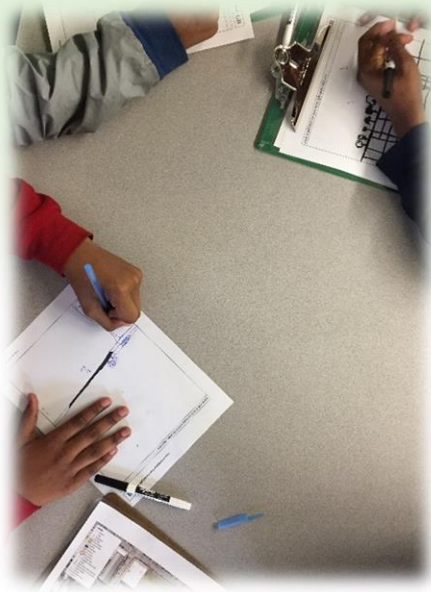


8th Annual Choose Clean Water Conference

May 24, 2017

Track 2: Stormwater

Let's Talk about RiverWise Schools



Meredeth Dash
RiverWise Schools Program Coordinator
Alliance for the Chesapeake Bay

Alana Wilson
6th Grade Science Teacher
Richmond Public Schools

Who is Alliance for the Chesapeake Bay?

- Non-profit established in 1976 working throughout the watershed
- Offices in MD, DC, PA and VA
- Assist local governments
- Build stewardship
- Conserve forests
- Network and educate
- Reduce stormwater runoff



Who is Richmond Public Schools?

- 12th largest school district in VA
- Serves nearly 24,000 students of a diverse socioeconomic mix
- 75% population on free/reduced lunch
- 26 elementary schools, 8 middle schools, 5 high schools, 3 specialty schools



- Binford MS – Pride of the Fan, Opened in 1915
- Binford MS boasts the region's first (2nd in VA) college prep and arts integration program.
- Binford MS chosen for Turnaround Arts (Mentor artist – Jason Mraz)
- Resilience, pride, success. #WeAreRPS

History: *The Story of RiverWise Schools*

1996 – James River and its tributaries listed as impaired due to violations of bacteria levels

2011 - Middle James-Richmond TMDL Implementation Plan created and submitted to VA DEQ

2012 – Alliance receives grant through NFWF to pilot The Chesapeake RiverWise Communities program

2014 – Chesapeake Bay Watershed Agreement signed and includes Environmental Literacy goal

2015 – Alliance receives grants through Chesapeake Bay Restoration Fund and Altria for green practices to be installed at Binford and Boushall Middle Schools

2015 – Alliance receives grant through NFWF to expand efforts in faith communities

2016 – Alliance receives grant through NFWF to create and develop RiverWise Schools program

2017 – Alliance hires me in February to oversee the program!

If you think you are
too small
to make a difference,
try sleeping with
a mosquito

- Dalai Lama



Benefits from small to BIG!

Helping VA meet
Phase I and Phase II
WIPs for Chesapeake
Bay TMDL

Reducing nitrogen,
phosphorous and
sediment loads in
City of Richmond

Build career
paths from
middle to high
school using
Green Teams

Installing green
practices on
school grounds
that double as
outdoor
classrooms

Hands-on
watershed
education that
support SOLs and
Environmental
Literacy Goals



Who do we work with?



RiverWise School: Snapshot 5/24/17

Schools	Number of Students Reached	Teachers & Support Staff	Indoor Lesson	Outdoor Lesson	Outreach or Community Events	Practices Installed and Planned	Gallons of stormwater reduced	Total N Reduced (lbs/yr)	Total P Reduced (lbs/yr)	Total Sediment Reduced (lbs/yr)
Binford MS	245 plus Garden Club	13	5	6	Binford's Holiday Hoopla, BAMFest, Showcases	Rain Garden, Conservation Landscaping, Downspout Disconnect, Rainwater Harvesting	73,853	0.39	0.07	29.66
Boushall MS	106	2	1	1		Rain Garden	90,031	0.44	0.09	39.45
Lucille Brown MS	253	7	2	1*		Conservation Landscaping				
MLK MS		5	1*	1*		Conservation Landscaping around Raised Vegetable Bed				
Community HS	20	3	1	2*		Maintenance				

**Planned in June*

RiverWise Schools Program



Learn.

Act.

Make a difference.

