STORMWATER SMART

2016-2017 ANNUAL REPORT

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PIEDMONT TRIAD REGIONAL COUNCIL

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A MESSAGE FROM THE PROGRAM COORDINATOR

This has been another exciting year for Stormwater SMART. Our school programming continues to be the most popular component of our program which speaks to our ability to meet the teacher's needs while teaching the students about water quality. We were able to provide programs in new schools and increase the number of students reached this year as well. In addition to our school programming, we also partnered with other agencies whose mission it is to educate. Working with organizations like the NC Library System, Boy Scouts of America, NC Wildlife Resources Commission, NC Zoo, Keep America Beautiful affiliates, and others, we've been able to provide water day events and outdoor water programs in multiple jurisdictions to teach kids about water from a variety of different view-points. We look forward to expanding these events into new communities this coming year.

This has also been a year of growth. Not only have our programming partners and quantities grown, our staff has as well. Shalanda Grier and Lindsey Bijas served their AmeriCorps terms with Stormwater SMART and increased our volunteer programming and social media presence. We were fortunate to hire Lindsey Bijas as a part-time staff member to continue serving the increased needs of our member communities. We hosted a Summer Intern from UNC-Wilmington, along with a Northern Guilford High School Senior. Cameron Colvin joined the PTRC Planning staff as a Watershed Planner and assists with technical training and guidance for local watershed issues. Elizabeth Jernigan continues as an advisor to our program, and does the design work for logos, websites, and public signage.

As always, we wouldn't be here without our board. I feel fortunate to have such a supportive board that does such amazing work for their communities and for Stormwater SMART!

Sincerely,

Lindsey Lengyel
Stormwater SMART Environmental Program Coordinator

PROGRAM SUMMARY

Stormwater SMART provides direct education and outreach to increase people's awareness of water quality, their connection to the water and how they can increase their stewardship. We also provide opportunities for the public to get involved and participate in addressing water quality concerns.

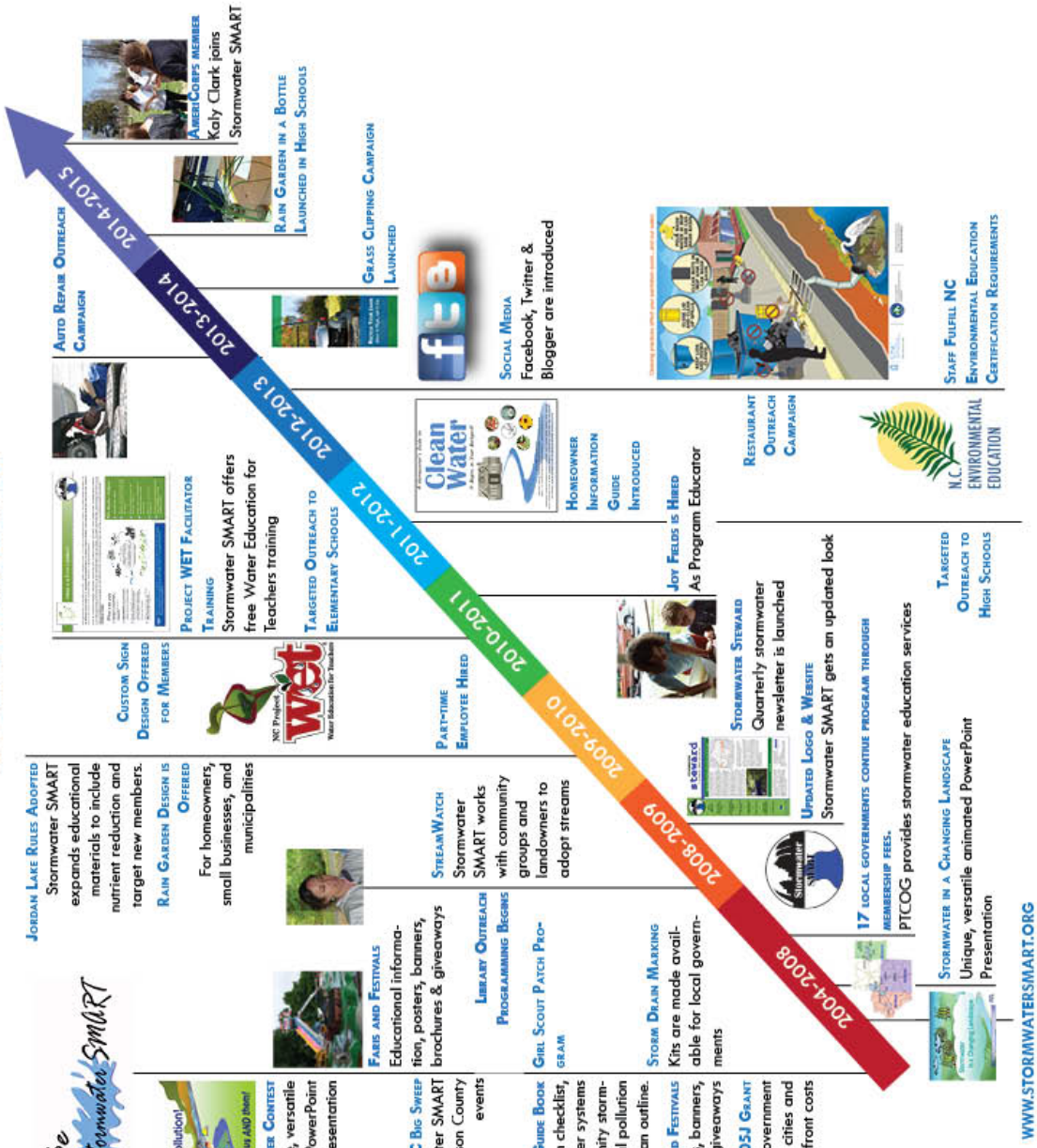


Figure 1: 10 years of Stormwater SMART History

BACKGROUND

PIEDMONT TRIAD REGIONAL COUNCIL

In response to the needs of member governments, the Piedmont Triad Regional Council (PTRC) created a regional stormwater education program for NPDES Phase II jurisdictions in 2004. The PTRC is a voluntary association of municipal and county governments, enabled by state law to promote regional issues and cooperation among members. PTRC serves 72 member governments in the following twelve counties: Alamance, Caswell, Davidson, Guilford, Montgomery, Randolph, Rockingham, Surry, Stokes, Forsyth, Yadkin and Davie.

GOALS AND OBJECTIVES

The overall goal of the stormwater outreach and education partnership of local governments is to meet the needs of NPDES Phase II jurisdictions that otherwise would not have the resources to plan for and implement a strong outreach initiative. In 2009, Governor Beverly Purdue signed the Jordan Lake Rules into law. These Rules require additional communities in the PTRC region to address stormwater pollution through public outreach and education. Although not regulated by the NPDES Phase II program, Rockingham County, Reidsville, Summerfield and Oak Ridge utilize Stormwater SMART to meet Jordan Lake Rules outreach requirements. Additional communities choose to participate in Stormwater SMART, even though they are not required to do so by any governing body. These communities include Davidson County, Randolph County, Randleman, Asheboro and Lexington. These communities see a strong value in using water quality education to protect valuable resources including High Rock and Randleman Lakes.

STORMWATER SMART TODAY

During fiscal year 2004-2005, through a 205j grant from the NC Division of Water Quality, PTRC organized a group of 24 local government representatives from Phase II cities and towns as part of the stormwater outreach program team with no up-front costs to local governments. Local government representatives originally directed the program coordinator to focus on educating the region's elected officials and the PTRC board of delegates. This was achieved through the development and presentation of a Power Point sideshow entitled "Stormwater in a Changing Landscape." PTRC created a unique, versatile animated Power Point presentation to demonstrate the stormwater problem. With the support of elected officials, the Stormwater SMART program was solidified through a second outreach and education effort targeting middle school students throughout the region.

Today Stormwater SMART works with citizens from all walks of life. From toddlers to senior citizens, teachers to elected officials and everyone in between, Stormwater SMART is known throughout the Piedmont Triad as the premiere hands on Stormwater Education program. Our constantly changing website, brochures and other materials reflect the nature of an organization dedicated to providing our constituents with the most up-to-date, relevant stormwater information and participation opportunities

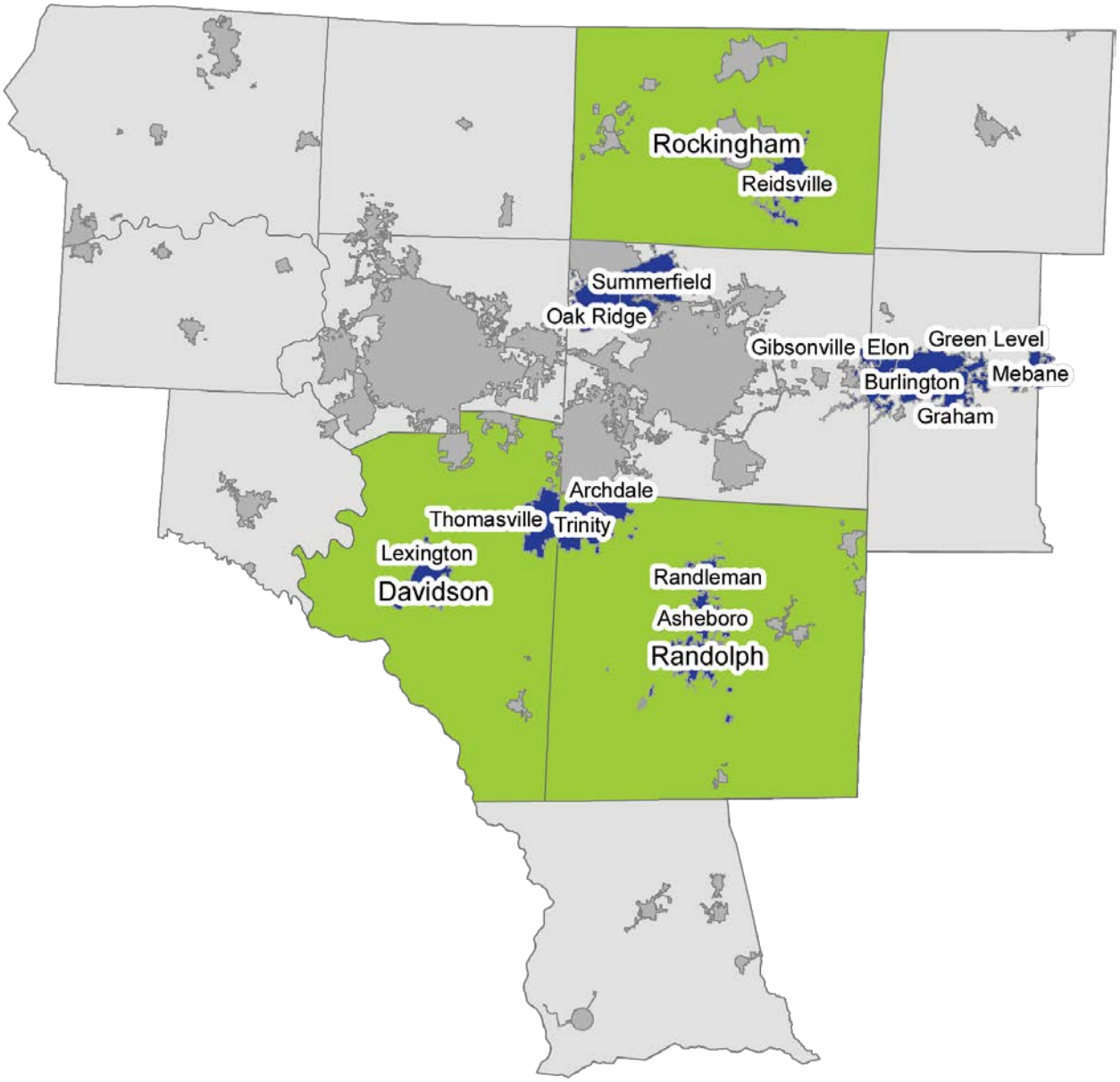
The following Counties and Municipalities participated in Stormwater SMART in 2016-2017:

Davidson County, Randolph County, Rockingham County, Archdale, Asheboro, Burlington, Elon, Gibsonville, Graham, Green Level, Haw River, Lexington, Mebane, Oak Ridge, Randleman, Reidsville, Summerfield, Thomasville and Trinity.

STORMWATER SMART MEMBER GOVERNMENTS

Membership in Stormwater SMART is limited to PTRC member local governments within the PTRC twelve county region. Representatives from organizations and local governments from other regions, or non-PTRC member governments are welcome to attend meetings and access resources and information generated by Stormwater SMART. As of the 2010 US Census, 470,817 residents lived in Stormwater SMART communities.

Figure 2: Participating Stormwater SMART Communities



NPDES PHASE II REQUIREMENTS

Stormwater SMART works with the municipalities of Mebane, Elon, Haw River, Gibsonville, Graham, Burlington, Thomasville, Archdale and Trinity to address NPDES Phase II Public Education and Outreach and Public Participation criteria. We work with permittees to meet the following objectives:

BMPs for Public Education and Outreach

- Goals and Objectives: Defined goals and objectives of the Local Public Education and Outreach Program based on community wide issues.
- Describe target pollutants and/or stressors: The permittee shall maintain a description of the target pollutants and/or stressors and likely sources.
- Describe target audiences: The permittee shall maintain a description of the target audiences likely to have significant storm water impacts and why they were selected.
- Describe residential and industrial/commercial issues: The permittee shall describe issues, such as pollutants, likely sources of those pollutants, impacts, and the physical attributes of stormwater runoff, in their education/outreach program.
- Informational Web Site: The permittee shall promote and maintain, an internet web site designed to convey the program's message.
- Distribute public education materials to identified target audiences and user groups (For example, schools, homeowners, and/or businesses): The permittee shall distribute stormwater educational material to appropriate target groups. Instead of developing its own materials, the permittee may rely on Public Education and Outreach materials supplied by the state, and/or other entities through a cooperative agreement, as available, when implementing its own program.
- Maintain Hotline/Help line: The permittee shall promote and maintain a stormwater hotline/helpline for the purpose of public education and outreach.
- Implement a Public Education and Outreach Program: The permittee's outreach program, including those elements implemented locally or through a cooperative agreement, shall include a combination of approaches designed to reach the target audiences. For each media, event or activity, including those elements implemented locally or through a cooperative agreement the permittee shall estimate and record the extent of exposure.

BMPs for Public Involvement and Participation

- Volunteer community involvement program : The permittee shall include and promote volunteer opportunities designed to promote ongoing citizen participation.
- Mechanism for Public involvement : The permittee shall provide and promote a mechanism for public involvement that provides for input on stormwater issues and the stormwater program.
- Hotline/Help line: The permittee shall promote and maintain a hotline/helpline for the purpose of public involvement and participation.

JORDAN LAKE RULES REQUIREMENTS

The Jordan Lake Rules are a nutrient management strategy designed to restore water quality in the lake by reducing the amount of pollution entering upstream. Restoration and protection of the lake is essential because it serves as a water supply for several thriving communities, as well as a prime recreation area for more than a million visitors each year. The lake and surrounding forests also provide critical habitat for many plant and animal species.

While portions of the Rules have been delayed since it was signed into law in 2009, local governments are required to have a Stage 1 Adaptive Management Program for Existing Development that includes the development and implementation of a public education program to inform the public of the impacts of nutrient loading and measures that can be implemented to reduce nutrient loading from stormwater runoff. In response to this, Stormwater SMART provides education and outreach for the following communities that are subject to the Jordan Lake rules: Burlington, Elon, Gibsonville, Graham, Green Level, Haw River, Mebane, Oak Ridge, Reidsville, Rockingham County, and Summerfield. We work hard to help citizens understand how their everyday actions have an impact on a lake 60 miles away.

A Stage One Program Guidance document can be found at jordanlake.org, however specific requirements regarding community outreach strategies and outreach programs are listed below.

