

LANDSCAPING FOR CLEAN WATER



Dakota County Soil and
Water Conservation District

JOE BARTEN

RESOURCE CONSERVATIONIST - DAKOTA COUNTY SWCD

ACTING ADMINISTRATOR - LOWER MISSISSIPPI RIVER WMO

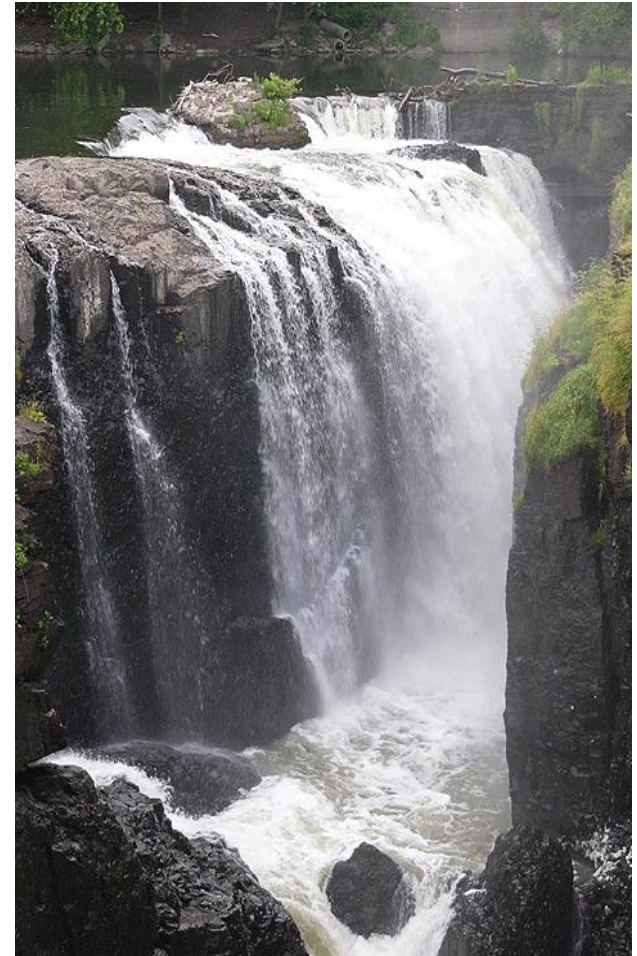
COLLABORATIVE EDUCATION & ACTION



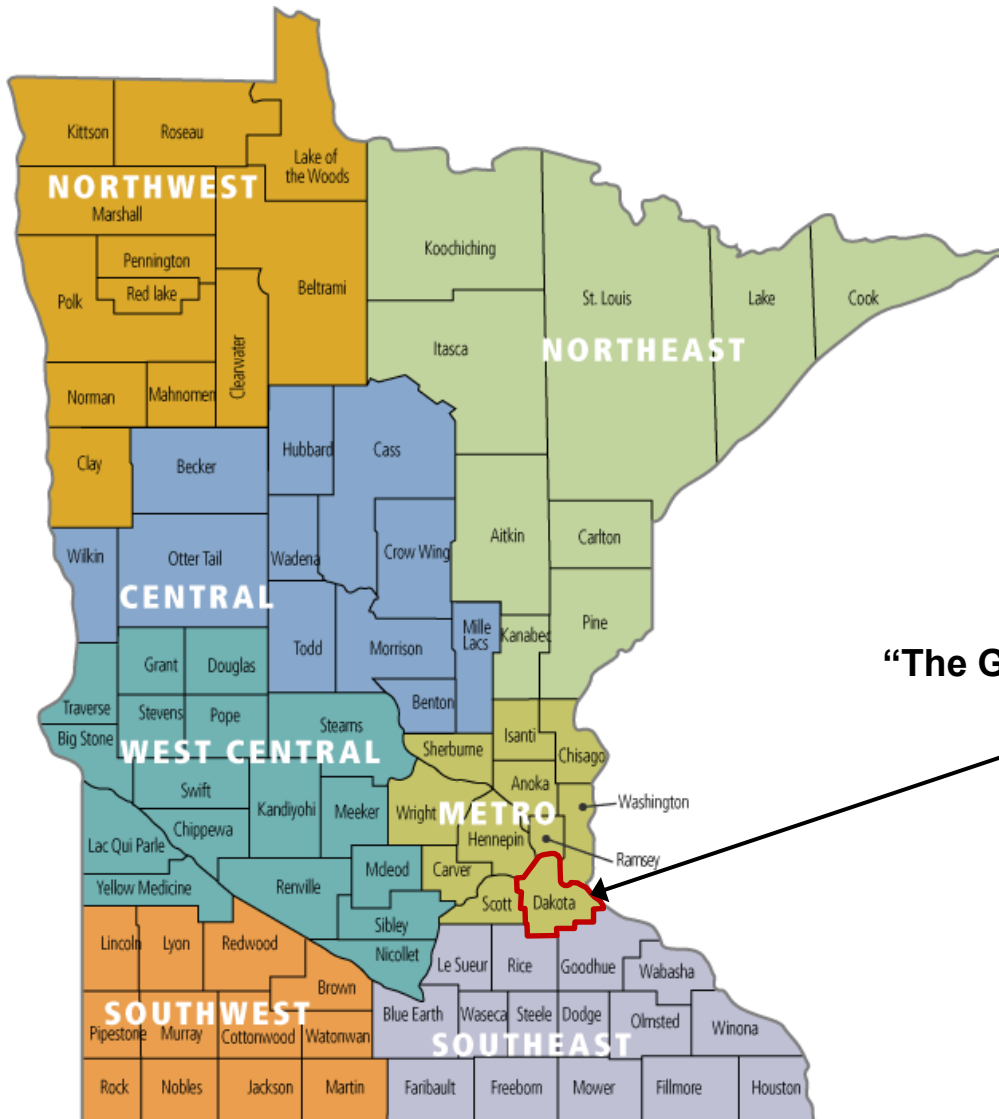
DAKOTA COUNTY SWCD

Outline

- **Dakota County SWCD**
- **Partners**
 - Watershed Orgs
 - Cities
- **What is Landscaping for Clean Water**
- **Process**
 - Introduction Classes
 - Design Classes
 - Example project
 - Technical Assistance
- **Outcomes**
 - Participation
 - Projects
 - Results