RiverWise Schools Step I: Learn

Green Infrastructure Investigation **GII**

DATE: _____ WATERSHED: _____

SITE DESCRIPTION
Name of Property: Binford Middle School, City of Richmond

Ownership: Public Private Unknown

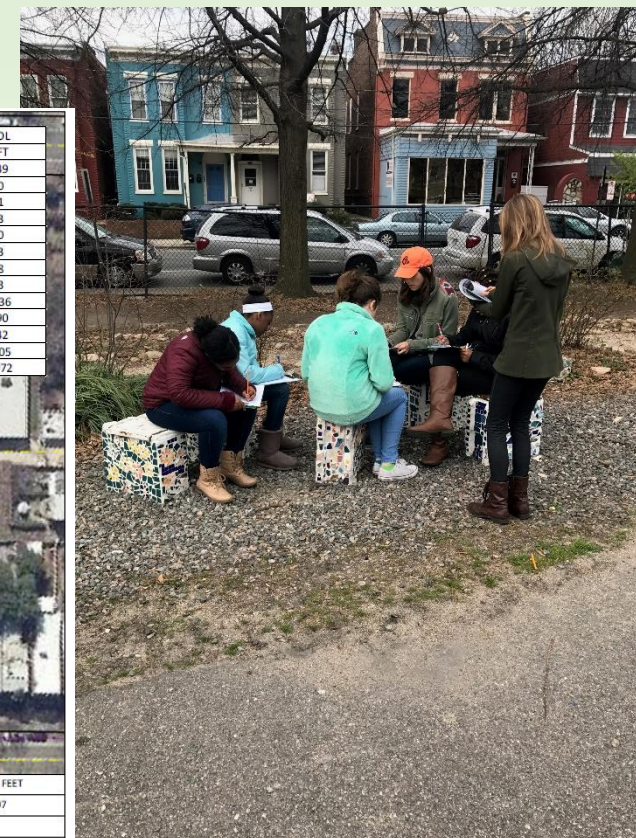
WHAT AREA IS BEING TREATED BY YOUR PROPOSED GREEN PRACTICE?
 Roof Parking Lot/Asphalt Walkway/Patio Grass Area
 Other: _____

CAN YOU IDENTIFY WHICH TYPE OF GREEN PRACTICE YOU WOULD RECOMMEND? Y
 THAN ONE.
 Plant native plants/meadow instead of grass Make roof drain flow onto grass or
 Collect roof water so you can use it to water plants (rain barrel) Vegetation on t
 Pavement that lets water flow through into the ground Plant trees
 Garden where water collects (Rain garden)

HOW BIG IS THE AREA OF YOUR GREEN PRACTICE? (MEASURE OR PACE OFF)
 Length = _____ feet
 Width = _____ feet
 Area = _____ square feet

DESCRIBE THE AREA OF YOUR GREEN PRACTICE. YOU CAN CHECK MORE THAN ONE.
 Area is flat Area has moderate slope Area has steep slope
 Grassy Existing trees & shrubs Existing forest
 High visibility area/lots of people will see it Some visibility Low visibility/it
 Sunny Mixed sun & shade Shady

Describe other features of your proposed rain garden location:





RiverWise Schools Step 2: Act



RiverWise Schools Step 3: *Make a difference!*



Before



After

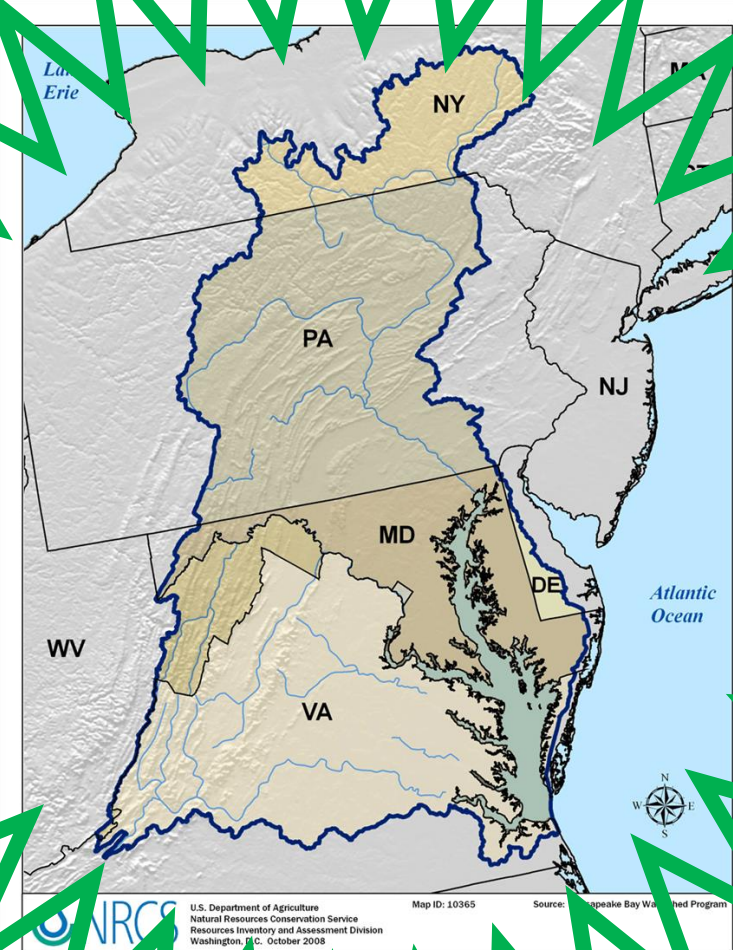
Chesapeake Bay Watershed: *What's that?*

