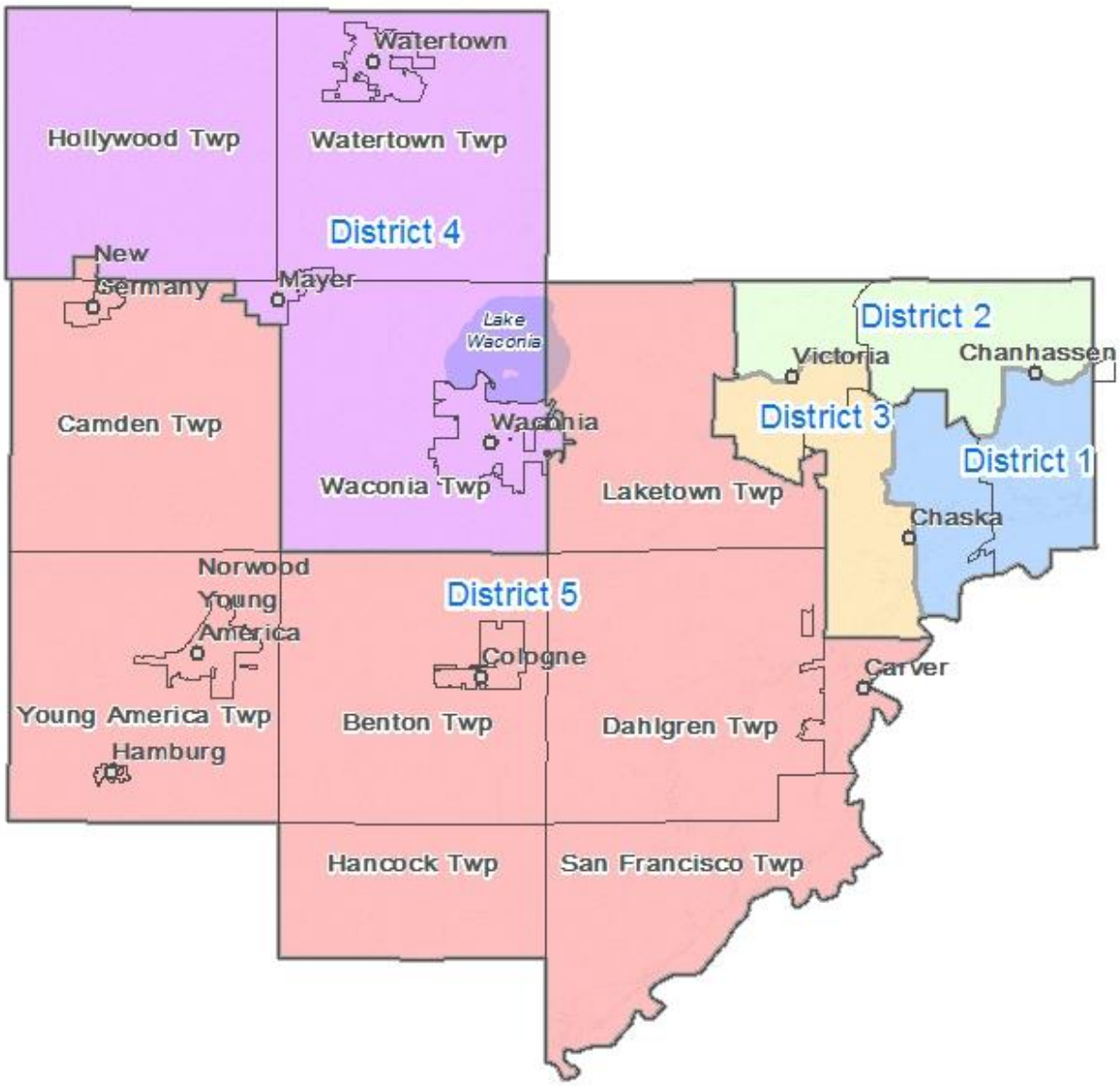
SWCD's in Minnesota are granted authorities under MN Statute 103C. Soil and Water Conservation Districts DO NOT have taxing authority. Therefore, the SWCD must work with partnering local agencies that do have taxing authority. The Carver SWCD works very closely with the Carver County WMO, the Riley-Purgatory-Bluff Creek Watershed District, the Minnehaha Creek Watershed District, and the Lower MN River Watershed District. The SWCD assists these agencies by providing the technical assistance, landowner outreach, and "boots on the ground" help as needed. In addition to working with local agencies, the SWCD also implements state conservation programs including the Re-Invest in Minnesota (RIM) Program, Wetland Conservation Act (WCA), Riparian Zone Management (buffer law), and soil erosion provisions of 103F.48.

The District is governed by a Board of five elected supervisors who are responsible for directing all programs and activities. A change to MN Statute 103C.311 in 2014 requires SWCD's in the seven county metro area to be elected by precincts that are substantially equal in population. The election districts must be compact, include only contiguous territory, substantially equal in population, and numbered in a regular series. Starting with the 2016 general election, the Carver SWCD will follow the same election districts as the county commissioners.

A map of the current SWCD Supervisor districts is below.



Starting with the 2016 election, the SWCD Supervisor districts will change to the map below.



Election years

District 1 – 2016, 2018, 2022
District 2 – 2016, 2020, 2024
District 3 – 2016, 2018, 2022
District 4 – 2016, 2020, 2024
District 5 – 2016, 2018, 2022

D. District Policies

Over the years, the SWCD has adopted policies to guide district programs. Policies are fluid documents that may be changed with the approval of the District Board. The policies direct staff to implement programs to the best of their ability within the legal limits, or policies identified by other government agencies. For example, the state cost share funds that are received from BWSR have a strict set of rules and guidelines for implementation. Staff follow the *Erosion Control and Water Management Program* and Grants *Administration Manual* that BWSR keeps up to date for the various state grant funds. Other policy examples are the Operational Policy Handbook, Personnel Policy (employee handbook), Ag BMP Loan Policy, Cost Share Policy, and the Budget Amendment Policy. Copies of these policies can be obtained by contacting the district office.

District staff work very closely with our partner agencies to implement programs that they administer. While many of these programs do not require a specific set of policies, staff continually interact with partners in a way that promotes and advances their programs.

E. District Accomplishments

During the implementation of the previous comprehensive plan (2011 – 2015), the Carver SWCD achieved successes in many of their programs. The following is a list of highlights from the previous 5 years, for a more comprehensive summary of district accomplishments, please see the annual reports from 2011 – 2015.

Conservation easements – In the past 5 years, the Carver SWCD has applied for over $10 million worth of conservation easement funding through the RIM, and RIM/WRP programs. Of those applications, approximately $5.2 million worth of funding has been secured to protect approximately 850 acres of land with permanent conservation easements. In addition to this, the SWCD works with the NRCS and FSA offices to implement the CRP program. Carver County has around 3,500 acres of land enrolled in the CRP program (original contracts ranged in length from 10 – 15 years).

Focus on Reitz Lake – The Carver WMO received a special Clean Water Fund grant to install projects around Reitz Lake that would help improve water quality. The SWCD assisted the WMO in implementing these projects, and a whole lot more in the watershed that drains to Reitz Lake. The CWF grant helped to fund a dry pond on the north side of the lake, filtering runoff from 40 acres of Ag land prior to entering the lake. The grant also helped to install an aeriated pond and floating wetland treatment system on the east side of the lake. Four shoreline restorations were also completed with landowners around the lake. Knowing the lake was a focus area, the SWCD also marketed conservation programs to farmers within the Reitz Lake watershed. Many landowners enrolled into CRP in the marginal cropland portions of the watershed, and a large wetland was restored through the wetland banking program on the headwaters of the drainage ditch into Reitz Lake.

