

# Quarterly Steering Committee Meeting

FEBRUARY 9, 2020

**Danica Heflin**  
PTRC Regional Planning Department  
336.904.0300 | [www.ptrc.org](http://www.ptrc.org)



# Agenda

SECOND & THIRD QUARTERS

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Current Program Info

Q2 Outcomes for Mass Media and Direct Education

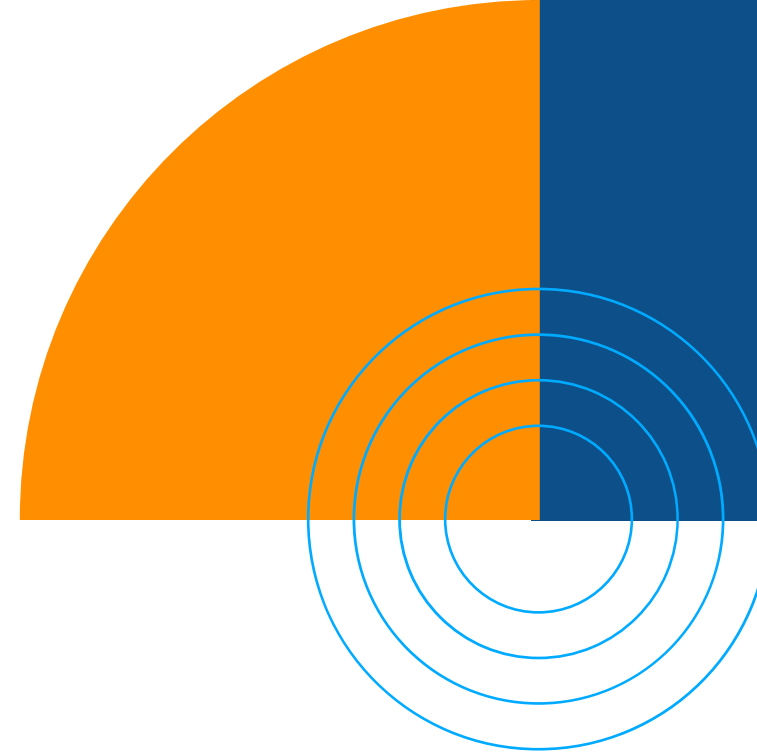
Targets for Q3 & Q4: Spring Media, Creek Weeks

FY21 & FY22 Financial Overview

Dues & Budget for 2021-2022

Discussion with Jesse Day

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# Subtopics

GENERAL PROGRAM HOUSEKEEPING  
Staff, Members, etc.

MEDIA REPORTING & PLANNING  
Campaign Review: Nov - Jan "Litter & Trash"  
Campaign Preview: Mar - Apr "Pet Waste"

SOCIAL MEDIA REPORTING FOR Q2

DIRECT EDUCATION REPORTING & PLANNING  
Bingo by the Creek on iNaturalist.org  
IDDE & Good Housekeeping Training  
Creek Weeks in the Triad

FINANCIAL DISCUSSION  
With Planning Director Jesse Day



# Staff in Q2, Q3

Good  
bye

**Danica Heflin**  
**Environmental Programs**  
**Coordinator**

PTRC Full Time, Permanent

**Loren Hendrickson**  
**AmeriCorps Service Member**  
**Environmental Educator**

AmeriCorps Full Time, 11-month

**Madison J. LaMuraglia**  
**Environmental Educator**

PTRC Part Time, 18 hrs/wk

## WORKING FROM HOME PER PTRC PROTOCOL

- Continuing to build competency in program leadership, statewide and local partnerships, grant proposals, and watershed knowledge

## WORKING FROM HOME PER AMERICIORPS PROTOCOL

- Leading program research into 10-digit HUC features
- Building competency in educational materials design
- Training in upcoming Creek Week activities
- Possible deployment in spring months for Covid-19 vaccination effort (SWS would be refunded for time.)

## COMPLETED PTRC EMPLOYMENT

- Inspired young scientists and increased social media traffic
- Completed hours in early December
- Teaching 8th grade environmental science in Wilmington; eligible for rehire



# Program Advisors at PTRC

**Cameron Colvin**  
Water Resources  
[ccolvin@ptrc.org](mailto:ccolvin@ptrc.org)

**Jesse Day**  
Regional Planning Director  
[jday@ptrc.org](mailto:jday@ptrc.org)

**Malinda Ford**  
GISP (ArcGIS Mapping)

**Anne Edwards**  
Member Services  
PTRC Online

**Jarrold Hand &  
D Anne Nance**  
Finance

**Matthew Dolge &  
Matt Reece**  
PTRC Leadership

# MASS MEDIA SERVICES

Archdale  
Burlington  
Clemmons  
Greensboro  
FORSYTH  
GUILFORD  
Jamestown  
Kernersville

Mebane  
Randleman  
RANDOLPH  
Trinity  
Winston-Salem

Mebane  
Randleman  
RANDOLPH  
Reidsville  
ROCKINGHAM  
Summerfield  
Thomasville  
Trinity

ALAMANCE  
Archdale  
Asheboro  
Burlington  
DAVIDSON  
Elon  
Gibsonville  
Graham  
Green Level  
Greensboro  
Haw River  
Jamestown  
Kernersville  
Lewisville  
Lexington  
Oak Ridge

# Members

# DIRECT EDUCATION SERVICES

**PTRC**

Danica Heflin, Loren  
Hendrickson, Jesse Day

**AWCK\***

Josh Johnson  
Phil Ross

**Alamance**

Michelle Mills, Taylor  
Perschau, Sherry Hook  
Tonya Caddle

**Archdale**

DJ Señeres

**Asheboro**

Michael Rhoney

**Blue Stream Env.**

Lindsey Lengyel

**Burlington**

Amy Cameron  
Carolyn Buckner  
Danny Scales

**Clemmons**

Emily Harrison

**Davidson**

Scott Leonard

**Elon\***

Pam Graham (PR)

**Forsyth**

Amy Crum

**Gibsonville**

Brandon Parker  
Ben Baxley

**Graham**

Nathan Page

**Green Level\***

Rodney Gunn (PR)  
mbjohnson (PR)

**Greensboro**

Laine Roberts

**Guilford**

Teresa Andrews

**Haw River\***

Sean Tencer (PR)

**Jamestown**

Matthew Johnson

**Kernersville**

Wendi Hartup

**Lewisville**

Ryan Moser

**Lexington**

Chip Vanderzee  
Zack C. MacKenzie

**Mebane**

Cy Stober

**Oak Ridge**

Sean Taylor

**Randleman**

Greg Patton

**Randolph**

Eric Martin

**Reidsville**

Donna Setliff

**Rockingham**

Carrie Spencer

**Summerfield**

Dee Hall  
Scot Whitaker

**Thomasville\***

Daryl Poole (PR)

**Trinity**

Marc Alfred

**Winston-Salem**

Hanna Miller



# Quarterly Meetings:

SECOND TUESDAY OF EACH QUARTER  
FEBRUARY, MAY, AUGUST, & NOVEMBER

1:00 - 3:00

*Continuing on Zoom until Committee votes  
otherwise. Take vote in May for Aug meeting?*

2021: MAY 11, AUG 10, NOV 9

2022: FEB 8, MAY 10, AUG 9, NOV 8



# MS4 Regulatory

## UPCOMING AUDITS PHASE 1

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2021: Gibsonville, Graham,  
Haw River, Mebane

2022: Burlington, Elon

2023: Jamestown,  
Thomasville, Trinity

## UPCOMING AUDITS PHASE 2

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2022: Greensboro,  
Winston-Salem





# Jordan Lake Rules & One Water

## 2022(?) RULES RE-ADOPTION

Over 30 meetings held between all 5 workgroups, who submitted their drafts of recommendations to the JLOW Advisory Committee.

COG staff synthesizing workgroup recommendations into one cohesive document, the Integrated Watershed Management Plan.

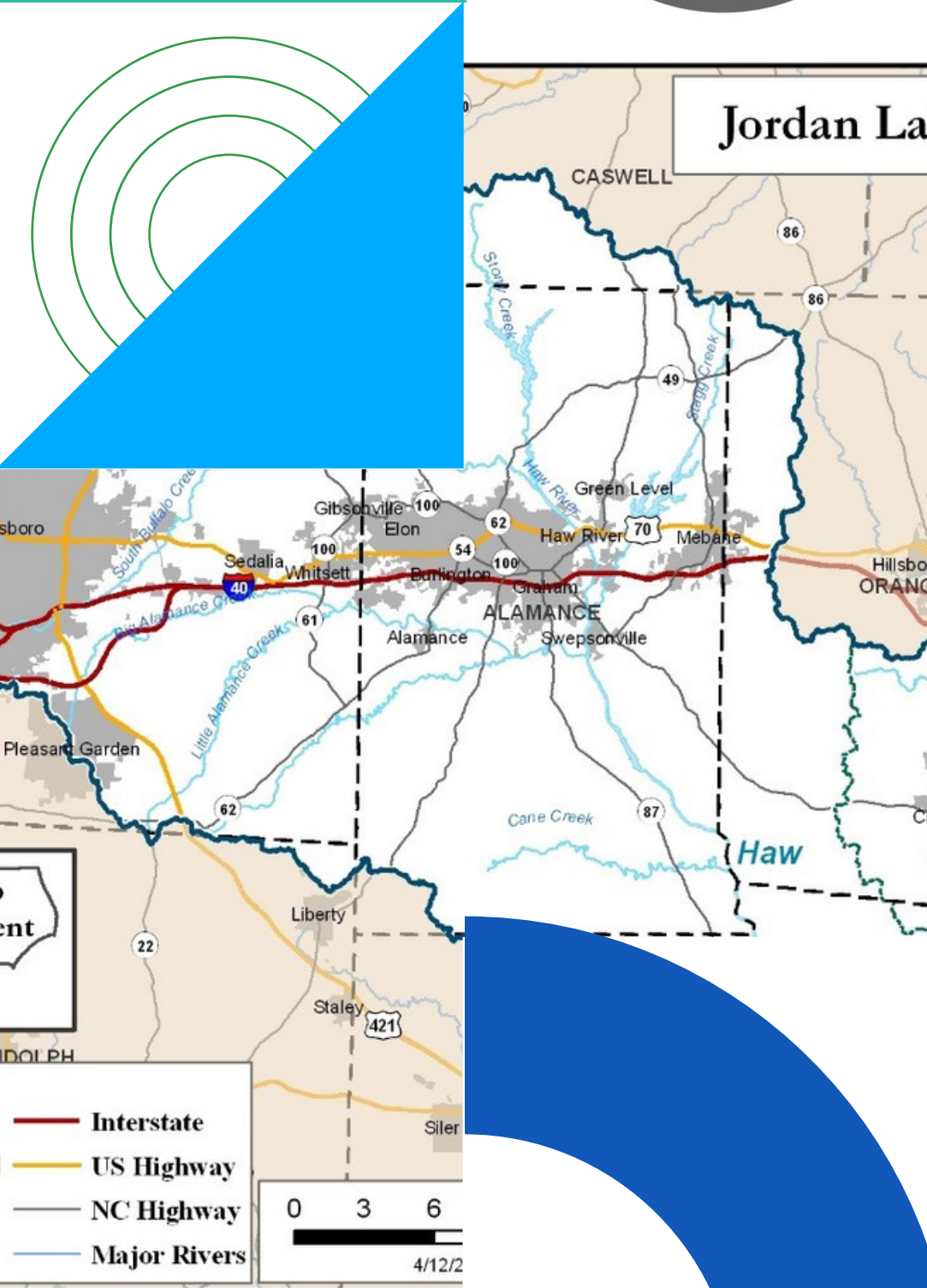
Mid-April, IWMP draft report goes back to workgroups

Larger stakeholder group then provides comments and feedback

Once consensus reached, JLOW submits report to State to help inform Rules re-adoption process.

