

Welcome!

Rain Barrel Workshop



**April 4th, 2011
Groveton Elementary School
Alexandria, Virginia**

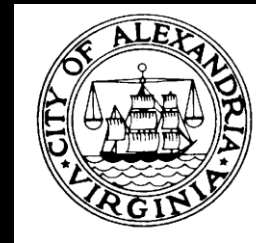
Regional Rain Barrel Program Partners



Northern Virginia
Soil and Water Conservation District



**Reston
Association**



Why Rain Barrels?

Part of a bigger picture:

Water Conservation

Stormwater Management

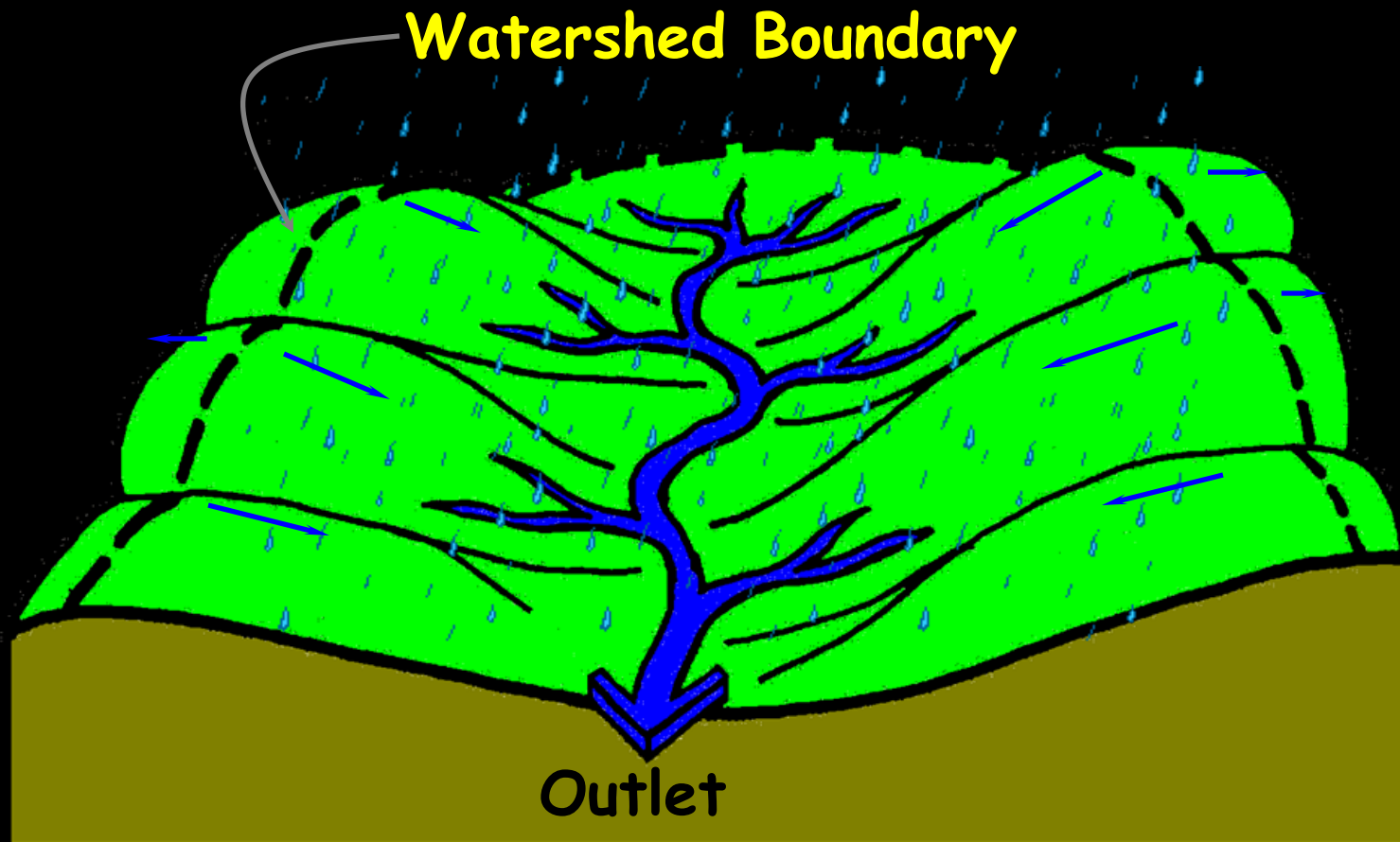
