

Partnering with the Community: Training Volunteers to Implement and Educate



-Master Rain Gardener Class of 2013
“Fighting Hydro-Filth – one shovel at a time!”



Playdough: \$21



Plant expert consultant: \$3,000

Winter coat: \$120

25 rain gardens /year built on private property



Rain Gardens Maintenance



Summer 2012

Priceless

Ann Arbor
3145 Baylis

30 People Excited About Improving Water Quality



-Master Rain Gardener Class of 2013
"Fighting Hydro-Filth!"

Priceless

Six knowledgeable people giving neighborhood talks on stormwater management – THIS YEAR



Priceless

Independent Friendly Publicity



Not only do the plants provide colorful flowers to delight the eye and soul, they also attract wildlife such as butterflies, frogs, bees and hummingbirds.

and eventually joining the groundwater, which slowly enters the creek from below. In this age of paved streets and parking lots, rain gardens are an excellent way to capture the rainfall and allow it to filter down gradually through the soil, just like in the forest.

A rain garden, like a rain barrel, captures rainwater via roof downspouts. But unlike a rain barrel, the water is directed into a shallow, level area about three inches below ground level. This depressed area, which is approximately one-fifth the area of the roof that drains into the downspout, captures the water and distributes it throughout a garden. Native, deep-rooted perennial flowering plants cleanse the water of heavy metals and other poisons and standing water seeps into the ground within 24 hours after a rain in most cases.

Rain gardens are designed to capture the first one-half inch of rainfall, and most rainstorms in our area are in

this range. Deep-rooted plants absorb much more water than shallow-rooted lawn grass, and because they're deep-rooted, they can withstand periods of drought between watering.

These gardens can be planted in the shade or sun. Astilbe, wild geranium, columbine and wild ginger are plants that do well in shade. For sunny gardens, blue flag iris, lobelia, coneflower, prairie dock and hot lips turtlehead are good choices. Not only do the plants provide colorful flowers to delight the eye and soul, they also attract wildlife such as butterflies, frogs, bees and hummingbirds.



Planting and maintaining a rain garden can also be seen as an act of service to the community and the world, because they help cleanse standing water and allow it to percolate slowly into the soil. As more people learn about and plant rain gardens, storm water runoff will be less of a threat to ducks, geese, frogs, fish and other wildlife in creeks and rivers, as well as to humans.

Denise Held, RN, of A2 Reflexology, is a certified foot reflexologist. In 2011, she took a Master Rain Gardener class through Washtenaw County. For more information, visit Tnywrl.com/rain_gardenbawta.

Capturing Storm Runoff with **RAIN GARDENS**



This rain garden features purple coneflower, pansy, toadax, "Hucker Red," day lilies and gayfeather. Rain gardens help prevent the spread of pollution. SUBMITTED PHOTO

ches jumps into the local creek, where fish, ducks and other waterfowl, plants and animals will drink it and live in it. Also, the sudden influx of water into the creek erodes its banks with the volume.

This large inrush of rainwater from the street is in stark contrast to what happens in a forest when it rains. There, the rain filters down gradually through the soil, nourishing the plants and trees



akenings, June 2012

What's a
rain garden
and why
would I want
one?

By Arlo McPeck
ASSOCIATE FEATURES EDITOR

Studies show that the first inch of rainfall carries the most pollutants to our rivers and streams. The rain rushes down our roofs and through our downspouts. It flows down driveways and along the street. Along the way, it picks up oils, grease, sediments, pesticides and herbicides. It disappears through the grates in the street, and from there goes straight to our rivers — and that's a problem.

"There's no (water) treatment that happens between our gutters and the river," said rain garden expert Susan Bryan, so it bears the full brunt of the concentrated pollution that washes in from the whole area.

The problem becomes worse the more an area is developed, because it's impossible for water to soak into parking lots, paved roads, driveways or the roofs of buildings. Water that falls on those surfaces is destined to be runoff.

Bryan, who works for the office of the water resources commissioner in Washtenaw County, recently addressed the Brighton Garden Club and also gave a talk at the Pinckney Community Public Library. She proposed rain gardens as a way to counteract the problem of rain runoff carrying pollution to our rivers.

Bryan described a rain garden as "a garden that's built like a sponge, so when water goes into the garden, it soaks in rather than running

Priceless

15 supporters showing up at a public meeting about a controversial new streetside rain garden public works project:



Priceless

Miller Avenue Rain Gardens, Ann Arbor, MI

Community Support

City Council,

Just want to express my advocacy of the "Master Rain Gardener Program" which has benefited me personally ,as well as a water bill reduction for my rain garden. Photo of one of my 3 rain gardens attached. The County/ City program helps me and other Rain Gardeners sell the idea and the multitude of benefits.

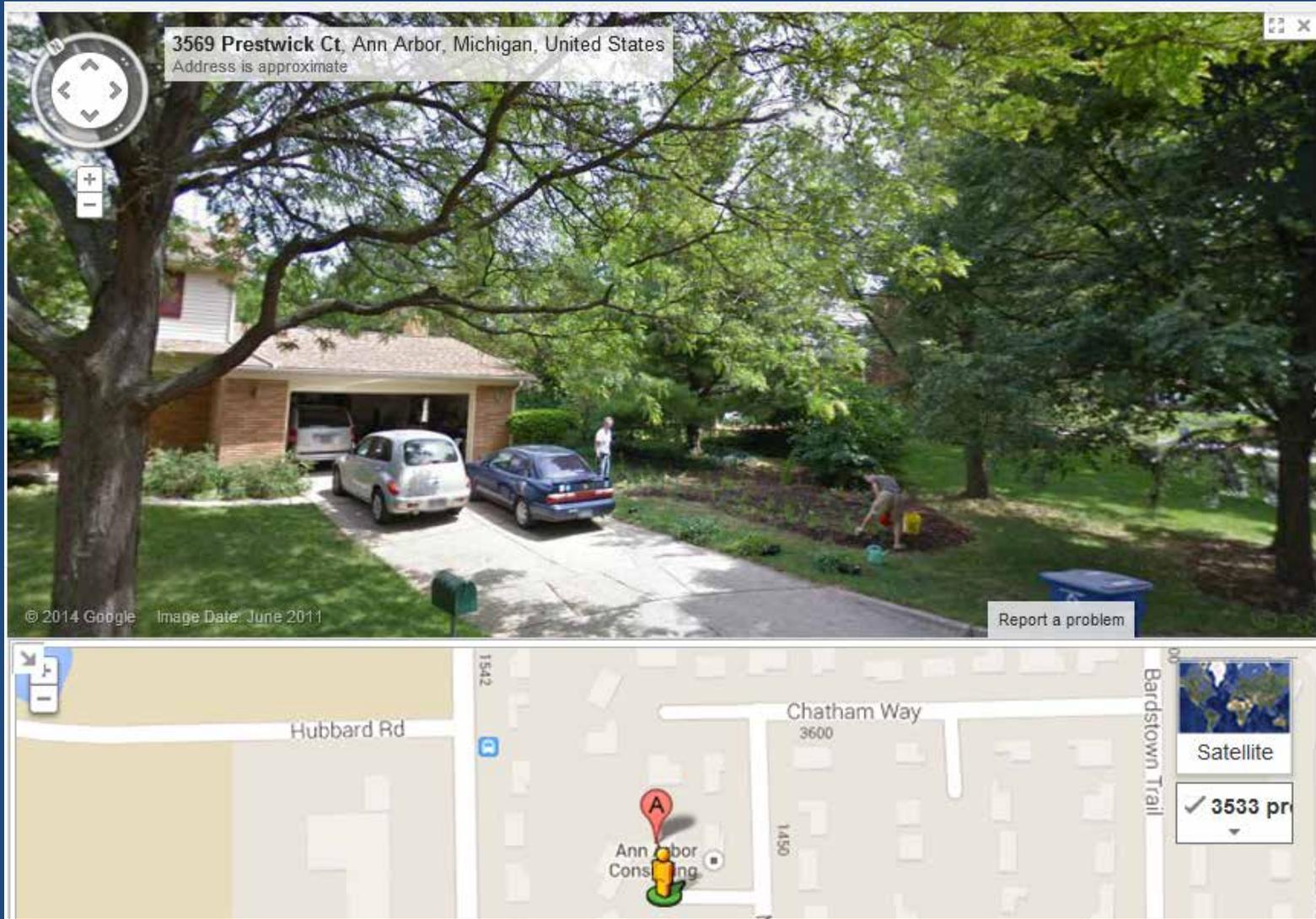


-Rog Moon (ward 2)
The rain garden guy

*E-mail written Saturday
June 1, the weekend
before the City Council
meeting to approve the
budget*

Priceless

Google Streetview capturing a rain garden being dug



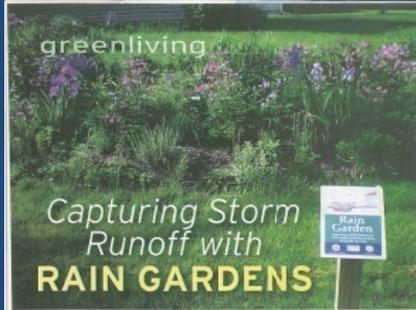
Priceless

Underground Infiltration Vaults



Pioneer High School Regional Detention and Infiltration Vaults, OHM

Master Rain Gardeners



greenliving

Capturing Storm Runoff with RAIN GARDENS

by Denise Held

Thunder claps, lightning flashes and a summer rainstorm dumps thousands of gallons of water onto yards, streets, roofs and parking lots. Impervious surfaces such as streets and roofs cause the water to run in sheets toward the storm sewer, picking up fertilizer, yard and pet waste, auto oil and other toxic compounds on the way. The untreated water is dumped

into the local creek, where fish, ducks and other waterfowl, plants and animals will drink it and live in it. Also, the sudden influx of water into the creek erodes its banks with the volume.

This large influx of rainwater from the street is in stark contrast to what happens in a forest when it rains. There, the rain filters down gradually through the soil, nourishing the plants and trees

Not only do the plants provide colorful flowers to delight the eye and soul, they also attract wildlife such as butterflies, frogs, bees and hummingbirds.

and eventually joining the groundwater, which slowly enters the creek from below. In this age of paved streets and parking lots, rain gardens are an excellent way to capture the rainfall and allow it to filter down gradually through the soil, just like in the forest.

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Planting and maintaining a rain garden can also be seen as an act of service to the community and the world, because they help cleanse standing water and allow it to percolate slowly into the soil. As more people learn about and plant rain gardens, the benefits to fish and rivers, as

ecology is in 2017. For more info, visit [www.rainwater.org](#).