Agricultural BMP's – The SWCD annually implements a state cost share program that proves financial assistance to landowners for installing BMP's to reduce soil erosion and protect water resources. The following short term metrics is from the WMO annual report:

Number/types of conservation practices installed	Unit	2010	2011	2012	2013	2014	2015	Total (2008-2015)
Clean water diversions	#	2						2
Critical area planting	#	1		5	19	2		29
Grade stabilization structure	#	1						3
Grassed Waterways	#	3	5	4	2	4	**14**	35
Harvestable buffers	acres		3					3
Milkhouse Waste Fix	#			2				3
RIM buffers	#		10	5	4			19
RIM buffers (acres)	acres		70.3	30	27.6			127.9
Rock Inlets	#		3	12				15
Side inlet control structure	#	1			3			4
Truax Drill Rental	#	21		4	8	8	**6**	82
Truax Drill Rental (acres)	acres	275		28	76	173	**153**	1,261
Water & Sediment Basin	#	1	1					4
Wetland Restorations (CRP)	#		2				**2**	4

Urban BMP's – The SWCD assists the WMO with project review for compliance with the County Water Rules. SWCD staff also conducts Construction Site Erosion & Sediment Control inspections on developing property to ensure compliance with local and state rules. The following short term metrics is from the WMO annual report:

Metric	2010	2011	2012	2013	2014	2015
Number of Projects Reviewed	21	36	44	43	53	**56**
Number of Stormwater BMPs Approved and Installed	13	14	15	16	11	**53**
Number of Erosion & Sediment Control Inspections	131	162	155	200	240	**141**
Landowner Cost Share Projects	7	4	3	3	1	**1**
Stormwater BMPs Monitored for TP & TSS	6	6	7	10	8	**4**
Stormwater BMPs Monitored for General Function	15	18	90	36	43	**48**

In addition, the SWCD has an agreement with Riley Purgatory Bluff Creek Watershed District to assist with BMP design and advice within their watershed. The SWCD developed this partnership more effectively serve the tax payers in Carver County with water management.

II. Resource Inventory

A. Soil Survey

Carver County has a total land area of 218,330 acres – of which approximately 95% is land and 5% is open water. The landscape is one of outwash plains and flats, gently rolling to steep hills and many marshes and lakes. Carver County was once home to numerous wetlands and shallow lakes. Early settlers to this area recognized the potential for the glacial till soil for agricultural production. During the late 1800's and early 1900's, many of the hydric soils were drained with surface drainage ditches. During the mid 1900's, drain tile was installed (at times with government assistance) to make the soil more productive for agriculture.

Surface water in Carver County drains to both the Minnesota River and to the Mississippi River. The west and northwest part of the county drains into the Crow River, on its way to the Mississippi River. The central and southwest parts of the county drain to the Minnesota River, mainly via Silver Creek, Bevens Creek, Carver Creek, or Chaska Creek. A small portion of the north and northeast part of the County drains to the Minnehaha Creek and Riley-Purgatory-Bluff Creek.

Carver County consists of eight soil associations. Soil associations are landscapes that have distinctive patterns of similar soil groups. The eight soil associations are:

- 1 - The **Cordova-Webster-LeSueur association** is primarily composed of fine textured black clay loams. These deep soils are poor to moderately well drained and have a high moisture storage capacity. This soil pattern is generally associated with nearly level broad upland flats.

- 2 - The **Lester-LeSueur-Peat association** is primarily composed of medium to fine textured clay loams. These deep soils are moderately to well drained and have a high moisture storage capacity. This soil pattern is generally associated with gently rolling slopes and broad upland flats.

- 3 - The **Lester-Hayden-Peat association** is primarily composed of medium to fine textured loams with a subsoil of clay loam. These deep soils are will drained and have a moderately high moisture capacity. This soil pattern is generally associated with rolling slopes in the upland areas.

- 4 - The **Hayden-Lester-Peat association** is primarily composed of medium to fine textured loams with a subsoil of clay loam. These deep soils are well drained and have a moderately high moisture capacity. This soil pattern is

generally associated with irregular strongly rolling slopes and hills in the upland areas.

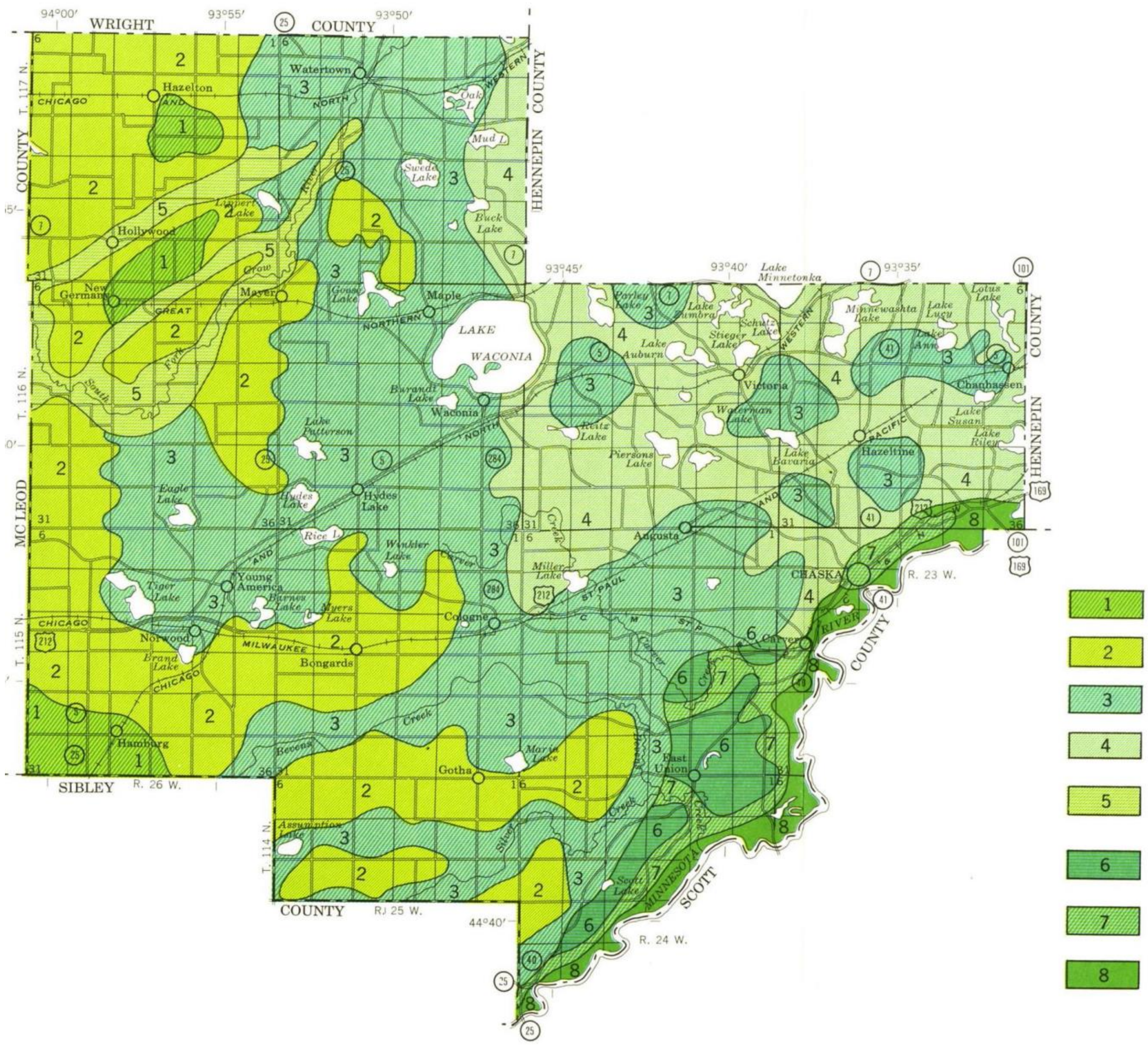
- 5 - The **Mayer-Estherville-Talcot** association is primarily composed of medium texture loams with a subsoil of loams or sandy clay loams and a gravelly substratum. These moderately deep to shallow soils are poorly drained and tend to have a lower moisture storage capacity. This soil pattern is generally associated with broad flats and drainage ways.

- 6 - The **Fairhaven-Kasota-Estherville association** is primarily composed of medium textured loams or silt loams with a clayey subsoil. These moderately deep to shallow soils are well drained and have a moderately high storage capacity. This soil pattern is generally associated with broad flats and rolling outwash terraces.

- 7 - The **Salida-Hayden association** is primarily composed of coarse to medium textured soils over sand and gravel. These thin soils tend to have a poor moisture storage capacity. This soil pattern is generally associated with steep hills and bluffs.