- How many states in the watershed?
NY, PA, WV, MD, DE, VA and DC
- How big is the watershed?
64,000 sq. mi. or 132 football fields
- Name a major river draining to CB.
Susquehanna, Potomac, Rappahannock, York, James
100,000 smaller tributaries
- Is this a diverse ecosystem?
Yes! 3,000+ species of plants and animals
- How many people live here?
18 million people
- Is this water shallow or deep?
Shallow! Average depth ~ 21 feet



RiverWise
SCHOOLS

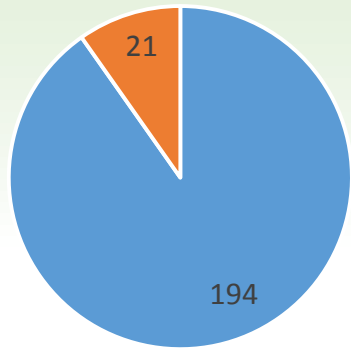
Protects and filters drinking water for 75% of Bay residents!



Alliance for the
Chesapeake Bay © 2017

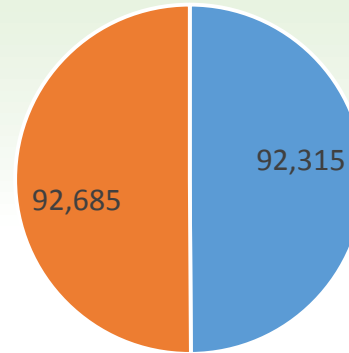
Bay Barometer: How's the Bay doing?

Crabs



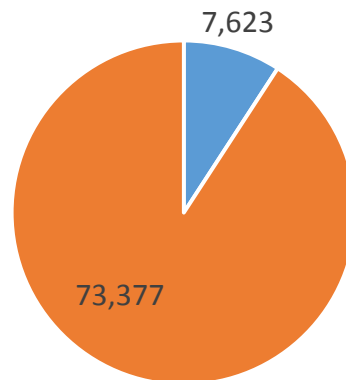
■ Adult females

Grasses



■ Acres Present ■ Acres Needed

Wetlands



■ Acres created or reestablished



2015-2016
BAY BAROMETER
Health and Restoration in the Chesapeake Bay Watershed

194 million
adult female blue crabs were in the Bay in 2016, meeting 90 percent of the target of 215 million female crabs.

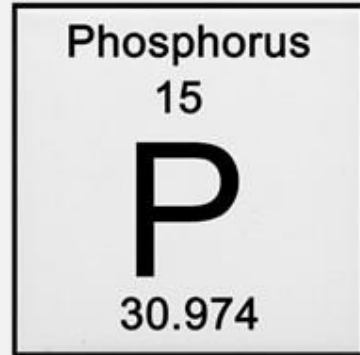
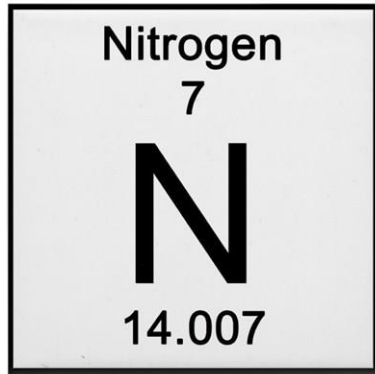
92,315 acres
of underwater grasses were in the Bay in 2015, meeting 50 percent of the 185,000-acre goal.