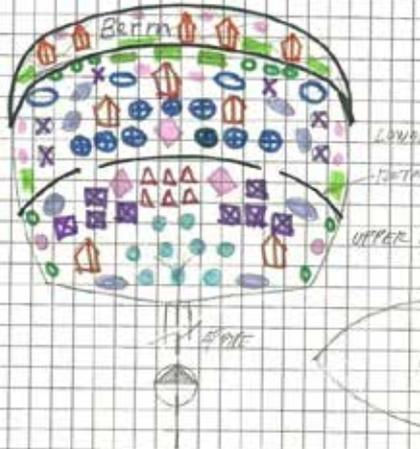


MSU Master Gardener model: give a little, get a lot back

- Run a seminar.
- Engage as partners
- Give them meaningful work.
- Inspire them.
- Expect them to be neighborhood leaders
- Keep in touch and celebrate their success.



Denise Held MRG 2011



Design by Denise Held, 2011

design

dig

mulch & plant



People come
from all around



Char Tavarozzi, Wayne County MRG 2013

People with all kinds of backgrounds



Gardeners



Landscapers



Retired Landscape Architects



Students



Landscapers



Retired Engineers



Architects

Gardeners



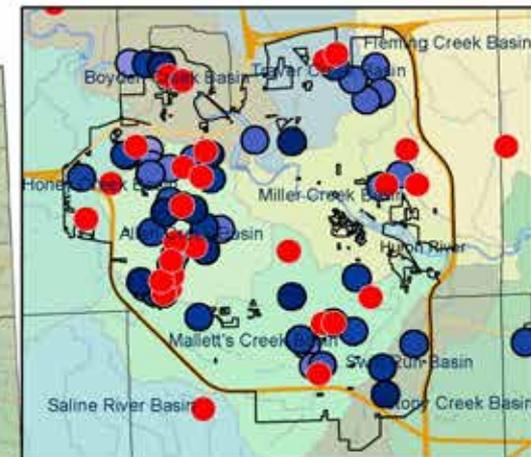
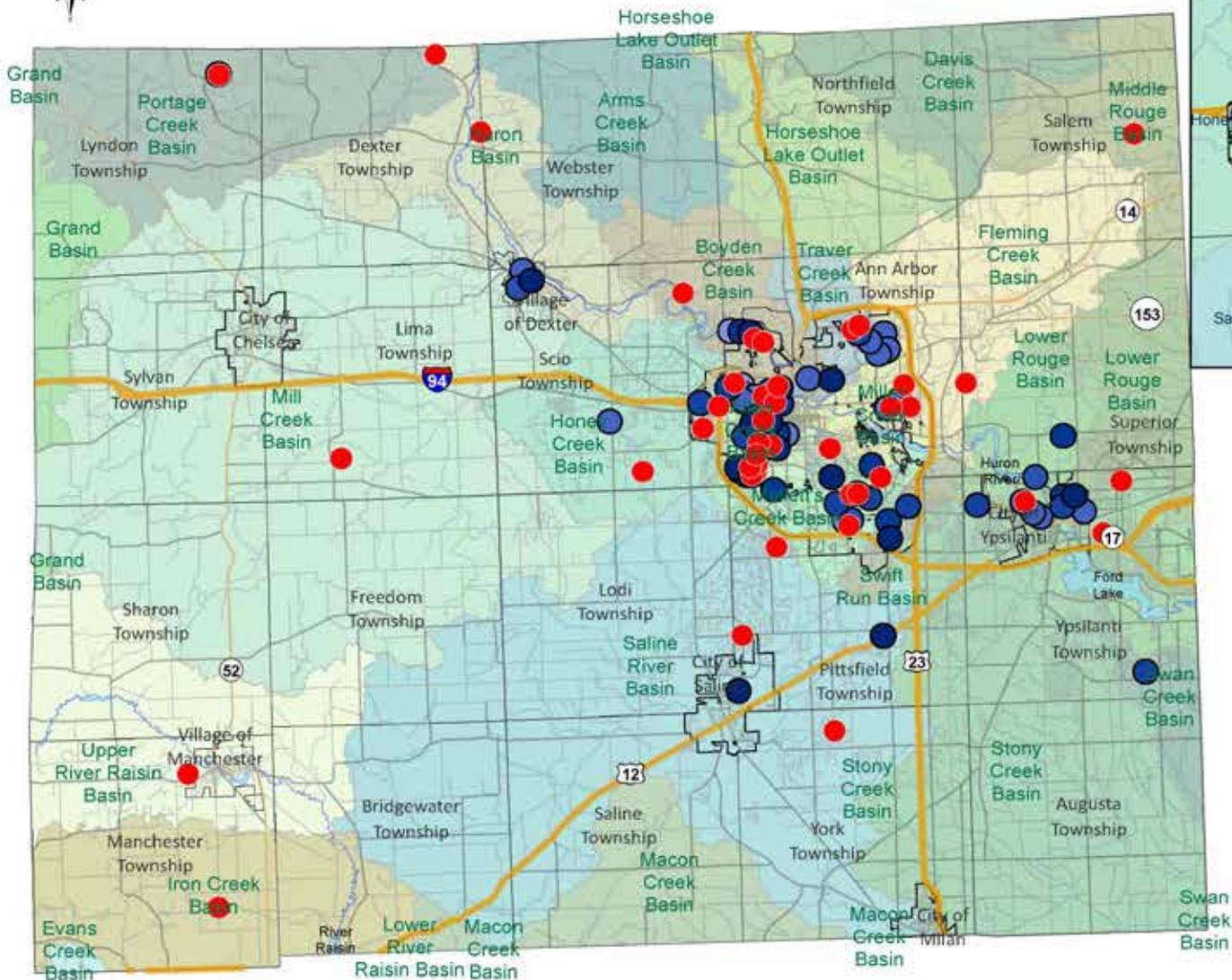
Horticulturalists



Gardeners



Washtenaw County Rain Garden Installations 2006-2013



City of Ann Arbor

Rain Gardens Installed per Year

- Master Rain Gardeners To Date (44)
- 2006 (19)
- 2007 (10)
- 2008 (11)
- 2009 (13)
- 2010 (7)
- 2011 (19)
- 2012 (30)
- 2013 (38)

Total to Date: 146 Rain Gardens

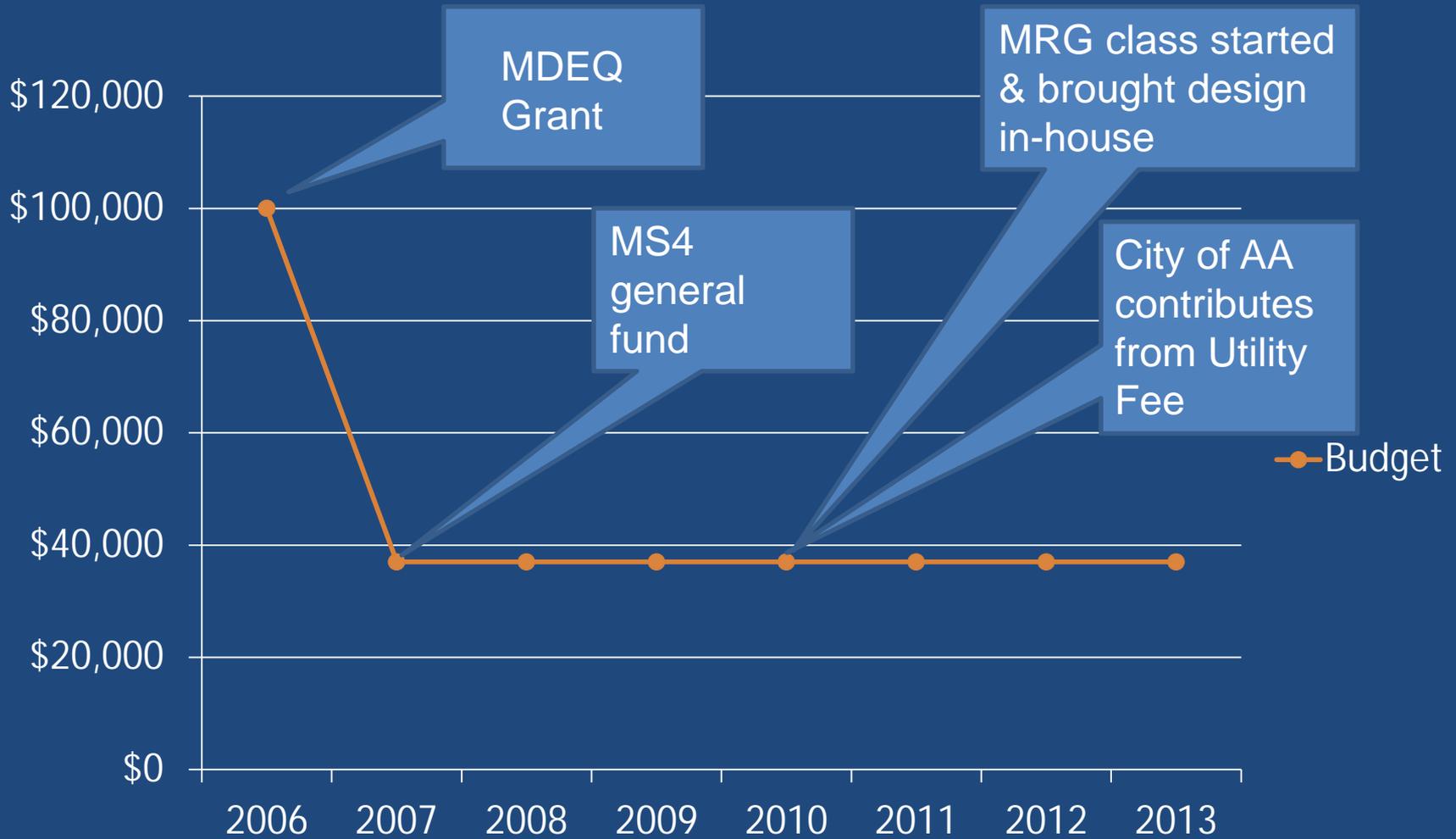


Map Published on 1/25/2014
 Map Prepared by Washtenaw County GIS
 No reproduction of this print shall be made without authorization of the Washtenaw County GIS. The map shown here is for illustrative purposes only and is not suitable for site-specific decision-making. The data depicted is compiled from a variety of sources, thus this information is provided with the understanding that any conclusions drawn from the data are solely the responsibility of the user. Any assumptions of the legal status of this data are hereby disclaimed.