- 8 - The **Alluvial Land-Chaska-Oshawa association** is primarily composed of medium to fine textured loamy soils and silty clay loams. These soils are poorly drained. This soil pattern is generally associated with flood plains.

For more information on Carver County soils, and to make maps and queries of particular areas of interest, visit the NRCS web soil survey website at http://websoilsurvey.nrcs.usda.gov/app/.


WRIGHT COUNTY
HENNEPIN COUNTY
MC LEOD COUNTY
SIBLEY COUNTY
SCOTT COUNTY
94°00′
93°55′
93°50′
93°45′
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44°40′
T. 117 N.
T. 116 N.
T. 115 N.
T. 114 N.
R. 26 W.
R. 25 W.
R. 24 W.
R. 23 W.
Watertown
Hazelton
Hollywood
New Germany
Mayer
Maple
LAKE WACONIA
Waconia
Hydes Lake
Young America
Norwood
Bongards
Cologne
Hamburg
Gotha
East Union
Carver
CHASKA
Augusta
Victoria
Chanhassen
Hazeltine
Lake Minnetonka
MINNESOTA RIVER
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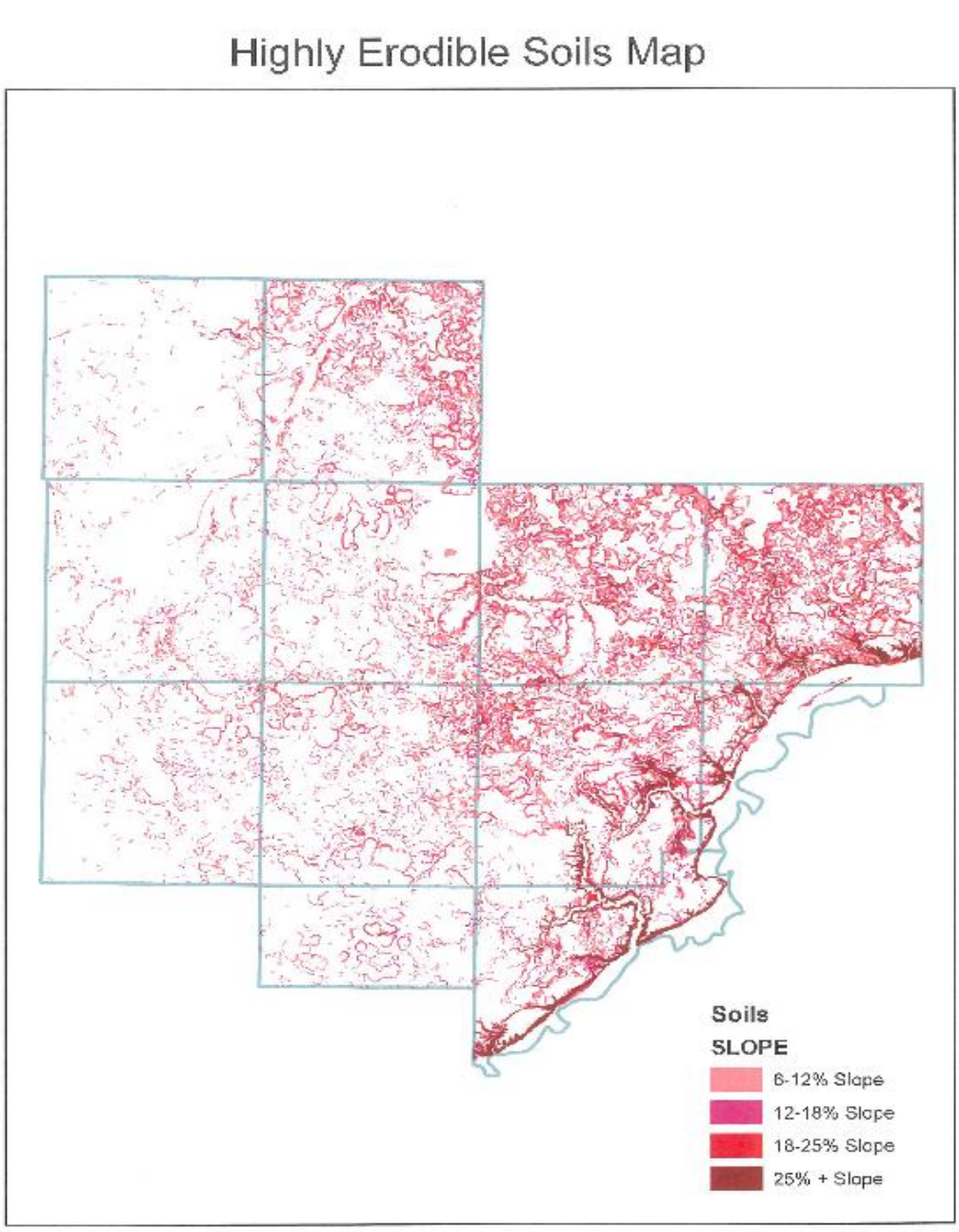
8

B. High Priority Problem Areas

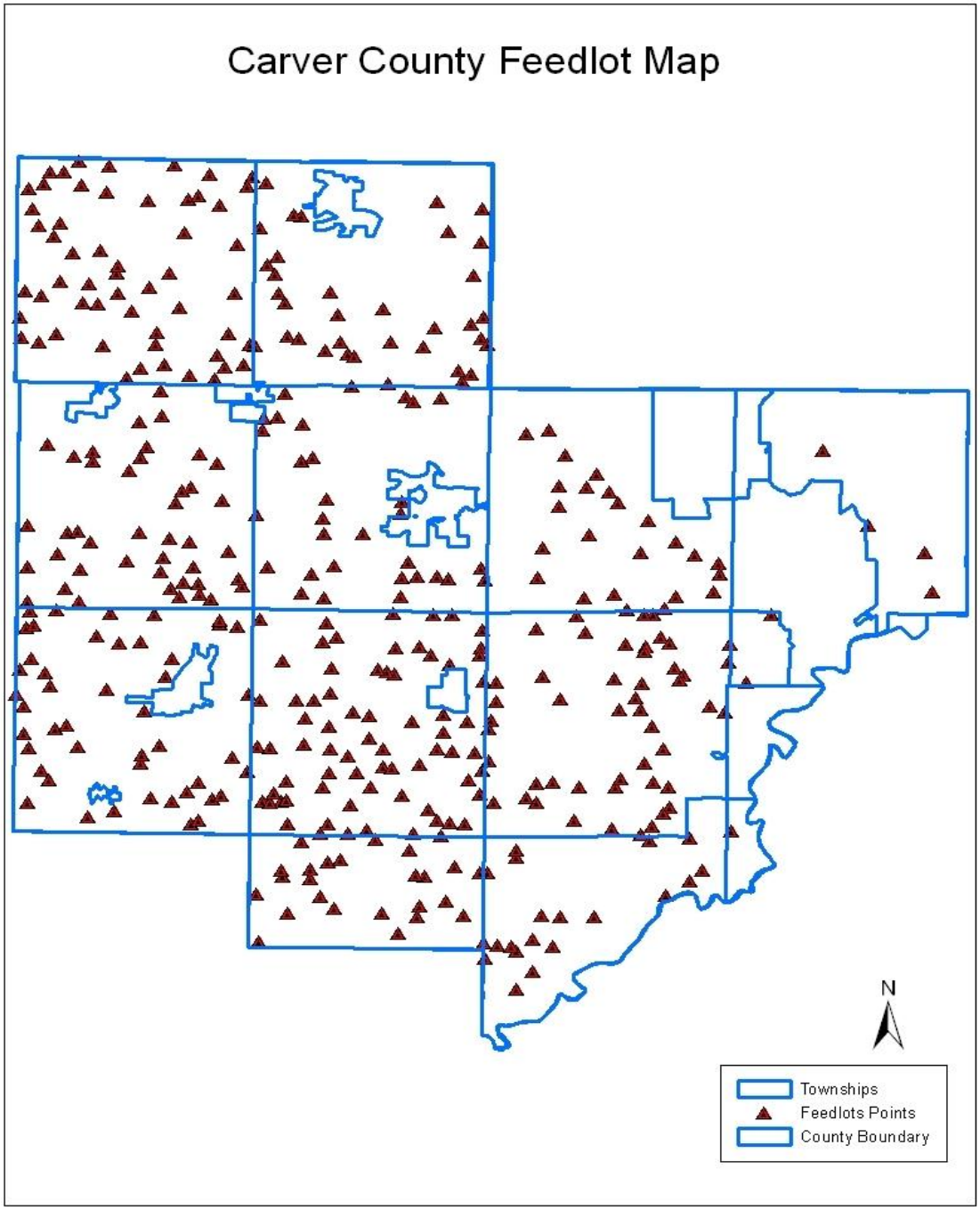
High priority erosion problems are defined as: “Erosion from wind and/or water occurring on Class I-IV soil in excess of 2T tons/acre/year of any soil within 300 feet of a stream or 1,000 feet of a water basin designated as a protected water or wetland by the DNR.” The map below shows the highly erodible soils map of Carver County.



