Rain Barrels

Rain Barrel Workshop

organized through the

City of Rockville and City of Gaithersburg Partnership

workshop materials and presentation by

Biohabitats

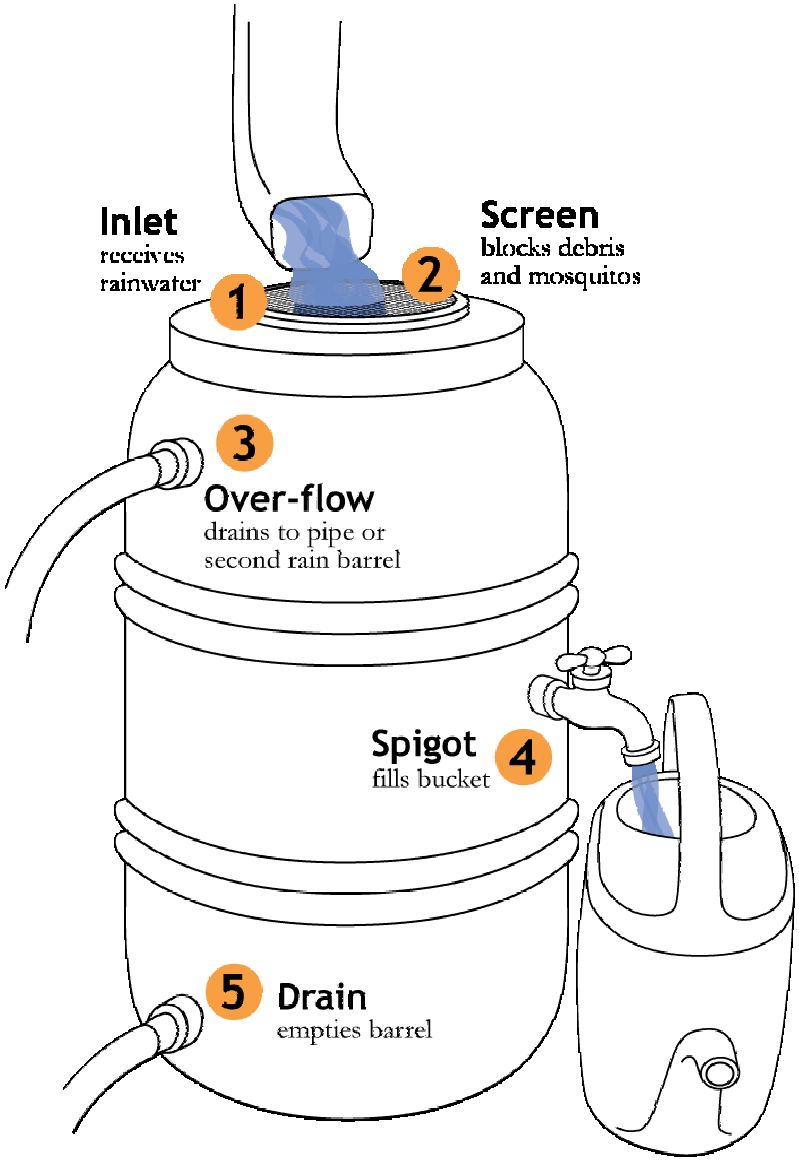
Overview of presentation

- Introduction to rain barrels
- Environmental benefits
- Selection
- Installation
- Maintenance

What is a rain barrel?

- A device for small-scale rainwater harvesting
- A stormwater management tool
- Collect, store, use rainwater
- Recycled or purpose-built
- Often 55 gallons