**Newsletter will be sent out soon with updates.**

**Join listserv if interested by emailing [Patrick.Beggs@ncdenr.gov](mailto:Patrick.Beggs@ncdenr.gov)**

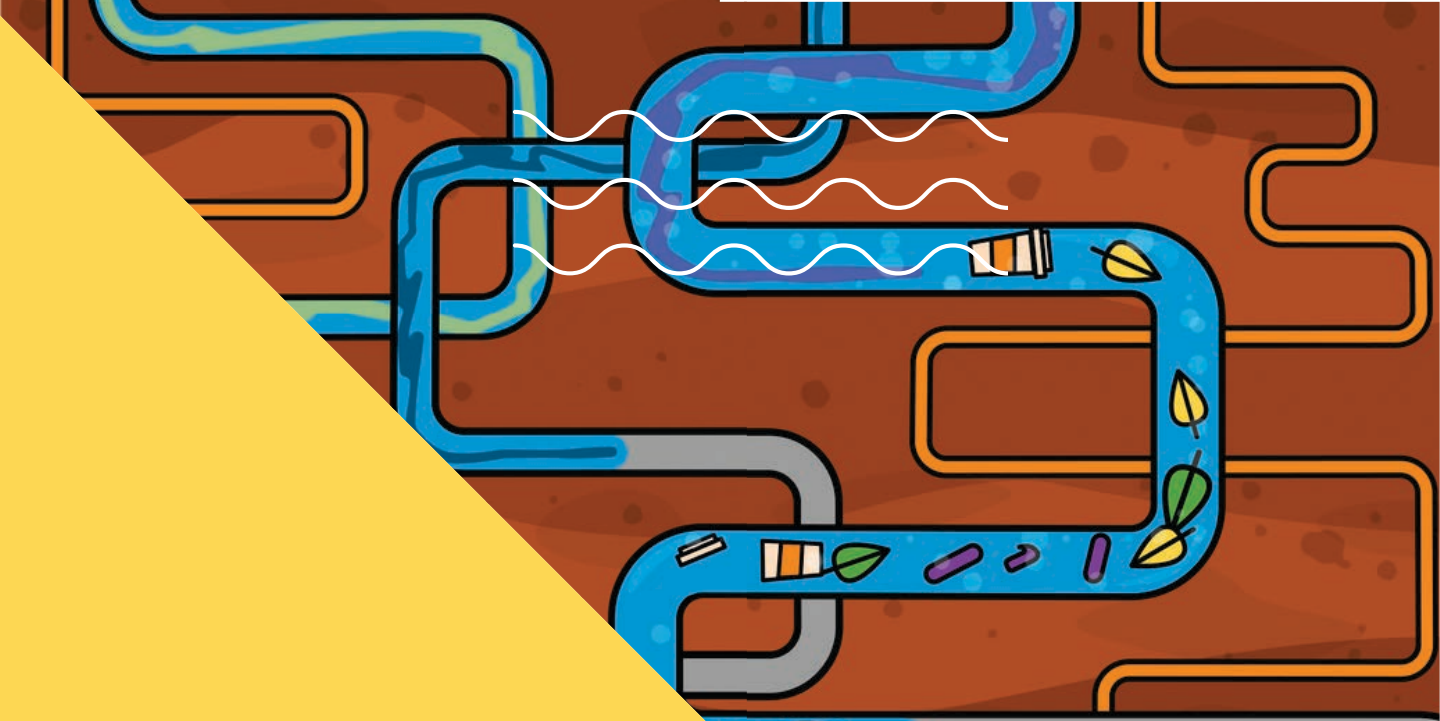




## 1. OVERVIEW

Goals

Expenditures



# Winter Media Review: Litter & Trash

## 2. OUTCOMES

Digital

Radio

TV



removed  
along this journey

Nov 16 - Jan 3

## 3. INSIGHTS

Audience statistics

Q&A





Archdale  
Burlington  
Clemmons  
Greensboro  
FORSYTH  
GUILFORD  
Jamestown  
Kernersville  
Mebane  
Randleman  
RANDOLPH  
Trinity  
Winston-  
Salem

MASS  
MEDIA  
REPORT

# Media Overview

## OUR SERVICE PROVIDER:

Media Placement Services (mps)

Account Manager: Nandrea Ward

## GOALS:

Deliver message of pollution prevention through personal accountability to English & Spanish speaking adults in Mass Media member areas (at left) via websites, radio, and TV





# Media Overview

## STRATEGIES:

- Apply approx. 50% of budget to Digital Displays:
  - Banner ads on partner websites in the Google Network (all pollutants)
  - Video spots on social media (Litter & Trash)
- Apply approx. 25% of budget to radio spots about Litter & Trash
- Apply approx. 25% of budget to TV/cable about Litter & Trash

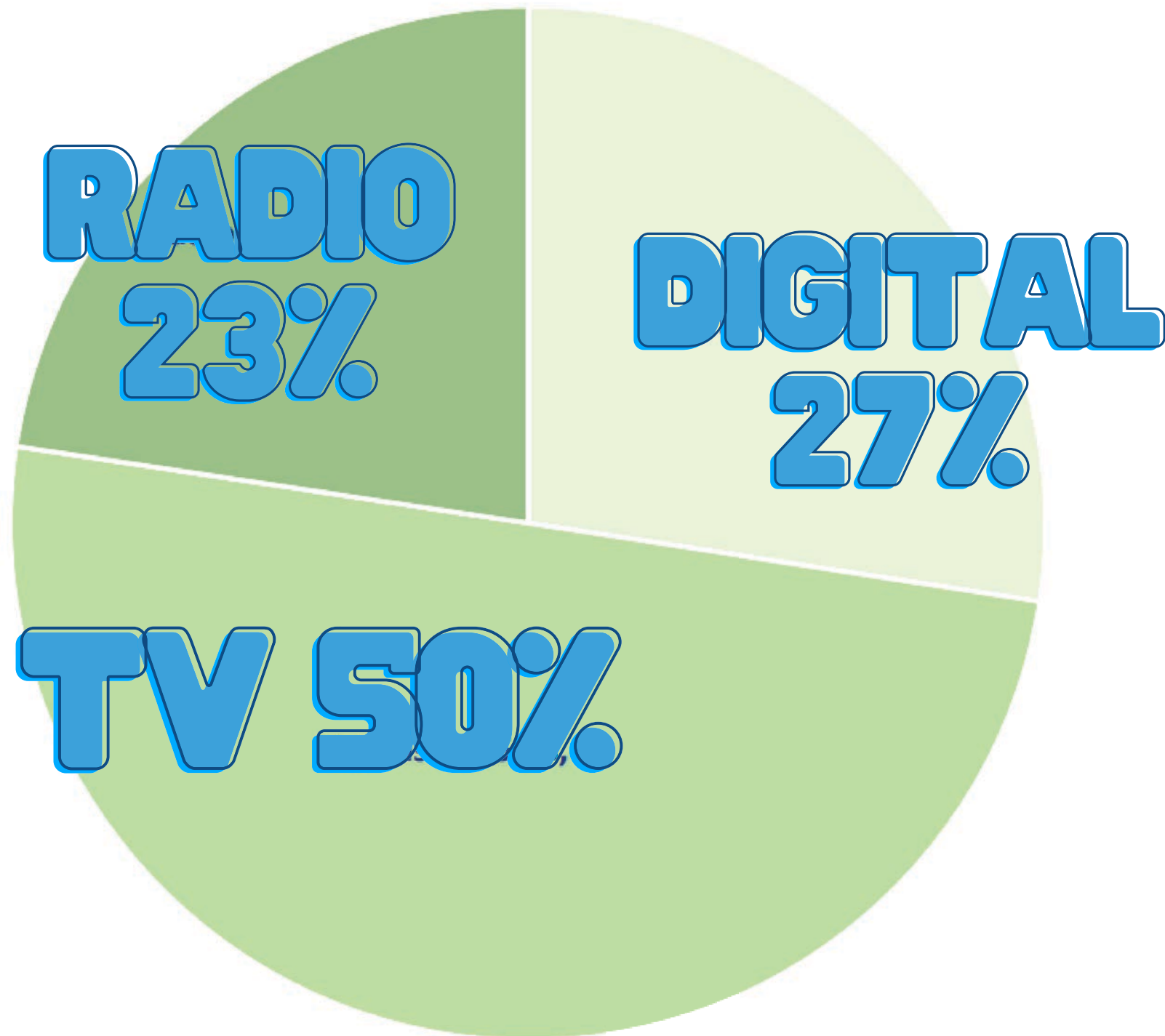


Archdale  
 Burlington  
 Clemmons  
 Greensboro  
 FORSYTH  
 GUILFORD  
 Jamestown  
 Kernersville  
 Mebane  
 Randleman  
 RANDOLPH  
 Trinity  
 Winston-Salem

MASS  
 MEDIA  
 REPORT

# Media Cost

\$15,440 paid to mps



**PIEDMONT TRIAD REGIONAL COUNCIL**  
 1398 Carrollton Crossing Drive, Kernersville, NC 27284  
 336.904.0300

PO NUMBER: 2301

INVOICES SHOULD BE SENT TO THE ABOVE ADDRESS,  
 ATTENTION: ACCOUNTS PAYABLE  
 INVOICES MUST BEAR PURCHASE ORDER NUMBER

VENDOR: MPS Media Sprider Digital  
 Date: 1/28/2021

SHIP TO: Darica Hellin  
 1398 Carrollton Crossing Drive  
 Kernersville, NC 27284

| Description / Item Number             | Quantity | Unit Cost | Extended Price |
|---------------------------------------|----------|-----------|----------------|
| Spring Media Campaign (not to exceed) |          |           |                |
| GRANTS TO BE CHARGED: 40021           |          |           |                |
|                                       |          |           |                |
| <b>TOTALS</b>                         |          |           |                |

**PAID**

This instrument has been provided in the manner required by the Local Government Budget and Fiscal Control Act.

Provisions for the payment of the invoice agreement have been made by an appropriation act.

The conditions of this order are not to be modified by any verbal understanding.

Acceptance of this order includes acceptance of all prices, instructions, specifications, and conditions herein stated.

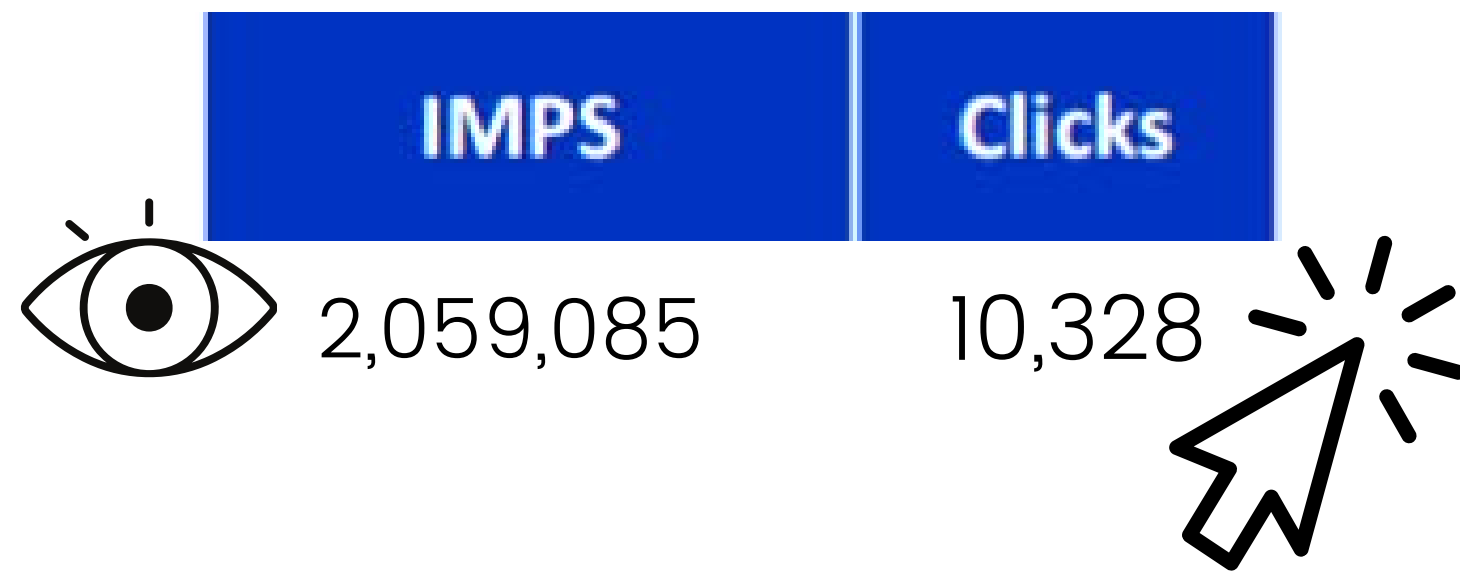
*James R. Hand*  
 Purchasing Director  
 VENDOR COPY

Archdale  
 Burlington  
 Clemmons  
 Greensboro  
 FORSYTH  
 GUILFORD  
 Jamestown  
 Kernersville  
 Mebane  
 Randleman  
 RANDOLPH  
 Trinity  
 Winston-  
 Salem



# GOOGLE DIGITAL OUTCOMES

- Variety of ad sizes
- All six target pollutants
- Button Invites website clicks
- Clicks = engagement



**LEARN 6 WAYS TO KEEP OUR WATER & COMMUNITY CLEAN**

|                      |                        |
|----------------------|------------------------|
| PICK UP LITTER!      | SCOOP POOPI!           |
| MULCH OR BAG IT!     | FOLLOW DIRECTIONS!     |
| DISPOSE OF PROPERLY! | CLEAN SPILLS PROMPTLY! |