Low Impact/Sustainable Living

Watershed Protection



What is a Watershed?

Area of land that drains to a stream, marsh, or other body of water.



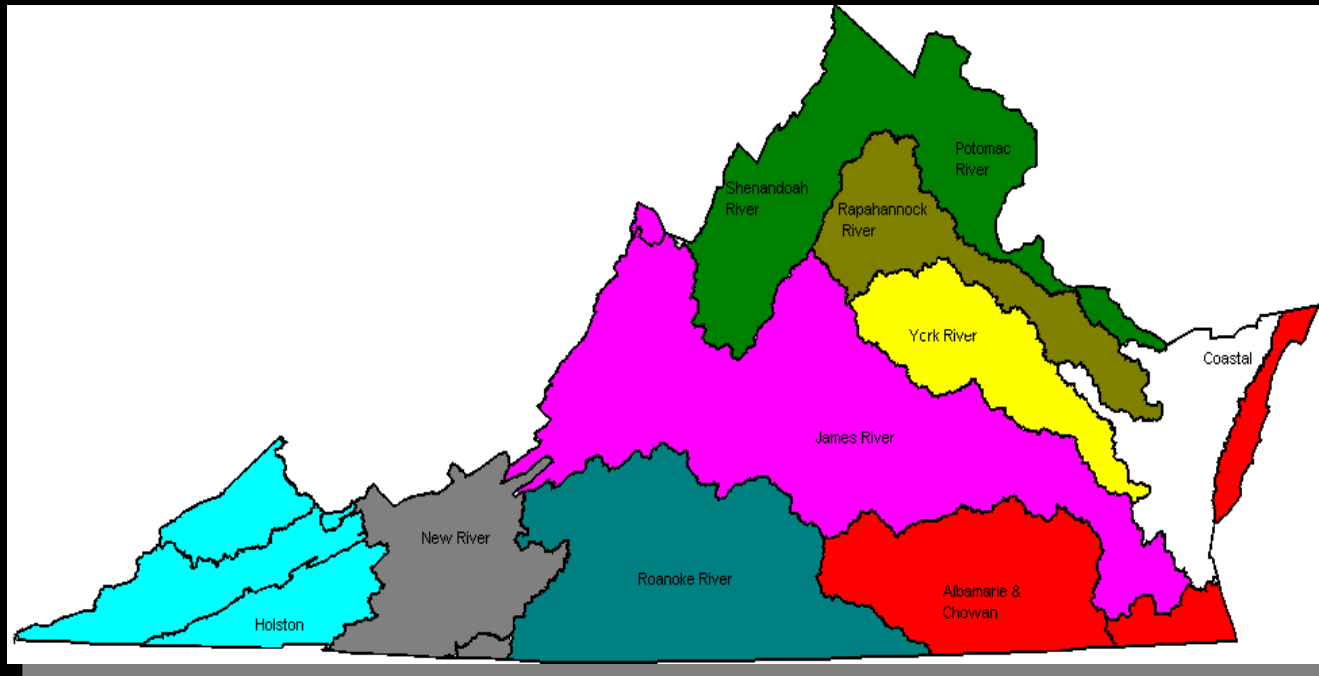
Slide credit: Fairfax County

Chesapeake Bay watershed



- Encompasses 64,000 sq. mi.
- Includes 6 states and Washington, DC
- Average depth 21 ft.
- 15 million people, 3600 species of plants and animals

