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

- Vermillion River
- Mississippi River
- Cannon River
- Lake Marion
- Lebanon Hills
- Spring Lake
- Thompson Lake
- Lake Byllesby
- Trout Brook
General Land Use

- Primarily Urban
- Transitional
- Primarily Rural
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
Partnerships **VITAL** to achieve common goals
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!
Dakota County SWCD

• 10 Year Comprehensive Plan
• Strategic Plan

Other Organizations

• Watershed Plans
• Local Water Plans
• County Water Plans

Everything Starts with a Plan
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

Before

After
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

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)
What is Landscaping for Clean Water?

1. Learn
2. Plan/Design
3. Apply
4. Install
5. Enjoy!
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
Partner Goals
Watershed Management Orgs.

Vermillion River Watershed JPO

10 Year Watershed Management Plan, Goals, Objectives, and Actions Section 6.1, Roles of VRWJPO

- 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.
City Goals & Responsibilities
Municipal Separate Storm Sewer System

1972 Clean Water Act

EPA responsible for enforcement of the federal law

State given authority to implement federal law

State sets minimum requirements, including annual reporting.

City ordinances and programs to comply with MS4 Permit

Minimum Control Measures

National Pollutant Discharge Elimination System (NPDES)

MPCA Issues MS4 Permit

Minnesota Pollution Control Agency
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
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 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.

INNER GROVE HEIGHTS - WEDNESDAY, APRIL 4
Veterans Memorial Community Center, 8053 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

Please register by:

Phone: (651) 486-7777
Online: www.dakotacwcd.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:

☐ Apple Valley - Wednesday, February 28
☐ Burnsville - Monday, March 7
☐ Farmington - Tuesday, March 27
☐ Inner 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
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 rain gardens, 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 rain garden design course where you will receive design assistance to create a functioning rain garden 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, rain garden, or native shoreline planting.

Visit [www.dakotaswcd.org](http://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
Landscaping for Clean Water Workshops

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PLEASE REGISTER BY:
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Online: www.dakotawcd.org
Email: swcd@co.dakota.mn.us
Mail: Dakota County SWCD
4100 230th Street West, Suite 102
Farmington, MN 55024

Hosted by Dakota County SWCD in partnership with the below cities:
- Apple Valley
- Burnsville
- Cottage Grove
- Eagan
- Farmington
- Inver Grove Heights
- Lakeville
- Rosemount
- Savage
- Savage Mill

Workshop funding provided by:
- The Minnesota Valley Watershed Management Organization
- Minnesota Valley Watershed Management Organization: Lower Minnesota River Watershed Management Organization
- Lower Minnesota River Watershed Management Organization:
- Eagan-Inver Grove Heights Watershed Management Organization
- Savage Mill Watershed Management Organization

To register, visit www.dakotawcd.org/opportunities

Landscaping for Clean Water Workshop:

Register Now!

Are you interested in sprinting in the right direction and being concerned about the environment? Would you like to do something about it? Come and see great affordable shoreline stabilizations workshops with local experts who will be installed in Dakota County to help benefit the environment - great place to start!

Register Now!

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

Comments:

Submit Registration

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Introduction Presentation

10 Introduction Presentations

Held throughout Dakota County to discuss water ISSUES, loss of pollinator habitat and native plants, and SOLUTIONS to those problems.
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?
Native Plants were here first...
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

Native plants come in all colors, shapes, and sizes!
2: Why Raingardens?

Why Native Gardens?

Why Native Shoreline Plantings?
Brief History of Water Issues

1930 - 1940: New Industrial Age

1950 - 1960: Increased Agricultural Production

1970: Clean Water Act

1980 - 1990: Clean Water Rule

Now: I Love Clean Water
Environmental Impacts of Urban Development

More Impervious = More Runoff
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<th>Non-compacted (in/hr)</th>
<th>Compacted (in/hr)</th>
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<td>Clay</td>
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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

In a 1” rainfall
Potential Runoff:
5,422 gallons

Annual precip ~ 30 inches
171,532 gallons/yr
...then piped directly to Wetland, Lake or Stream Untreated.

Gunk = sediment, nutrients (phosphorus), bacteria, organic matter, oil, brake dust, heavy metals, etc.
Install a Raingarden!

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

Concept - Gregg Thompson, Illustration - Taina Litwak, Animation - Ron Struss
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

Monitoring Results Before Raingardens

Very similar pattern during rainfall

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

Control - Volume (47039.3 gal)
Study - Volume (35971.8 gal)
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?

Post-Construction Runoff Volumes
June 8, 2004 - 1.46” Rainfall

Control - Volume (110126.0 gal)
Study - Volume (9377.1 gal)

No raingardens

With raingardens
Why Native Gardens?

Why Raingardens?

3: Why Native Shoreline Plantings?
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)

Drifted-in Logs & Snags
(wildlife habitat, erosion control & water quality)

Tree Stumps
(wildlife habitat & water quality)

DAKOTA COUNTY SWCD
Soil loss to erosion from mowing to water’s edge

Coon Lake, MN

DAKOTA COUNTY SWCD
During Thompson Lake, West Saint Paul
1 year after planting

Soft-stem Bulrush

Marsh Milkweed

Prairie Cordgrass

Arrowhead

Sweet Flag

Thompson Lake, West Saint Paul
Designing for Aesthetic Appeal

Informal vs. Formal

DAKOTA COUNTY SWCD