

# Implementing and Sustaining a Rain Garden Program at the Local Government Level



by

Rusty Schmidt



Washington Conservation District



This is all about  
Planning for the  
future.

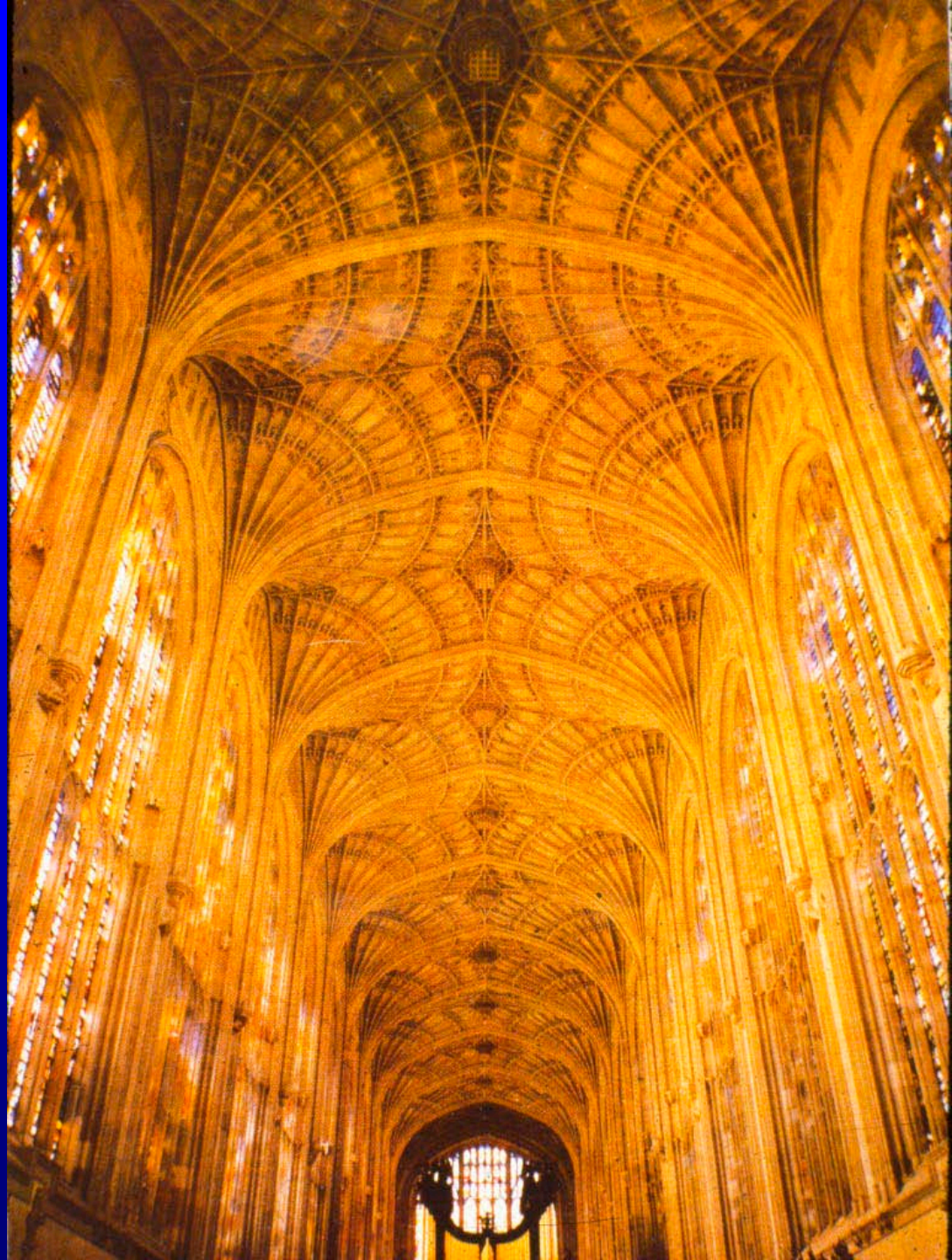
How far out are  
you planning?

