Anoka and Ramsey
Rain Garden Program

Leah Hall
Conservation Technician
Anoka Conservation District

Anoka Conservation District

Metropolitan Council

Lower Rum River Watershed Management Organization

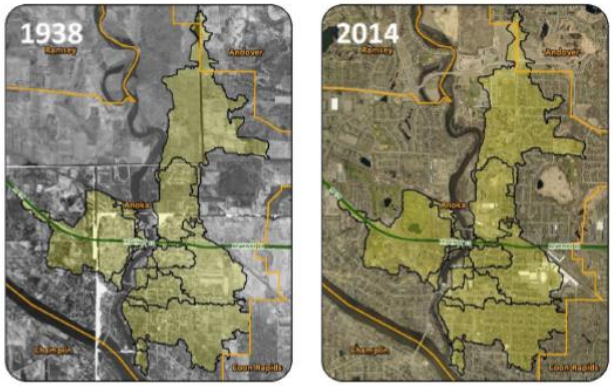
Agenda

- **Introduction:** background on program
- **Rain Garden Basics:** purpose, design and benefits
- **Rain Garden Construction**
- **Landowner Responsibilities**
- **Program Overview:** budget, timeline and goals
- **Agreements:** "Letters of Intent" can be signed if still interested
- **Questions**

Program Overview

- **Cost**
  - No cost to homeowner for installation
- **Timeline**
  - Installation will hopefully begin in late summer 2017 and will be completed by fall 2017
- **Goal**
  - Install approximately 3 rain gardens
  - Will remove
    - 0.5 lbs phosphorus/year
    - 235 lbs suspended sediment/year
    - Other pollutants including chlorides, metals and nitrates

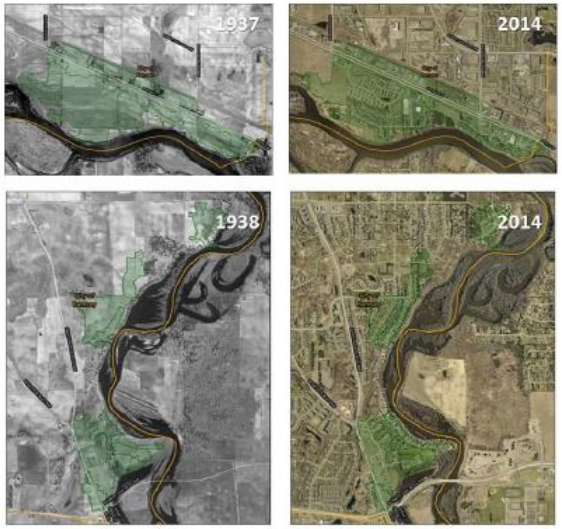
How did we get here?



City of Anoka
Stormwater Retrofit Analysis

Prepared by:

ANOKA CONSERVATION DISTRICT
for the
CITY OF ANOKA AND
LOWER RUM RIVER WATERSHED MANAGEMENT ORGANIZATION



City of Ramsey
Stormwater Retrofit Analysis

Prepared by:

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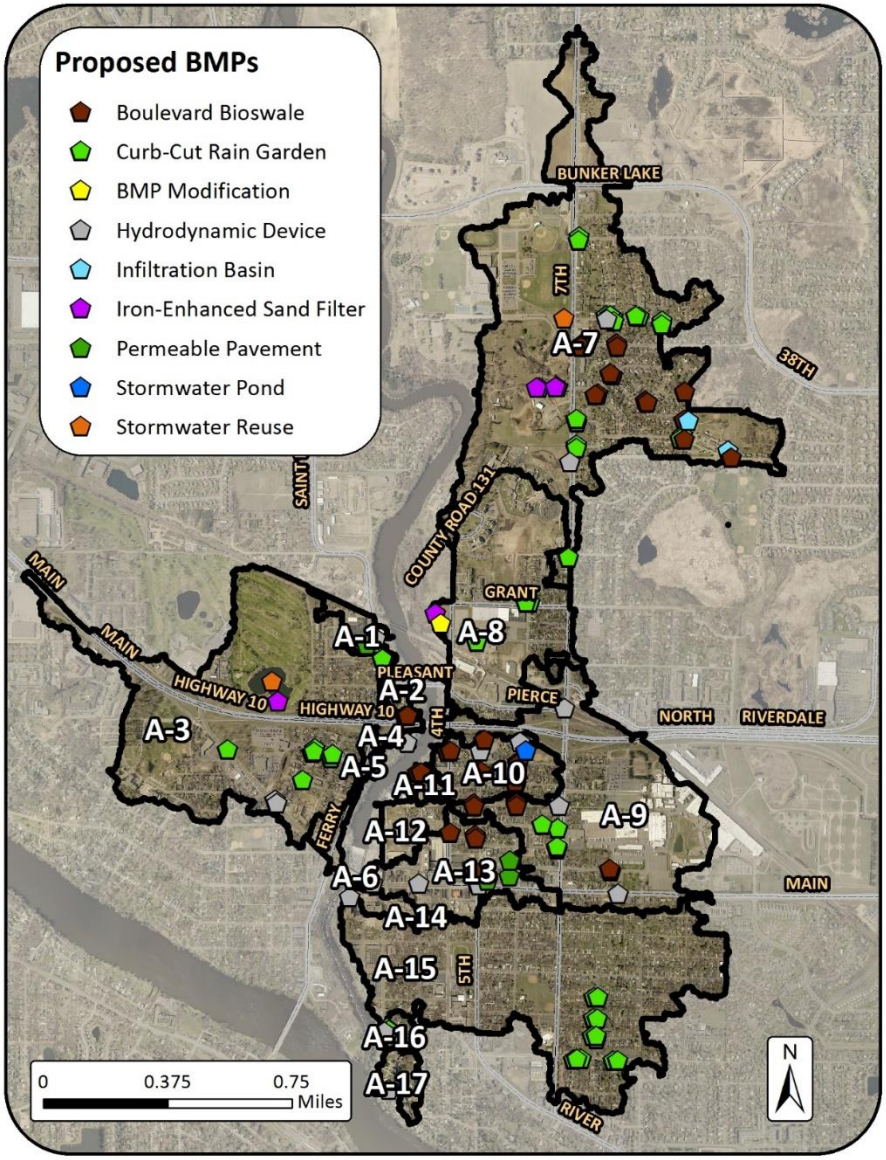
LOWER RUM RIVER WATERSHED MANAGEMENT ORGANIZATION