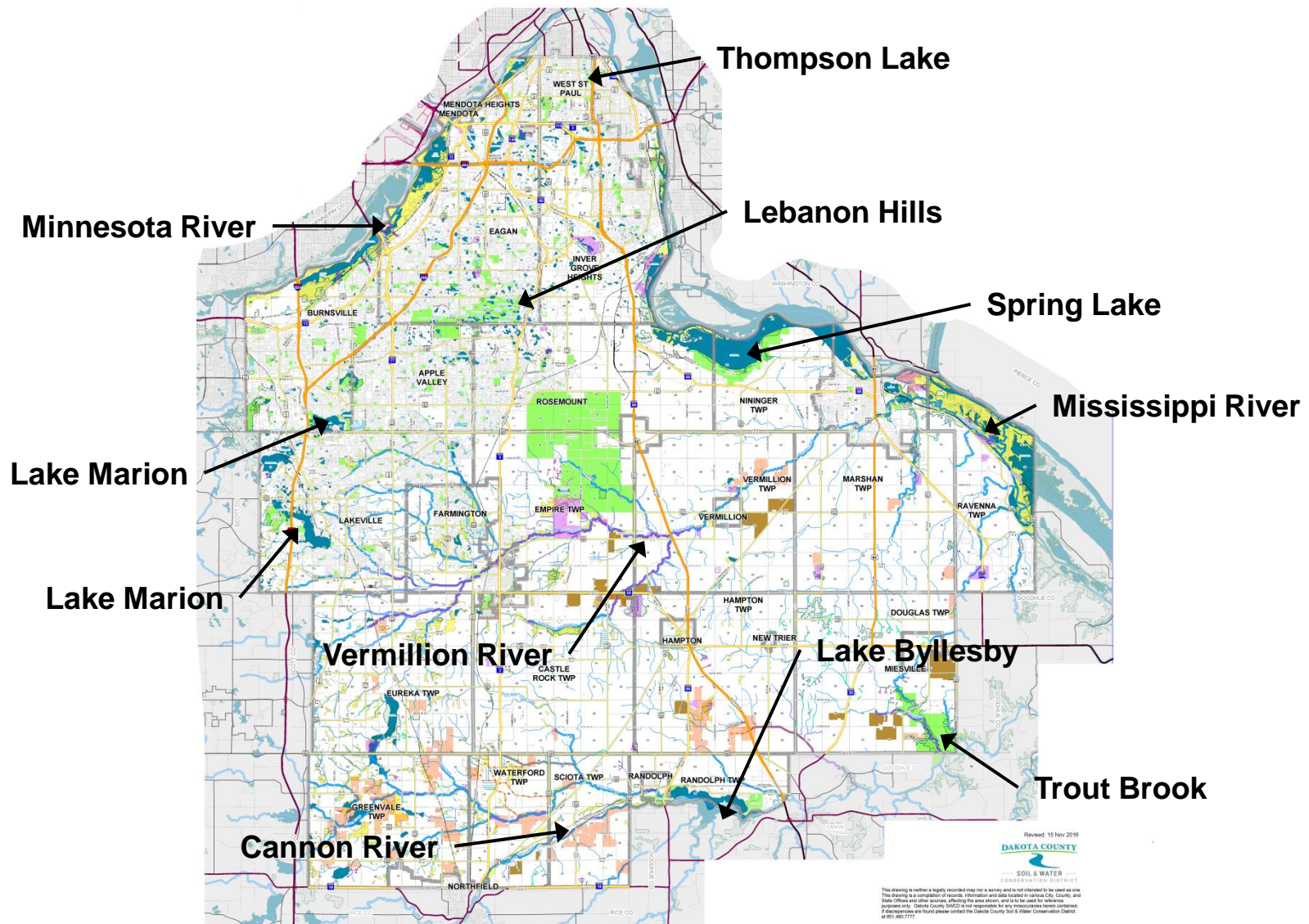


Getting our Bearings

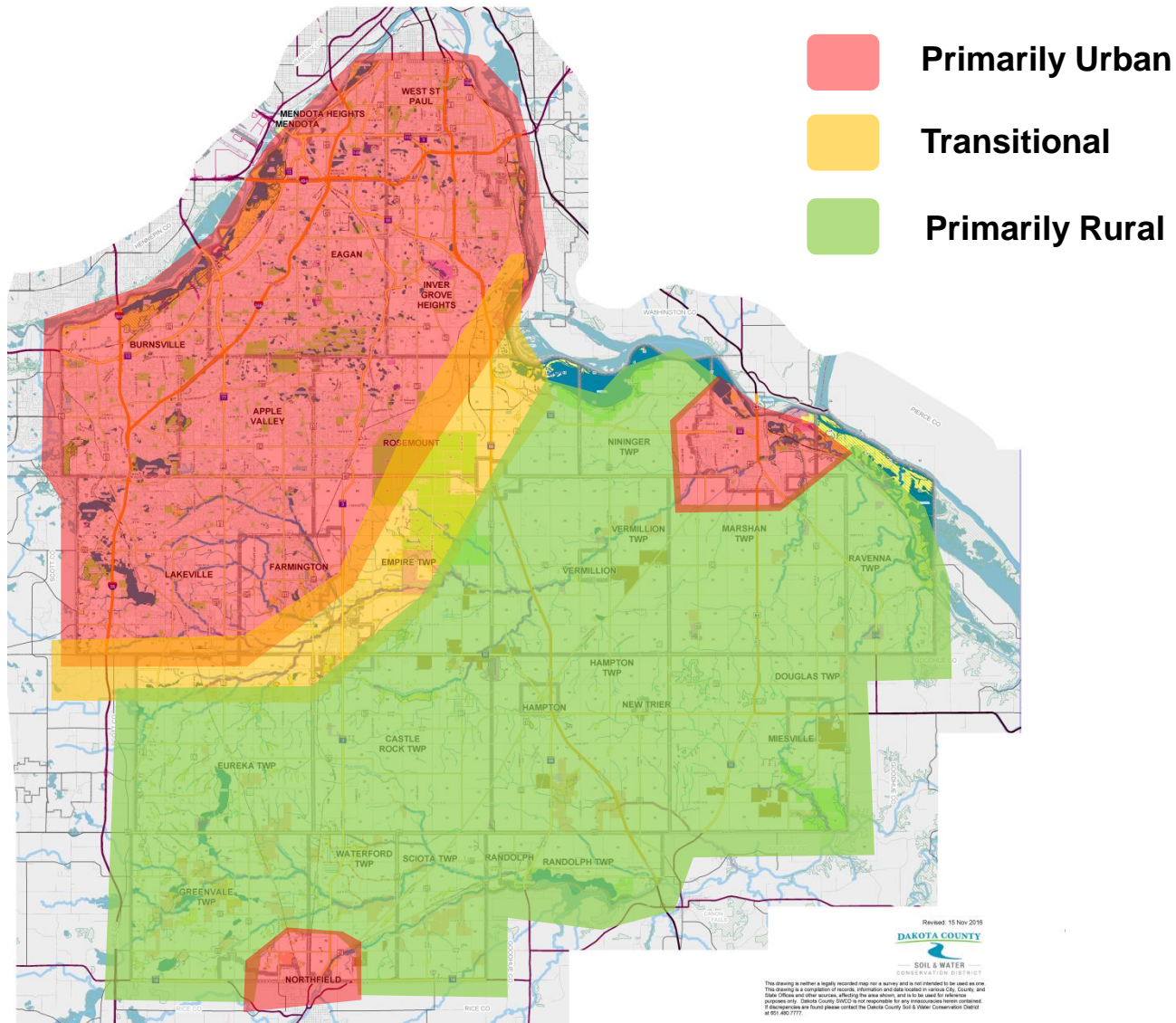


Dakota County
“The Gem of the Southeast Metro”