Highly erodible soils map of Carver County.

Feedlots - High priority feedlots are defined as: “Those feedlots where the pollution rating (from the Ag. Waste Model) is greater than or equal to one and is discharging pollutants to DNR designated protected waters or wetlands; to shallow soils overlying fractured bedrock; or within 150 feet of a water well.” Feedlots, when improperly located with respect to water resources, and improperly managed to prevent runoff from entering a lake or a stream, can downgrade water quality.

Location of all registered feedlots in Carver County.



Summary of Completed TMDL Studies

Several water bodies within Carver County also have approved TMDL's. The Carver SWCD works with local partners to implement programs and projects from TMDL implementation plans. The following is a list of completed TMDL studies:

Carver, Bevens, and Silver Creeks Fecal Coliform (Approved). Carver, Bevens, and Silver Creeks are located within Carver County. Carver Creek flows 89 miles through its 54,220 acre watershed. Bevens Creek and its tributary, Silver Creek, flow 97 miles with a combined watershed of 82,764 acres. These three Creeks are designated as recreational waters, which includes primary contact activities such as swimming and boating. Water quality analysis conducted within these waters indicates that fecal coliform levels exceed the State Standard of 200 colony-forming units per 100 milliliters of water. Goals have been set for the TMDL based upon seasons; with Spring requiring a 55 to 93 percent reduction, Summer requiring a 56 to 90 percent reduction, and Fall requiring a 85 to 91 percent reduction to achieve TMDL goals.

Carver Creek Turbidity (Approved). Carver Creek is located within Carver County and flows 89 miles through its 54,220 acre watershed. Carver Creek is designated as recreational waters, which includes primary contact activities such as swimming and boating. Water quality analysis conducted within these waters indicates that turbidity levels exceed the State Standard of 25 NTU. Monthly goals have been established for the TMDL with a range of 18 to 65 percent reduction required to achieve the TMDL goal.

Bevens and Silver Creek Turbidity (Approved). Bevens and Silver Creeks are located within Carver County, flowing 97 miles through the combined watershed of 82,764 acres. Bevens Creek and its tributary, Silver Creek, are designated as recreational waters, which includes primary contact activities such as swimming and boating. Water quality analysis conducted within these waters indicates that turbidity levels exceed the State Standard of 25 NTU. Monthly goals have been established for the TMDL with a range of 17 to 68 percent reduction required to achieve the TMDL goal.

Burandt Lake (Approved). Burandt Lake is a deep, 92 acre lake located 0.5 miles west of Waconia. The lake has a watershed area of 7,823 acres and is divided into three subwatersheds; land directly draining to the lake, Lake Waconia Subwatershed, and Scheuble Lake Subwatershed. Burandt Lake is listed as impaired due to excess nutrients. Total phosphorus summer mean concentrations have ranged from 56 to 98 micrograms per liter (ug/L) over a time period from 1999 to 2005. Minnesota State standards have established a Total Phosphorus Concentration limit of 40 ug/L, which Burandt Lake is exceeding. Reductions of 32 to 66 percent of total phosphorus loadings are needed to achieve the water quality goal of 40 ug/L. The TMDL has set a phosphorus loading maximum of 321 kilograms per year.

Reitz Lake (Approved). Reitz Lake is a 90 acre lake on the eastern boundary of the City of Waconia. By 2030, 73 percent of Reitz Lake Watershed will be within the City boundaries of Waconia. Reitz

Lake is listed as impaired due to excess nutrients. Total phosphorus summer mean concentrations have ranged from 43 to 109 ug/L over a time period from 1999 to 2004. Minnesota State standards have established a Total Phosphorus Concentration limit of 40 ug/L, which Reitz Lake is exceeding. Depending upon the yearly precipitation, a 9 to 84 percent reduction is required to meet the State Standard of 40 ug/L. The TMDL has set a phosphorus loading maximum of 164 kilograms per year.

Four Lake TMDL (Approved)

Goose Lake. Goose Lake is a 333 acre lake located 4 miles northwest of Waconia. The lake has a maximum depth of 10 feet, which classifies it as a Shallow Lake. Goose Lake is listed as impaired due to excess nutrients. Total phosphorus summer mean concentrations have ranged from 103 to 216 ug/L over a time period from 1997 to 2007. Minnesota State standards have established a limit of 60 ug/L, which Goose Lake is exceeding. Depending upon the yearly precipitation, a 58 to 86 percent reduction is required to meet the State Standard of 60 ug/L. The TMDL has set a phosphorus loading maximum of 270 kilograms per year.

Hydes Lake. Hydes Lake is a 216 acre lake located 5.5 miles west of Cologne. The lake has a maximum depth of 18 feet, which classifies it as a Deep Lake. Hydes Lake is listed as impaired due to excess nutrients. Total phosphorus summer mean concentrations have ranged from 84 to 362 ug/L over a time period from 1991 to 2007. Minnesota State standards have established a Total Phosphorus Concentration limit of 40 ug/L, which Hydes Lake is exceeding. Depending upon the yearly precipitation, a 73 to 94 percent reduction is required to meet the State Standard of 40 ug/L. The TMDL has set a phosphorus loading maximum of 197 kilograms per year.

Miller Lake. Miller Lake is a 141 acre lake located 2 miles northeast of Cologne. The lake has a maximum depth of 14 feet, which classifies it as a Shallow Lake. Miller Lake is listed as impaired due to excess nutrients. Total phosphorus summer mean concentrations have ranged from 149 to 462 ug/L over a time period from 1999 to 2007. Minnesota State standards have established a Total Phosphorus Concentration limit of 60 ug/L, which Miller Lake is exceeding. Depending upon the yearly precipitation, a 65 to 91 percent reduction is required to meet the State Standard of 60 ug/L. The TMDL has set a phosphorus loading maximum of 1,738 kilograms per year.

Winkler Lake. Winkler Lake is a 73 acre lake located 3 miles northwest of Cologne. The lake has a maximum depth of 3 feet, which classifies it as a Shallow Lake. Winkler Lake is listed as impaired due to excess nutrients. Total phosphorus summer mean concentrations have ranged from 173 to 471 ug/L over a time period from 1999 to 2007. Minnesota State standards have established a Total Phosphorus Concentration limit of 60 ug/L, which Winkler Lake is exceeding. Depending upon the yearly precipitation, a 68 to 95 percent reduction is required to meet the State Standard of 60 ug/L. The TMDL has set a phosphorus loading maximum of 643 kilograms per year.

Benton Lake TMDL (Approved)

Benton Lake is a 49 acre lake located within the City of Cologne. The watershed covers 2,194 acres, which is divided into two subwatersheds; the Direct Subwatershed, and Meuwissen Lake Subwatershed. The lake has a maximum depth of 7 feet, which classifies it as a Shallow Lake. Benton Lake is listed as impaired due to excess nutrients. Total phosphorus summer mean concentrations have ranged from 194 to 332 ug/L over a time period from 1999 to 2007. Minnesota State standards have established a Total Phosphorus Concentration limit of 60 ug/L, which Benton Lake is exceeding. Depending upon the yearly precipitation, a 79 to 82 percent reduction is required

to meet the State Standard of 60 ug/L. The TMDL has set a phosphorus loading maximum of 116 kilograms per year.