Proposed BMPs
Boulevard Bioswale
Curb-Cut Rain Garden
BMP Modification
Hydrodynamic Device
Infiltration Basin
Iron-Enhanced Sand Filter
Permeable Pavement
Stormwater Pond
Stormwater Reuse
BUNKER LAKE
7TH
38TH
SAINT
COUNTY ROAD 131
MAIN
GRANT
PLEASANT
PIERCE
NORTH
RIVERDALE
HIGHWAY 10
4TH
FERRY
5TH
RIVER
A-1
A-2
A-3
A-4
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Miles
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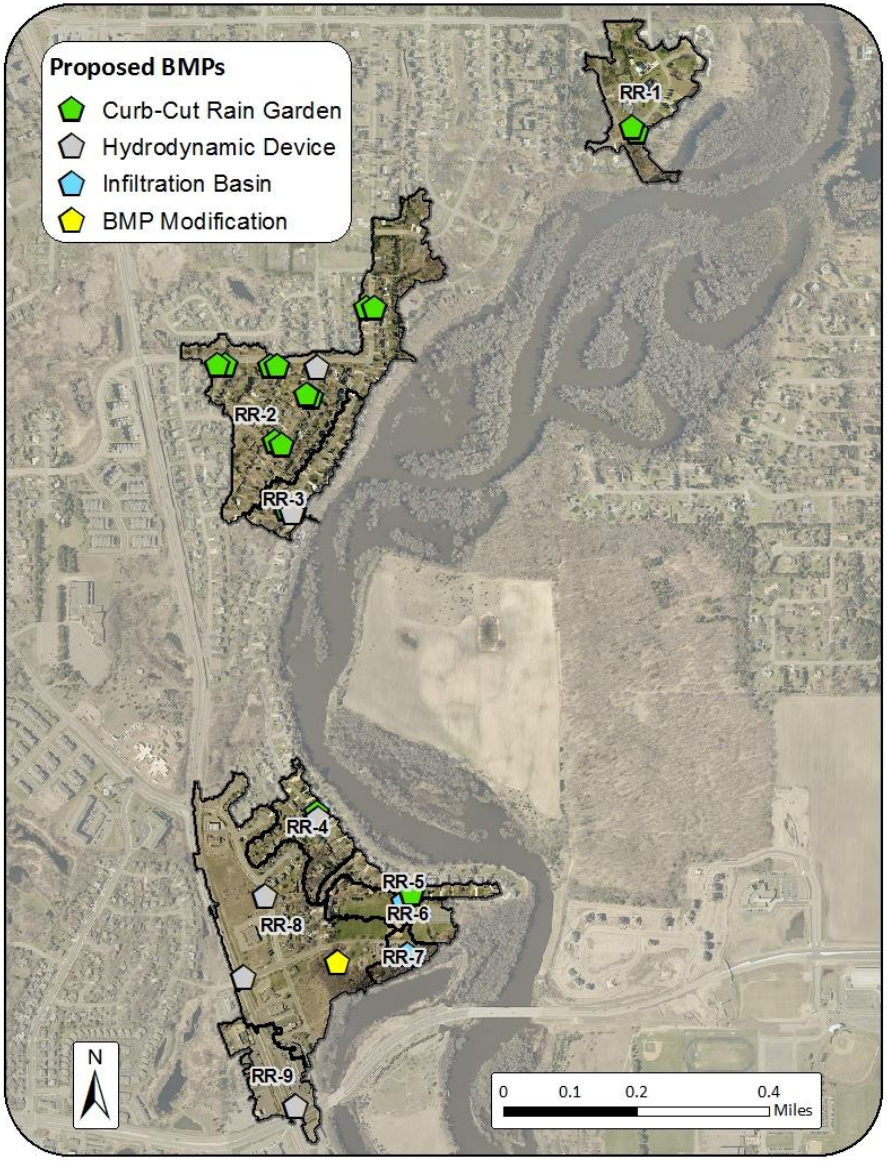

Proposed BMPs
Curb-Cut Rain Garden
Hydrodynamic Device
Infiltration Basin
BMP Modification
RR-1
RR-2
RR-3
RR-4
RR-5
RR-6
RR-7
RR-8
RR-9
N
0
0.1
0.2
0.4
Miles

Pollutant Reduction Modeling

	Existing Conditions	Base Loading	Treatment	Net Treatment %	Existing Loading
Treatment	Number of BMPs	1			
	BMP Types	Street Cleaning			
	TP (lb/yr)	20.5	1.8	9%	**18.7**
	TSS (lb/yr)	6,420	791	12%	**5629**
	Volume (acre-feet/yr)	14.8	0.0	0%	**14.8**

Curb-Cut Rain Garden

	Cost/Removal Analysis	New Treatment	% Reduction	New Treatment	% Reduction	New Treatment	% Reduction
Treatment	Number of BMPs	1		5		10	
	Total Size of BMPs	250	sq-ft	1,250	sq-ft	2,500	sq-ft
	TP (lb/yr)	0.5	2.7%	2.5	13.4%	5.0	26.7%
	TSS (lb/yr)	155	2.8%	776	13.8%	1,551	27.6%
	Volume (acre-feet/yr)	0.4	2.6%	1.9	12.9%	3.8	25.7%
Cost	Administration & Promotion Costs*		$8,468		$11,972		$16,352
	Design & Construction Costs**		$7,376		$36,880		$73,760
	Total Estimated Project Cost (2016)		**$15,844**		**$48,852**		**$90,112**
	Annual O&M***		$225		$1,125		$2,250
Efficiency	30-yr Average Cost/lb-TP	**$1,506**		**$1,101**		**$1,051**	
	30-yr Average Cost/1,000lb-TSS	**$4,859**		**$3,548**		**$3,387**	
	30-yr Average Cost/ac-ft Vol.	**$1,982**		**$1,451**		**$1,384**	

*Indirect Cost: (104 hours at $73/hour base cost) + (12 hours/BMP at $73/hour)

**Direct Cost: ($26/sq-ft for materials and labor) + (12 hours/BMP at $73/hour for design)

***Per BMP: ($150/year for rehabilitations at years 10 and 20) + ($75/year for routine maintenance)

Ranking Tables

Project Rank	Project ID	Page Number	Retrofit Type	Retrofit Location	Catchment	TP Reduction (lb/yr)	TSS Reduction (lb/yr)	Volume Reduction (ac-ft/yr)	Probable Project Cost	Estimated Annual Operations & Maintenance	Estimated cost/ lb-TP/year (30-year)[1]
1	RR6-A	83	Infiltration Basin	142nd LN.	RR6	4.2 - 4.8	1,139 - 1,267	2.6 - 2.9	$63,796 - $83,796	$225	$560 - $629
2	RR3-A	71	Curb-Cut Rain Garden	Waco St.	RR3	0.6 - 0.7	188 - 204	0.5	$8,982	$225	$749 - $874
3	RR8-A	89	Pond Modification	Rivers Bend Park	RR8	7.7	3,672	0.2	$140,840 - $215,840	$900	$779 - $1,203
4	RR1-A	64	Curb-Cut Rain Garden	Oneida St.	RR1	0.4 - 0.5	111 - 118	0.6 - 0.7	$8,982	$225	$1,049 - $1,311
4	RR4-A	75	Curb-Cut Rain Garden	Waco St.	RR4	0.4 - 0.5	122 - 155	0.3 - 0.4	$8,982	$225	$1,049 - $1,311
6	RR2-A	67	Curb-Cut Rain Garden	Various locations in RR2	RR2	0.5 - 5.0	155 - 1,551	0.4 - 3.8	$15,844 - $90,112	$225 - $2,250	$1,051 - $1,506
7	RR5-A	79	Curb-Cut Rain Garden	142nd LN.	RR5	0.37 - 0.43	110 - 129	0.26 - 0.30	$8,982	$225	$1,220 - $1,417
8	RR7-A	86	Infiltration Basin	Rivers Bend Park Parking Lot	RR7	0.20 - 0.32	59 - 72	0.12 - 0.15	$7,796 - $9,796	$225	$1,724 - $2,424
9	RR9-A	94	Hydrodynamic Device	St. Francis Blvd. and Bunker Lake Blvd.	RR9	0.7	364	0.0	$55,752	$630	$3,555
10	RR4-B	76	Hydrodynamic Device	Waco St.	RR4	0.5	200	0.0	$55,752	$630	$4,977
11	RR5-B	80	Hydrodynamic Device	142nd LN.	RR5	0.3	111	0.0	$28,752	$630	$5,295
12	RR2-B	68	Hydrodynamic Device	Xkimo St.	RR2	0.8	322	0.0	$109,752	$630	$5,361
13	RR3-B	72	Hydrodynamic Device	Waco St.	RR3	0.4	167	0.0	$55,752	$630	$6,221
14	RR8-B	90	Hydrodynamic Device	142nd Ave.	RR8	0.2	108	0.0	$28,752	$630	$7,942
15	RR8-C	91	Hydrodynamic Device	Xkimo St.	RR8	0.5	220	0.0	$109,752	$630	$8,577

[1] [(Probable Project Cost) + 30*(Annual O&M)] / [30*(Annual TP Reduction)]

METROPOLITAN COUNCIL STORMWATER GRANT

GRANTEE: Lower Rum River Watershed Management Organization	**GRANT NO.: SG-101121149**
PROJECT: Small Space Stormwater Retrofits for the Rum and Mississippi Rivers	
GRANT PERIOD: December 31, 2018	
COUNCIL ACTION: 2016-183	