**FIND OUT HOW**

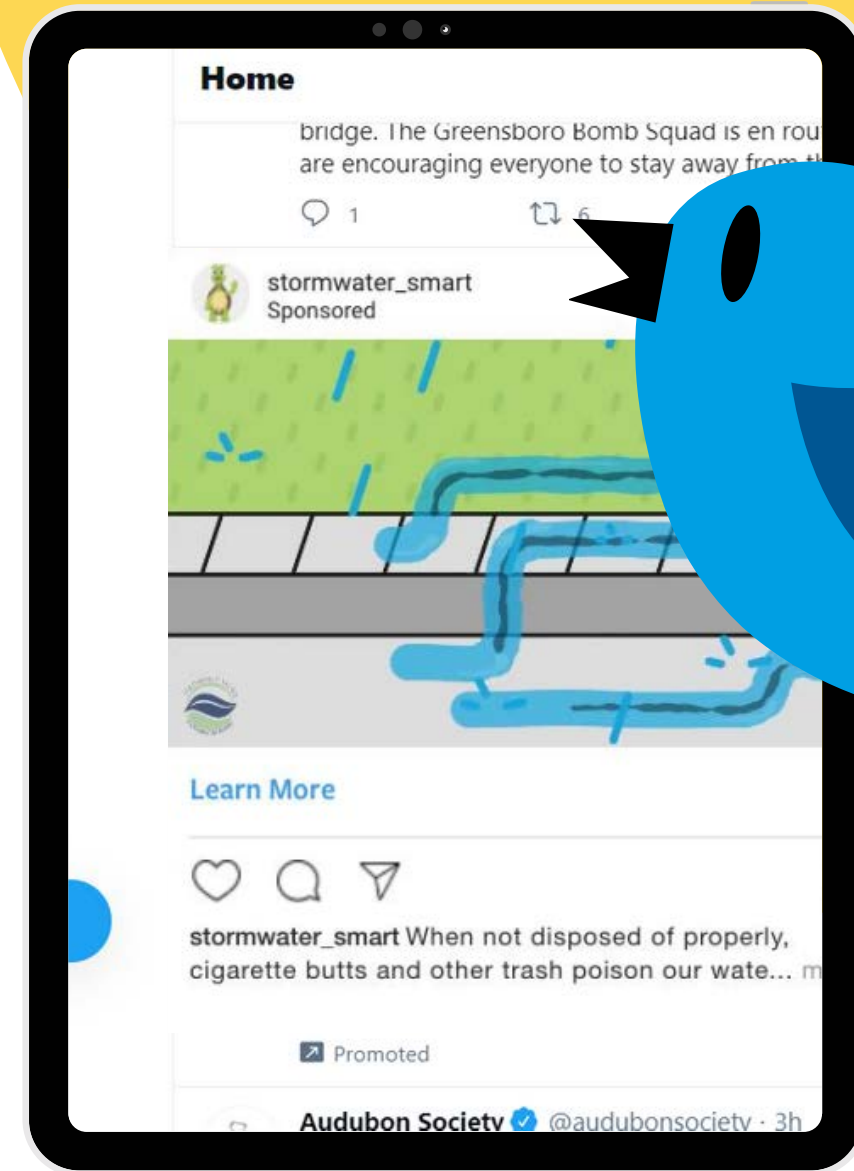


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 Salem



# SOCIAL DIGITAL OUTCOMES

- Litter and Trash 15-second video
- "Sponsored" post in Twitter feed
- "Learn More" invites clicks to website
- Clicks + video completions = engagement



| IMPS    | Clicks | Video Views | Video Completions | Video Completion Rates |
|---------|--------|-------------|-------------------|------------------------|
| 146,378 | 334    | 61,920      | 13,822            | 22.32%                 |


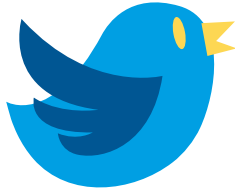


Archdale  
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 Greensboro  
 FORSYTH  
 GUILFORD  
 Jamestown  
 Kernersville  
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 Randleman  
 RANDOLPH  
 Trinity  
 Winston-  
 Salem

MASS  
 MEDIA  
 REPORT



# DIGITAL OUTCOMES

| Platform  | Impressions      | Engagement    |
|---|------------------|---------------|
|   | 2,059,085        | 10,328        |
|  | 146,378          | 14,156        |
| <b>TOTALS</b>   | <b>2,205,463</b> | <b>24,484</b> |



Archdale  
 Burlington  
 Clemmons  
 Greensboro  
 FORSYTH  
 GUILFORD  
 Jamestown  
 Kernersville  
 Mebane  
 Randleman  
 RANDOLPH  
 Trinity  
 Winston-  
 Salem



# RADIO

## HOW TO MEASURE OUTCOMES

### IMPRESSIONS

Sum of the audience during the time when the ads were broadcast

### REACH

Sum of households in the service area who tuned in at least once during the run

### FREQUENCY

The number of opportunities to be heard in a given time slot in a given week

| Impr      | Reach | Freq |
|-----------|-------|------|
| 1,258,000 | 37.8% | 2.8  |

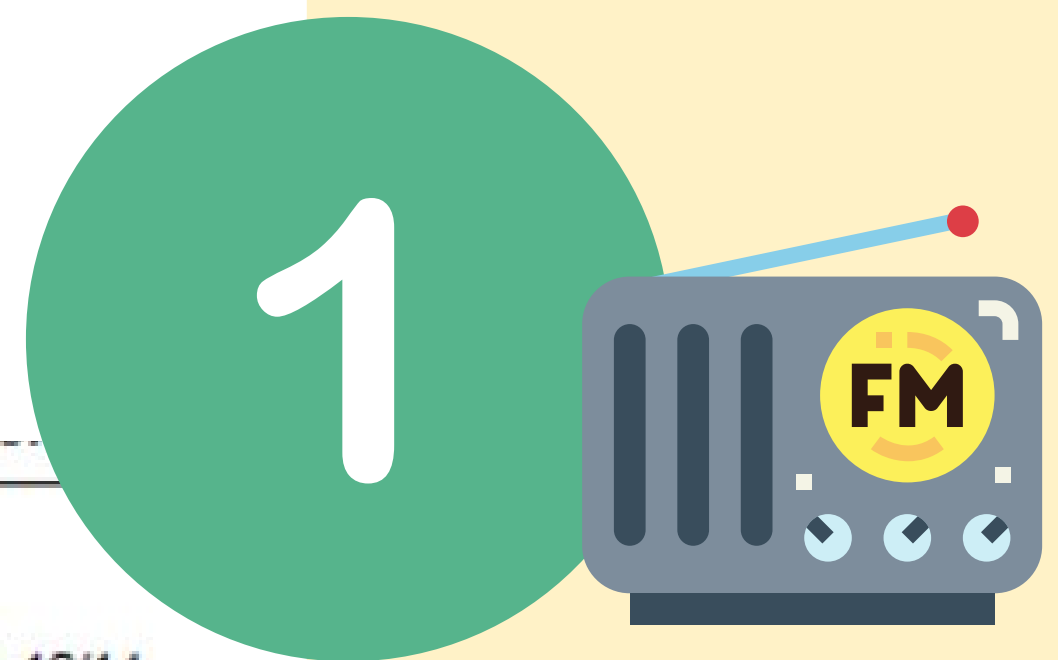


*Radio experts say the most effective frequency range is between 3 and 4*



# 98.7 SIMON

## ADULT CONTEMPORARY



| Line No                                 | Daypart Program       | Daypart Code | STN Gross  | Dur                 | Wks | 11/16 | 11/23 | 11/30 | 12/7 | 12/14 |
|---|-----------------------|--------------|------------|---------------------|-----|-------|-------|-------|------|-------|
| <b>WSMW-FM</b>                          |                       |              |            |                     |     |       |       |       |      |       |
| 7                                       | MTuWThF 10:00a- 7:00p | RT           | \$75.00    | 30                  | 2   | 0     | 2     | 2     | 2    | 2     |
| 8                                       | Sa 9:00a- 6:00p       | WK           | \$20.00    | 30                  | 3   | 0     | 3     | 3     | 3    | 3     |
| 9                                       | MTuWThF 10:00a- 7:00p | RT           | \$60.00    | 30                  | 0   | 0     | 3     | 3     | 3    | 3     |
| 9-1                                     | M 11:00a-12:00p       | RT           | \$60.00    | 15                  | 1   | 0     | 0     | 0     | 0    | 0     |
| 9-2                                     | Tu 1:00p- 2:00p       | RT           | \$60.00    | 15                  | 1   | 0     | 0     | 0     | 0    | 0     |
| 9-3                                     | Tu 6:00p- 7:00p       | RT           | \$60.00    | 15                  | 1   | 0     | 0     | 0     | 0    | 0     |
| 15                                      | Tu,Th,Sa 5:00a- 5:00a | BON<br>US    | \$0.00     | 30                  | 2   | 1     | 0     | 0     | 0    | 0     |
| Run/Not Purchased Buy-in Bonus. 12/1/20 |                       |              |            |                     |     |       |       |       |      |       |
| <b>Total Cost:</b>                      |                       |              | \$1,560.00 | <b>Total Spots:</b> |     | 10    | 1     | 8     | 8    | 8     |

Impressions:  
259,000

Reach: 10.4%

Frequency:  
2.1



# 97.1 QMG

## R & B URBAN ADULT



| Line No                                 | Daypart Program       | Daypart Code | STN Gross  | Dur                 | Wks | 11/16 | 11/23 | 11/30 | 12/7 | 12/14 |
|---|-----------------------|--------------|------------|---------------------|-----|-------|-------|-------|------|-------|
| <b>WQMG-FM</b>                          |                       |              |            |                     |     |       |       |       |      |       |
| 4                                       | MTuWThF 6:00a- 7:00p  | RT           | \$70.00    | 30                  | 1   | 0     | 2     | 2     | 2    |       |
| 4-1                                     | M 6:00p- 7:00p        | RT           | \$70.00    | 30                  | 0   | 1     | 0     | 0     | 0    |       |
| 5                                       | SaSu 9:00a- 5:00p     | WK           | \$20.00    | 30                  | 2   | 0     | 2     | 1     | 2    |       |
| 5-1                                     | Sa 5:00p- 6:00p       | WK           | \$20.00    | 30                  | 0   | 0     | 0     | 1     | 0    |       |
| 6                                       | MTuWThF 6:00a- 7:00p  | RT           | \$55.00    | 15                  | 4   | 0     | 4     | 4     | 4    |       |
| 11                                      | Tu,Th,Sa 5:00a- 6:00a | BON<br>US    | \$0.00     | 30                  | 2   | 1     | 0     | 0     | 0    |       |
| Run/Not Purchased Buy-in Bonus. 12/1/20 |                       |              |            |                     |     |       |       |       |      |       |
| <b>Total Cost:</b>                      |                       |              | \$1,600.00 | <b>Total Spots:</b> |     | 9     | 2     | 8     | 8    | 8     |

Impressions:  
**253,000**

Reach:  
**8.3%**

Frequency  
**2.5**





# 93.1 THE WOLF

## ADULT CONTEMPORARY



| Line No                                 | Daypart Program    | Daypart Code | STN Gross | Dur                 | Wks   |       |       |      |       |   |
|---|--------------------|--------------|-----------|---------------------|-------|-------|-------|------|-------|---|
|   |                    |              |           |                     | 11/16 | 11/23 | 11/30 | 12/7 | 12/14 |   |
| <b>WPAW-FM</b>                          |                    |              |           |                     |       |       |       |      |       |   |
| 1                                       | Sa 10:00a- 3:00p   | WK           | \$15.00   | 30                  | 2     | 0     | 2     | 2    | 2     |   |
| 2                                       | Sa 3:00p- 7:00p    | WK           | \$15.00   | 30                  | 2     | 0     | 2     | 2    | 2     |   |
| 3                                       | MTu 6:00a- 7:00p   | RT           | \$40.00   | 15                  | 3     | 0     | 3     | 3    | 3     |   |
| 16                                      | Tu,Sa 5:00a- 6:00a | BON<br>US    | \$0.00    | 30                  | 1     | 1     | 0     | 0    | 0     |   |
| Run/Not Purchased Buy-in Bonus. 12/1/20 |                    |              |           |                     |       |       |       |      |       |   |
| <b>Total Cost:</b>                      |                    |              | \$720.00  | <b>Total Spots:</b> |       | 8     | 1     | 7    | 7     | 7 |

Impressions:  
**114,000**

Reach: 4.1%

Frequency:  
**2.3**

# WXII NEWS 12



MTuWThF 7:00a- 9:00a  
TODAY SHOW

MTuWThF 7:00a- 9:00a  
TODAY SHOW

MTuWThF 6:30p- 7:00p  
NBC NIGHTLY NEWS

F 7:00p- 8:00p

MTuWThF 7:00p- 7:30p  
INSIDE EDITION

MTuWThF 7:00p-  
INSIDE EDITION

Tu 11:00p-12:00a

M 11:00p-12:00a

Su 8:00a- 9:00a  
SUNDAY TODAY

Su 8:00a- 9:00a  
SUNDAY TODAY

Su 8:00a- 9:00a  
SUNDAY TODAY

Su 7:00a- 8:00a

Su 8:15p-11:30p  
NFL SNF (FULL ROTATION)

Su 8:00p- 9:00p

Impressions: 725,000

Reach: 31.4%

Frequency 1.9

WEEK OF  
11/30 (7)

WEEK OF  
12/7 (7)

# W F M Y NEWS 2

MTuWThF 7:00p- 8:00p  
JEOPARDY/WHEEL  
Nov/2019LP (pav)

MTuWThF 7:00p- 8:00p  
JEOPARDY/WHEEL  
Nov/2019LP (pav)

MTuWThFSaSu 11:00p-  
11:35p  
LATE NEWS M-SU  
Nov/2019LP (pav)

MTuWThFSaSu 11:00p-  
11:35p  
LATE NEWS M-SU  
Nov/2019LP (pav)

Su 8:00a- 9:00a  
GOOD MORNING WKND  
Nov/2019LP (pav)

Su 8:00a- 9:00a  
GOOD MORNING WKND  
Nov/2019LP (pav)

Su 8:00a- 9:00a

Su 9:00a-10:30a  
CBS SUNDAY MORNING  
Nov/2019LP (pav)



WEEK OF  
11/30 (1)

WEEK OF  
12/7 (7)

Impressions: 302,000

Reach: 16.2%

Frequency 1.6



W G H P  
F O X 8

MTuWThF 5:00p- 7:00p  
FOX8 NWS-5-7P  
Nov\_Dec 2019 Ac

MTuWThF 5:00p- 7:00p  
FOX8 NWS-5-7P  
Nov\_Dec 2019 Ac

MTuWThFSaSu 10:00p-  
11:00p  
FOX8 10.00 NWS  
Nov\_Dec 2019 Ac



WEEK OF  
11/30 (3)

WEEK OF  
12/7 (2)

Impressions: 194,000

Reach: 11.5%

Frequency 15

# Campaign Review & Insights

FROM OUR MPS ACCOUNT MGR, NANDREA WARD

Seven-week campaign, targeting adults 18+ using zip codes in the PTRC footprint

- Original plan involved Facebook/Instagram, Google Display, Television and Radio
- 11/30 all Facebook/Instagram budget switched to run on Twitter
  - Facebook changed some of its policies during the political season which impacted our ability to run
    - The “anti litter” message was tagged as a ‘social issue’.