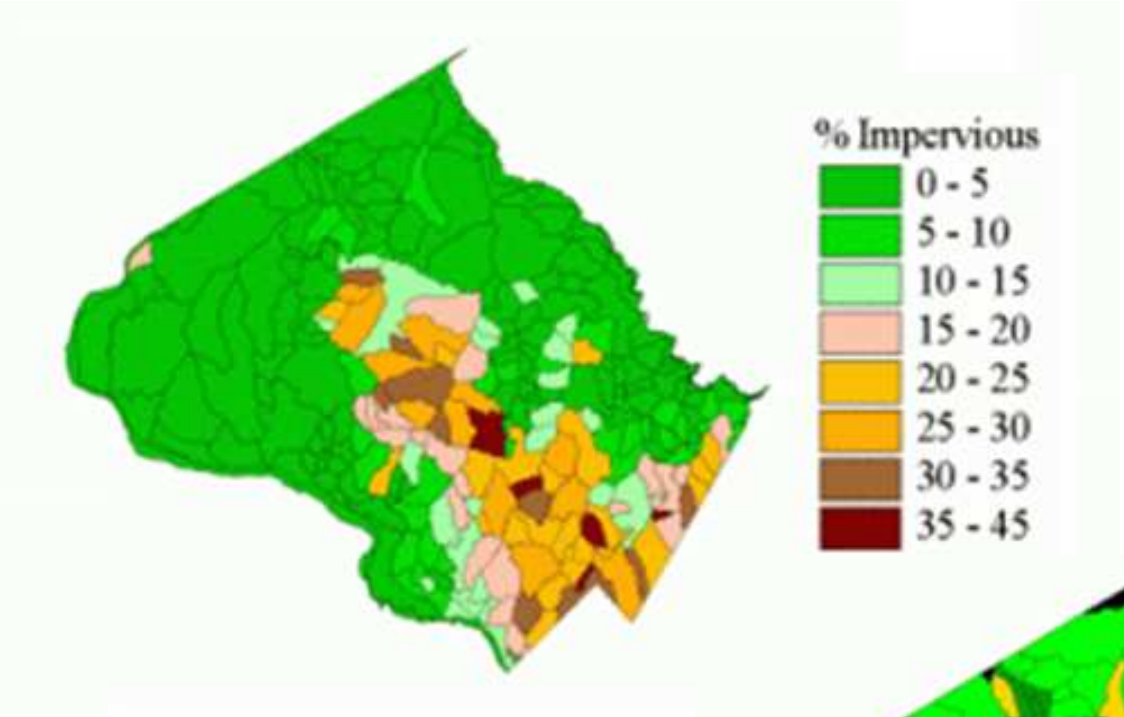
Anatomy of a rain barrel

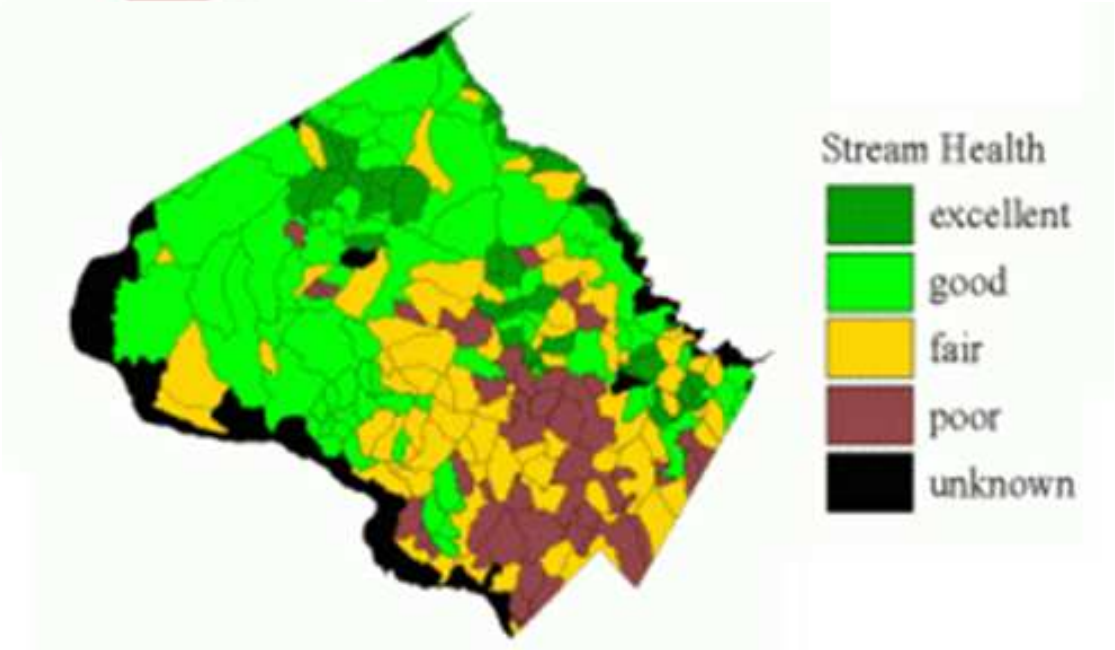


Impacts of stormwater runoff

