Comprehensive Plan
2016 - 2025

Adopted May 5, 2016

DAKOTA COUNTY
SOIL & WATER
CONSERVATION DISTRICT

Partners in Land and Water Conservation

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INTRODUCTION

Purpose of the Comprehensive Plan

The Dakota County Soil and Water Conservation District (SWCD) have developed this Comprehensive Plan (Plan) to serve as a planning tool to guide programs and activities over the next ten years. The SWCD Board of Supervisors recognizes change is constant and that amending this Plan may be necessary. However, the Plan is inclusive of core conservation activities as well as relatively new and innovative programs based on current research and technology.

The Plan identifies past accomplishments, anticipates trends in improving water quality and protecting natural resources, and provides direction to the organization's staff and Board by identifying local resource needs, setting objectives and strategies, and providing a framework for action. The Plan is a statutory requirement to receive funding from the State.

Soil erosion on urban and rural landscapes and its impact on water quality through the transport of sediment and nutrients remain a concern today

In 2012, the SWCD Board of Supervisors conducted a planning process and adopted a new Strategic Plan to outline their vision and guide work.

Vision: ***Clean Water and Healthy Soils***
Mission: ***Partners in Land and Water Conservation***

Goals identified within the Strategic Plan to guide the work of the SWCD included:

1. Collaboration and Financial Stability
2. Protect Surface Water Quality
3. Civic Engagement and Public Outreach
4. Involvement in Watershed Planning
5. Land and Habitat Protection

This Plan will further the goals and vision of the Strategic Plan by identifying and focusing on the "how" and "where" financial resources will be sought and human resources will be placed. As with any planning document, adequate financial and human resources are needed to be successful in its implementation. The current SWCD Strategic Plan can be found at http://www.dakotacountyswcd.org/annual_reports.html

Organizational History

The SWCD is a governmental sub-division of the State of Minnesota. It was organized in accordance with the provisions, powers, and restrictions as set forth in Minnesota Statutes, Chapter 40. Soil and Water Conservation Districts were formed in response to the conservation movement of the late 1930's and early 1940's and were one of the first legislative attempts to protect our soil and water resources.

The SWCD was organized in 1944. The original SWCD included all of Dakota County except Douglas, Marshan and Ravenna Townships and the City of Hastings, which at that time were part of the Dakhue Soil Conservation District. On April 13, 1955 the State Soil Conservation Committee passed a resolution to add the land lying in Dakota County that was part of the Dakhue Soil Conservation District, to the Dakota County SWCD.

In the early years, the SWCD's primary goal was to work with local farmers to establish practices to conserve soil and increase production on their land. Today, the SWCD works in partnership with federal, state and local governments to conserve and manage land and water resources across Dakota County and within urban, suburban and rural land uses.

Activities of the SWCD have changed over time. Today, approximately 50% of the total land within Dakota County is urbanized bringing new land use challenges to the topography. Small diversified farm fields on contour have largely been replaced with large expansive fields that may include both water drainage and water irrigation systems at the same location. Crop productivity and profit margins rely much more heavily on weather, pest and disease control, technology, land or rental costs and less as a feed source for owned or nearby livestock. As economic markets have changed in both urban and rural landscapes, our conservation efforts will need to change as well.

Authorization and Jurisdiction

The SWCD is a special purpose local unit of government dedicated to the management of soil and water resources. The function of SWCD's is to assist land occupiers, in both rural and urban settings, to protect soil and water resources. Minnesota currently has 90 SWCD's, each of which is governed by a Board of elected supervisors. Soil and Water Conservation Districts receive their authority from Chapter 103C of Minnesota Statutes. These authorities do not provide land use or taxing authorities to the publically elected Board of Supervisors.

In addition to their individual resources, SWCDs also use the expertise of the other state and federal organizations, including the Minnesota Board of Water and Soil Resources (BWSR) and the federal Natural Resources Conservation Service (NRCS). BWSR is the administrative agency of SWCDs.

Figure 1 identifies currently elected SWCD Board members and the nomination districts they represent. The SWCD Board, in consultation with the Dakota County Board of Commissioners, recently revised its current Supervisor Districts in accordance with a 2014 amended law under Chapter 103C. The amended law requires soil and water conservation districts within the 7-county metropolitan area be elected by voters specifically within districts composed of compact and contiguous territory of substantially equal population. Previously elected supervisors represented and needed to reside within nomination districts based on land area but were voted on countywide. The new SWCD Board of Supervisor Districts, which will be voted on during the November 2016 election and take effect January of 2017, is shown in **Figure 2.**

District Policies

A variety of policies have been adopted by the SWCD Board to provide efficient administrative operations on a day to day basis. Annually, policies are also reviewed and adopted to establish operational guidelines for the elected Board, staff compensation and a process for the delivery of cost share funds to land occupiers. The SWCD Board has a standing joint powers agreement with the Dakota County Board of Commissioners that outlines ways to cooperate and coordinate activities related to soil and water conservation.

A summary of existing SWCD Board adopted policies and the frequency in which they are considered is included in **Appendix A**.

District Accomplishments

During 2011 through 2015 and since the last Comprehensive Plan was completed, the SWCD has been active in providing educational, technical and financial resources to land occupiers. During the past five years, the SWCD has increased the number of cost share program options available to land occupiers, responded to a national disaster declaration with the flood of 2012, increased technical capacity of staff responsible for implementing engineering standards and ecological principals within both rural and urban landscapes, assisted with implementing State regulatory programs and County Ordinances, assisted with implementing Dakota County and State easement programs, provided leadership and administrative services to three watershed management organizations, participated in development of six watershed management organizations comprehensive plans and assisted with implementation of those plans, conducted a variety of educational workshops and provided general information and assistance to landowners.

Figure 3 shows the location and type of technical assistance provided from 2011 through 2015.

Figure 4 shows the location and type of projects installed from 2011 through 2015.

Statements and Definitions

The SWCD Board of Supervisors and staff have used past Comprehensive Plans to prioritize and target efforts. However, as a local unit of government without land use or taxing authority it is difficult to know if adopted objectives, strategies and actions within this Plan will be met with strong collaboration, caution or opposition. Partnerships are the only fiscal means the SWCD has available to obtain the resources necessary to address our objectives and put actions in motion. This collaboration involves both the public and private sectors.

For that reason, the SWCD has mimicked many similar strategies and actions of our local partners that do have land use and taxing authorities. Accomplishing our vision and mission is predicated on the ability to partner with other local organizations, leverage State and Federal funds and attain balance between the implementation of voluntary conservation practices and regulatory controls.

There are six watershed management organizations located wholly or partially in Dakota County. Each of these organizations also develops a 10-year watershed management plan that includes a complete land and water resource inventory. The SWCD often assists these watershed organizations with compiling information or maps. The SWCD currently serves as the Administrator for three out of the six watershed management organizations located within Dakota County and has participated in numerous technical advisory groups since 2011 as each of the six watershed management plans where developed.

During a 2014 Performance Review and Assistance Program (PRAP) conducted by the State of Minnesota through the BWSR, it was recommended that the SWCD assign definitions to key terms used in planning and managing land and water resources including how natural resource concerns will be "prioritized," "targeted," and "measured" (PTM). This relatively new and undefined concept has come out of new funding opportunities and legislative efforts provided by dedicated sale tax revenues.

Defining these terms can be challenging as the Webster dictionary has over 12 meanings of the word "measure" alone. Basic definitions of PTM as defined by Webster can be found in the box to the right. These definitions are broad and mean different things to different audiences.

The SWCD will lead local conservation efforts by defining the PTM concept in order to better focus financial and human resources in protecting or improving water quality and habitat. It is important to recognize that when the PTM concepts are applied to voluntary conservation efforts, the goals of land occupiers need to be considered as well.

Prioritize:
To organize so that the most important thing is done or dealt with first.

Target:
Something that you are trying to do or achieve

Measure:
An amount or degree of something

As defined by the Webster Dictionary

With any planning document, a "one size or one method does not fit all" and flexibility is important. In contrast, applying technical field standards are necessary to create an efficient and effective result. These technical standards will not be compromised regardless of the land occupier goals.

For the purpose of this Plan, the following definitions are provided as it relates to PTM and may be used in the pursuit of future funding opportunities:

Geographic PTM — Activities pursued based on addressing a specific geographical location including drainage areas (watersheds) or governmental boundaries where water quality and habitat improvements are challenged due to sandy soils, steep slopes, karst topography, altered landscapes such as impervious surfaces or subsurface drainage ,or surface water impairments.

Landowner PTM — Activities pursued based on addressing a land occupier's willingness to apply voluntary conservation practices that meet technical field standards with a positive impact in protecting water quality or habitat regardless of geographic location, proximity to impaired waters, type of pollutant or amount of pollutant load reduction. This is parcel or field based conservation where we are meeting the goals of a landowner willing to go above and beyond regulatory requirements.

Pollutant PTM — Activities pursued based on reducing a specific pollutant(s) such as sediment, phosphorus, nitrate, temperature, dissolved oxygen, bacteria or chloride.

Practice PTM — Activities pursued based on implementing a specific practice(s) such as wetland restorations, water retention basins, feedlot improvements, drain tile inventories, irrigation scheduling, stormwater treatment and infiltration, vegetated buffers and pollinator habitat.

There will most often be overlap between these PTM definitions as the SWCD implements the objectives, strategies and actions of this Plan. For example, there may be a focus on a specific watershed (Geographical PTM) with a separate focus on addressing nitrate reductions (Pollutant PTM). However, it is important that each defined PTM has the ability to obtain necessary resources. For example, a willing land occupier (Landowner PTM) wishing to install pollinator habitat or protect a trout stream should not be completely overlooked for technical or financial assistance solely because other impaired waters (Geographical PTM) take precedence at a State or Federal Level. The SWCD will strive during the implementation of this Plan to obtain resources for each PTM defined recognizing financial resources are limited. However, with this Plan the SWCD recognizes that protecting existing resources is equally important as attempting to restore those that are impaired.

The outcome measurements for judging effectiveness of this Plan will be tracked on an annual basis through the various program elements identified under the Objectives, Strategies and Actions section. Project outcomes, data collection, and public education will be provided and listed in reporting documents required through State grants or local work plans.

