

The background is a light blue gradient with several realistic water droplets of various sizes scattered across it. Some droplets are at the top, some at the bottom, and some on the sides, creating a fresh and clean aesthetic.

WELCOME TO THE SAINT ANTHONY RAIN BARREL WORKSHOP

RAIN BARREL PRESENTATION OVERVIEW



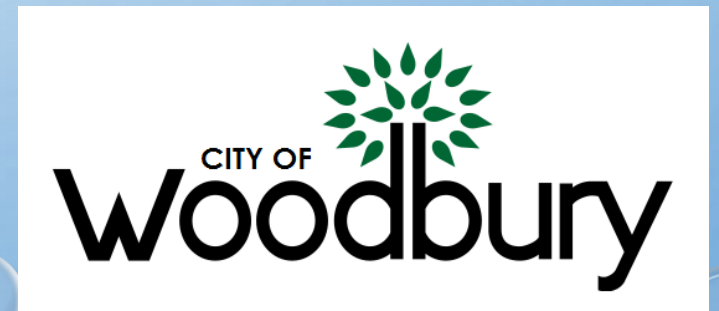
- INTRODUCTION
- THE IMPORTANCE OF RAIN BARRELS
- RAIN BARREL HOW TO
 - INSTALLATION
 - MAINTENANCE
 - USE
- WHAT HAPPENS TO WATER RUNOFF
- NEXT STEPS



Kristin Seaman



- Served an 11 month volunteer term with Saint Anthony Village
 - Rain Barrels, Pollinators, Outreach & Education
- Master Water Steward, Mississippi Watershed Management Organization
- Now work for the City of Woodbury on stormwater and water conservation