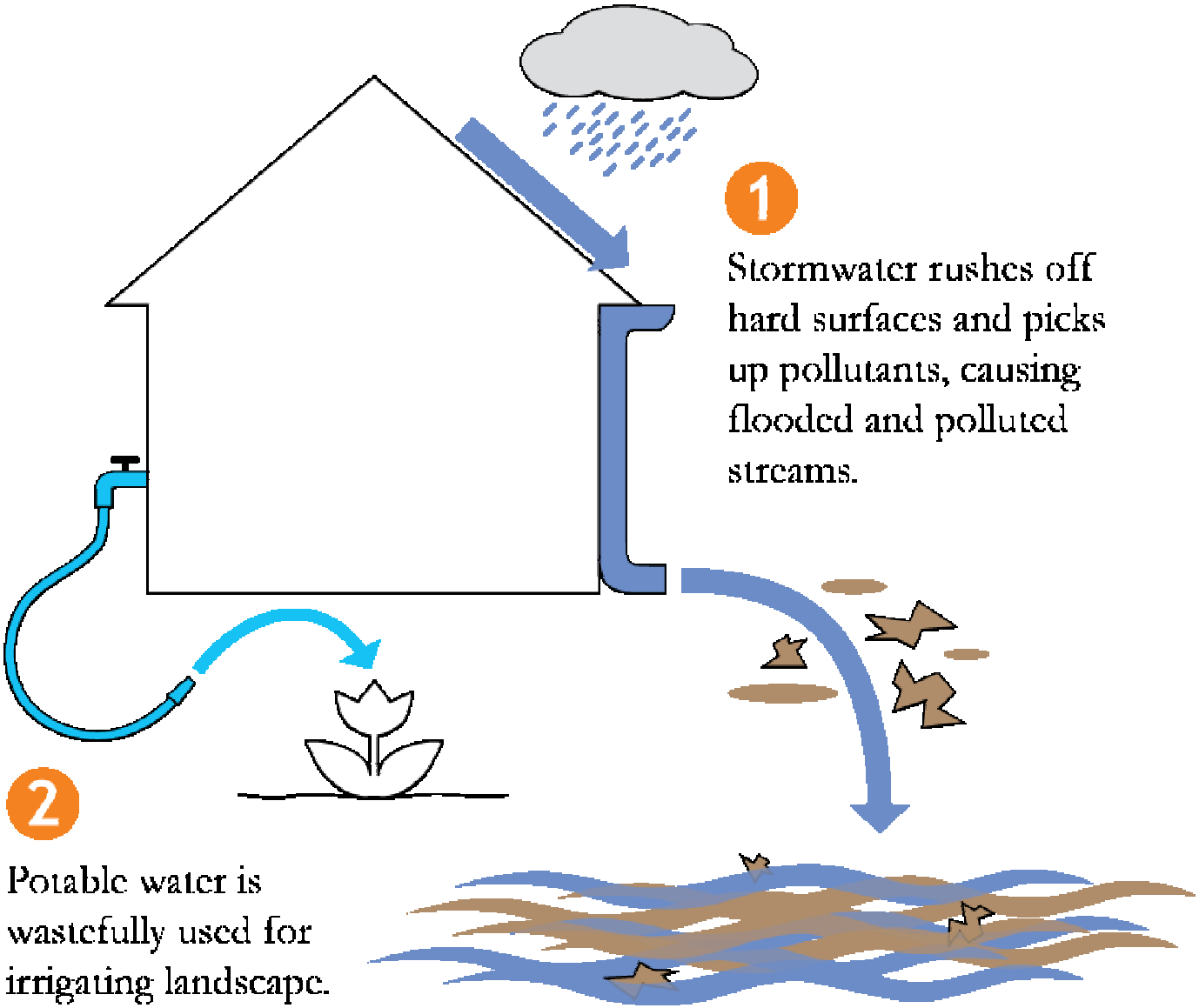
- Flooding
- Erosion
- Sedimentation
- Pollutant transport
- Decreased baseflow