The SWCD also maintains an interactive map that can be accessed from our website home page and provides public information on the outcome of projects installed. This interactive map can be found at: http://www.dakotaswcd.org/gis_app.html

The State of Minnesota has initiated the One Watershed One Plan concept to align local water planning on major watershed boundaries. Dakota County would be involved in four major watersheds including the Cannon River, Lower Minnesota River (Shakopee), Mississippi River (Twin Cities) and the Vermillion River. Currently the transition process to one watershed one plan for the 7-county metro region is under consideration and development will lag behind implementation in other locations of Minnesota. The SWCD will continue to monitor this process and look for opportunities that consolidate the various water planning processes, increase funding for implementation of water quality or habitat improvement projects and further local partnerships

Resource Inventory

Soil Survey and Land Cover

There are 10 general soil associations located within Dakota County as listed in **Figure 5.** These soils range from nearly level, silty and loamy soils within floodplains to very steep, loamy and sandy soils on uplands and outwash plains. Dakota County has a wide range of soil types with a large percentage classified as prime farmland.

Dakota County also has a multitude of land use types including developed land, developing or suburban land and rural land. The conversion of soils to impervious surfaces has changed the Dakota County landscape considerably over the past decades. However, during the past five years changes to the rural landscape have outpaced urban sprawl due to various economic drivers. Currently, the shift back to an expanding urban landscape is occurring. This economic ebb and flow among the diverse land uses within Dakota County is expected to continue.

Dakota County and its proximity to a more dense population base and active businesses with available jobs increase the potential for overall change to existing land cover. It also provides opportunities through zoning and watershed standards for protecting water quality and critical soil types that assist with reducing flood impacts, recharging groundwater supplies, and filtering pollutants from our surface waters.

Figure 6 provides a detailed map of the most recent land cover data in Dakota County. Land cover is an important planning tool for the SWCD as it creates a broad perspective on the scope and potential impacts to water quality due to accelerated changes in the landscape. This data was completed for all of Dakota County in 2000 and was updated for the Vermillion River Watershed in 2008 and for the Cannon River Watershed in 2010. It is anticipated that land cover mapping within both the Cannon and Vermillion River Watersheds will be updated by 2018 and all of Dakota County by 2020.

Additional Resources

Appendix B lists the six watershed management organizations within Dakota County and their websites. Each web site can be accessed to view their 10-year comprehensive plans including natural resources inventories and assessments. **Figure 7** provides a map of each of the six watershed management organizations within Dakota County. All six watershed management organizations, and individual cities and townships, within Dakota County are considered key partners to the SWCD. Dakota County is also a key partner in addressing local water quality issues and land protection efforts.

High Priority Areas of Concern

Dakota County and its contributing watersheds have distinct features including karst topography, sandy soils, rolling hills, drained hydric soils and soils that have been replaced by impervious surfaces. These natural geology features and human changes to the landscape can create water quality concerns if the land is not managed properly.

The following high priority areas of concern have been identified:

- Soil with slopes 6% or greater increasing potential for sheet, rill or gully erosion - **Figure 8**
- Soil with < 33% residue or no vegetative cover increasing potential for wind erosion
- Soil where up-gradient land use has impervious surfaces or compaction increasing risk of erosion
- Soil where up-gradient land use has < 50% residue or no vegetative cover increasing risk of erosion
- Soil with seasonal high water tables that are being drained increasing duration of runoff events - **Figure 9**
- Soil with seasonal high water tables that are being drained intercepting recharge potential to aquifers
- Soil that have been replaced with impervious surfaces prohibiting infiltration opportunities
- Soil with high or very high groundwater contamination susceptibility - **Figure 10**
- Soil that is being both irrigated and drained
- Surface waters that are impaired and on the 303(d) list - **Figure 11**
- Urban land where stormwater discharge is not adequately treated before entering surface waters
- Land adjacent to watercourses where vegetated buffers would have a positive impact to water quality
- Surface waters receiving artificial flow from subsurface drainage systems accelerating in-stream erosion

Resource Assessment

Assessment of High Priority Areas of Concern

Various studies have been done by the SWCD and cooperating local partners. These studies over the past five years have focused on surface water and ground water quality. **Appendix C** provides a partial listing of studies, plans and inventories completed by various local partners and the SWCD. Additional studies led by State agencies such as Watershed Restoration and Protection Strategies documents also provide an assessment of resources and generates high priority areas of concern.

Conservation Measures Needed

The following broad conservation measures have been identified to address high priority areas of concern:

Conservation Measure 1: Assessing existing conservation practices

Many conservation practices have been installed over time but there has been limited ability to determine their condition or repair needs after the life of a contract. The assessment of installed practices is a constant task and an ongoing conservation measure that is needed.

Conservation Measure 2: Whole field conservation planning

The process of making land productive for agricultural crops can lead to water quality issues if adequate land cover is not considered on adjacent fields. Whole field or "mini" watershed conservation planning on agricultural lands helps maintain installed conservation practices over time and increases their longevity. The promotion and incorporation of whole field conservation plans into the delivery system of technical and financial requests is a needed conservation measure.

Conservation Measure 3: Controlling erosion to tolerable levels

Changing climate patterns, soil compaction, or impervious surfaces reduce the ability for soils to naturally infiltrate or hold water which in turn increases runoff rates and the potential for soil loss. Identifying "hot spots" or areas vulnerable to erosion and developing strategies to reduce runoff rates will reduce the potential for significant soil loss during rain events. Improving soil health, interrupting impervious surfaces, and addressing engineering principles based on a changing climate is a needed conservation measure.

Conservation Measure 4: Identifying and assessing subsurface drainage

It is estimated that the total linear feet of subsurface drain tile installed on the landscape has doubled in the last ten years. Much of the drain tile installed includes areas where a seasonal high water table is apparent and the engineered movement of ground water to surface water has the potential to increase erosion and degrade downstream water quality downstream. The identification of drainage networks and the location of subsurface drain outlets is a needed conservation measure in order to better understand their impact on local and watershed wide hydrology.

Conservation Measure 5: Stabilizing streambanks

Altered hydrology patterns within a watershed can change the base flow within surface waters to a duration and frequency that cause medium to high flow conditions to persist over longer periods of time. Subsequent rainfalls of even moderate amounts can damage private property, potentially threaten infrastructure and serve as a significant contributor to water quality impairments. Identifying areas where streambanks are failing and developing strategies to reduce in-stream soil erosion is a needed conservation measure.

Conservation Measure 7: Retaining water on the landscape

There has been a reduction in the amount of wetlands interspersed on the landscape. Wetlands function to hold water during high water events and allow for the gradual release or infiltration into the soil. Land changes that encourage rapid or constant movement of water from areas where it would otherwise pond more frequently and over a longer duration increase the potential for localized flooding. Restoring wetland habitats and implementing practices that retain water is a needed conservation measure.

Conservation Measure 8: Raising awareness and providing outreach

Public awareness of various federal, state and local agencies attempting to improve water quality remains a mystery to many and can be confusing to interpret. Group or individual education efforts that include realistic discussions for protecting and restoring surface and groundwater quality at the local level is a needed conservation measure.

Effectiveness of Past Efforts

The SWCD has provided educational, technical and financial assistance with success (**See Figures 3 and 4**). Along with our various partners, we have collaborated with land occupiers under a voluntary delivery system to address high priority areas of concern and install conservation measures. A challenge lies in land occupiers who are willing to install conservation practices at key locations on the landscape but at a cost to their business. Without the efforts of the SWCD, our partners, and land occupiers the amount of degradation and impairments to our surface waters would have increased substantially over the past five years in large part due to various economic drivers.

Strengths of past efforts under a voluntary delivery system include the ability to provide technical and project installation funds to the land occupier at little cost. Land occupiers remain responsible for the maintenance of the installed practice.

Weaknesses of past efforts include the increased amount of administrative process needed for both the SWCD to obtain State funding and for land occupiers to obtain assistance. In addition, there is a lack of Federal and State policy as it relates to insurance and property tax relief for those that actively implement and maintain conservation practices versus those who do not. In essence, there currently is limited business benefit to being a good conservationist.

Objectives, Strategies, & Action

The objectives, strategies, and actions presented will work to improve the natural resources of Dakota County and the overall health of local watersheds draining to the Mississippi River Basin. The actions listed will address priority areas of concern, PTM concepts and conservation measures needed over the next 10 years.

Objectives

Six Objectives have been identified and will be pursued through strategies and actions.

1. Protect and Restore Surface Water Quality
2. Protect and Restore Groundwater Quality and Supply
3. Reduce Flood Impacts
4. Conduct Water Monitoring
5. Improve Public Awareness of Water Resource Goals
6. Restore Habitats and Improve Soil Health

Strategies and Actions

OBJECTIVE 1: Protect and Restore Surface Water Quality

Strategy A: Address active erosion by installing 100 projects and saving 100,000 tons of soil from reaching downstream surface waters

Actions:

a. Focus on land listed as highly erodible, slopes greater than 6% or associated with up-gradient impervious surfaces
b. Be responsive to land occupier needs through technical capacity and securing resources
c. Complete assessments to prioritize projects and develop preliminary cost/benefit analysis
d. Be responsive to high water or flood events when they occur but proactive in trying to reduce the extent of flood damage prior to events
e. Conduct field assessments and include tillage management as part of the long term solution
f. Restore eroded streambank or shoreline areas
g. Provide cost share and incentives to land occupiers willing to install voluntary practices
h. Consider options of developing a soil loss ordinance in collaboration with partners

Strategy B: Evaluate condition of existing conservation practices by conducting 500 inspections

Actions:

a. Create database and develop inspection schedule
b. Complete inspections and documenting findings
c. Be responsive to land occupier needs and secure funds for maintenance and repairs after the life of existing contracts

Strategy C: Reduce nutrients by installing 200 projects preventing 5,000 pounds of phosphorous from entering lakes and streams

Actions:

a. Implement Watershed Restoration and Protection Strategies (WRAPs) to address impaired waters
b. Collaborate with municipalities to incorporate bioretention or infiltration practices under capital improvement programs
c. Collaborate with schools, churches and home associations to incorporate bioretention or infiltration practices
d. Research the impact subsurface drainage systems may have on the delivery of nutrients such as phosphorous and nitrate to surface waters
e. Provide cost share and incentives to land occupiers willing to install voluntary practices

Strategy D: Vegetate exposed soils on 400 hundred acres

Actions:

a. Assist Dakota County with implementation of local Shoreland Ordinance
b. Work with State and local partners to implement new State buffer law
c. Promote cover crops and use of temporary vegetative cover to reduce transport of soil
d. Promote grassed waterways, filter strips and critical area plantings
e. Provide cost share and incentives to land occupiers willing to install voluntary practices