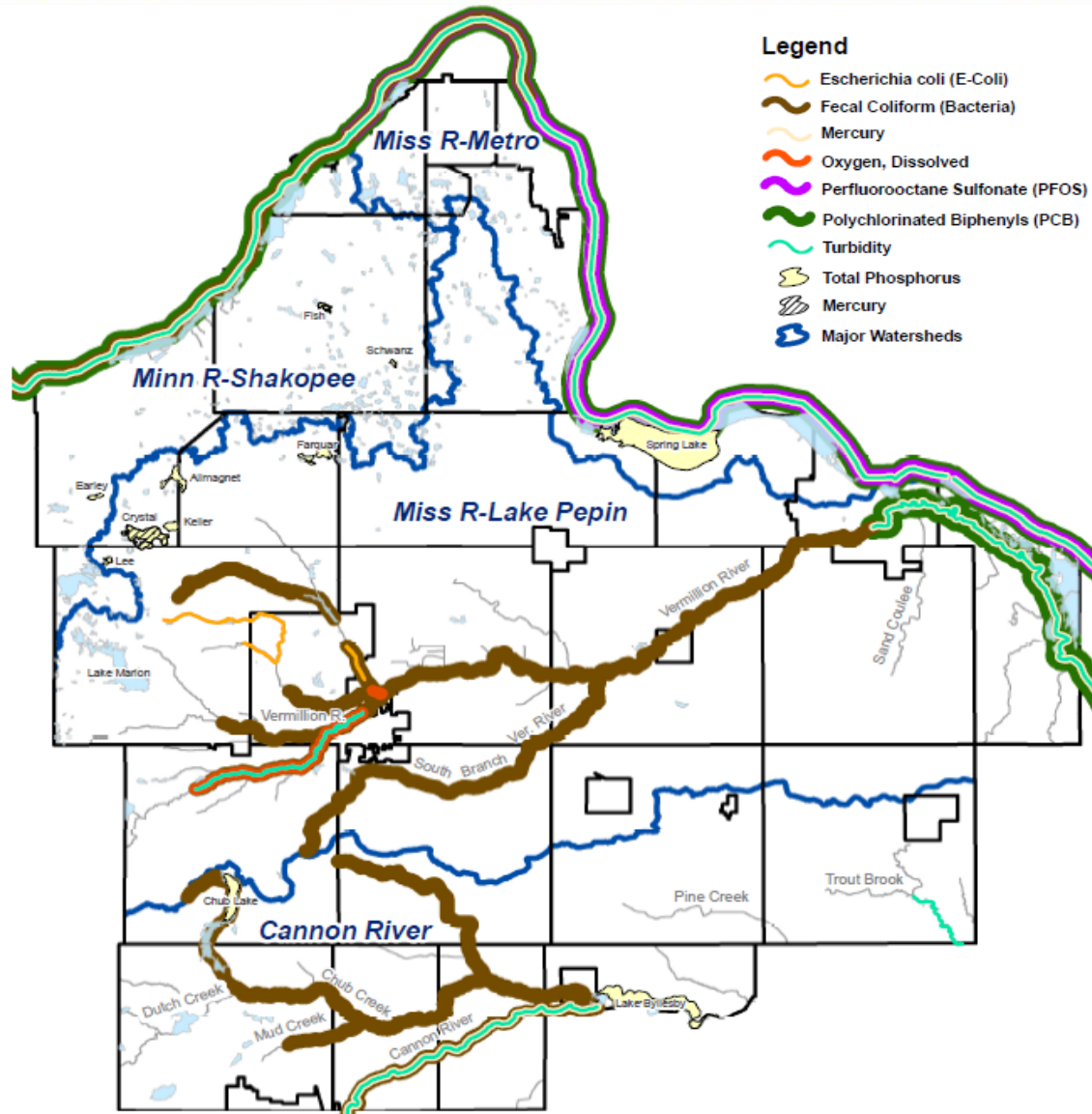
Significant Waterbodies



General Land Use



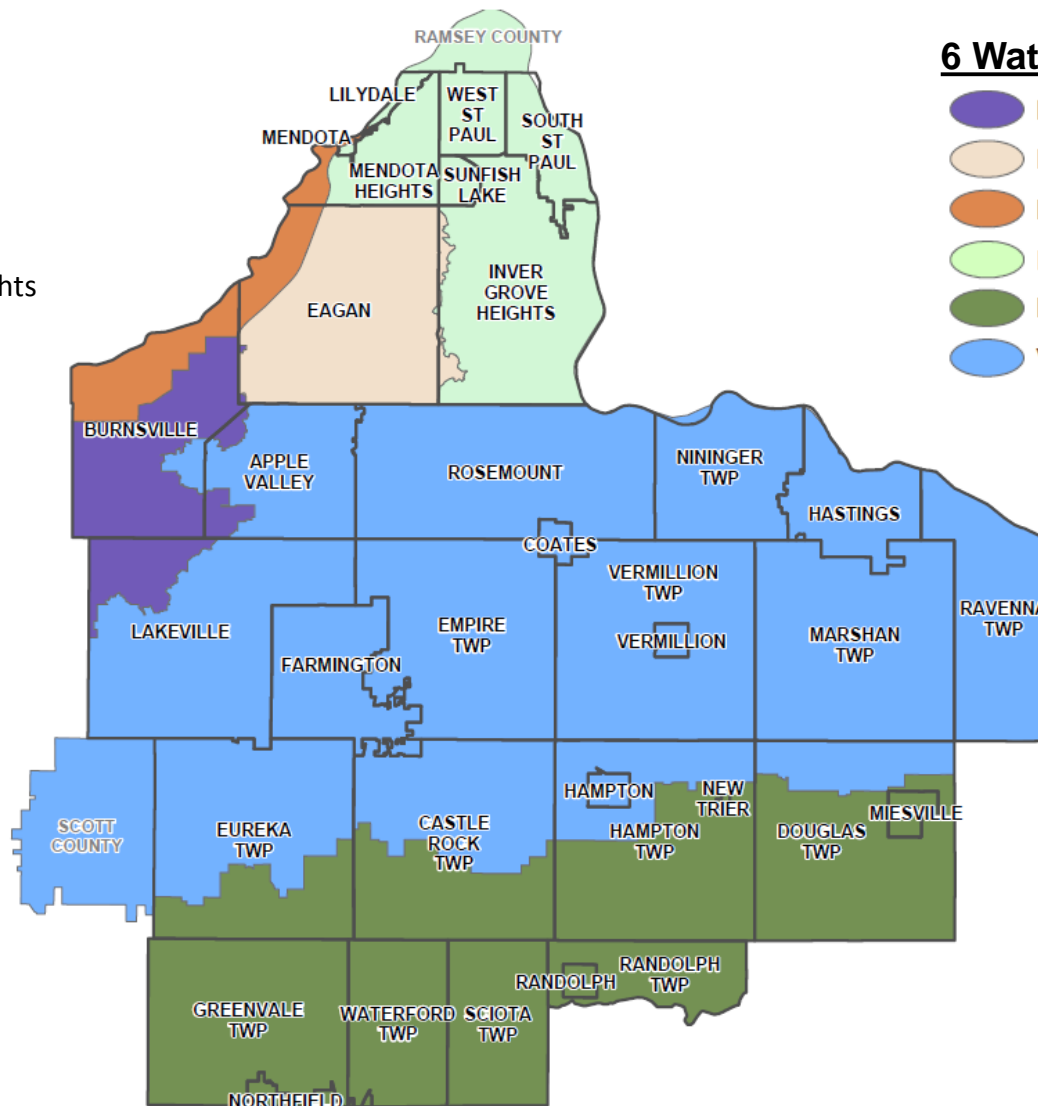
Watersheds & Impaired Waterbodies



Political Entities

19 Cities

Lilydale
Mendota
West St. Paul
South St. Paul
Inver Grove Heights
Eagan
Burnsville
Apple Valley
Rosemount
Lakeville
Farmington
Hastings
Northfield
Coates
Vermillion
Hampton
New Trier
Miesville
Randolph



6 Watershed Management Orgs

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

13 Townships

Randolph
Sciota
Waterford
Greenvale
Douglas
Hampton
Castle Rock
Eureka
Ravenna
Marshan
Vermillion
Empire
Nininger

Grassroots Conservation

How the Dakota County SWCD started:



Local Districts were formed in the 1940s - Dakota SWCD in 1944

Grassroots Conservation



Who we are:

- Special purpose unit of government
- Five member elected Board
- No land use authority
- No taxing authorities



Biologists, Planners,
Landscape Designers,
Wetland Specialists,
Environmental Scientists,
Ecologists, Educators



DAKOTA COUNTY

 — SOIL & WATER —
 CONSERVATION DISTRICT

The diagram illustrates the relationships between the Dakota County Soil & Water Conservation District and its various stakeholders. The central logo is surrounded by seven colored boxes, each representing a different stakeholder group. A large grey arrow curves clockwise around the central logo, indicating a cycle of interaction.

- Federal** (Red box)
- State** (Blue box)
- Met Council** (Green box)
- Dakota County** (Purple box)
- Watershed Management Orgs.** (Gold box)
- Cities/Townships** (Black box)
- Non-Profit Orgs** (Orange box)

The central logo reads: **DAKOTA COUNTY**, **SOIL & WATER**, and **CONSERVATION DISTRICT**.

Grassroots Conservation

Mission:

- Work with landowners to help them manage and protect land and water resources.
- Identify local conservation priorities
- Provide technical assistance to partners
- Projects on the ground!



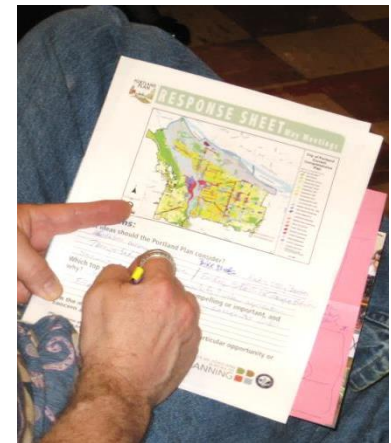
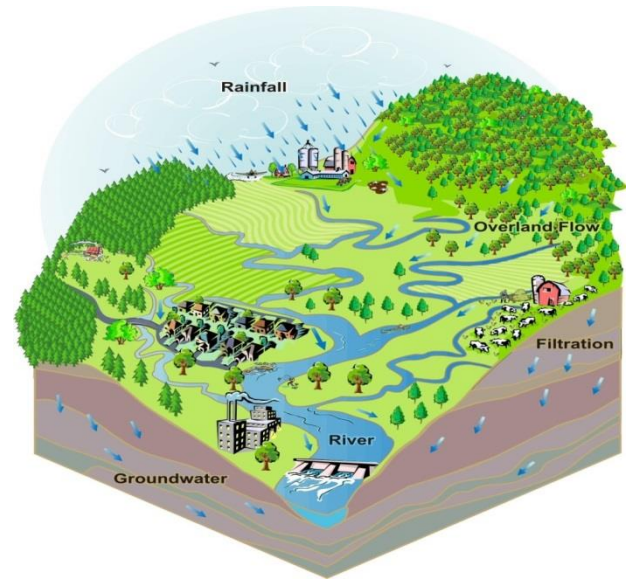
Everything Starts with a Plan

Dakota County SWCD

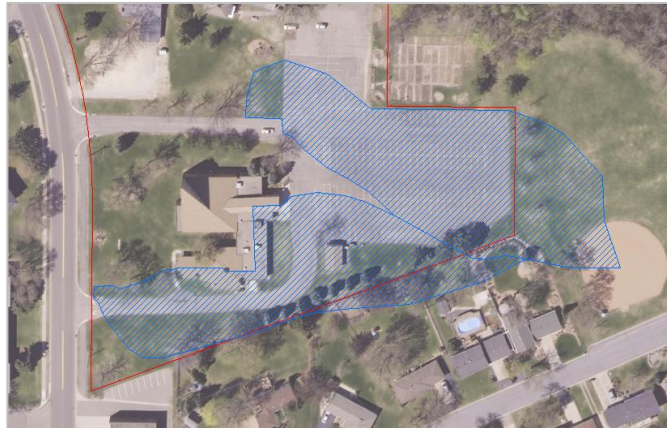
- 10 Year Comprehensive Plan
- Strategic Plan

