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?
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.
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 raingardens

Photo: Maplewood, MN
Burnsville, MN
A Municipal Success Story

Barr Engineering Study; Presented By Rusty Schmidt, URS

Photo: Rusty Schmidt, URS
Burnsville, MN

Residential Neighborhood
Rain Garden Retrofits
Long-Term Monitoring

Photos Courtesy of Rice Creek Watershed District
Burnsville, MN

Paired Study of Residential Street Runoff Control

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

Blue: Control
Red: With Rain Gardens

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

Photos: Rusty Schmidt, URS
City of Burnsville
Designed by: Barr Engineering
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.

Rain Gardens:

• Public Involvement
• for Water Quality
Percentage of residents who thought stormwater was the primary source of pollution for lakes, rivers, and streams

- KC 2005: 30%
- Detroit: 23%
- KC 2006: 43%

by percentage of respondents
source: ETC Institute
Media Response

- EPA website: epa.gov/nps/lid/
- Columbia News Service, NY
- Public Works Magazine
- House and Garden Magazine
- Kansas City Star
Media Response

• Local Newspaper Coverage for Community Planting Events
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.
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
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.
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

Visit blue-thumb.org for how-to's, blueprints, retailers and more
Native Gardens
Garden from:
Rice Creek Watershed District
Raingardens
Garden from: Rice Creek Watershed District
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
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: Any

Environment: Soil Moisture: Sun Exposure:
- Upland
- Transitional
- Wetland
- Sun
- Partial
- Shade

Bloom: Color: Any

When: Any

Submit Query  Clear All

Plant List

<table>
<thead>
<tr>
<th>Plant</th>
<th>Type</th>
<th>Sun Exposure</th>
<th>Soil Moisture</th>
<th>Bloom Color</th>
<th>Blooms From</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alumroot, Heuchera richardsonii</td>
<td>Flower/Forb</td>
<td>Sun Partial</td>
<td>Upland</td>
<td>Green</td>
<td>May-June</td>
</tr>
<tr>
<td>Aromatic Aster, Aster oblongifolius</td>
<td>Flower/Forb</td>
<td>Sun</td>
<td>Upland</td>
<td>Blue</td>
<td>September-October</td>
</tr>
<tr>
<td>Arrowhead, Sagittaria latifolia</td>
<td>Flower/Forb</td>
<td>Sun Partial</td>
<td>Upland</td>
<td>White</td>
<td>July-August</td>
</tr>
<tr>
<td>Azure Sky (Blue) Aster, Aster coelantagensis</td>
<td>Flower/Forb</td>
<td>Sun Partial</td>
<td>Upland</td>
<td>Blue</td>
<td>September-October</td>
</tr>
<tr>
<td>Bebbs Sedae</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
PARTNERS

Capitol Region Watershed District
1410 Energy Park Dr. Ste. 4
St. Paul MN 55108
Phone: 651-644-8888
elizabeth@capitolregionwd.org
Established in 1998, the Capitol Region Watershed District covers 40 square miles and includes portions of the cities of Falcon Heights, Lauderdale, Maplewood, Roseville and St. Paul. Located within Ramsey County, it has a population of 245,000 people. The Mississippi River is the district’s predominant water resource and the water resource to which the watershed district drains. Como Lake, Crosby Lake, Loeb Lake and McCarrons Lake are also located in the District.

East Metro Water Resource Education Program
1380 W. Frontage Rd. Hwy. 36
Stillwater MN 55082
Phone: 651-275-1136
Fax: 651-275-1254
annie.hong@mnwcd.org
The East Metro Water Resource Education Program is a partnership of city, county and watershed governments. Our mission is to improve the quality of surface and groundwater resources in the east metro through education and outreach about non-point source water pollution.

Hild & Associates, Inc.
326 S. Glover Rd.
River Falls WI 54022
Phone: 715-426-5131
Fax: 715-426-9887
jmorrow@hildandassociates.com
http://www.hildandassociates.com
Hild & Associates, Inc. is a native plant nursery, specializing in aquatic and wetland...
Local assistance available!!!
Visit 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
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
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

<table>
<thead>
<tr>
<th>Outfall Number</th>
<th>Total Acres</th>
<th>Residential Percentage</th>
<th>Population</th>
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<tbody>
<tr>
<td>82-010</td>
<td>23.5</td>
<td>72%</td>
<td>457</td>
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<tr>
<td>82-020</td>
<td>73.5</td>
<td>94%</td>
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<td>82-030</td>
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<td>98.5</td>
<td>85%</td>
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<tr>
<td>Total</td>
<td>285.51</td>
<td>88%</td>
<td>5,621</td>
</tr>
</tbody>
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City of Minneapolis
Department of Public Works

September 30, 2008
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!