OBJECTIVE 2: Protect and Restore Groundwater Quality and Supply

Strategy A: Stabilize upward trend of nitrate found in groundwater

Actions:
a. Assist Dakota County, University of Minnesota Extension and Minnesota Department of Agriculture with implementing Minnesota's Nitrogen Fertilizer Management Plan
b. Work with crop advisors to develop nutrient management strategies
c. Develop a soil health team and encourage use of alternative crops
d. Assist cities, Dakota County and other partners to inventory and evaluate failing septic systems
e. Provide assistance to livestock operators to develop feedlot improvement systems

Strategy B: Implement irrigation water management principles on 2,000 acres

Actions:
a. Focus on soils highly susceptible to groundwater contamination
b. Work with irrigators to evaluate use of soil moisture monitoring or tensiometers
c. Work with irrigators, including municipalities, to evaluate use of scheduling software
d. Work with irrigators to evaluate use of telemetry for soil moisture sensors

Strategy C: Develop water conservation plans on 10 properties

Actions:
a. Work with the Metropolitan Conservation Districts Joint Powers Board to implement groundwater conservation planning protocols
b. Evaluate opportunities to reuse surface water for seasonal and low quality purposes such as irrigating recreational areas

OBJECTIVE 3: Reduce Flood Impacts

Strategy A: Restore 500 acres of wetlands

Actions:
a. Assist Dakota County in developing an easement program for wetland restorations
b. Evaluate State easement options under wetland banking procedures of the Minnesota Wetland Conservation Act
c. Update the SWCD drained wetland inventory to prioritize opportunities
d. Assist Dakota County in developing conservation easements within riparian areas

Strategy B: Install 80 flood reduction practices

Actions:
a. Work with municipalities to install practices that reduce runoff rates and infiltrate runoff
b. Work with land occupiers to install water retention basins or alternative practices
c. Work with Dakota County to establish conservation easements over floodplain areas currently in agricultural production or urban use.

Strategy C: Inventory subsurface and surface drainage systems in flood prone areas

Actions:
a. Develop protocol for identifying the location of tile outlets into surface waters
b. Develop protocol for sub-watershed scale modeling
c. Work with various partners to conduct hydrology assessments
d. Work with road authorities to determine opportunities for incorporating flood reduction strategies into their capital improvement programs

OBJECTIVE 4: Conduct Water Monitoring

Strategy A: Conduct surface water monitoring

Actions:
a. Work with partners to obtain continuous surface water data
b. Analyze monitoring data in partnership with others to identify trends
c. Obtain resources to establish a better long term surface water monitoring network within Cannon River Watershed
d. Make water quality data summaries available for public information purposes
e. Develop a volunteer surface water monitoring network
f. Assist Metropolitan Council with their Watershed Outlet Monitoring Program within the Vermillion and Cannon Rivers.
g. Evaluate opportunities and need for lake monitoring with watershed partners
h. Collect water quality data to research benefits of installed practices

Strategy B: Conduct biological monitoring

Actions:
a. Work with partners to conduct biological monitoring and macroinvertebrate assessments
b. Evaluate options for educational involvement with aquatic invasive species

Strategy C: Conduct groundwater monitoring

Actions:
a. Assist the Minnesota Department of Natural Resources with monitoring groundwater levels
b. Assist Dakota County and partners with monitoring ground water quality or quantity as requested

OBJECTIVE 5: Improve Public Awareness of Water Resource Goals

Strategy A: : Incorporate state and local goals into cost share process

Actions:
a. Provide information to landowners on the connection and benefit of their project with watershed based efforts and water quality impairments
b. Conduct contractor workshops or outreach activities to ensure implementation of construction standards and establish clear expectations for the installation process.
c. Provide written feedback to landowners on status of their conservation projects including positive results as a result of compliance inspections
d. Develop a Fact Sheet for each cost share project installed and make available on web

Strategy B: Provide educational opportunities to over 10,000 individuals

Actions:
a. Hold annual 5th Grade outdoor education event
b. Provide Landscaping for Clean Water workshops through partnerships with watershed management organizations and cities
c. Develop interactive website for public use to promote programs and activities
d. Consider field tours to demonstrate accomplishments

Strategy C: Provide 100 outreach activities

Actions:
a. Provide information and participate in events such as municipal water festivals, Dakota County Fair, Earth Day events or annual meetings sponsored by nonprofit organizations with similar missions

b. Work with partners to establish research and demonstration projects
c. Provide press releases, quarterly newsletters and maintain a comprehensive website
d. Provide presentations as requested and time allows

OBJECTIVE 6: Restore Habitats and Improve Soil Health

Strategy A: Install 50 acres of pollinator plant communities

Actions:
a. Work with partners to obtain resources for establishing small pollinator plots and native gardens within urban areas
b. Evaluate opportunities with land occupiers to incorporate native plant communities and pollinators in areas regulated by existing State law or local ordinances
c. Evaluate opportunities to establish pollinator habitat on cost share projects even if they are not part of specifications
d. Work with Dakota County through their easement programs

Strategy B: Develop a Soil Health advisory group and meet at least twice annually

Actions:
a. Build on the work of others who have successfully established local soil health groups
b. Share information from the advisory group with producers through outreach activities
c. Determine options for collaborating with partners and neighboring SWCDs to provide demonstrations or events supporting importance of biological activity within soils

Strategy C: Coordinate efforts to reduce invasive species and noxious weeds

Actions:
a. Work with partners to eradicate invasive species within high value habitat areas
b. Through Dakota County, administer the County Ag. Inspector Program and noxious weed laws
c. Evaluate educational opportunities on aquatic invasive species prevention and control

Implementation

Workload Analysis

The SWCD currently employs 10 Full Time Equivalents (FTEs). The following workload estimate is provided for each of the six objectives listed above and to carry-out the listed strategies and actions. Each objective lists estimated workload based on staff years over the 10-year life of this Plan.

Protect and Restore Surface Water Quality - 40 staff years or 4.0 FTEs annually

Protect and Restore Groundwater Quality and Supply - 15 staff years or 1.5 FTEs annually

Reduce Flood Impacts - 25 staff years or 2.5 FTE's annually

Conduct Water Monitoring - 15 staff years or 1.5 FTEs annually

Improve Public Awareness of Water Resource Goals - 10 staff years or 1.0 FTEs annually

Restore Habitats and Improve Soil Health - 5 staff years or 0.5 FTEs annually

Based on the above assumptions, during the life of this Plan an additional 1.0 FTE would be required to implement all the actions listed. Maintaining existing FTEs and addressing the need for the additional FTE over the next 10 years will depend on available funding and the ability to partner with Dakota County, local watershed management organizations and local communities.

Budget Forecast

Appendix D provides a budget forecast over the next 10 years. The budget forecast is based on the assumption that all current funding is maintained with slight annual increases and all current partnerships continue to be embraced into the future.

Adjustments Needed

A State funding source outside of competitive grants is needed to meet the objectives of this Plan, the needs of the public, and the goal to improve the quality of surface and groundwater resources within Dakota County, the major watersheds and State. As a subdivision of the State, SWCDs have not been rewarded with fiscal independence without the need for drafting grant applications, developing work plans, executing grants and providing reporting documents. SWCDs leverage a considerable amount of local funds for the conservation work that they accomplish. Direct appropriations from the Minnesota Department of Revenue to SWCDs, much like local government aid or the 2014 legislative appropriation to counties for addressing aquatic invasive species, needs to be considered moving forward over the life of this Plan.

APPENDIX A

Summary of SWCD Adopted Board Policies

Policy	Frequency Considered	Responsible Authority
Board Operating Rules	Annually	Board of Supervisors
Employee Merit Compensation	Annually	Board of Supervisors
Identify Financial Institution	Annually	Board of Supervisors
Identify Official Paper for Legal Notifications	Annually	Board of Supervisors
Employee Policy Manual	Once every 5 years	Board of Supervisors
Joint Powers Agreement with Dakota County	Once every 5 years	Board of Supervisors
Designation of Data Practices Contact	As needed	District Manager
Assignment of Technical Approval Authority to staff	As needed	District Manager
Delegation to sign State grant documents	As needed	District Manager
Delegation of Wetland Conservation Act Decisions to Staff	As needed	Staff

APPENDIX B

Dakota County Watershed Management Organizations

Black Dog Watershed Management Organization
http://www.blackdogwmo.org/

Eagan-Inver Grove Heights Watershed Management Organizations
http://www.dakotacountyswcd.org/watersheds/eagan-igh-wmo/index.htm

Lower Minnesota River Watershed District
http://www.watersheddistrict.org/index.html

Lower Mississippi River Watershed Management Organization
http://www.dakotaswcd.org/watersheds/lowermisswmo/index.html

North Cannon River Watershed Management Organization
http://www.dakotacountyswcd.org/watersheds/ncrwmo/index.html

Vermillion River Watershed Joint Powers Organization
http://www.vermillionriverwatershed.org/

APPENDIX C
Partial Listing of Inventories and Studies Completed by SWCD or Various Local Partners[1]

Cannon River Watershed
- Trout Brook Subwatershed Analysis (2016)
- Trout Brook Nitrate Study (2014)
- Wetland and Watercourse Inventory and Assessment (2008)
- Chub Creek Watershed Assessment (2000)

Lower Mississippi River Watershed
- Feasibility Study to Address PAH Contamination in Thompson Lake (2014)
- South Grove Subwatershed Analysis (2011)
- Lexington Avenue-Trunk Highway 13 Drainage and Erosion Feasibility Study (2010)
- Marie Creek Feasibility Study (2006)
- Seidls Lake Outlet Feasibility Study (2004)

Lower Minnesota River Watershed
- Groundwater Monitoring Strategy (2015)
- Crystal, Keller & Lee Lakes Nutrient Impairment Implementation Plan and Earley Lake Protection Plan (2011)
- Schwanz Lake Runoff Reduction Study (2008)
- Environmental Monitoring of Nicols Fen (2008)

Vermillion River Watershed
- Empire Drainages Geomorphic Assessment (2012)
- Drained Wetland Inventory Upper Vermillion and South Branch Drainage Areas (2012)
- North and Middle Creek Subwatersheds Geomorphic Assessment (2011)
- Etter Creek and Ravenna Coulees Geomorphic Assessment (2010)
- South Creek Subwatershed Geomorphic Assessment (2009)
- Hydrologic Study of Existing Conditions (2009)
- Wetland and Watercourse Inventory and Assessment (2007)
- Headwater Groundwater Recharge Area Inventory and Protection Plan (2007)
- Fecal Coliform Bacteria Study (2004)

Countywide or Multiple Watersheds
- Township Private Well Nitrate Study (2014)
- Recommendations to Optimize Hydrological Bioretention Performance for Cold Climates (2008)
- Farmland and Natural Area Protection Plan (2002)

Additional inventories, studies and reports including annual water monitoring information can be found on each of the six watershed management organizations web sites identified in Appendix B.