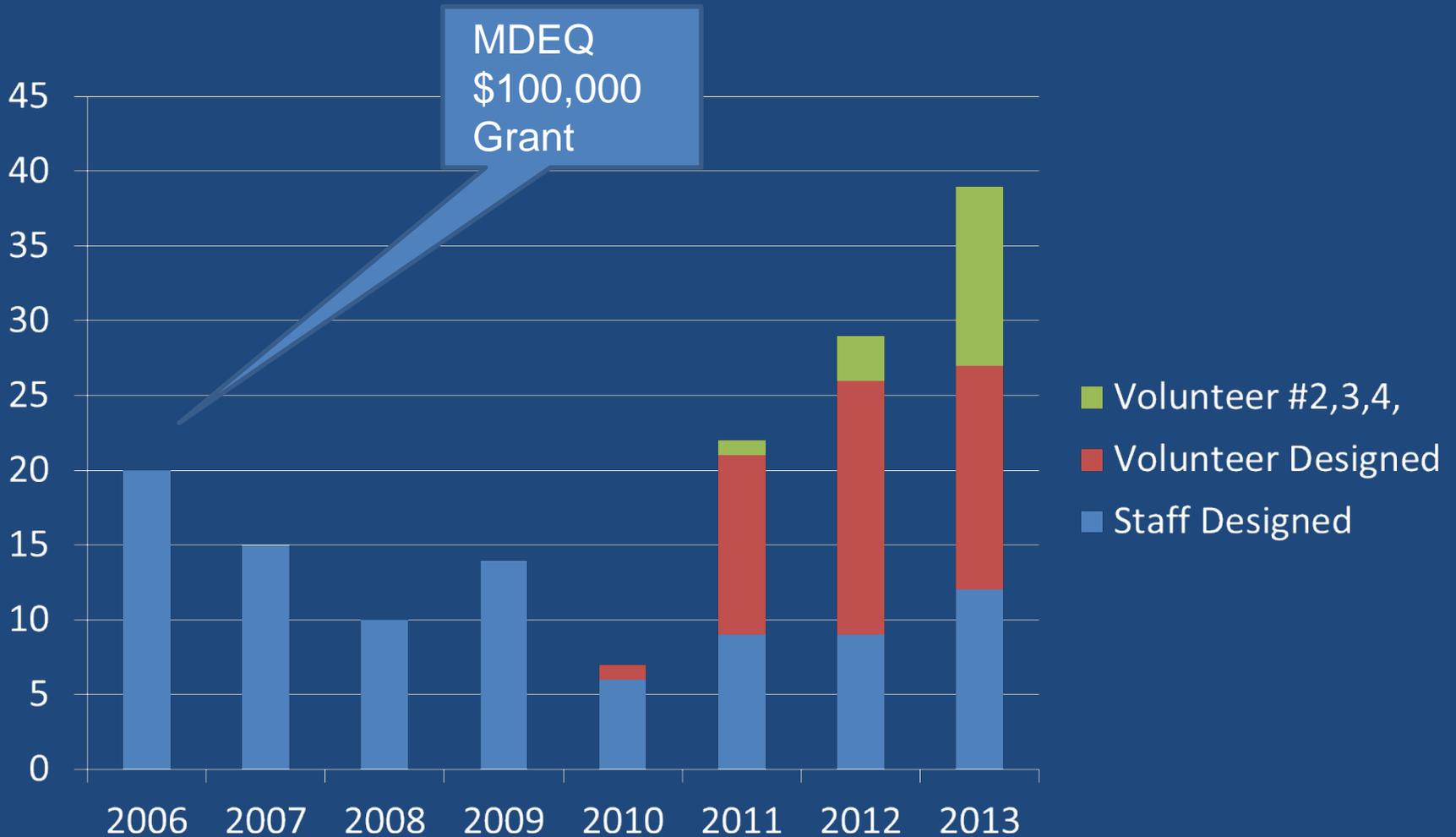
How could we do this in our community?

- We got here the long way. You don't have to.
- Let's figure out a way to partner.
 - MDEQ 319 grant to make this an online webinar
 - Train-the-trainer in your community