7,623 acres
of wetlands were created or reestablished on farmland between 2010 and 2015, meeting 9 percent of the 83,000-acre goal.

Six
Bay tributaries have oyster restoration projects underway, with a goal to bring this number to 10.

Alliance for the Chesapeake Bay © 2017

Bay Pollutants: Name them!



- Bacteria from pet waste – EW!
- Debris and trash from yards – ICK!
- Oil and grease from vehicles – YUCK!

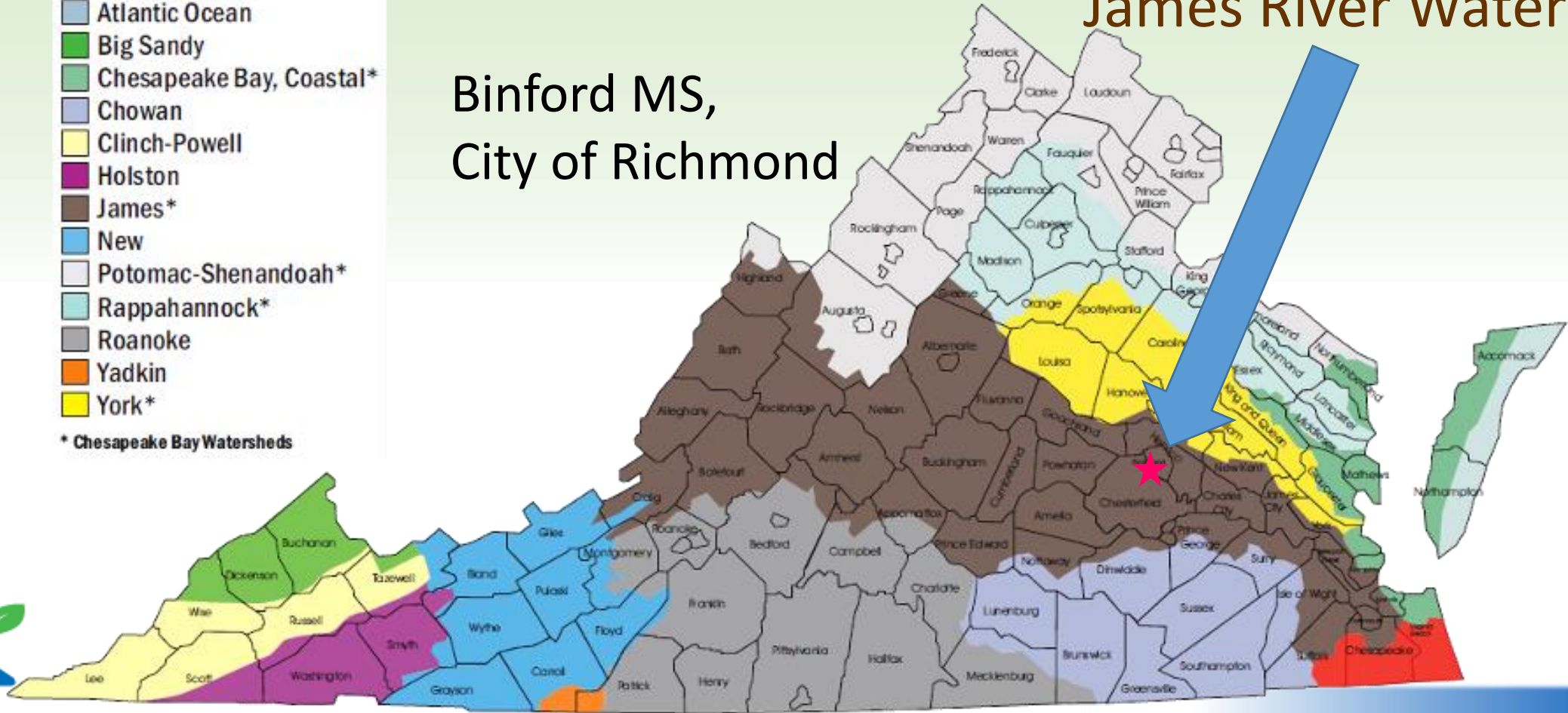
Zoom In: Where are we?