1 Local Partners for the purpose of identifying studies and inventories includes Dakota County, Vermillion River Watershed Joint Powers Organization, North Cannon River Watershed Management Organization, Lower Mississippi River Watershed Management Organization, Lower Minnesota River Watershed District, Black Dog Watershed Management Organization and Eagan-Inver Grove Heights Watershed Management Organization.

APPENDIX D

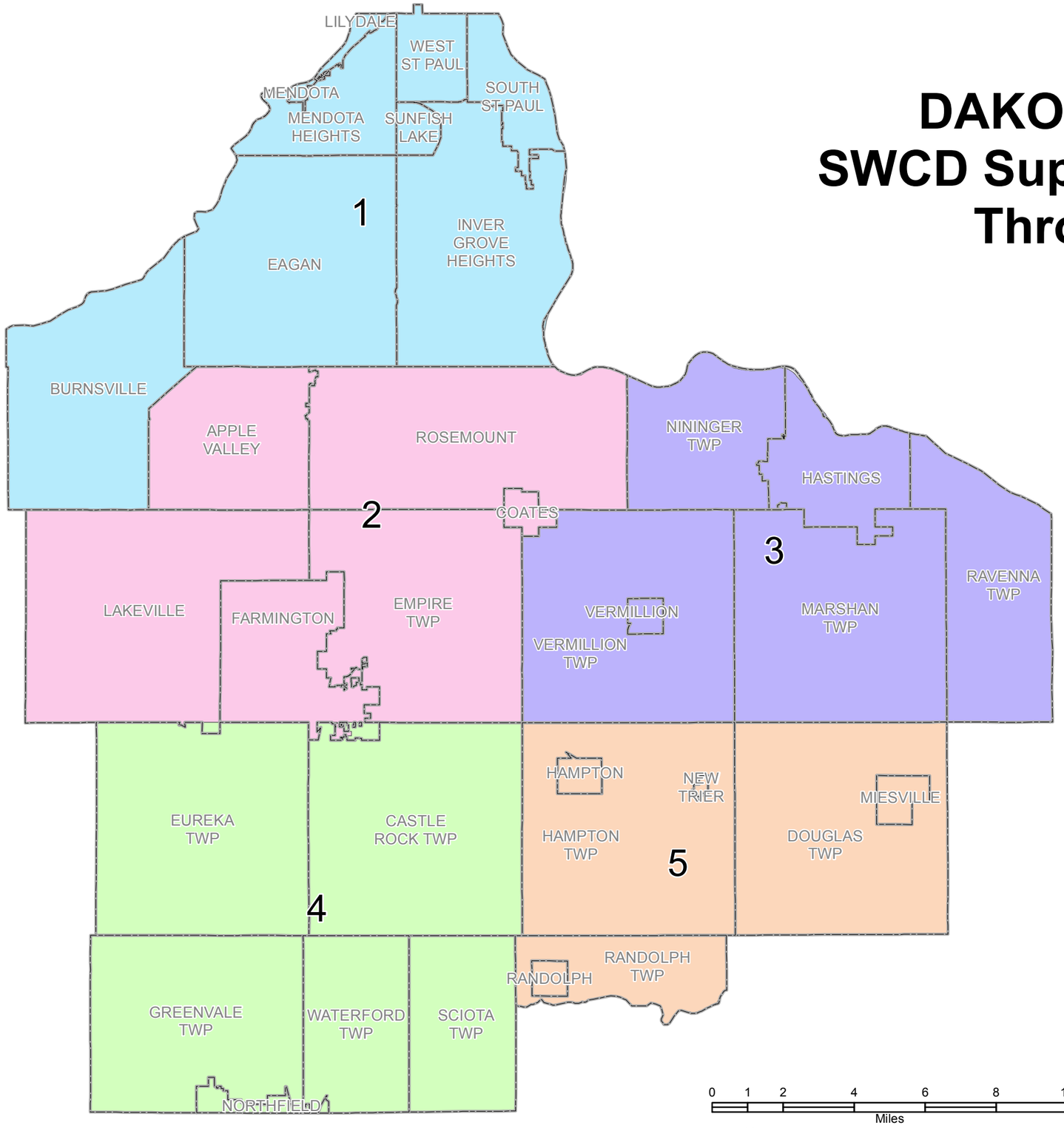
Budget Forecast

	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
REVENUES										
Intergovernmental										
County Funds	385,000	392,700	400,554	408,565	416,736	425,071	433,573	442,244	451,089	460,111
Local Funds	315,000	315,000	315,000	315,000	315,000	315,000	315,000	315,000	315,000	315,000
State Funds	750,000	485,000	435,000	435,000	435,000	485,000	485,000	485,000	485,000	485,000
Total	**1,450,000**	**1,192,700**	**1,150,554**	**1,158,565**	**1,166,736**	**1,225,071**	**1,233,573**	**1,242,244**	**1,251,089**	**1,260,111**
Charges For Services	8,500	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
Interest Earnings	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000
Other	1,500	1,500	1500	1500	1500	1500	1500	1500	1500	1500
Total Revenues	**1,463,000**	**1,207,200**	**1,165,054**	**1,173,065**	**1,181,236**	**1,239,571**	**1,248,073**	**1,256,744**	**1,265,589**	**1,274,611**
EXPENDITURES										
District Operations										
Personnel Services	915,000	942,450	970,724	999,845	1,029,841	1,060,736	1,092,558	1,125,335	1,159,095	1,193,867
Operating Expenses	38,200	39,346	40,526	41,742	42,994	44,284	45,613	46,981	48,391	49,842
Other Expenses	2,500	2,575	2,652	2,732	2,814	2,898	2,985	3,075	3,167	3,262
Total District	**955,700**	**984,371**	**1,013,902**	**1,044,319**	**1,075,649**	**1,107,918**	**1,141,156**	**1,175,390**	**1,210,652**	**1,246,972**
Project Expenditures										
County	0	0	0	0	0	0	0	0	0	0
Local	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000
State	405,000	75,000	0	0	0	0	0	0	0	0
District	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000
Total Project	**480,000**	**150,000**	**75,000**	**75,000**	**75,000**	**75,000**	**75,000**	**75,000**	**75,000**	**75,000**
Total Expenditures	**1,435,700**	**1,134,371**	**1,088,902**	**1,119,319**	**1,150,649**	**1,182,918**	**1,216,156**	**1,250,390**	**1,285,652**	**1,321,972**
Excess	**27,300**	**72,829**	**76,152**	**53,746**	**30,588**	**56,653**	**31,917**	**6,354**	**-20,063**	**-47,361**

DAKOTA COUNTY
SOIL & WATER
CONSERVATION DISTRICT

Figure 1

DAKOTA COUNTY
SWCD Supervisor Districts
Through 2016



Supervisor Districts

- District 1 - Laura Zanmiller
- District 2 - Marian Brown
- District 3 - Kevin Chamberlain
- District 4 - Chris Nielsen
- District 5 - Joe Meyers