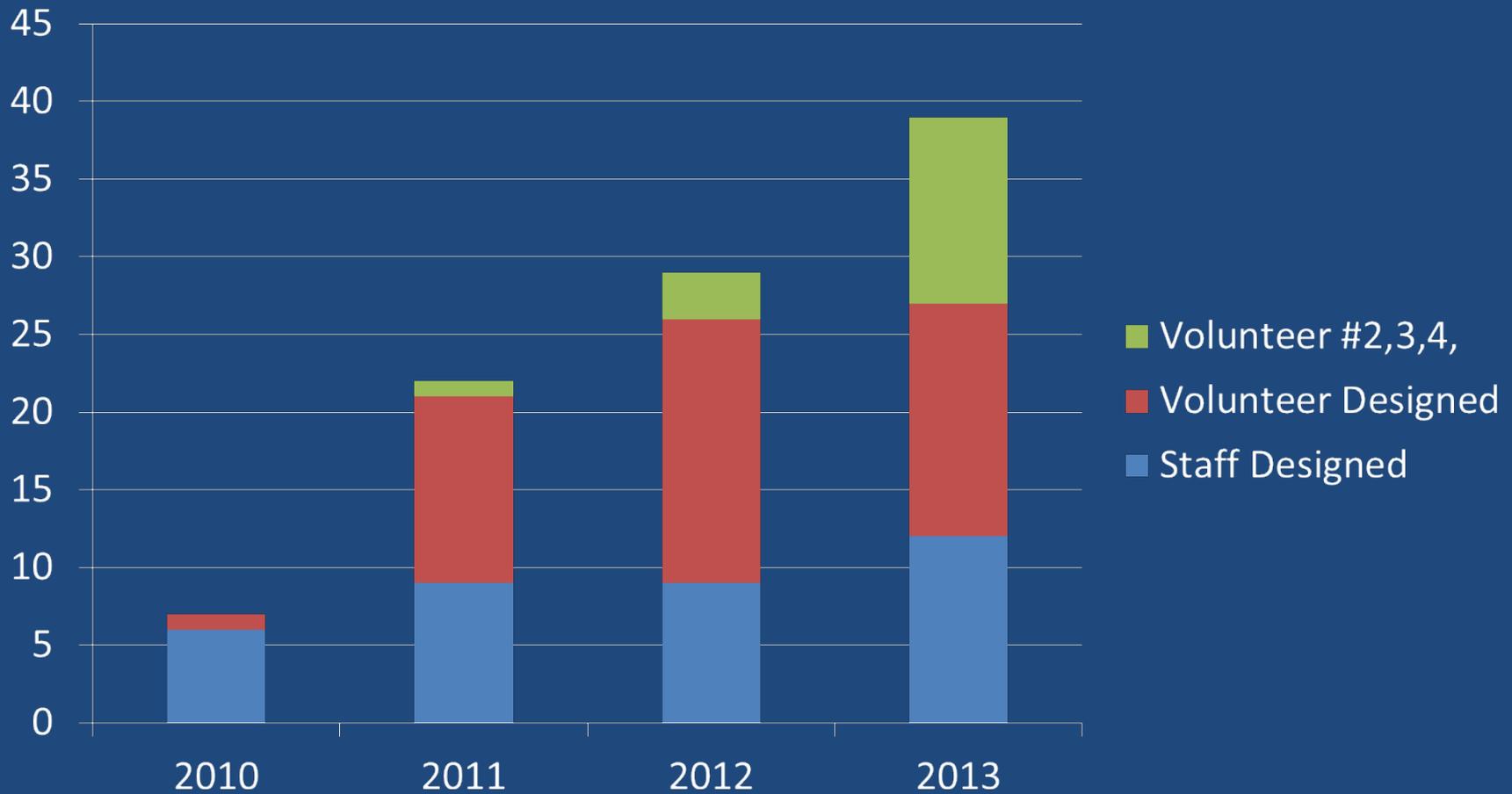
RG Program Budget



Number of Rain Gardens Built



Number of Rain Gardens Built





2010



staff + consultant

7 gardens installed



2013: 39 Gardens Installed



-Master Rain Gardener Class of 2013

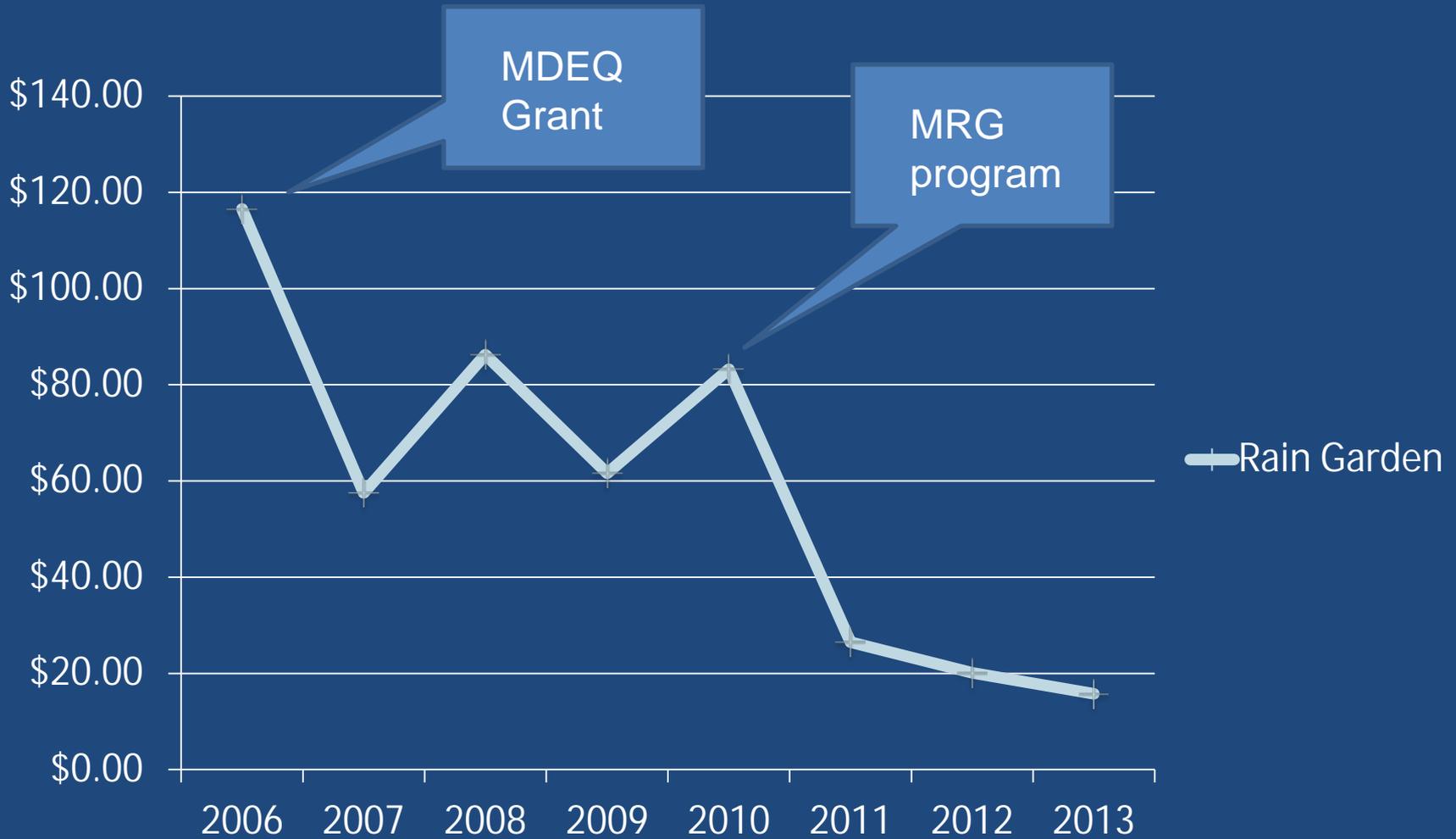
Me = 10

Consultant = 2

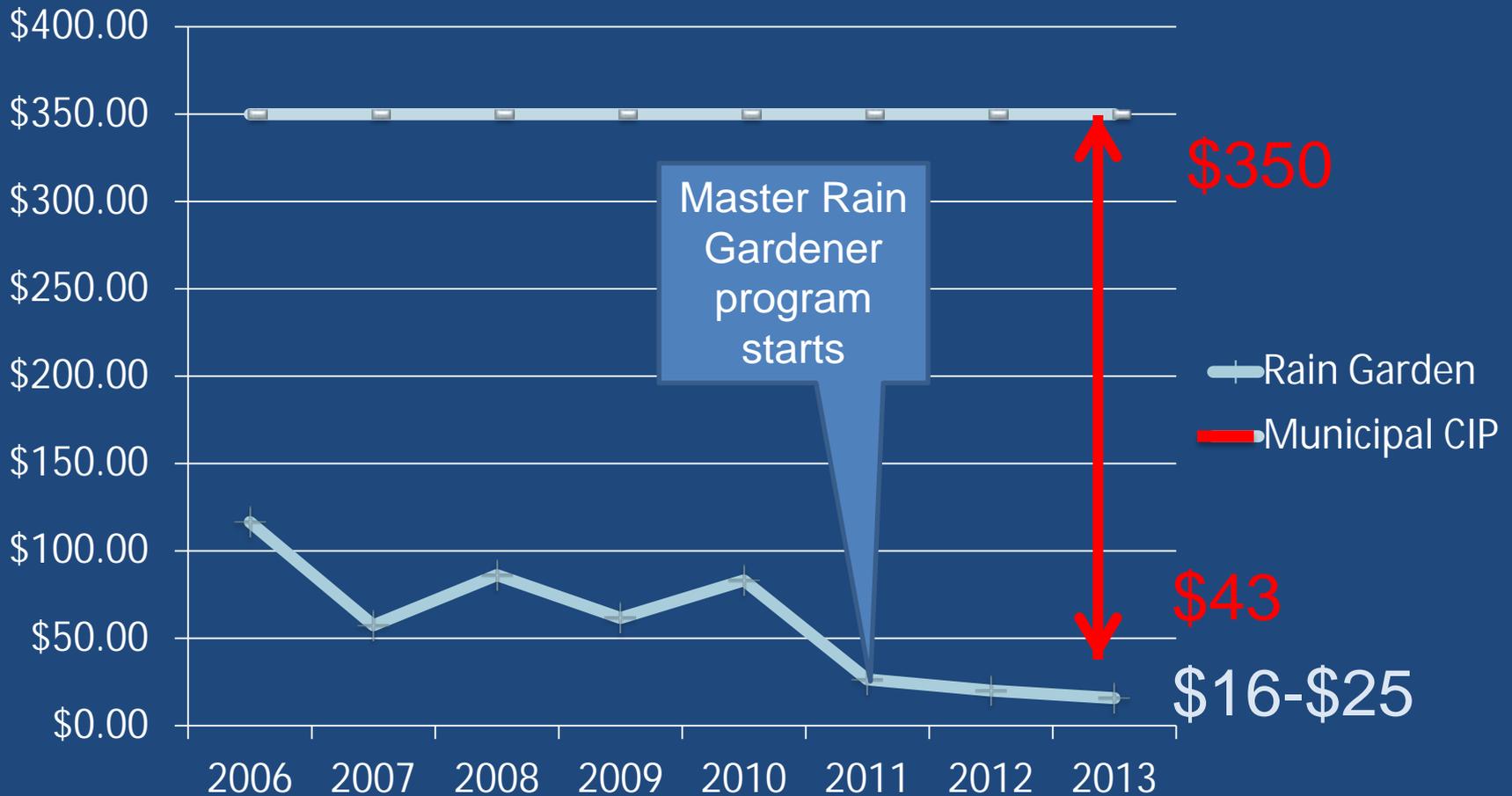
MRG class of 2013 = 15

MRG volunteer designers = 12

\$ per cubic foot of infiltration



\$ per cubic foot of infiltration



Fund the Class with a Service

- Charge for the class (ours is \$90)
- Organize/compile a native plant order
- Can capture part of cost to fund the class.
- Gardeners get a good deal too.

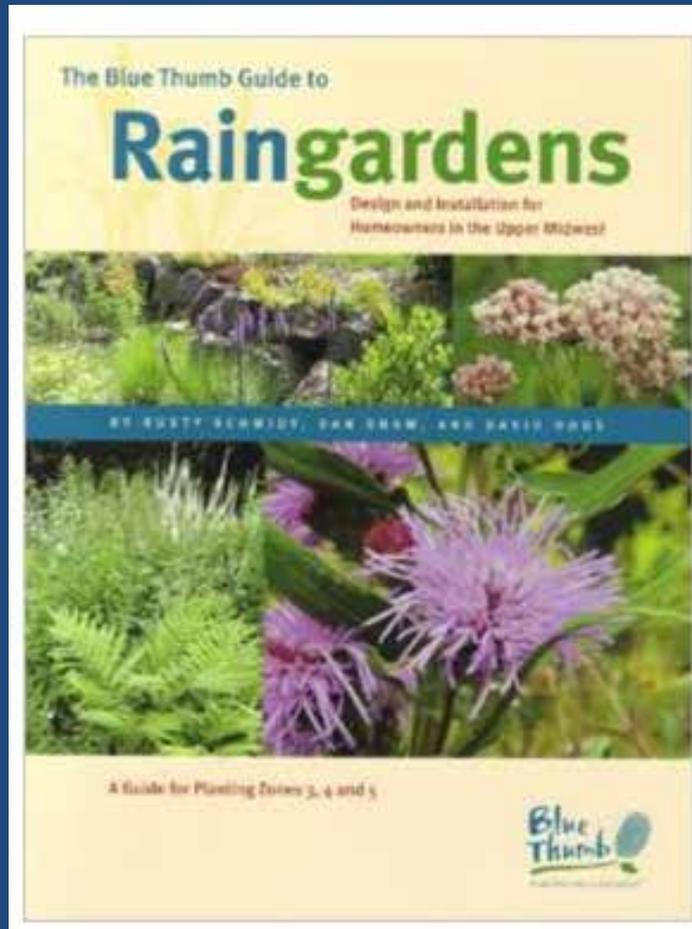


Lessons Learned: How to market it



- Call it “Rain Gardens”
- Not “~~Bio-Retention~~”

Start with good resources



Washtenaw County sign

Benefit: Data Source



Rain Garden Design Guidelines

1. Stay 10' away from any basement
2. Call Miss Dig – stay away from utilities
3. Only 3"-6" deep
4. Size is 5:1 ratio to contributing roof
5. Amend existing topsoil with 2-3" compost
6. Mulch



Plant Selection

- When using native plants – use SHORT ones!



Individual Feedback, Hands-on

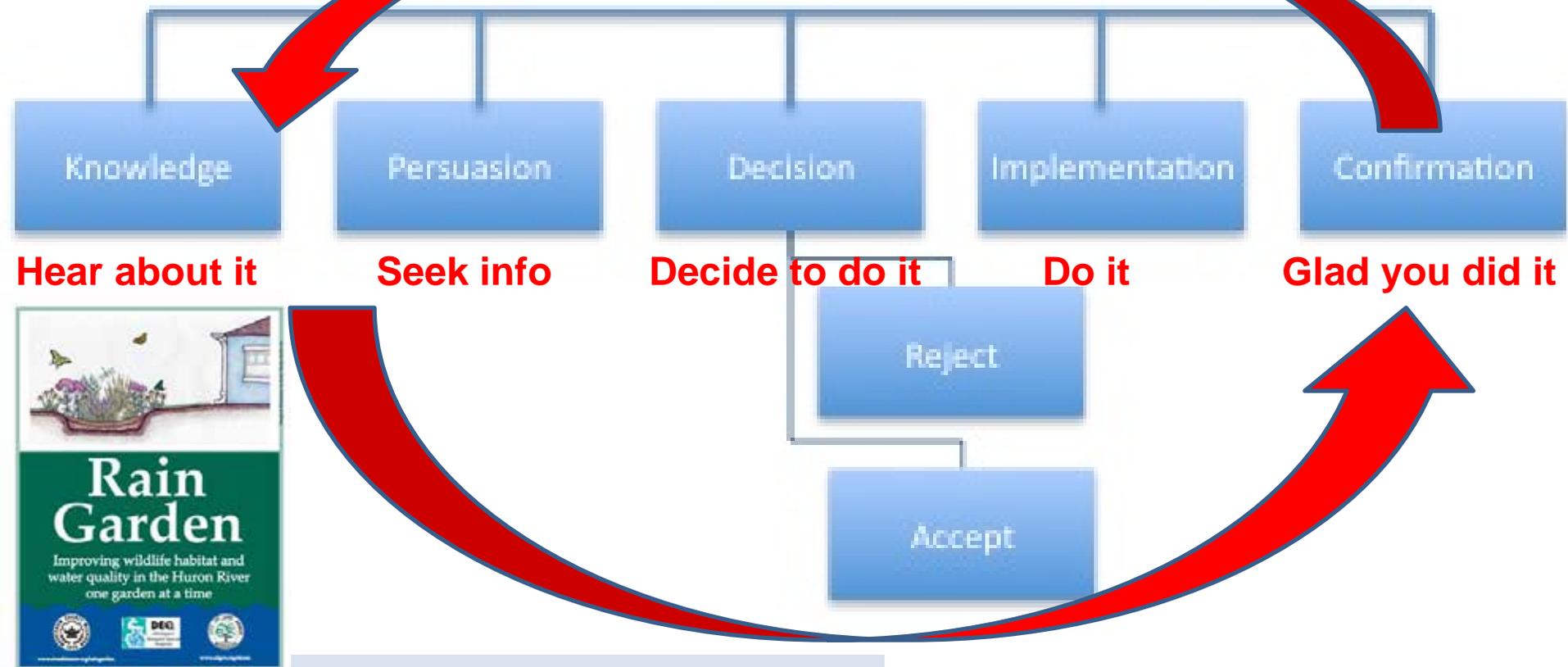


- “With the class, I feel confident. But I would not have tackled this project without taking the class.”
- “I find myself driving/walking and looking for houses that need rain gardens!”