# King's Chapel

Here's the roof of King's Chapel. Cambridge England.

Started to build in 1446 by an unknown architect.

In the church covenant a plantation of English oaks were planted at the same time for use as replacement beams.



# Minor History on Raingardens in Minnesota and the MidWest

# Maplewood, MN

So many rain gardens...Such a small city



30,000 person city,

Almost 450 raingardens  
over the past 13 years.

# FIRST CITY RAINGARDENS IN MN



Raingardens have been designed into all new roadway improvement projects.

Decrease in cost of infrastructure including curb and gutter and stormwater pipes.

# Maplewood, MN

Main goal for the city is to improve water quality.



Maplewood is the leader in rain gardens within Minnesota.

Want more information: just 'Google' Maplewood & Rain Gardens.

# Maplewood, MN

Most of the Gardens are on residential streets in residential yards.



Citizens volunteer for a free rain garden during construction. They sign an agreement to maintain that Garden.



# Maplewood, MN

The public gardens are designed to educate plus protect local lakes.

95% of the homeowners maintain their gardens, even after sale of the homes.





*Examples of rain gardens*

Photo: Maplewood, MN

# Burnsville, MN

## A Municipal Success Story



Barr Engineering Study; Presented By Rusty  
Schmidt, URS

# Burnsville, MN

Residential  
Neighborhood

Rain Garden Retrofits  
Long-Term Monitoring



AFTER



BEFORE

# Burnsville, MN

## Paired Study of Residential Street Runoff Control

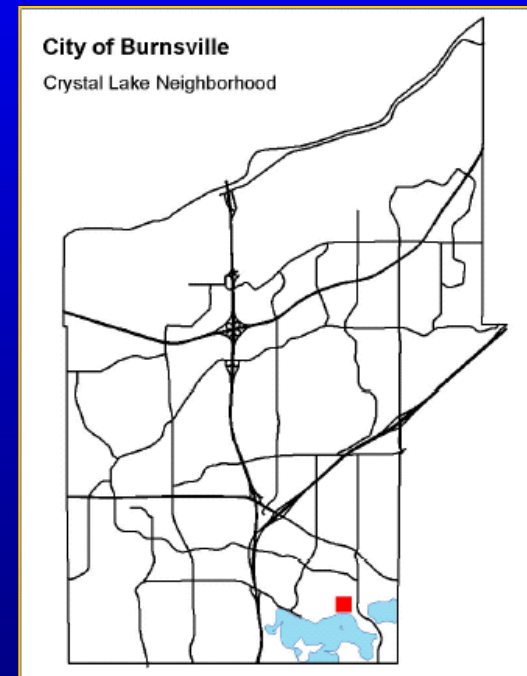
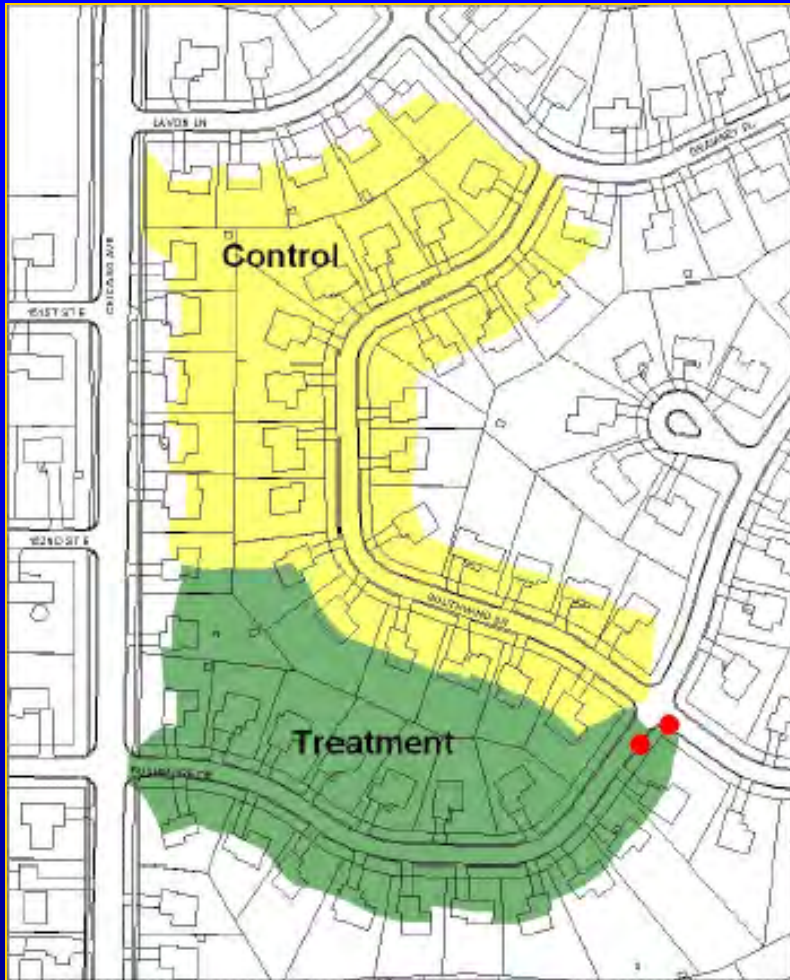