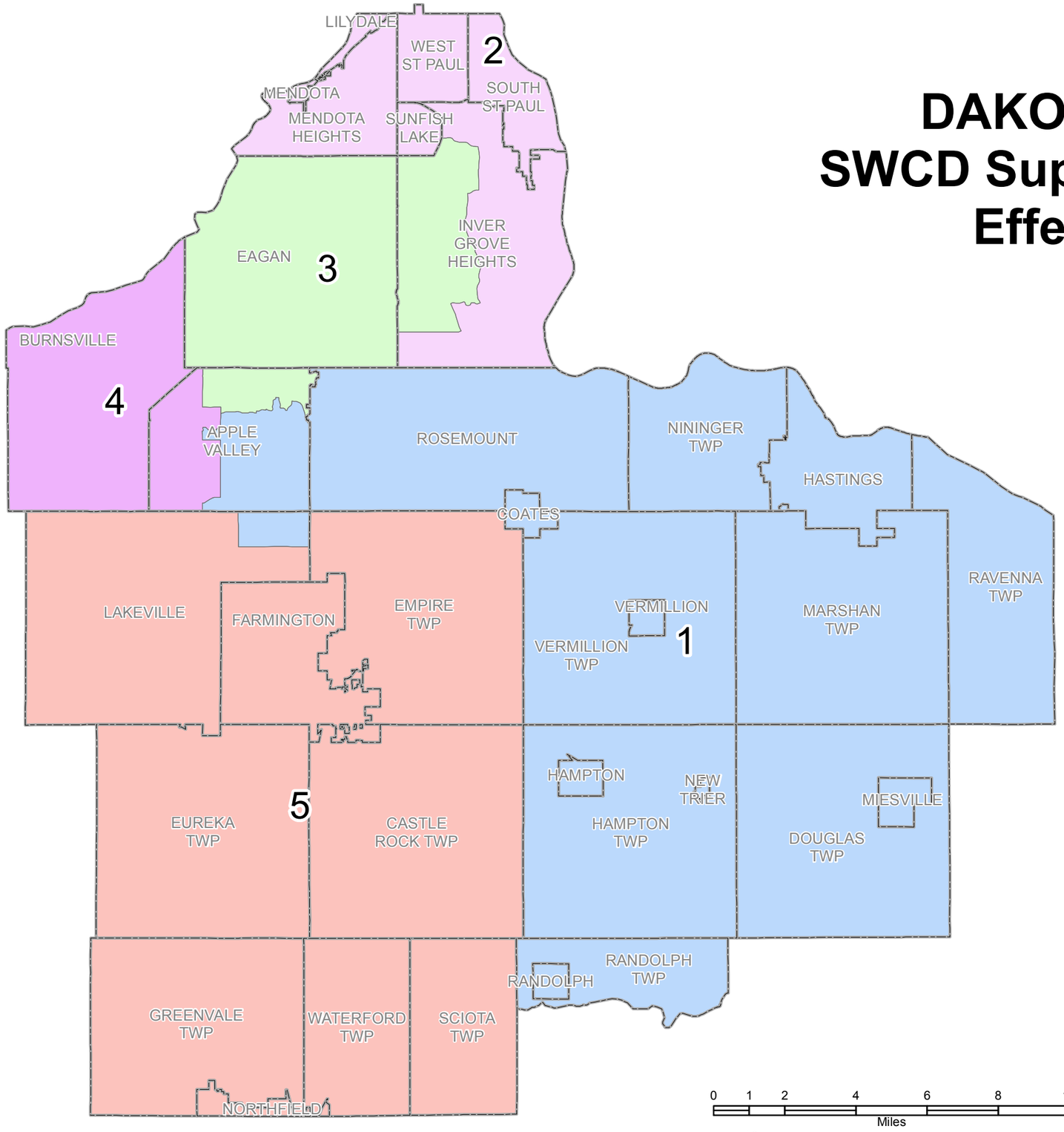
0 1 2 4 6 8 10
Miles

18

DAKOTA COUNTY
SOIL & WATER
CONSERVATION DISTRICT

Figure 2

DAKOTA COUNTY
SWCD Supervisor Districts
Effective 2017



Supervisor Districts

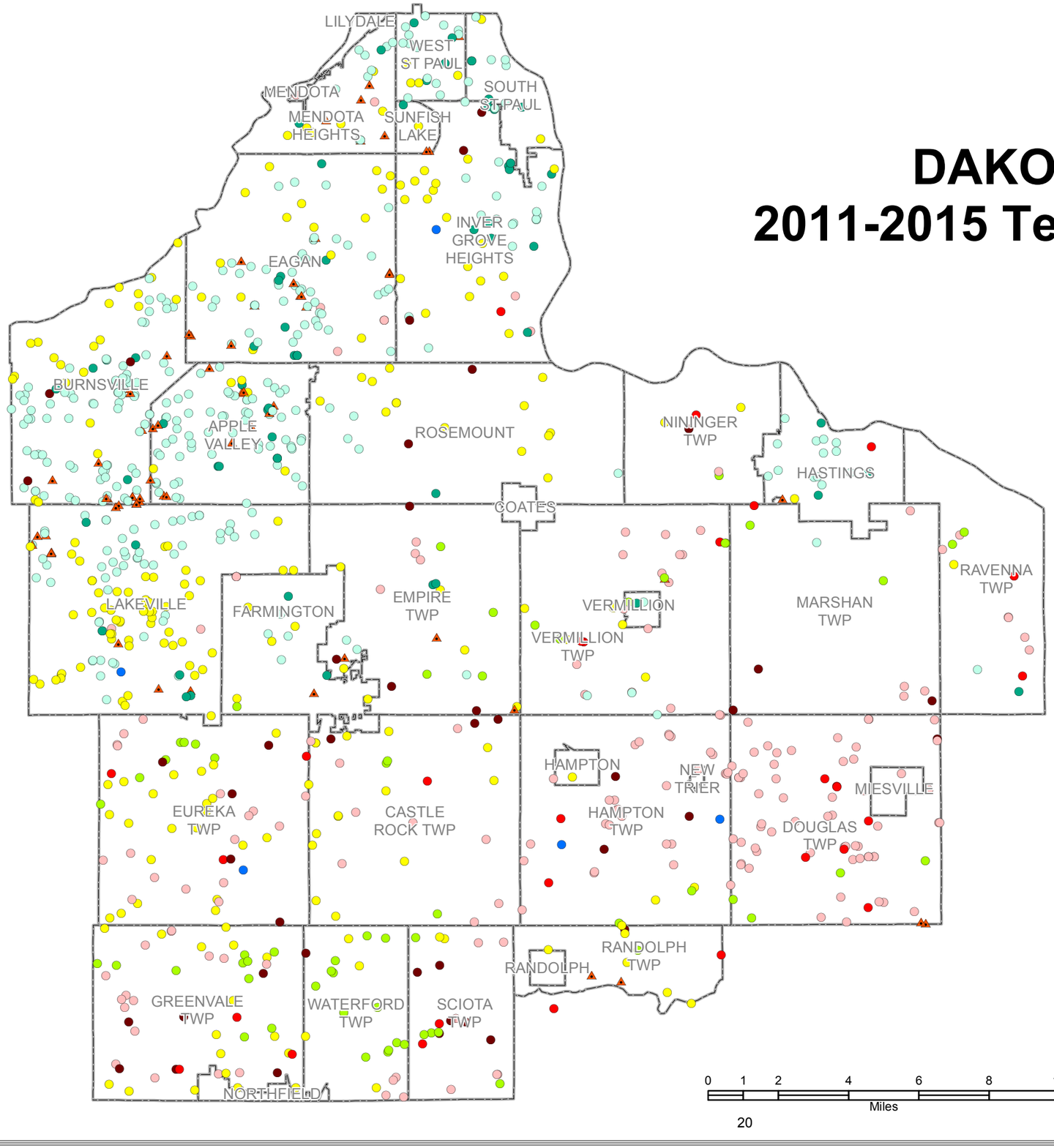
- District 1
- District 2
- District 3
- District 4
- District 5

0 1 2 4 6 8 10
Miles

DAKOTA COUNTY
SOIL & WATER
CONSERVATION DISTRICT

Figure 3

DAKOTA COUNTY
2011-2015 Technical Assistance



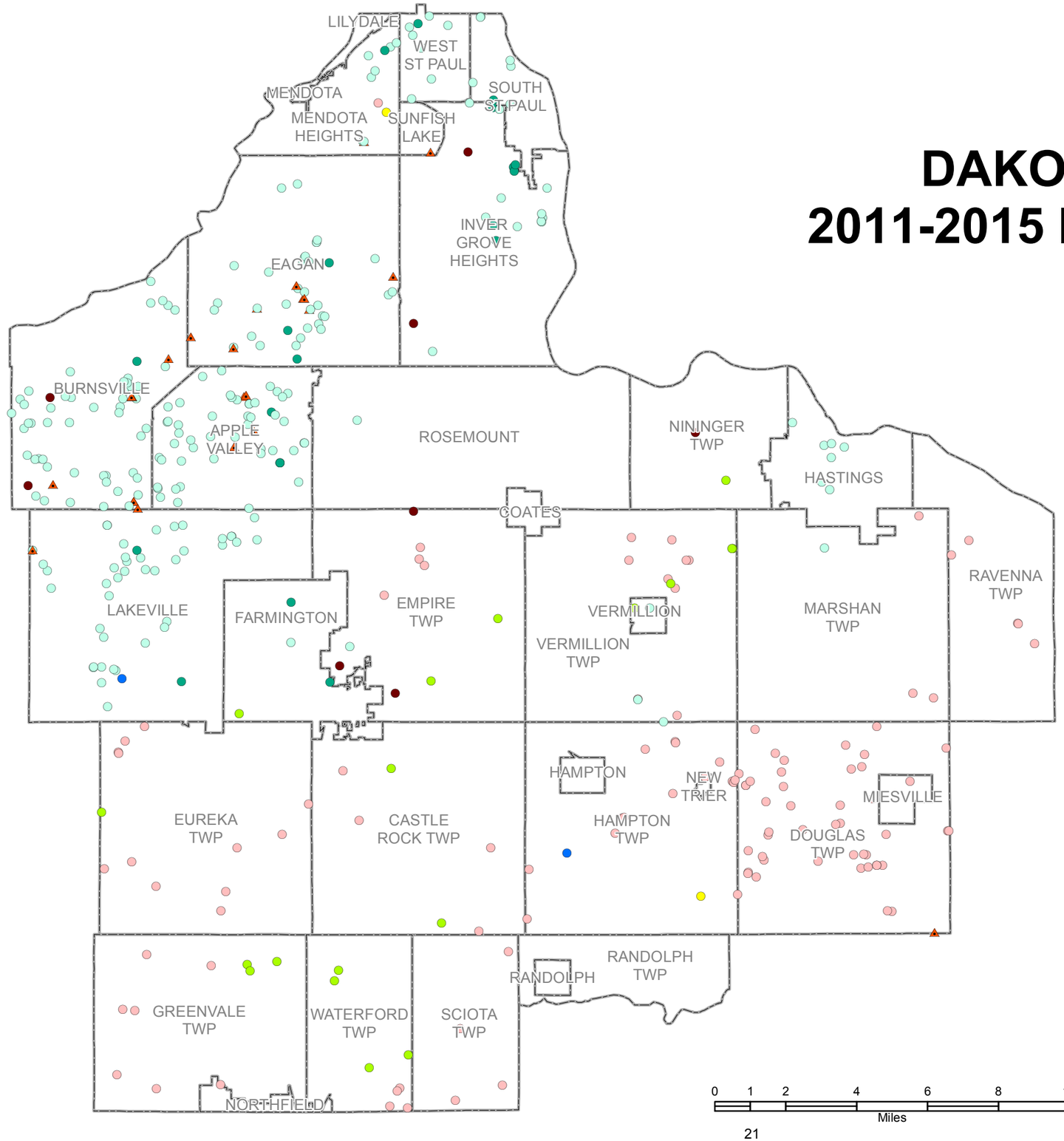
Conservation Assistance (1,041)

- Erosion (190)
- Feedlot (30)
- Filter Strips (62)
- Groundwater (6)
- Shoreland/Streambank (68)
- Stormwater (Community) (69)
- Stormwater (Individual) (333)
- Wetland (240)
- Wildlife Habitat (43)