OUTREACH REQUIREMENTS AND STORMWATER SMART COMPLIANCE

Outreach Strategy – Must include at least **two** of the following:

- ☒Newspaper articles and/or inserts
- ☒Kiosks and signage
- ☒Direct mail
- ☒Displays at the point-of-purchase retail centers
- ☐Utility bill inserts

Outreach Program – Must include at least **two** of the following:

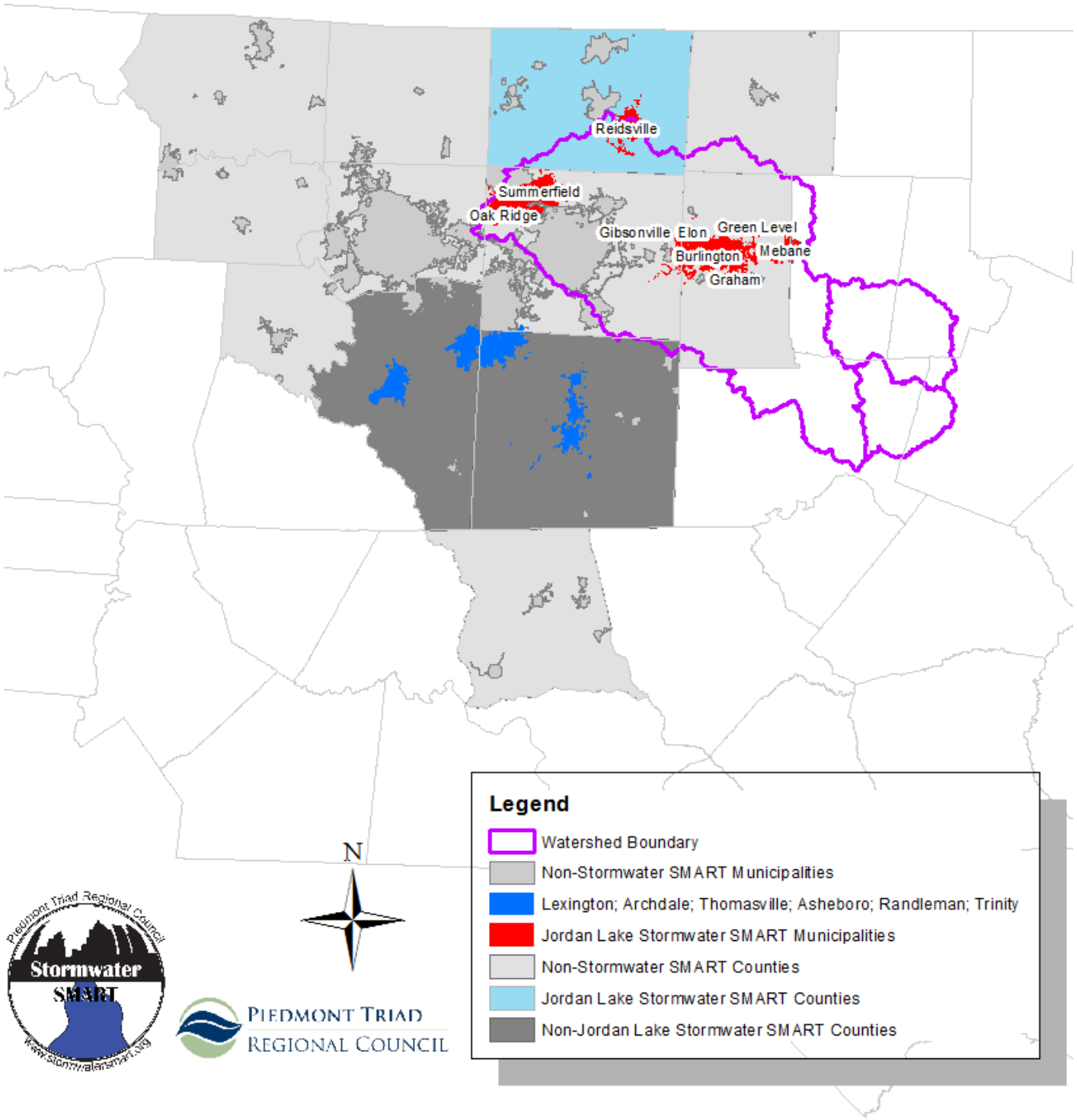
- ☒Public meetings
- ☒Community events
- ☒Contests
- ☒Storm drain marking
- ☒Steam and litter cleanups
- ☒Group presentations and/or speeches

Outreach Program – Must include at least **two** of the following:

- ☒News coverage
- ☒Workshops and classroom outreach
- ☒Distributing promotional giveaways and specialty items
- ☒Brochures, displays, signs, welcome packets and pamplets
- ☐Local cable access
- ☒Newsletters

JORDAN LAKE JURISDICTIONS

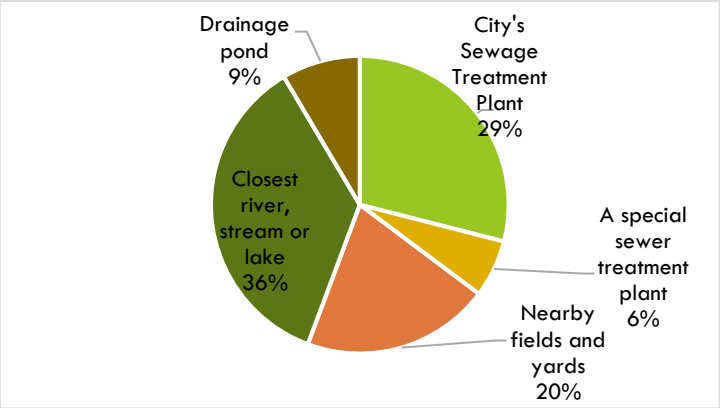
Figure 3: Participating Stormwater SMART Communities



SURVEY DATA

Stormwater SMART staff conducts surveys at most of the fairs and festivals we attend. We also have a link to the survey on our website. This year, we collected over 197 responses.

Figure 3: When rain flows down a storm drain it flows into?

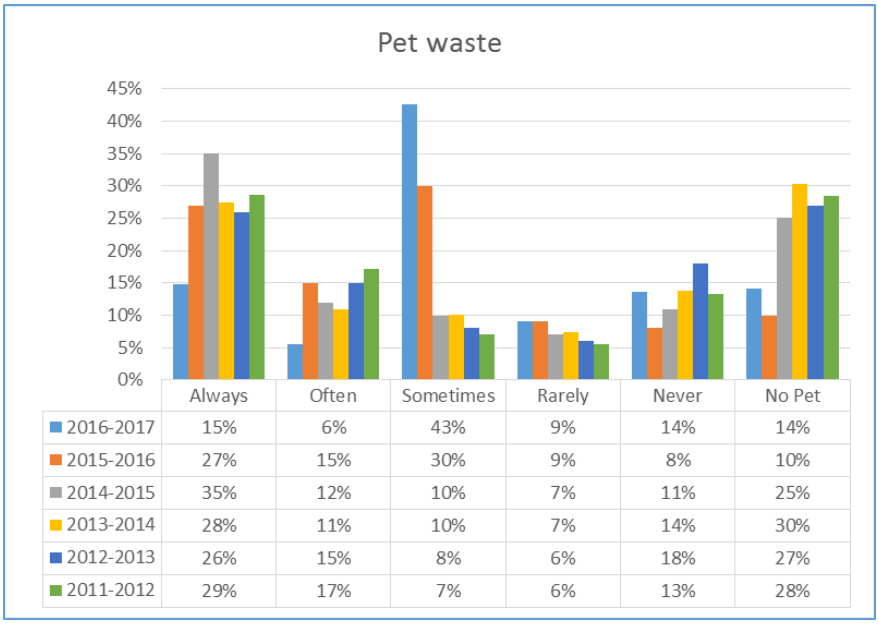


Area fairs and festivals are attended by a diverse group of individuals. Surveying these individuals provides Stormwater SMART with a strong sense of how aware a community is. The pie chart above indicates over 29% of our citizens believe the when rain goes down a storm drain it flows to a treatment plant of some kind. This is a drastic improvement over the past years, but we still have work to do to educate residents about stormwater and the difference between house drains and storm drains.

Survey results also indicate citizens need to pay more attention to some of their daily behaviors. The majority of citizens do not pick up after their pet, however most either don't change oil at home or take it to be recycled, and the majority of people wash their car at the carwash or on permeable surfaces. These results are encouraging and as we move forward, we hope our citizens not only continue improving their daily behaviors, but deepen their understanding of how those behaviors can positively impact our waters.

For complete survey results and a comparison of survey results for the last six years, please see the appendix. The short survey covers the following areas: Residential landscape (urban, suburban or rural); overall water quality; biggest impact on water quality; fertilizer use; soil testing; motor oil disposal; car washing; pet waste and stormwater runoff.

Figure 4: Pet Waste Pick-up (cumulative)



	Always	Often	Sometimes	Rarely	Never	No Pet
2016-2017	15%	6%	43%	9%	14%	14%
2015-2016	27%	15%	30%	9%	8%	10%
2014-2015	35%	12%	10%	7%	11%	25%
2013-2014	28%	11%	10%	7%	14%	30%
2012-2013	26%	15%	8%	6%	18%	27%
2011-2012	29%	17%	7%	6%	13%	28%

PROGRAM OVERVIEW

In the Classroom

Stormwater SMART visits classrooms around the Triad, offering teachers a variety of programs based on a variety of environmental education curriculums and Stormwater SMART designed programs. We K-12 students programs focused on stormwater runoff, aquatic ecosystems, land use and other study areas impacting water quality. All programs are aligned with the NC Standard Course of Study.

Summer Camps

Stormwater SMART provides programs for summer camps throughout our member communities. From getting into the stream to creating environmentally friendly crafts, we have activities to make summer camp even more memorable!

Presentations

Stormwater SMART speaks to civic clubs, garden clubs, homeowners associations, local nonprofit organizations and other groups interested in learning more about what they can do to improve water quality.

Scouts

Stormwater SMART works with Girl and Boy Scout troops to provide programming that meets patch requirements. Our comprehensive programs combine stormwater education and participation to ensure our scouts and our leaders have the tools they need to protect our water!

Figure 6: Summer Camp – Camp Elon

Figure 5: South Graham Elementary School

Litter Clean-ups

Stormwater SMART organizes rotating litter clean-ups in parks, along streams, and at schools within Stormwater SMART communities. Litter Clean-ups remove litter from our watersheds and educates citizens on stormwater runoff.

Library Programs

Stormwater SMART works with libraries across the Piedmont Triad to provide programming for citizens of all ages. From summer reading programs to public information sessions, we ensure our material is relevant to all.

Fairs and Festivals

Fairs and Festivals continue to be one of the most effective ways to reach citizens from all backgrounds. We hand out bookmarks, erasers, wrist bands, sunglasses and encourage folks to sign up for the Stormwater Steward and take our survey.

Rain Garden Design

Stormwater SMART offers rain garden design for homeowners, small businesses, and municipalities. Rain gardens provide numerous water quality benefits and the potential for education is tremendous. That's why we also offer custom rain garden signage designed to accompany your rain garden if it's in a public location.

TOOLS OF THE TRADE

STORMWATER STEWARD

The Stormwater Steward is a quarterly publication covering current events, best practices, and Stormwater SMART programs. The newsletter is distributed to local officials, libraries, at fairs and festivals, and other events. The newsletter is available as a hard copy or electronically.

WWW.STORMWATERSMART.ORG

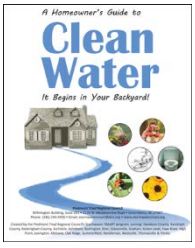
The Stormwater SMART website is designed to be user friendly for both our target audience and our local governments. We keep up to date information on our programs, links to our social networking sites, and information on various topics related to stormwater runoff.

BROCHURES / HANDOUTS

Stormwater SMART designs and distributes brochures addressing a number of topics, from program areas to actions individuals can take to improve water quality. Many of our publications are available in English and Spanish.

HOMEOWNER GUIDES

Stormwater SMART developed a comprehensive Homeowner Education packet for member distribution. Packets address common residential water quality issues and how they can be addressed.



MONITORING

We offer participants the option to get as dirty as they want on our watch. Stormwater SMART provides water quality monitoring and training addressing both physical and chemical parameters.

PRIZES

Stormwater SMART distributes sun glasses, bracelets, erasers, and our "buffer in a bookmark" to participants that spin our "Are You Me" wheel at local festivals. Those that play have to try to match their adult aquatic animals to their younger version to try and win themselves a prize.

ENVIROSCAPE

The Enviroscape® is a well-known tool in the stormwater education world. If you come to a Stormwater SMART function, you're likely to see us using the model to help kids and adults alike understand how we all contribute to stormwater pollution and what we can do to fix it.

PROJECT WET AND AQUATIC WILD

Project WET and Aquatic Wild are the leading resources when it comes to water quality education. The curriculum provides educators with a number of tools to help students understand the role water plays in the environment and in society and what we can do to ensure healthy water for future generations!

NC Project WET
Water Education for Teachers

This year, we offered an Aquatic WILD training and 2 staff members attended Project WET training.

KEY ACCOMPLISHMENTS

School Programs and Locations

School programming remains the foundation of Stormwater SMART. This year we reached almost 5,491 students in more than 27 schools and camps around the region. In addition to working directly with schools, we partnered with the Haw River Assembly, Soil and Water Conservation Districts, NC Cooperative Extension, NC Wildlife Resource Commission, NC Zoo, and the NC Forest Service to provide "Water Days" or multi-disciplinary programs to participating schools.

Figure 7: NC SOC Correlation

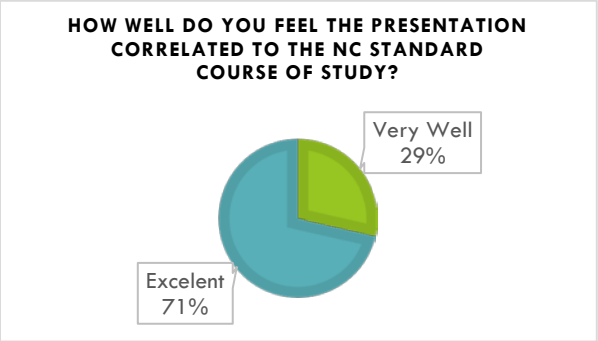


Figure 8: Water Quality? Ask the Bugs

Figure 10: Water Quality? Ask the Bugs

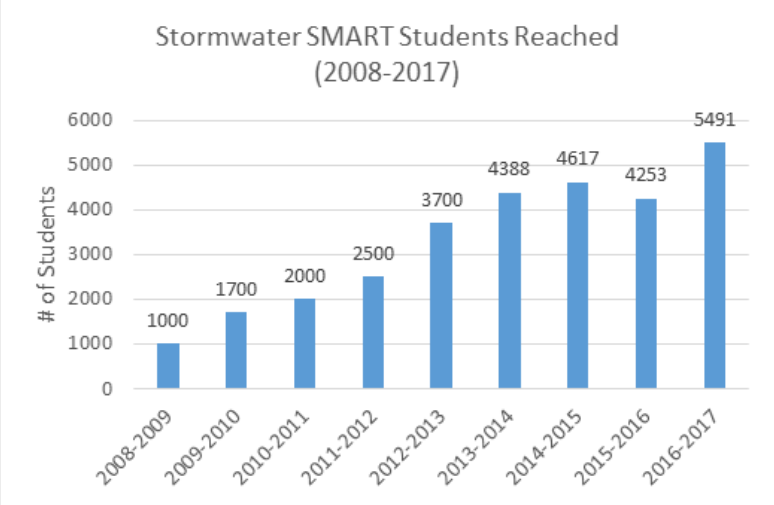


Table 2: School Program Locations

• Alexander Wilson Elementary • Archdale Trinity Middle • Broadview Middle Brown Middle School • Thataways Youth Center • E. Lawson Brown Middle • Eastlawn Middle • Graham Middle • Haw River Elementary • Hawfields Middle • Huntsville Elementary • Lexington YMCA Homeschool Co-Op • Lindley Park Elementary • Marvin B. Smith Elementary • North Davidson High	• North Davidson Middle • Oak Grove Middle • R. Homer Andrews Elementary School • Ray Street Academy • South Davidson Middle • South Graham Elementary • Tyro Middle • Welcome Elementary • Wentworth Elementary School • Western Rockingham Middle • Woodlawn Middle • Yadkin Valley Academy

able 2: Sample School Programs

Table 2: School Programs

Enviroscape Model ® – Interactive program using an interactive 3-D model. The Enviroscape Model is an interactive 3-D model demonstrating how nonpoint source pollution flows over the landscape. The model demonstrates how pollution accumulates and impacts our surface waters. We are also able to show how berms, buffer strips, trees and other model best management practices can minimize impacts from stormwater pollution.
NC Watershed Game Students play a game on a fictional watershed board that shows how different human behaviors affect the watershed through modifications to the biotic and abiotic components via best management practices.
Stormwater SMART Original Program Rain Garden in a Bottle Students learn about how rain gardens function and filter pollutants. They then build a rain garden in a bottle and see how different soils, mulch and plants determine how much water is absorbed by the garden and how clean it is.
Macroinvertebrate Mayhem Students play a game of tag to simulate macroinvertebrate populations and learn how they are impacted by pollution.
The Incredible Journey Students identify and simulate the movement of water within the water cycle. Human's impact on the water cycle is explored in the second round.
Water Quality Ask the Bugs Students learn how plants and animals interact in their aquatic ecosystems by sampling the bugs and learning how macroinvertebrates are assessed.