South Fork Lakes TMDL (Approved)

Eagle Lake. Eagle Lake is a 235 acre lake located 2.7 miles north of Norwood Young America. The lake has a maximum depth of 14 feet, which classifies it as a Shallow Lake. Eagle Lake is listed as impaired due to excess nutrients. Total phosphorus summer mean concentrations have ranged from 174 to 386 ug/L from 1999 to 2006. Minnesota State standards have established a Total Phosphorus Concentration limit of 60 ug/L, which Eagle Lake is exceeding. Depending upon the yearly precipitation, a 83 to 94 percent reduction is required to meet the State Standard of 60 ug/L. The TMDL has set a phosphorus loading maximum of 164 kilograms per year.

Oak Lake. Oak Lake is a 339 acre lake located 2.5 miles east of Watertown. The lake has a maximum depth of 11 feet, which classifies it as a Shallow Lake. Oak Lake is listed as impaired due to excess nutrients. Total phosphorus summer mean concentrations have ranged from 87 to 191 ug/L from 2001 to 2006. Minnesota State standards have established a Total Phosphorus Concentration limit of 60 ug/L, which Oak Lake is exceeding. Depending upon the yearly precipitation, a 42 to 82 percent reduction is required to meet the State Standard of 60 ug/L. The TMDL has set a phosphorus loading maximum of 147 kilograms per year.

Swede Lake. Swede Lake is a 434 acre lake located 2.5 miles southeast of Watertown. The lake has a maximum depth of 12 feet, which classifies it as a Shallow Lake. Swede Lake is listed as impaired due to excess nutrients. Total phosphorus summer mean concentrations have ranged from 224 to 344 ug/L from 2002 to 2007. Minnesota State standards have established a Total Phosphorus Concentration limit of 60 ug/L, which Swede Lake is exceeding. Depending upon the yearly precipitation, a 90 to 96 percent reduction is required to meet the State Standard of 60 ug/L. The TMDL has set a phosphorus loading maximum of 236 kilograms per year.

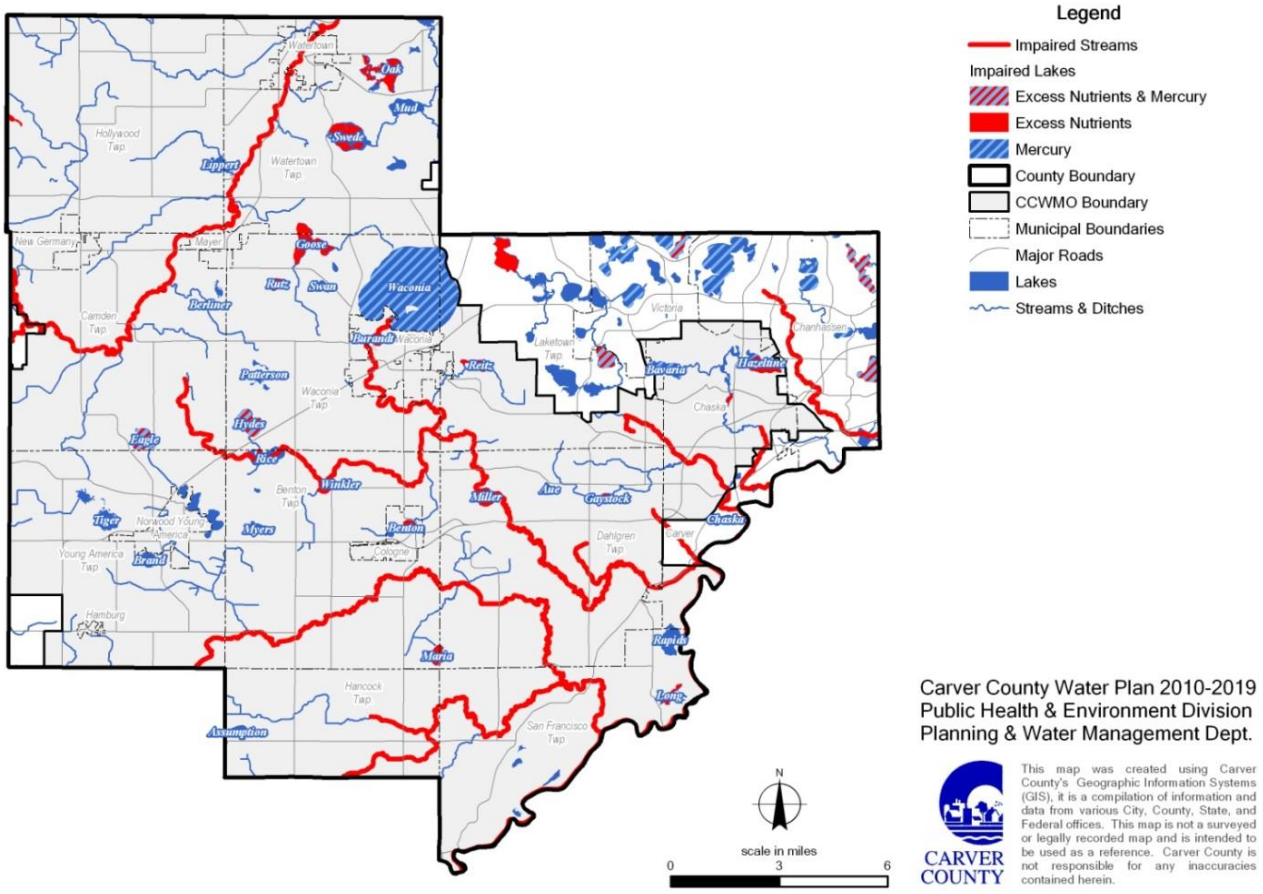
Gaystock Lake TMDL (Draft in Progress)

Gaystock Lake. Gaystock Lake is a 46 acre lake located 3.5 miles west of Chaska. The lake has a maximum depth of 18 feet, which classifies it as a Deep Lake. Gaystock Lake is listed as impaired due to excess nutrients. Total phosphorus summer mean concentrations have ranged from 209 to 498 ug/L from 2000 to 2006. Minnesota State standards have established a Total Phosphorus Concentration limit of 40 ug/L, which Gaystock Lake is exceeding. Depending upon the yearly precipitation, an 88 to 96 percent reduction is required to meet the State Standard of 40 ug/L. The TMDL has set a phosphorus loading maximum of 101 kilograms per year.

Hazeltine Lake/Grace Lake Chain TMDL (Draft in Progress)

Hazeltine Lake. Hazeltine Lake is a 161 acre lake located within the City of Chaska. The lake has a maximum depth of 7 feet, which classifies it as a Shallow Lake. Hazeltine Lake is listed as impaired due to excess nutrients. Total phosphorus summer mean concentrations have ranged from 150 to 230 ug/L from 1999 to 2006. Minnesota State Standards have established a Total Phosphorus Concentration limit of 60 ug/L, which Hazeltine Lake is exceeding. Depending upon the yearly precipitation, a 78 to 90 percent reduction is required to meet the State Standard of 60 ug/L. The TMDL has set a phosphorus loading maximum of 75 kilograms per year.

Impaired waters in Carver County



Carver County Water Plan 2010-2019
Public Health & Environment Division
Planning & Water Management Dept.

CARVER COUNTY

This map was created using Carver County's Geographic Information Systems (GIS), it is a compilation of information and data from various City, County, State, and Federal offices. This map is not a surveyed or legally recorded map and is intended to be used as a reference. Carver County is not responsible for any inaccuracies contained herein.

III. Resource Assessment

A. Assessment of High Priority Problems

The SWCD annually participates in the federal NRCS Local Work Group process to identify the natural resource needs of the county. The areas of concern that consistently rank as the top priorities are:

1) Water Quality
2) Soil Erosion, both gully erosion and sheet/rill erosion
3) Wetland Restorations
4) Stream bank Stabilization
5) Feedlot runoff control

In addition to the NRCS resource appraisal, the SWCD has been very involved with the local taxing districts on water related issues. The SWCD has daily interaction with the Carver County Water Management Organization with implementing the water management plan. The SWCD has also been very involved with RPBCWD resource protection measures and plan implementation. The SWCD has been and will continue to be involved with the Six-Mile Creek focus area within the Minnehaha Creek Watershed District. The SWCD has also assisted the Lower Minnesota River Watershed District, and the Buffalo Creek Watershed District in implementing portions of their water management plans.