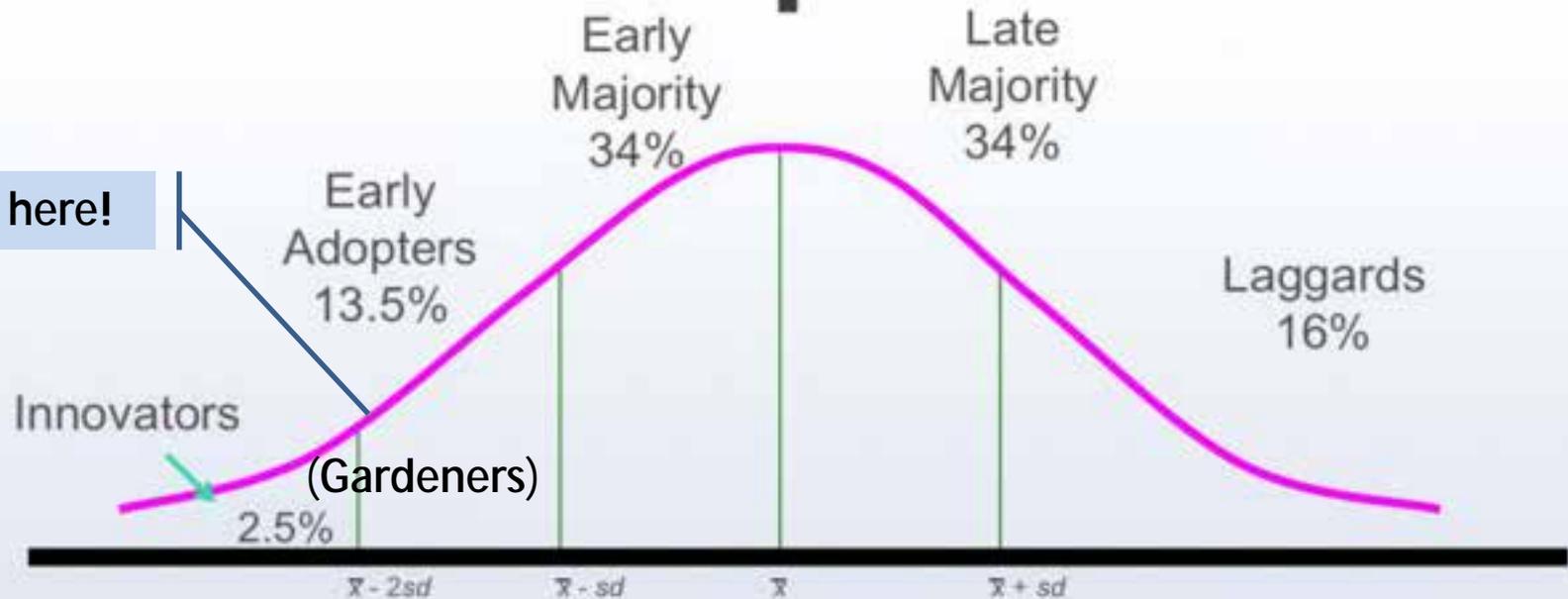
- Student Feedback

Five Stages in the Decision Innovation Process



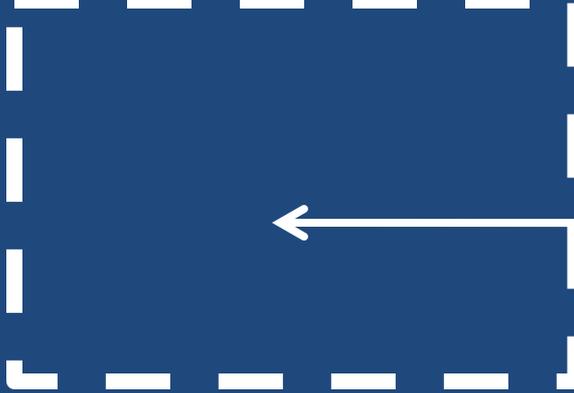
Rogers, Everett M. 1995. *Diffusion of Innovations*

Innovativeness and Adoption



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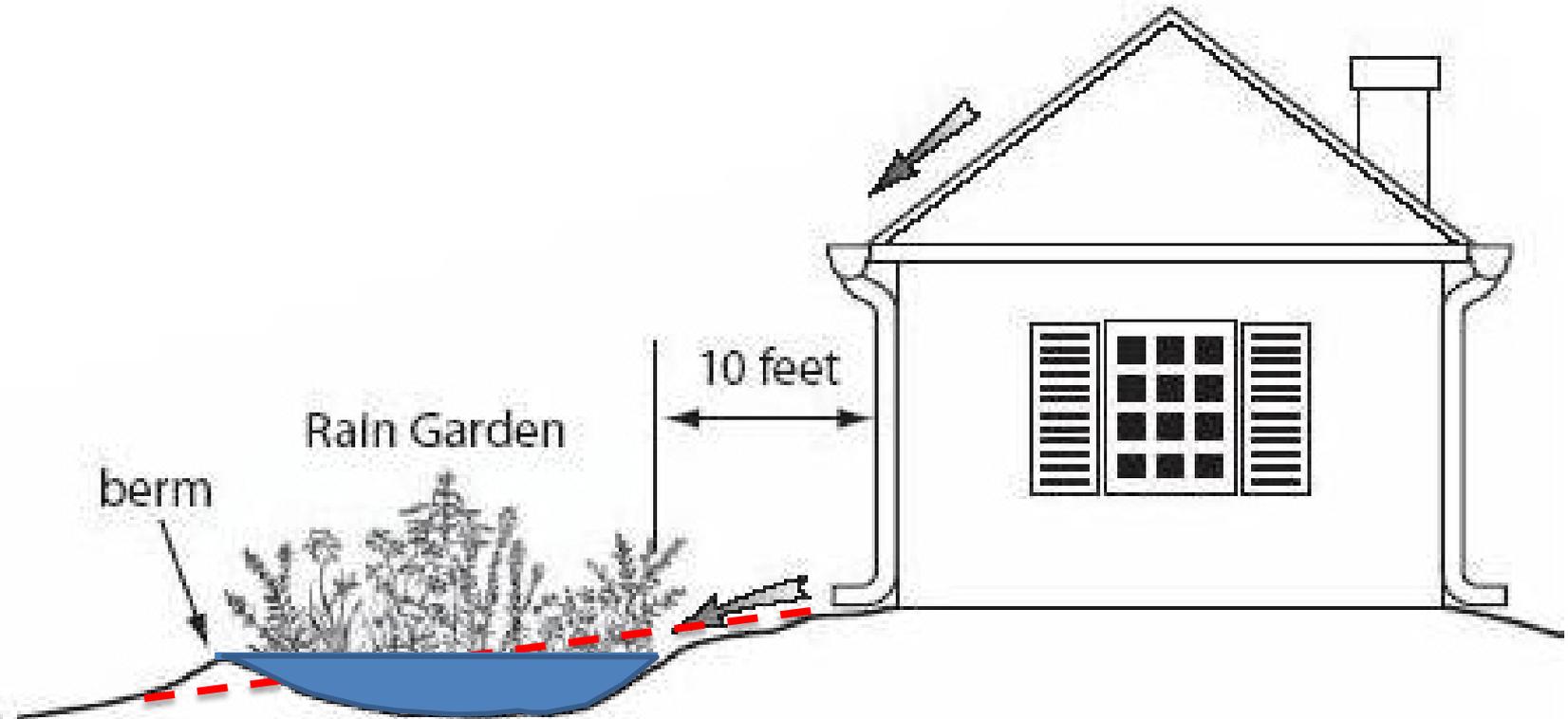
Master Rain Gardener Hall of Fame



Your garden here



Rain Garden Design Guidelines



Rain water flows in
from roof and downspout.