DAKOTA COUNTY
SOIL & WATER
CONSERVATION DISTRICT

Figure 4

DAKOTA COUNTY
2011-2015 Installed Projects



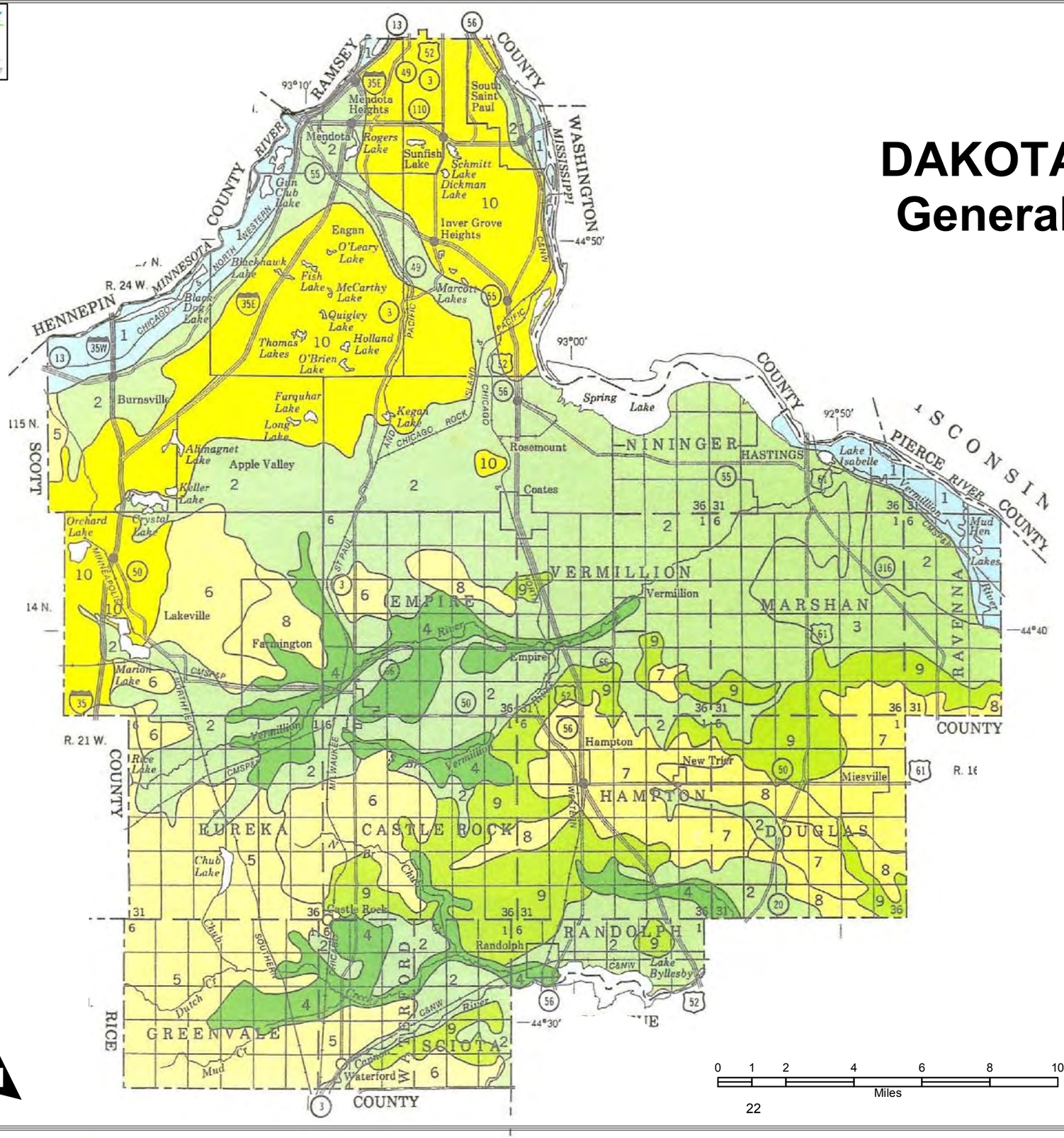
Conservation Projects (407)

- Erosion (116)
- Feedlot (0)
- Filter Strips (19)
- Groundwater (2)
- Shoreland/Streambank (23)
- Stormwater (Community) (20)
- Stormwater (Individual) (217)
- Wetland (2)
- Wildlife Habitat (8)

DAKOTA COUNTY
SOIL & WATER
CONSERVATION DISTRICT

Figure 5

DAKOTA COUNTY
General Soil Map



U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
MINNESOTA AGRICULTURAL EXPERIMENT STATION

GENERAL SOIL MAP
DAKOTA COUNTY, MINNESOTA

Scale 1:253,440
1 0 1 2 3 4 Miles
1 0 1 2 3 4 5 6 Kilometers

SOIL LEGEND*

NEARLY LEVEL, SILTY AND LOAMY SOILS: ON FLOOD PLAINS

1 — Coto-Algansee-Minneiska: Nearly level, poorly drained to moderately well drained soils formed in loamy, silty, or sandy alluvium; on flood plains of major rivers

LEVEL TO VERY STEEP, SILTY, LOAMY, AND SANDY SOILS; ON OUTWASH PLAINS AND TERRACES

2 — Waukegan-Wadena-Hawick: Level to very steep, well drained and excessively drained soils formed in silty and loamy sediments over sandy outwash; on outwash plains and terraces

3 — Hubbard-Sparta-Plainfield: Level to moderately steep, excessively drained soils formed in sandy sediments; on outwash plains and terraces

NEARLY LEVEL, SILTY AND LOAMY SOILS; ON OUTWASH PLAINS

4 — Marshan-Cylinder: Nearly level, poorly drained and somewhat poorly drained soils formed in silty and loamy sediments over sandy outwash; on outwash plains

NEARLY LEVEL TO STEEP, LOAMY AND SILTY SOILS; ON UPLANDS

5 — Lester-Blooming-Merton: Gently sloping to moderately steep, well drained to somewhat poorly drained soils formed in loamy and silty sediments and loamy glacial till; on uplands

6 — Ostrander-Klinger-Maxfield: Nearly level to sloping, well drained, somewhat poorly drained, and poorly drained soils formed in silty and loamy sediments and loamy glacial till; on uplands

7 — Ostrander-Carmi-Burkhardt: Gently sloping to moderately steep, well drained and somewhat excessively drained soils formed in loamy sediments and in the underlying loamy or sandy glacial drift; on uplands

8 — Tallula-Port Byron-Bold: Nearly level to steep, well drained soils formed in loess; on uplands

NEARLY LEVEL TO SLOPING, LOAMY SOILS THAT ARE UNDERLAIN BY BEDROCK; ON UPLANDS AND TERRACES

9 — Etter-Rockton-Copaston: Nearly level to sloping, well drained soils formed in loamy sediments over sandstone or limestone bedrock; on uplands and terraces

GENTLY SLOPING TO VERY STEEP, LOAMY AND SANDY SOILS; ON UPLANDS AND PITTED OUTWASH PLAINS

10 — Kingsley-Mahtomedi: Gently sloping to very steep, well drained and excessively drained soils formed in loamy and sandy glacial till and sandy glacial outwash; on uplands and pitted outwash plains

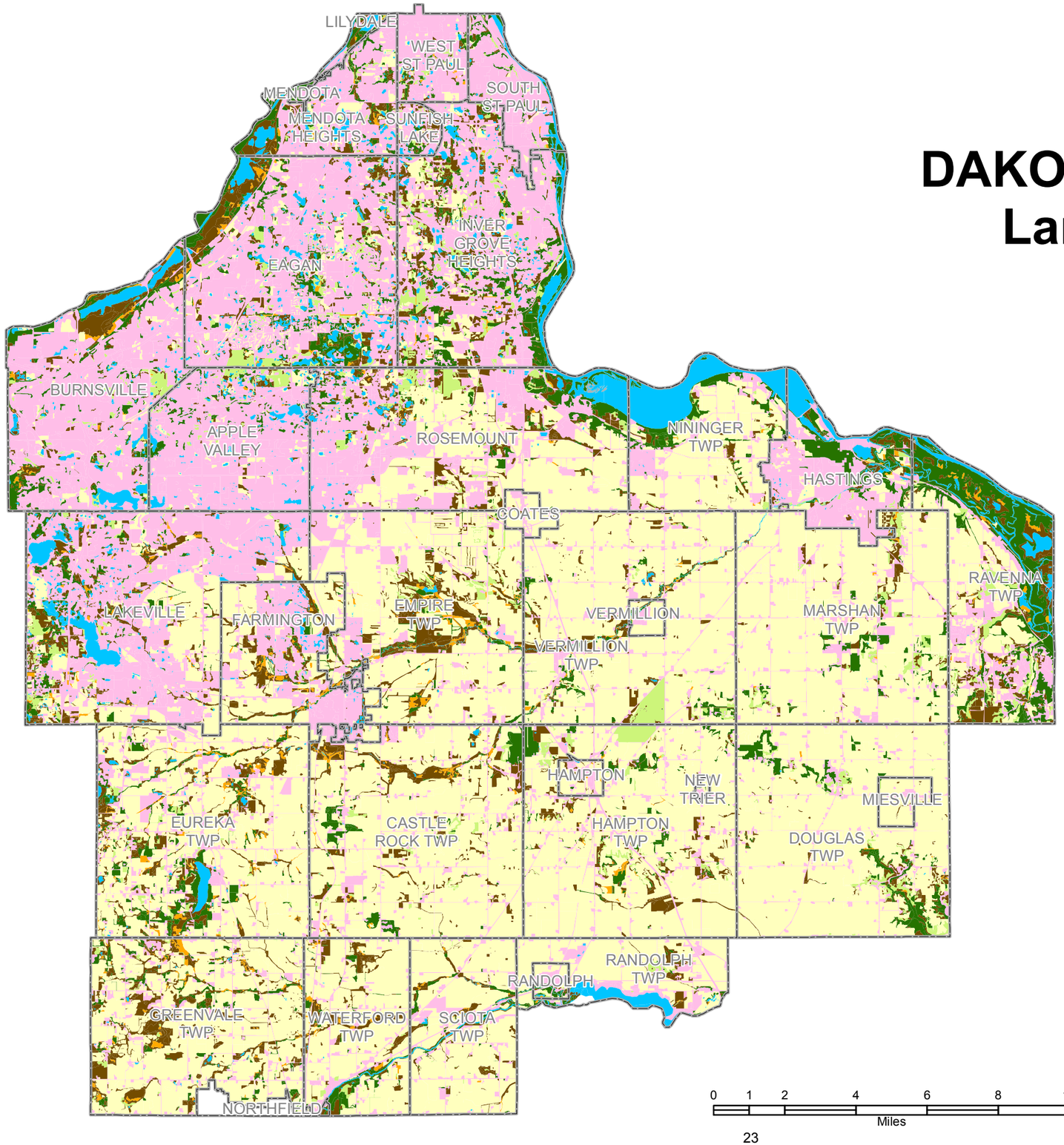
*Unless otherwise indicated, texture terms in the descriptive headings refer to the surface layer of the major soils in the map units.