Twitter received higher impressions and reach than the last Facebook Litter campaign

- All other metrics were lower than what we have seen on Facebook.
  - This can be attributed to the Objective of the campaign
    - Facebook Litter campaign in March was a video views objective which drove a lower CPM and a higher CVR
    - Twitter was purchased under a Clicks to Website Objective
- Environment was the top keyword that drove clicks and video completions

Display ads skewed heavily female (77% of impressions & 75% of clicks) whereas

- Twitter skewed more Male (64% of impressions & 63% of clicks)
- Most clicks were from adults 55+ where Twitter had the most clicks from the 20-40 age group
- These two platforms complimented each other well by reaching two different audiences

Three television and radio stations were purchased on the traditional side

- Television and radio delivered over one million impressions each with persons 18+
- Television and radio had a reach percentage over 30%

## Thank You For Choosing



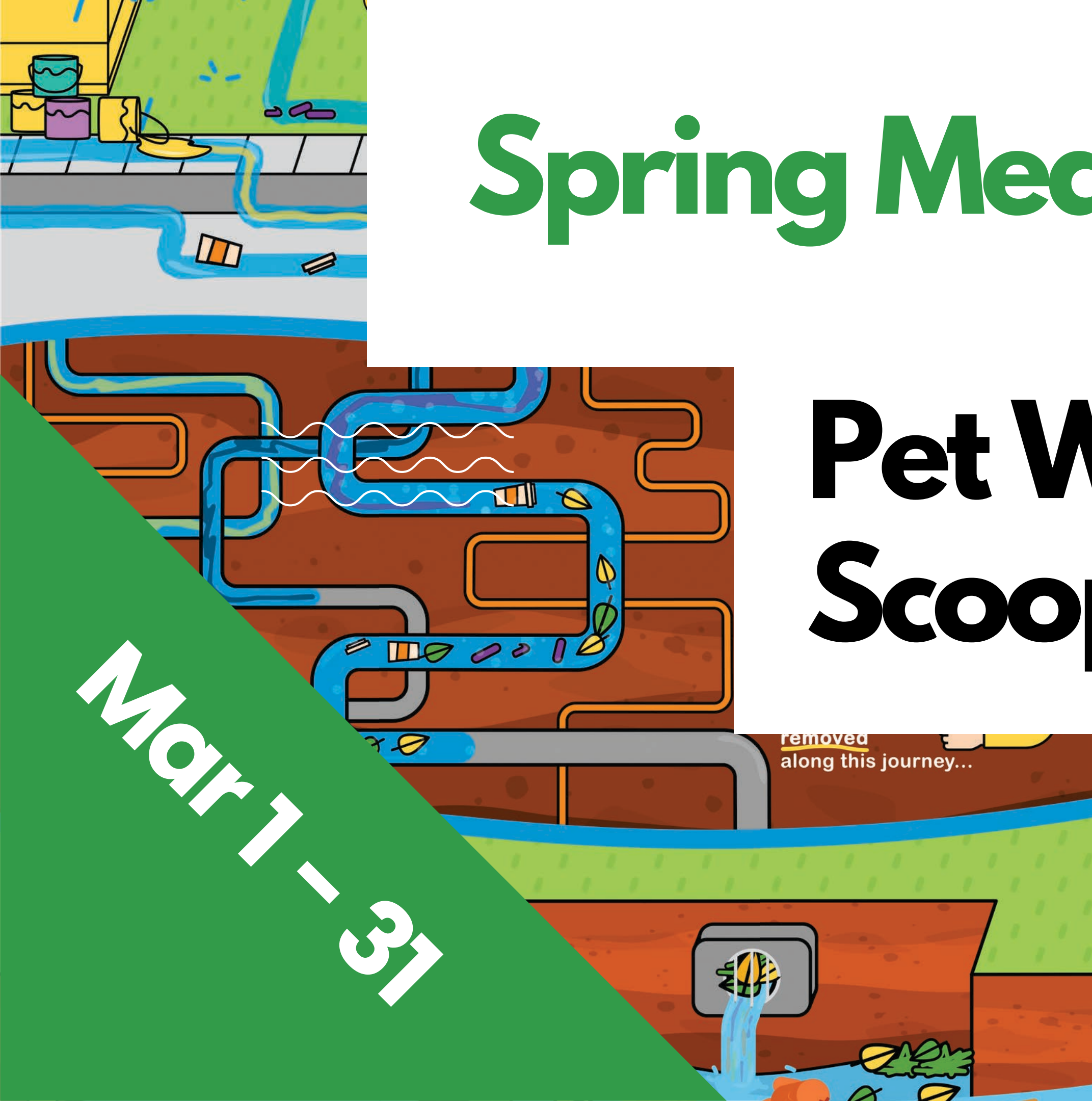


# Spring Media



## Pet Waste - Scoop Poop!

Mar 1 - 31



Archdale  
Burlington  
Clemmons  
Greensboro  
FORSYTH  
GUILFORD  
Jamestown  
Kernersville  
Mebane  
Randleman  
RANDOLPH  
Trinity  
Winston-  
Salem

# Social Media Outcomes



## SECOND QUARTER HIGHLIGHTS

**Summary**

Last 90 days ▼



Reach

**16,400**



Post  
Engagement

**289**



Link Clicks

**130**

ALAMANCE  
Archdale  
Asheboro  
Burlington  
DAVIDSON  
Elon  
Gibsonville  
Graham  
Green Level  
Greensboro  
Haw River  
Jamestown  
Kernersville  
Lewisville  
Lexington  
Oak Ridge  
Mebane  
Randleman  
RANDOLPH  
Reidsville  
ROCKINGHAM  
Summerfield  
Thomasville  
Trinity





I ❤️ MY WATERSHED

# ABBOTTS CREEK

WE CAN CHANGE OUR WORLD

[www.stormwatersmart.org](http://www.stormwatersmart.org)

25 1 Comment 7 Shares

Like Comment Share

Most Relevant

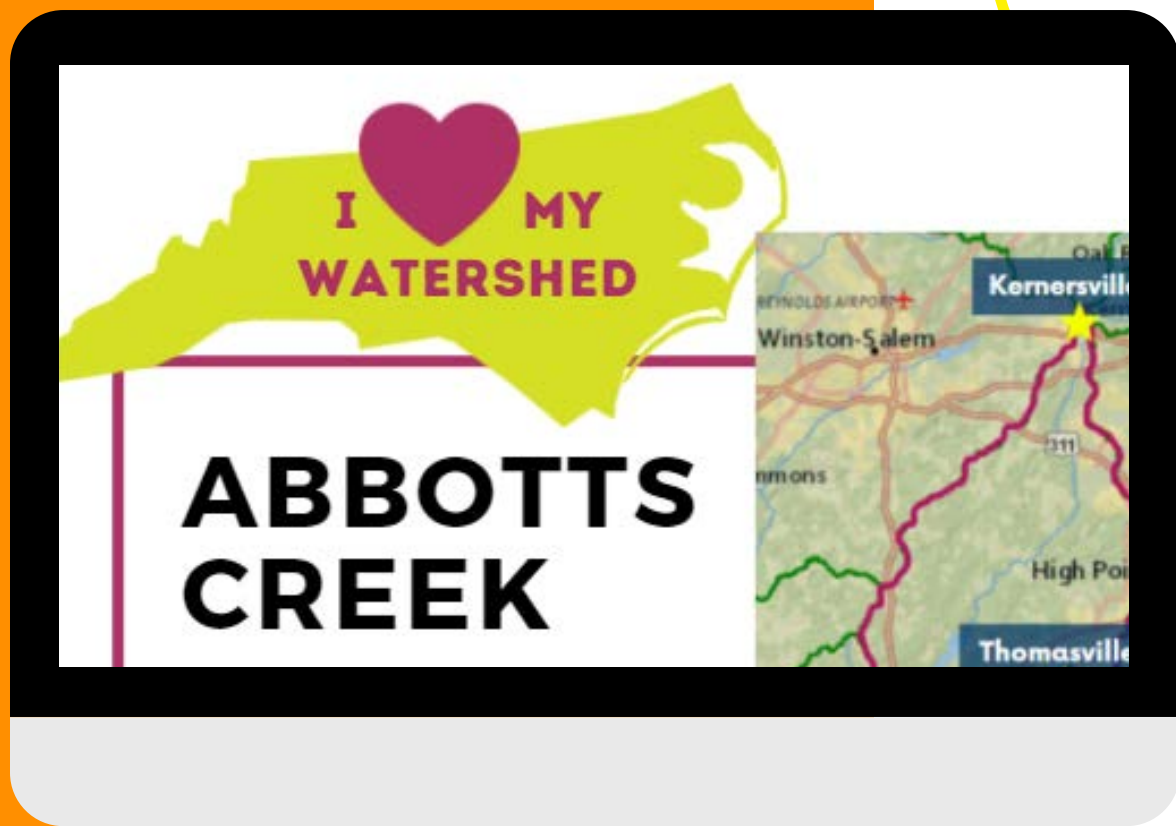
Cathy Gaines Melvin  
<https://www.ptrc.org/.../sto.../our-watersheds/abbotts-creek>

PTRC.ORG  
Abbotts Creek | Piedmont Triad...

Like · Reply · Message · 11h 2

OUTREACH FROM SOCIAL MEDIA IS REPORTED FOR ALL MEMBERS (MEDIA+EDUCATION)





# Direct Education Reporting





21 observations

Ebony Jewelwing  
*Calopteryx maculata*

2,509  
SPECIES

961  
IDENTIFIERS



19 observations

Great Blue Heron  
*Ardea herodias*



22 observations

American Trumpet Vine  
*Campsis radicans*



# Bingo by the Creek

iNaturalist.org



12 observations

Painted Turtle  
*Chrysemys picta*



10 observations

Green Tree Frog  
*Hyla cinerea*

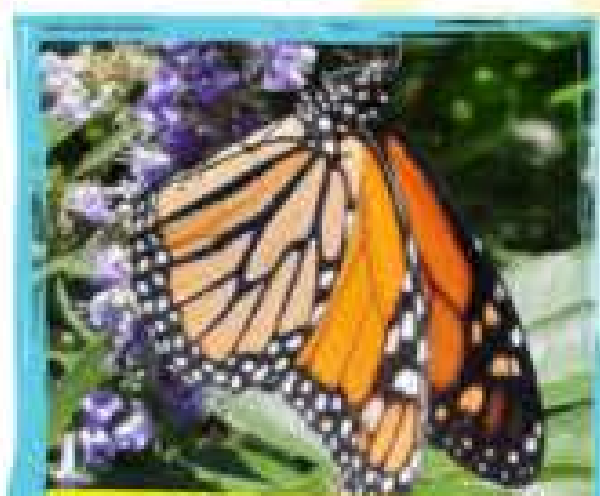


Erin Burke Edwards  
 These challenges are so much fun  
 and I love the opportunities to learn  
 more! Thank you!