Diagram courtesy of the City of Burnsville, MN from their  
Burnsville Stormwater Retrofit Study

# Burnsville, MN

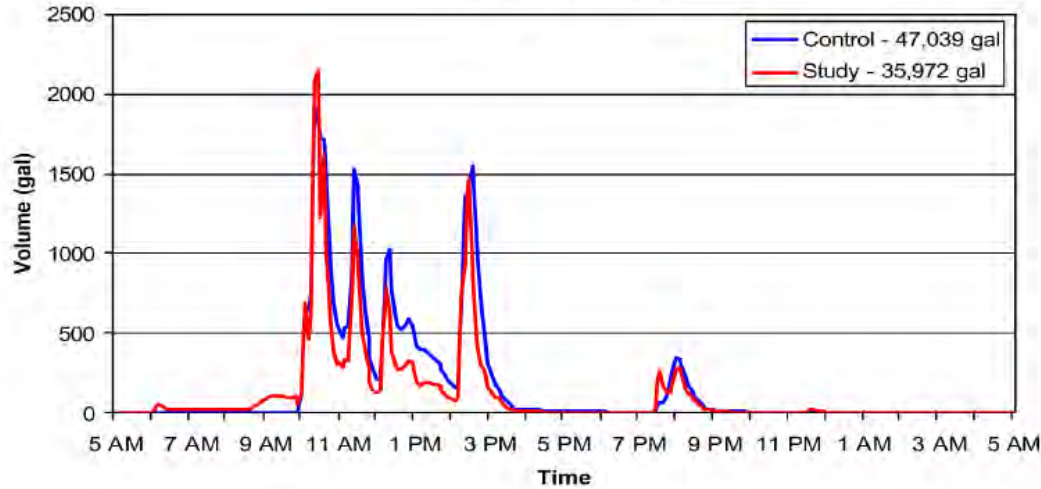


Diagram courtesy of the City of Burnsville, MN from their  
Burnsville Stormwater Retrofit Study