Rain Garden Locations

graphic: SOCWA

Jonathan Parker,
Master Rain Gardener
2012



Georgetown Condos
Planted spring 2011





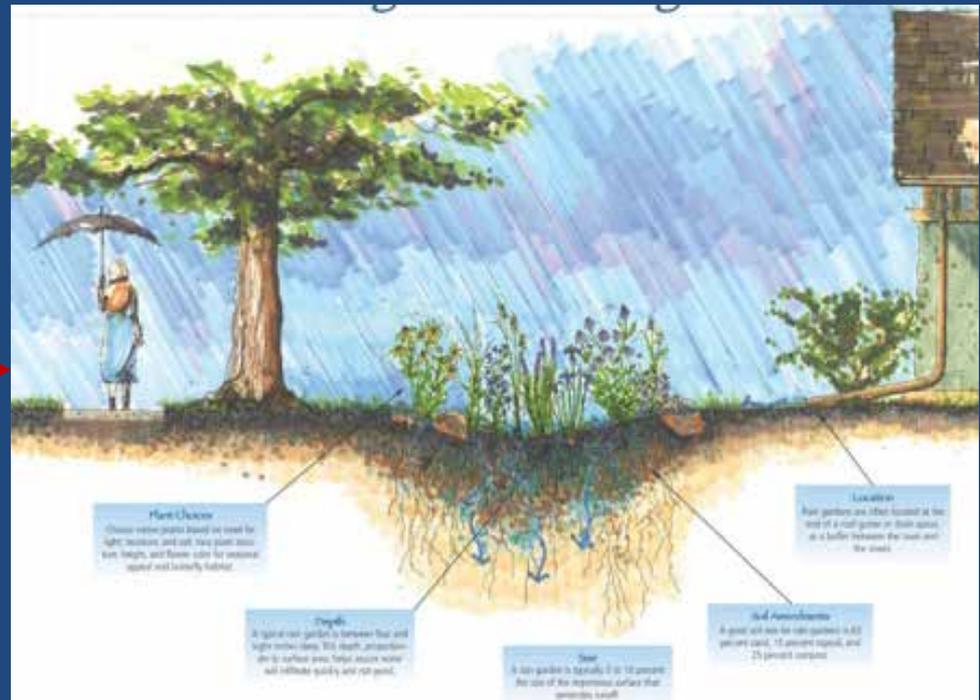
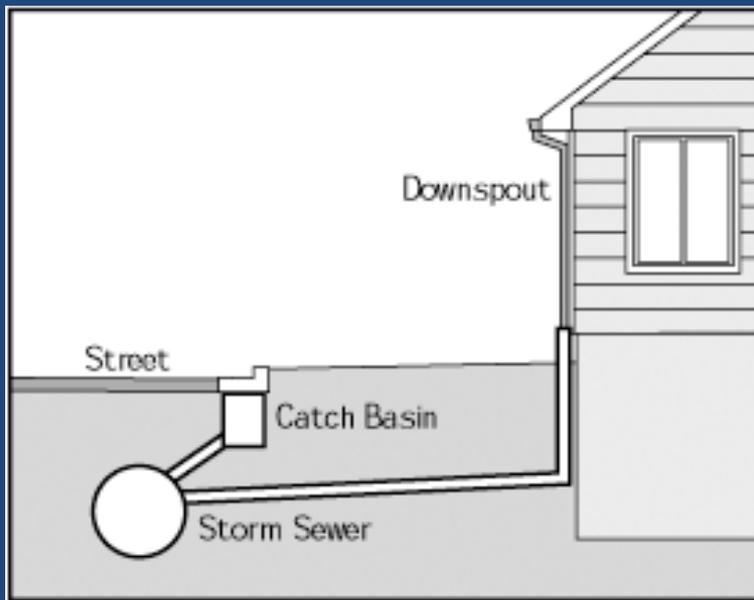
Why rain gardens?



Summer 2012

Cynthia Edwards for Joan Doughty
MRG 2012

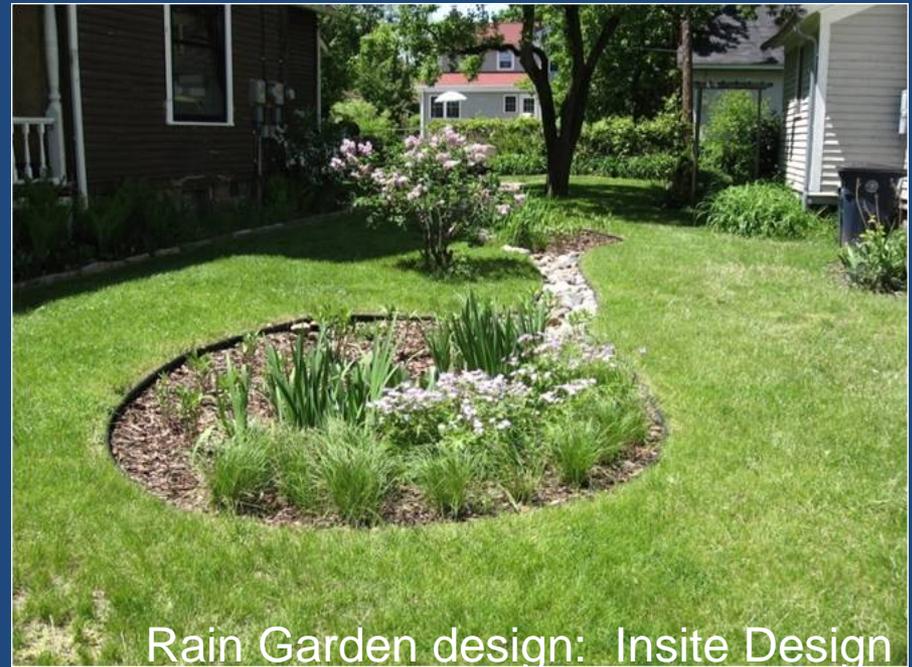
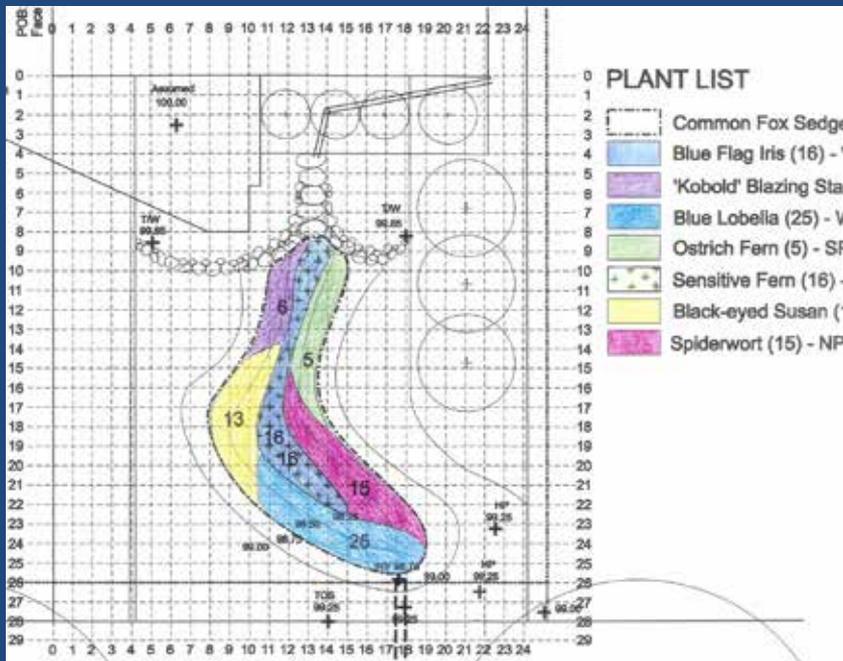
Runoff as a Resource



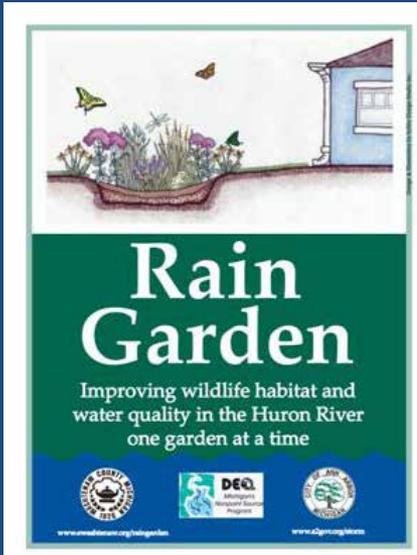
source: Iowa Rain Garden Design Manual

Where We Started

- 2006 MDEQ grant to construct 20 rain gardens. Provided design, plants, materials, labor. Full Service!
- Grant + match = \$100,000



How it Evolved: 2007-2010



Rain Garden design: Insite Design



Stormwater Detention Calculations

I. GENERAL SITE DATA

STAFFORD

A. Contributing Watershed:

A= 0.0533517 acres
or 2,324 SF

B. Existing Site Conditions

Existing Roof:	1,203 SF	C=	0.95
Existing Pavement:	160 SF	C=	0.95
Lawn/Rain Garden Area:	961 SF	C=	0.15

C. Proposed Average Coefficient of Imperviousness (C)

Existing Building Footprint:	1,203	x	0.95	=	1142.85
Existing Pavement:	160	x	0.95	=	152
Lawn/Rain Garden Area	961	x	0.15	=	144.15
					1,439 / 2324
(Soils: FOX < 4% slope, Type B)					0.62

D. Allowable Outflow (Qa) (for detention sizing- 100 yr. Storm event)

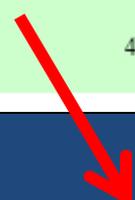
Qa=.15 cfs x 0.0533517 acres = 0.0080028 cfs

III FIRST FLUSH COMPUTATIONS(.5 " over site) (to satisfy Washtenaw County Drain Commissioner's req.)

V= 1815.0 x 0.053351699 x 0.62 = 59.9583333 cu.ft.

V VOLUME CALCULATIONS:

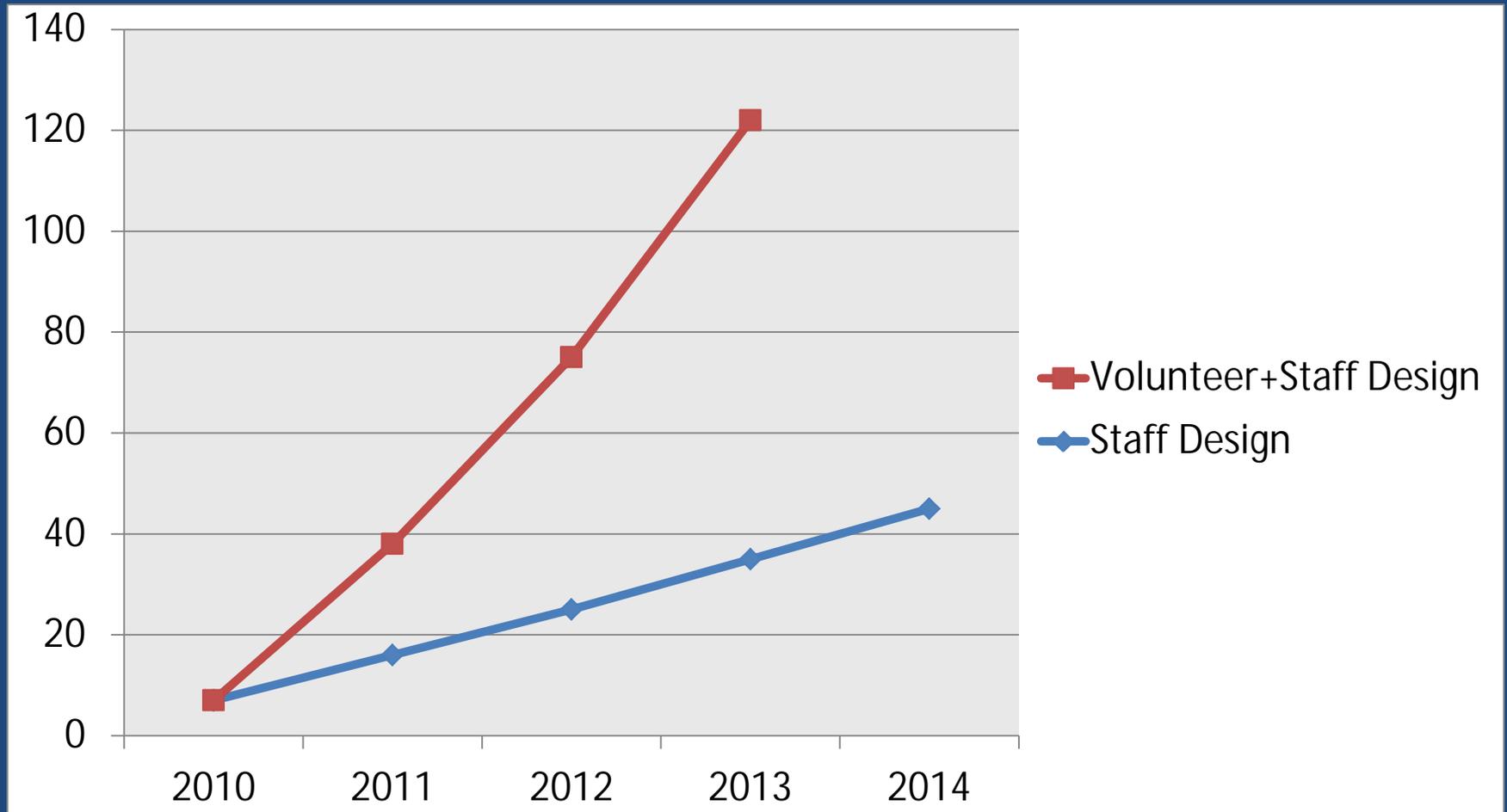
Elevation	Surface Area	(Surface Area + Surface Area) x Depth	Accum. Volume
		2	
0.00 bottom el (0")	43 SF	20 CF	20 CF
0.00 top el (3")	115 SF	42 CF	61 CF
0.00 limit of disturbance (6")	218 SF		