Love · Reply · Message · 1w

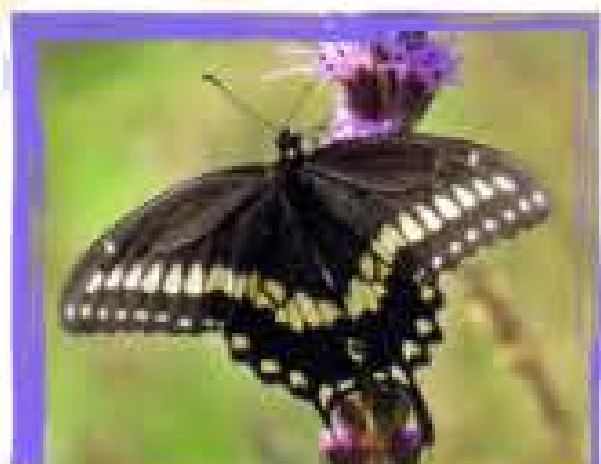


*Congrats,  
iNats!*



**jessicatate**

Forsyth County



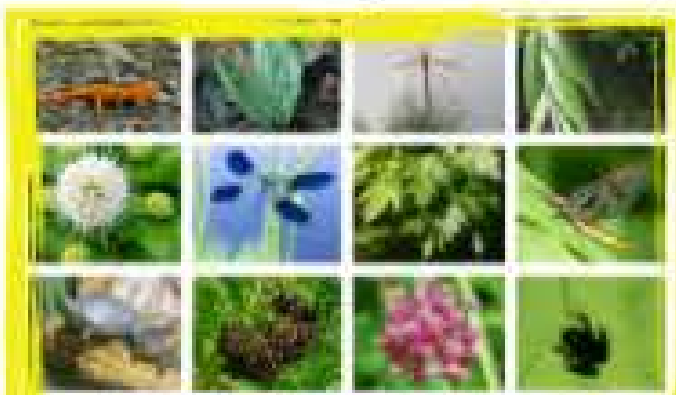
**loriannkayaker**

Greater NC



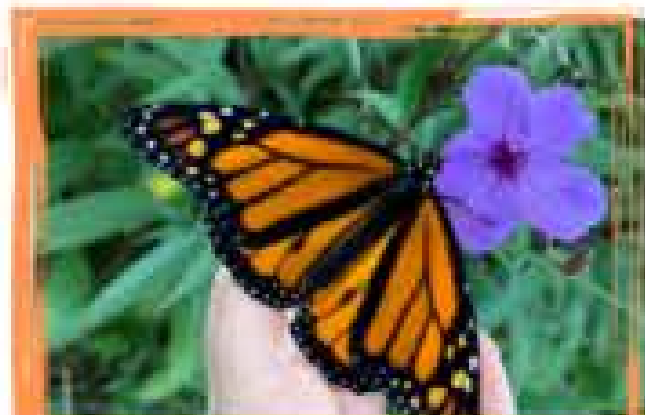
**olegal**

Guilford County



**kellyek**

Davidson County



**erinedwards**

Davidson County



**aham27025**

Rockingham County

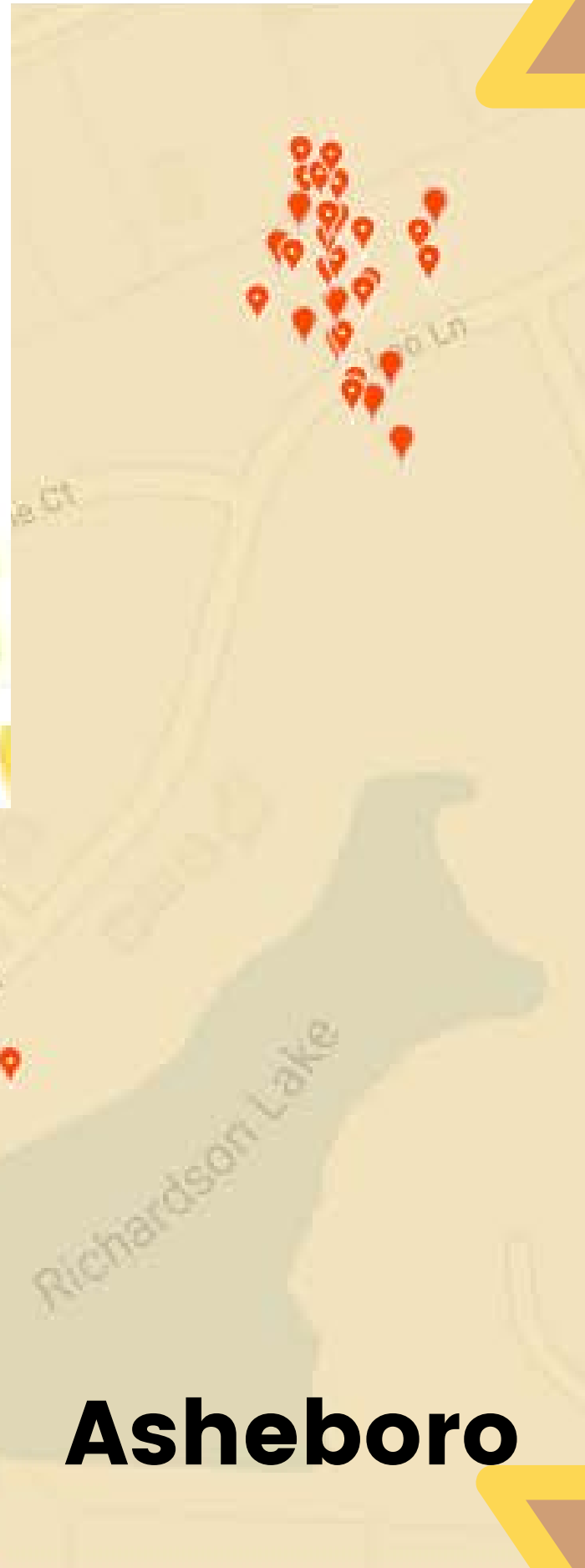


**acj0728**

Alamance County



**megcarlton**  
**Randolph County**



# Honorable Mention for IDDE Reporting

iNaturalist megcarlton from Asheboro

Catalogued plants and salamanders at Lake Richardson in her neighborhood, the Jackson's Run development above Hasketts Creek

Meg reported two concerns to the Stormwater SMART Hotline: 1) Sediment in stormwater runoff going into lake; 2) Developer plans to drain lake without regard to dam condition or wildlife

**Hasketts Creek**  
(State Waterbody ID: NC17-12a)  
**Waterbody Condition: Impaired**  
**Degraded Aquatic Life**  
**Low Oxygen**





– Stormwater SMART

+ About Us

How You Can Help

Report a Problem

Request a Program

Your Local Government

Free Native NC Wildflower  
Seed Packets

Media Campaigns

1. Do you see something that concerns you in one of our waterways? Select as many that apply to the location (i.e. same block or neighborhood).

Sediment/exposed soil (from construction or erosion) entering waterway during rain event

2. The fields below are all helpful for us to understand what you observed; each is optional:

**Date and/or time:** January

**Location (address, coordinates, name of street/name of park, business/neighborhood, etc.). You can also take a screen shot of your location using a maps application on your phone and submit below.**

Leo Ln (Asheboro) in the Jackson's Run subdivision. Behind (and next to) the house that is being built next to the creek, the contractor failed to place a fabric barrier when they leveled the lot. There is currently mud and silt running into the creek below every time it rains. This creek runs into Richardson Lake.

**Submit a photo that shows the concern:** IMG\_1350.jpg

**Submit another photo** IMG\_1351.jpg

**megcarlton**  
Randolph County



**Haskett Creek - Impaired  
- Degraded Aquatic Life  
Low Oxygen**





# OUTCOMES

- W-S office visited site within a week & issued corrective actions report for sediment/erosion
- Follow-up inspection of this site for Feb 10
- Dam placed under a Notice of Deficiency (NOD); developer asked to submit a breach plan to the Dam Safety program
- SwS attended HOA Zoom Feb 5: Stormwater 101, Hasketts Creek Info, Grant Award from KRCB for \$200 for pollution prevention efforts
- BioBlitz at the lake planned with HOA for Creek Week at Lake Richardson with NC Wildlife Resources Commission and NC Zoo



DEQ

CAROLINA  
Department of Environmental Quality

# Creek Weeks

|            |              |
|------------|--------------|
| ALAMANCE   | May 1 - 8    |
| DAVIDSON   | Aug 21 - 28  |
| FORSYTH    | Mar 21 - 28  |
| GUILFORD   | Jun 5 - 12   |
| RANDOLPH   | Sept 18 - 25 |
| ROCKINGHAM | June (TBD)   |





# CREEK WEEK LIBRARY PROGRAM: Love Our Watersheds

- ♥ Pick up a native wildflower seed packet and an educational postcard
- ♥ Link to online Buffer Basics brochure



I ♥ MY  
WATERSHED



NATIVE PLANTS REDUCE POLLUTION,  
PROTECT WILDLIFE, & CONSERVE WATER

Longer roots go deep into the soil, absorbing excess nutrients and reducing erosion. This stops pollution & sediment from entering waterways.

Native plants provide food, shelter, and habitat for birds and pollinators.

Native plants are better adapted to local climates, weather patterns and soil conditions, requiring less fertilizer and watering than non-native plants.

**STORMWATER SMART**  
[www.stormwatersmart.org](http://www.stormwatersmart.org)

Alamance County · Archdale · Asheboro · Burlington · Davidson County · Elon · Gibsonville · Graham · Green Level · Greensboro · Haw River · Jamestown · Kernersville · Lewisville · Lexington · Mebane · Oak Ridge · Randleman · Randolph County · Reidsville · Rockingham County · Summerfield · Thomasville · Trinity

♥ MY WATERSHED

Scan to learn about our shared watersheds and enter to win monthly prizes!

ALAMANCE COUNTY  
ARCHDALE · ASHEBORO  
BURLINGTON · DAVIDSON COUNTY  
ELON · GREENSBORO · GRAMM  
GREEN LEVEL · GREENSBORO  
HAW RIVER · JAMESTOWN  
KEARNERSVILLE · LEWISVILLE  
LEXINGTON · MEBANE  
OAK RIDGE · RANDLEMAN  
RANDOLPH COUNTY · REIDSVILLE  
ROCKINGHAM COUNTY  
SUMMERFIELD · THOMASVILLE · TRINITY

[watersmart.org](http://watersmart.org)  
PIEDMONT TRIAD REGIONAL COUNCIL





SEED DONATIONS

*Thank You!*

STORMWATER SMART | February 9, 2021





BROCHURES

GEOCACHE

SOCIAL MEDIA

I ❤️ MY  
WATERSHED

# Buffer

STORMWATER SMART  
PIEDMONT TRIAD REGIONAL COUNCIL

## STREAM BUFFER BASICS

# MUDDY CREEK WATERSHED

North Carolina Watershed Brochure Series - January 1, 2021 - Piedmont Triad Regional Council - [www.ptrc.org/stormwatersmart](http://www.ptrc.org/stormwatersmart)

**WHAT TO KNOW**

Muddy Creek is a vital water source that flows through numerous communities in the Piedmont Triad region of North Carolina. Stewards of the watershed need to know:

- How Muddy Creek connects to other waterways downstream
- Which pollutants affect its water quality
- What a healthy riparian buffer looks like, and how activities in these buffer zones are regulated and permitted

**QUICK INFO**

Area (sq miles).....256  
Miles of Streams .....376  
# of Impaired Streams .....11  
Dominant Land Use.....Dvlpd. Land  
Counties: Forsyth, Davidson, Stokes

Data pulled from the Watershed Stewardship Network, NC DEQ "Know Your HUC", and modelmywatershed.org

**WHERE IS IT?**

Muddy Creek begins in Stokes County and stretches south, joining tributaries like Mill Creek and Salem Creek along the way. It flows south out of Winston-Salem (the fifth-largest city in our state), collecting the drainage from this large "gray" area. **Gray areas** are so-called because of the amount of pavement, roofing, & other **impervious surfaces** that cannot absorb rainwater. When rain hits these hard surfaces, it becomes **stormwater runoff**. Muddy Creek carries this runoff to the southern border of its watershed where the creek joins the Yadkin River. This map shows the watershed's **boundaries** - its highest points of elevation - in black.

# Basics





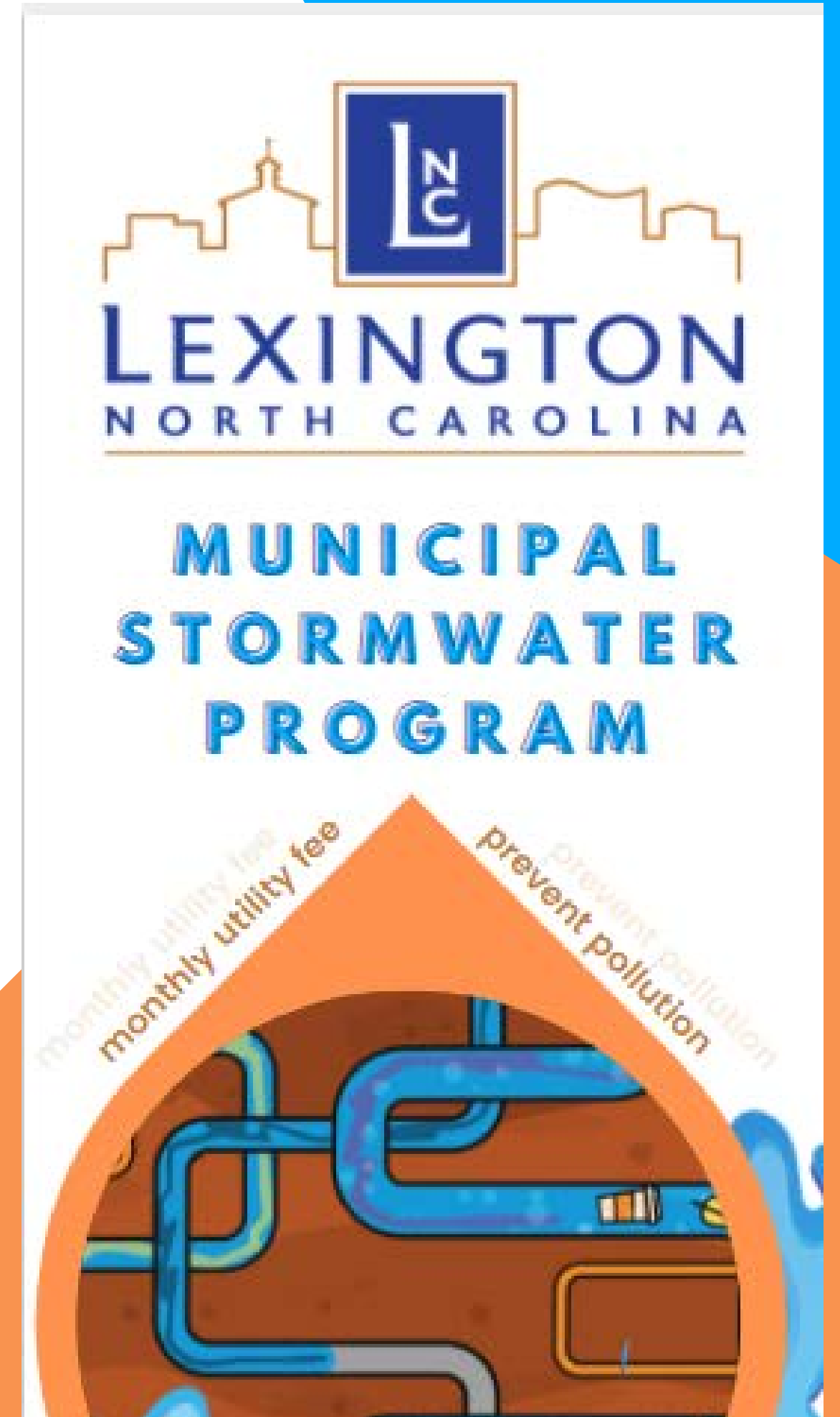
# Direct Mail

LEXINGTON STORMWATER FEE NOTICE  
VIA DIRECT MAIL INSERT



Almost 22,000 brochures to be mailed by end of February. All those numbers should be counted for outreach.