Over the past few years and into the future, addressing water quality concerns in the county has been prioritized through water plans and the TMDL process. In most cases, addressing water quality concerns encompasses the other resource concerns of soil erosion, wetland restoration, stream bank stabilization, and feedlot runoff. The SWCD is involved with all the water management plans within Carver County.

Please reference the watershed districts and WMO plans for additional resource assessments, links to those plans are listed below.

Carver WMO
http://www.co.carver.mn.us/departments/public-services/planning-water-management/water-management/about-the-wmo/water-management-plan
Riley-Purgatory-Bluff Creek Watershed District
http://www.rpbcwd.org/library/wmp/
Minnehaha Creek Watershed District
http://www.minnehahacreek.org/comprehensive-water-resources-management-plan
Lower MN River Watershed District
http://www.watersheddistrict.org/plan.html
Buffalo Creek Watershed District
http://bcwatershed.org/overall-plan.html

B. Conservation Measures Needed

Given the extent of the water quality impairments and the trends of higher flows and flashier flows in the creeks, streams, and rivers; major changes are needed to address the water quality problems in Carver County. Many of the problems can be resolved by attempting to mimic the natural hydrology of the landscape.

While it is not feasible, or even desirable, to restore all land in Carver County back to prairie and big woods, efforts to mimic natural hydrology could be made throughout the landscape in both the Ag and urban environment. In the agricultural landscape, efforts to mimic natural hydrology could be made by implementing cover crops.

Cover Crops - Cover crops are planted in mid to late summer and grow late into the growing season. When cover crops are left standing through the winter months, they protect the soil by keeping it covered. Wind erosion is minimal during winter months when the soil is not exposed to the elements. In spring, soil erosion is held in check if cover crops are left to protect the surface from the impact of rain drops.

Cover crops have not been consistently used by farmers in Carver County in the past. Most often farmers voice concerns about the heavy clay soils in the area and the need to make the soil black so that it warms up faster in the spring. There is a new focus on cover crops growing in other parts of the nation that aims to dispel the fears associated with cover crops. The SWCD is in the developing stages of a cover crop program to assist landowners with getting started in the cover crop world.

Volume control – In the developing areas of the county, the landscape is changing into one with high impervious cover. This has been leading to accelerated runoff because water cannot soak into the soil, but is instead directed to storm water conveyance systems and discharged to surface waters. Efforts are now being made to control the volume of runoff that leaves the developed landscape for small rain events. Water management entities that have land use authority are starting to require volume control be part of the development process.

Because of the heavy clay soil in Carver County, the best way to meet the requirements of volume control is through water re-use. With water re-use, runoff is stored and reapplied to green space with irrigation systems. Several re-use systems have been installed in Carver County and there are several more in the planning stages.

C. Effectiveness of Past Efforts

This section is meant to describe the effectiveness of past efforts during the timeframe of the previous comprehensive plan (2011 – 2015). Many of the SWCD programs are long standing proven ways of getting conservation on the ground. The past 5 years were very successful for the SWCD, but the strong influence of commodity prices can have a big influence on Ag related programs.

When corn prices soared above $5 per bushel, reaching a high of $7 per bushel, the interest in signing up for set aside programs such as CRP dwindled significantly. In fact, the acres of marginal land going into crop production likely exceeded the acres of marginal land going out of crop production. Tree lines were removed, pastures and grass areas were plowed up. The desire to produce more high value corn outweighed the desire to put marginal crop land into a conservation program. Needless to say, new CRP sign-ups during this period were few and far between.

Although the Ag programs slowed when commodity prices were high, the SWCD had a steady amount of work with RIM, RIM-WRP, and even some wetland banking. During the past 5 years around $5.2 million worth of easement money was paid out for restoring over 850 acres of land. Several large scale projects where implemented during this time: the Sod Farm wetland restoration near Lake Waconia, several large RIM floodplain projects near the Crow River and the Minnesota River, and a large wetland banking project in Laketown Township.

Construction site erosion and sediment control inspections remained strong during the previous 5 years. The lack of proper top soil management became a top issue during this time and the SWCD has been working with the Carver County WMO to incorporate changes to the water rules to make the developer and contractor more responsible for adequate handling and replacement of topsoil.

The SWCD also hired a landscape designer to assist with BMP design and installation in the non-ag portions of the county. The landscape designer worked with homeowners, cities, schools and non-profit groups to come up with landscape designs that also treated storm water. Examples of these BMP's include rain gardens, bio-retention areas, shoreline restoration projects, and sand/iron filter designs.

IV. Objectives, Strategies, and Actions

A. Objectives

Agriculture Conservation Practices Objectives

The goal of this program is to work with private landowners to minimize negative impacts of agriculture activities on natural resources. It is also important to assist landowners with technical assistance that will enable them to build soil quality for future generations. The SWCD works with Ag producers by directing them to technical and financial resources available for natural resources protections. The state cost-share program provides financial assistance for installing BMP's identified in the Field Office Technical Guide (FOTG). The SWCD administers an Ag-BMP Low Interest Loan program aimed at providing low interest loans for implementing practices that enhance or protect water quality. The SWCD is also in the process of developing a soil health/cover crop program. This program will provide incentives and cost-share for producers implementing cover crops into their rotation.

Traditional Ag BMP's

The SWCD has provided technical assistance and cost share assistance for traditional Ag BMP's for over 60 years. Examples of this type of practice include but are not limited to: grass waterways, water & sediment control basins, residue management, grade stabilization structures, contour strips, nutrient management, critical area planting, rock inlets, buffer strips, tree & shrub establishment. The SWCD will continue to promote the use of BMP's on a county wide basis, special focus will now take place in the sub watershed's that have been identified as priorities from Total Maximum Daily Load (TMDL) studies as well as those identified in the Carver County Water Management Plan.