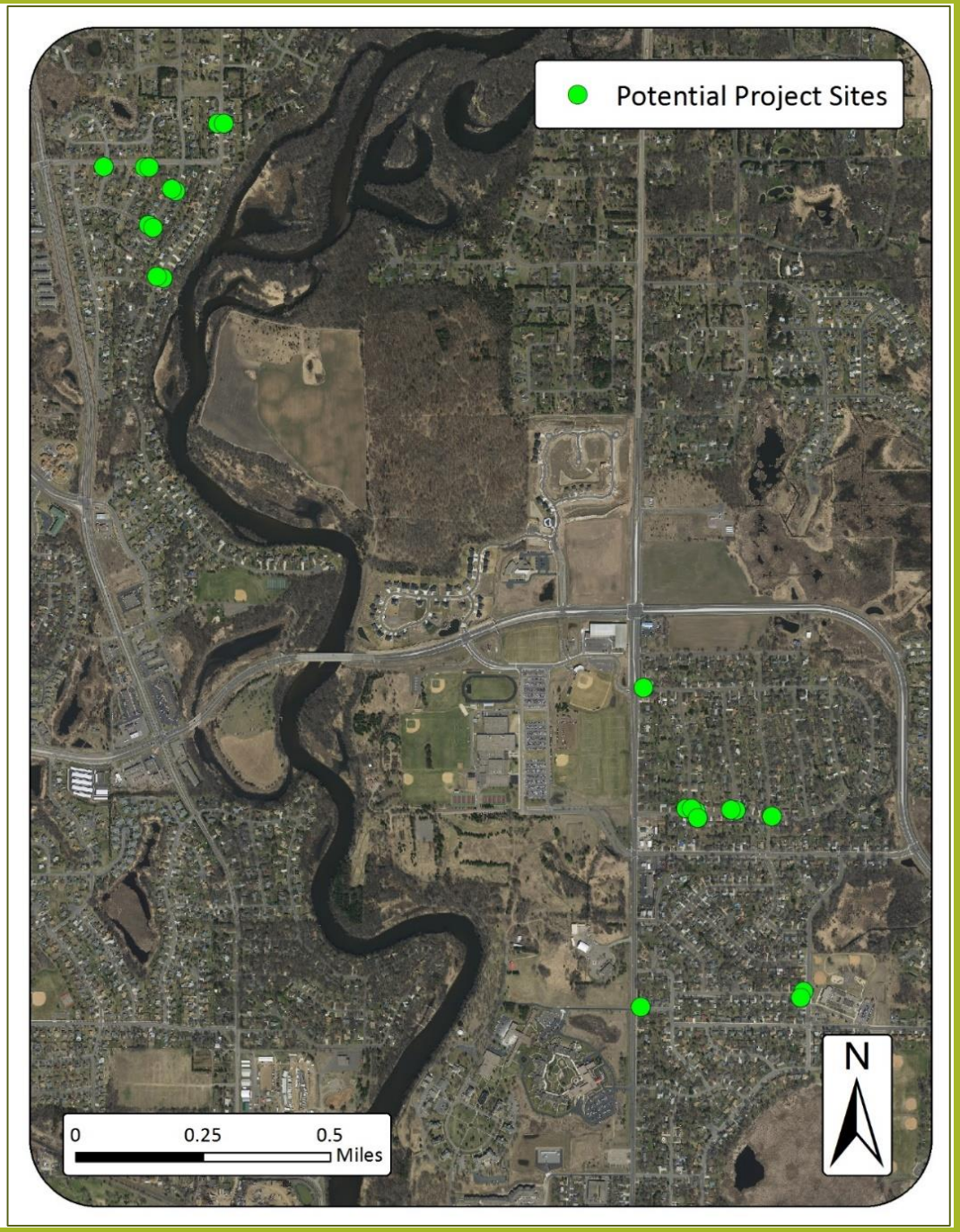
METROPOLITAN COUNCIL

Lower Rum River Watershed Management Organization

ANOKA CONSERVATION DISTRICT

Potential Sites

- Initial mailings to highest priority properties where the projects fit within the grant budget
- Will select "best of best" to most cost-effectively use public dollars
- Will select locations without utility interference



Rain Garden Basics

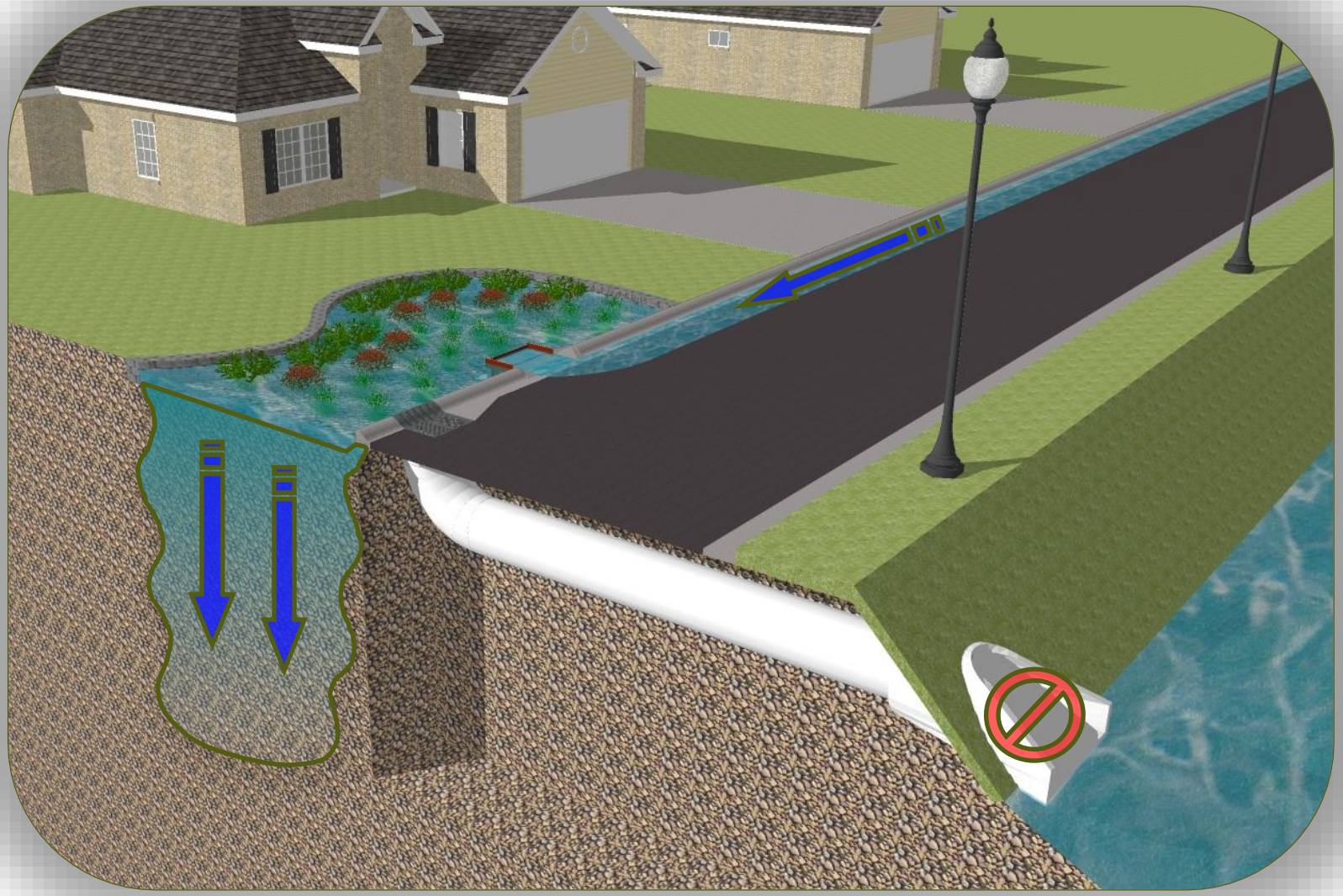
- What are rain gardens?
- Importance
- Installation
- Plant palette
- Maintenance

What is a rain garden?