Figure 11: Macroinvertebrate Mayhem

Figure 129: Incredible Journey

Stormwater SMART is rated with **5 stars** on our Facebook page, and raving reviews about our programs!

Tori Duval ☆☆☆☆☆ wrote: "*The staff is friendly and professional, and the students love their Enviroscape program!*"

Joshua Lopez ☆☆☆☆☆ wrote: "*Great program! Staff was very knowledgeable and provided helpful, interactive activities that allowed students to understand the importance of maintaining clean water. The program was completely free and aligned with course standards.*"

Jen Fuller-Allen ☆☆☆☆☆ wrote: "*Fantastic, hands-on, interactive program for our summer campers. Excellent experience!*"

Figure 103: Rain Garden Design Workshop

Workshops and Certifications

This year we co-facilitated a Residential Rain Garden Design Certification workshop for the general public and municipal employees. It was held at the City of Lexington Public Utilities Building for instruction before moving to Finch Park for a rain garden installation. We also hosted an Aquatic WILD training for formal and non-formal educators throughout our region. The cross-disciplinary nature of Aquatic WILD appeals to teachers and the activities were all correlated with the NC Standard Course of Study. Additionally, we held DIY Rain Barrel workshops through the region with the assistance of Pepsi Bottling in Winston Salem. Residents were able to learn to safely construct rain barrels and bring one home after completion.

Build a Better World Library Programs

This year's collaborative summer library program theme was Build a Better World and we teamed up with libraries in the region to provide programming to young readers that matched this theme. We read Barbara Cooney's *Miss Rumphius* whose focus was finding what each reader can do to make the world a more beautiful place. Miss Rumphius spread wild flower seeds throughout her town, and in keeping with that idea, we provided wild flower seed paper for young readers to make origami fish with. It allowed us to talk about how vegetative buffers can impact water quality in a positive way.

Figure 114: Students learn how to use bugs to determine water quality

Presentations

Stormwater SMART offers a variety of presentations to meet the needs of a diverse audience. We customize each presentation to the age, size of the group and length of the presentation. Our presentations range in length from 15 minutes to two or more hours. We always provide plenty of handouts so our audience never leaves empty-handed. In a single day, you might catch us at a summer camp in the morning, a rotary meeting in the afternoon and a garden club in the evening.

A sampling of our audience from this year includes:

- After School Programs
- Boy Scouts
- Summer Camps
- School and Civic Clubs
- Master Gardeners
- Municipal Staff Members

A few of the topics covered in FY 2016-2017 were:

- Soil and Water Conservation
- Rain Gardens
- The Water Cycle
- Pollution Tolerance
- Stormwater Runoff
- Citizen Science

Scouts

Figure 125: BSA Environmental Science Merit Badge

Stormwater SMART works with scout programs around the Triad. Whether scouts are trying to fulfill badge requirements, or work with the community to improve water quality, our staff is always available to arrange for stream cleanups, assist with designing a rain garden, or conduct a water quality presentation. This year we worked with scouts from Guilford, Randolph, Alamance, Rockingham and Davidson Counties to learn about soil and water conservation. Our major contribution to the scouts this year was aiding in the facilitation of the Environmental Science Merit Badge College. We led two classes that focused on water pollution and pollution prevention.

Litter Clean-ups

Stormwater SMART organizes litter cleanups, both on land and in the rivers, to get community members more involved in protecting their watershed. We teamed up with the Dan River Basin Association to paddle with McMichael High School students down the Mayo River to pick litter and tires out of the river. We also work with schools to do on-campus clean-ups and summer camps to park clean-ups.

Design Services

Stormwater SMART works with communities to promote and advertise projects designed to improve water quality. We assist communities in designing customized signs, flyers and other promotional materials to help citizens understand how Best Management Practices (BMPs) improve local water quality. This year, we continued work with Randolph County and members of the Water Quality Task Force to design signs promoting their electronic and hazardous waste recycling days.

Figure 16: Randolph County Household Hazardous Waste Recycling Day

Raingarden Design

Stormwater SMART staff have their Residential Rain Garden Certification and are willing to help homeowners, garden clubs, scouts, and other groups build rain gardens in their back yard. This year, Stormwater SMART worked with homeowners in Burlington to assess rain garden potential in their backyard.

We hope this and other rain garden projects popping up across the Triad will encourage more citizens to consider installing rain gardens in their backyard. The more rain gardens in the ground, the better chance we have of treating stormwater on site and improving our water quality!

WEBSITE

The Stormwater SMART website remains a central component to our program. Our website is kept up to date with our all our materials, newsletters, meeting notes, agendas, and presentations and links to Facebook, Twitter and Blogger. The calendar function shows where we are spending our days and helps teachers easily schedule a Stormwater SMART visit. Our social media presence also called for a website that was more fully integrated with our Blogger, Facebook, and Twitter feeds. Our website also uses Google Analytics software so we can more fully track who visits our website, allowing us to continuously make changes to better accommodate our target audience. The website can also be translated into dozens of different languages and has an advanced search function to help visitors quickly and easily find what they're looking for. This year, we had over 5,300 page views.

SOCIAL MEDIA

Stormwater SMART continues to utilize Facebook, Blogger and Twitter feeds. This year we featured 9 blog posts and had 5,331 page views with an average of 444 each month. Our Facebook page has 112 likes, and we have 299 Twitter followers. Social networking allows us the opportunity to connect not only with our citizens, but opens the door for communication and partnerships with many state and federal agencies, nonprofits, and other organizations working to protect water quality.

Figure 137: Blog Statistics

2016-2017 Blog Posts:

- So What is Green Infrastructure?
- I Still Play in the Dirt
- The E.coli Scare!
- Water: A Finite Resource
- Mayo River Clean Up
- Boy Scouts – Environmental Science Merit Badge
- Environmental Educator – What Does That Mean?
- First Summer Camp of the Year
- Summerfield Fishing Derby 2017

Fairs & Festivals

We work closely with our member governments to educate the public at local fairs and festivals. This is a great opportunity to reach out to people who may otherwise not participate in any of our programming. From small community events, to large scale, multi-day events, we're there rain or shine. This year we handed out re-usable bags, seeded bookmarks, and dog bones tagged with important information about pet waste and water quality. A casual atmosphere gives us the opportunity to introduce citizens to the importance of protecting water quality, introduce our services to the community, and collect survey information.

- Randolph County Arbor Day
- Burlington Carousel Festival
- Archdale-Trinity Bush Hills Festival
- Mebane Winter Wonderland
- Mebane Dogwood Festival
- Gibsonville Fall Festival
- Lexington BBQ Festival
- Lexington Multicultural Festival
- NC Zoo Earth Day
- Oak Ridge RidgeFest
- Reidsville Fall Jubilee
- Summerfield Fishing Derby
- Summerfield Founders' Day
- Thomasville Everybody's Day
- Green Level Back to School Bash
- Reidsville Water Festival
- YeeHaw! River Paddle

Figure 148: Mebane Winter Wonderland Craft Show

Appendix A

Program Summary

Stormwater SMART Direct Education Program Summary

Regional Programs for All Municipalities

PTRC	10/29/16	Aquatic Wild Workshop	11
Boy Scouts of America	12/10/16	STEM Merit Badge College	40
Boy Scouts Old North State Council	02/28/17	STEM X Regional Meeting	4
Burroughs Wellcome Fund	04/18/17	Grant Submission	N/A
Piedmont Triad Farmers Market	07/22/17	Farmers Market Event	400
Boy Scouts Old North State Council	07/31/17	STEM X Camp Round Robins	29
Regional Event Total			**484**

Alamance Regional Programs & Municipalities

Alamance Region

Educational Flyer Distribution	02/15/17	Town Halls and Public Works for: Burlington, Mebane, Graham, Elon, Gibsonville, Green Level, Haw River	N/A
Haw River Paddle Clean-up	03/24/17	Multiple Municipalities	5
YeeHaw! River Paddle Booth	05/20/17	Multiple Municipalities	28
Total			**33**

Burlington

Burlington Fishing Camp	7/13/16	StreamWatch, EnviroScape, Macroinvertebrates	17
Burlington Day Camp	7/19/16	Stream Watch in Little Alamance Creek	43
Burlington Wildlife Camp	7/20/16	EnviroScape, Erosion Control, StreamWatch	6
Burlington Day Camps	7/29, 8/2, 8/4	Stream Watch in Little Alamance Creek	176
Burlington Carousel Festival	9/17/16	Festival	500
Thataways Youth Center	10/7, 10/17	MacroMayhem, Water Quality? Ask the Bugs	32
Eastlawn Middle School	11/21/16	The Incredible Journey	71
ABSS 8th Grade Career Fair+	02/17/17	Career Fair Booth	416
Marvin B. Smith Elementary**	02/15/17	The Incredible Journey	40
North Park Library	04/12/17	EnviroScape & Rain Garden in a Bottle	18
Girls Adventure Camp	06/20/17	MacroInvertebrate Sampling, EnviroScape	12
May Memorial Library	06/20/17	Build a Better World	28
Nature Adventure Camp	06/28/17	A-Maze-ing Water, Macroinvertebrates	20
Total			**1379**

Elon

Camp Elon	07/07/16	StreamWatch in Little Alamance Creek	20
Marvin B. Smith Elementary**	02/15/17	The Incredible Journey	40
Elon Planning, Downtown Dev.	03/07/17	Planning for Elon Events	4
Annual Stormwater Public Mtg	05/17/17	Required Public Meeting	10
Total			**74**

Gibsonville

Gibsonville Fall Festival	10/08/16	Festival	400
Gibsonville Public Library	04/27/17	Macroinvertebrate Mayhem	5
Gibsonville Public Library	05/18/17	Build a Better World	10
Total			**415**

Graham

Graham Middle School	11/14/16	EnviroScape	81
Ray Street Academy	01/13/17	EnviroScape, How Wet is our Planet, Watershed Game	21
ABSS 8th Grade Career Fair+	02/17/17	Career Fair Booth	208
S. Graham Elementary	03/28, 03/30	Make a Thunderstorm, A-Maze-ing Water	44

Graham Public Library	04/06/17	EnviroScape	7
Graham Recreation Center	06/15/17	A-Maze-ing Water, Make a Thunderstorm	37
Graham Recreation Center	06/22/17	EnviroScape	64
Graham Camp @ Municipal Park	06/29/17	MacroInvertebrate Sampling, Macro Mayhem	33
Total			**495**
Green Level			
Back to School Bash	08/20/16	Festival	100
R. Homer Elementary*	10/25/16	Incredible Journey	45
ABSS 8th Grade Career Fair+	02/17/17	Career Fair Booth	208
Total			**353**
Haw River			
R. Homer Elementary*	09/21/16	Incredible Journey	45
Haw River Elementary	10/25/16	Incredible Journey	85
Alexander Wilson Elementary	12/07, 12/08	Incredible Journey	110
ABSS 8th Grade Career Fair+	02/17/17	Career Fair Booth	208
Total			**448**
Mebane			
Winter Festival	11/19/16	Are you me? Snowflake craft	150
ABSS 8th Grade Career Fair+	02/17/17	Career Fair Booth	208
Hawfields Middle School	03/10/17	EnviroScape	120
Dogwood Festival	04/22/17	Festival	100
City Planner Meeting	06/20/17	Holt St., Demonstration Sites, Creek Week	5
Total			**583**
Alamance County Total			**3780**

+ ABSS Career Fair for 4 Schools: Broadview, Hawfields, Woodlawn, and Graham. Student quantities split evenly between municipalities with students in attendance.

* R. Homer student quantities split evenly between Green Level & Haw River

** Marvin B. Smith student quantities split evenly between Burlington & Elon

Randolph County and Municipalities

Archdale

Bush Hills Festival*	09/10/16	Festival	500
Archdale-Trinity Middle School*	02/08-02/09	EnviroScape	116
Archdale-Trinity Middle School*	02/13-02/14	EnviroScape	83
Archdale Planning Meeting	02/21/17	Parks, Recreation, & Library Mtg	5
Keep Randolph County Beautiful	03/29/17	KRCB Meeting	8
Keep Randolph County Beautiful	05/24/17	KRCB Meeting	8
Archdale Creekside Camp	06/13/17	Thunderstorm, A-Maze-ing Water, Macros	24
Total			**744**

Asheboro

Lindley Park Elementary School	11/10/16	Incredible Journey	69
Arbor Day	03/18/17	Festival	300
Asheboro Public Library	04/04/17	EnviroScape	10
Asheboro Public Library	06/14/17	EnviroScape	7
Keep Randolph County Beautiful	03/29/17	KRCB Meeting	8
Keep Randolph County Beautiful	05/24/17	KRCB Meeting	8
Total			**402**

Randleman

Keep Randolph County Beautiful	03/29/17	KRCB Meeting	8
Keep Randolph County Beautiful	05/24/17	KRCB Meeting	8
Randleman Library	06/13/17	DIY Rain Barrel Workshop	16
Total			**32**

Trinity

Bush Hills Festival*	09/10/16	Festival	150
Archdale-Trinity Middle School*	02/08-02/09	EnviroScape	116
Archdale-Trinity Middle School*	02/13-02/14	EnviroScape	83
Total			**349**

County

Randolph Public Library	03/02/17	Why We Should Save Water	17
Earth Day At the Zoo	4/22/17	Festival	400
Randolph Public Library	06/22/17	Build a Better World	37
Keep Randolph & Davidson Counties Beautiful Collaboration	06/29/17	Executive Committee Event	4
Total			**458**

Randolph County Total	**1,985**

* Quantities split between Archdale & Trinity

Davidson County Regional Programs and Municipalities

Lexington			
Lexington YMCA – Kiwanis Kamp	07/08/16	Incredible Journey, Pass the Jug, Aqua Bodies	72
Finch Park Camp	8/16/16	Rain Garden in a Bottle, Secchi Disks	32
Lexington YMCA - Homeschoolers	09/28/16	EnviroScape, Rain Garden in a Bottle	10
Lexington BBQ Festival	10/22/16	Festival	600
Tyro Middle School	11/16, 11/17	Water Quality? Ask the Bugs	184
Rain Garden Workshop	03/23/17	NCSU Rain Garden Workshop	25
Lexington Senior High HOPE Club	04/19/17	Are you me?	100
Multicultural Fest	05/06/17	Festival	400
Total			**1,423**
Thomasville			
Thomasville Everybody's Day	09/24/16	Festival	225
Brown Middle School	10/26, 10/27	Watershed Investigators, The Long Haul	220
E. Lawson Brown Middle School	01/04-01/06	EnviroScape	228
Total			**673**
County			
SWCD Environmental Camp	8/16/16	Rain Garden in a Bottle, Secchi Disks	32
Oak Grove Middle	11/01/16	EnviroScape	47
Davidson County Cooperative Ext	11/03/16	Intro to Rain Barrels	29
Oak Grove Middle	11/07, 11/09	EnviroScape	193
Yadkin Valley Academy	11/22/16	Water Quality Testing, Watershed Game	27
N. Davidson High School	11/29/16	Watershed Game, EnviroScape	92
N. Davidson Middle School	11/30, 12/01	Water Quality? Ask the Bugs	246
S. Davidson Middle	01/20/17	EnviroScape	104
N. Davidson High School	03/02/17	Watershed Game, EnviroScape	74
Welcome Elementary	03/22/17	Water Quality? Ask the Bugs	87
Davidson County Cooperative Ext	04/11/17	DIY Rain Barrel Workshop	26
Keep Randolph & Davidson Counties Beautiful Collaboration	06/29/17	Executive Committee Event	4
Total			**961**
Davidson County Total			**3, 057**

Rockingham County and Reidsville

Rockingham County

Madison-Mayodan Library	07/13/16	Water Cycle Warm-up, Aqua Bodies	21
Eden Library	07/14/16	Water Cycle Warm-up, Aqua Bodies	60
Stoneville Library	07/15/16	Water Cycle Warm-up, Aqua Bodies	28
Western Rockingham Middle Sch.	10/11, 10/12	StreamWatch	51
Wentworth Elementary	10/12/16	EnviroScape	96
Wentworth Elementary	10/14/16	The Incredible Journey	85
Huntsville Elementary	10/20/16	EnviroScape, StreamWatch	77
Mayo River State Park, DRBA	11/05/16	Paddling Clean-up	28
Total			**446**