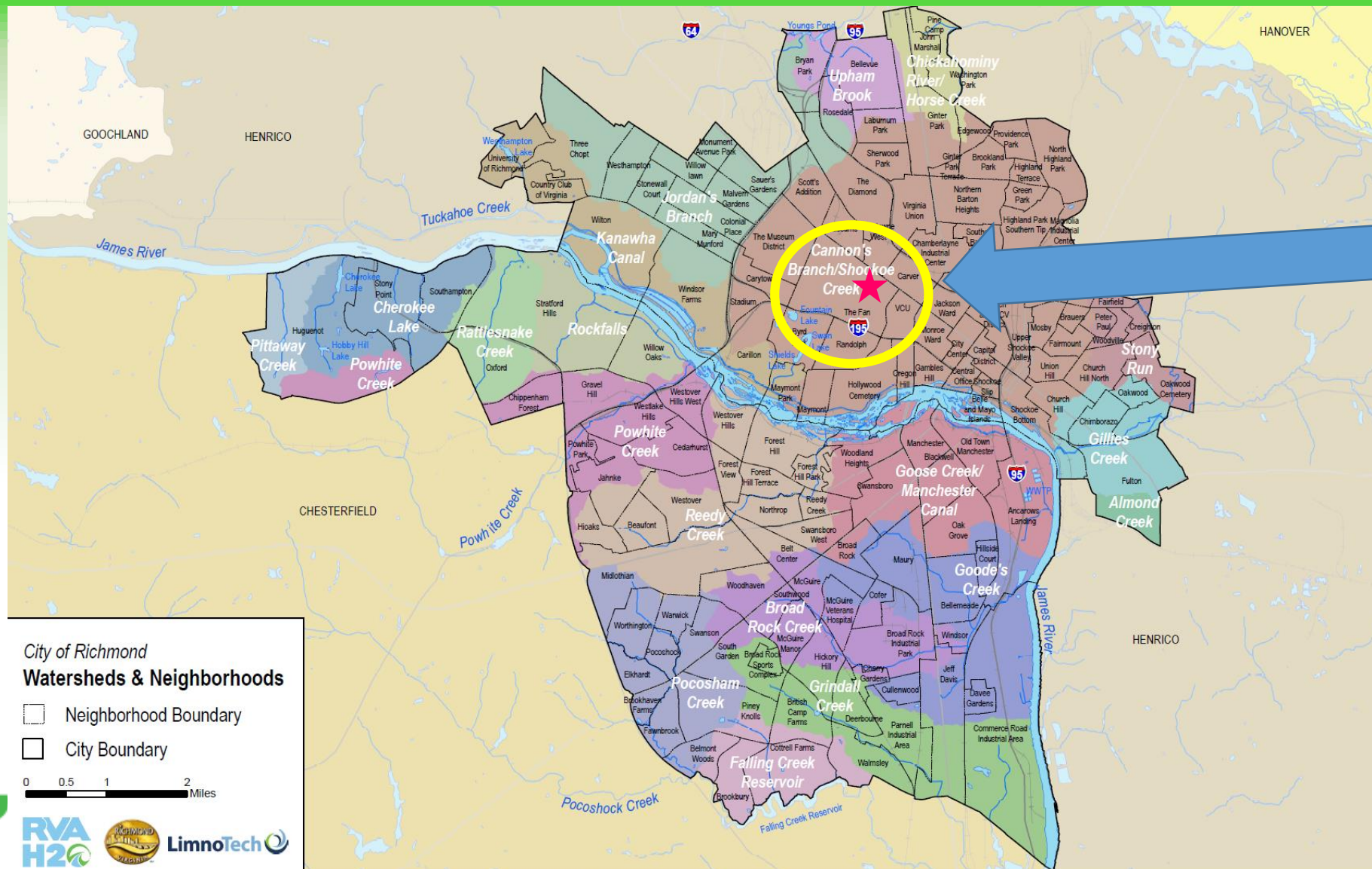
- Albemarle Sound, Coastal
- Atlantic Ocean
- Big Sandy
- Chesapeake Bay, Coastal*
- Chowan
- Clinch-Powell
- Holston
- James*
- New
- Potomac-Shenandoah*
- Rappahannock*
- Roanoke
- Yadkin
- York*