Other Organizations

- Watershed Plans
- Local Water Plans
- County Water Plans



Technical Assistance & Technical Expertise



Grassroots Conservation

Financial Incentives & Rural Conservation



Before



After

Grassroots Conservation

Financial Incentives & Rural Conservation



Grassroots Conservation

Programs - Wetland Restoration and Review



Grassroots Conservation



Buffers and Streambanks Stabilization



Before



After

Grassroots Conservation

Programs - Urban Conservation



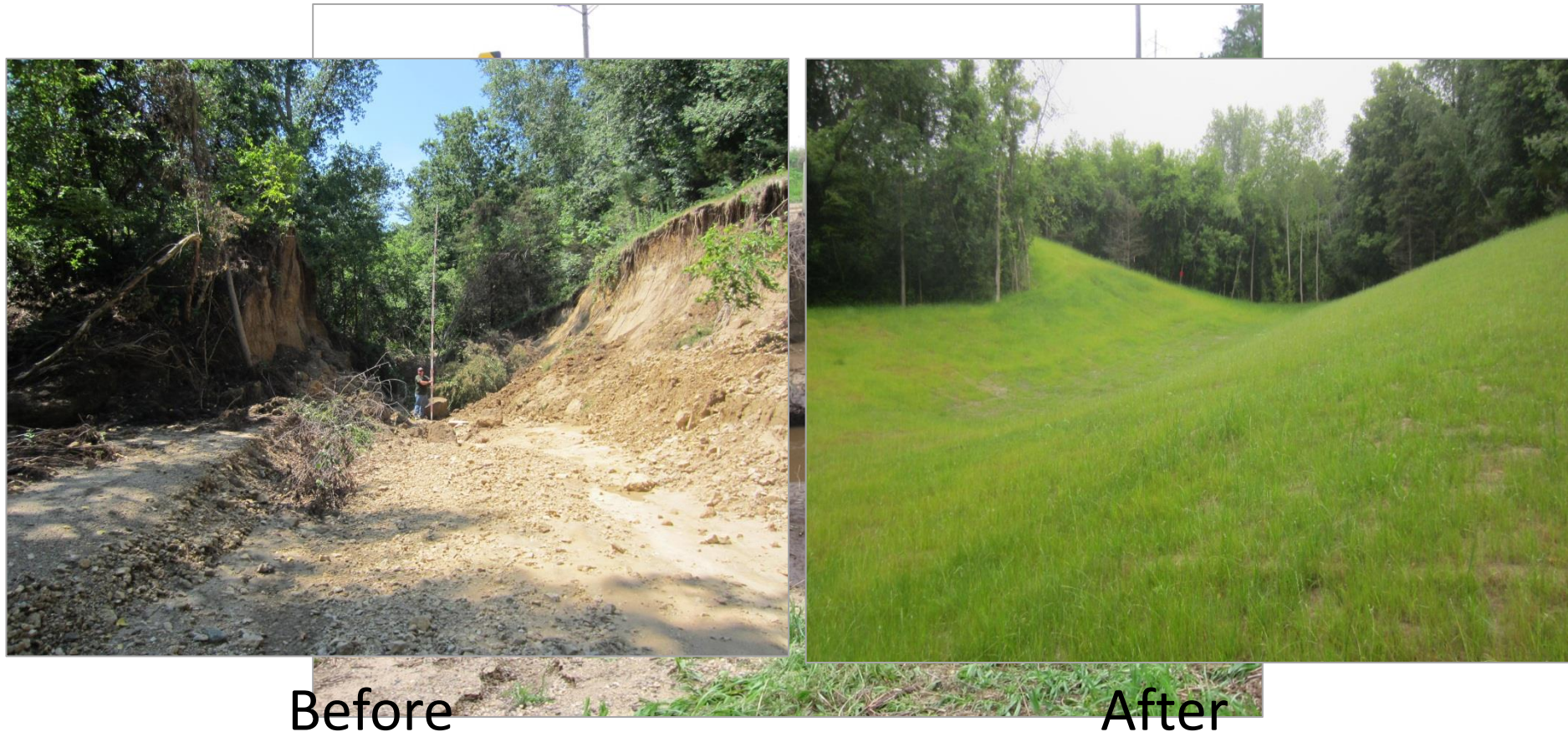
Grassroots Conservation

Water Monitoring



Grassroots Conservation

Programs - Flood Repairs



Grassroots Conservation

Everyone is an Educator!

- K-12 Classroom
- 4th Grade Outdoor Ed Days
- Rural/Agricultural
- Urban/Stormwater



What is Landscaping for Clean Water?



Engaging **RESIDENTIAL LANDOWNERS** through a collaborative **PARTNERSHIP** program to give them the **INFORMATION, TECHNICAL ASSISTANCE,** and other resources needed to **IMPROVE WATER QUALITY** in their communities by **"LANDSCAPING FOR CLEAN WATER".**

Design a Native Garden



Create a Raingarden



Stabilize Shorelines



KNOWLEDGE + TOOLS = ACTION

History of Landscaping for Clean Water?

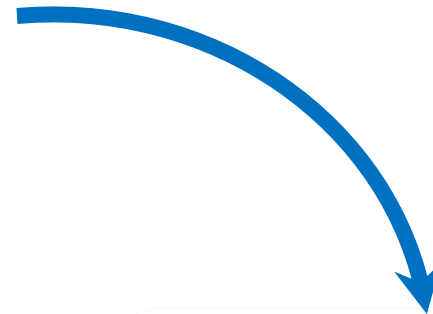


**2006 Blue Thumb Initiative
by Rice Creek Watershed District**



**Public/Private Consortium
Dakota SWCD Founding Partner**

**REGIONAL PARTNERSHIP
INTO
LOCAL PARTNERSHIP PROGRAM**



**LANDSCAPING FOR
CLEAN WATER**



**Dakota County Soil and
Water Conservation District**

**Present Program Specific
to Dakota County**

What is Landscaping for Clean Water?

LEVEL OF PUBLIC ENGAGEMENT

Newsletters
Website

Attend
educational
course

Design and
Install Project

Certification
Program
(Master Water
Stewards)



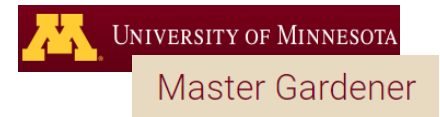
DAKOTA COUNTY
— SOIL & WATER —
CONSERVATION DISTRICT



3. Apply

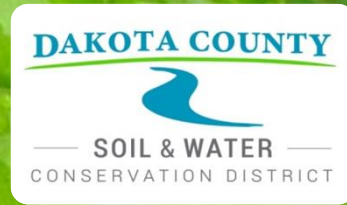


LCW Program Partners



COLLABORATION TO ACHIEVE COMMON GOALS

Dakota County SWCD Strategic Plan Goals



- ✓ **Goal 1 - Collaboration & Financial Savings**
 - Partnership efficiencies, “seat at table”
- ✓ **Goal 2 - Protect Surface Water Quality**
 - Measureable reductions
- ✓ **Goal 3 - Civic Engagement & Public Outreach**
 - Opportunity for ACTION, not just education
- ✓ **Goal 4 - Involvement in Watershed Planning**
 - Combine LMRWMO, City, & SWCD goals
- ✓ **Goal 5 - Land & Habitat Protection**
 - Native plants on landscape



DAKOTA COUNTY

 — SOIL & WATER —
 CONSERVATION DISTRICT



Vermillion River
watershed
reflecting life

-  c. Develop information, educational materials, programs, events, training, and outreach activities to motivate stakeholders to make choices that will improve water resources.
-  d. Work with communities to promote civic engagement and citizen-based action on water and natural resources issues.

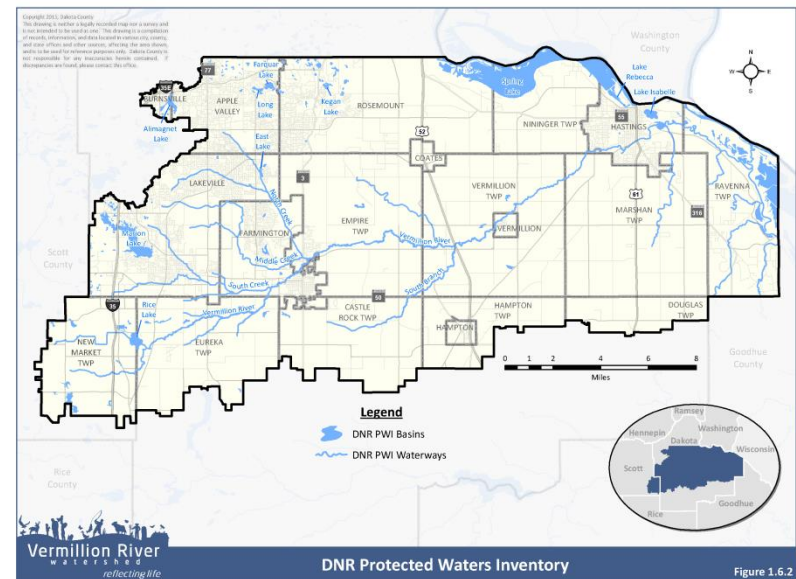


Figure 1.6.2

City Goals & Responsibilities

Municipal **Separate Storm Sewer System**



1972 Clean Water Act

EPA responsible for
enforcement of
of the federal law



**National Pollutant Discharge
Elimination System (NPDES)**



State given authority to
implement federal law



**Minnesota Pollution
Control Agency**

MPCA Issues MS4 Permit



**City ordinances and programs to
comply with MS4 Permit**

Minimum Control Measures

State sets minimum
requirements,
including annual
reporting.



Minimum Control Measures



- 1) Public Education and Outreach
- 2) Public Participation and Involvement
- 3) Illicit Discharge Detection and Elimination
- 4) Construction Site Stormwater Runoff Control
- 5) Post-Construction Stormwater Management
- 6) Pollution Prevention and Good Housekeeping for Municipal Operations



**All MS4
Municipalities
Must Comply
With the Six
Minimum Control
Measures**

Collaboration - Outreach

CREATE BEAUTIFUL GARDENS TO KEEP OUR WATERS CLEAN

DESIGN A NATIVE GARDEN



Native gardens are beautiful, save water, reduce need for fertilizer, and provide wildlife habitat.

CREATE A RAINGARDEN



Raingardens filter dirty stormwater from streets and rooftops before it enters streams, rivers, ponds, and lakes.

STABILIZE SHORELINES



Native plants have long roots that anchor soil, filter out pollutants, and discourage geese from gathering.

Join us for a **FREE** Landscaping for Clean Water presentation to see dozens of beautiful, inspirational and affordable garden designs using native plants and helping clean our waters.

After attending you can sign up to receive design and installation assistance. Some Dakota County residents will also qualify for a **\$250 grant** to install their new gardens.



**LANDSCAPING FOR
CLEAN WATER**



Dakota County Soil and
Water Conservation District

LANDSCAPING FOR CLEAN WATER WORKSHOPS

DATES, TIMES, AND LOCATIONS FOR 2018

All workshops will start at **6:15 p.m.**
at the following locations:

APPLE VALLEY - WEDNESDAY, FEBRUARY 28
Apple Valley Municipal Center, 7100 West 147th Street

BURNSVILLE - WEDNESDAY, MARCH 7
Diamondhead Ed. Center - Savage Rm, 200 W. Burnsville Pkwy

FARMINGTON - TUESDAY, MARCH 27
Dakota County Extension & Conservation Ctr, 4100 220th St. W.