Reidsville

Reidsville Library	07/11, 07/12	Water Cycle Warm-up, Aqua Bodies	97
Fall Jubilee	10/15/16	Festival	250
Camp Guilrock	11/17/16	EnviroScape	200
Reidsville Water Festival	04/27/17	Festival	250
Total			**797**
Rockingham County Total			**1,243**

Guilford County

Summerfield and Oak Ridge Combined

Town of Summerfield Planning Mtg	01/06/17	Town, Stormwater, Recreation Plan	3
Lake Brandt ECO Bus Tour	03/03/17	Environmental Education Tour	5
Guilford County 205J Meeting	04/04/17	Outreach & education planning	7
Founders' Day	05/13/17	Festival	250
RidgeFest	06/03/17	Festival	250
Fishing Derby	06/17/17	Festival	50
NW Guilford Senior Mentorship	All Summer	8 Summer Programs	8
Total			**573**
Guilford County Total			**573**

Regional Total	**11,122**

APPENDIX B

Budget

Stormwater SMART Budget for Fiscal Year 2016-2017

Census 2010 Population		FY 2016-2017
Archdale	11,415	**$4,500**
Asheboro	25,012	**$5,000**
Burlington	49,963	**$5,000**
Davidson County	107,828	**$7,000**
Elon	9,419	**$4,000**
Gibsonville	6,410	**$4,000**
Graham	14,153	**$4,500**
Green Level	2,100	**$3,500**
Haw River	2,298	**$3,500**
Lexington	18,931	**$4,500**
Mebane	11,393	**$4,500**
Oak Ridge	6,185	**$4,000**
Reidsville	14,520	**$4,500**
Randleman	4,113	**$3,500**
Randolph County	88,465	**$6,000**
Rockingham County	55,009	**$6,000**
Summerfield	10,232	**$4,500**
Thomasville	26,757	**$5,000**
Trinity	6,614	**$4,000**
Total:	470,817	$87,500

**County population totals do NOT include municipalities*

Population	Rate
0-5000	$3,500.00
5-10000	$4,000.00
10000-25000	$4,500.00
25000-50000	$5,000.00
50000-100000	$6,000.00
100000+	$7,000.00

APPENDIX C

Board Meeting Agendas and Meeting Notes

Piedmont Triad Regional Council • 1398 Carrollton Crossing Drive • Kernersville, NC 27284

AGENDA

July 21, 2016 • PTRC Conference Room, Kernersville Office • 2pm - 4pm

I. **Introductions**
II. **Staffing Update**
III. **Programming**
   a. ***Schools visited during last quarter (K-12)***
      - Rockingham Middle
      - Western Alamance Middle
      - Asheboro Zoo High
      - Gibsonville Elementary
      - Asheboro High
      - Northwest Guilford High
      - South Asheboro Middle
      - Stoneville Elementary

   b. ***Festivals, Camps, Libraries & Other Events***
      - Graham Recreation Center
      - Lexington J. Smith Young YMCA
      - Camp Elon
      - Camp St. Marks
      - Reidsville Library
      - Madison-Mayodan Library
      - Burlington Beginner Fishing Camp
      - Burlington Wildlife Camp
      - Little Alamance Creek Stream Watch
      - Graham First Friday Concert Series

IV. **Media**
   a. Website update
   b. Newsletter (paper & electronic)
   c. Social Media
   d. Press Releases
V. **Materials**
   a. Bags, stickers & erasers
   b. Vertical banner
VI. **Annual Report & Budget**
VII. **Upcoming Meetings**
   - October 20th, 2016
   - January 19th, 2017
   - April 20th, 2017
   - July 20th, 2017

Meeting Notes

July 21st, 2016 • PTRC Conference Room, Kernersville Office • 2pm - 4pm

Attendees: Greg Patton, City of Randleman; Clinton McNeill, Randolph County; Jeff York, Randolph County; Kaitland Finkle, Davidson County; Montrena Hadley, City of Mebane; Donna Setliff, City of Reidsville; Wes Kimbrell, City of Lexington; Teresa Bobbitt, AWCK (Elon, Graham, Haw River, Mebane, Gibsonville, Thomasville); Michael Douglas, Town of Green Level; Eric Martin, Randolph County; Susanna Smith, Rockingham County; Elizabeth Jernigan, PTRC; Lindsey Lengyel, PTRC; Joe Fursentburg, PTRC

I. **Program Update:** Elizabeth Jernigan provided an update on Stormwater SMART staff and introduced the new Environmental Programs Coordinator, Lindsey Lengyel. Lindsey is working with AmeriCorp member Shalanda Grier to continue programming. Elizabeth also announced that we will be recruiting a new AmeriCorp member in October/November 2016.

II. **Materials:** Elizabeth presented the proof for the new outdoor banner for Stormwater SMART to use at fairs and festivals. Lindsey presented the new grocery bags and stickers. Printed and electronic brochures need to be translated into Spanish.

III. **Website & Social Media:** Elizabeth recommended updating the Stormwater SMART website in the upcoming year to better accommodate views on mobile devices. Instead of building a website from scratch, Elizabeth recommended using WordPress or other site builder application. Lindsey informed the group of the new @stormwater_smart Instagram account along with an increased Facebook presence. New blogs have been posted by Lindsey and Shalanda.

IV. **Planning:** Elizabeth encouraged the Board to have Stormwater SMART speak to town council members or town departments that could use additional information on what we provide for their community. Lindsey facilitated a small group exercise asking participants what programs the Board would like to see in their communities over the next 3-6 months. Areas of interest included:

   a. Stream clean-ups
   b. Reinforcing erosion control measures with contractors and developers
   c. Focusing on litter, buffers, and lawn clippings
   d. Animal waste

V. **Annual Report:** Lindsey will be finalizing the Annual Report by the end of August to coincide with when reporting is due to the State. A one-page community profile will be included for each member that summarizes information provided to that community in the 2015-2016 fiscal year.

VI. Upcoming Meetings

- October 20th, 2016
- January 19th, 2017
- April 20th, 2017
- July 20th, 2017

Adjourn: Next Meeting Date will be October 20th, 2016: Kernersville Conference Room

Piedmont Triad Regional Council • 1398 Carrollton Crossing Drive • Kernersville, NC 27284

AGENDA

October 20, 2016 • PTRC Conference Room, Kernersville Office • 2pm - 4pm

I. Introductions

II. Staffing Update

III. Programming

a. Schools visited during last quarter

R. Homer Elementary School
Lexington Home School Group
2 x Western Rockingham Middle School
2 x Wentworth Elementary
Huntsville Elementary

b. *Festivals, Camps & Other Events*

3 x City Park Camps
Science Camp at Finch Park
Back to School Bash at Green Level
2 x Thataways Youth Center

c. *Upcoming Events*

Lexington BBQ Festival
Abbotts Creek Clean-up – Burlington
Mayo River Clean-up – Rockingham County
Aquatic Wild Workshop – PTRC
Rain Barrel Workshop – Davidson County
Rain Garden Workshop – Lexington

IV. Program Needs

a. Other upcoming events
b. Website requests
c. Newsletter Topics
d. Social Media
e. Community Contact List
f. College Contacts

V. Media

a. Website
b. Newsletter (paper & electronic)
c. Social Media

VI. Materials

a. Vertical banner
b. Wheel
c. Shirts

VII. Annual Report & Budget

VIII. Upcoming Meetings

- January 19th, 2017
- April 20th, 2017
- July 20th, 2017
- October 19th, 2017

Piedmont Triad Regional Council • 1398 Carrollton Crossing Drive • Kernersville, NC 27284

Meeting Notes

October 20th, 2016 • PTRC Conference Room, Kernersville Office • 2pm - 4pm

Attendees: Greg Patton, City of Randleman; Clinton McNeill, Randolph County; Jeff York, Randolph County; Kaitland Finkle, Davidson County; Montrena Hadley, City of Mebane; Wes Kimbrell, City of Lexington; Eric Martin, Randolph County; Jason Greer, Rockingham County; Morgan Huffman, City of Thomasville; Brandon Parker, Town of Gibsonville; Shalanda Grier, PTRC; Lindsey Lengyel, PTRC

I. **Program Update:** Lindsey Lengyel provided information on the new AmeriCorp Member, Lindsey Bijas including her start date of November 1st. She also stated that current AmeriCorp Member, Shalanda Grier, will complete her term at PTRC at the end of November. Lindsey passed out a list of the schools, festivals, and other events attended in the previous quarter, along with a list of upcoming events on the schedule.

II. **Materials:** Lindsey presented the new vertical banner and table-top spinning wheel to be used at Fairs & Festivals. She also stated the Board will receive information on ordering Stormwater SMART embroidered polos. The Fall newsletter will be finalized within 2 weeks.

III. **Website & Social Media:** Lindsey reaffirmed the desire to update the Stormwater SMART website in the upcoming year to better accommodate views on mobile devices. The goal is to use WordPress or other site builder application so that the site does not have to be built from scratch. Lindsey asked the group to tag Stormwater SMART on their work Instagram and Facebook accounts when promoting events Stormwater SMART is involved with.

IV. **Planning:** Lindsey encouraged the Board to have town departments such as Parks & Rec get in touch with her regarding additional community outreach events including stream and park clean-ups, pet waste bin education, youth programming, and other civic groups. Lindsey requested specific help for reaching several of the smaller communities that may not have large annual community events.

V. **Annual Report:** Lindsey provided copies of the Annual Report in addition to previously emailing a link to an electronic version on the Stormwater SMART website. It is still the goal to provide a one-page community profile that will be included for each member that summarizes information provided to that community in the 2015-2016 fiscal year.

VI. **Upcoming Meetings**

- January 19th, 2017
- April 20th, 2017
- July 20th, 2017
- October 19th, 2017

Adjourn: Next Meeting Date will be January 19th, 2017: Kernersville Conference Room 2p-4p

Piedmont Triad Regional Council Stormwater SMART

Piedmont Triad Regional Council • 1398 Carrollton Crossing Drive • Kernersville, NC 27284

AGENDA

January 19, 2017 • PTRC Conference Room, Kernersville Office • 2pm - 4pm

I. Introductions

II. Staffing Update

III. Programming

a. Schools visited last quarter

Haw River Elementary
Brown Middle
Oak Grove Middle
Lindley Park Elementary
Graham Middle
Tyro Middle
Eastlawn Middle
Yadkin Valley Academy
N. Davidson High
N. Davidson Middle
Alexander Wilson Elementary
E. Lawson Brown Middle
S. Davidson Middle
Ray St. Academy

b. *Festivals, Camps & Other Events*

Aquatic Wild Workshop – Hosted
Project WET Workshop – Attended
Davidson Co. Coop-Ext - Facilitated
PLC – Facilitated
Mebane Holiday Festival
Boy Scouts – Env. Sci. Badge College

c. *Upcoming Events*

Dan River Clean
Rain Barrel Workshop
Rain Garden Workshop
ABSS Career Fair
Haw River Clean-up
NCSU BMP Workshop
Cub Scout STEM Quest
Earth Day – Multiple Locations
RidgeFest – Oak Ridge
STEM X Summer Camp

IV. Program Needs

a. Budget usage
b. Intern

V. Media

a. Website
b. Newsletter (paper & electronic)
c. Social Media

VI. Materials

a. Shirts
b. Promo Items

VII. Planning

a. Spring & Summer Scheduling
b. Rain Garden starter packs
c. Stream Clean-up rotations

VIII. Upcoming Meetings

- April 20th, 2017
- July 20th, 2017
- October 19th, 2017
- January 18th, 2017

Piedmont Triad Regional Council • 1398 Carrollton Crossing Drive • Kernersville, NC 27284

Meeting Notes

January 19th, 2017 • PTRC Conference Room, Kernersville Office • 2pm - 4pm

Attendees: Greg Patton, City of Randleman; Clinton McNeill, Randolph County; Jeff York, Randolph County; Montrena Hadley, City of Mebane; Wes Kimbrell, City of Lexington; Eric Martin, Randolph County; Brandon Parker, Town of Gibsonville; DJ Seners, City of Archdale; Allyssa Stafford, Rockingham County; Teresa Andrews, AWCK; Lindsey Bijas, PTRC; Lindsey Lengyel, PTRC

I. **Introductions:** Lindsey Lengyel introduced AmeriCorp Member Lindsey Bijas.

II. **Staffing Update:** Lindsey L noted upcoming advertisement for Watershed Planner position at PTRC.

III. **Programming:** Lindsey L. passed out a list of the schools, festivals, and other events attended in the previous quarter, along with a list of upcoming events on the schedule. Lindsey L. encouraged the Board to have town departments such as Parks & Rec get in touch with her regarding additional community outreach events including stream and park clean-ups, pet waste bin education, youth programming, and other civic groups.

IV. **Program Needs:** Lindsey L. noted that we are currently under budget for the fiscal year and that it would be a good opportunity to make larger purchases to enhance the program. Ideas included a new festival canopy that can be carried and setup by 1 person, field microscopes, tablet for surveys at festivals, and an augmented reality sandbox. Lindsey L. will research and send costs to Board for final approval.

V. **Media:** Lindsey L. reaffirmed the desire to update the Stormwater SMART website in the upcoming year to better accommodate views on mobile devices. The goal is to use WordPress or other site builder application so that the site does not have to be built from scratch. Per feedback from the recent Non Formal Educator meeting, we will also incorporate materials and programs for teachers to use in the days before and after our visits to their classroom. Lindsey B. showed a storyboard concept for the website based on one she previously designed. Lindsey B. passed out copies of the Winter Stormwater SMART newsletter.

VI. **Materials:** Don Allen from Alpine Graphic Apparel brought promotional items for consideration. The Board opted for 2 tiers of items: Fair & Festival give-away items, and higher quality items for strategic marketing. Lindsey L. passed out embroidered polos to members that had ordered them.

VII. **Planning:** Lindsey L. described the upcoming plan for 2017-2018 to include quantifiable metrics for each community to assist in identifying areas where additional outreach opportunities need to be pursued. Lindsey L. requested dates of upcoming events that Stormwater SMART needs to attend.

VIII. **Upcoming Meetings**

- April 20th, 2017
- July 20th, 2017
- October 19th, 2017
- January 18th, 2018

Adjourn: Next Meeting Date will be April 20th, 2017: Kernersville Conference Room 2p-4p

Piedmont Triad Regional Council • 1398 Carrollton Crossing Drive • Kernersville, NC 27284

AGENDA

April 20, 2017 • PTRC Conference Room, Kernersville Office • 2pm - 4pm

I. Introductions

II. Staffing Update
a. Watershed Planner
b. Intern
c. AmeriCorps

III. Programming Schedule (See Attached)

IV. Program Needs
a. Budget usage
b. 2017-2018 Budget
c. Burroughs Wellcome Fund *Student Science Enrichment Program*

V. Media
a. Website
b. Newsletter (paper & electronic)
c. Social Media
d. DPI Article for NSTA *Connected Science Learning*

VI. Materials
a. Promo Items
b. Micro/Stereoscopes

VII. Upcoming Meetings
- July 20th, 2017
- October 19th, 2017
- January 18th, 2018
- April 19th, 2018

Piedmont Triad Regional Council • 1398 Carrollton Crossing Drive • Kernersville, NC 27284

Meeting Notes

April 20th, 2017 • PTRC Conference Room, Kernersville Office • 2pm - 4pm

Attendees: Greg Patton, City of Randleman; Michael Douglas, Town of Green Level; Sean Tencer, Town of Elon; Allyssa Stafford, Rockingham County; Jeff York, Randolph County; Brandon Parker, Town of Gibsonville; Montrena Hadley, City of Mebane; Teresa Andrews, AWCK; Lindsey Bijas, PTRC; Lindsey Lengyel, PTRC

I. **Introductions:**

II. **Staffing Update:** Lindsey L noted new Watershed Planner starting in June, and that a Stormwater SMART summer intern is pending. Additionally, PTRC has been approved for another AmeriCorp member in the Fall.

III. **Programming:** Lindsey L. passed out a list of the schools, festivals, and other events attended in the previous quarter, along with a list of upcoming events on the schedule. Michael Douglas asked to have a Stormwater SMART Booth at the Pre-4th of July event in Green Level. Lindsey B discussed the potential to do a Creek Week event next year, similar to Forsyth County and Durham. Lindsey L discussed the recently submitted Grant Proposal to the Burroughs Wellcome Fund, Student Science Enrichment Program for a mobile classroom/laboratory for Stormwater SMART. Awards will be announced in September.