* Chesapeake Bay Watersheds

Binford MS,
City of Richmond

James River Watershed





Binford MS

City of Richmond
Watersheds & Neighborhoods

- Neighborhood Boundary
- City Boundary

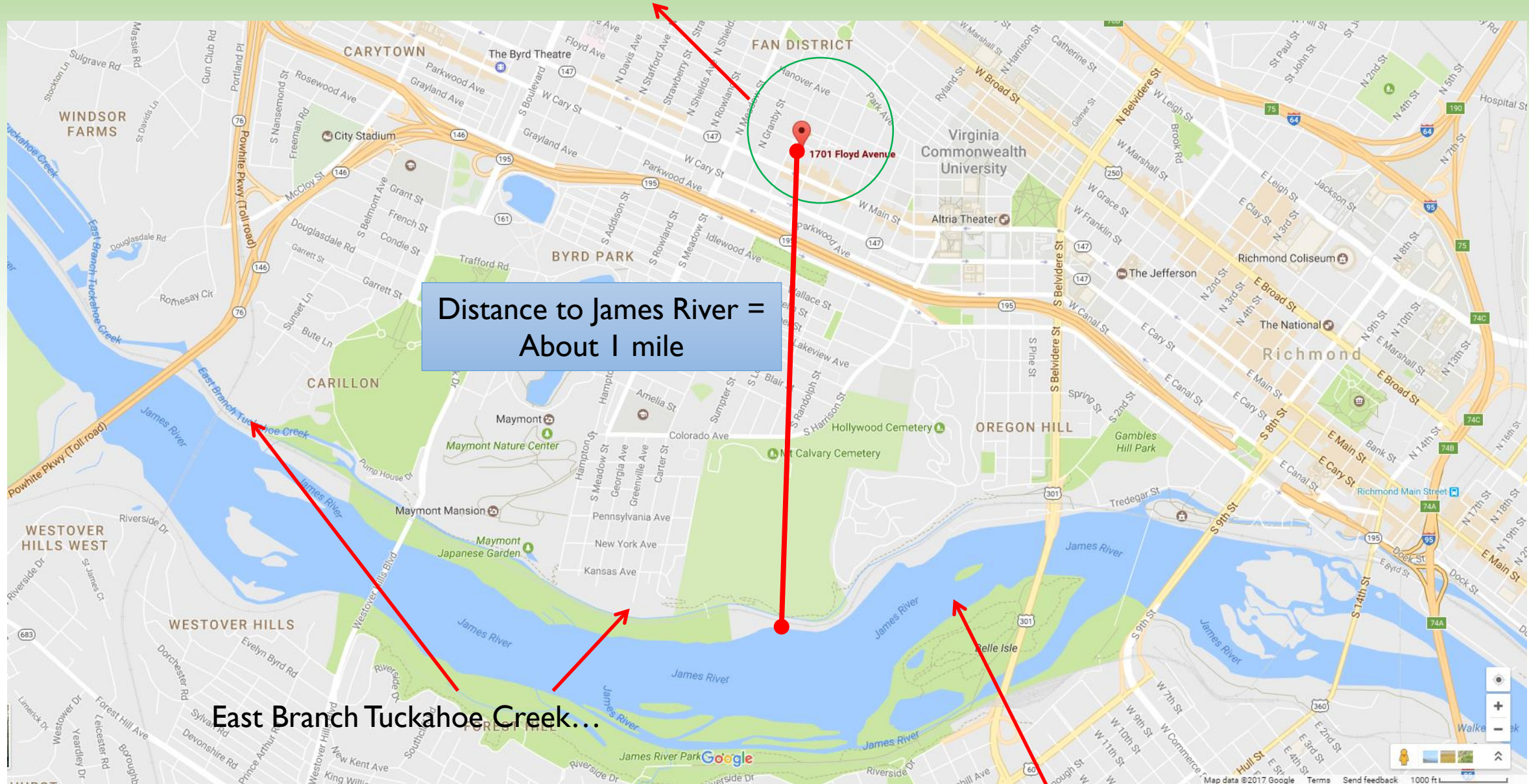
0 0.5 1 2 Miles



Zoom In Again: Richmond City view



You are here. Binford Middle School.



East Branch Tuckahoe Creek...

...Flows into the James River.

Pilot: *Master Green Infrastructure Plan for Binford MS*

At Binford in
2015-2016...

At Binford in
2016-2017...