Rain leader (rooftop) disconnect

Curb-cut

Rain Garden Basics - function

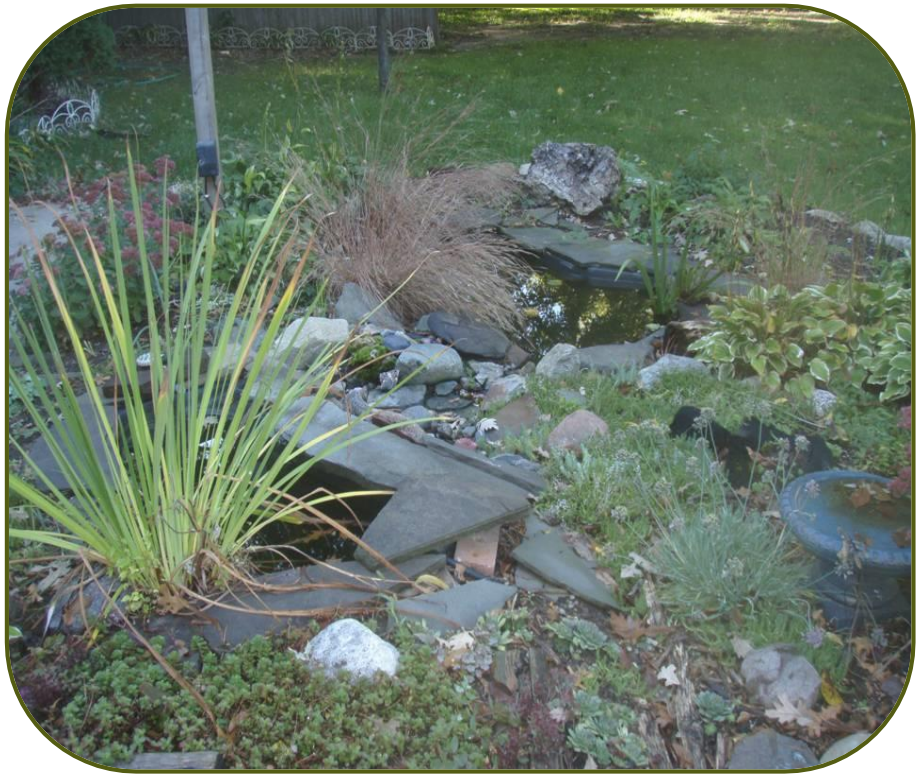


Curb-cut Rain Gardens

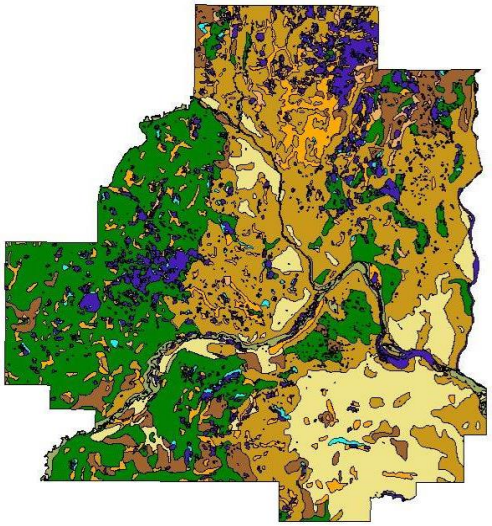
Before & 48 hours following a rain event

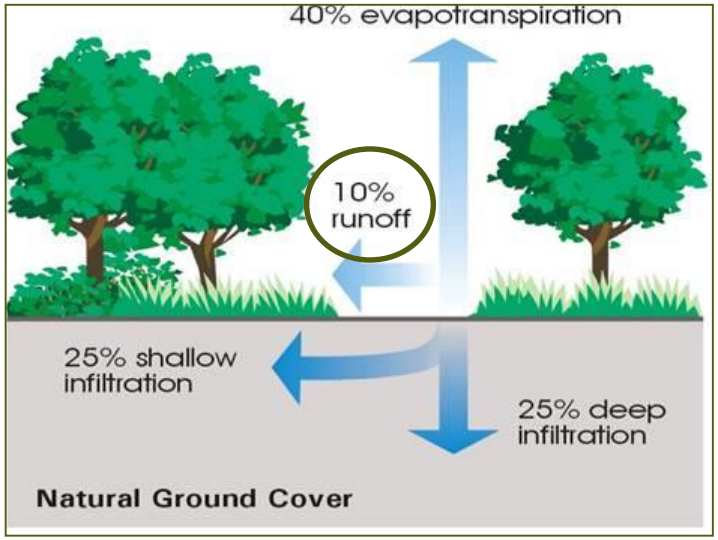
During a rain event

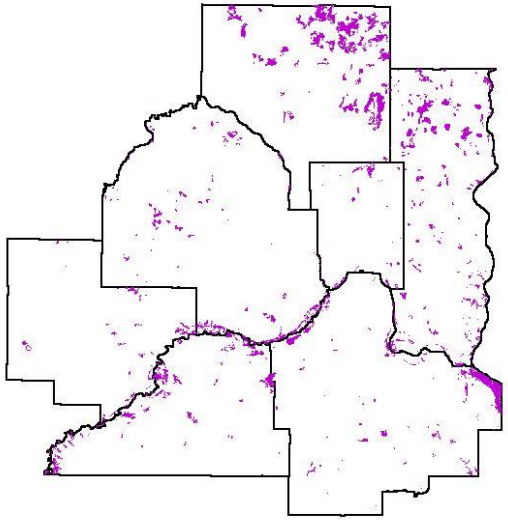
Rain gardens are not…

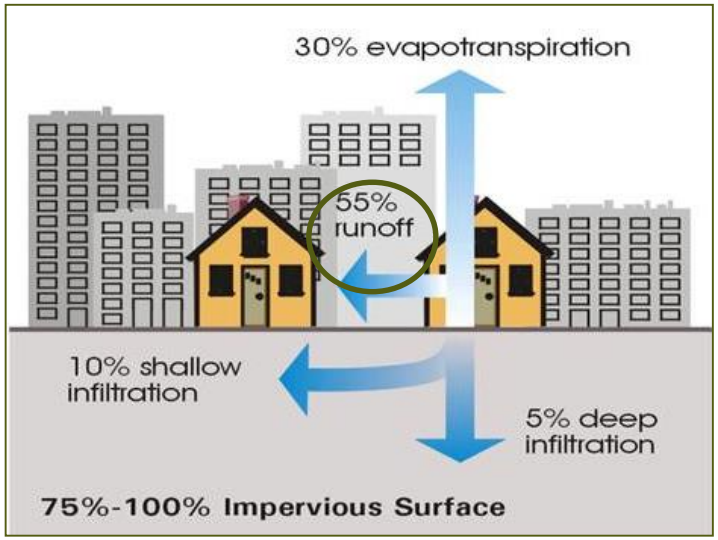


Why are rain gardens important?










Storm Drain
Piped directly to Wetland, Lake or Stream
Stormwater runoff = rainwater + sediment + nutrients + bacteria + organic matter + oil + heavy metals + etc.