IV. **Program Needs:** Lindsey L. discussed the purchase of 2 field microscopes and the Board tentatively approved, depending on final costs.

V. **Media:** Lindsey L. reaffirmed the desire to update the Stormwater SMART website in the upcoming year to better accommodate views on mobile devices. The goal is to use WordPress or other site builder application so that the site does not have to be built from scratch. Per feedback from the recent Non Formal Educator meeting, we will also incorporate materials and programs for teachers to use in the days before and after our visits to their classroom. Lindsey B. passed out copies of the Winter Stormwater SMART newsletter. Lindsey L announced that Stormwater SMART will be mentioned in the DPI article in the May NSTA Journal. Lindsey B received contacts from various members to increase social media interaction between Stormwater SMART and towns/cities/counties.

VI. **Materials:** Lindsey B passed out new promo materials for Board inspection. Items included tumbler cups, silicone bracelets, erasers, bags, sunglasses, and book marks.

VII. **Planning:** Lindsey L. described the upcoming plan for 2017-2018 to include quantifiable metrics for each community to assist in identifying areas where additional outreach opportunities need to be pursued. Lindsey L. requested dates of upcoming events that Stormwater SMART needs to attend.

VIII. **Upcoming Meetings**

- July 20th, 2017
- October 19th, 2017
- January 18th, 2018
- April 19th, 2018

APPENDIX D

NC Standard Course of Study Correlation

Stormwater SMART 1st Grade Programs for 2012 NC Essential Standards

1.L.1: Understand characteristics of various environments and behaviors of humans that enable plants and animals to survive:

L1.1 **–** Recognize that plants and animals need air, water, light (plants only), space, food and shelter and that these may be found in their environment.

Activities:

- **Life Box** – Through a thought provoking activity, students discover four essential, interdependent factors needed to sustain life (indoor).
- **Water Audit** – Students discuss water sources and water conservation concepts, conduct a home and school water audit, and compare and contrast results with and without the implementation of water conservation practices. Then they make recommendations for personal conservation strategies at home (indoor).

L1.3 **–** Summarize ways that humans protect their environment and/or improve conditions for the growth of the plants and animals that live there.

Activities:

- **A-maz-ing Water** - Negotiate a maze to investigate nonpoint source pollution and discuss conservation practices (indoor).
- **There is no Away** – Students take a close look at everyday trash and learn how it can be reused, recycled or composted to take control of their trash and help keep litter out of our waterways (indoor). Can be combined with a school yard clean-up (outdoor).

Social Studies:

1.G.1: Use geographic representations, terms and technologies to process information from a spatial perspective.

1G.1.1 **–** use geographic tools to identify characteristics of various landforms and bodies of water.

Activities:

- **Blue Planet (k-2 option)–** Students estimate the percentage of the earth's surface that is covered by water and use simple probability to check their estimates (indoor and outdoor).
- **Enviroscape Model ®** – Watershed model assists students in identifying characteristics of landforms and bodies of water (indoor).

Stormwater SMART 3rd Grade Programs for 2012 NC Essential Standards

3.E.2 :Compare the structures of the Earth's surface using models or three-dimensional diagrams.

3.E.2.1 :Compare Earth's saltwater and freshwater features (including oceans, seas, rivers, lakes, ponds, streams, and glaciers).

Activities: The activities below can be combined for a fun interactive 45minute/ 1 hour program

- **Blue Planet** – Students estimate the percentage of the earth's surface that is covered by water and use simple probability to check their estimates (indoor).
- **Blue River** – Students participate in a whole body exercise to simulate the movement of water through a river and its watershed (indoor).

3.E.2.2: Compare Earth's land features (including volcanoes, mountains, valleys, canyons, caverns, and islands) by using models, pictures, diagrams, and maps.

Activities: The activities below can be combined for a fun interactive 45minute/ 1 hour program

- **Just Passing Through –** Students investigate how vegetation affects the movement of water over land surfaces (outdoor).
- **Seeing Watersheds** – Students use maps to characterize what a watershed is, to identify key parts and functions of watersheds, to determine boundaries and how water flows in a watershed based on elevation (indoor).
- **Enviroscape Model ® –** Students investigate how water flows through land features and connects watersheds using an interactive 3-D model. This activity is non-point source pollution intensive (indoor).

3.L.2: Understand how plants survive in their environments.

3.L.2.4: Explain how the basic properties (texture and capacity to hold water) and components (sand, clay and humus) of soil determine the ability of soil to support the growth and survival of many plants.

Activities:

- **Life Box** – Through a thought provoking activity, students discover four essential, interdependent factors needed to sustain life (indoor).
- **The Dirt on Soil** - Students discover how different soil types absorb and filter water and learn how the basic components of soil affect erosion (indoor and outdoor options).

Stormwater SMART 4th Grade Programs for 2012 NC Essential Standards

4.L.1: Understand the effects of environmental changes, adaptations and behaviors that enable animals (including humans) to survive in changing habitats.

4.L.1.1: Give examples of changes in an organism's environment that are beneficial to it and some that are harmful.

Activities:

- **Enviroscape Model ® –** Students investigate how water flows through and connects watersheds using an interactive 3-D model. This activity is non-point source pollution intensive (indoor).
- **There is no Away** – Students take a close look at everyday trash and learn how it can be reused, recycled or composted to take control of their trash and help keep litter out of our waterways and reduce mosquito habitat(indoor). Can be combined with a school yard clean-up (outdoor).
- **Common Water** - Students analyze population change to understand that water is a shared resource that must be managed to provide a resource for development and a resource for wildlife.

4.L1.3: Explain how humans can adapt their behavior to live in changing habitats (e.g., recycling wastes, establishing rain gardens, planting trees and shrubs to prevent flooding and erosion).

Activities:

- **Enviroscape Model ® –** Students investigate how water flows through and connects watersheds using an interactive 3-D model. This activity is non-point source pollution intensive (indoor).
- **Rain Garden Design and Function –** Students investigate how rain gardens filter out pollutants caused by human behaviors and how they can be designed to fulfill human demands (indoor and outdoor options).
- **Blue Traveler –** Students investigate how humans impact the water cycle (indoor).
- **Just Passing Through –** Students investigate how vegetation affects the movement of water over land surfaces (outdoor).

Stormwater SMART 5th Grade Programs for 2012 NC Essential Standards

5.P.2: Understand the interactions of matter and energy and the changes that occur.
5.P.2.1: Explain how the sun's energy impacts the processes of the water cycle (including evaporation, transpiration, condensation, precipitation and runoff).

Activities:

- **The Incredible Journey** – Students simulate the movement of water within the water cycle and identify the role of pollution (indoor/outdoor).

5.L.2: Understand the interdependence of plants and animals with their ecosystem.
5.L.2.2: Classify the organisms within an ecosystem according to the function they serve: producers, consumers, or decomposers (biotic factors).

Activities:

- **Enviroscape Model ®** – Students investigate how water flows through and connects ecosystems using an interactive 3-D model. This activity is non-point source pollution intensive and can be used to demonstrate or discuss producers, consumers and decomposers (indoor).
- **Water Quality ask the Bugs -** Students learn how plants and animals interact in their aquatic ecosystems by sampling the bugs (indoor modeling) and learning how macroinvertebrates are assessed (indoor or outdoor options).

5.L.2.3: Infer the effects that may result from the interconnected relationship of plants and animals to their ecosystem.

Activities:

- **Invaders** – Students learn what aquatic invasive species are and then participate in a full-body movement game that simulates competition for habitat and resources; students also create graphs and find out about the prevention and management of aquatic invasive species (indoor).
- **Macroinvetebrate Mayhem –** Students play a game of tag to simulate the effects of environmental stressors on macroinvertebrate populations (outdoor).
- **Runoff Race** – Students demonstrate how plants and wetlands can improve water quality by filetering out sediments (outdoor).
- **Stream Watch** – Students learn how plants and animals interact in their aquatic ecosystems by sampling the bugs (indoor modeling or outside leafpacks) and learning how macroinvertebrates are assessed (indoor or outdoor options).
- **Virtual Water** – Students create a "water web" to illustrate their dependence on water and the interdependence among water users, producers and people worldwide (indoor).

Stormwater SMART 6th Grade Programs for 2012 NC Essential Standards

6.E.2: Understand the structure of the earth and how interactions of constructive and destructive forces have resulted in changes in the surface of the Earth over time and the effects of the lithosphere on humans.

6.E.2.4: Conclude that the good health of humans requires: monitoring the lithosphere, maintaining soil quality and stewardship.

Activities:

- **The Dirt on Soil** - Students discover how different soil types absorb and filter water and learn how the basic components of soil including parent material affect erosion (indoor and outdoor options).

6.L.2: Understand the flow of energy through ecosystems and the responses of populations to the biotic and abiotic factors in their environment

6.L.2.3: Summarize how the abiotic factors (such as temperature, water, sunlight, and soil quality) of biomes (freshwater, marine, forest, grasslands, desert, Tundra) affect the ability of organisms to grow, survive and/or create their own food through photosynthesis.

- **Stream Watch/Ask the Bugs!** – Students learn how plants and animals interact in their aquatic ecosystems by sampling the bugs (indoor modeling or outside leafpacks) and learning how macroinvertebrates are assessed (indoor or outdoor options).
- **Dragonfly Pond** – using maps students determine the best way to develop an area with farms, industry, people, and nature and how development choices affect the natural resources necessary for life and the response of populations to the change in their environment(indoor).
- **Common Water** - Students analyze population change to understand that water is a shared resource that must be managed to provide a resource for development and a resource for wildlife.

Stormwater SMART 7th Grade Programs for 2012 NC Essential Standards

7.E.1: Understand how the cycling of matter (water and gases) in and out of the atmosphere relates to Earth's atmosphere, weather and climate and the effects of the atmosphere on humans

7.E.1.2 – Explain how the cycling of water in and out of the atmosphere and atmospheric conditions relate to the weather patterns on earth

Activity:

- **The Incredible Journey** – Students simulate the movement of water within the water cycle and identify the role of pollution (indoor/outdoor).

7.G.2: Apply the tools of a geographer to understand modern societies and regions

7.G.2.1 – Construct maps, charts, and graphs to explain data about geographic phenomena (e.g. migration patterns and population and resource distribution patterns)

Activities:

- **Seeing Watersheds** – Students use maps of the to characterize what a watershed is, to identify key parts and functions of watersheds, to determine boundaries and how water flows in a watershed based on elevation and human development (indoor).
- **Dragonfly Pond** – using maps students determine the best way to develop an area with farms, industry, people, and nature and how development choices affect the natural resources necessary for life (indoor).
- **Color Me a Watershed** – students use maps to interpret how development can affect a watershed.

7.G.1.3 – Explain how natural disasters, preservation efforts and human modification of the environment affect modern societies and regions.

Activities:

- **Storm Water –** Students learn how water travels through a community and how it can be managed to reduce the impact of stormwater runoff (indoor).
- **There is no Away** – Students take a close look at everyday trash and learn how it can be managed to help keep litter out of our waterways (indoor). Can be combined with a school yard clean-up (outdoor).
- **Common Water** – Students analyze population change to understand that water is a shared resource that must be managed to provide a resource for development and a resource for wildlife(indoor).
- **8-4-1, One for all** – Representing eight different water users, students must safely carry one water container "downstream" and must manage through simulated water management challenges to reach the next community of water users on the same "river" (indoor).

Stormwater SMART 8th Grade Programs for 2012 NC Essential Standards

8.E.1: Understand the hydrosphere and the impact of humans on local systems and the effects of the hydrosphere on humans.

8.E.1.1: Explain the structure of the hydrosphere including:

- Water distribution on earth
- Local river basins and water availability

Activities:

- **Blue Planet** – Students estimate the percentage of the earth's surface that is covered by water and use simple probability to check their estimates (indoor and outdoor).
- **Blue River** – Students participate in a whole body exercise to simulate the movement of water through a river and its watershed (indoor and outdoor options).
- **Enviroscape Model ® –** Students investigate how water flows through and connects watersheds using an interactive 3-D model. This activity is non-point source pollution intensive (indoor).
- **Watershed Game –** students play a game showing how different human behaviors positively and negatively affect the watershed (indoor).

8.E.1.3: Predict the safety and potability of water supplies in North Carolina based on physical and biological factors, including:

- Temperature
- Dissolved oxygen
- pH
- Nitrates and phosphates
- Turbidity
- Bio-indicators

Activities:

- **Stream Watch/Water Quality Ask the Bugs!** – Students learn how plants and animals interact in their aquatic ecosystems by sampling the bugs (indoor modeling or outside leafpacks) and learning how macroinvertebrates are assessed (indoor or outdoor options).
- **Enviroscape Model ® –** Students investigate how water flows through and connects watersheds using an interactive 3-D model. This activity is non-point source pollution intensive (indoor).
- **Macroinvetebrate Mayhem –** Students play a game of tag to simulate the effects of environmental stressors on macroinvertebrate populations (outdoor).
- **A Snapshot in Time –** Students use topographic (contour) maps to explore the concept of a watershed and then apply that knowledge to watershed monitoring (indoor).

8.E.1.4: Conclude that the good health of humans requires:

- Monitoring of the hydrosphere
- Water quality standards
- Methods of water treatment
- Maintaining safe water quality
- Stewardship

Activities:

- **Enviroscape Model ® –** Students investigate how water flows through and connects watersheds using an interactive 3-D model. This activity is non-point source pollution intensive (indoor).
- **Storm Water –** Students learn how water travels through a community and how it can be managed to reduce the impact of stormwater runoff (indoor).
- **Watershed Game –** students play a game showing how different human behaviors positively and negatively affect the watershed (indoor).
- **Color Me a Watershed** – students use maps to interpret how development can affect a watershed.

8.L.3: Understand how organisms interact with and respond to the biotic and abiotic components of their environment.

8.L.3.1: Explain how factors such as food, water, shelter and space affect populations in an ecosystem.

Activities:

- **Stream Watch/Ask the Bugs!** – Students learn how plants and animals interact in their aquatic ecosystems by sampling the bugs (indoor modeling or outside leafpacks) and learning how macroinvertebrates are assessed (indoor or outdoor options).
- **Watershed Game –** Students play a game showing how different human behaviors affect the watershed through modifications to the biotic and abiotic components (indoor).
- **Macroinvetebrate Mayhem –** Students play a game of tag to simulate the effects of environmental stressors on macroinvertebrate populations (outdoor).

Stormwater SMART High School Programs

Earth and Environmental Science, Horticulture or Animal Science:

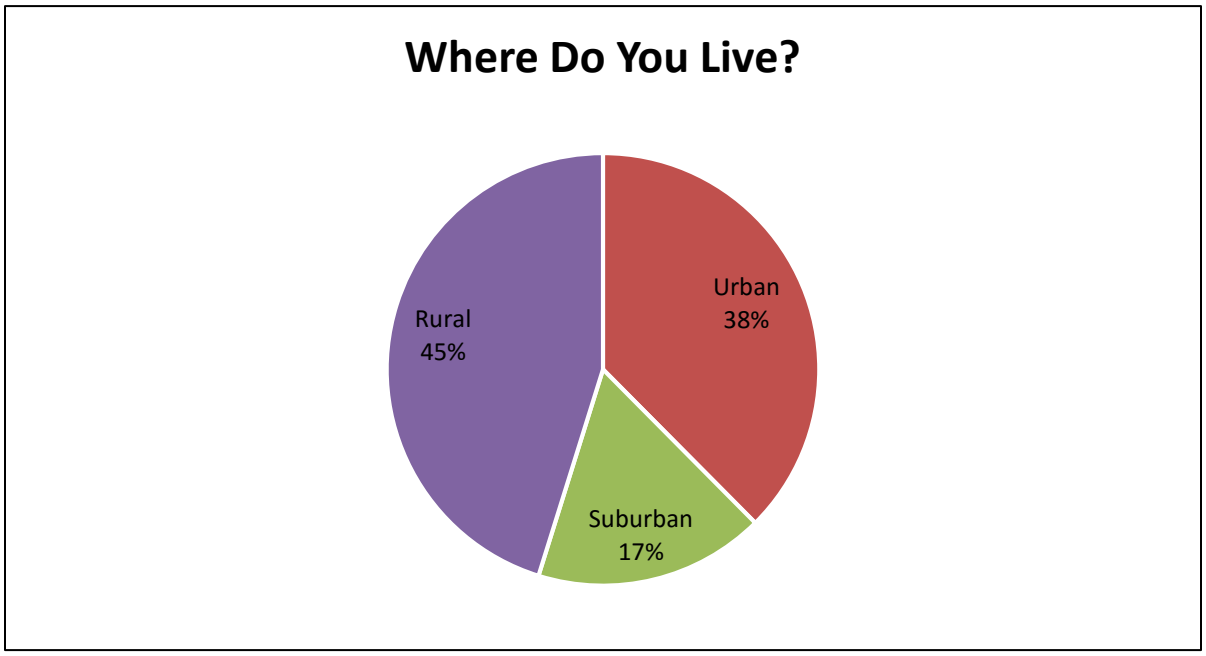
- **Stream Watch** – Students assess the water quality in the creek by sampling the macroinvertebrates. They learn how animals interact in their aquatic ecosystems and how human actions impact those ecosystems.
- **NC Watershed Game –** Students get an introduction to the water quality issues in the piedmont and then work in teams (urban, agricultural, parks and rec, development) to use best management practices such as buffers, rain gardens, etc. to clean up the water in the lake and reach pollution reduction targets.
- **Rain Garden in a Bottle –** Students learn about non-point source pollution and using rain gardens to reduce polluted runoff. Students then build a rain garden in a bottle and compete to see which student used the given materials in their garden to effectively reduce and clean the water.