Virginia's Watersheds



- Nine major river basins (497 subwatersheds)
- 49,350 miles of perennial rivers & streams
- 2,500 square miles of estuaries

Everyone has a watershed address



- Cameron Run
- Potomac River
- Chesapeake Bay
- Atlantic Ocean

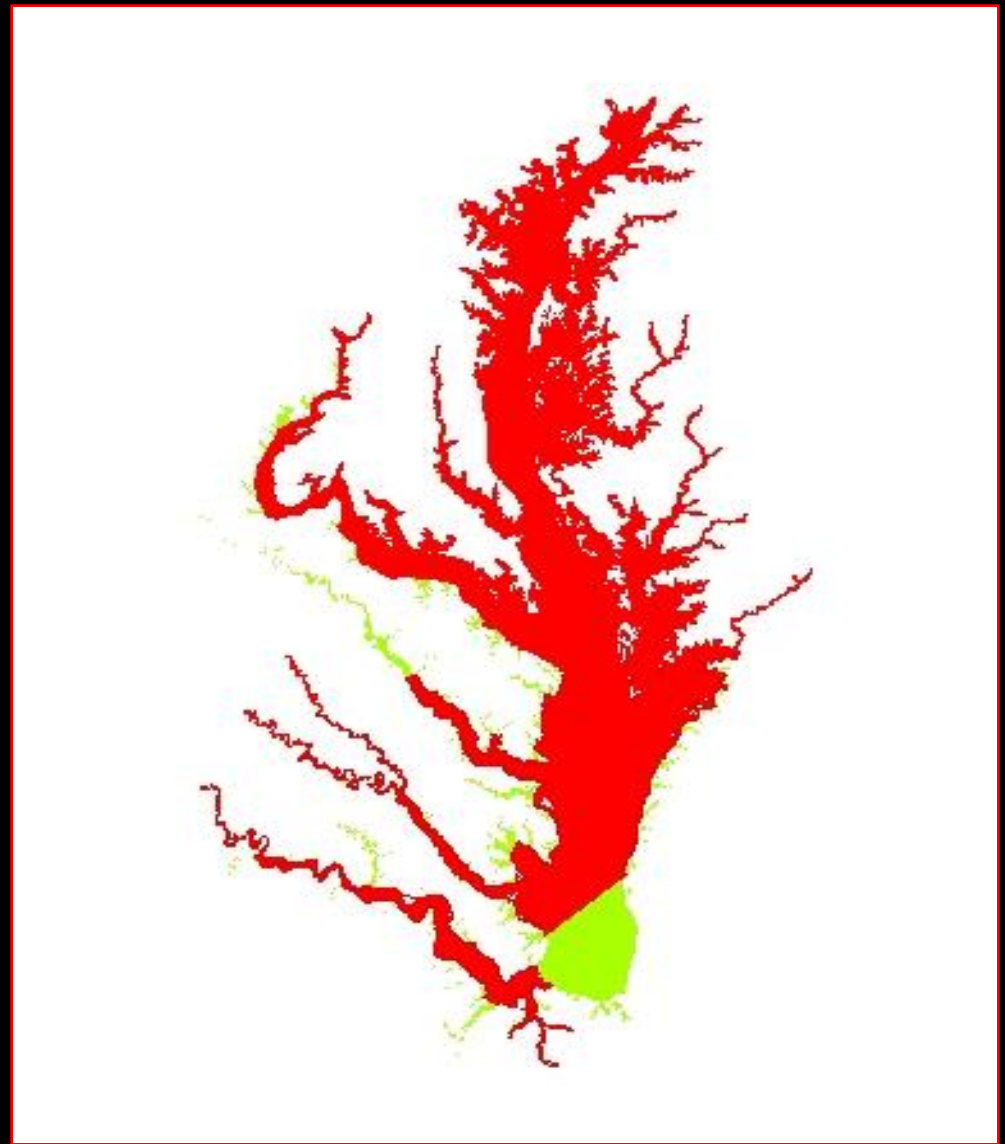
The Potomac River drains to the Chesapeake Bay, most of which is listed as impaired (polluted)