### Pre-Construction Runoff Data

June 6, 2003

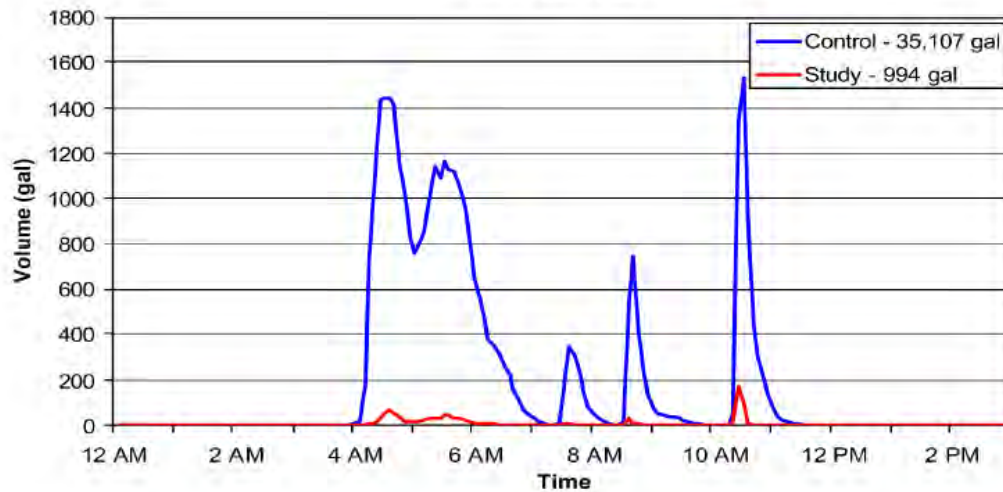
0.50" Rainfall



### Post-Construction Runoff Data

May 29, 2004

0.71" Rainfall



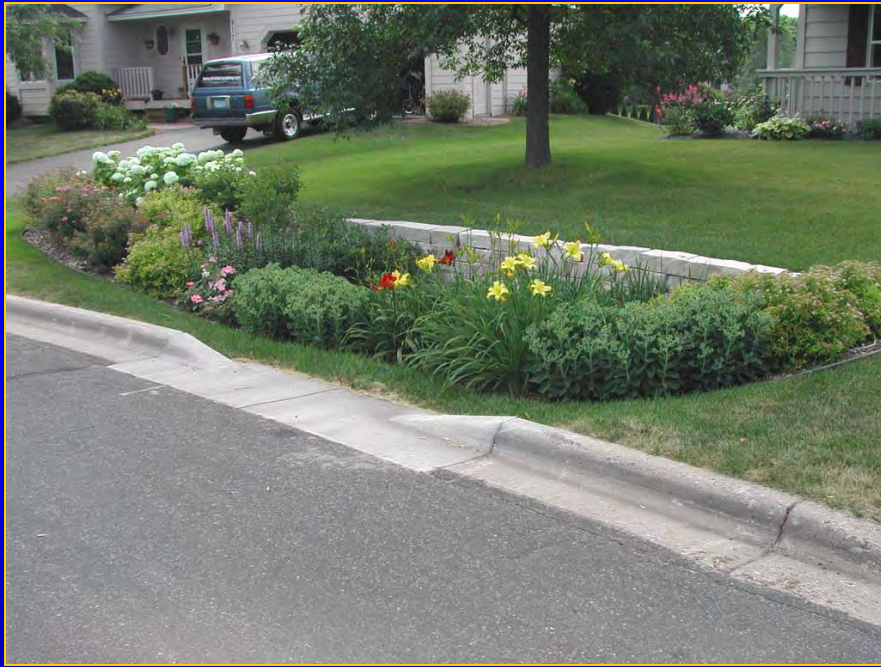
# Burnsville, MN

Blue: Control

Red: With Rain  
Gardens

Diagram courtesy of the City of  
Burnsville, MN from their Burnsville  
Stormwater Retrofit Study

# Burnsville, MN





City of Burnsville  
Designed by: Barr Engineering



8. 2. 2004

City of Burnsville  
Designed by: Barr Engineering



10.4.2004



Rain Gardens:

- Public Involvement
- for Water Quality

10,000  
Rain  
Gardens 

# What's 10,000 Raingardens All About?

- Educating the public about water quality, sewer and stormwater concerns
- Promoting green solutions
- Encouraging funding for required sewer and stormwater improvements



## Rain Gardens:

- Public Involvement
- for Water Quality

# THE COMMERCIALS

- Start of the public Educating about water quality, sewer and stormwater concerns
- KC Mayor and the two Major County Officials.