- Conservation Landscaping
- Downspout Disconnect
- “Living” Green Roof
- Native Meadow
- Pervious Pavers
- Rain Barrels
- Riparian Buffer
- Tree Planting



Rain Garden: Meet the Plants



Inkberry (*Ilex glabra*)



Red tipped switchgrass (*Panicum virgatum*)



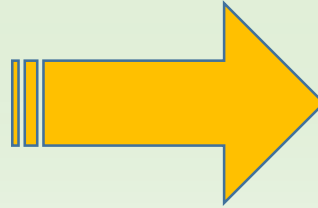
Highbush blueberry (*Vaccinium corymbosum*)



Butterfly Weed (*Asclepias tuberosa*)

Challenge or Success: *Both!*

CHALLENGE



SUCCESS

Lack of access to a river or the Chesapeake Bay

Urban Setting

See the school grounds as an outdoor classroom

Population represents the region's diverse socioeconomic mix

Students

Addressing multiple learning styles

Limited planning time

Teachers

Relationships over time

Under funded & under staffed

Administration

See Alliance as a partner

Outreach and support

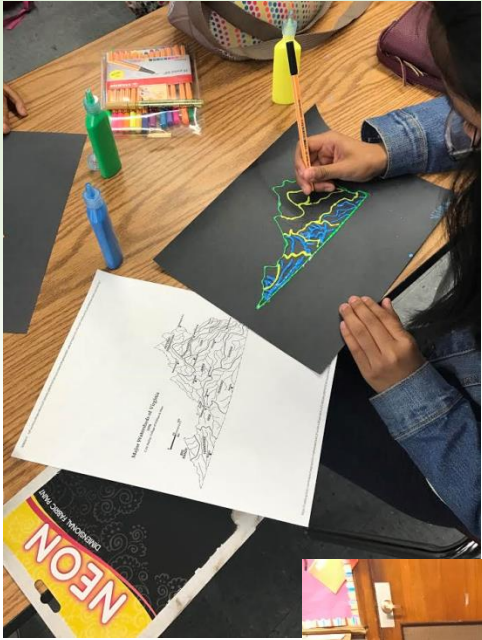
Community

Building alliances



Spotlight on 6th Grade: Alana Wilson

Working with Alliance has been an amazing experience not only for myself but, for my students as well. I would not have been able to accomplish half of the activities that Alliance provided. I'm excited and eager to see their growth from their watershed pre-test (3% pass rate) to their end of the year test. The impact we have made in the 6th grade will carry over into the rest of their academic career



Next Steps: *Summer Plans and Ideas*

End of School Year

- Follow up lessons at Binford to create videos of students' ideas
- Collect post assessment data
- Inside lessons at MLK MS
- Planting days with Lucille Brown and MLK MS
- BAMFest on June 10th



Summer 2017

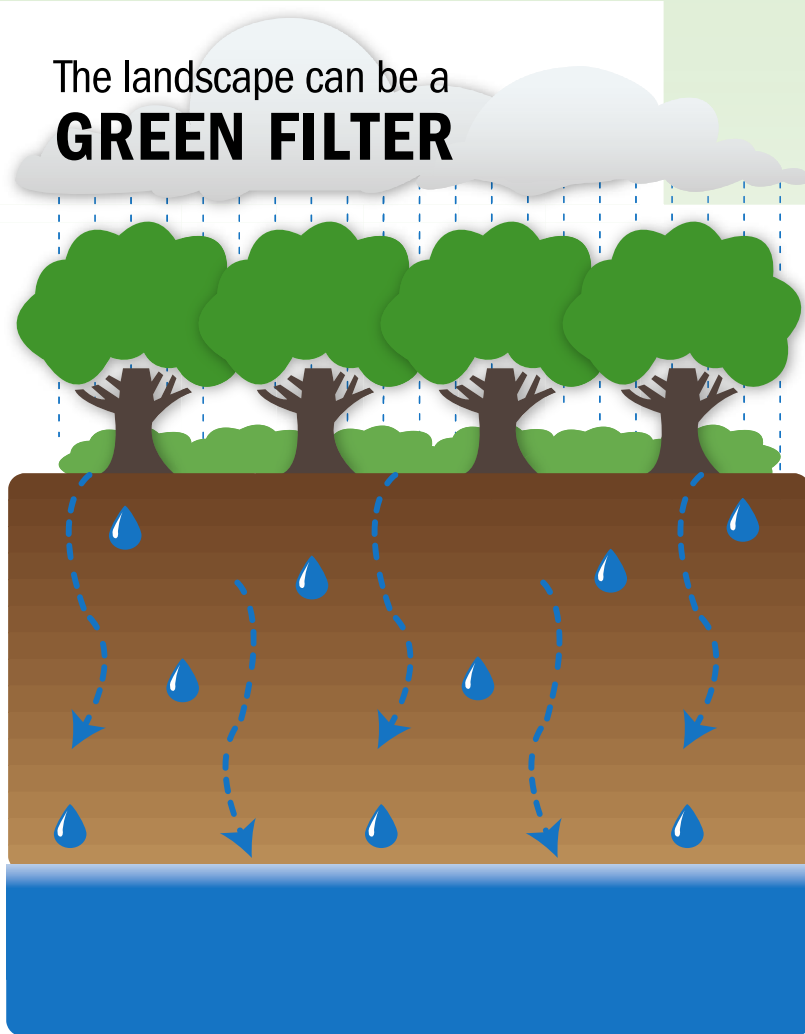
- Create maintenance schedule for Green Teams
- Create and distribute resource binder for teachers
- Lead professional development for teachers for Project WET, Flying WILD and Project Learning Tree in Aug
- Seek and apply for more grants