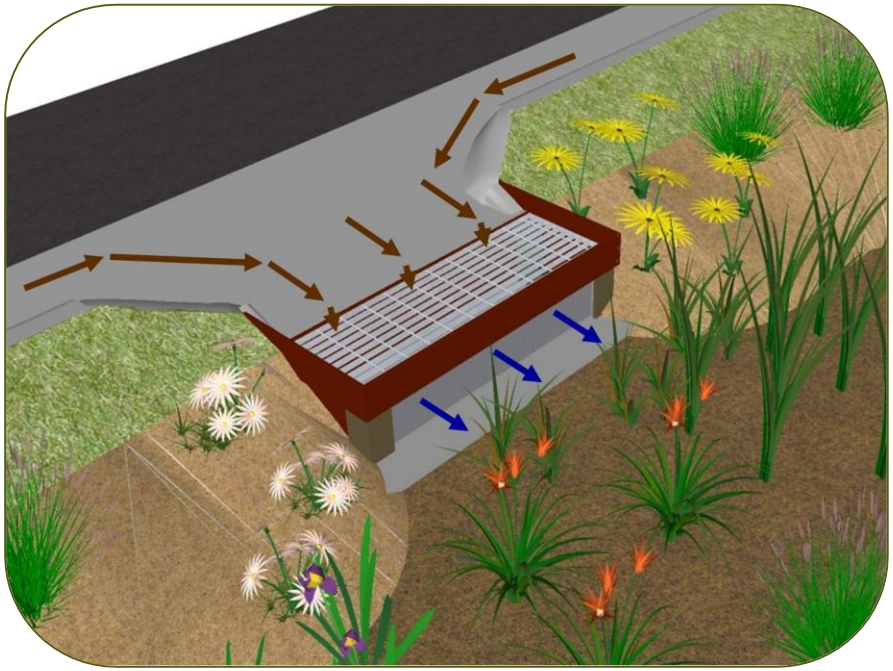
Installation – Excavation

Installation – Retaining Wall

Installation – Curb-cut

Installation – Curb-cut

Installation – Pre-Treatment



Rain Guardian

Installation – Soil Amendment

Installation – Mulch Addition

Installation – Planting

Rain Garden Construction Video

Planting Palette – Grasses and Shrubs

Karl Forester

Fox Sedge

Cranberrybush

June Grass

Prairie Dropseed

Dwarf Bush Honeysuckle

Plant Palette: Perennials

COREOPSIS 'MOONBEAM'
Coreopsis verticillata 'Moonbeam'

PURPLE PRARIE CLOVER
Dalea purpurea

BUTTERFLY MILKWEED
Asclepias tuberosa

ASTER 'PURPLE DOME'
Aster novae-angliae 'Purple Dome'

PURPLE CONEFLOWER
Echinacea purpurea

GERANIUM 'JOHNSON BLUE'
Geranium himalayense x pratense

CARDINAL FLOWER
Lobelia cardinalis

SENSITIVE FERN
Onoclea sensibilis


June 2009


May 2010


September 2010

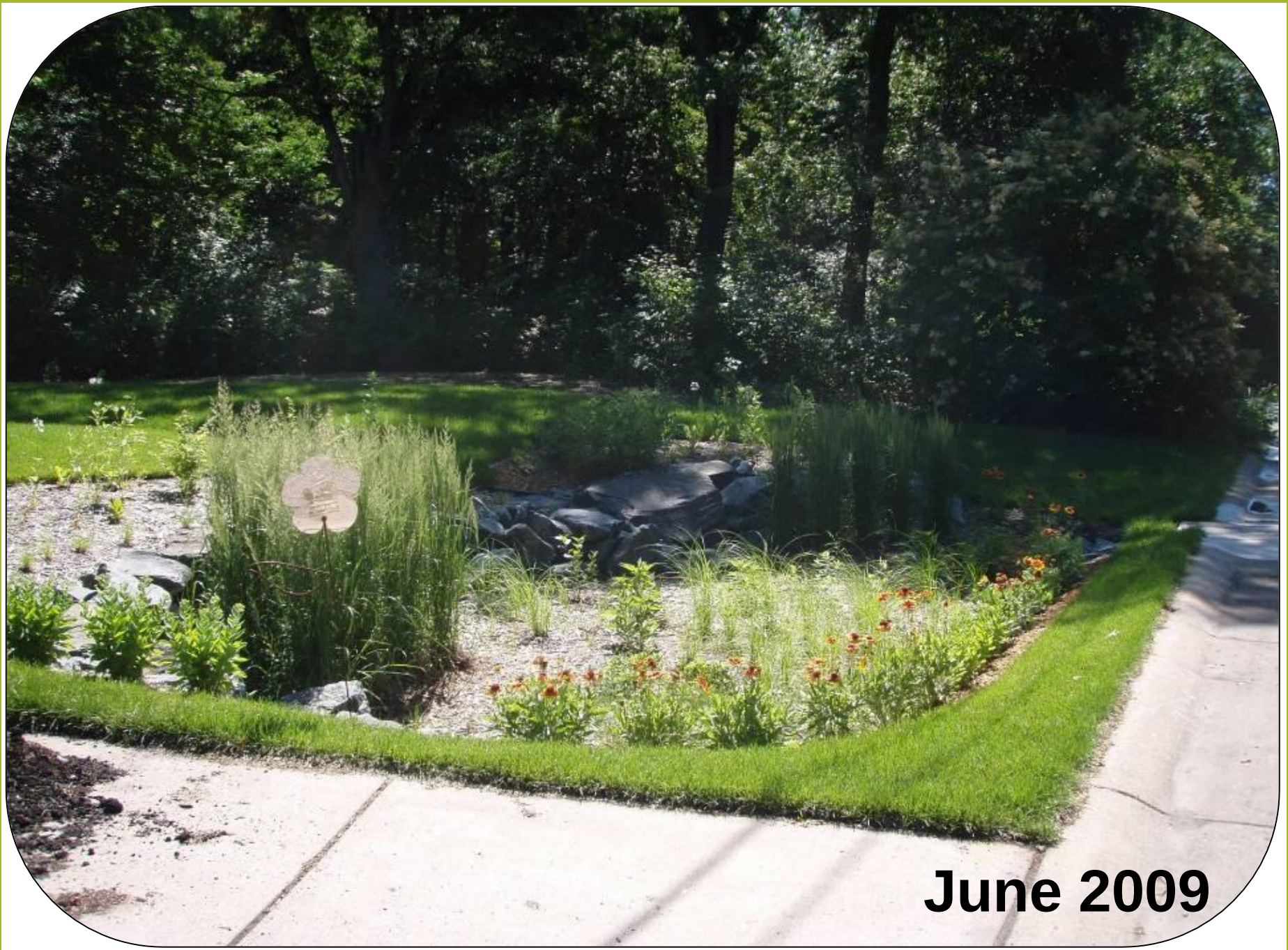

June 2011


August 2012


September 2014


Fall 2008 – Post Planting


May 2009


June 2009


September 2009


August 2010

Maintenance

	YEAR				
TASK	**1**	**2**	**3**	**4**	**5**
Weeding	H	H	M	L	L
Watering	H	M	L	L	L
Clean Pretreatment Chamber	H	H	H	H	H

H = High; M = Medium; L = Low

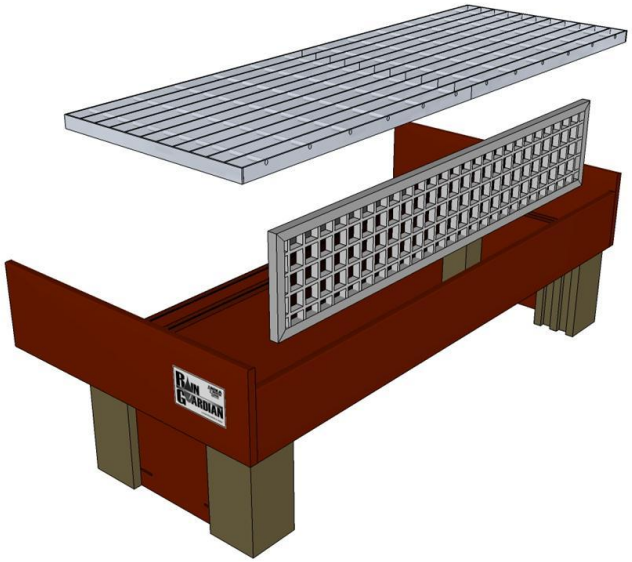
Other:
Refresh mulch, plant replacement

Pre-treatment Maintenance

Rain Guardian—Bunker

Standard exterior dimensions:

50"L x 25.5"W x 15.5"H



Pre-treatment Maintenance

Landowner Responsibility

- Payments: None
- Enter into maintenance agreement with ACD (10 years)
- Maintain the rain garden