Compiled 1981

DAKOTA COUNTY
SOIL & WATER
CONSERVATION DISTRICT

Figure 6

DAKOTA COUNTY
Land Cover



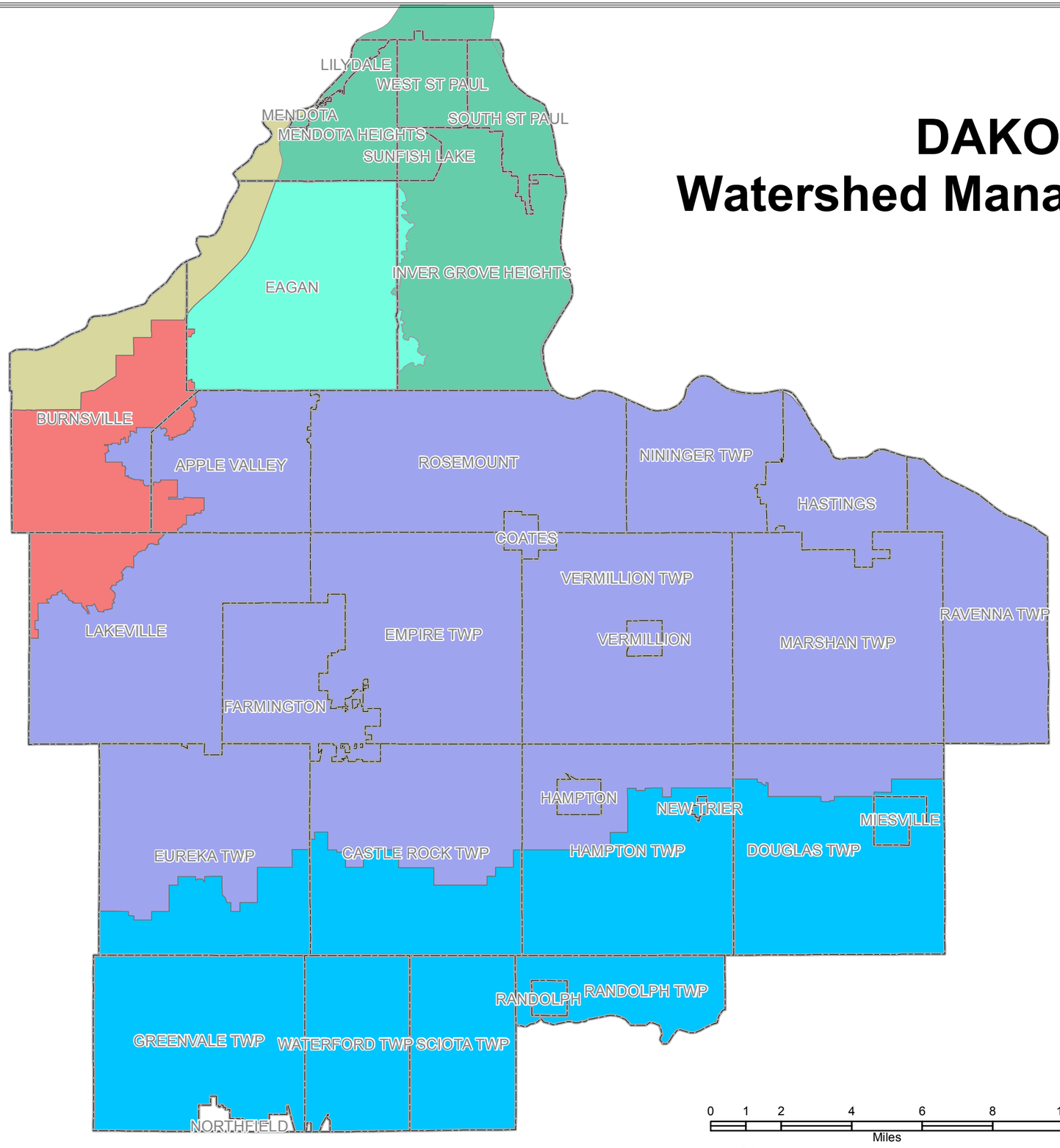
Minnesota Land Cover Classification System

- Built-Up/Urbanized
- Agriculture
- Forests
- Woodland
- Shrubland
- Grassland
- Exposed
- Open Water

DAKOTA COUNTY
SOIL & WATER
CONSERVATION DISTRICT

Figure 7

DAKOTA COUNTY
Watershed Management Organizations
2016



Watershed Management Organizations

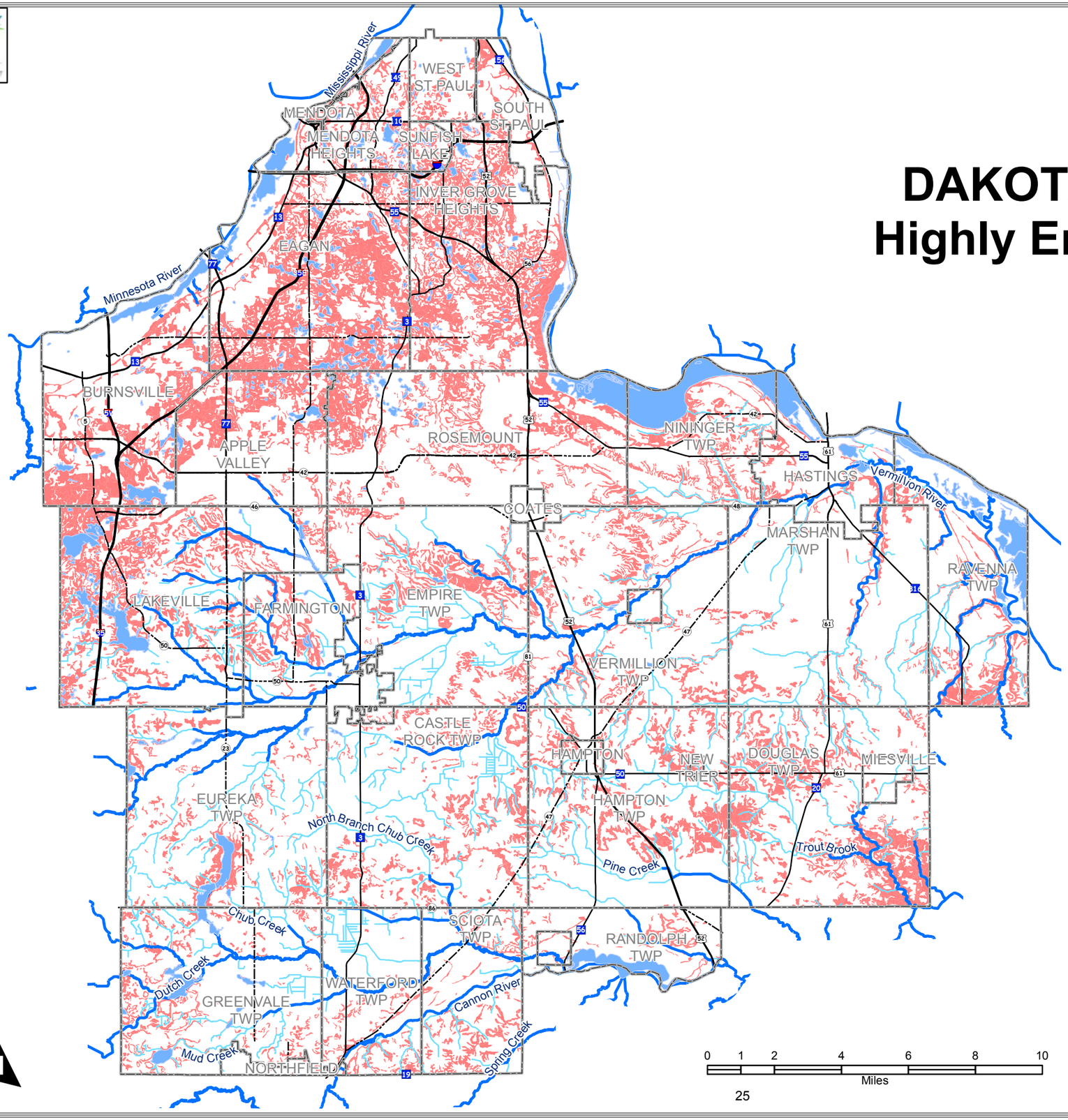
- Black Dog WMO
- Eagan-Inver Grove Heights WMO
- Lower Minnesota River WD
- Lower Mississippi WMO
- North Cannon River WMO
- Vermillion River JPO

0 1 2 4 6 8 10
Miles

DAKOTA COUNTY
SOIL & WATER
CONSERVATION DISTRICT

Figure 8

DAKOTA COUNTY
Highly Erodible Soils



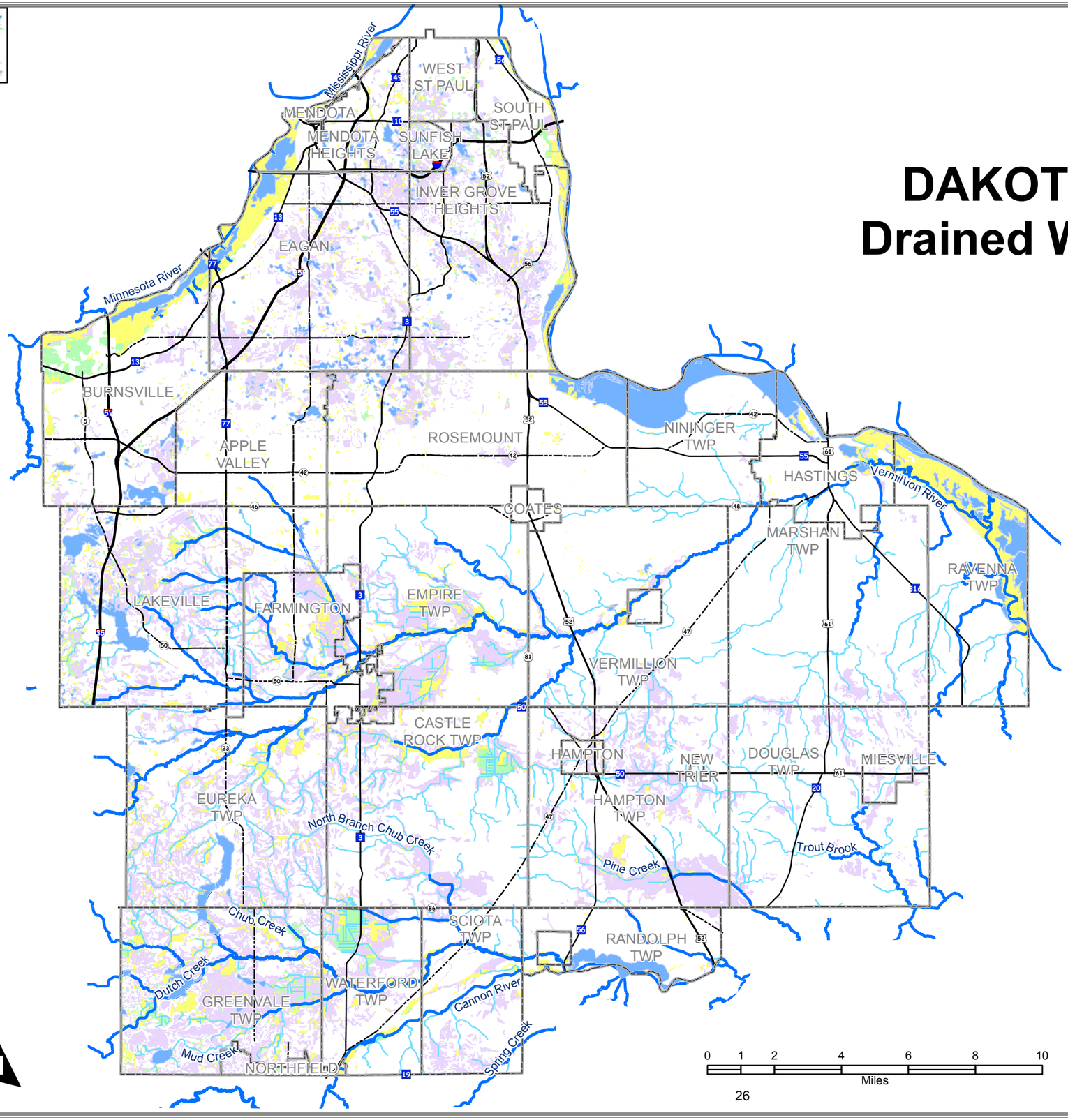
Surface Waters and Soils

- DNR Public Waters
- DNR Public Waterways
- Waterways (WWIA)
- Soils with Slopes > 6%