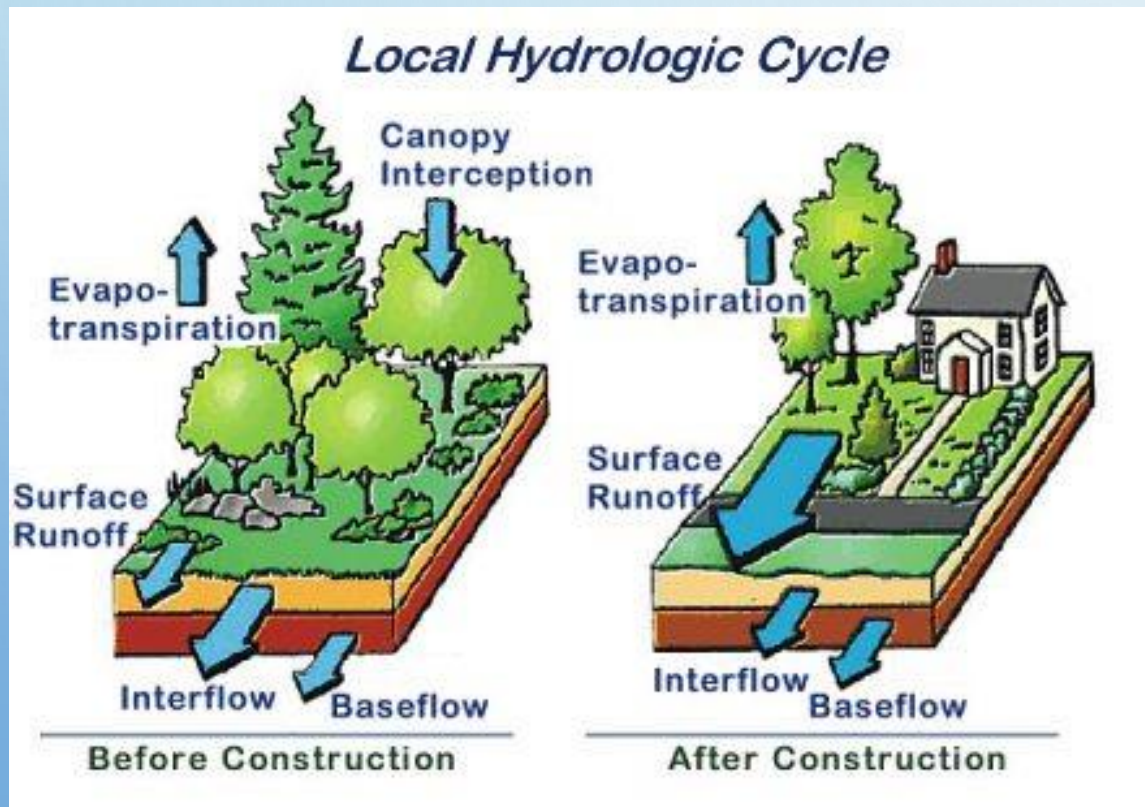


Jay Hartman Public Works Director

- Streets
- Parks
- Stormwater
- Water & Sewer
- Engineering
 - Spring Clean Up Day: May 5th
 - Drop off at Public Works 9am-12
 - Park Clean Up 9:30-12 (see Facebook)



THE IMPORTANCE OF RAIN BARRELS (AND WATER CONSERVATION)



- All rainwater moves from hard surface (or smooth turf grass) to storm drains which dump into the Mississippi River or Silver Lake (impaired waters)
 - There is no filter!
 - Manmade structures/design prevents rainfall from staying on our properties, being filtered through natural processes, and from recharging our groundwater supply
- Rainwater capture is one way to reduce the effects on surface and ground water

THE IMPORTANCE OF RAIN BARRELS (AND WATER CONSERVATION)

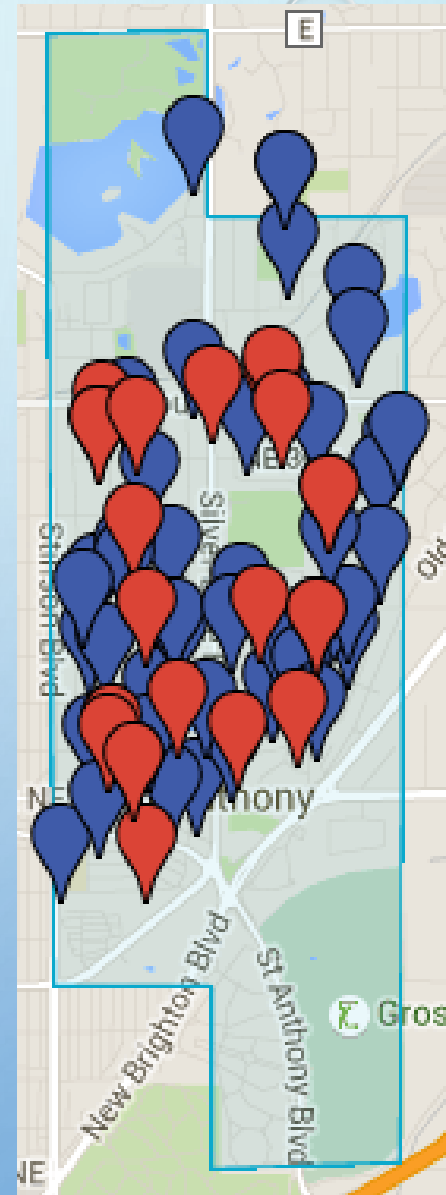
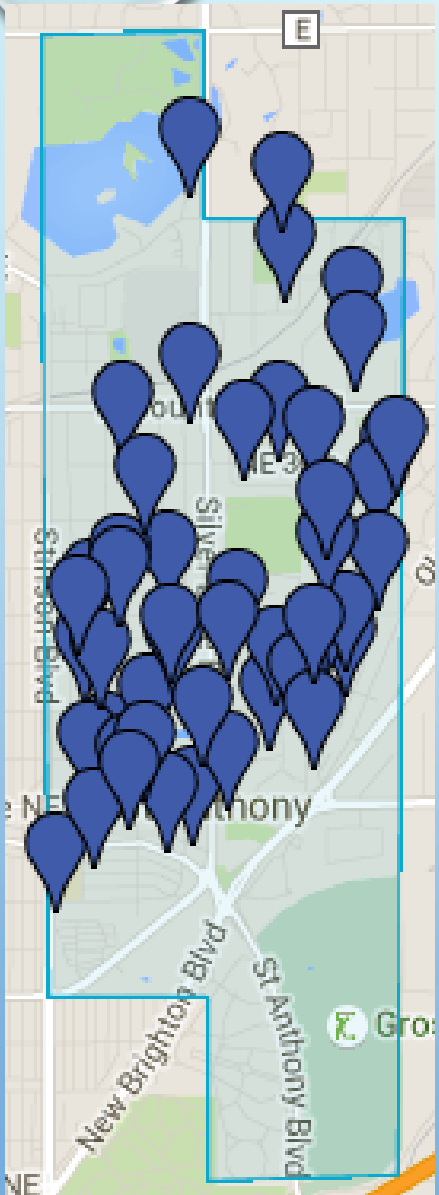