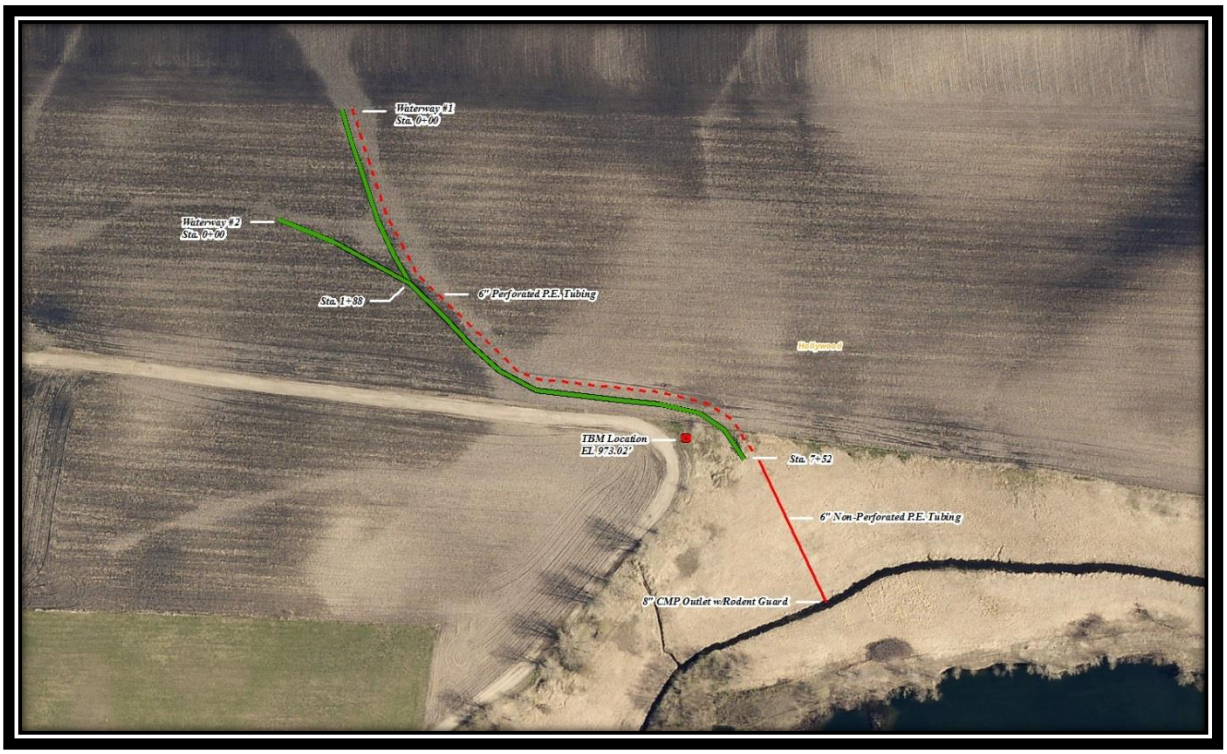
Strategies to implement Ag BMP efforts

1. Promote the installation and maintenance of BMP's that will have the greatest impact on natural resources.
2. Seek financial aid in the form of State Cost Share and federal EQIP for the installation of BMP's.
3. Work cooperatively with the USDA NRCS and FSA to promote and implement the federal USDA programs such as EQIP, CRP, CCRP, and CSP.
4. Work cooperatively with the Carver County to encourage compliance with County and WMO rules and regulations.
5. Implement the SWCD responsibilities of the new buffer law and soil erosion law.
6. Utilize new technologies and software based prioritization methods.
7. Conduct site inspections and provide technical assistance to interested landowners.

Actions to implement strategies

1. Complete subwatershed analyses, or PTM mapping to identify the best opportunities for BMP installations.
2. Use targeting marketing strategies to direct program focus on the identified areas.

3. Interact regularly and often with partner agency staff to keep high priority projects moving ahead.
4. Utilize the newest technology for collecting and implementing BMP designs. An example of this is survey grade GPS equipment.
5. Develop policies to implement the new buffer law and soil erosion law.



A grassed waterway design in Hollywood Township

Feedlots

Carver County has been delegated the feedlot duties from the Minnesota Pollution Control Agency (MPCA). The SWCD provides technical assistance to livestock producers and to the Carver County Environmental Services Department. The SWCD conducts site investigations and runs a computer model to determine if the site has potential for pollution. When a pollution problem is detected, the SWCD provides options for getting the site into compliance by completing topographic survey work and developing a design. Several government programs exist to help offset the costs of getting a site into compliance. The SWCD works with landowners to apply for these funds.

Strategies to implement feedlot efforts

1. Assist the County Feedlot Officer with site evaluations, planning, design, and overall general technical assistance on the feedlot operations within Carver County.
2. Complete MINNFARM evaluations for potential pollution problems.
3. Complete feedlot (including milk house waste) fixes.
4. Inspect previously completed feedlot fixes for compliance.

Actions to implement strategies

1. Discuss feedlot non-compliance issues as part of weekly joint agency meetings with County staff.
2. Attend MINNFARM trainings, and feedlot pollution solution trainings.
3. Develop a feedlot inspection schedule with County staff.
4. Provide technical assistance to feedlot owners that need to make changes to get into compliance.

Buffer Law Implementation

During the 2015 Legislative Session, a new buffer law was passed. The Statute, 103F.48, describes that public waters shall have a 50' buffer strip of perennial vegetation by November 1, 2017 and that public ditches shall have a 16.5' buffer strip of perennial vegetation by November 1, 2018. This law may be altered or amended during the current, or future, legislative sessions.
In the statute, the SWCD is given many responsibilities for implementing the buffer requirements. Over the upcoming months, the SWCD will be reviewing the buffer protection maps, suggesting additional surface waters for protection, informing landowners of buffer requirements, and following up with technical assistance.

Strategies to implement buffer requirements

1. Provide accurate information to the DNR for buffer mapping.
2. Be a source of information for buffer requirements for landowners.
3. Provide technical assistance for buffer conservation programs, such as CRP; recommend "alternative practices" in accordance with BWSR guidance.
4. Map and track buffer compliance.

Actions to implement strategies

1. Update GIS shapefiles of public drainage ditches for buffer identification
2. Stay updated on buffer law changes and direction from state agencies
3. Develop policies or guidelines for the assistance provided to landowners
4. Develop a tablet or GIS based buffer compliance tracking system

A buffer strip in action after a heavy rain event

Soil Health/Cover Crops

With the additional District Capacity funds that the SWCD recently received from BWSR, a new soil health/cover crop program is being developed. There are currently very little, if any, cover crops being planted in Carver County. The intent of the program is to get producers to try cover crops as a pilot program. If cover crops were to be implemented on a large scale, the results on water quality could be very significant. Having the soil covered at all times would have a huge impact on the amount of sediment eroding off farm fields. Cover crops also help build a healthy soil rich in organic matter. Soils rich in organic matter have a higher water holding capacity than those soils with low organic matter. The ability to hold more water on the landscape for a longer period of time is key to slowing the flow and reducing peak hydrographs in streams.

Strategies to implement soil health

1. Develop a new soil health/cover crop program.
2. Be a source of information for producers interested in soil health.
3. Provide technical assistance for soil health and cover crops.
4. Track soil health implementation, highlight success stories and provide advice from lessons learned.

Actions to implement strategies

1. Create policies for creating a soil health incentive and cost share program.
2. Develop a library of information and contacts for producers.
3. Train staff by attending soil health workshops and seminars.
4. Hold informational meetings for producers

Keeping the soil covered produces healthy soil and less erosion

Urban Conservation

The Carver SWCD assists in the implementation of conservation programs and water rules compliance that have been adopted by the Carver County Water Management Organization (WMO). Staff assists with the development plan reviews of proposed projects to determine compliance with National Pollution Discharge Elimination Systems (SPDES) and local water rules. Staff also reviews the implementation of the water plan by performing site inspections on construction activities, and providing technical assistance with the installation of urban BMP's. In Carver County, SWCD staff work extensively with WMO staff to ensure that projects are installed according to plan and in compliance with all applicable water management rules. The SWCD also has an agreement with the City of Chanhassen to review plans, conduct erosion and sediment control inspections and providing technical assistance on water quality features.

Essential duties of this program include the following:

Assists the Carver County WMO with plan reviews.

Conduct field visits to construction sites to inspect for compliance with stormwater regulations.

- Supports WMO staff and City staff with development of watershed models, site investigations, survey work, and technical expertise.
- Assists and/or prepares landscape restoration designs to treat stormwater, included but not limited to: rain gardens, bio-retention cells, shoreline restorations, and water re-use projects.
- Provide technical assistance and BMP designs for Riley Purgatory Bluff Creek Watershed District.

The SWCD will strive to work with local units of government to implement best management practices in developed areas of the county.

Strategies to implement Urban Conservation efforts

1. Conduct construction site erosion control inspections with WMO and contract agencies.
2. Participate in educational efforts to raise awareness of the impacts of storm water and CSEC on water quality.
3. Provide technical assistance to LGU's, citizens, and contractors for the best use of storm water BMP's.
4. Assist the WMO and other LGU's with the implementation of rain gardens, bio-retention, shoreline restorations, and other forms of low impact development practices.

Actions to implement strategies

1. Inspect construction sites in accordance with WMO water permits.
2. Develop and utilize technology to aid in the inspection process.
3. Attend trainings and technical seminars to stay up to speed on BMP practices.
4. Continue the partner agreement with RPBCWD to design BMP's within that watershed.

Wetland Protection and Restoration

Wetlands serve multiple functions and are an important part of the Carver County landscape. Known as a "natural sponge", wetlands absorb and hold excess runoff. By absorbing and holding excess runoff wetlands remove pollutants from surface water and help reduce flooding. Much of Carver County was covered by wetlands prior to European settlement, as can be seen on a hydric soil map of Carver County.
The SWCD provides technical assistance for the Minnesota Wetland Conservation Act (WCA). The SWCD assists landowners that wish to explore options for restoring wetlands on their property. Several programs are available to provide incentives for restoring previously drained wetlands such as CRP, RIM, and the Partners for Wildlife program.