Effects on stream health

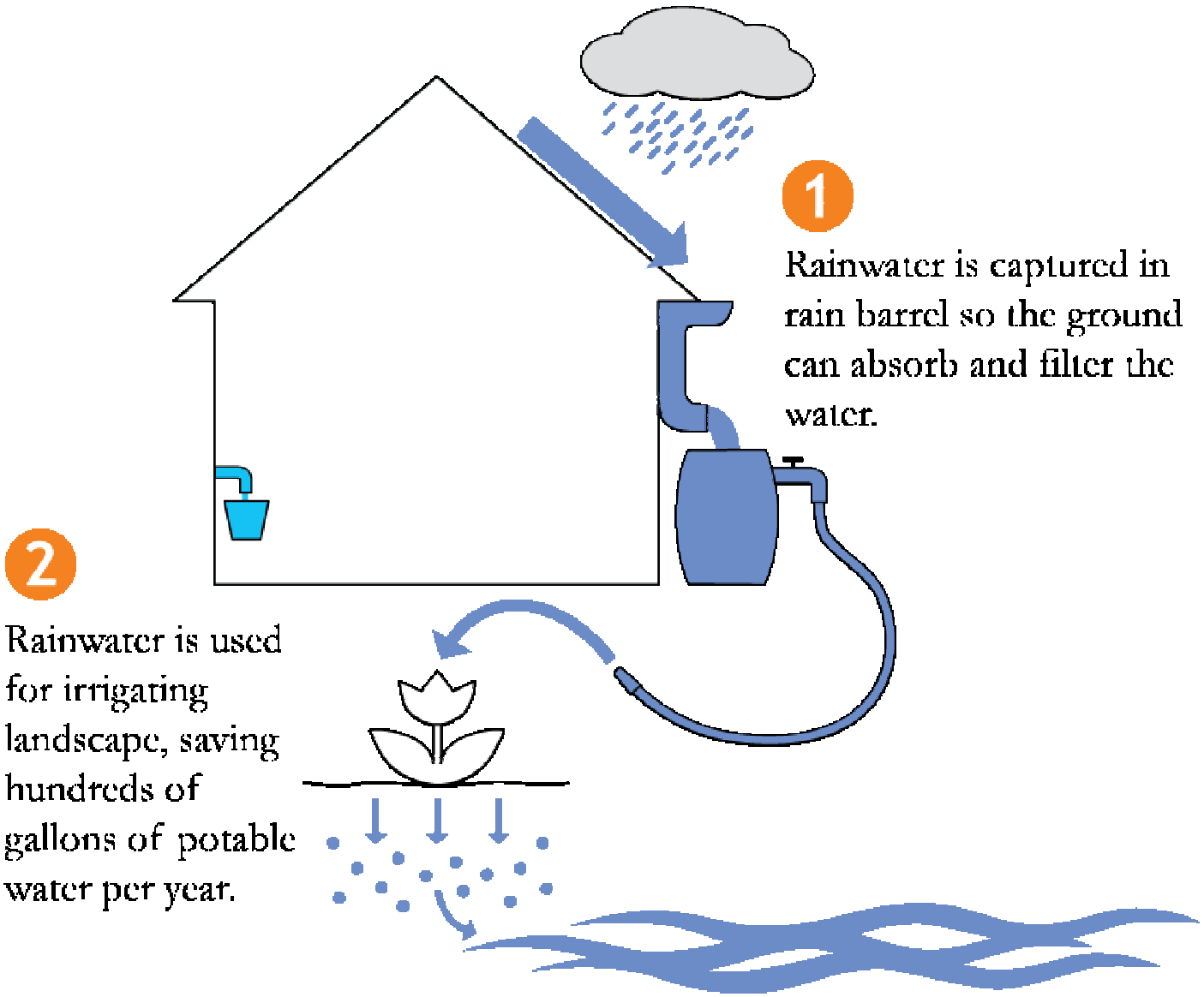




Typical residential scenario



Rain barrel benefits



Selection, installation, and maintenance

1. Make design decisions
2. Create a stable base
3. Modify downspout
4. Install barrel and fittings
5. Perform routine maintenance
6. Winterize barrel

Design decisions

Where are the downspouts?

Where will I use the water?

How much water can I use?

How visible will the barrel be?

What will the barrel look like?

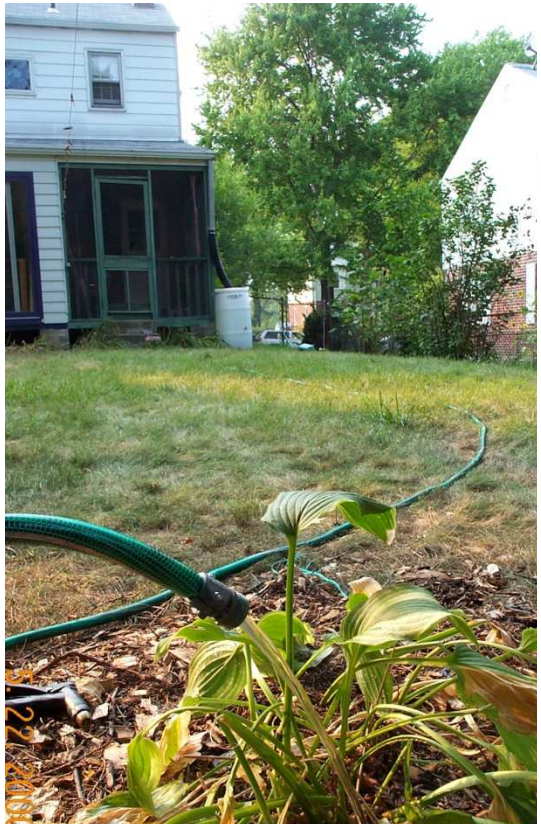
Downspout location

Connected to storm drain

Drains to paved surface

Drains to lawn or garden

Where to use the water



Attach a hose

Keep barrel near garden

Drain with soaker hose

Barrel location and visibility

Choosing the right size

- How much water can you use?
- How much space is available?
- How big a stormwater benefit?

Sizing for rainfall capture

Rainfall depth that fills the barrel(s) =

1.6 * V / R

1.6	=	Unit conversion factor
V	=	Total rain barrel volume (gallons)
R	=	Roof area draining to the barrel(s) (square feet)