10,000  
Rain  
Gardens

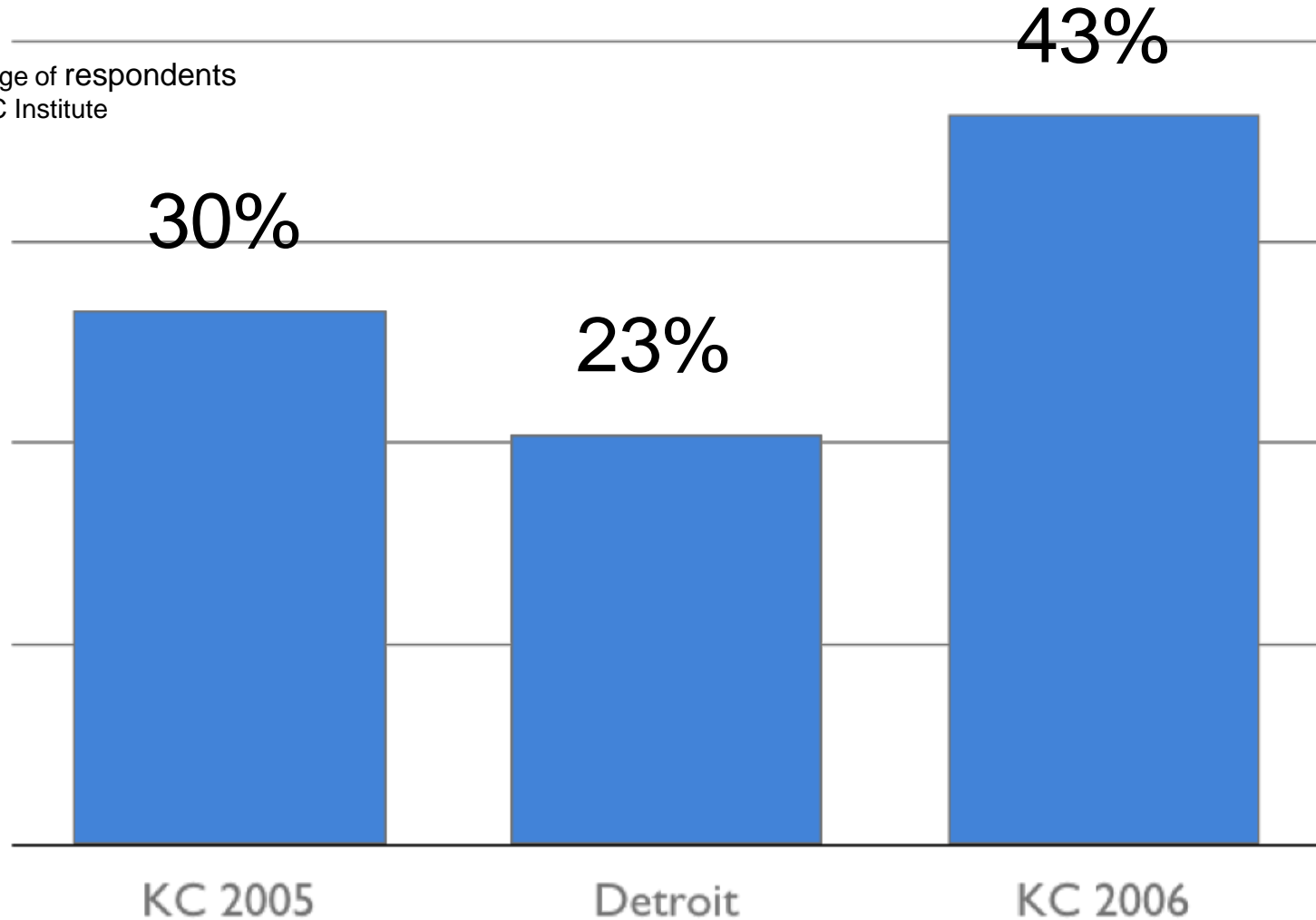


## Rain Gardens:

- Public Involvement
- for Water Quality

# Percentage of residents who thought stormwater was the primary source of pollution for lakes, rivers, and streams

by percentage of respondents  
source: ETC Institute



# Media Response

- EPA website:  
[epa.gov/nps/lid/](http://epa.gov/nps/lid/)
- Columbia News Service, NY
- Public Works Magazine
- House and Garden Magazine
- Kansas City Star







# Public Participation

- Kids + Gardens = A Winning Combination



# AWARDS



- Honorable Mention for the **U.S. Conference of Mayors City Livability Award, 2006**
- **Sustainlane** city ranking #18, in part due to the best national water quality and the 10,000 Rain Gardens initiative