Due to:

→ *low dissolved oxygen levels*

→ *poor water clarity*

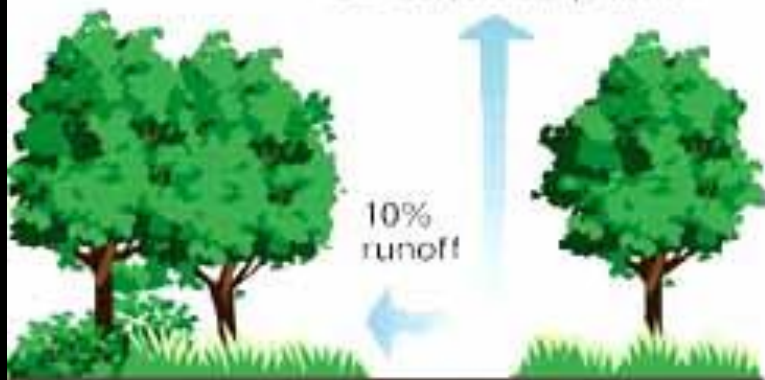
→ *algae bloom conditions and poor quality fish habitat*



■ Impaired Water

■ Unimpaired Water

40% evapotranspiration

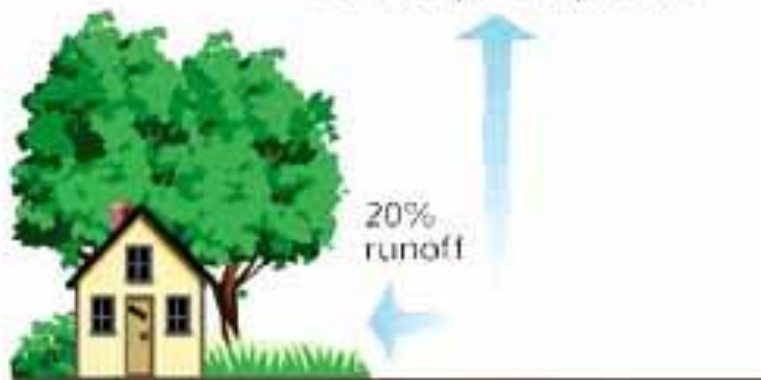


25% shallow infiltration

25% deep infiltration

Natural Ground Cover

38% evapotranspiration



21% shallow infiltration

21% deep infiltration

10%-20% Impervious Surface

35% evapotranspiration



20% shallow infiltration

15% deep infiltration

35%-50% Impervious Surface

30% evapotranspiration



10% shallow infiltration

5% deep infiltration

75%-100% Impervious Surface

WATER BALANCE



POST-DEVELOPMENT



Development:

- Increases impervious cover and water run-off
- Disrupts the natural water balance
- Groundwater recharge is decreased

Healthy Streams

- ❖ Native, woody vegetation
- ❖ Tree canopy to cool water
- ❖ Stable vegetated banks, floodplains free of encroachment
- ❖ Clear water
- ❖ Native flora and fauna -- abundant and diverse
- ❖ Lack of pollutants



Unhealthy Streams



- ❖ Severely eroding banks & undercut trees
- ❖ Lack of bank vegetation
- ❖ Silt covers stream bottom, unstable bars



- ❖ Channelized
- ❖ Polluted water/trash and debris
- ❖ Few critters and not many species

Who's responsible?

All of us!



Conventional Development



Conventional Parking Lot



Conventional Stormwater Pond

Low Impact Development (LID)

1. Minimize impervious cover & conserve natural cover
2. Replicate pre-development runoff *volume and timing*
3. Replicate the pre-development runoff *rate*
4. Each citizen helping prevent pollution

How do we participate in LID?