Fall 2017 and Future

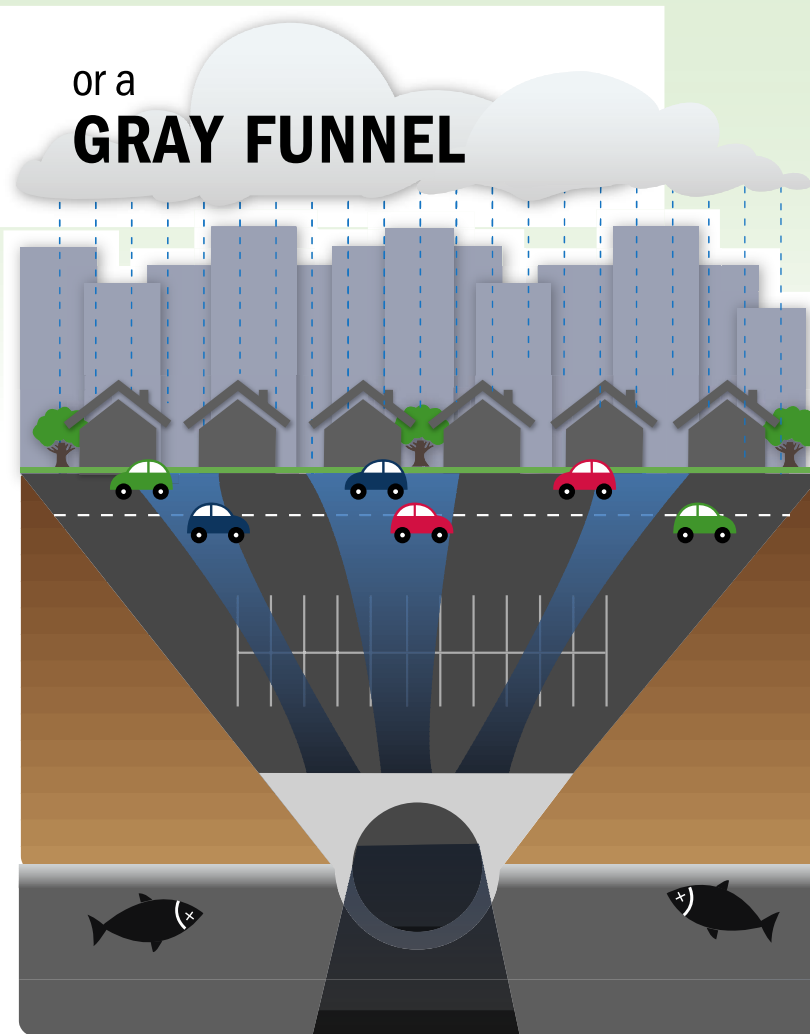
- Complete final tasks of Binford's Master GI Plan
- Establish "Watershed Mentors" at each school
- Partner with James River Association to establish field trips for all middle schools
- Work with RPS to improve pacing guide

Which would you choose?

The landscape can be a
GREEN FILTER



or a
GRAY FUNNEL



RiverWise
SCHOOLS

http://www.chesapeakebay.net/videos/clip/bay_101_stormwater_runoff

 Alliance for the
Chesapeake Bay © 2017

binford**PRIDE**

middle school **OF THE FAN**

Meredeth Dash

RiverWise Schools Program
Coordinator

Alliance for the Bay

mdash@allianceforthebay.org

804-793-8793



**Thank You.
Any Questions?
Contact us!**

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Richmond Public Schools

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