Area of roof x 0.2 = Area of RG



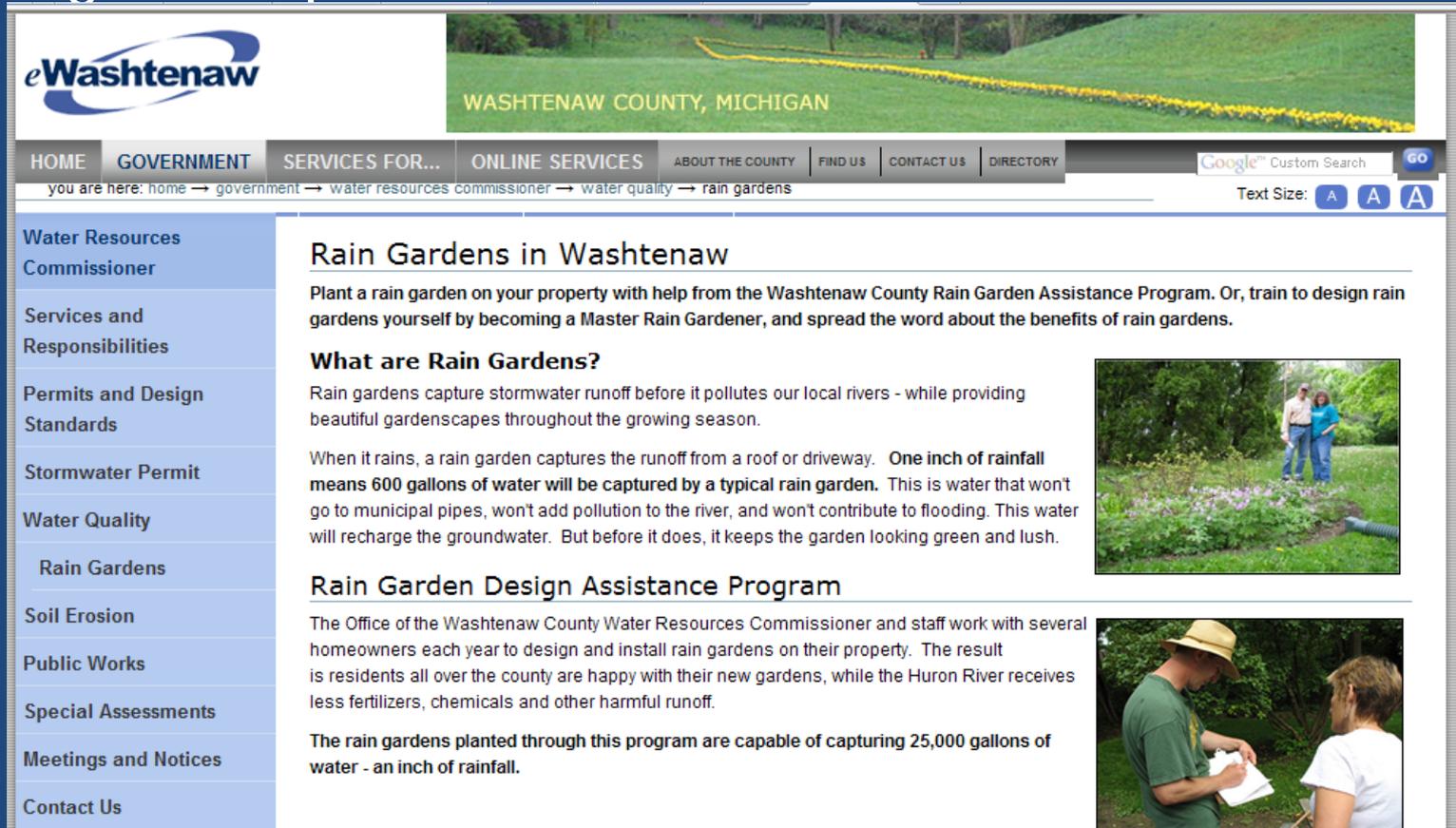
Number of Rain Gardens





Start Small – and scale up

- 2009 - 3 volunteers took photos, distributed signs, helped with website.



The screenshot shows the website for the Washtenaw County Rain Garden Assistance Program. The header features the 'eWashtenaw' logo and a banner image of a rain garden with yellow flowers. The navigation menu includes 'HOME', 'GOVERNMENT', 'SERVICES FOR...', 'ONLINE SERVICES', 'ABOUT THE COUNTY', 'FIND US', 'CONTACT US', and 'DIRECTORY'. A breadcrumb trail reads 'you are here: home → government → water resources commissioner → water quality → rain gardens'. The main content area is titled 'Rain Gardens in Washtenaw' and includes a description of the program, a section on 'What are Rain Gardens?' with a photo of a garden, and a section on the 'Rain Garden Design Assistance Program' with a photo of a staff member assisting a resident.

eWashtenaw

WASHTENAW COUNTY, MICHIGAN

HOME GOVERNMENT SERVICES FOR... ONLINE SERVICES ABOUT THE COUNTY FIND US CONTACT US DIRECTORY

you are here: home → government → water resources commissioner → water quality → rain gardens

Text Size: A A A

Water Resources Commissioner

Services and Responsibilities

Permits and Design Standards

Stormwater Permit

Water Quality

Rain Gardens

Soil Erosion

Public Works

Special Assessments

Meetings and Notices

Contact Us

Rain Gardens in Washtenaw

Plant a rain garden on your property with help from the Washtenaw County Rain Garden Assistance Program. Or, train to design rain gardens yourself by becoming a Master Rain Gardener, and spread the word about the benefits of rain gardens.

What are Rain Gardens?

Rain gardens capture stormwater runoff before it pollutes our local rivers - while providing beautiful gardenscapes throughout the growing season.

When it rains, a rain garden captures the runoff from a roof or driveway. **One inch of rainfall means 600 gallons of water will be captured by a typical rain garden.** This is water that won't go to municipal pipes, won't add pollution to the river, and won't contribute to flooding. This water will recharge the groundwater. But before it does, it keeps the garden looking green and lush.



Rain Garden Design Assistance Program

The Office of the Washtenaw County Water Resources Commissioner and staff work with several homeowners each year to design and install rain gardens on their property. The result is residents all over the county are happy with their new gardens, while the Huron River receives less fertilizers, chemicals and other harmful runoff.

The rain gardens planted through this program are capable of capturing 25,000 gallons of water - an inch of rainfall.