Sizing for rainfall capture

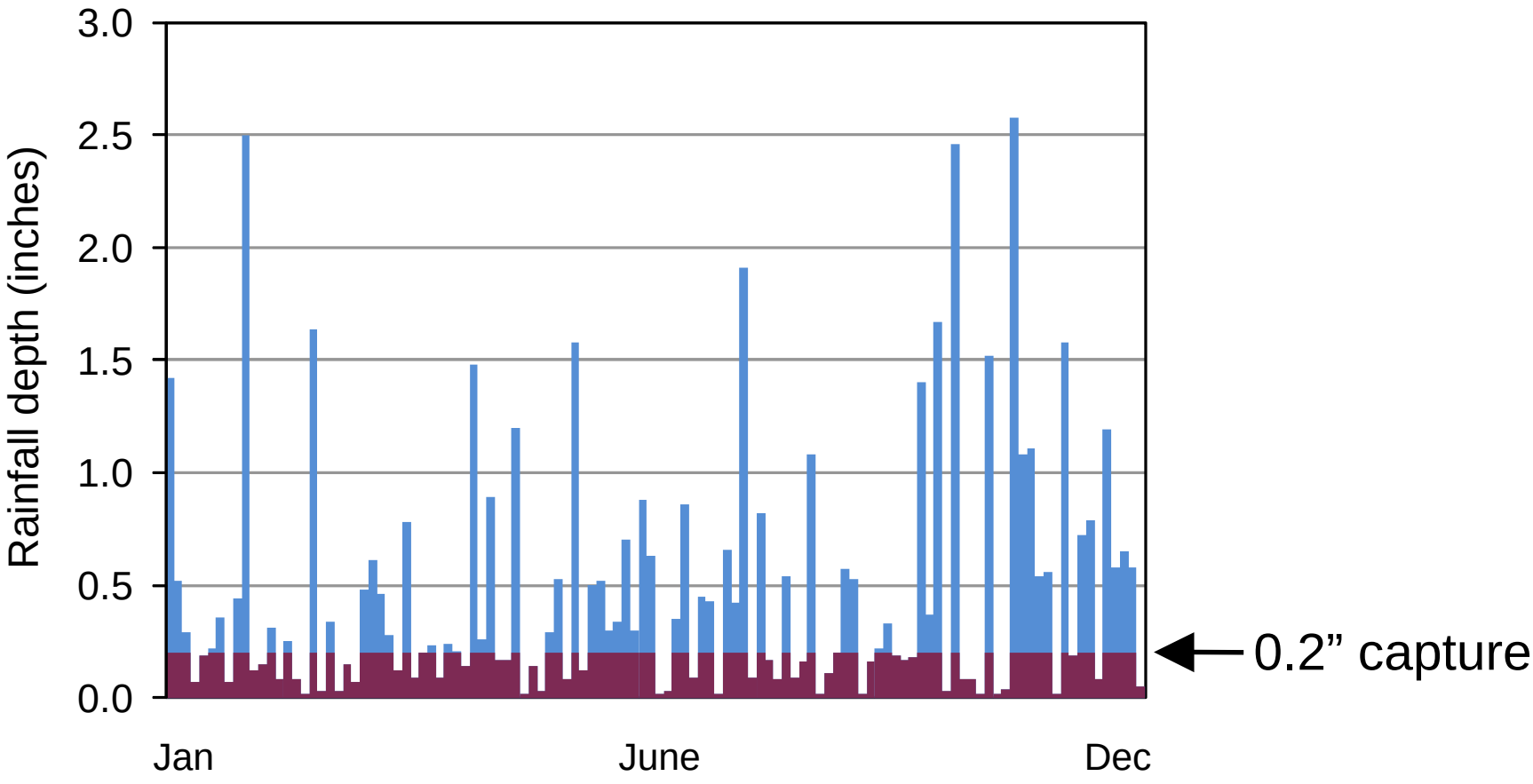
Rainfall depth that fills the barrel(s) =

1.6 * V / R

1.6	=	Unit conversion factor
V	=	Total rain barrel volume (gallons)
R	=	Roof area draining to the barrel(s) (square feet)