APPENDIX E

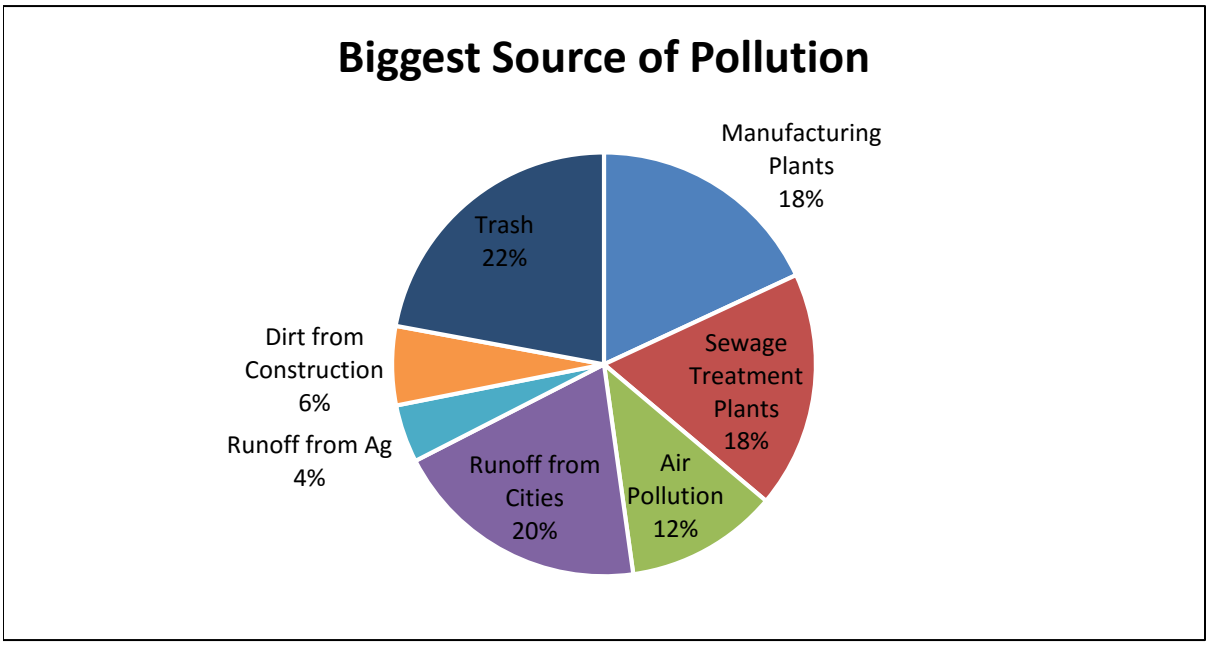
Fair & Festival Survey Results

Survey Questions and Results

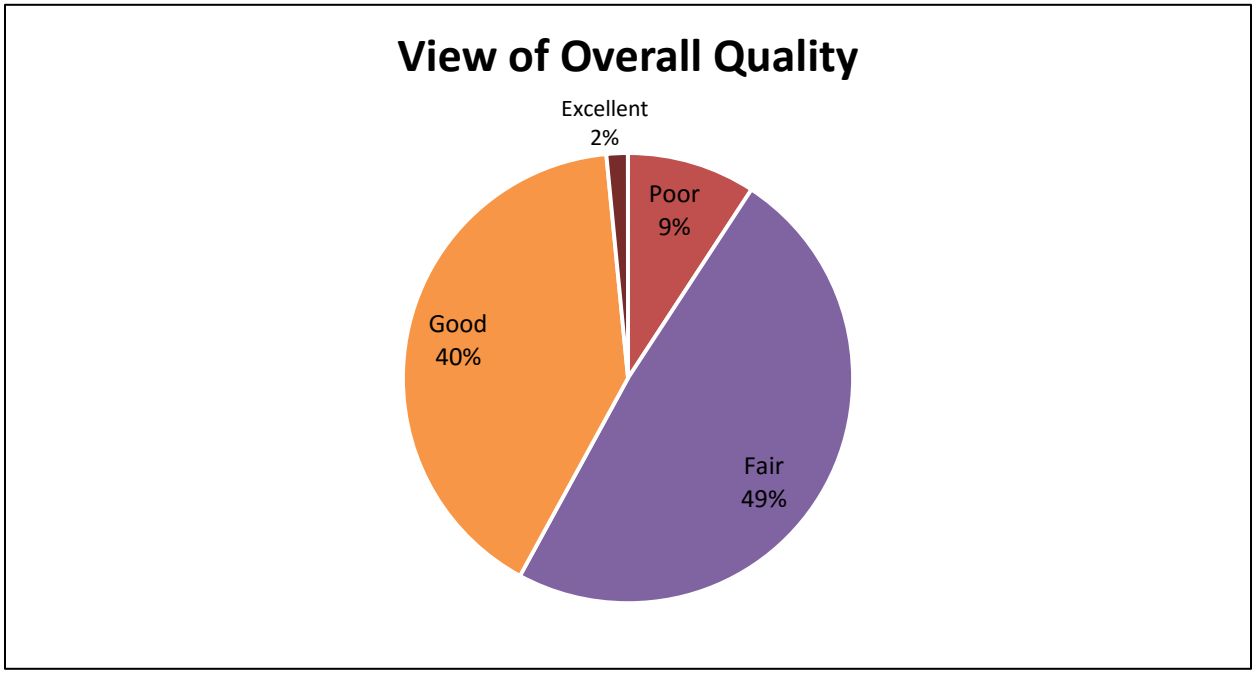
1. Which area best describes where you live?



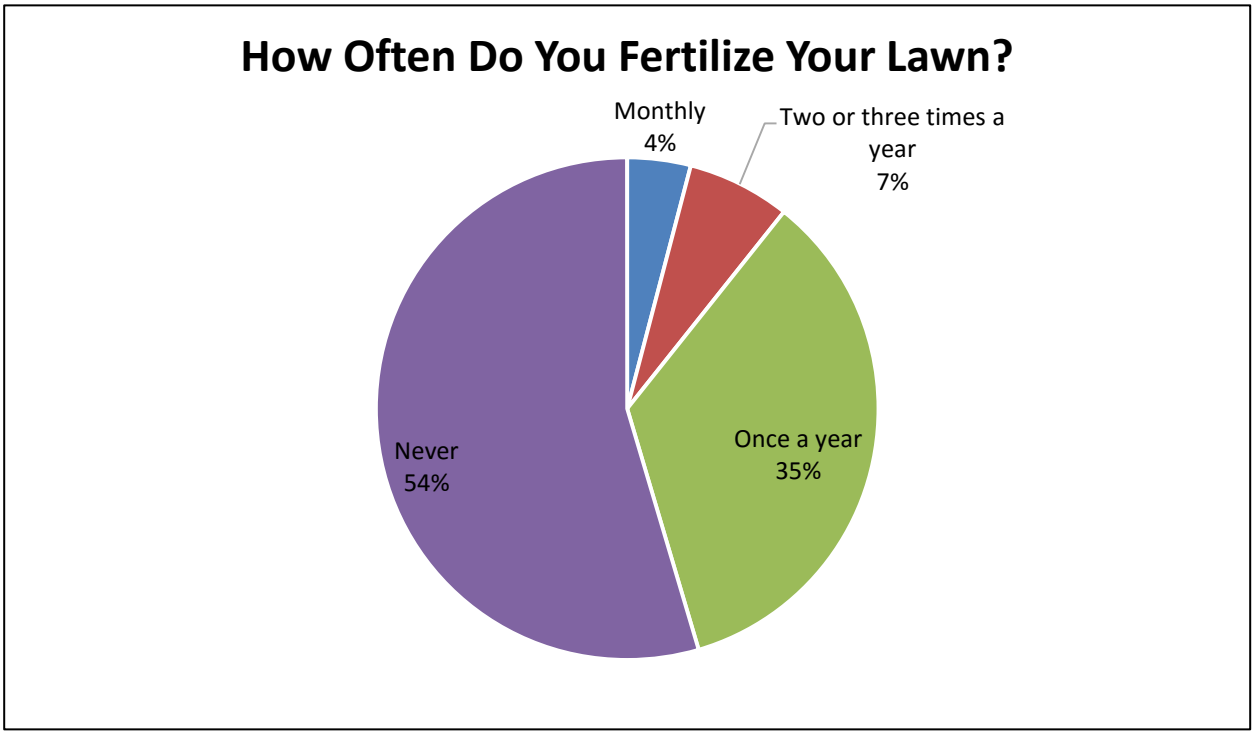
2. Do you think the overall water quality of rivers, streams, and lakes in your area is:



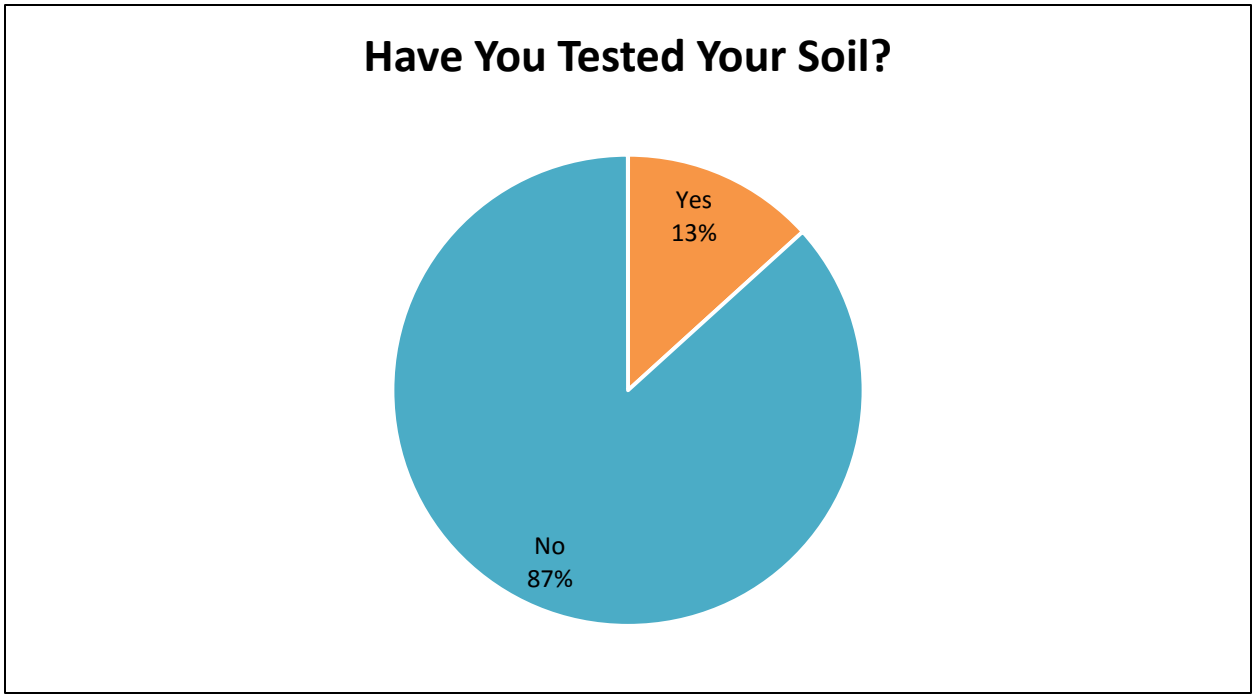
3. Which of the following do you believe has the biggest impact on water quality?



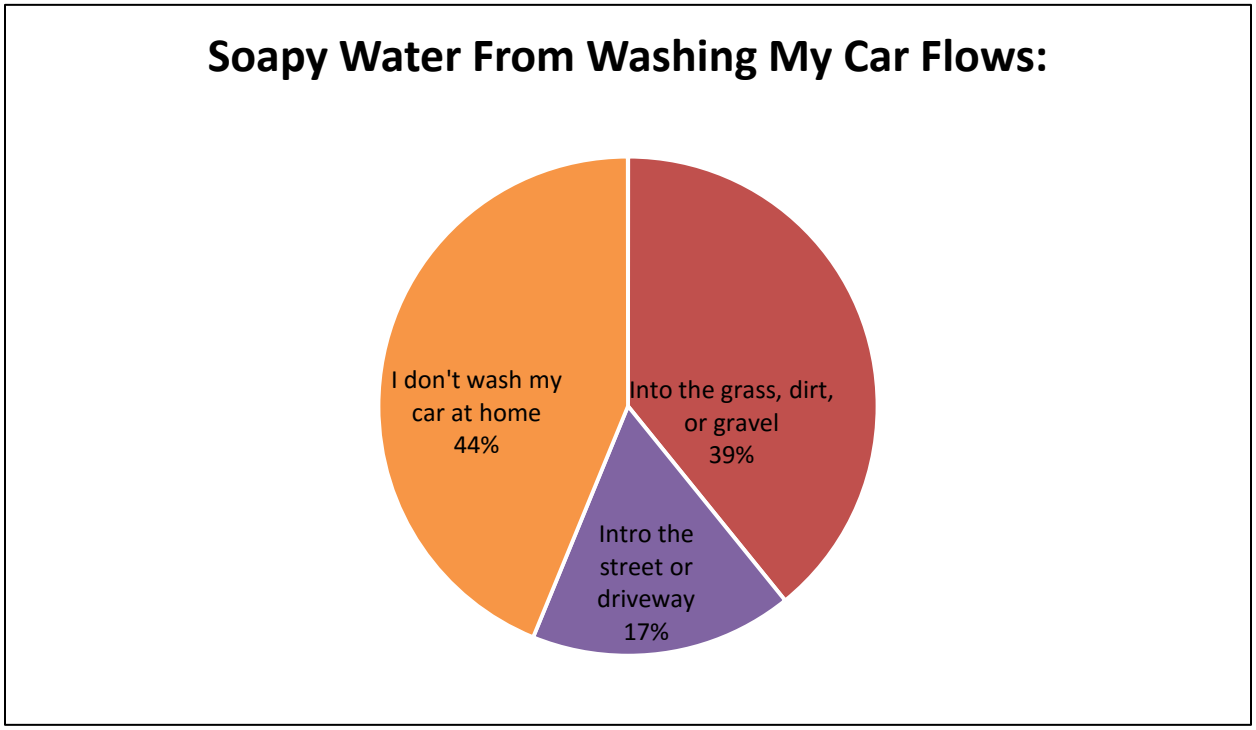
4. How often do you fertilize your lawn?