- The city pumps and cleans groundwater
- This water is treated to add nutrients that are healthy for us but unnecessary for plants, yards and cars
- Treatment: GAC and AOP
- North and East Groundwater Management Area, DNR is closely watching groundwater withdrawal and monitoring levels

THE IMPORTANCE OF RAIN BARRELS (AND WATER CONSERVATION)

This is the fourth Rain Barrel workshop Saint Anthony has hosted

- 110 barrels were distributed between 2012, and 2017
- Today another 30 barrels are being added to the community
- We all need to do our part in using water efficiently



SUMMER WATER USE AND BEING SUSTAINABLE



- In the metro, the average per capita water use is 125 gallons per day
- Water use in the summer on average 2.4 times what it is in the rest of the year

Reducing water use by 20% can make a big difference

- 90 gallons per day per capita allows for the expected growth in population and business without increasing water use
- Reducing summer use from 2.4 times to 1.6 times winter use

Less than \$5 at Home Depot
Come in different sizes and colors



RAIN BARREL INSTALLATION

1. Find your location

- Level ground near a downspout (barrels will weigh 500 lbs when full)
- Closest to your watering needs
- Construct a stand- 2 feet (height=pressure)
- Place your barrel

2. Mark your downspout

- Depends on downspout and attachment and size of your downspout
- Measure twice, cut once
- Leave space to access the top opening

Spend some time thinking about and assembling a stand that will be able to support a full barrel before moving on

RAIN BARREL INSTALLATION



3. Cut

- Use a hacksaw to cut your downspout (water needs to flow within ½ inch of the barrel opening)
- Put cardboard behind downspout while cutting to protect house

4. Connect barrel to downspout

- Use fasteners whenever necessary
- Keep the bottom half of your downspout to be reattached over winter

RAIN BARREL MAINTENANCE

Potential Issue: Try to put your barrel on a downspout that isn't mostly in direct sunlight

Winter maintenance:

- Disconnect barrel from downspout in November (maybe October)
- Completely drain the barrel (into the grass/garden and away from foundations and walkways)
- Reattach modified downspout to full length extension (resembles pre-barrel days)
- Clean out debris from barrel
- Cover with a tarp or move inside, leave spigot open in case water gets inside

Products for Problems: Mosquito dunks, chlorine tablets, algaecide, white vinegar, baking soda