INVER GROVE HEIGHTS - WEDNESDAY, APRIL 4
Veterans Memorial Community Center, 8055 Barbara Ave. East

LAKEVILLE - MONDAY, APRIL 9
Lakeville City Hall, 20195 Holyoke Avenue

BURNSVILLE - TUESDAY, APRIL 10
Diamondhead Ed. Center - Savage Rm, 200 W. Burnsville Pkwy

APPLE VALLEY - WEDNESDAY, APRIL 11
Apple Valley Municipal Center, 7100 West 147th Street

EAGAN - THURSDAY, APRIL 26
Updated Location Eagan Civic Arena, 3870 Pilot Knob Road

ROSEMOUNT - MONDAY, APRIL 30
Robert Trail Library, 14395 South Robert Trail

FARMINGTON - TUESDAY, JUNE 5
Farmington Library, 508 3rd Street

Hosted by Dakota County SWCD in
partnership with the below Cities:



Workshop funding provided by:

- Vermillion River Joint Powers Organization
- Black Dog Watershed Management Organization
- Lower Mississippi River Watershed Management Organization
- Eagan-Inver Grove Heights Watershed Management Organization

PLEASE REGISTER BY:

Phone:
(651) 480-7777

Online:
www.dakotaswcd.org

Email:
swcd@co.dakota.mn.us

Mail:
Dakota County SWCD
4100 220th Street West, Suite 102
Farmington, MN 55024

YES, I WILL ATTEND THE WORKSHOP CHECKED BELOW:

Name _____
Address _____
City _____ State _____ Zip _____
Email _____
Phone _____

- ☐ Apple Valley - Wednesday, February 28
- ☐ Burnsville - Monday, March 7
- ☐ Farmington - Tuesday, March 27
- ☐ Inver Grove Heights - Wednesday, April 4
- ☐ Lakeville - Monday, April 9
- ☐ Burnsville - Tuesday April 10
- ☐ Apple Valley - Wednesday, April 11
- ☐ Eagan - Thursday, April 26
- ☐ Rosemount - Monday, April 30
- ☐ Farmington - Tuesday, June 5

Collaboration - Outreach



TEMPLATE OUTREACH (WEB, SOCIAL MEDIA, BLOG, PRESS RELEASE)

Landscaping for Clean Water Workshops

Create an addition to your home landscaping that is not only attractive, but will benefit our lakes, streams and wetlands! Landscaping for Clean Water workshops will help you beautify your landscape and provide cleaner water.

The Dakota County Soil and Water Conservation District is hosting ten Landscaping for Clean Water workshops which provide an overview of water quality challenges in Dakota County and provide beautiful and practical ways of reducing runoff pollutants that are causing issues. The Landscaping for Clean Water program makes it easy to realize the positive impacts raingardens, native gardens, and shoreline stabilizations can have on your aesthetic and environmental surroundings.

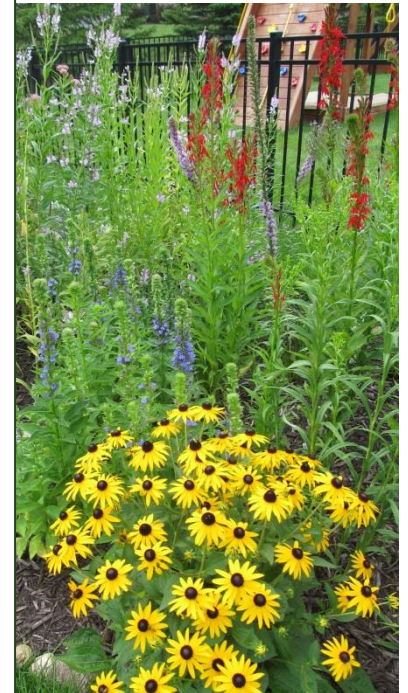
Attendance at the introductory course is free, but registration is required. After attending an introductory workshop, sign up to attend a \$25 raingarden design course where you will receive design assistance to create a functioning raingarden specific to your own yard. Participants of the design course will be eligible to receive a \$250 grant for the installation of their native garden, raingarden, or native shoreline planting.

Visit www.dakotaswcd.org or call 651-480-7777 for more details.

"The resources we got through the workshops are phenomenal! I found that the advice you all had to offer regarding the process was ALWAYS the right way to go."

"The best hands-on workshop I've ever been to"

-Dakota County Residents



Collaboration - Outreach

LANDSCAPING FOR CLEAN WATER WORKSHOPS

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Online: www.dakotawcd.org
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Mail: Dakota County SWCD
4100 220th Street West, Suite 102
Farmington, MN 55024

Register Now!

Yes I will attend the Landscaping for Clean Water Workshop checked below:

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Name:
Address:
City:
State: Zip:
Phone:
Email:

Comments:

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Search...

GO

The first 100 people get a \$10 gift card!

WEDDINGS

MUNITY GUIDES

AL SPECIAL SECTIONS

ORSHIP GUIDE

LAR REGIONAL NEWS

hop to open in Lakerville
ning teachers
ria prompts containment at Century

o votes to cut positions, services
ee High School in lock down for 30
11/10

ashington County deputy fires
treat dies after mental health crisis
5mo

ase in progress for recent FL planning
er

n to lose longtime neighborhood
pre

ants sentenced in Bloomington

Pland Schools \$5 000 million bond referendum
passes 995 to 816

Turn Debits Into

Introduction Presentation

Burnsville



10 Introduction Presentations

Held throughout Dakota County to discuss water ISSUES, loss of pollinator habitat and native plants, and SOLUTIONS to those problems

Dakota County Library



Eagan



Introduction Presentation

Goals:

- Common understanding
- Why should I care?
- History of development & its human impacts
- Problems – local
- Solutions – limit options
- Show that others have done these size projects
- Beautification of property





1: Why Native Gardens?



Why Raingardens?



Why Native Shoreline Plantings?

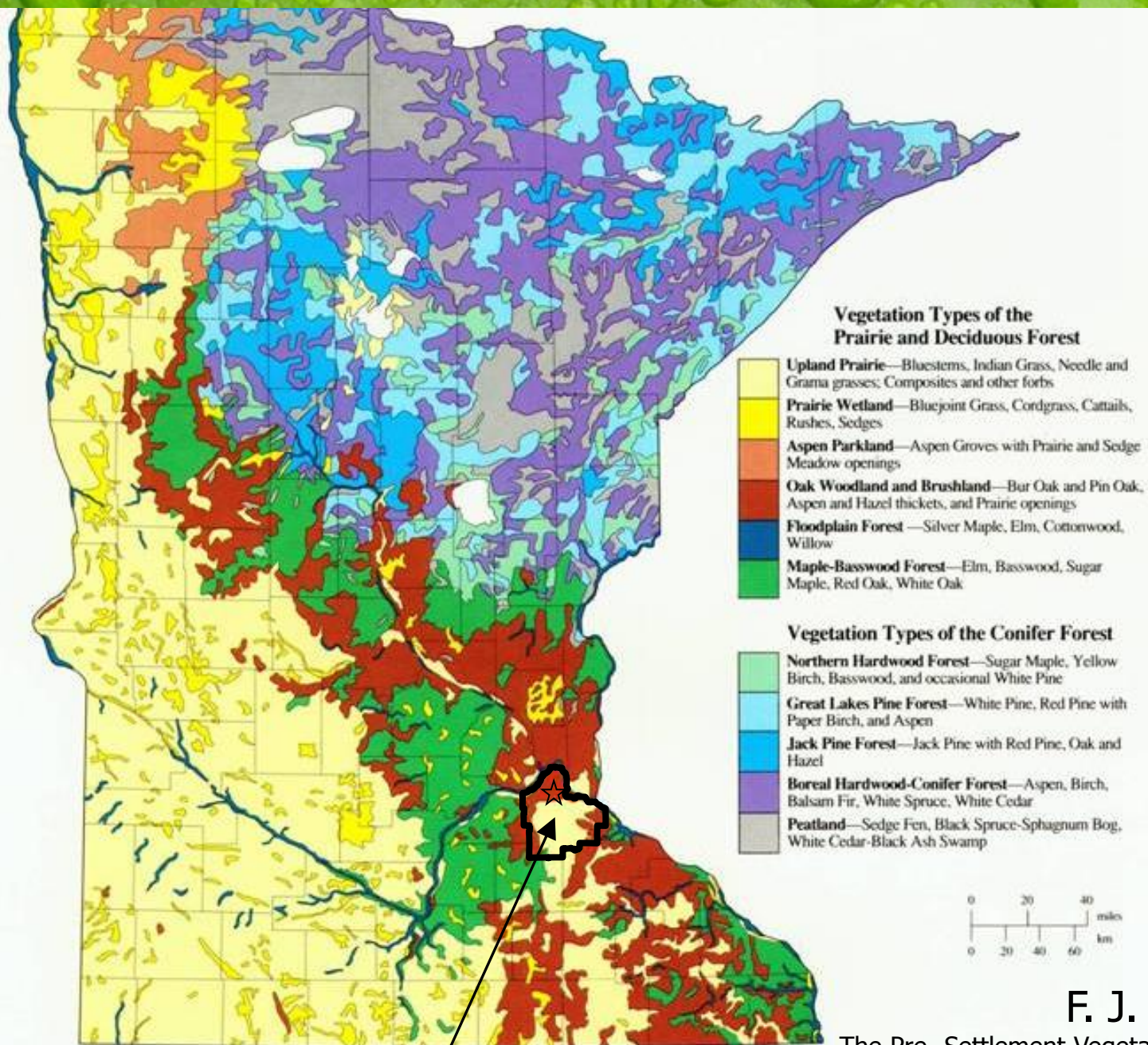


DAKOTA COUNTY SWCD



**...Native Plants were
here first. . .**





Dakota County

F. J. Marschner
 The Pre- Settlement Vegetation of Minnesota
 info from Public Land Survey: 1847-1907

Native Plants Come In All Colors, Shapes, & Sizes!

Ox-eye Sunflower



Purple Coneflower



Turtlehead



Blue False Indigo

DAKOTA COUNTY SWCD

Why Native Gardens?



2: Why Raingardens?



Why Native
Shoreline Plantings?