# Garden Angels

- Field of Interest fund managed by the Greater KC Community Foundation
- Donations buy rain garden plants for non-profits, schools, etc.

garden  
angels



# Faith Organizations



- Many houses of worship teach stewardship of the earth as part of their ministry

# RainKC.com

- Rain garden how-to's
- E-newsletter
- Presentations and workshops
- Register your garden

10,000  
Rain  
Gardens



# Cincinnati, OH

- Started to copy KC but has a few ordinance issues that need to be overcome.
  - Downspout Disconnection
  - Weed Ordinance (10" or less)



# Lexington, KY and Toledo, OH

- 2010 by 2010 Program Started this year in Lexington.
- Working with American Rivers to start raingarden program in Toledo in 2006/2007.



# Blue Thumb



PLANTING FOR CLEAN WATER™





# Ways Your Blue Thumb Can Help Keep Water Clean:

## Design Native Gardens

They are beautiful, cost less and require less maintenance than lawn grass



## Create a Raingarden

Filter dirty stormwater from streets and rooftops before it enters our lakes and rivers



## Stabilize Shorelines

Roots of native plants are extremely long so they anchor the soil and filter out pollutants as well as discourage geese from congregating



PLANTING FOR CLEAN WATER™

Visit [blue-thumb.org](http://blue-thumb.org) for how-to's, blueprints, retailers and more



# Products Created



Media Campaign

Books

Nursery Tags

Videos



# *Native Gardens*



Garden from:  
**Rice Creek Watershed District**



Designed & Installed by:  
**Energyscapes**



Designed by:  
**Savanna Designs**



Designed by:  
**Savanna Designs**



# *Raingardens*





Garden from: :  
**Rice Creek Watershed District**



Designed by:  
**Savanna Designs**



Before

*Before and after pictures*

Photo: Shawn Tracy; Earth Wizards, Inc.



Year 2

*Before and after pictures*

Photo: Shawn Tracy; Earth Wizards, Inc.



# *Native Shoreline Stabilization*



Designed & Installed by:  
**Energyscapes**



**Gustafson Residence**  
Lake Johanna – Ramsey County  
photo by RCWD



Designed by:  
**Savanna Designs**



# Ways Your Blue Thumb Can Help Keep Water Clean:

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# PLANT SELECTOR

Use this tool to help choose the best native plants for your particular situation. Choose as many of the criteria as you want from the fields below and the plants matching your needs will be chosen from the total list.

### Criteria

**Type:**

**Environment:** Soil Moisture:  Upland  Transitional  Wetland

Sun Exposure:  Sun  Partial  Shade

**Bloom:** **Color:**  **When:**

[Clear All](#)

### Plant List

Plant	Type	Sun Exposure	Soil Moisture	Bloom Color	Blooms From
<a href="#">Alumroot</a> <i>Heuchera richardsonii</i>	Flower/Forb	Sun Partial	Upland	Green	May-June
<a href="#">Aromatic Aster</a> <i>Aster oblongifolius</i>	Flower/Forb	Sun	Upland	Blue	September-October
<a href="#">Arrowhead</a> <i>Sagittaria latifolia</i>	Flower/Forb	Sun Partial		White	July-August
<a href="#">Azure Sky (Blue) Aster</a> <i>Aster oolentangiensis</i>	Flower/Forb	Sun Partial	Upland	Blue	September-October
<a href="#">Bebbs Sedae</a>					



# Local assistance available!!!





*Touch Free* CAR WASH





# Blue Thumb Parties







Blue  
Thumb   
PLANTING FOR CLEAN WATER™



Visit [blue-thumb.org](http://blue-thumb.org) for how-to's, blueprints, retailers and more

# Municipal Raingarden Programs in MN:



- Plymouth, MN
- Minneapolis, MN
- Duluth, MN



# Plymouth, MN

- 4 Watersheds = 4 Storm Water Management Plan. So Plymouth made their own.
- Included a financial mechanism for stormwater
- 800 stormwater ponds
- \$600,000 to maintain those 800 ponds annually on a 15 year cycle
- 20% of land still available for development

# Plymouth, MN

- Requires New and Re-Developments within the City to install BMP's to Improve Water Quality and capture the Water Quality Event for 4 Watersheds and Many High Quality Lakes



# Plymouth, MN



Typically, that BMP is a rain garden.