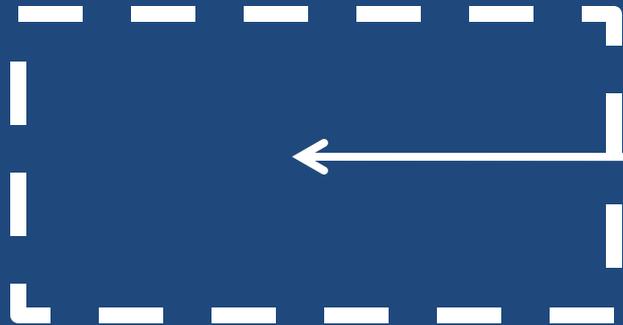


How it Evolved: Start Small

- 2010
 - 2 volunteers
 - 1 garden built



2011 Master Rain Gardener Hall of Fame



Your garden here



2012 Master Rain Gardener Hall of Fame

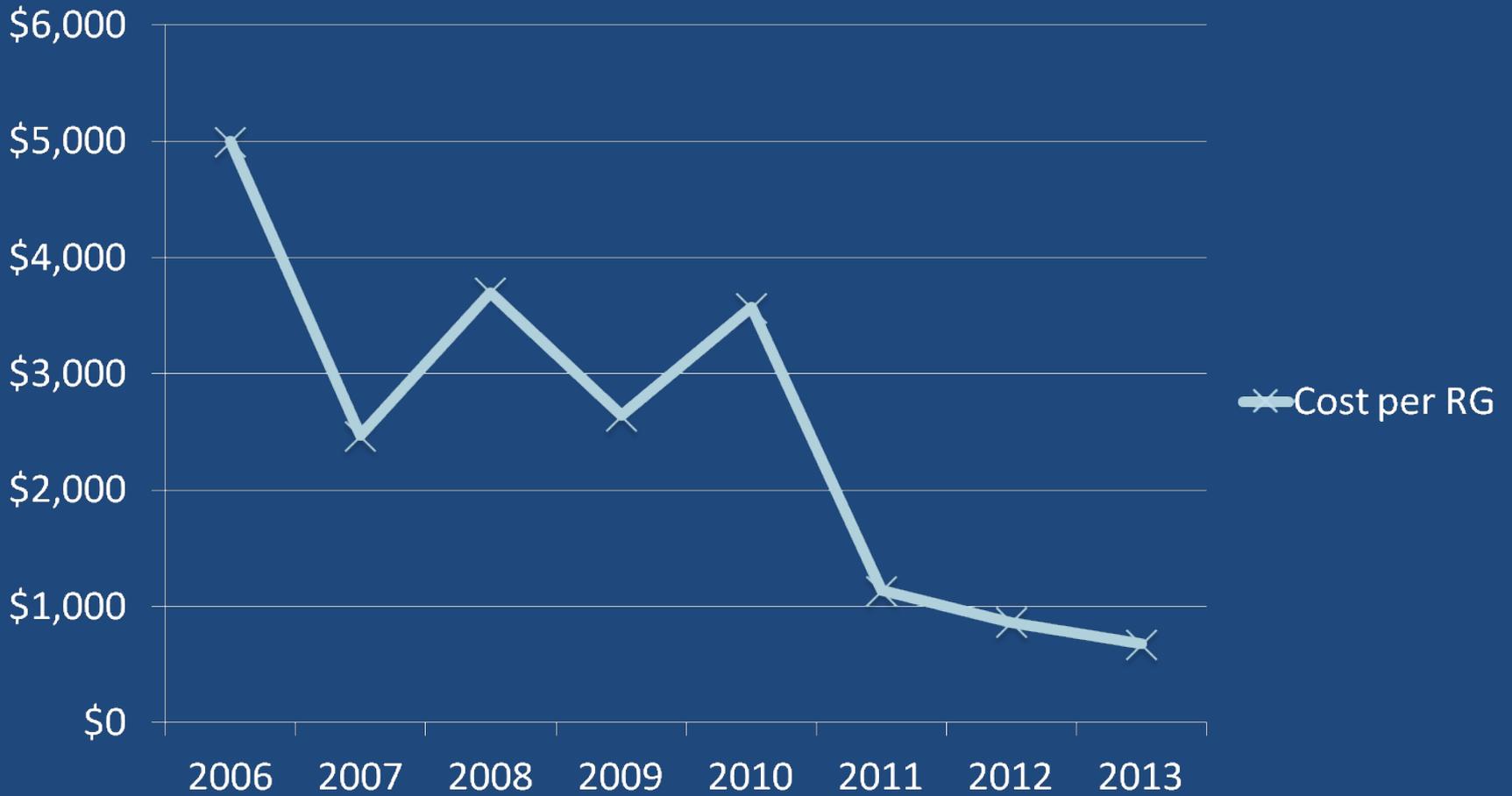




Sharon Sheldon,
MRG 2012

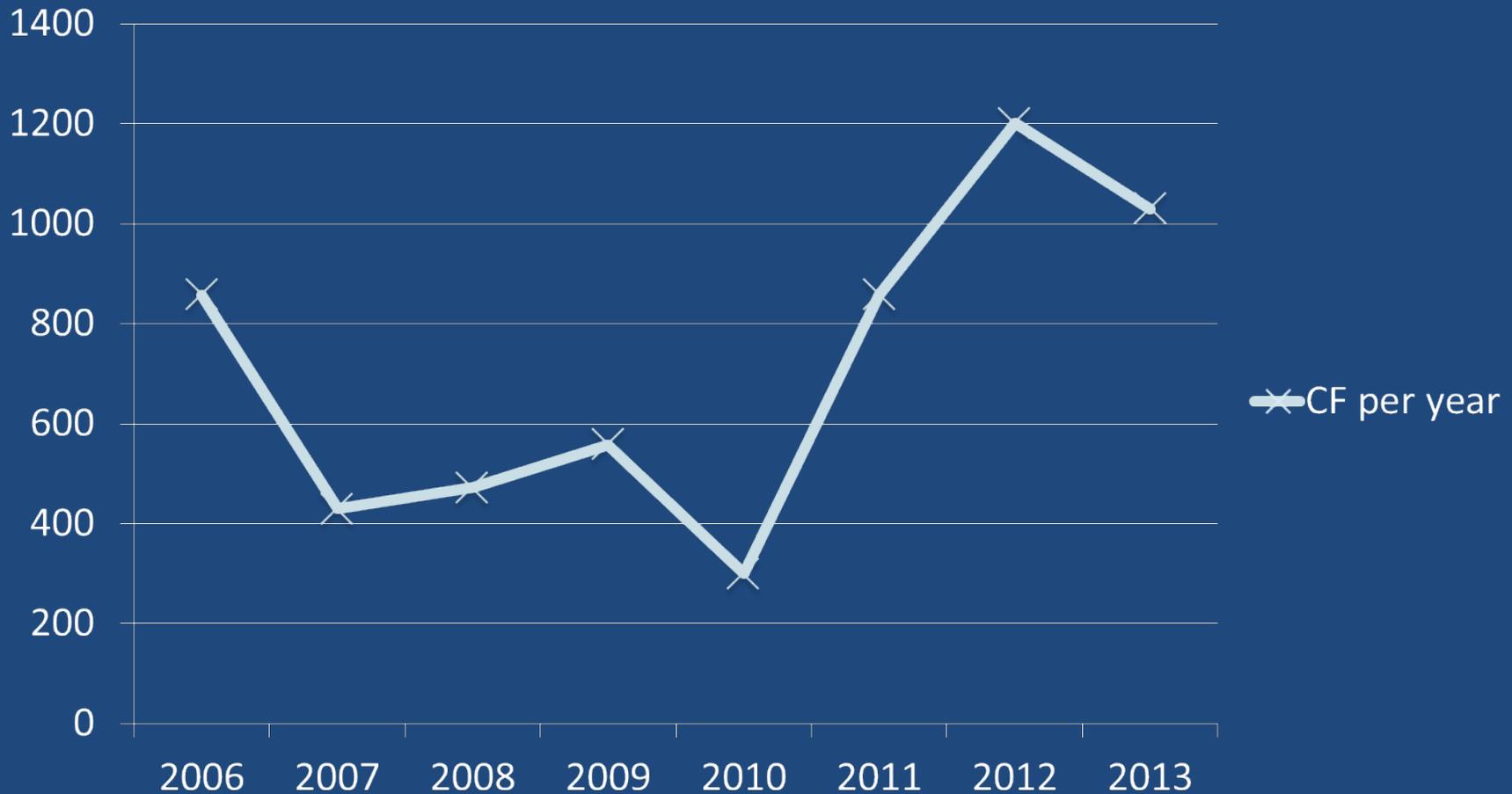


Cost of a Rain Garden



CF of infiltration installed per year

Current total = 6,000 CF



Lessons Learned



Summer 2012

Roger Moon
MRG 2012

Washtenaw County Rain Garden Programs

- Master Rain Gardener Training
February class trains you to design
- Design Assistance Program
We design it; you dig it



Master Rain Gardeners 2011



Scarlett
Bennett



David Dye

Master Rain Gardeners 2011

Graciela
Rubalcava



Gloria
Santelle



Maurita
Holland
& Roger
Chard



Why not just require it?

- Ann Arbor has a requirement for all new construction to infiltrate the first ½" of new impervious area.
- Does not address existing infrastructure
- This is a way to treat runoff from private property, on private property, at private cost.
- Voluntary
- Helps that there is a credit on the utility

Water Utility Bill

WATER 7.00 ccf x @\$1.31000/ccf	\$9.17
WATER 10.00 ccf x @\$2.74000/ccf	\$27.40
Water 0.62 Domestic Customer Charge	\$11.25
SEWER 17.00 ccf x @\$3.48000/ccf	\$59.16
Sewer 0.62 Domestic Customer Charge	\$10.57
STORMWATER DISCHARGE 0.07 acres x @\$342.00/acre	\$23.94
<hr/>	
Stormwater Domestic Customer Charge	\$6.77
Rain Barrels Credit	\$1.96 CR
Each Rain Garden/Cystern Credit	<u>\$3.06 CR</u>
Each Riversafe Home Credit	\$1.35 CR
Discount for Early Payment	\$14.18 CR
 Amount will be paid via EFT on 5/16/2013	 \$127.71

Issues

- Who to accept? We have decided to accept MRG students from non-MS4 areas, with the idea that they will train friends.
- Who to market to? Master Gardeners, Gardeners, environmentalists, native plant groups. Basically we are co-opting gardeners.
- How much to charge? Start low. Build interest.



Environmental Altruism: Keeping the River Clean





Drains were trenched-in to a pop-up. Lawn around the pop-up was saturated, leaving ruts in the lawn.



Wet spot – difficult to mow

- You already have a rain garden! It just needs rain garden plants.



EMU student housing – standing water on lawn.
Mowers were fed up.



After planting – still standing water



Plants mature - no standing water

InSite Design Studio, Inc.



Sally Richie, Master Rain Gardener 2012



Ypsilanti
Planted spring 2012

Jonathan Parker,
Master Rain Gardener
2012



Georgetown Condos
Planted spring 2011



Sharon Sheldon, Master Rain Gardener 2012



Planted
June
2012



Denise Held
MRG 2011



Spring 2012

Ann Arbor
3145 Baylis



Summer 2012

Ann Arbor
3145 Baylis



Planted spring 2011

Master Rain Gardener Program



Spring 2012

Ann Arbor
Baylis & Platt



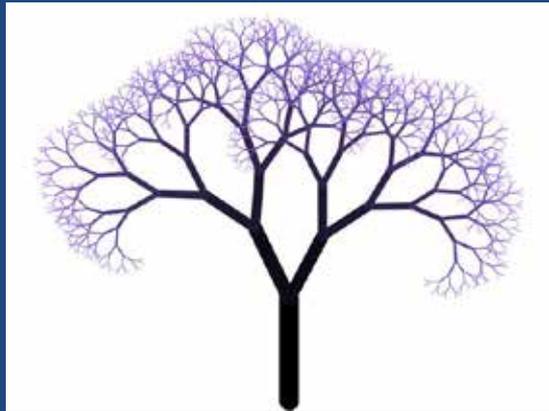
Summer 2012

Ann Arbor
Baylis & Platt

Who needs rain gardens?

- Your stormwater volume is non-existent
- Your stormwater is pristine
- You already have Green Infrastructure requirements on the books – so new development won't change that
- You are fulfilling the requirements of your MDEQ Stormwater Permit
- You don't need rain gardens!

1. Cumulative effect of training volunteers
2. Water Quality & Permit goals
3. Scale up
4. Cost Benefit



Rain Garden Design Guidelines

- Water Quality BMP
- BioInfiltration
- Only 3" -6" deep
- Small-scale
- Most effective at the source of runoff