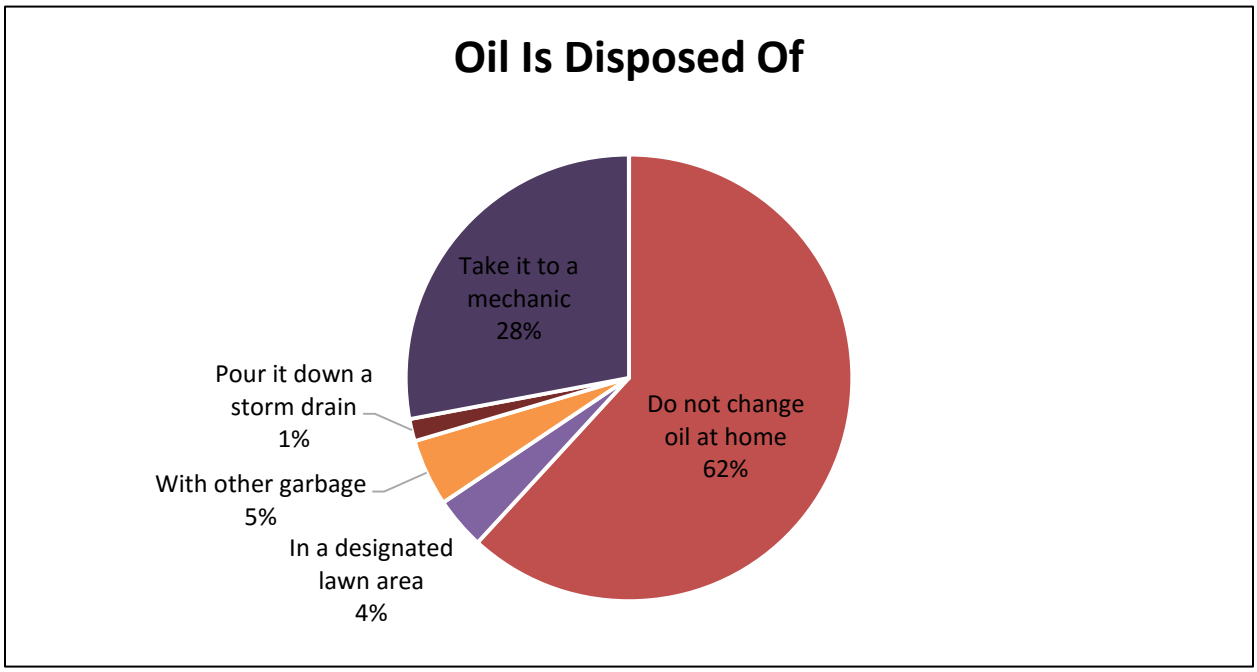
5. Have you ever tested your soil to determine how much fertilizer is needed?



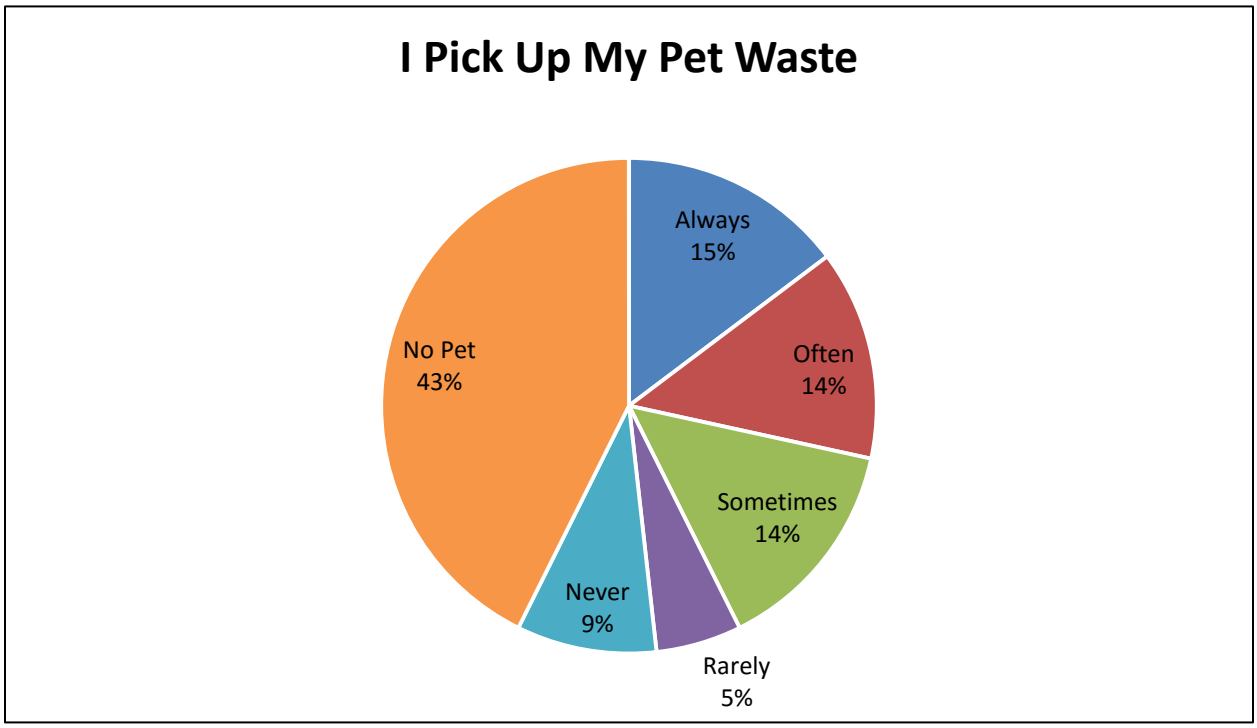
6. If you wash your vehicle at home, where does the soapy water flow?



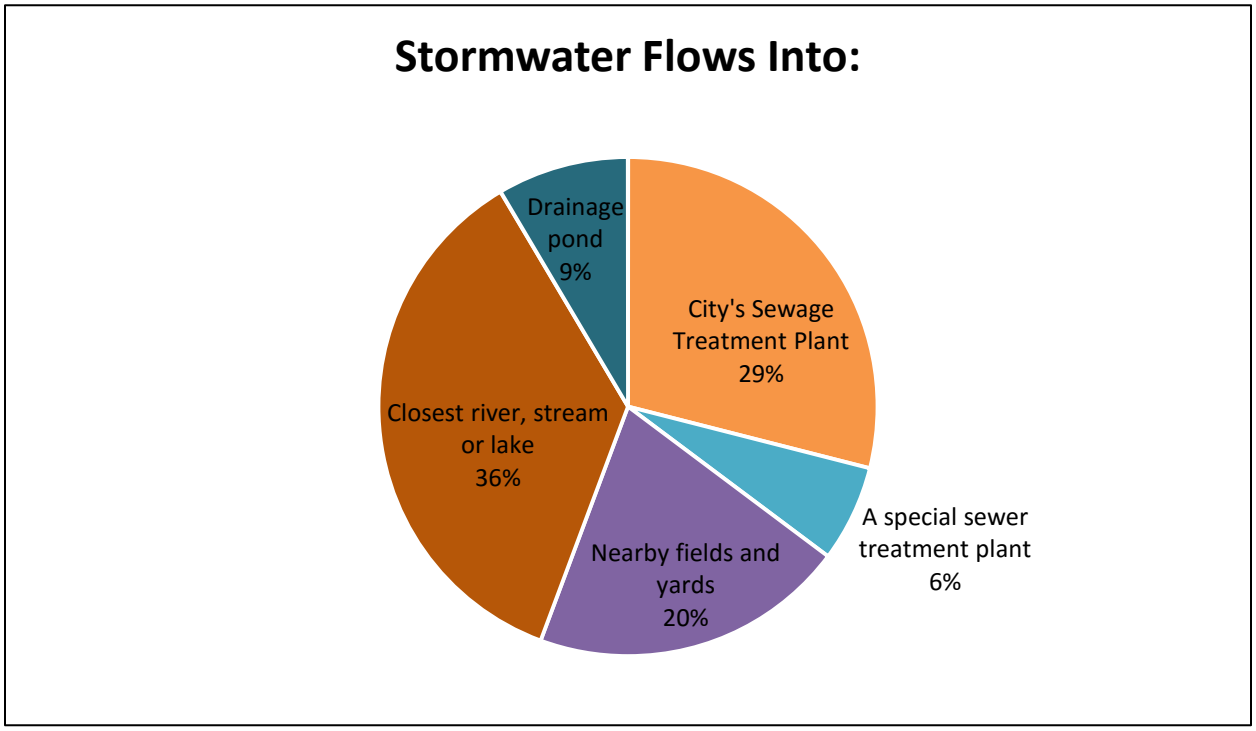
7. If you change your oil at home, how do you dispose of used oil?



8. If you own a pet, how often do you pick up pet waste?



9. When it rains, stormwater is collected on streets and parking lots and runs into a storm drain. After stormwater runoff goes into a storm drain, it goes to…



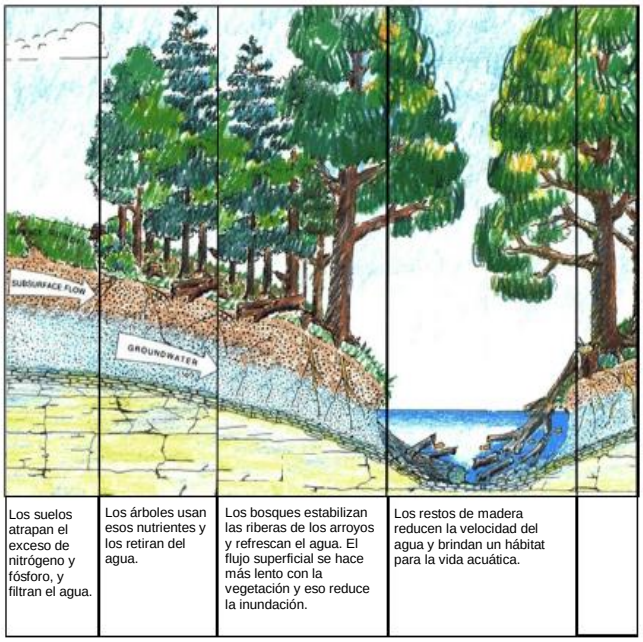
APPENDIX F

New Spanish Brochures

Protejamos nuestra agua: Dejemos que crezcan las plantas

¿QUÉ ES UNA BARRERA VEGETAL?

Una barrera vegetal es una combinación de plantas que crecen a lo largo de un río, arroyo o lago y reducen la cantidad de contaminación que ingresa al agua.



Los suelos atrapan el exceso de nitrógeno y fósforo, y filtran el agua.	Los árboles usan esos nutrientes y los retiran del agua.	Los bosques estabilizan las riberas de los arroyos y refrescan el agua. El flujo superficial se hace más lento con la vegetación y eso reduce la inundación.	Los restos de madera reducen la velocidad del agua y brindan un hábitat para la vida acuática.	

¿CÓMO GENERO UNA BARRERA?

- Establezca un área de "no podar el césped" a lo largo de los bancos, la línea costera de un lago o zanja.
- Plante árboles, arbustos o hierbas en matas en su zona de barrera. Las plantas autóctonas tienen raíces más profundas, que fijan las riberas de los arroyos y previenen la erosión. Cuando las raíces mueren, dejan túneles en el suelo, que ayudan a que el agua se absorba en la tierra.
- Recoja en forma periódica la basura que queda atrapada en las plantas.
- Recoja los desechos de su mascota y fertilizantes cuando el tiempo esté despejado para reducir los nutrientes que ingresan al agua.

Piedmont Triad Regional Council

Protegemos la calidad del agua mediante compromiso, educación y participación del público desde 2004.

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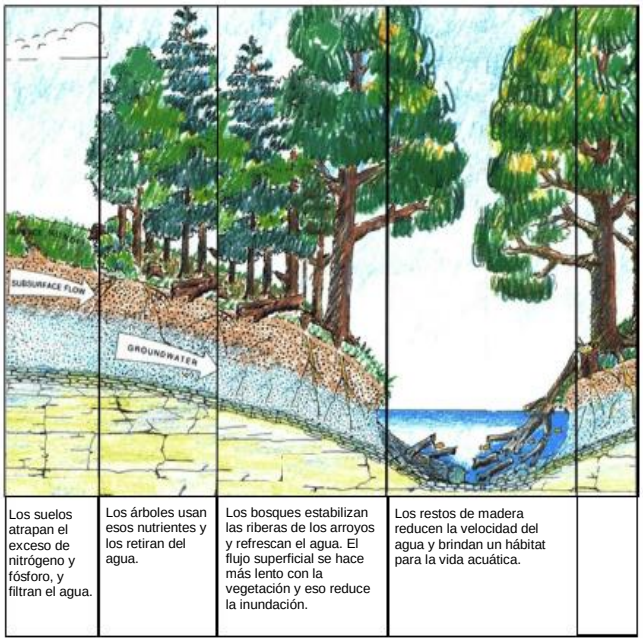

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Barreras Vegetales

¿CUÁL ES EL PROBLEMA?

Las escorrentías contaminadas contienen excrementos de animales, tierra, fertilizantes, plaguicidas e incluso aceite de motores. Cuando crecen junto a las márgenes de arroyos, ríos y lagos, las plantas reducen la cantidad de contaminación que llega al agua.

LAS PLANTAS SON LA SOLUCIÓN:

- El nitrógeno y el fósforo son nutrientes que se encuentran en los excrementos de las mascotas y en el fertilizante que suele haber en las escorrentías.
- Los árboles, arbustos y hierbas evitan que esos nutrientes extra ingresen a nuestras fuentes de agua porque los usan para crecer. Al reducir la cantidad de nitrógeno y fósforo de los ríos y lagos se limita la capacidad de desarrollo de las algas. Cuando las algas crecen de manera descontrolada, producen problemas de salud a las personas que pescan o nadan en el agua, o que la beben.
- Las raíces de las plantas también sostienen el suelo y reducen la erosión de escorrentías y fuertes lluvias, esto evita que ingrese tierra al agua y la ensucie.
- Las plantas de la barrera también alimentan y protegen a pájaros y otros animales, y les brindan senderos para trasladarse.

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Cuidado del Automóvil para Tener Agua Limpia

¿CUÁL ES EL PROBLEMA?

- El material con el que lavamos nuestros automóviles contiene importantes contaminantes para el agua como aceite, grasa
- Si el agua corre por superficies pavimentadas como el acceso a la cochera, llegará a nuestros ríos y arroyos.
- Los detergentes contienen surfactantes.

¿QUÉ PUEDO HACER?

- Lave su automóvil en el césped, ya que este puede absorber el agua y filtrar los detergentes y surfactantes, y evitar así que corran hacia desagües pluviales.
- Use jabón biodegradable. ¡Es mejor para su auto y para el medio ambiente!
- También puede lavar su vehículo en un lavadero comercial, que trate y recicle el agua.

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Cuidado del Automóvil para Tener Agua Limpia

SURFACTANTES

- Los detergentes contienen surfactantes, que eliminan los residuos de jabón y otros productos y dejan la superficie perfectamente limpia.
- Los surfactantes pueden enjuagar el fango protector de los peces. Ellos dependen de ese fango para protegerse de bacterias y parásitos, que también impide que ellos absorban contaminantes peligrosos.
- Lave su automóvil sobre el césped para impedir que los surfactantes lleguen al agua.

METALES PESADOS

Cada vez que pisamos el pedal para bajar la velocidad, se desprenden pequeñas piezas de metal del freno. Con el tiempo, este desgaste hace que debamos adquirir nuevos frenos. Ese metal que se desprende es tóxico para el consumo. A medida que lavamos el automóvil, el metal del freno y otras áreas se transporta en el agua del lavado que se escurre. Si fluye por el acceso de concreto o la carretera, puede incluso recoger más metales pesados.

Para evitar que ingresen al desagüe pluvial o al arroyo, lave su vehículo en el césped o en un lavadero comercial.

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Aguas Saludables

¿POR QUÉ ES IMPORTANTE EL AGUA LIMPIA?

- El agua limpia y sana es parte de un ecosistema saludable. Los seres humanos usan el agua de ríos y lagos para beber, bañarse, cocinar, jugar en ella, etc.
- Los arroyos y riachuelos también proporcionan un hábitat y agua para beber para la vida silvestre.
- El agua es vida: para que el ser humano y la vida silvestre se conserven saludables, esas aguas deben estar limpias.

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Aguas Saludables

¿POR QUÉ ES IMPORTANTE EL AGUA LIMPIA?

- El agua limpia y sana es parte de un ecosistema saludable. Los seres humanos usan el agua de ríos y lagos para beber, bañarse, cocinar, jugar en ella, etc.
- Los arroyos y riachuelos también proporcionan un hábitat y agua para beber para la vida silvestre.
- El agua es vida: para que el ser humano y la vida silvestre se conserven saludables, esas aguas deben estar limpias.

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Aguas Saludables

QUÉ BUSCAR

- Pendientes suaves:
  Cuando se puede acceder al agua con facilidad, significa que las pendientes son suaves y las plantas pueden permanecer erguidas para una erosión reducida.
- Sin basura:
  El agua limpia no tendrá basura ni desechos.