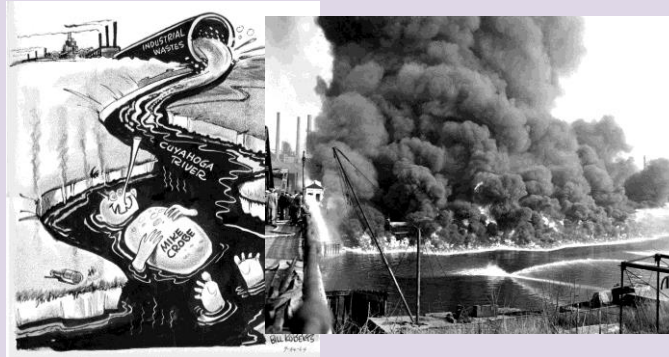


DAKOTA COUNTY SWCD

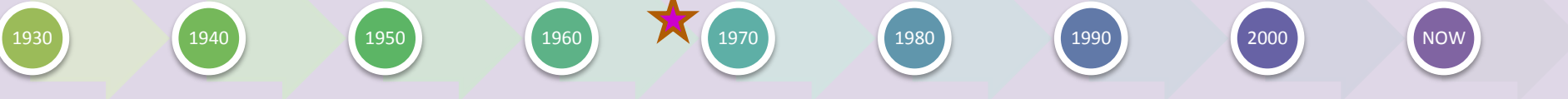
Brief History of Water Issues



New
Industrial Age



Clean Water Act



Increased Agricultural Production

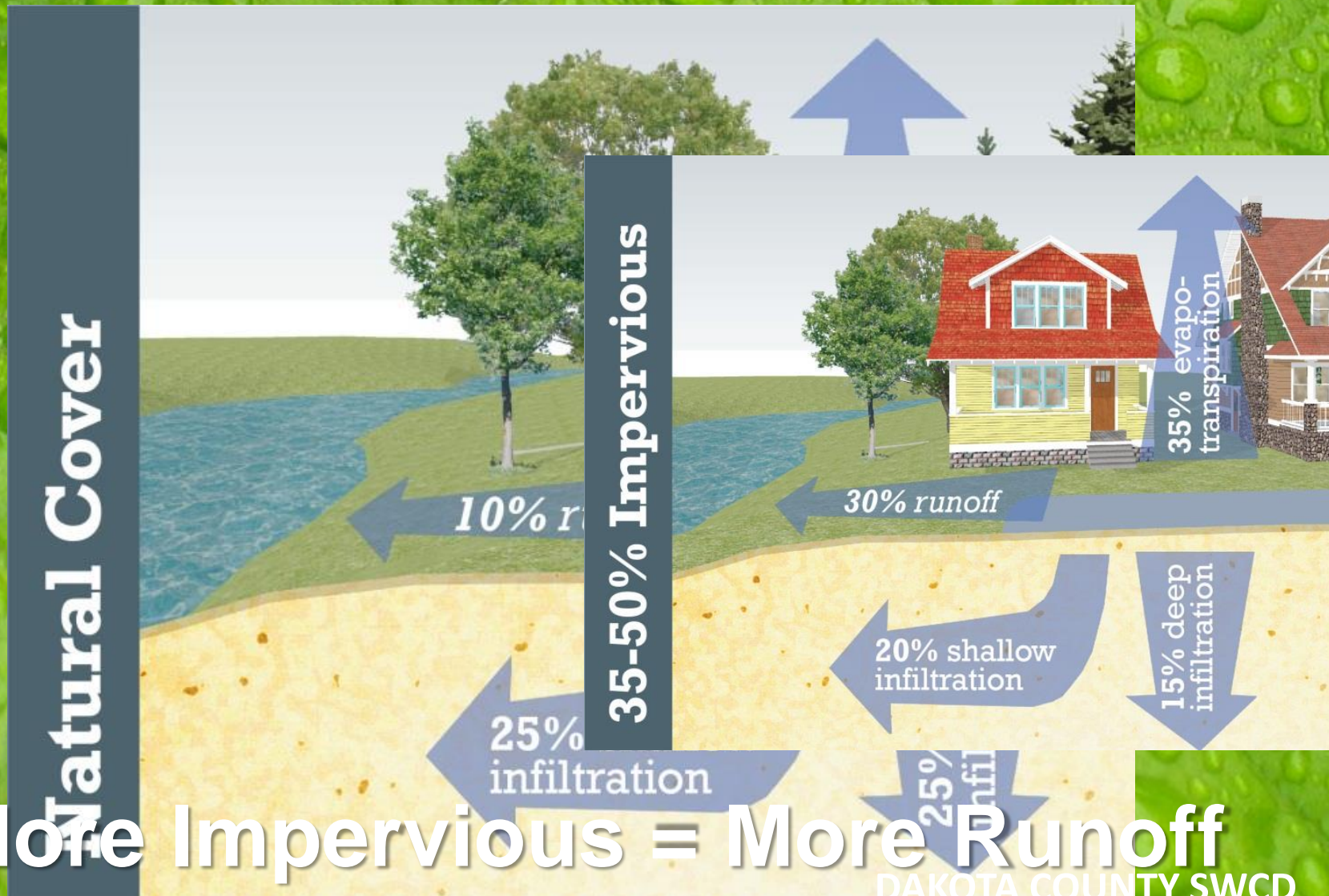


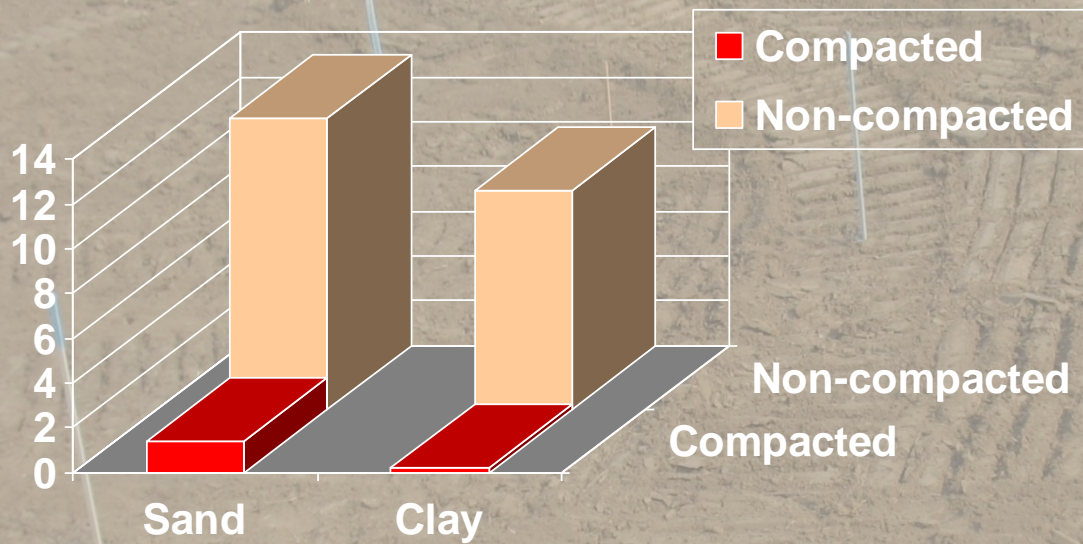
Clean Water Rule



DAKOTA COUNTY SWCD

Environmental Impacts of Urban Development





Infiltration Rates	Non-compacted (in/hr)	Compacted (in/hr)
Sand	13 in/hr	1.4 in/hr
Clay	9.8 in/hr	0.2 in/hr

Pitt, et al

**Typical
Residential
Property**

Compacted Lawn

8,390 square feet x 1" rain

= 3,880 gallons of runoff

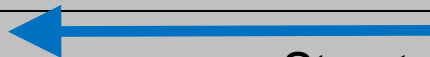
1,500 s.f. house x 1" rain

= 925 gallons of runoff

1,000 s.f.
driveway x
1" rain

**= 617
gallons
of runoff**

Storm drain



Street

In a 1" rainfall
Potential Runoff:

5,422 gallons

Annual precip ~
30 inches

**171,532
gallons/yr**



Storm Drain

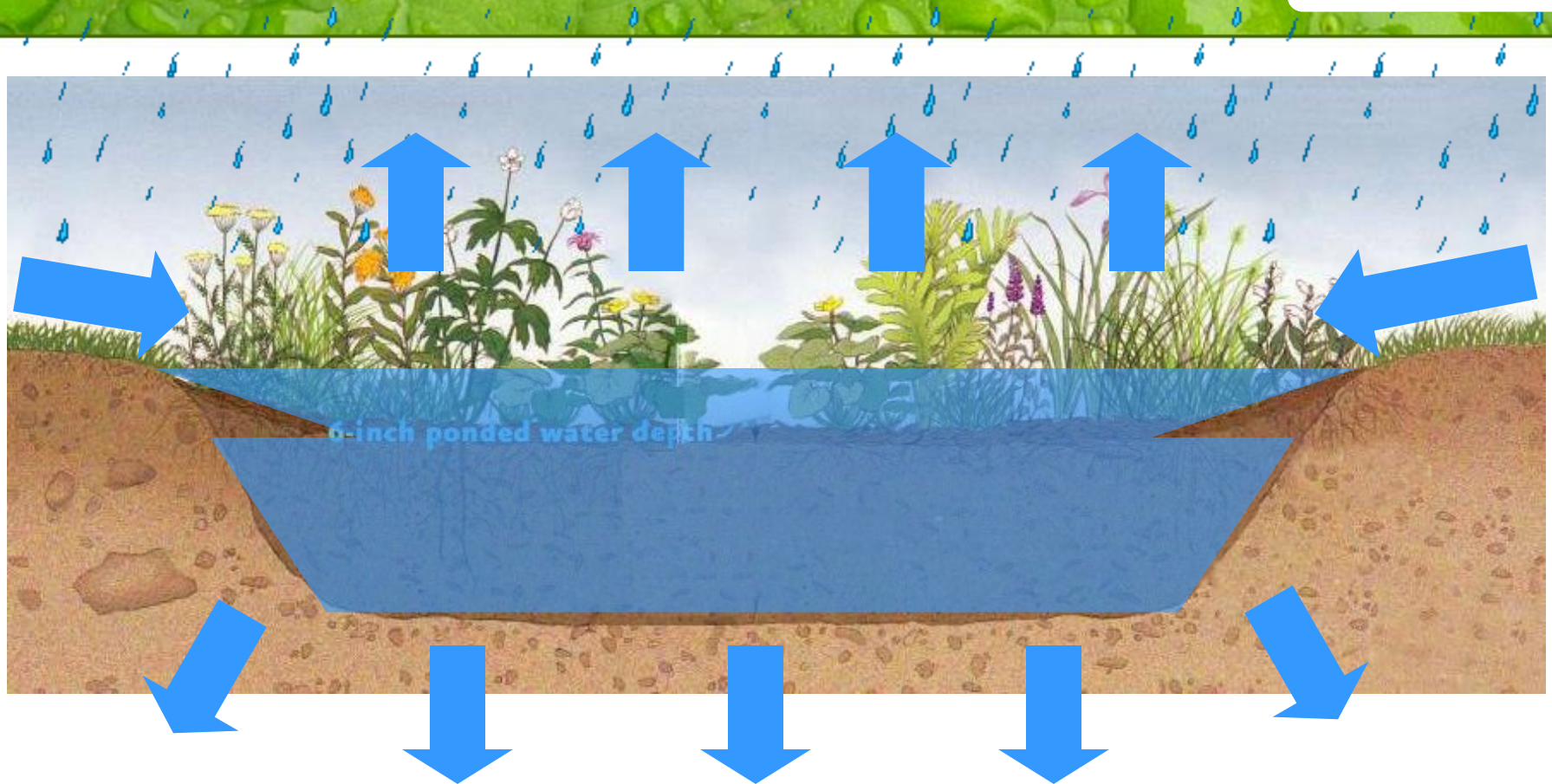
Gunk

**Gunk = sediment, nutrients
(phosphorus), bacteria,
organic matter, oil, brake
dust, heavy metals, etc.**

**...then piped directly to
Wetland, Lake or Stream
Untreated.**

DAKOTA COUNTY SWCD

Install a Raingarden!



Just like a regular planting, but able to absorb rainwater and breakdown pollutants