**Green
Rooftops**



Filterra Box



Biofiltration



**Rain
Barrel**



Downspout filtration



Porous pavers

How do we participate in LID?



Plant trees



Improve soil



**Cisterns to harvest rainwater:
photo credit Dave Hirschaman**



**Rain gardens
instead of
stormwater ponds**

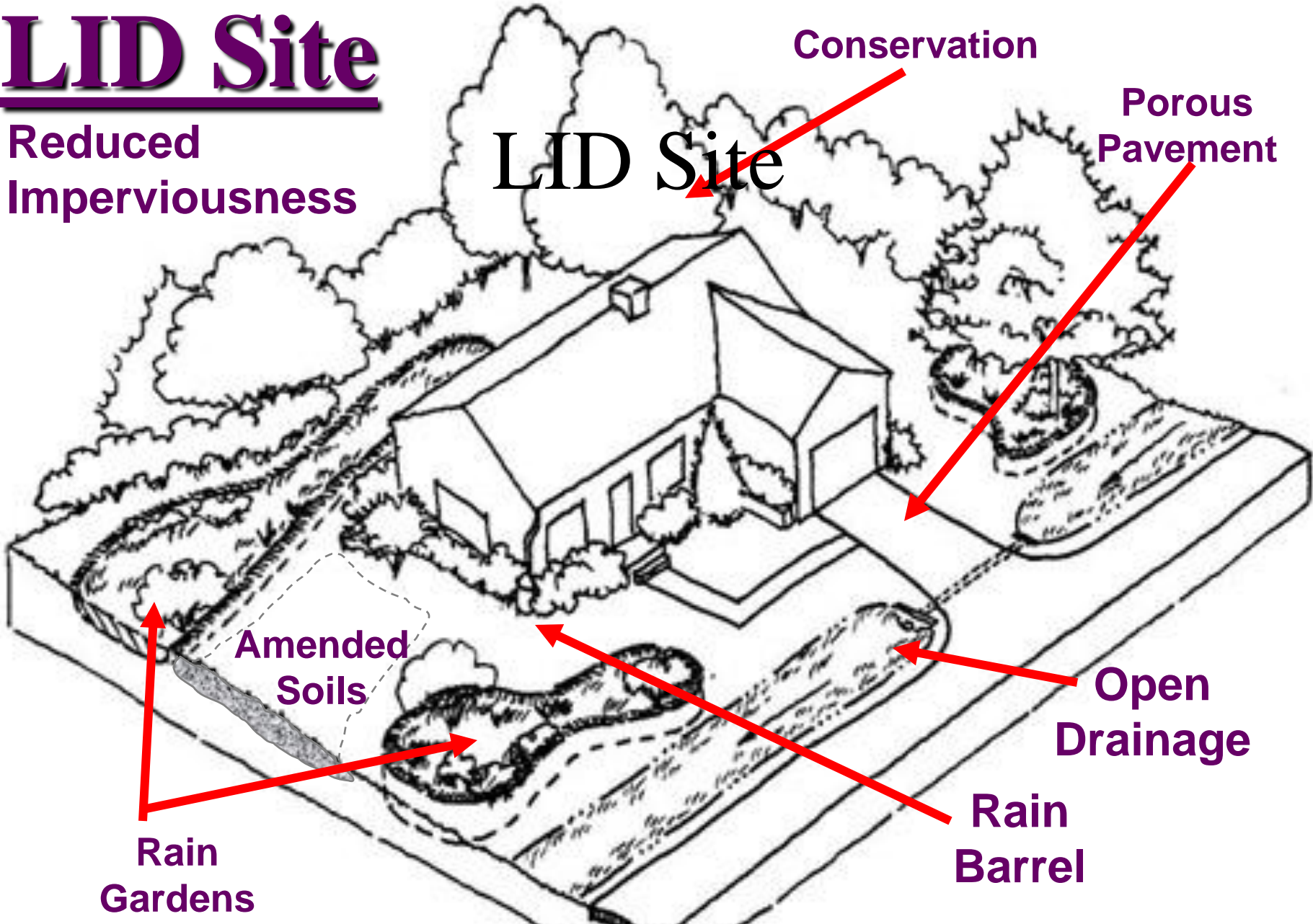
LID Site

Reduced
Imperviousness

LID Site

Conservation

Porous
Pavement





Rain barrels collect water for use in our gardens and around the home.