Consider for your community...  
Brochures can be modified for your target pollutants & audiences.





# Design Service Included in Direct Education Dues



## Stormwater Utility Fees: When, Why, & Who?

In January of 2021, Lexington will implement a monthly stormwater utility fee to help fund its municipal stormwater program. \$3.50 will be added to utility bills for all single-family residential properties within city limits.

### within city limits

Commercial properties will be assessed with a formula based on square footage of impervious surface. This goes a long way towards keeping our water clean and healthy! As our city grows and open fields are paved over, rainwater collects pollution and carries it to storm drains, harming our municipal stormwater systems and creek habitats. The new utility fee will help offset the effect of these developed areas, improving water quality and protecting aquatic habitats in the years to come.



Stormwater Questions & Concerns: (336) 248-3980

## Stormwater Education and Information at Your Service!



Educational programming and outreach materials are made possible by the collective resources and efforts of local governments belonging to the Stormwater SMART Direct Education Program with the Piedmont Triad Regional Council (PTRC): Archdale, Alamance County, Asheboro, Burlington, Gibsonville, Graham, Green Level, Greensboro, Haw River, Jamestown, Kernersville, Lewisville, Lexington, Mebane, Oak Ridge, Randleman, Randolph Co., Reidsville, Summerfield, Thomasville, and Trinity.

The staff of Stormwater SMART provides free programming for civic groups, K-12 classrooms, home schools, churches, organizations, businesses, libraries, summer camps, and more! Our educators have small group, outdoor programming like NC Stream Watch - ideal for families, Scouts, and home schools - with all materials provided free of charge for those who live, work, and play in the City of Lexington and Davidson County. For more information or to schedule an educational visit, email [stormwatersmart@ptrc.org](mailto:stormwatersmart@ptrc.org).



Stormwater Questions & Concerns: (336) 248-3980

Published by the City of Lexington January 2021

LEXINGTON NORTH CAROLINA

## MUNICIPAL STORMWATER PROGRAM

monthly utility fee prevent pollution

## We Can Save Our Water by Preventing STORMWATER POLLUTION

When rain or water hits hard surfaces like pavement, it creates stormwater runoff.

When cleaners, fertilizers, vehicle fluids, dog waste, and other pollutants are left on pavement, they get picked up by the rainwater and carried into the nearest storm drain. From there, runoff flows directly to the nearest creek or stream, unfiltered and untreated, making water unsafe for swimming and fishing and hurting tadpoles and bugs and others on up the food chain.

**DID YOU KNOW?** One fully-wooded acre creates **no runoff** during a one-inch rain event, but if that same acre is paved (an "impervious surface"), it results in over **27,000 gallons** of runoff from the same one inch of rain! This is why urban areas often have localized flooding issues during bad storms, and why so many urban streams have high levels of harmful nutrients and bacteria.

**CLEAN WATER STARTS WITH YOU & ME!**

Each of us can do a few simple things at home to change what ends up in our creeks, streams, rivers & lakes! Meanwhile, our municipal stormwater program can now apply monthly fees to repair the storm drain system, educate workers & residents, and teach students the lifelong merit of environmental and community stewardship.

- Pick up litter!
- Scoop POOP!
- Keep leaves off the curb and use carts for yard waste!
- Dispose of household hazardous waste at the landfill (1st Sat of each month!)
- Don't spray if rain's on the way!





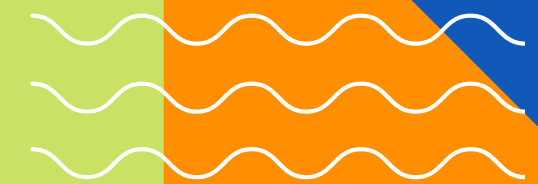
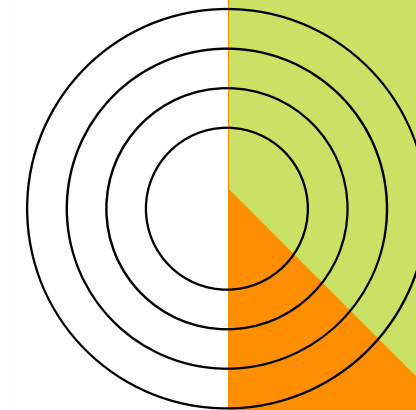
# Geocache

# WE CAN CHANGE OUR WORLD



ALAMANCE COUNTY  
ARCHDALE - ASHEBORO  
BURLINGTON - DAVIDSON COUNTY  
ELON - GIBSONVILLE - GRAHAM  
GREEN LEVEL - GREENSBORO  
HAW RIVER - JAMESTOWN  
HERNERSVILLE - LEWISVILLE  
LEXINGTON - MEBANE  
OAK RIDGE - RANDLEMAN  
RANDOLPH COUNTY - REIDSVILLE  
ROCKINGHAM COUNTY  
SUMMERFIELD -  
THOMASVILLE  
TRINITY

[www.stormwatersmart.org](http://www.stormwatersmart.org)





DIRECT EDUCATION  
SECOND & THIRD QUARTERS

# NC Stream Watch

One guide to  
rule them all.

Approved by Lauren Daniel at NC DEQ for use in Stormwater  
SMART Direct Education communities. Starts March 2021!



ALAMANCE  
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**Need more help?**  
Stormwater SMART provides  
NC Stream Watch  
Orientations for free in the  
Triad! See back panel for  
more info or email us at:

[stormwatersmart@ptrc.org](mailto:stormwatersmart@ptrc.org)



NC Stream Watch is an educational program created and maintained by the NC Department of Environmental Quality (NC DEQ). It's a fun way for groups and individuals of all ages to learn different ways of evaluating aquatic ecosystems while performing small cleanups. You also have the option of putting your local creek or stream on NC DEQ's statewide map by registering online! Just search for **NC Stream Watch** in your browser and select [Click Here to Apply](#). Provide your contact information and use the interactive map to mark the location of your creek or stream.

By registering your group, you're committing to at least two stream visits in the next year and answering survey questions using the 123Survey app on your smart phone or on a web browser. As an alternative, you can record your data here in the field guide and decide when and if you'd like to submit the information later. There is no commitment to using the field guide - just have fun!



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### Safety First! Tips for Cleanups & Surveys

The science and stewardship activities in this guide are great for school-aged children when supervised by a responsible adult. Water chemistry and aquatic surveys are best for 8+. While all outdoor activities carry risk, a life indoors can be more hazardous to our health in the long run! Safety first, Service Second, and then... HAVE A WONDERFUL TIME!

#### Treat all litter with caution!



- Bring trash bags and work gloves for the cleanup.
- Remind children to dress properly and not to take risks trying to collect hard-to-reach trash or heavy items.
- Litter picking tools are helpful!

#### Walk the creek prior to starting the activity and note if any hazards are present.



- Steep or unstable areas that can cause slips, trips, or falls
- Poisonous plants
- Glass, nails, sharp objects that can cut or puncture
- Biohazards (needles, human blood, fluids, or waste)
- Bugs, snakes, creatures that bite or sting

1



A

healthy stream ecosystem is both strong and fragile. The hardy roots of native plants help keep the soil in place, while delicate creatures in all stages of life utilize the plant cover for protection and food. Watch where you step to minimize your impact on the natural landscape. If you collect a critter from the water, be gentle while making observations and return them safely to their preferred abodes. If you want a guided NC Stream Watch experience or have questions before you go out, let us know! Email [stormwatersmart@ptrc.org](mailto:stormwatersmart@ptrc.org).



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## GENERAL OBSERVATIONS

Group Name/Observer: \_\_\_\_\_

Date/Time of Observation: \_\_\_\_\_

Region of NC: Mountains    Piedmont    Coast  
(Circle one)

Stream Name, if you know it: \_\_\_\_\_

*For example: Tucker Creek. Many creeks and streams in NC are unnamed and hard to find on map apps. Try searching "Find my HUC NC" or "NC Heritage Map". Or just zoom in using your the map application on your device If you can find a named waterway nearby, you may be at one of its tributaries. Good detective work!*



Now take a picture of your stream! Looking upstream, try to incorporate both banks of the stream if possible.



3

### Location:

Use what works for you: an address, landmark, GPS coordinates, dropping a pin on your device's map, etc.



Days since last rain: Today    1-2 days    3+ days  
(Circle one)



Take a few moments to observe the stream with devices off. What do you see and hear? What do you enjoy about visiting this stream?



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**TRASH TRACKER SURVEY**



HEAVY TRASH DENSITY

**TRASH DENSITY IS A MARKER OF STREAM HEALTH**

As you look around it might be obvious that other visitors to the creek have left garbage behind. You could also be seeing *stormwater debris*. When rain hits roofs and other hard surfaces, the runoff carries cigarette butts, plastic bags, and other small items into storm drains. The pollution enters the nearest creek or stream, unfiltered and untreated. These small items can sometimes be the biggest problem!

**SMART FACT: CIGARETTE FILTERS ARE NOT BIODEGRADABLE**

Cigarette filters are made of a plastic called cellulose acetate; they break down into micro-plastics that kill fish and other critters who confuse them for food.

They also leach nicotine and heavy metals into the surrounding environment, inhibiting plant growth and poisoning water. E-cigarettes are posing similar problems and are viewed both as hazardous waste and e-waste.



5

Take a look around from where you are standing. How much trash or litter can you see?

- Clean
- Sparse
- Moderate
- Heavy



THE RATING IS SUBJECTIVE, BUT YOU SHOULD BASE IT ON THE NUMBER OF TRASH ITEMS THAT YOU CAN SEE FROM WHERE YOU STAND. TOO MANY TO COUNT? THAT'S PRETTY HEAVY!



Take some pictures that illustrate the litter density. If cleaning up, take some before and after photos!

If you are able to safely pick up trash, estimate how much you removed from the area:

You can record the size of your bag or its approximate weight. Did you fill a grocery bag? Kitchen trash bag? Whatever you removed from the site, thank you for making the area safer for all!



DATE: \_\_\_\_\_

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LOTS OF COVER

### GIMME SHELTER!

"Habitat" is a fancy word for shelter. Organisms that are a part of your stream's ecosystem rely on the shelter from plants along the side of your stream and even the nooks and crannies under rocks at the bottom of the stream. Macroinvertebrates and fish love to find cover in submerged roots, woody and vegetative debris, cobble stones, leaf packs, and undercut banks. Let's take a closer look!



### The food chain starts with the smallest species

Aquatic **macroinvertebrates** are just big enough to identify with the naked eye. They are often juveniles, "nymphs", and many species are highly intolerant of water pollution. Though small, their survival is important to the entire food chain in your stream's ecosystem.



7



### HABITAT SURVEY

How much cover do you see on bottom of the channel for critters to hide in? Look for submerged roots, woody and vegetative debris, rocks, and leaf packs (decomposing leaves clumped together).

- Lots of cover on channel bottom
- Some cover on channel bottom
- Little to no cover on channel bottom

Cobble stones are easy for larvae to hide under. Are there an abundance of cobbles? (Note: coastal rivers will not have cobbles.)