# Plymouth, MN

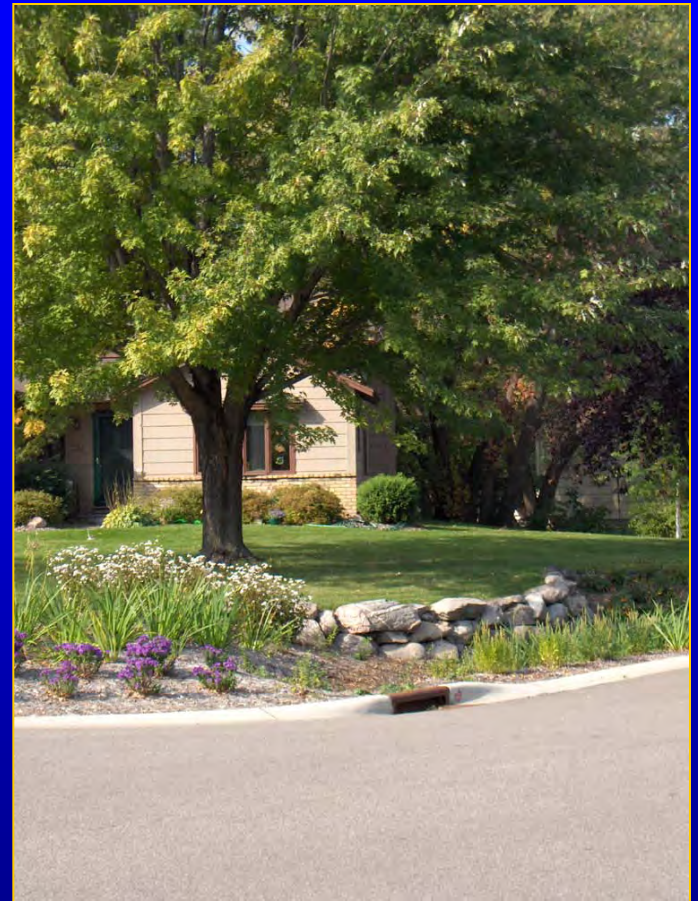


Filtering Street  
Runoff to Protect  
a Nearby Lake



# Plymouth, MN

6% of lake watershed  
protected by just 3 well-  
placed rain gardens



# Minneapolis Stormwater Fee

In Spring of 2005, the City of Minneapolis adopted the Stormwater Ordinance.

Ordinance changed how residents are billed. A separate line item on City's utility bill is for a Stormwater fee.

For More information:

[http://www.ci.minneapolis.mn.us/stormwater/what-we-do/Stormwater\\_Mngmnt\\_FeeCredits.asp](http://www.ci.minneapolis.mn.us/stormwater/what-we-do/Stormwater_Mngmnt_FeeCredits.asp)



# Minneapolis Stormwater Fee

The City's Stormwater Credit Program gives people incentives to implement effective stormwater management practices on their properties.