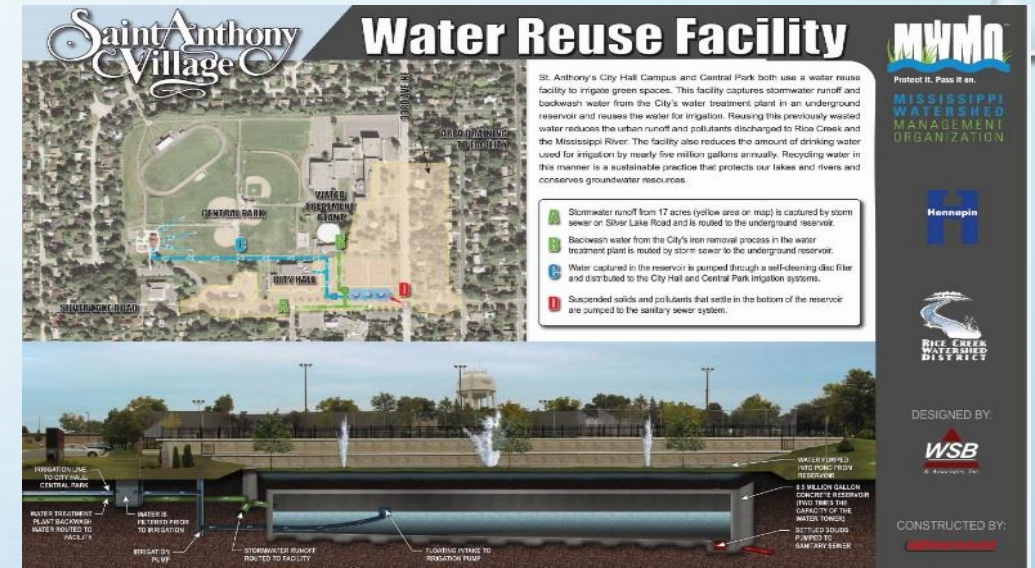
- all can be found at local hardware/pool stores

RAIN BARREL USE

- Use rain water instead of using your garden hose: lawn, trees, flowers
- Empty before next rain event: sitting water for multiple days can be bad for your barrel
- Not enough research on whether or not its safe for produce: roofs are made from petroleum based products, rain water can carry bird droppings
 - Proceed with caution/Better safe than sorry
 - If you choose to use on produce: apply water to soil and wash produce thoroughly
- If leaving town for 3 or more days, leave spigot open and directed at lawn/garden (soaker hose)

WHAT HAPPENS TO WATER RUNOFF?

- SAV and watersheds are installing systems that treat the stormwater that your barrel(s) can't catch
- Find other improvements on your property to help protect our water



Silver Lake Stormwater Treatment System

Project Need:
Silver Lake is listed as an impaired water body by the Minnesota Pollution Control Agency. This means that the lake does not meet current State standards for water quality. Silver Lake is impaired for nutrients, specifically phosphorus, which allows excessive algae to grow in Silver Lake impeding fishing, swimming, and other recreational activities. The City of St. Anthony Village is required to reduce our discharge of phosphorus into Silver Lake. The Silver Lake project will help the City achieve our goals.

Project Description:
The Silver Lake Stormwater Treatment System will improve the stormwater ponds ability to remove phosphorus. This will be achieved by constructing an underground water treatment system north of 39th Avenue and on the west side of the ponds. This work will begin in March 2014, and the treatment system will be up and running in the late summer to early fall of 2014.

The City aims to reduce the yearly phosphorus runoff into Silver Lake by 25 pounds. The City will accomplish this reduction by diverting water from the Silver Ponds and injecting a chemical that will bind to phosphorus in the water, causing the phosphorus to settle out in large underground tanks. The cleaned water will then be sent back into Silver Ponds making the water that flows from Silver Ponds to Silver Lake much clearer.

The current phosphorus removal efficiency of Silver Ponds is about 50%, and the new system is anticipated to increase this efficiency by up to 90%.

Contributor Cost \$450,000 • Completion June 2014 • Operated by NW 2014
Funding Sources: Public Utilities Authority Grant (PWCA) \$514,000 | Rice Creek Watershed District \$50,000 | City of St. Anthony \$144,000

WSB

Central Park Biofiltration Stormwater Treatment System

Project Need:
The City of St. Anthony Village is currently reconstructing its utility and roadways. As a result, the City must meet the requirements of the Rice Creek Watershed District (RCWD) for treating stormwater runoff before it is discharged from the City. To meet these permit requirements, the City of St. Anthony Village reached a Memorandum of Understanding (MOU) with the RCWD to provide a series of regional stormwater systems to treat the runoff of the street reconstruction program. One of these systems is the Central Park Biofiltration System, which is currently proposed to be constructed in the summer of 2014. The project will exceed the requirements for the 2014 street reconstruction project and provide additional credits for stormwater treatment practices that can be used on future street reconstruction projects to meet the RCWD permits.