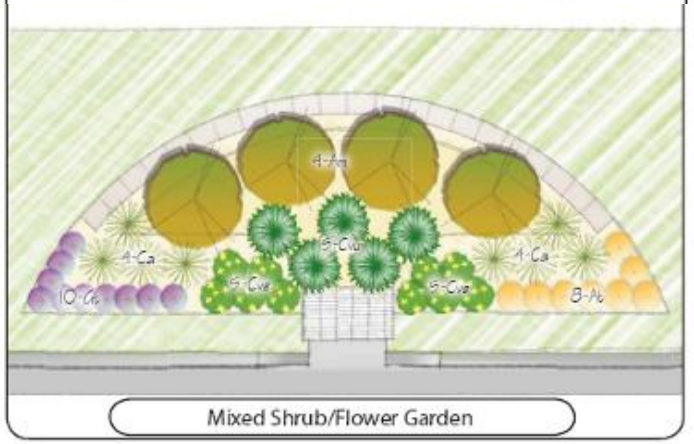
ACD Responsibility

We will provide:

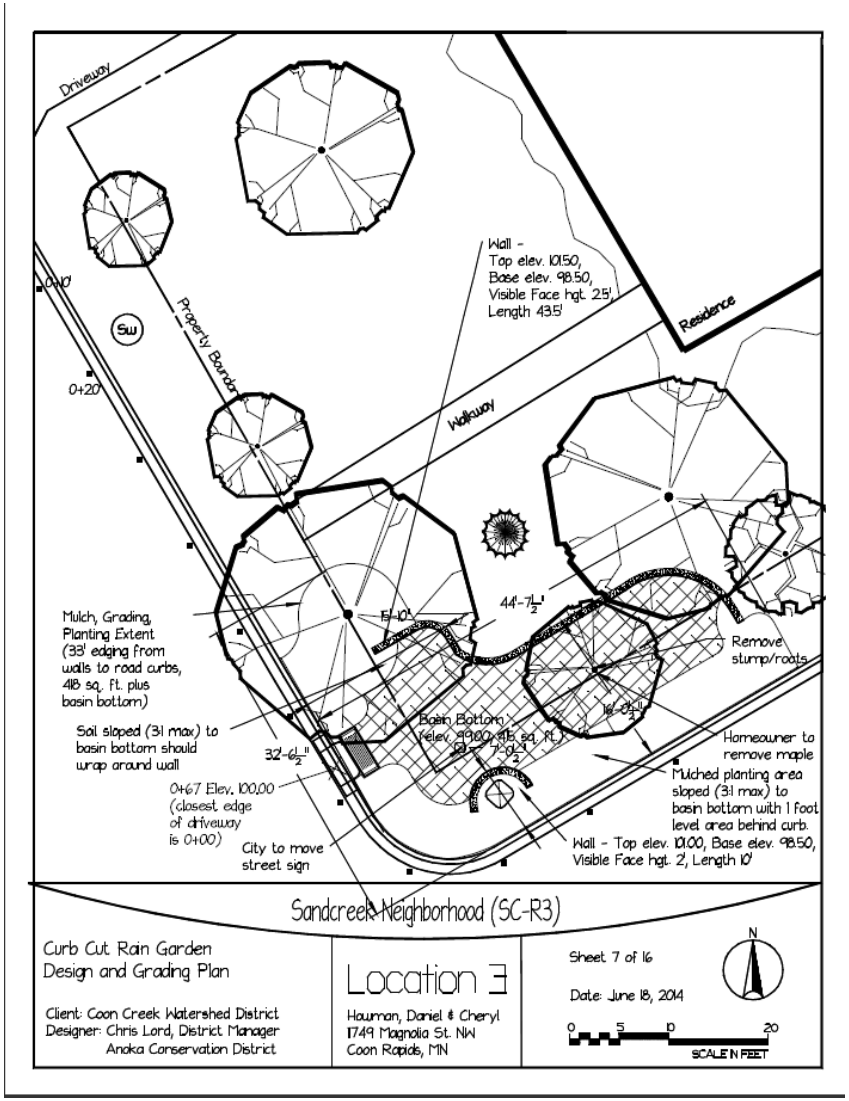
- Designs/estimates
- Project bidding
- Construction coordination & oversight
- Material deliveries
- Technical assistance for landowners

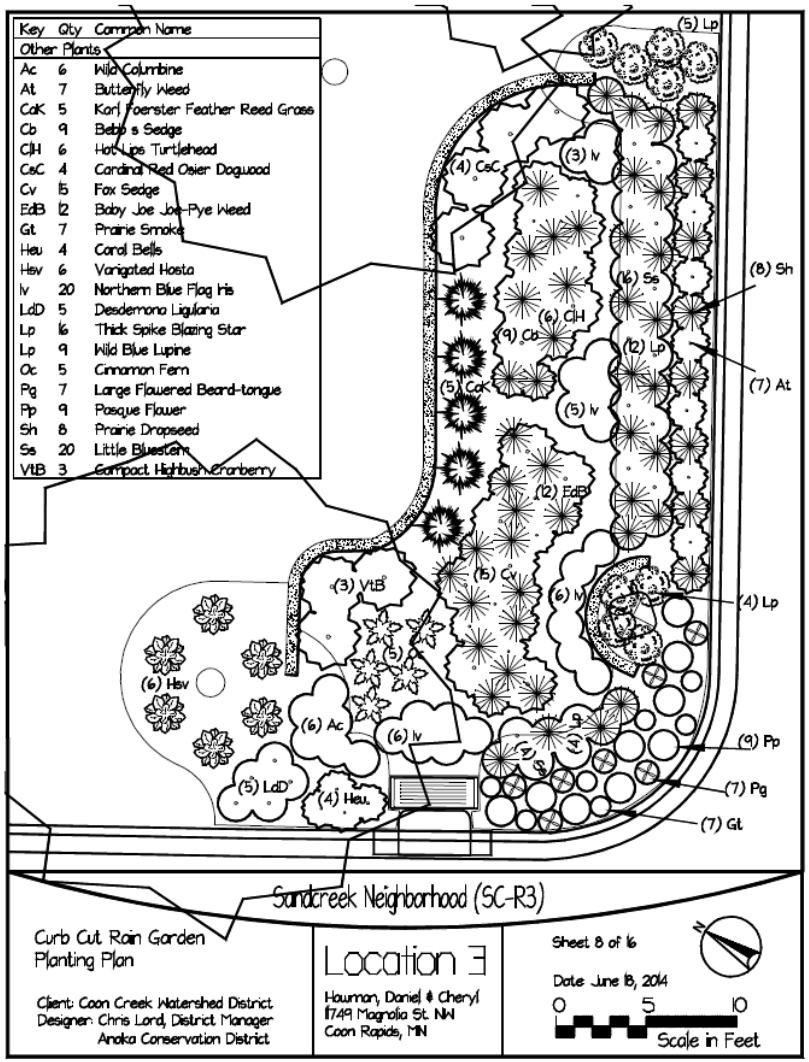
Designs

- The design will be customized to fit your property and accommodate for trees, utilities, existing landscaping, etc.
- Designs for your property will be available to review
- Minor modifications can be made, but communication is important on the front-end of the design process (we want to make sure you like it)
- Plant palette
- Plant and retaining wall substitutions may be possible at your expense, and must be coordinated with ACD and the contractor