→ 0.2” rain over 450 sq. ft. produces 55 gallons

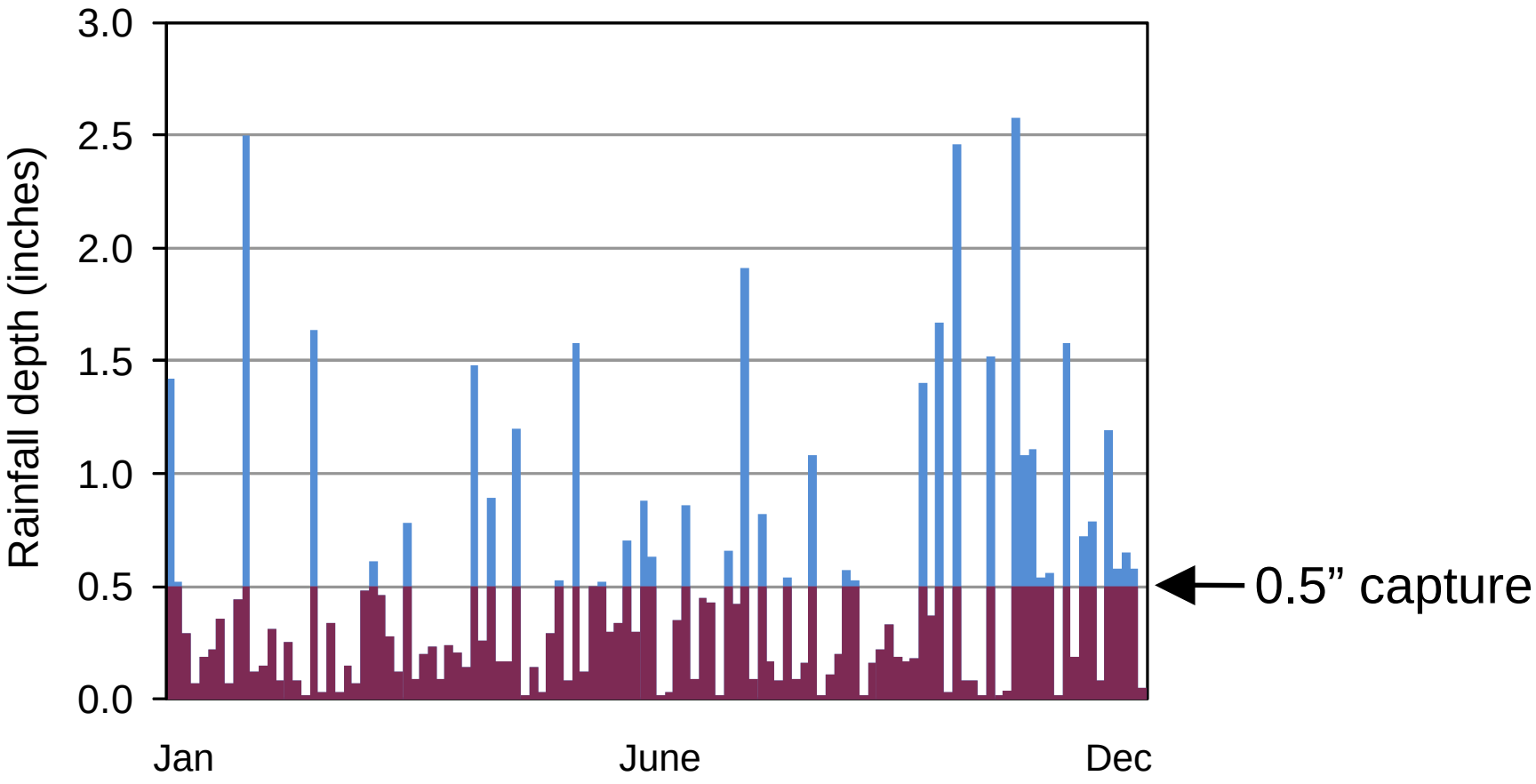
2003 rainfall



31% of total annual rainfall depth is captured

About **1000** gallons captured in summer

2003 rainfall

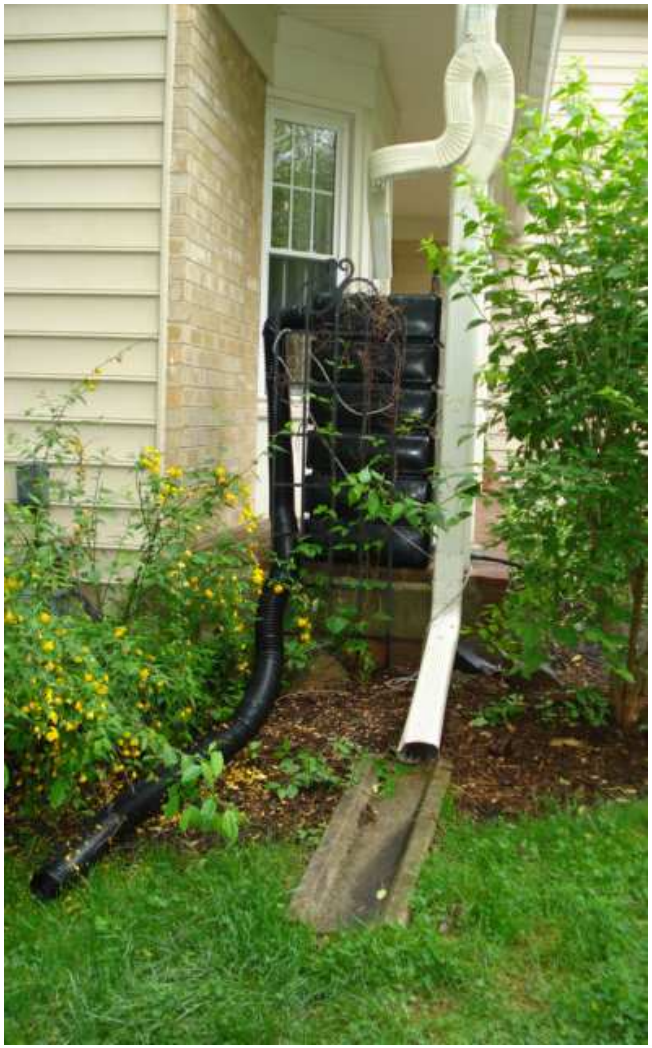


56% of total annual rainfall depth is captured

About **2000** gallons captured in summer

Connecting multiple barrels

Rain barrel styles around Rockville



Rain barrel styles around Rockville

Selection, installation, and maintenance

1. Make design decisions
2. Create a stable base
3. Modify downspout
4. Install barrel and fittings
5. Perform routine maintenance
6. Winterize barrel

Create a stable base

One gallon of water weighs 8.3 pounds

55 gallons = over 450 pounds

Create a stable base

Selection, installation, and maintenance

1. Make design decisions
2. Create a stable base
3. Modify downspout
4. Install barrel and fittings
5. Perform routine maintenance
6. Winterize barrel

Getting water into the barrel

Option 1: Redirect entire flow to barrel

- Make simple changes to downspout, or use diverter
- Requires an overflow port
- “On/off” capability recommended for winter

Getting water into the barrel

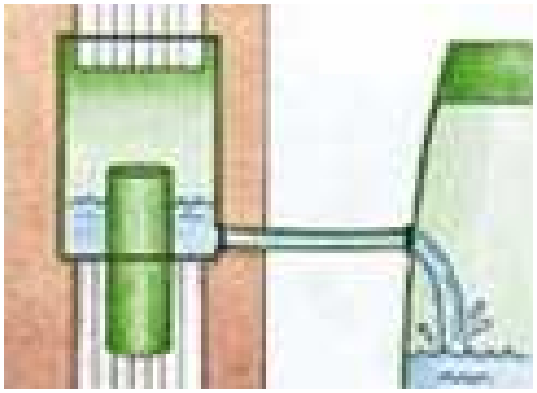
Option 2: Divert a portion of the flow

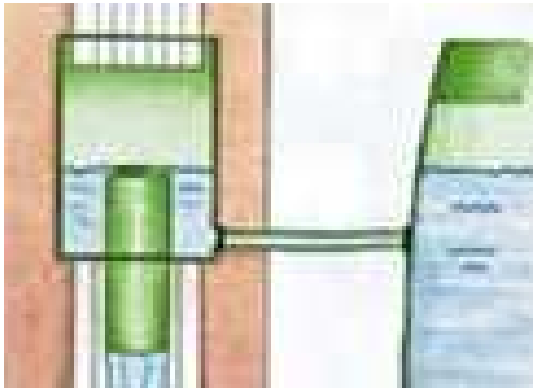
- Several diverter models available
- Overflow returns to downspout
- Easy to take offline in winter