Project Description:
The Silver Lake Stormwater Biofiltration System will be constructed on the north and of Central Park in the existing depression area north of the hockey rink and south of the homes on Syonoff Drive. The system will use a sand filtration bed where stormwater enters the pond, flows through the sand filter, and then a series of pipes underneath the pond collect the water and drain it downstream. The project proposes to remove phosphorus and total suspended sediments that come into the pond from the adjacent park and parking lot areas. The system will be constructed beginning in the summer of 2014 and be completed in the fall of 2014.

The City aims to reduce stormwater pollutants conveyed downstream into Rice Creek County Drain System 5, which is tributary to Long Lake in the City of New Brighton. Long Lake is an impaired water body for the RCWD and is a priority water body for the RCWD for water quality protection.

Contributor Cost \$200,000 • Completion Summer 2014 • Operated by NW 2014
Funding Sources: Rice Creek Watershed District \$20,000 | City of St. Anthony Village \$180,000

WSB

St. Anthony Stormwater Research Facility

Project Need:
The City of St. Anthony Village, Minnesota Water Management Organisation (MWMO), City of Minneapolis, and Hennepin County are collaborating to construct an underground stormwater treatment system that will divert stormwater runoff from the City of St. Anthony Village and County State Aid Highway 88 (CSAH 88) into the research facility. This project is focused on improving the quality of stormwater runoff from approximately 500 acres of fully developed urban land use. Currently, stormwater runoff generated in the southern half of St. Anthony Village receives little or no stormwater treatment prior to being discharged through the City of Minneapolis and into the Mississippi River.

Project Description:
The Research Facility will have a primary treatment component consisting of a sand chamber and four controls to settle and trap particulate matter, floating trash, and debris from stormwater. The facility will also have a secondary treatment system designed to remove the soluble pollutants from the stormwater. The secondary treatment system is a key component of the research site to help determine the effectiveness of available and emerging treatment technologies such as iron and filtration, filter media with activated alumina, alum flocculation, ionization, ozone, and other future technologies. These technologies can be plugged into the system and monitored for their effectiveness at pollutant removal and cost for operation.

Project Location:
The project will be constructed in the CSAH 88 right-of-way just south of the Northgate Office Complex and east of Coudage Street at Lanny Avenue.

The project is anticipated to remove 63% of annual Total Suspended Solids (TSS) and 47% of the Total Phosphorus (TP) from stormwater annually. Pollutant reduction goals were targeted based on a detailed formula assessment using 5 years of monitoring data collected by the MWMO.

Project Cost: \$1,400,000 • Completion Fall 2015 • Operated by Saint 2014
Funding Sources: Hennepin County \$1,400,000 | City of St. Anthony and Hennepin County

WSB

Mirror Lake

Concept Plan:
1) Bridge Lake 2) Replace Lake Structure
3) Construction Pond Control Dam 4) Replace Stormwater

Project Goals:
• Reduce phosphorus loadings and algae blooms in Mirror Lake and downstream
• Annual Total Phosphorus removal 80 pounds minimum
• Increase Flood Storage from 45 to 55 acre-feet
• Use sand storage in the 100 or more
• Create improved aesthetic condition
• Improve Lake Safety
• (1) 100' long sand storage
• Improve aquatic and nearshore wildlife habitat
• Buffer into surrounding area
• Replace lake water quality
• Replace perimeter fence
• Improve water quality

Legend:
Proposed Construction
Existing Construction
Pavement
Grass Area
Storm Sewer

Contributor Cost \$450,000 • Completion June 2014 • Operated by NW 2014
Funding Sources: Public Utilities Authority Grant (PWCA) \$514,000 | Rice Creek Watershed District \$50,000 | City of St. Anthony \$144,000

Project provided by: [logos]

WSB



YOUR NEXT STEPS TO GETTING YOUR BARREL

- Public works will deliver barrels at the end of your driveway
 - Install and put to use!
 - Email me with any issues/discoveries: seam0061@umn.edu
 - Tell your neighbors, friends and family
 - Challenge yourself to use your barrel from full to empty as many times as possible
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