- Lots of cobbles
- Some cobbles
- Little to no cobbles
- More sand/sediment AND no cobbles

DATE: \_\_\_\_\_

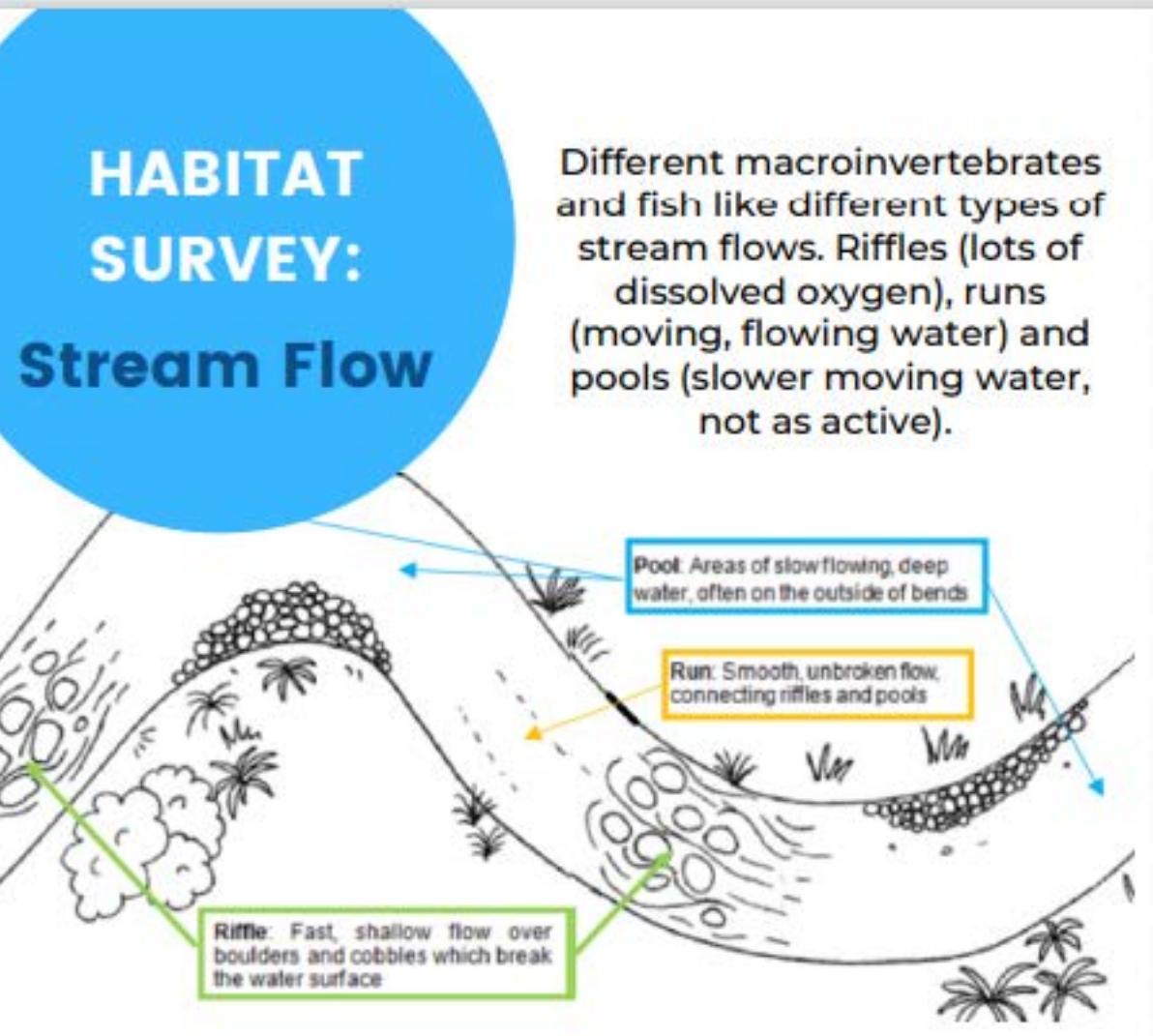


LOTS OF GOBBLES

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Riffles, Runs, and Pools

How diverse are the stream flows?

- Good diversity of riffles/runs/pools
- Some diversity of riffles/runs/pools
- No visible diversity of riffles/runs/pools in this section of the stream.

9

**ALTERATIONS TO STREAM HABITAT**

Take a look at the shape of your stream. Does it seem like someone has changed how this stream flows?

This may include pipes that take this stream under a road, or around a neighborhood.

- Stream looks very natural, not altered by humans
- Stream looks like it may have been altered by humans
- There is no doubt this stream has been altered by humans



STREAMS RUNNING THROUGH NEIGHBORHOODS ARE ALTERED TO ACCOMMODATE ROADWAYS AND CONNECT TO STORM DRAINS

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## CONVEYANCES

Conveyances are what scientists call sources of water into a stream. These are usually human-made structures that consolidate water flow into a stream. These are important to find because they give clues for how a stream can be impacted by humans.

Do you see any pipes that empty into your waterway? These **outfalls** connect to a water source, perhaps a downspout from a nearby roof, a catch basin in a yard, or a storm drain on the curb of the nearest street. If your stream is near a neighborhood, you may see multiple conveyance types, while remote streams may have no visible conveyance at all! What's more, the waterbody you are using for your survey might actually be a conveyance! If left undisturbed long enough for plants to mature, a man-made channel may look natural. **Ditches** may be mowed, while **hardened** channels are paved. **Gullies** are narrow and eroded.



Storm drains carry runoff directly to the nearest stream, unfiltered and untreated. That's why we say, "Only rain down the storm drain!"

13

PICTURES

## CONVEYANCES SURVEY

What kind of conveyance(s) do you see?



Hardened



Vegetated Channel



Gully



Pipe



Ditch

...Or are none visible? Now try and discover (or guess) where the water is coming from. Parking lot? Road? Farm?



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# CONVEYANCES

Conveyances should only carry rainwater to creeks and streams. If it hasn't rained for several days and you see liquid, check for suds, oil (rainbow sheen), sediment, or color in the water. Take a picture and call 3-1-1 or submit a web form at [stormwatersmart.org](http://stormwatersmart.org) so we can get it checked out!



Someone nearby may be dumping wastewater without knowing the risks to wildlife & water quality.

**Water Quantity:**  
How much water is in the conveyance?

- Flowing
- Wet
- Dry

**Surrounding Land Use:** How are humans using the land around this section of the stream? Select all that apply.

- |   |   |
|---|---|
| <input type="checkbox"/> Roads/Transportation | <input type="checkbox"/> Wildlife Protection      |
| <input type="checkbox"/> Agriculture          | <input type="checkbox"/> Residential/Neighborhood |
| <input type="checkbox"/> Forest Harvesting    | <input type="checkbox"/> School Campus            |
| <input type="checkbox"/> Industrial           | <input type="checkbox"/> Parking Lots             |
|   | <input type="checkbox"/> Other                    |

15

DATE: \_\_\_\_\_

Name some likely pollutants that could be mixed with stormwater coming from the conveyance:

Today's Date: \_\_\_\_\_

Nearby businesses or schools may be dumping hazardous cleaners, oily water, and trash.

Neighborhoods are big sources of plastic waste, chemical cleaners, pesticides, yard waste & more. waste. Although dog poop and grass clippings might seem harmless, they carry loads of excess nitrogen and phosphorus, causing algal blooms that suffocate fish and tadpoles. Dog poop and sewage also contain bacteria & viruses, like E. Coli and Parvo.

Loose dirt from land development is the #1 pollutant in our rivers & streams.

Paved surfaces accumulate motor oil, antifreeze, and other vehicle fluids.

Other impervious surfaces, like rooftops, also contribute to polluted runoff. Rain follows the gutter to a downspout, which then flows along a driveway into a buried pipe, ending up in storm drains and - eventually - your stream!

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## WATER CHEMISTRY SURVEYS

In the CONVEYANCES SURVEY, you noted the many ways that stormwater enters your stream, and with it, different types of pollution. The [NC Stream Watch online survey](#) provides several categories to test, including temperature, pH levels, turbidity, coliform bacteria and more.

These parameters can be tested using most any water quality test kit that you purchase from your favorite store. The kits have their own instructions, including important safety notes.



Remember, this is YOUR citizen science experience. You can skip this section or you can submit a partial survey. At Stormwater SMART, we believe in setting goals that are Specific, Measurable, Achievable, Relevant, & Time-Based. It takes time to learn SMART goals for citizen science; that's why we provide free NC Stream Watch classes all over the Triad. Here's an example of our SMART goal for water chemistry when we host NC Stream Watch events:

*"I can perform two tests in less than 20 minutes to determine nutrient levels in this part of my stream. The results can help me guess which pollutants from the neighborhood may be impacting the water quality."*



## WATER SAMPLING PREPARATION

Gloves and sanitizer protect against sharp objects & bacteria



Wear clothing appropriate for the season and potential hazards. Consider tall boots that fit well. Watch your step!

**SAFETY FIRST:** Nutrient testing is for age 8+ and requires adult supervision. Do not leave young children alone with test kits. Participants should use protective gloves and hand sanitizer. Even if water looks clean and clear, remember that bacteria, like E. Coli and salmonella, can make you really sick if you touch your mouth with dirty hands. You can have fun AND be smart and safe!

For this section you will need collection kits for nitrate and phosphate. You can order these online or invite one of our educators to join you. We bring all special materials needed for your outing. Email us at [stormwatersmart@ptrc.org](mailto:stormwatersmart@ptrc.org)

Test Kits



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- Oak Ridge
- Mebane
- Randleman
- RANDOLPH
- Reidsville
- ROCKINGHAM
- Summerfield
- Thomasville
- Trinity

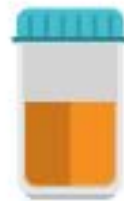




## TOO MUCH of a good thing: nitrate and phosphate in streams

Nitrate (NO<sub>3</sub>) and phosphate (PO<sub>4</sub>) are nutrients needed by all aquatic plants and animals to grow, and they occur naturally from decaying organic matter. But too much of these essential nutrients cause problems for plants and animals, and for humans, too! High levels of these nutrients can lead to overgrowth of algae and bacteria, which suffocate and sicken aquatic life. Excess amounts in drinking water can affect human health and is expensive too treat, which raise taxes and fees. Water treatment centers test for nitrate and phosphate levels, as you will learn to do today!

### COLLECTING A WATER SAMPLE FOR NUTRIENT TESTING



Collect the water sample in a sterile, wide-mouthed jar or container (approx. 1 liter) that has a cap. The container should be filled completely with your water sample and capped to prevent the loss of dissolved gases. Test each sample as soon as possible or within one hour of collection.

## NITRATE PROCEDURE



1. Fill the test tube to the 5 mL line with the water sample.
2. Add one Nitrate TesTab (3703A) and slide the test tube into the protective sleeve to block UV light.
3. Cap and mix by inverting for two minutes to disintegrate the tablet. Bits of material may remain in the sample.
4. Wait 5 minutes for the red color to develop. Remove the tube from the protective sleeve.

Now compare the color of the sample to the nitrate color chart. Record the result. A light peach color indicates 5 ppm or less (a natural level). If the color of the test water is closer to pink in color than peach, the more likely it is that the stream has a nitrate level near or above 10 ppm, the acceptable limit.

Date & ppm:

ppm = parts per million



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## PHOSPHATE PROCEDURE



1. Fill the test tube to the 10 mL line with the water sample.
2. Add one Phosphorus TesTab (5422A).
3. Cap and mix by inverting until the tablet has disintegrated.
4. Wait 5 minutes for the blue color to develop. **NOTE:** If the sample does not develop a blue color (sample is colorless), record the result as 0 ppm.



Now compare the color of the sample to the phosphate color chart. Record the result. A colorless result indicates that the level is well below 1 ppm. Good! Record 0 ppm. If the test water has gained even a slight discernable blue color, the phosphate level is unnaturally high.

Date & ppm:

ppm = parts per million

### phosphate

- 0 ppm
- 1 ppm
- 2 ppm
- 4 ppm



## INTERPRET YOUR RESULTS

Circle one for each: Acceptable natural levels? Or unacceptable, unnatural levels?

**NO<sub>3</sub>**

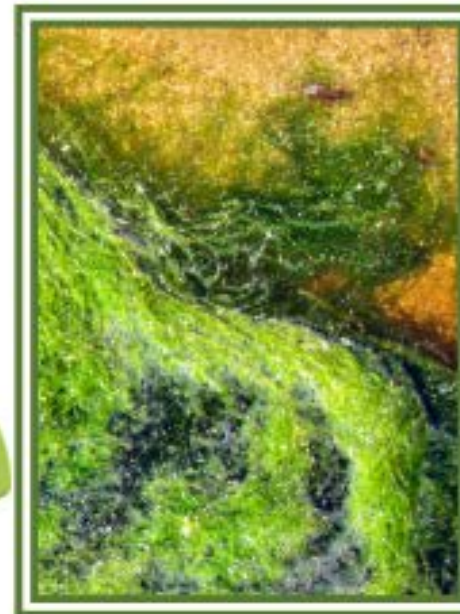


**PO<sub>4</sub>**



### THE SOURCE: SOIL, LAWNS, POOP, PRODUCTS

Sewage leaks and soil erosion are the main sources of NO<sub>3</sub> & PO<sub>4</sub>. Other contributors: fertilizer from lawns, gardens, and commercial landscaping, household cleaners containing phosphoric acid, and pet waste left on the ground. Dog poop does a lot less damage in a landfill than it does on sidewalks, where rain will wash it into the nearest storm drain and down to the nearest stream.



### THE RESULT: OXYGEN DEPLETION & FISH KILLS

Algal blooms that cause mass "fish kills" come from excess NO<sub>3</sub> & PO<sub>4</sub>. When algae die, cyanobacteria consume the dissolved oxygen in the water, leaving fish and other aquatic critters gasping for breath!

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Clean water starts with you & me!

We can reduce the amount of nutrients and other pollutants entering our storm drains, one new habit at a time!



- MULCH OR BAG IT!**
- PICK UP LITTER!**
- DISPOSE OF PROPERLY!**
- FOLLOW DIRECTIONS!**
- CLEAN SPILLS PROMPTLY!**
- SCOOP POOP!**

Yard clippings contain excess NO3 & PO4. Mulch if you can!