DAKOTA COUNTY
SOIL & WATER
CONSERVATION DISTRICT

Figure 9

DAKOTA COUNTY
Drained Wetland Soils



Surface Waters and Soils

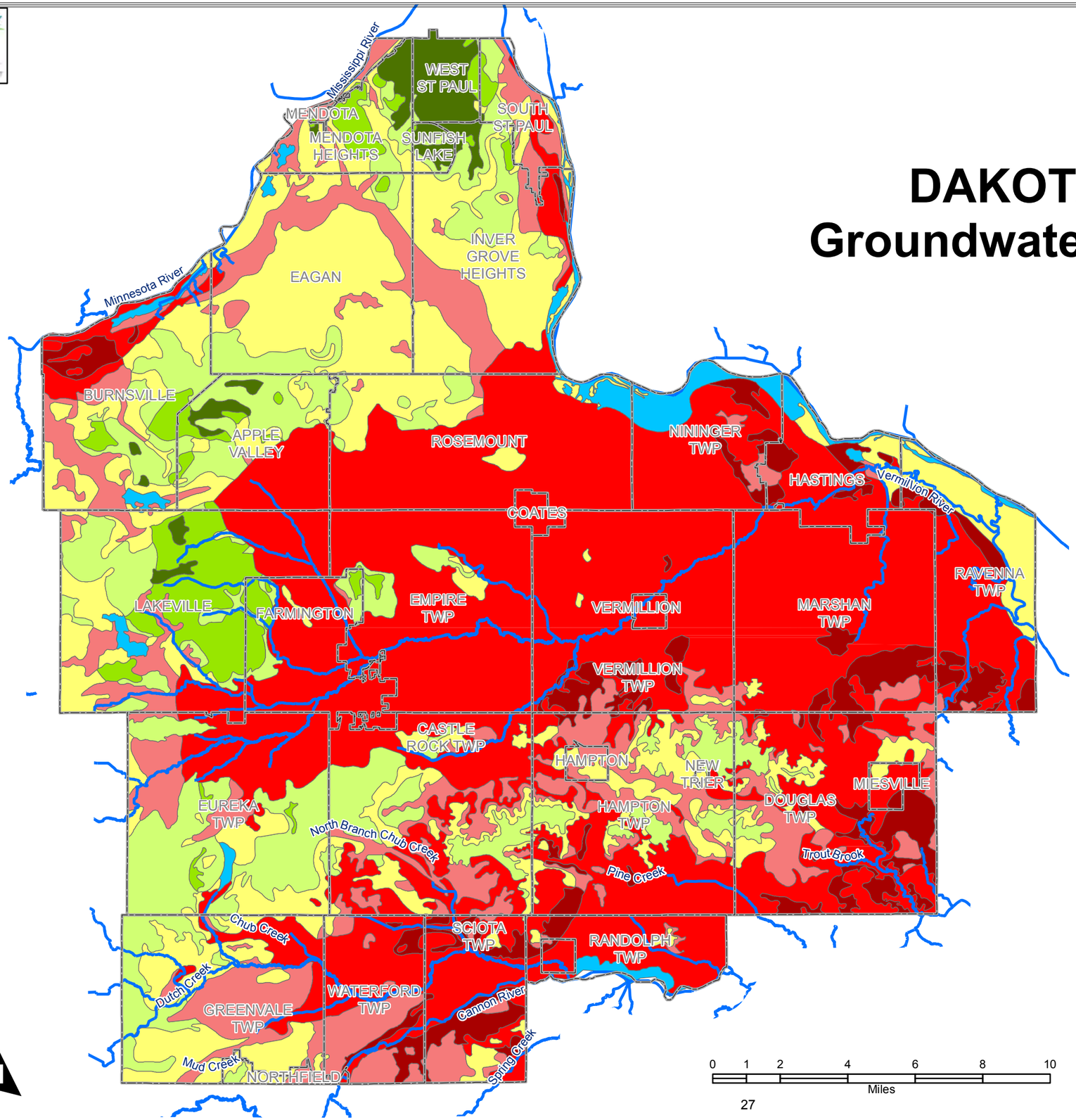
- DNR Public Waters
- Wetlands (Land Cover)
- DNR Public Waterways
- Waterways (WWIA)
- Soils (All Hydric)
- Soils (Partially Hydric)

0 1 2 4 6 8 10
Miles

DAKOTA COUNTY
SOIL & WATER
CONSERVATION DISTRICT

Figure 10

DAKOTA COUNTY
Groundwater Susceptibility



Groundwater Contamination Susceptibility

Rating and Travel Time

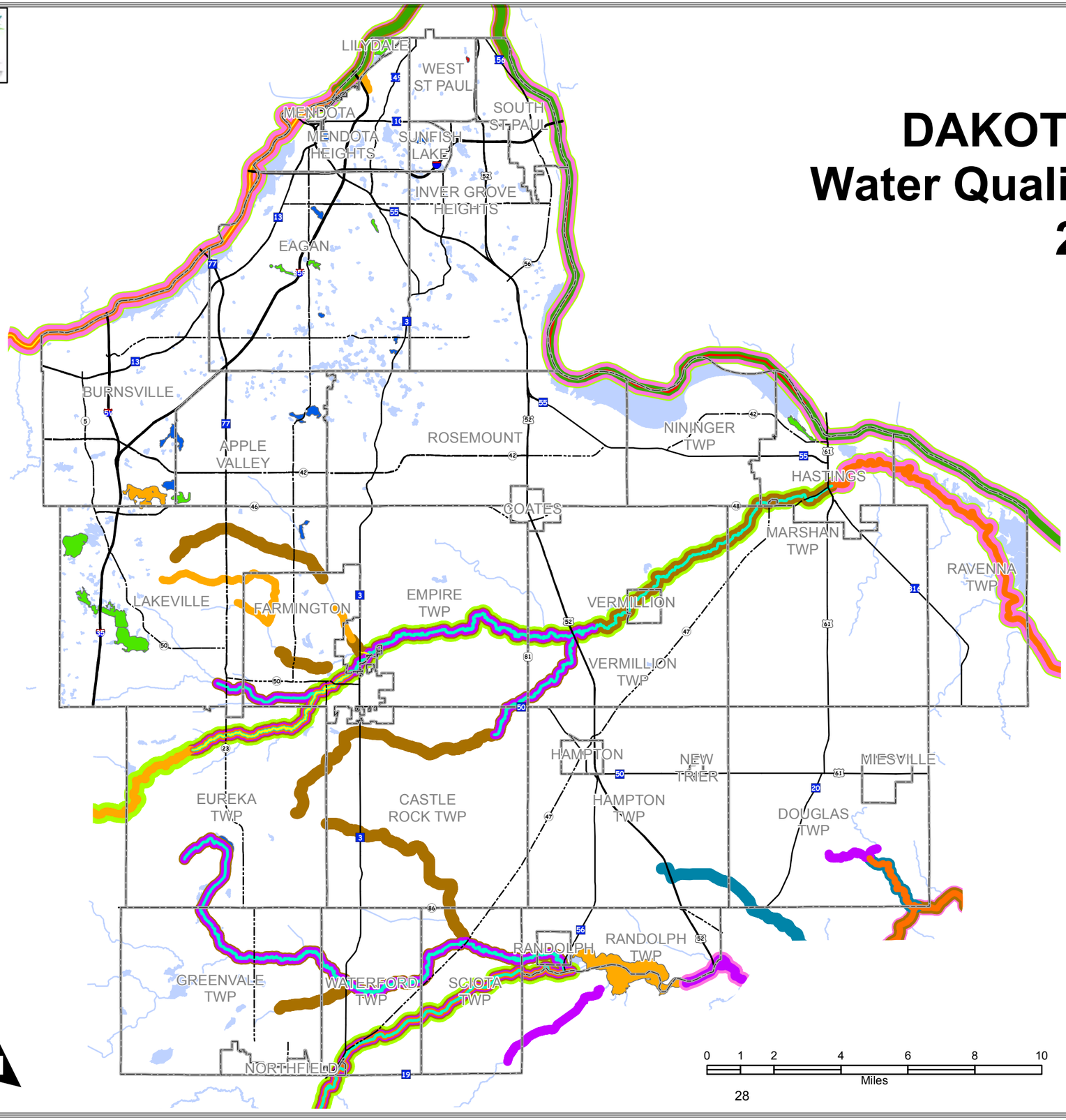
- Very-High (Hours to Months)
- High (Weeks to Years)
- High-Moderate (Years to Decade)
- Moderate (Several Years to Decades)
- Low-Moderate (Several Decades)
- Low (Several Decades to Century)
- Very-Low (More than Century)
- Water

0 1 2 4 6 8 10
Miles

DAKOTA COUNTY
SOIL & WATER
CONSERVATION DISTRICT

Figure 11

DAKOTA COUNTY
Water Quality Impairments
2014



Rivers and Streams

- Perfluorooctane Sulfonate (PFOS)
- Oxygen, Dissolved
- Fishes Bioassessments
- Turbidity
- Total Suspended Solids (TSS)
- Escherichia coli (E-coli)
- Macroinvertebrates Bioassessments
- Nitrates
- Fecal Coliform
- PCB in fish tissue
- Mercury
- DNR Public Waterways

Lakes

- Mercury
- Excess Nutrients
- Mercury, Excess Nutrients
- Chloride, Excess Nutrients
- DNR Public Waters