Water Quality = 50% Reduction of Fee

Water Quantity = 50 to 100% Reduction of Fee

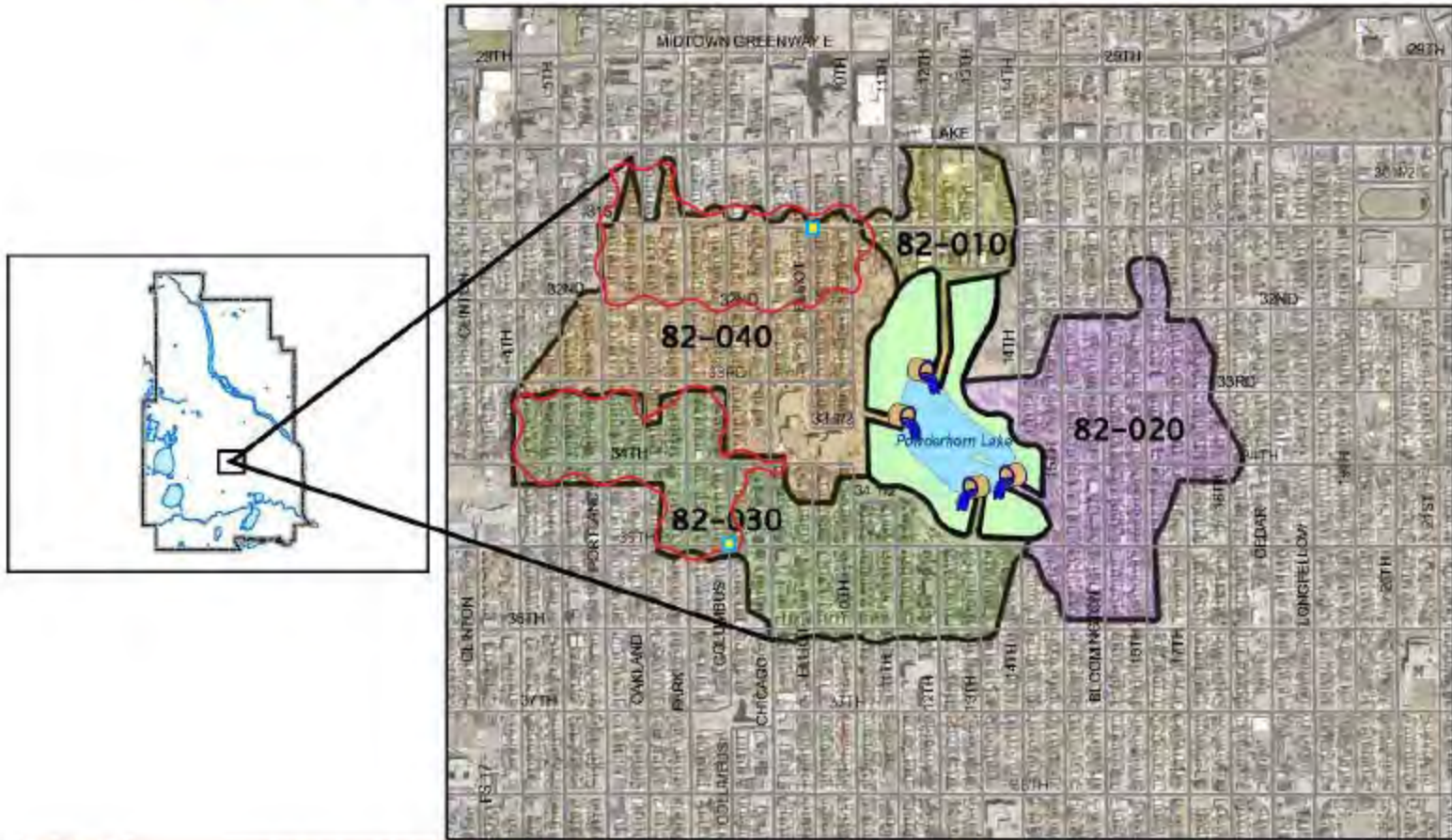
# DULUTH'S PILOT PROJECT

Lack of a Better Term:

**THE BUCKET BRIGADE**



# Sub-Watersheds Draining to Powderhorn Lake



Outfall Number	Total Acres	Residential Percentage	Population
82-010	23.5	72%	457
82-020	73.5	94%	1,285
82-030	90.0	91%	1,998
82-040	98.5	85%	1,881
Total	285.51	88%	5,621

## What Do Ten Tons of Algae Look Like?

For starters, it looks like 100 bags of leaves. On two separate dates in October, participants in the Metro Blooms Powderhorn Lake Neighborhood of Raingardens project picked up more than 100 bags of leaves from neighborhood streets to keep the leaves from washing into storm drains and into Powderhorn Lake.



At 20 pounds per bag = 2000 pounds.

Each pound contains enough phosphorous to bloom up to 10 pounds of algae.

Thank You!