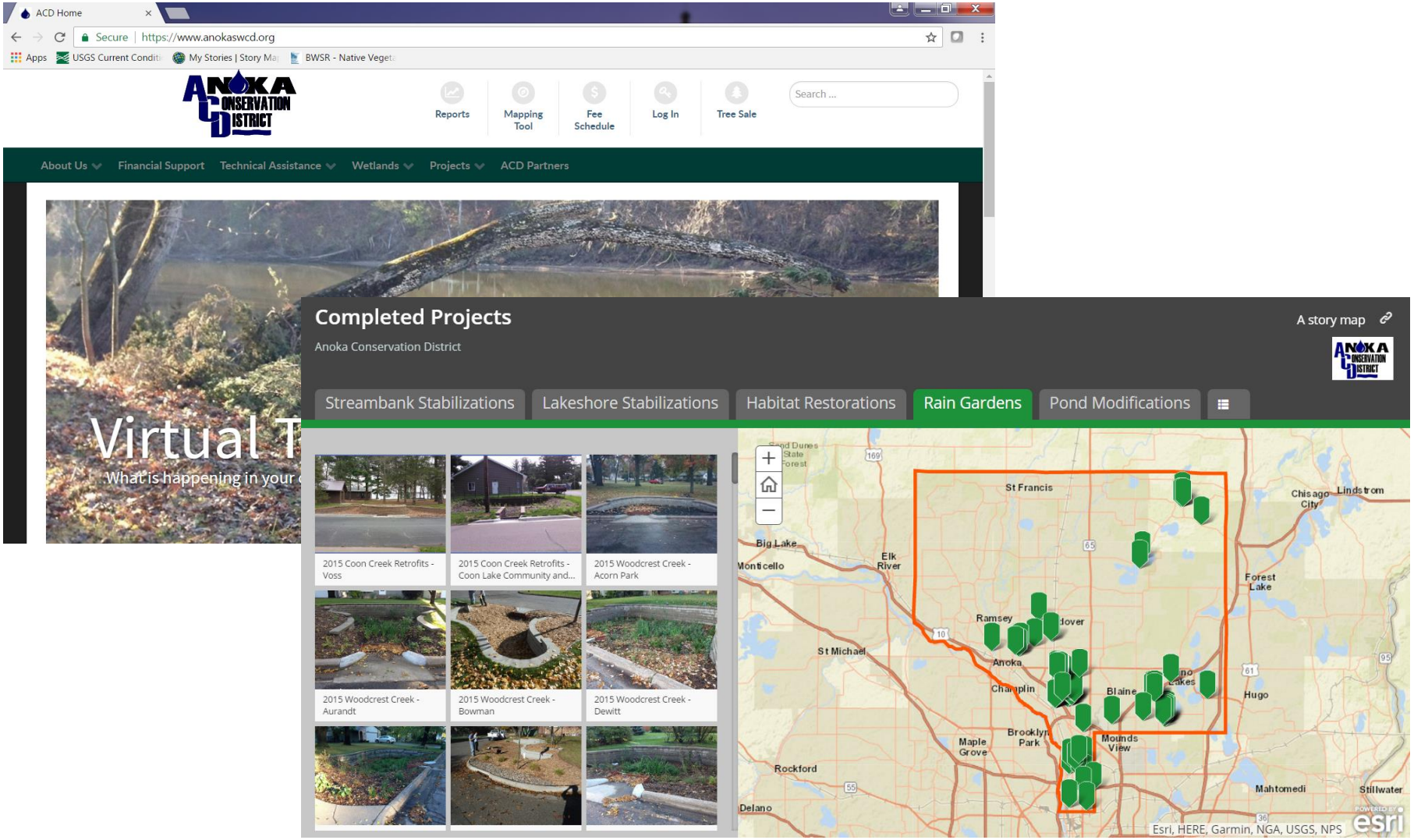


Design Example





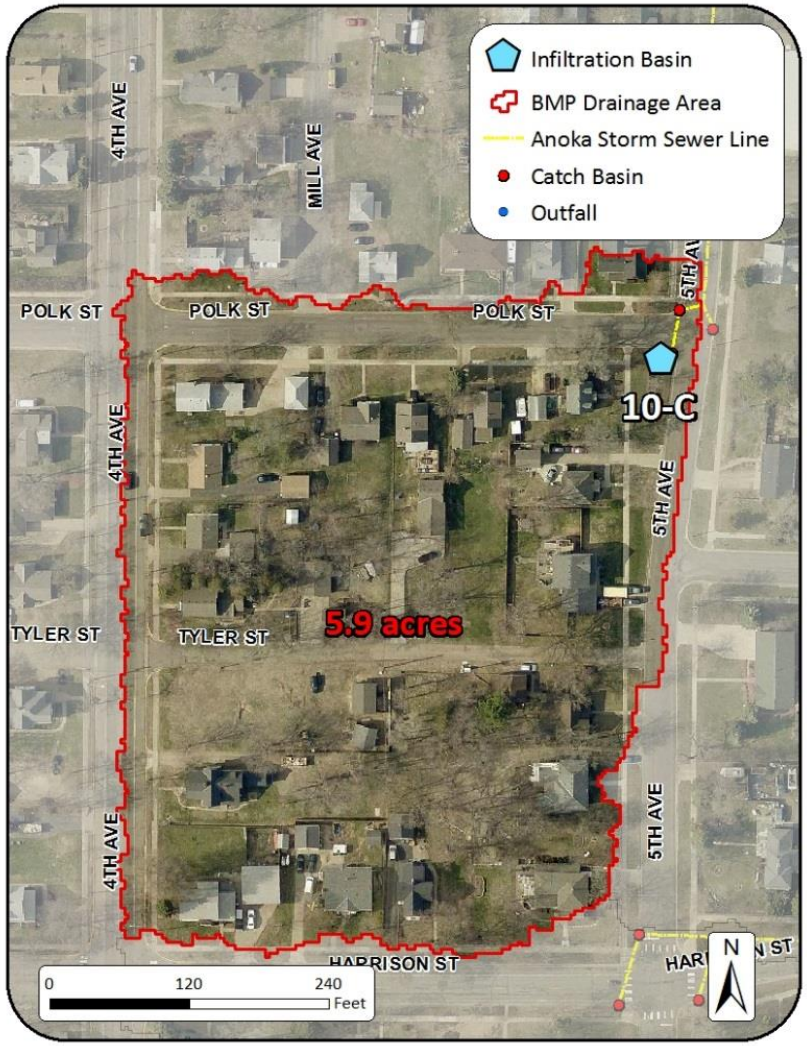
ACD Website



www.AnokaSWCD.org

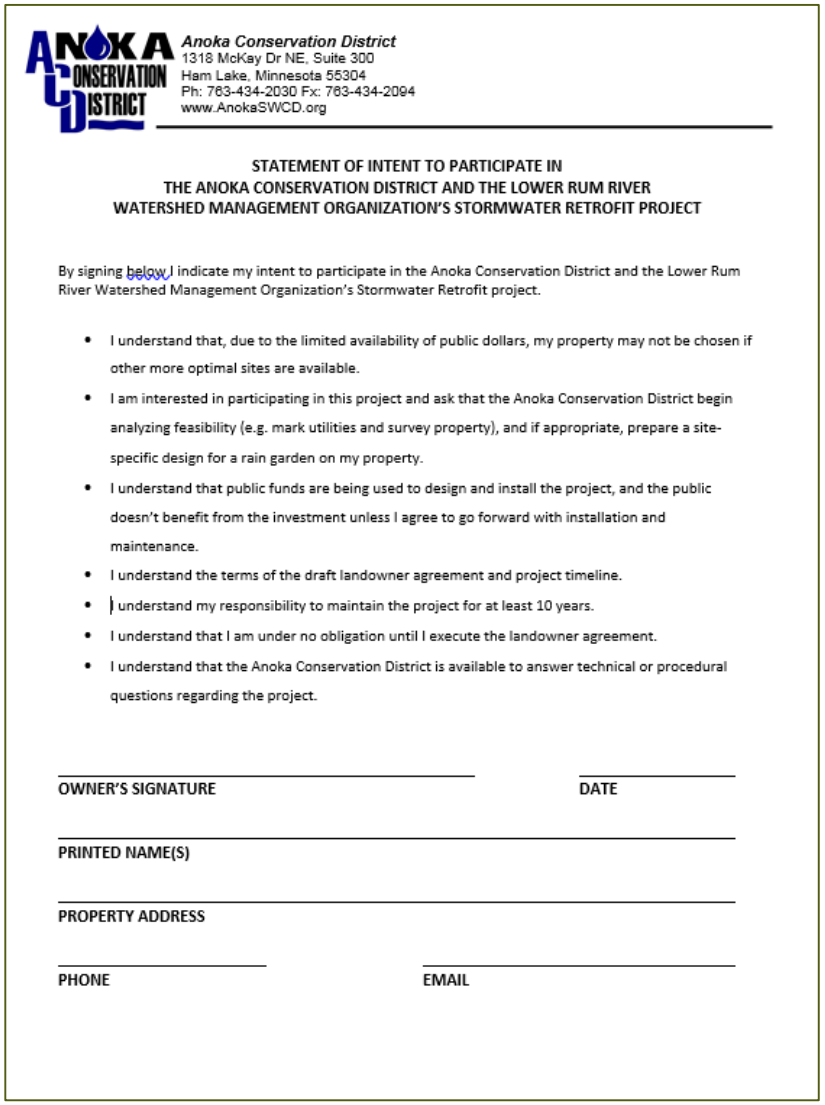
Program Overview

- Limited funding
- Program invites were based on a priority ranking
- Sites with interested landowners will be ranked based on site characteristics:
  - Total drainage area to rain garden
  - Available land area for rain garden
  - Utility conflicts and other cost-increasing items
- Highest priority sites will be selected