Getting water into the barrel

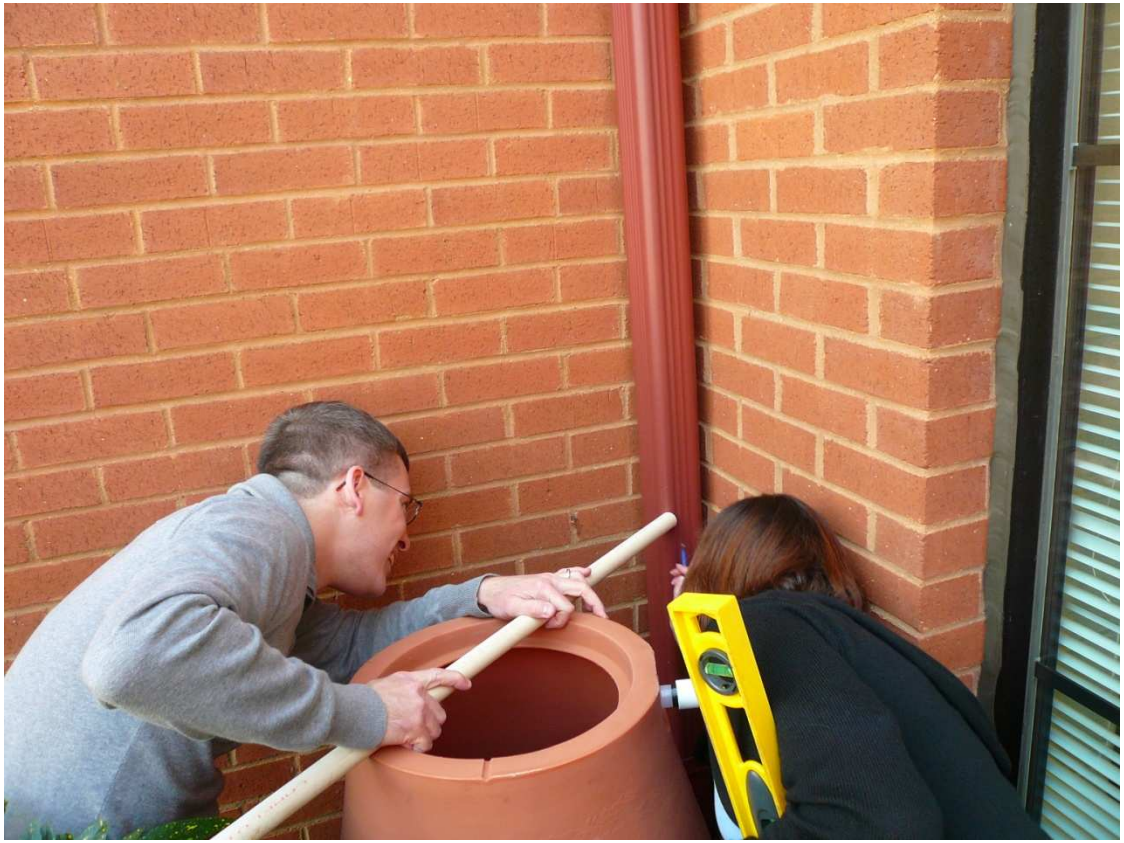
Option 2: Divert a portion of the flow

- Several diverter models available
- Overflow returns to downspout
- Easy to take offline in winter

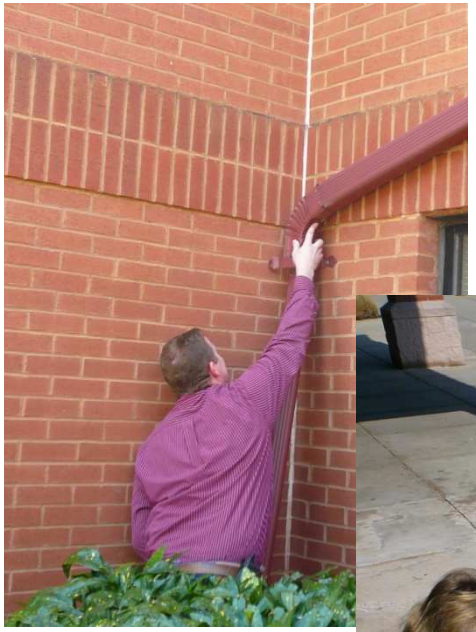




Measure and mark for cutting



Remove and cut



Install diverter device

Re-attach downspout

Selection, installation, and maintenance

1. Make design decisions
2. Create a stable base
3. Modify downspout
4. Install barrel and fittings
5. Perform routine maintenance
6. Winterize barrel