- Se puede ver el fondo:
  Deberían poder verse las rocas o grava en el fondo del río o riachuelo. La erosión del suelo, también llamada sedimentación, es el principal tipo de contaminación de agua en Carolina del Norte. Los sedimentos cubren las rocas del fondo de ríos y arroyos y obstruyen las branquias de la vida acuática de esos cursos de agua. Los peces y la vida silvestre del arroyo necesitan rocas bajo las que puedan ocultarse y poner sus huevos.

- Bajas cantidades de algas y basura:
  La luz del sol y los nutrientes producen las algas en el agua. Los nutrientes extra de excrementos caninos, las aguas servidas de los seres humanos, y los fertilizantes provocan la proliferación de algas, que le quitan oxígeno al agua y privan de él a los habitantes del río o arroyo.

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Desechos Domésticos Peligrosos

¿QUÉ ES?

Los desechos domésticos peligrosos son productos que están en su hogar y contienen sustancias químicas volátiles, como el cloruro.

Algunos ejemplos de estos productos son el aceite para motores, la pintura a base de aceite, las baterías de automóvil, la gasolina y los plaguicidas.

Cualquier botella que tenga en su casa que tenga una etiqueta de "advertencia", "peligro" o "precaución" es peligrosa y se la debe desechar de manera apropiada.

¿CUÁL ES EL PROBLEMA?

- Si los envases de limpiadores del hogar y desechos domésticos peligrosos no se eliminan de manera correcta, pueden terminar en los desagües pluviales y en nuestros ríos locales.
- En muchas plantas de tratamiento de aguas servidas no pueden tratar los desechos domésticos peligrosos, y entonces los productos químicos que se vierten por el fregadero pueden terminar sin tratarse en nuestros ríos.
- Esos productos hogareños que terminan en un vertedero pueden llevar materiales tóxicos al suelo y al agua subterránea.

¿QUÉ PUEDO HACER?

- Lea las etiquetas de sus limpiadores y productos químicos hogareños para descubrir cómo desechar los recipientes de manera adecuada.
- Llame a su vertedero local o departamento de obras públicas para hallar un sitio de recolección cerca de su casa.

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Residuos electrónicos

¿QUÉ SON LOS RESIDUOS

Son ejemplos de basura o residuos electrónicos las radios, televisores, computadoras, baterías y teléfonos celulares.

¿CUÁL ES EL PROBLEMA?

- Los residuos electrónicos contienen metales tóxicos, también conocidos como "pesados", como níquel, plomo y mercurio.
- Estos metales son dañinos para el medio ambiente y pueden causar problemas a la salud humana, como cáncer, enfermedad renal, náuseas y debilitamiento óseo.
- Solo se requiere una pequeña cantidad para contaminar el suelo o el agua de un área.

Enrique Dans

¿QUÉ PUEDO HACER?

- Done equipos electrónicos usados o recíclelos.
- Cambie sus hábitos: use un destapa caños manual en lugar de un limpiador químico de drenajes, papel de lija antes que un removedor de pintura, y pinturas al agua en vez de las que son a base de aceite.
- Consulte a su Gobierno local para hallar en su área sitios o eventos de recolección.
- Conozca más sobre alternativas para productos peligrosos en earth911.com.

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Detección y eliminación de contaminación del agua

¿QUÉ ES UNA DESCARGA ILÍCITA?

La descarga ilícita es contaminación del agua concentrada que ingresa a un arroyo, río o lago. En muchos pueblos y ciudades pueden verse diversas tuberías que llegan en forma directa a los arroyos. Transportan vertidos de las calles, estacionamientos y tejados, y solo deberían contener agua. Si ve una tubería que tiene burbujas, materiales flotantes, colores extraños o sale olor de ella, y llega a un arroyo, eso es una descarga ilícita. Contamina el agua y puede contener aguas residuales, productos químicos, detergentes, tierra o bacterias.

¿QUÉ PUEDO HACER?

1. Tome una fotografía de la tubería y anote lo que ve y huele.
2. Llame a la línea directa de emergencia de su ciudad y pregunte por el administrador de aguas pluviales o departamento de aguas.
3. Comparta toda la información que tenga sobre la contaminación del agua que vio.

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Detección y eliminación de contaminación del agua

¿QUÉ OCURRE DESPUÉS DE QUE SE INFORMA LA CONTAMINACIÓN?

- Una vez que la ciudad o el pueblo obtiene un informe de descarga ilícita, investiga y descubre de dónde proviene la contaminación.
- Si es un derrame de alcantarillado, la ciudad o el pueblo detendrá la contaminación de inmediato.
- Si procede de un propietario o de una empresa, recibirá un aviso de que la contaminación proviene de su propiedad y tendrá la oportunidad de limpiar y solucionar el problema.

- La Ley del Agua Limpia hace ilegal la descarga ilícita y en virtud de ella, se aplicará una multa al violador que contamine el agua de manera repetida.

DESCARGAS ILÍCITAS COMUNES

- vertidos ilegales,
- pintura, aceite de motor y otras sustancias tóxicas vertidas en desagües pluviales o cerca de ellos;
- líneas de cloacas sanitarias rotas o derrames de cloacas;
- tuberías de conexión cruzada en las que están conectadas tuberías de cloacas y de desagüe pluvial
- eliminación inapropiada de desechos de botes, casas rodantes y desechos sépticos;
- lavar vehículos donde la escorrentía drena en el sistema de alcantarillado pluvial;
- irrigación de jardines que corre por los patios y arrastra desechos de mascotas, plaguicidas y fertilizantes

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Jardinería para Mejorar la Calidad del Agua

¿CUÁL ES EL PROBLEMA?

Los productos químicos para el césped como plaguicidas y fertilizantes contaminan nuestros arroyos y lagos. El exceso de nutrientes de los fertilizantes y residuos de jardín pueden causar la proliferación de algas, la muerte de peces y el aumento de costos por tratamiento de agua para eliminar los olores y sabores rancios que dejan. Los residuos de jardín, como hojas, recortes de césped, palos y ramas, pueden bloquear las tuberías y alcantarillas de drenaje subterráneas, ocasionar inundación y agregar más nutrientes al agua.

¿QUÉ PUEDO HACER?

- Observe el pronóstico del tiempo. ¡Aplique fertilizantes y plaguicidas cuando NO se anuncien lluvias: de lo contrario, literalmente arrojará su dinero a la alcantarilla!
- Reduzca el uso de fertilizantes y plaguicidas: use mantillo, aplique abono orgánico o siembre plantas autóctonas.
- Sople o barra los materiales en exceso de vuelta al césped.
- ¡Nunca barra o sople algo que pueda ingresar en el desagüe pluvial!

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Jardinería para Mejorar la Calidad del Agua

MÉTODOS DE ELIMINACIÓN APROPIADOS

Los recortes de césped, las hojas, palos y ramas deberían sumarse al abono orgánico, llevarse a un vertedero o a un sitio de eliminación aprobado. Los residuos de jardín eliminados por un paisajista comercial no pueden dejarse junto al bordillo para que lo recojan. Es ilegal verter esos residuos o productos de arreglo de jardín en drenajes pluviales, zanjas y arroyos. Podría enfrentar una multa considerable si lo hace.

Nunca arroje el sobrante de plaguicidas, herbicidas o fertilizantes a la basura ni lo vierta en el drenaje o el fregadero. Como están hechos de sustancias químicas tóxicas, se los considera desechos peligrosos, lo que significa que tienen que eliminarse de manera apropiada. Consulte a su gobierno local para hallar el establecimiento para residuos peligrosos más cercano.

AHORRE DINERO Y REDUZCA LA CONTAMINACIÓN

- Haga una prueba al suelo antes de aplicar fertilizante. Su suelo puede no requerir fertilización, en especial en el Piedmont.
- Airee la tierra para impedir que se compacte y aumente la infiltración (la capacidad del suelo de absorber agua de lluvia).
- Aplique herbicida en forma puntual a las malezas en lugar de tratar todo el jardín.
- Aplique mantillo en los canteros de flores para detener el crecimiento de maleza y reducir la evaporación de agua.

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Desarrollo de bajo impacto (LID por sus siglas en inglés)

¿QUÉ ES EL DESARROLLO DE BAJO IMPACTO?

El desarrollo de bajo impacto afecta el medio ambiente de manera reducida. Al trabajar con colinas naturales y características del paisaje, los constructores minimizan la cantidad de contaminación que deja el sitio.

Riegue las plantas junto a la carretera para eliminar contaminantes y reducir la escorrentía de aguas pluviales.

CON EL DESARROLLO DE BAJO IMPACTO LOS CONSTRUCTORES AHORRAN DINERO:

El desarrollo de bajo impacto ahorra agua, reduce la necesidad de fertilizantes y disminuye el costo de nivelación. Además, los constructores ven un 10 % de ahorro en los costos al no utilizar canaletas, tuberías ni drenajes pluviales. Por último, el desarrollo de bajo impacto minimiza la degradación de la tierra, ya que reduce la compactación del suelo y los costos de saneamiento.

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Desarrollo de Bajo Impacto (LID por sus siglas en inglés) para su Jardín

ADOQUINES PERMEABLES

Los adoquines permeables son bloques o cuadrículas de concreto poroso rellenos de césped, arena, grava o mantillo. Actúan como pavimento y permiten que el agua se filtre al suelo debajo. Son perfectos para espacios como patios al aire libre, senderos de jardín y accesos de entrada para automóviles.

REDUCCIÓN Y DESCONEXIÓN

Se utiliza una bajante pluvial, también conocida como canaleta de desagüe, para dirigir el agua de lluvia y alejarla del tejado. Al desconectar la bajante del sistema pluvial, el volumen de agua de lluvia se reduce, lo que disminuye la inundación y la erosión, además de los contaminantes potenciales. Se puede almacenar el agua de lluvia para después o dirigirla hacia el jardín, alejada del acceso de entrada del automóvil o la calle.

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Mantenga Nuestra Agua Limpia: ¡Recoja los Excrementos de su Mascota!

¿CUÁL ES EL PROBLEMA?

Cuando llueve, los residuos caninos corren hacia los desagües pluviales y llegan desde allí a lagos, arroyos y ríos. Los residuos caninos contienen nemátodos, *E. coli* y Giardia. Pueden ocasionar náuseas, vómitos, cólicos estomacales y otros problemas a los seres humanos. El exceso de nutrientes que contienen los residuos caninos causan proliferación de algas, lo que reduce el oxígeno en el agua y puede hacer que mueran los peces y otros tipos de vida acuática.

¿QUÉ PUEDO HACER?

- Cuando salga a pasear a su mascota, lleve una bolsa para recoger sus excrementos.
- Limpie con frecuencia los desechos de su patio, jardín, el acceso de entrada y la acera.
- Arroje los residuos a la basura, entiérrelos en el jardín o acumúlelos en la pila de abono orgánico.

Piedmont Triad Regional Council

Protegemos la calidad del agua mediante compromiso, educación y participación del público desde 2004.

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DATOS SOBRE LOS RESIDUOS CANINOS

- Son un riesgo para la salud de los animales y de las personas, en especial los niños.
- Están llenos de bacterias que pueden enfermarnos.
- Son un fastidio en nuestros vecindarios.
- A menos que se desechen de manera apropiada, los excrementos de mascotas fluyen sin tratarse por los desagües pluviales y hacia nuestra agua. ¡Incluso si no vive cerca de un arroyo, los residuos caninos de su perro pueden contaminar nuestras aguas!

¿LO SABÍA?

Hay unos 404,480 perros en la región de la triada de Piedmont. Ellos producen 133,478 libras de residuos caninos, o el contenido de 7 camiones volcadores llenos CADA DÍA.

Cada año llegan a nuestros ríos 48 millones de libras de aguas residuales sin tratar, a menos que los dueños de perros recojan los excrementos.

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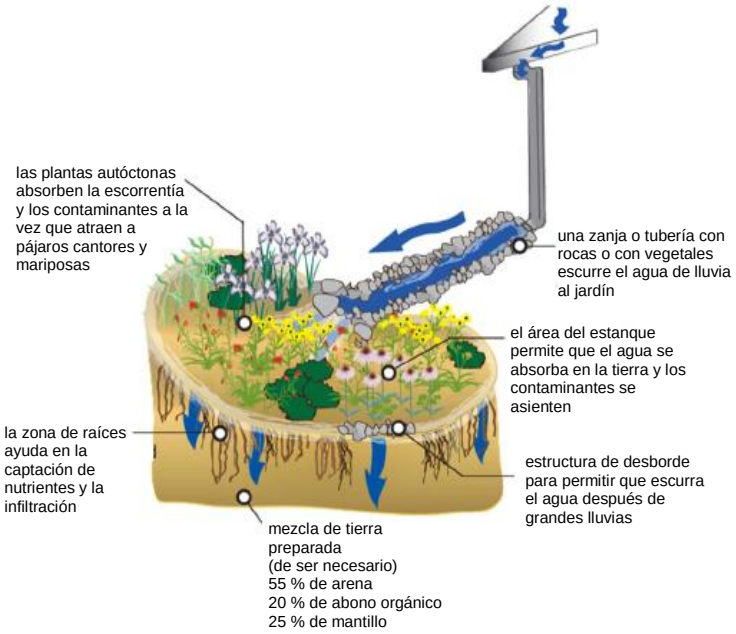
Protejamos nuestra Agua

Construya un Jardín de Lluvia



¿CÓMO AYUDAN LOS JARDINES DE LLUVIA?

Los jardines de lluvia atrapan la primera pulgada de lluvia y ayudan a que el agua se absorba en el terreno para reducir la escorrentía y la inundación aguas abajo.

El nitrógeno y el fósforo son nutrientes que se encuentran en los excrementos de las mascotas y en el fertilizante que suele haber en las escorrentías.

Las plantas autóctonas en los jardines de lluvia ayudan a evitar que esos nutrientes extra ingresen a nuestras fuentes de agua porque los usan para crecer.

Las raíces también retienen la tierra y absorben la escorrentía contaminada. Esto ayuda a evitar que la tierra y otros contaminantes ingresen en el agua y la ensucien.

Las plantas del jardín también alimentan, dan refugio y proporcionan un hábitat a pájaros y mariposas.

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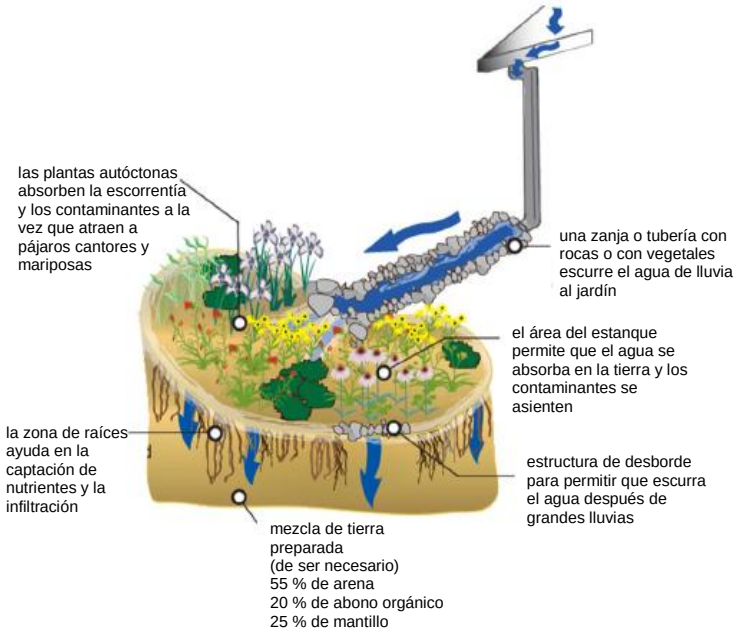

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Plantas para los Jardines de Lluvia

¿CUÁL ES EL PROBLEMA?

Las escorrentías contaminadas contienen excrementos de animales, tierra, fertilizantes, plaguicidas e incluso aceite de motores. Cuando se instalan jardines de lluvia las plantas y el suelo mantienen la escorrentía contaminada fuera del agua.

¿QUÉ SON LAS PLANTAS AUTÓCTONAS?

- Son una parte importante de los jardines de lluvia y el arreglo de jardines.
- Son las que había en Norteamérica antes de que llegaran los colonizadores europeos.
- Están adaptadas a nuestro clima, condiciones del suelo y meteorológicas.
- Necesitan menos fertilizante.
- Requieren menos agua.
- Sus largas raíces mantienen la tierra en su
- Las aves y las mariposas necesitan plantas autóctonas.

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