Statement of Intent

- Statement of Intent Form
  - Indicates understanding of program
  - NOT legally binding
  - Allows us to gauge legitimate interest or contact other landowners



Anoka Conservation District
1318 McKay Dr NE, Suite 300
Ham Lake, Minnesota 55304
Ph: 763-434-2030 Fx: 763-434-2094
www.AnokaSWCD.org

STATEMENT OF INTENT TO PARTICIPATE IN THE ANOKA CONSERVATION DISTRICT AND THE LOWER RUM RIVER WATERSHED MANAGEMENT ORGANIZATION'S STORMWATER RETROFIT PROJECT

By signing below I indicate my intent to participate in the Anoka Conservation District and the Lower Rum River Watershed Management Organization's Stormwater Retrofit project.

- I understand that, due to the limited availability of public dollars, my property may not be chosen if other more optimal sites are available.
- I am interested in participating in this project and ask that the Anoka Conservation District begin analyzing feasibility (e.g. mark utilities and survey property), and if appropriate, prepare a site-specific design for a rain garden on my property.
- I understand that public funds are being used to design and install the project, and the public doesn't benefit from the investment unless I agree to go forward with installation and maintenance.
- I understand the terms of the draft landowner agreement and project timeline.
- I understand my responsibility to maintain the project for at least 10 years.
- I understand that I am under no obligation until I execute the landowner agreement.
- I understand that the Anoka Conservation District is available to answer technical or procedural questions regarding the project.

OWNER'S SIGNATURE _____ DATE _____

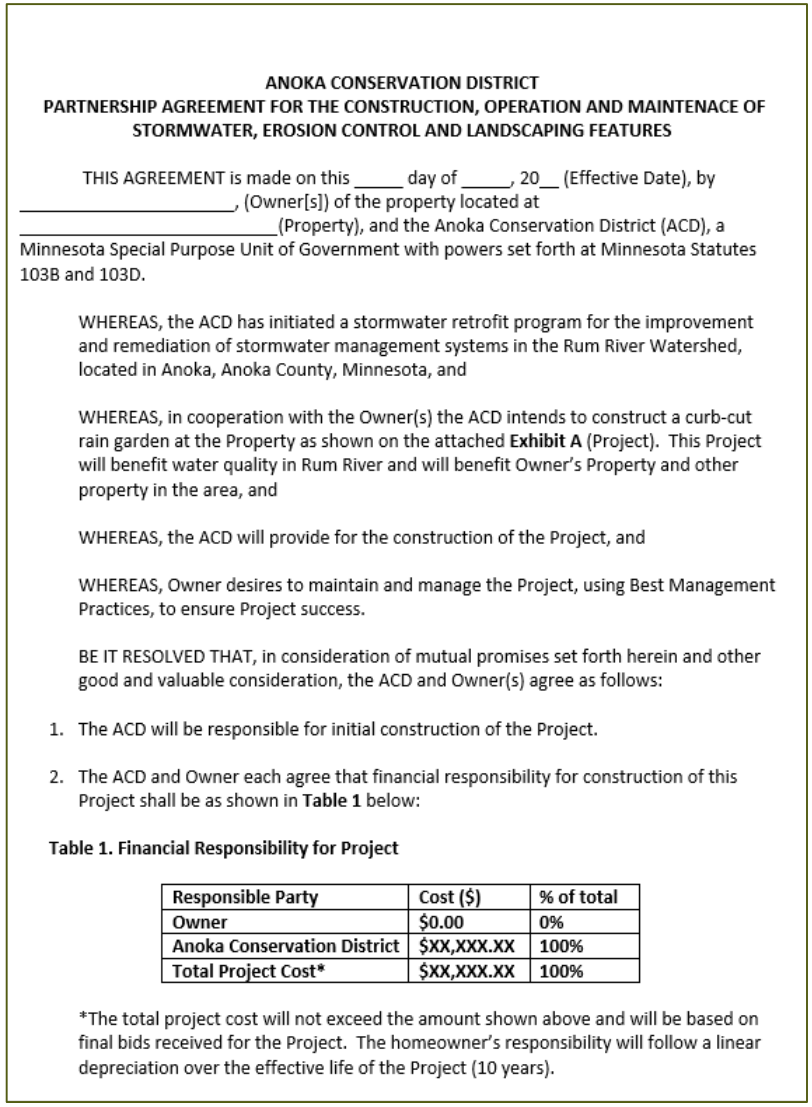
PRINTED NAME(S) _____

PROPERTY ADDRESS _____

PHONE _____ EMAIL _____

Operation & Maintenance Agreement

- Document is notarized
- If you move, you need to put ACD in contact with the new owner
- Landowner maintains the garden for 10 years
- What if I fail to maintain it?
  - Inspections – Maintenance Notice – Technical Assistance
  - If all else fails… Liability



ANOKA CONSERVATION DISTRICT
PARTNERSHIP AGREEMENT FOR THE CONSTRUCTION, OPERATION AND MAINTENACE OF STORMWATER, EROSION CONTROL AND LANDSCAPING FEATURES

THIS AGREEMENT is made on this _____ day of _____, 20__ (Effective Date), by _____, (Owner[s]) of the property located at _____(Property), and the Anoka Conservation District (ACD), a Minnesota Special Purpose Unit of Government with powers set forth at Minnesota Statutes 103B and 103D.

WHEREAS, the ACD has initiated a stormwater retrofit program for the improvement and remediation of stormwater management systems in the Rum River Watershed, located in Anoka, Anoka County, Minnesota, and

WHEREAS, in cooperation with the Owner(s) the ACD intends to construct a curb-cut rain garden at the Property as shown on the attached **Exhibit A** (Project). This Project will benefit water quality in Rum River and will benefit Owner's Property and other property in the area, and

WHEREAS, the ACD will provide for the construction of the Project, and

WHEREAS, Owner desires to maintain and manage the Project, using Best Management Practices, to ensure Project success.

BE IT RESOLVED THAT, in consideration of mutual promises set forth herein and other good and valuable consideration, the ACD and Owner(s) agree as follows:

1. The ACD will be responsible for initial construction of the Project.
2. The ACD and Owner each agree that financial responsibility for construction of this Project shall be as shown in **Table 1** below:

Table 1. Financial Responsibility for Project

Responsible Party	Cost ($)	% of total
Owner	$0.00	0%
Anoka Conservation District	$XX,XXX.XX	100%
Total Project Cost*	$XX,XXX.XX	100%

*The total project cost will not exceed the amount shown above and will be based on final bids received for the Project. The homeowner's responsibility will follow a linear depreciation over the effective life of the Project (10 years).

Estimated Timeline

Task	Deadline
Statement of Intent Form	April 7th (or tonight)
Designs	Draft – May; Final – June
Landowner Agreement	June
Project Bidding	July - August
Construction	September – October
Planting	October

Questions

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