Attach spigot

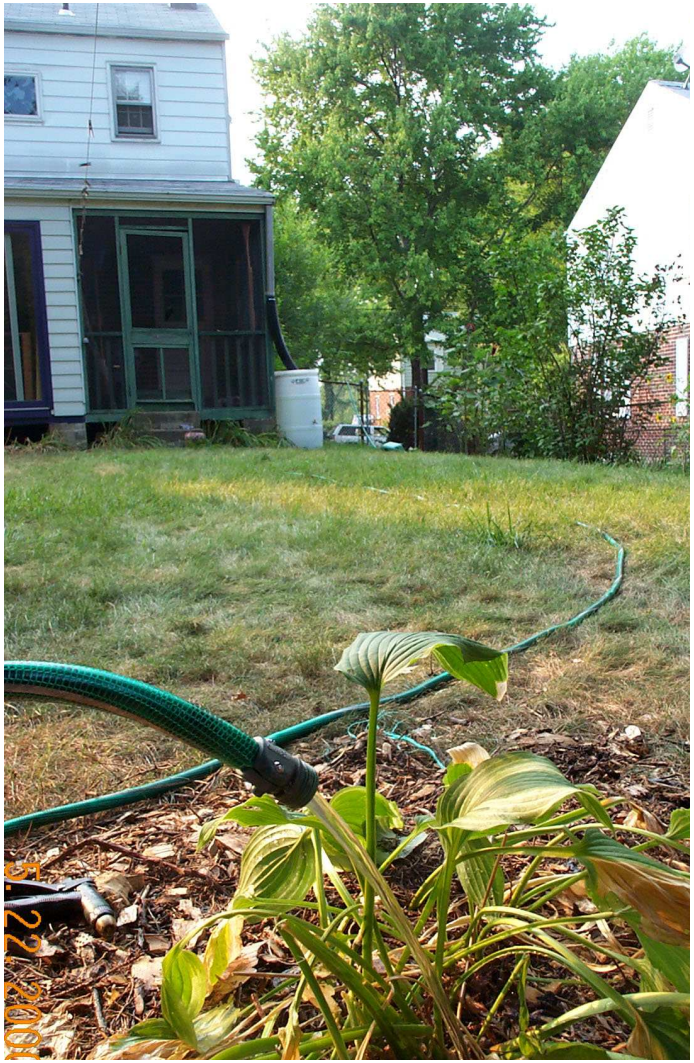
Attach outflow hose

Attach overflow hose

Install screen

Replace and secure lid

Finished!



Selection, installation, and maintenance

1. Make design decisions
2. Create a stable base
3. Modify downspout
4. Install barrel and fittings
5. Perform routine maintenance
6. Winterize barrel

Routine maintenance

- Keep gutters clear
- Periodically clean the screen
- Clean well at least once per year:
    - Empty barrel fully
    - Soap and water or biodegradable cleaner
- Mosquitoes:
    - Keep lid secured
    - Add mosquito pellets if needed

Selection, installation, and maintenance

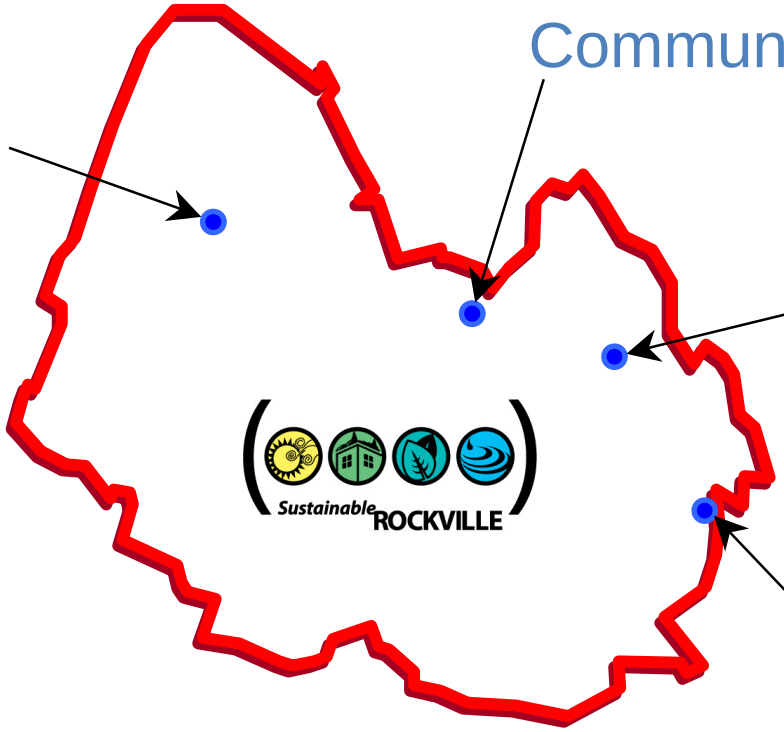
1. Make design decisions
2. Create a stable base
3. Modify downspout
4. Install barrel and fittings
5. Perform routine maintenance
6. Winterize barrel

Winter maintenance

- Empty the barrel
- Store indoors or upside down
- Redirect flow onto the yard at least 6’ from house

Finishing touches

City of Rockville installations



Rockville Senior Center

Lincoln Park Community Center

Croydon Creek Nature Center

Twinbrook Community Recreation Center

In Gaithersburg:

Activity Center at Bohrer Park

Go catch some rain!