Lakeville

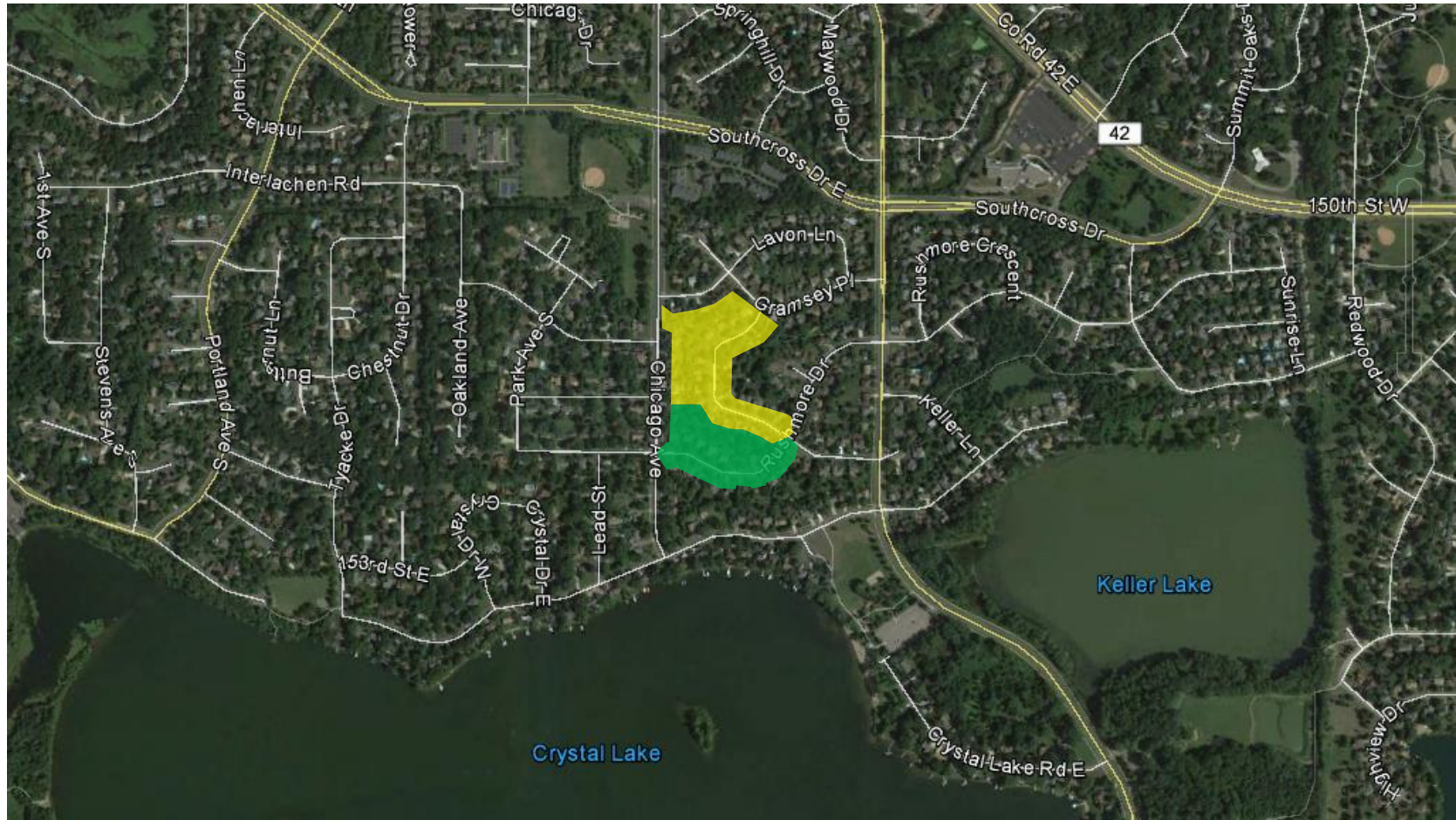
Dakota SWCD



Lakeville

Dakota SWCD

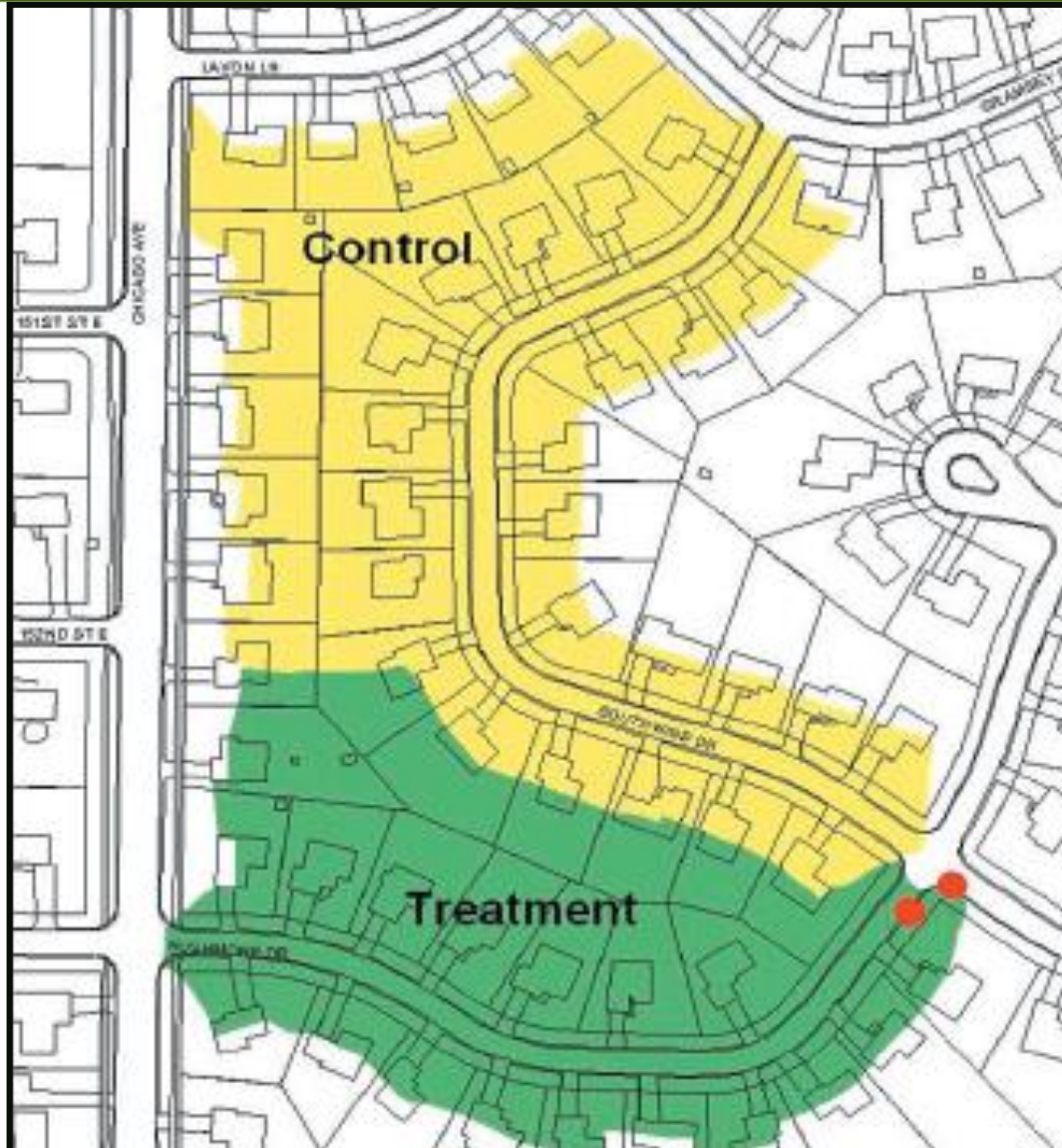
Raingardens for Entire Neighborhoods



Rushmore Drive Burnsville

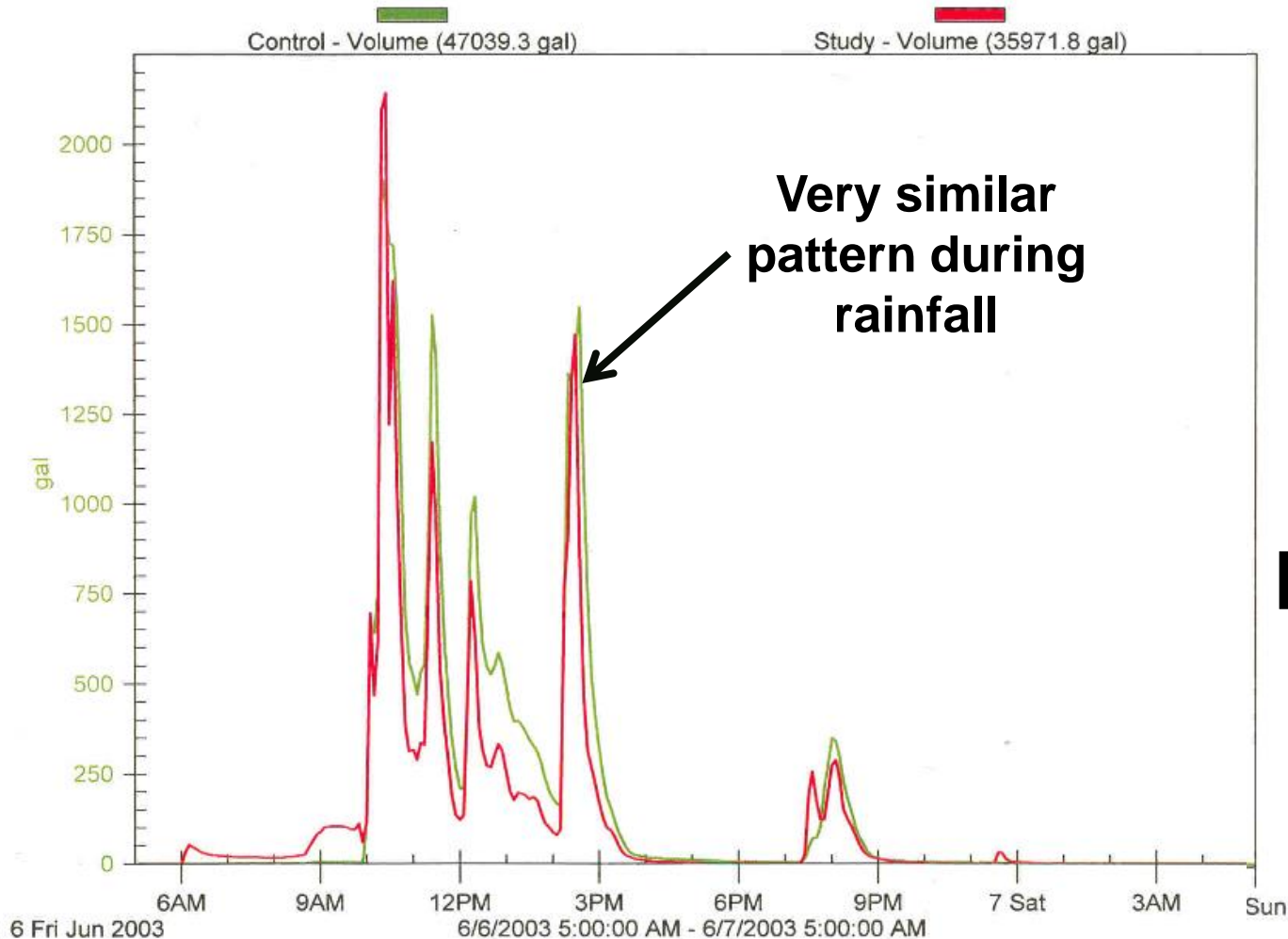
Two identical neighborhoods: 17 raingardens installed in one of them

Raingardens for Entire Neighborhoods



Raingardens for Entire Neighborhoods

Pre-Construction Runoff Volumes
June 6, 2003 - 0.57" Rainfall



**Monitoring
Results
Before
Raingardens**

Raingardens for Entire Neighborhoods

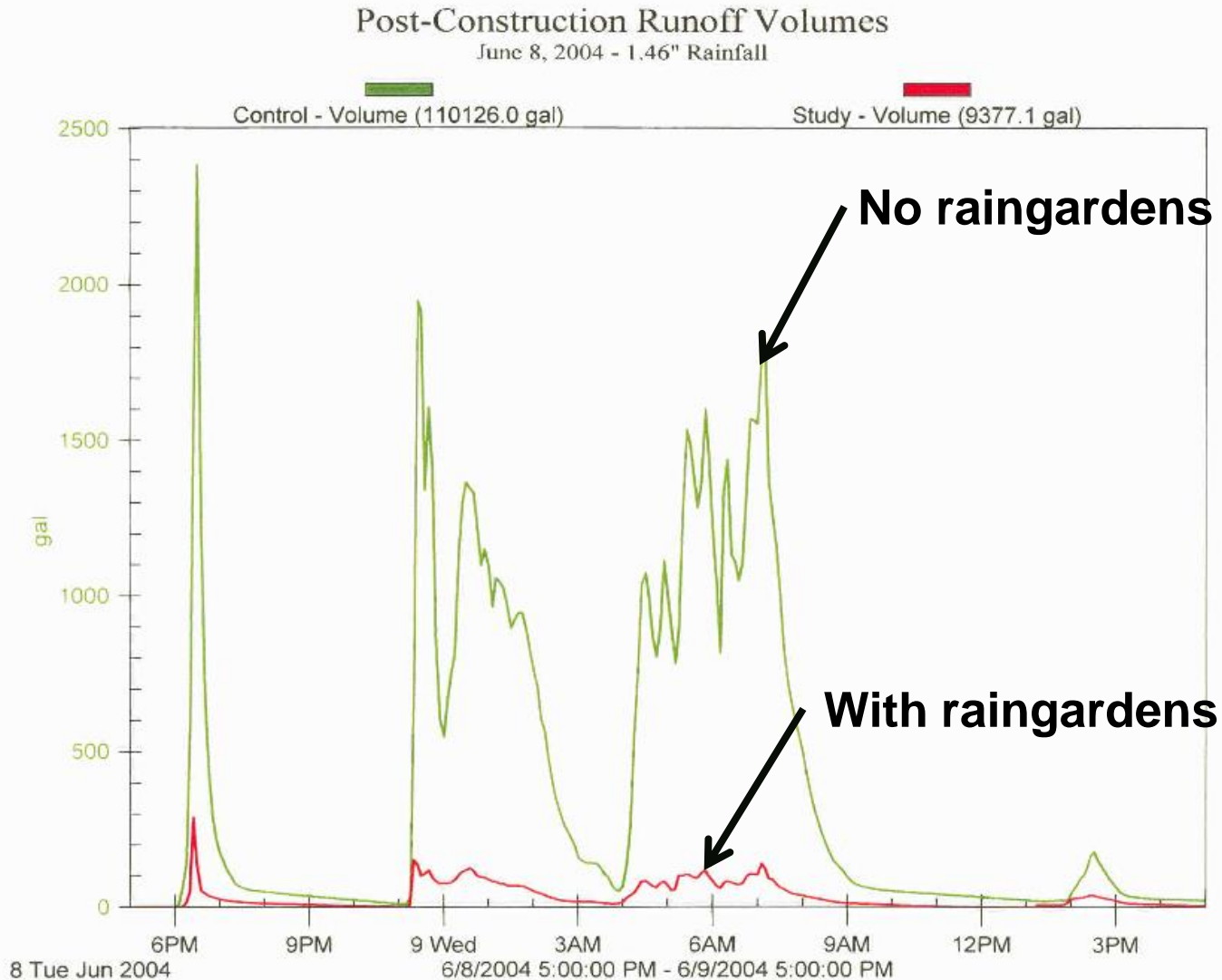


Burnsville – Rushmore Drive

5.3 acres - 25 Homes - 17 Raingardens

Designed by: Barr Engineering

Raingardens for Entire Neighborhoods



**Monitoring
Results
After**

**85%
Reduction
in Volume**

**Where did
the water
go?**



BEFORE



AFTER

DAKOTA COUNTY SWCD 8.2.2004

Why Native Gardens?



Why Raingardens?



**3: Why Native
Shoreline
Plantings?**



DAKOTA COUNTY SWCD

Value / Function of Native Shorelines



Shoreline Vegetation

(erosion-control, water quality, wildlife habitat, high plant diversity = high wildlife diversity)

Emergent Vegetation

(water quality, erosion-control & wildlife habitat)

Tree Stumps

(wildlife habitat & water quality)

Drifted-in Logs & Snags

(wildlife habitat, erosion control & water quality)



DAKOTA COUNTY SWCD





During

Thompson Lake, West Saint Paul



Soft-stem Bulrush

Marsh
Milkweed

Prairie Cordgrass

Arrowhead

Sweet Flag

1 year after planting

Thompson Lake, West Saint Paul

Designing for Aesthetic Appeal

Informal vs. Formal



DAKOTA COUNTY SWCD