Take a small bag and some gloves with you on a walk.

Cleaning wastewater should never be poured on pavement.

Apply the correct amount of fertilizer or pesticide, & make sure rain's not on the way.

Automotive leak on the driveway? Absorb it (kitty litter or sand), sweep it, toss it, and get the leak repaired.

Scoop and bag pet waste and throw it in the trash.

If you see large amounts of loose soil spilling from a construction site, or witness someone dumping waste into a storm drain, you can fill out the "Report a Problem" form at [www.stormwatersmart.org](http://www.stormwatersmart.org).

Reflection/  
Discussion



How do my water chemistry findings align (or not align) with the human activity that I noted on Page 16? (Conveyances)

What else have I learned? What other questions do I have?

What other water chemistry tests do I want to perform to get a clearer picture of my stream's overall health? (temperature, pH, turbidity, coliform bacteria, dissolved O2, etc.)

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**Water Quality?**  
*Ask the Bugs!*

**SURVEY OF MACROINVERTEBRATES**

We can learn a lot about water quality by collecting macroinvertebrates - organisms that lack a spine and are large enough to be seen with the naked eye. Many aquatic insects live as juveniles (nymphs, larvae) in the water, and become flying insects as adults. Some of these "benthic bugs" can tolerate a lot of pollution (sewage, sediment, pesticides, etc.), while others must have clean water to survive.

With this survey, a kind of bioassessment, you can calculate your stream's "Pollution Tolerance Index" score. When you combine this information with the results of your habitat survey and nutrient levels, you end up with a good snapshot of your stream's current water at that spot. The best understanding of your stream will come from performing these assessments at different times throughout the year.



**Set yourself up for success! Look for macros in late spring, summer, and early fall. Plan to go out when the ground is dry and it hasn't rained for a few days.**



Benthic macroinvertebrates fall into three categories in this survey based on how tolerant they are of water pollution. There are many more water bugs you might observe; these are common in the Piedmont Triad and learning to identify them will help you get your "bug eyes"!

**Get free help from expert naturalists from NC & around the globe!**



**iNaturalist.org**

Nature identification apps like iNaturalist can help you keep an inventory of all wonderful critters and plants you see!



As with the chemistry survey, you'll collect water samples, so wear protective gear (gloves, boots) and watch your step. A good stream watcher looks out for their own safety, they're also considerate of the habitat, including grasses and shrubs.

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**Macroinvertebrates  
Groups 1 & 2:  
Less Tolerant of  
Pollution**

Check the box  
if species is present



**Group 1  
VERY Pollution-Intolerant**


Stoneflies  
(Order Plecoptera)




Caddisflies  
(Order Trichoptera)




Mayflies  
(Order Ephemeroptera)






Dobsonflies  
(Order Megaloptera)

COUNT THE #  
OF SPECIES  
RATHER THAN  
THE # OF  
BUGS.

FOUR  
MAYFLIES –  
ONE CHECK

# OF CHECKS: \_\_\_\_\_


MULTIPLY BY 4: \_\_\_\_\_

**Group 2  
Fairly Intolerant of  
Pollution**


Dragonflies  
(Order Odonata)




Crane flies  
(Order Diptera)




Scuds  
(Order Amphipoda)




# OF CHECKS: \_\_\_\_\_

MULTIPLY BY 3: \_\_\_\_\_

TRY LOOKING  
UNDER LEAVES  
AND ROCKS TO SEE  
WHAT'S HIDING  
THERE!

**Macroinvertebrates  
Groups 3 & 4:  
More tolerant of  
Pollution**

**Group 3: Fairly  
Tolerant of Pollution**

Midges  
(Order Diptera)




Leeches  
(Class Hirudinea)





# OF CHECKS: \_\_\_\_\_


MULTIPLY BY 2: \_\_\_\_\_

**Group 4: VERY  
Tolerant of Pollution**

Tubifex worms  
(Class Oligochaeta)




Pouch snails  
(Class Gastropoda)




# OF CHECKS: \_\_\_\_\_

MULTIPLY BY 1: \_\_\_\_\_

Be careful! Some bugs, like Dobsonfly nymphs, can be aggressive and bite! Wear gloves, watch out for glass and always wash your hands after exploring in the creek.

Graphics and index tool are from the Project WET Curriculum and Activity Guide 2.0, pp 430. Take a teacher training! Email stormwatersmart@ptrc.org.

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## Macroinvertebrates: Final Scoring and Interpretation

|  |              |
|--|--------------|
| ADD SCORES<br>FROM<br>GROUPS<br>1, 2, 3, 4 : | TOTAL SCORE: |
|  | DATE:        |

### WATER QUALITY ASSESSMENT CHART:

- ≤ 23 Potentially Excellent Water Quality
- 17-22 Potentially Good Water Quality
- 11-16 Potentially Fair Water Quality
- ≥ 10 Potentially Poor Water Quality

**While tolerant organisms can live in both impaired and unimpaired waters, intolerant organisms can only survive in unimpaired waters.**

**It is the lack of intolerant species (Groups 1 & 2) that indicates an impaired stream.**

Consider the results of all of the surveys you have conducted recently on this streambank. What evidence-based statement can you make about its current water quality? What questions do you still have?



You may have come to the last page in the field guide, but your NC Stream Watch journey can go as far as your curiosity and determination will take you! What SMART goal might help you take your next steps? Will you upload your findings to NC DEQ's statewide database today? Or take an advanced class? See the back page for more information!



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# IDDE & Good Housekeeping Training for Municipal Employees



REPORTING FOR DIRECT  
EDUCATION MEMBERS



# Mid-Year Financial Check-In

|                             |                  |
|-----------------------------|------------------|
| Allocated                   | 13,785.81        |
| nds                         | 1,053.90         |
| Services                    | 110.00           |
|                             | 11,000.00        |
|                             | (348.00)         |
| ces, Licensing & Fees       | 2,570.78         |
|                             | 56.99            |
| aterials                    | 934.80           |
| t Auto Allowance            | 190.27           |
| & Advocacy                  | 565.03           |
| enefits Allocated-Part Time | 325.15           |
| r Expense                   | 3,675.00         |
| enses Allocated             | <u>15,480.91</u> |
|                             | <b>81,501.38</b> |
| A.R.T                       | 20,485.29        |
| Mass Media                  |                  |
| ocal Governments            | 29,673.00        |
| Grant/Project               | 3,418.75         |
|                             | 618.41           |
|                             | 306.11           |
|                             | <u>309.71</u>    |
|                             | <b>1,234.23</b>  |
|                             | <u>31,857.52</u> |

# Financial Housekeeping

DUES COLLECTED .....\$112K

DUES OUTSTANDING.....\$26K

TOTAL YTD SPENT..... \$82K

*About 60% left for 5 months*





PTRC Indirect  
20%

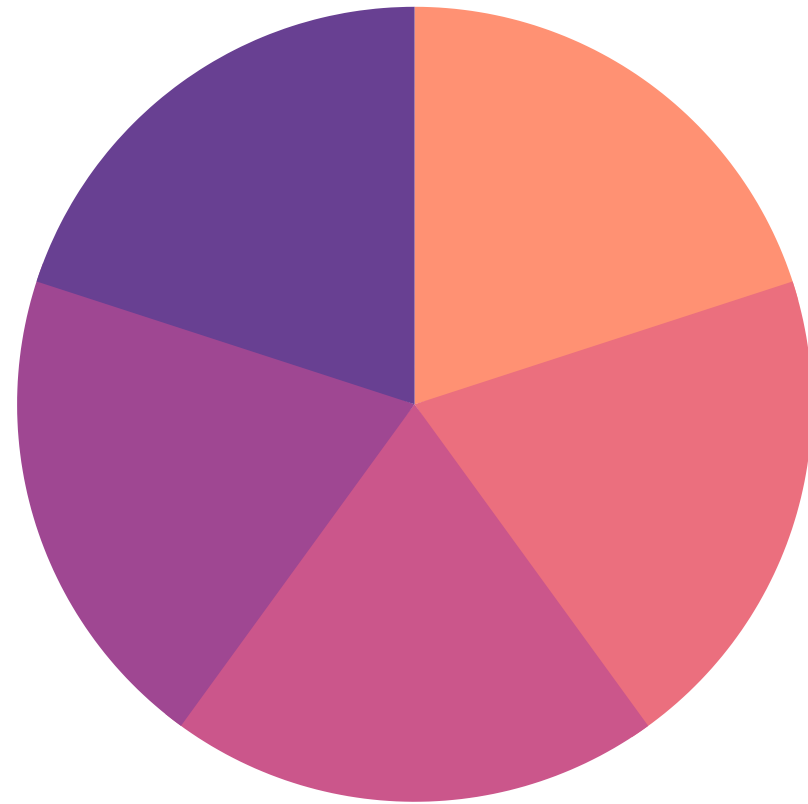
Salary & Benefits  
20%

Supplies  
20%

AmeriCorps  
20%

Mileage  
20%

## MASS MEDIA DUES



## DIRECT EDUCATION DUES

PTRC  
12.3%

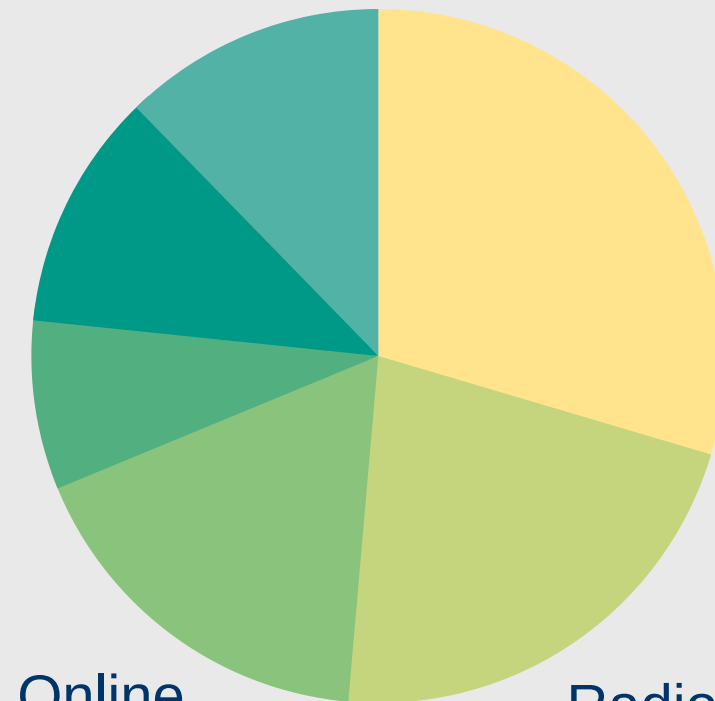
TV/Cable  
29.6%

Brochures  
11.1%

Agency Fees  
7.9%

Online  
17.4%

Radio  
21.8%

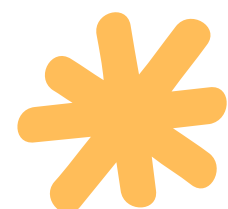


# MASS MEDIA DUES



- Heads Up Letters to be mailed Feb 15
- No insurance fee this year (PTRC Indirect)
- Dues same as FY21 \*

**FY22 BUDGET = \$45,000 \***



assuming scope of service remains similar

|               |         |
|---------------|---------|
| Archdale      | \$2,000 |
| Burlington    | \$4,000 |
| Clemmons      | \$2,000 |
| Greensboro    | \$8,000 |
| FORSYTH       | \$4,000 |
| GUILFORD      | \$4,000 |
| Jamestown     | \$2,000 |
| Kernersville  | \$2,000 |
| Mebane        | \$2,000 |
| Randleman     | \$2,000 |
| RANDOLPH      | \$4,000 |
| Trinity       | \$2,000 |
| Winston-Salem | \$7,000 |



# DIRECT EDUCATION DUES



- Heads Up Letters to be mailed Feb 15
- Combined with Mass Media
- Dues same as FY21

**FY22 BUDGET = \$116,178**



assuming scope of service remains similar

|                      |         |
|----------------------|---------|
| Alamance County      | \$6,330 |
| City of Archdale     | \$4,635 |
| City of Asheboro     | \$5,150 |
| City of Burlington   | \$6,330 |
| Davidson County      | \$7,350 |
| Town of Elon         | \$4,635 |
| Town of Gibsonville  | \$4,120 |
| Town of Graham       | \$4,635 |
| Town of Green Level  | \$3,605 |
| City of Greensboro   | \$8,600 |
| Town of Haw River    | \$3,605 |
| Town of Jamestown    | \$3,605 |
| Town of Kernersville | \$5,150 |
| Town of Lewisville   | \$4,635 |
| City of Mebane       | \$4,635 |
| Town of Oak Ridge    | \$4,120 |
| City of Randleman    | \$3,605 |
| Randolph County      | \$6,563 |
| City of Reidsville   | \$4,635 |
| Rockingham County    | \$6,330 |
| Town of Summerfield  | \$4,635 |
| City of Thomasville  | \$5,150 |
| City of Trinity      | \$4,120 |

# FINANCIAL DISCUSSION



Jesse Day, Regional Planning Director

**How has Covid-19 changed budgets for FY22?**

**What is the value of SwS service and how does it compare with the cost of membership for FY22?**