Strategies to implement wetland efforts

1. Keep informed of the changes to the MN WCA laws.
2. Continue to be part of the TEP's for WCA projects.
3. Understand and promote the wetland restorations programs available through state and federal programs including ACEP, RIM, private and public banking, CREP, CRP, CCRP, and USFWS programs.
4. Assist the USDA with the wetlands provisions within the Farm Bill Program, including Swamp buster and 1026 drainage requests.
5. Seek to prevent wetland losses by educating landowners of the state and federal wetland protection laws.
6. Work with LGU's on wetland related issues.

Actions to implement strategies

1. Complete a wetland restoration prioritization map
2. Enroll landowners into conservation programs that provide compensation for participation
3. Track restoration activities
4. Inspect and evaluate the effectiveness of past restorations

Ditches and Drainage

The Carver SWCD has an agreement with the Carver County Ditch Authority to assist the County Auditor in cleanout requests and develop a process for effective long-term management of the County ditch systems. There are 14 public ditch systems in Carver County. The SWCD provides ditch inspections and technical assistance for maintenance of these ditch systems. The SWCD is also a point of contact for other drainage related questions.

Strategies to implement ditches and drainage goals

1. Respond to requests for repair of public drainage systems.
2. Assist landowners with the processes of MN Drainage Law 103.E.
3. Promote the installation and maintenance of grass buffer strips and rock inlets to keep sediment out of the ditch systems.
4. Educate landowners on the differences between public and private ditches.

Actions to implement strategies

1. Explore opportunities to include water quality projects with drainage repairs.
2. Continue to work with the County Auditor and Ditch Authority on improving the processes related to the Carver County Public Ditch Program.
3. Seek grant opportunities to modernize drainage ditch records.
4. Perform duties of drainage inspector as required by statute.

Education and Outreach

Shortly after adopting the Carver County Water Rules, the county hired an environmental education coordinator. That position has taken on much of the environmental education efforts for most of Carver County. SWCD staff engage in classroom education efforts when requested by school staff, and staff assist in providing technical trainings in relationship to water plan activities. The District also sends out a spring and fall newsletter and other press releases as needed throughout the year.

Strategies to implement education and outreach goals

1. Continue Carver County education efforts at the classroom, conservation club and 4-H level.
2. Provide updates to the District website to keep citizens informed of programs and activities of the District.
3. Develop and distribute District Newsletters.
4. Assist the Carver County Environmental Education Coordinator with education and outreach activities, including the Children's Water Festival.
5. Provide one-on-one education to citizens of Carver County as they relate to the SWCD programs.
6. Assist Carver County with the educational components of the County Water Plan and Groundwater Plan.

Actions to implement strategies

1. Distribute District Newsletters twice per year, or as needed in the future
2. Connect with teachers of natural science programs
3. Evaluate education needs with the Carver County Environmental Education Coordinator

V. Implementation

A. Workload Analysis

The Carver SWCD currently employs 6 Full Time Equivalents (FTEs) including 1 District Manager, 1 Administrative Assistant, 1 Conservation Technician, 2 District Technicians, and 1 Resource Conservation Technician. Workloads often overlap between programs and staff are trained in multiple fields to be able to help cover when workloads in one certain area are high.

The following staff years are anticipated to be needed for each program over the life of the ten year plan:

Ag BMPs/Feedlots – 10 staff years
Buffer Law Compliance – 10 staff years
Soil Health/Cover Crops – 10 staff years
Urban Conservation – 20 staff years
Wetland Protection and restoration – 10 staff years
Ditches and drainage – 5 staff years
Education and outreach – 5 staff years

Based on the above estimates, approximately 70 staff years, or 7 FTEs annually, are needed to implement all the activities listed. The SWCD aims to balance workloads by partnering with agencies and accepting assistance when available. For example, for each of the past 4 years, the SWCD has enlisted the help from the Minnesota Conservation Corps with a Conservation Apprentice. The Apprentice works at the SWCD for the busy summer months of June, July, and August; helping the SWCD and gaining valuable experience at the same time.

The SWCD may look to add additional staff in the future, but much of that decision will depend on the stability of state and local funding that is anticipated in the future. District capacity funding is currently coming from the Clean Water Legacy funds for FY ’16 and FY ’17. If the district capacity funding becomes a permanent funding source through the general fund, it is possible the SWCD would explore adding additional help through an FTE.

B. Budget Forecast

The Carver SWCD's budget has remained fairly constant for a number of years. In 2009 the SWCD moved its office location from a rented building in Waconia, to a county owned building in Cologne. The result of that move saved an estimated $40,000 per year in rent and technology costs. Like most government units, the personnel cost make up a large portion of the SWCD expenditures.

The Carver SWCD does not have taxing authority and relies on cooperation with other agencies to balance its expenditures and revenues.

Strategies and actions to implement a reasonable working budget

1. Continue to be fiscally responsible while still providing a quality service to Carver County citizens.
2. Work with Carver County to ensure the County General Levy adequately supports conservation efforts and addresses citizen's needs.
3. Seek grant opportunities that fit into the Districts short term and long term goals.
4. Develop relationships with the WMO, LGU's and watershed districts and seek opportunities to partner on programs.

The following is the estimated budget needed over the 10 year period covered by this comprehensive plan:

Carver Soil and Water Conservation District
2016-2025 Comprehensive Plan - BUDGET

BUDGET FORECAST

REVENUES	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**
Intergovernmental										
County	$471,251	$480,676	$490,290	$500,095	$510,097	$520,299	$530,705	$541,319	$552,146	$563,189
State	$75,000	$150,000	$150,000	$150,000	$150,000	$150,000	$150,000	$150,000	$150,000	$150,000
Local	$35,000	$35,000	$35,000	$35,000	$35,000	$35,000	$35,000	$35,000	$35,000	$35,000
Subtotal Intergovernmental	**$581,251**	**$665,676**	**$675,290**	**$685,095**	**$695,097**	**$705,299**	**$715,705**	**$726,319**	**$737,146**	**$748,189**
Charges for Services	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000
Interest & Misc. Revenue	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000
TOTAL REVENUES	**$601,251**	**$685,676**	**$695,290**	**$705,095**	**$715,097**	**$725,299**	**$735,705**	**$746,319**	**$757,146**	**$768,189**
EXPENDITURES										
District Operations										
Operating Expenses	$36,600	$36,966	$37,336	$37,709	$38,086	$38,467	$38,852	$39,240	$39,633	$40,029
Other Expenses	$6,200	$6,224	$6,248	$6,273	$6,299	$6,325	$6,351	$6,378	$6,406	$6,434
Personnel Services	$551,465	$568,009	$585,049	$602,601	$620,679	$639,299	$658,478	$678,232	$698,579	$719,537
Subtotal District Operations	**$594,265**	**$611,199**	**$628,633**	**$646,583**	**$665,064**	**$684,091**	**$703,681**	**$723,851**	**$744,618**	**$766,000**
Project Expenses										
District Project Expenses	$11,500	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000
State Cost Share	$35,000	$35,000	$35,000	$35,000	$35,000	$35,000	$35,000	$35,000	$35,000	$35,000
Subtotal Project Expenses	**$46,500**	**$50,000**	**$50,000**	**$50,000**	**$50,000**	**$50,000**	**$50,000**	**$50,000**	**$50,000**	**$50,000**
TOTAL EXPENSES	**$640,765**	**$661,199**	**$678,633**	**$696,583**	**$715,064**	**$734,091**	**$753,681**	**$773,851**	**$794,618**	**$816,000**
Excess Revenues/Expenditures	-$39,514	$24,477	$16,656	$8,512	$33	-$8,792	-$17,976	-$27,532	-$37,472	-$47,811

C. Adjustments Needed in District Authorities and/or Programs

The Carver SWCD has been adapting to changes in the landscape for many years. For example, during the past 15 years the SWCD has dramatically increased its workload in the urban areas. The new buffer law is anticipated to be a focus of SWCD work in the Ag areas and the workload is being absorbed by existing staff until we have a better idea if there will be a continued funding source. In order for SWCDs to have an effective way to plan for future project and program expenses, they need to have a stable source of funding. Having taxing authority would allow the SWCD to be able to develop a Capital Improvement Plan (CIP) that identifies projects and provides for a way to fund them. Without taxing authority, the SWCD is only able to plan for and complete the work that other taxing agencies are willing to pay the SWCD to do.