How many gallons of rainwater runoff come from a single rooftop... for a 1 inch rainfall?

800 ft² ← 20 ft. x 40 ft. single family home roof area
Area = width x length

X 0.083 ft. ← 1 inch rainfall = 1/12 or 0.083 feet

X 7.5 gallons / ft³ ← Convert from cubic feet to gallons.
(Who can visualize a cubic foot, anyway?)

500 gallons of rain runoff from your roof
for a single 1 inch rain event.

Imagine collecting
1.8 million gallons
of water in one year
from the roof of a
70,000 ft² 'big box'
retail store!!

Over a year we get an average of 42 inches, or 3.5 feet of rain.

Do the math... you can harvest up to 20,944 gallons annually!

Increase storage capacity by using Rain Barrels in series



Rain Barrel Benefits

- Your plants will love it
 - no salts or chemicals. Slightly acidic pH
- Conserve water
- Reduce runoff
- Convenience
- Save Money

Using the water

- Water gardens, indoor plants
- Wash the dog, car, & muddy feet
- Use in toilet tanks when well pump isn't working (if you have a well)
- Birdbaths
- Ponds?
 - pH, dissolved oxygen, pollutants issues

Other tips

- **Do not** use rain barrel water for cooking or drinking
- **Do not** collect rain water if you have used a moss-killer on your roof
- Keep screen on top to prevent mosquitoes
- Disconnect the barrel in winter
- Use water within a week or two to discourage algae growth
- Use water before next rain is expected, or connect to soaker hose in garden



**Very important when you live
around trees!**

**When you get your
rain barrel home...**

Level the dirt under your down spout, then add some sand



Rain barrels need to be higher than ground level



Higher barrel =

Higher water pressure

Platform:

Bricks

Cinder blocks

Treated wood

Note: Water is heavy

Measure twice, cut once!
Cut off part of downspout



Hacksaw

Put the barrel in place

**The curved end
of the downspout
is re-attached to
the downspout**



Overflow from one barrel to another



There are many ways you could hook one barrel to another.

Here, we used some plastic tubing and hose clamps.

A set of barrels ready for rain!



With just 1/5 inch of rain, both of these barrels are completely full.



Downspout Diverters



Downspout Diverters



Modify the installation design for your needs.



Elevate the barrels for better water pressure.



Modify the overflow if you need to.

Decorate and landscape around your rain barrel







Upcoming rain barrel workshops

Build Your Own

Thursday April 14th, 7 p.m. - 9 p.m.

Green Acres Center, 4401 Sideburn Road, Fairfax, VA 22030

Saturday May 14th, 9 a.m. - 11 a.m.

James K. Polk Elementary School, Multipurpose Room, 5000 James Polk Ave., Alexandria, VA

Saturday May 21st, 10 a.m. - Noon

Messiah United Methodist Church, 6215 Rolling Road, Springfield, VA 22152

Saturday May 21st, 10 a.m. - Noon

Walker Nature Education Center, 11450 Glade Drive, Reston, VA 20191

Pre-Made

Saturday June 25th, 1:00 to 4:00 PM

Falls Church Property Yard, 7100 Gordons Rd., Falls Church, VA 22043.

Workshop Registration

<http://www.arlingtonenvironment.org/barrel.php>

-\$50 for build your own

-\$60 for pre-made



Curriculum Incorporation

