RICHLAND CREEK WATERSHED ACTION PLAN

STORY MAP COMPANION GUIDE
AUGUST 2021

PIEDMONT TRIAD
REGIONAL COUNCIL

CONTENTS

EXECUTIVE SUMMARY

The Piedmont Triad Regional Council (PTRC) worked in 2020-2021 to compile the EPA 9-element watershed plan in partnership with various City of High Point Departments (Public Services, Stormwater, Keep High Point Beautiful, Parks & Rec and Planning), Southwest Renewal Foundation of High Point, Guilford County Departments (Stormwater, Soil & Water Conservation District), NC Dept of Transportation, NC Wildlife Resources Commission, NC Division of Water Resources and Piedmont Triad Regional Water Authority. This plan works to identify the issues affecting the Richland Creek water quality, setting a goal for reductions to be achieved through various best management or on-the-ground practices or projects.

This Companion Guide contains the watershed action plan information, findings and proposed steps for improving the Richland Creek watershed. Reference this along with the interactive online Story Map and the Richland Creek Action Plan found on the PTRC website. These tools allow for ongoing feedback and access for up-to-date data and information.

We look forward to hearing how hearing how you apply this information to improve the water quality of Richland Creek!

GRACE MESSINGER

Project Coordinator, Piedmont Triad Regional Council

WATERSHED ACTION PLAN

The Richland Creek Watershed Action Plan:

1. Provides strategies for assessing water quality problems; implementing solutions to restore water quality; identifying preventative measures to protect the watershed from future degradation.

2. Identifies opportunities for land acquisition, conservation easement, and public/private opportunities for stormwater control measure implementation projects.

3. Establishes priorities, identifies funding opportunities, coordinates partners and policies (ordinances), and establish timelines for implementation.

4. Supports existing watershed restoration, community redevelopment efforts and incorporation of green infrastructure as a model to improve quality of life, water, natural resources and a sense of community in a watershed located in the City of High Point.

In partnering with NC DEQ Division of Water Resources (DWR), this plan will be accessible via an online Story Map that meets all the U.S. Environmental Protection Plan 9-element plan requirements. Hosting the Plan in this format ensures that the information is accessible to a larger audience and allows the readers to engage and interact with the material.

PLAN PURPOSE

The Richland Creek Watershed Plan was developed in consultation with local stakeholders to guide water quality improvements and coordinate restoration efforts. The plan investigates potential sources of pollution in the watershed and identifies collaborative, cost-effective strategies to enhance and protect surface waters.

The top priority is to reduce bacteria contamination in Richland Creek watershed up to 82% through the implementation of stormwater control measures and community engagement.

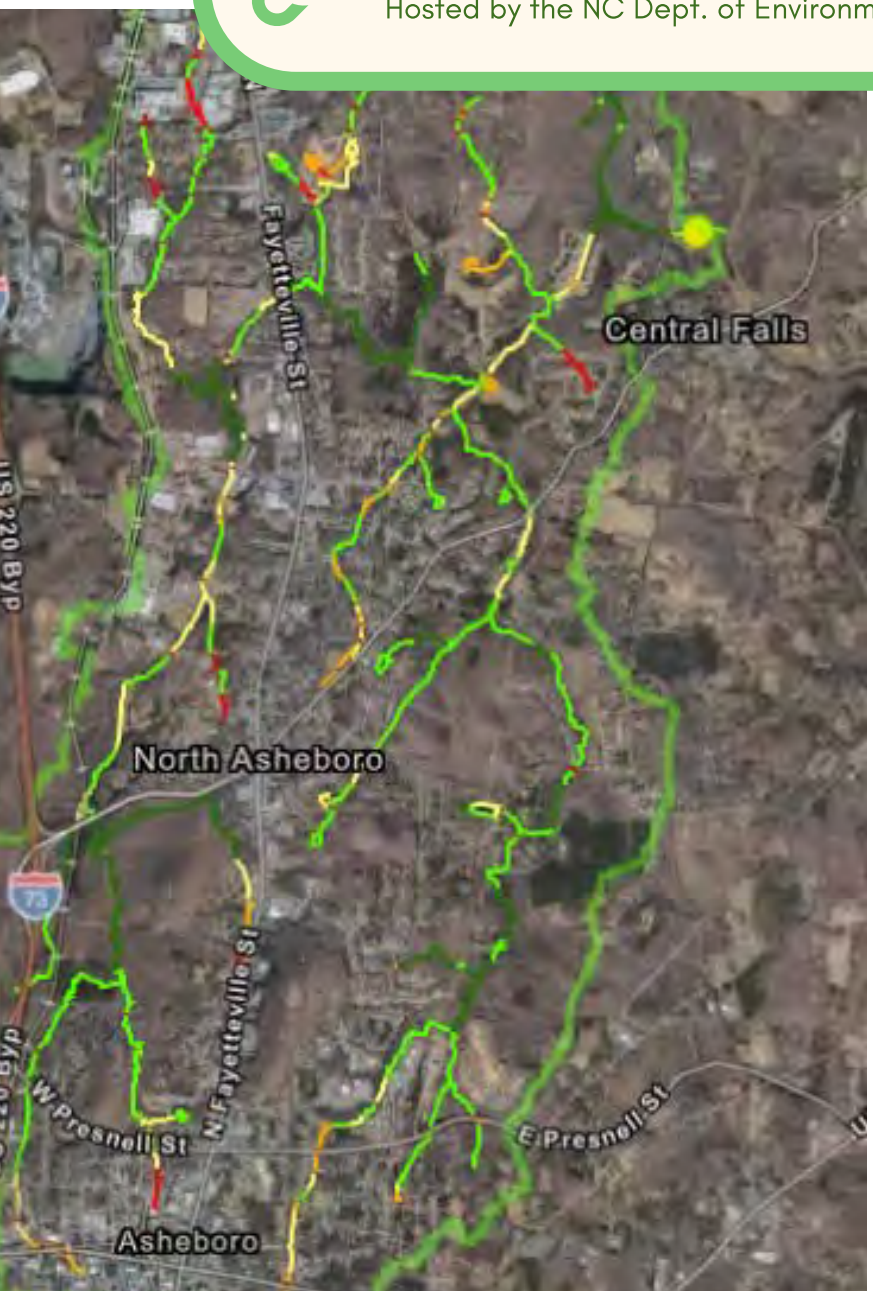
This dynamic plan has two main components: the online Story Map and Companion Guide. Both are accessible to the public online will be updated and revised as new information, challenges, or opportunities arise.

The Story Map summarizes major findings and recommendations from the plan and provides tools and resources to easily track progress and implementation.

RICHLAND CREEK STORY MAP

LINK HERE TO ACCESS THE STORY MAP

Hosted by the NC Dept. of Environmental Quality



Richland Creek Story Map contains interactive maps and information of the watershed coupled with researched static information and data. Below are the main topics that can accessed through the Story Map, while this companion report offers additional information related to the various topics. The recommendations in the Plan fall into three main categories:

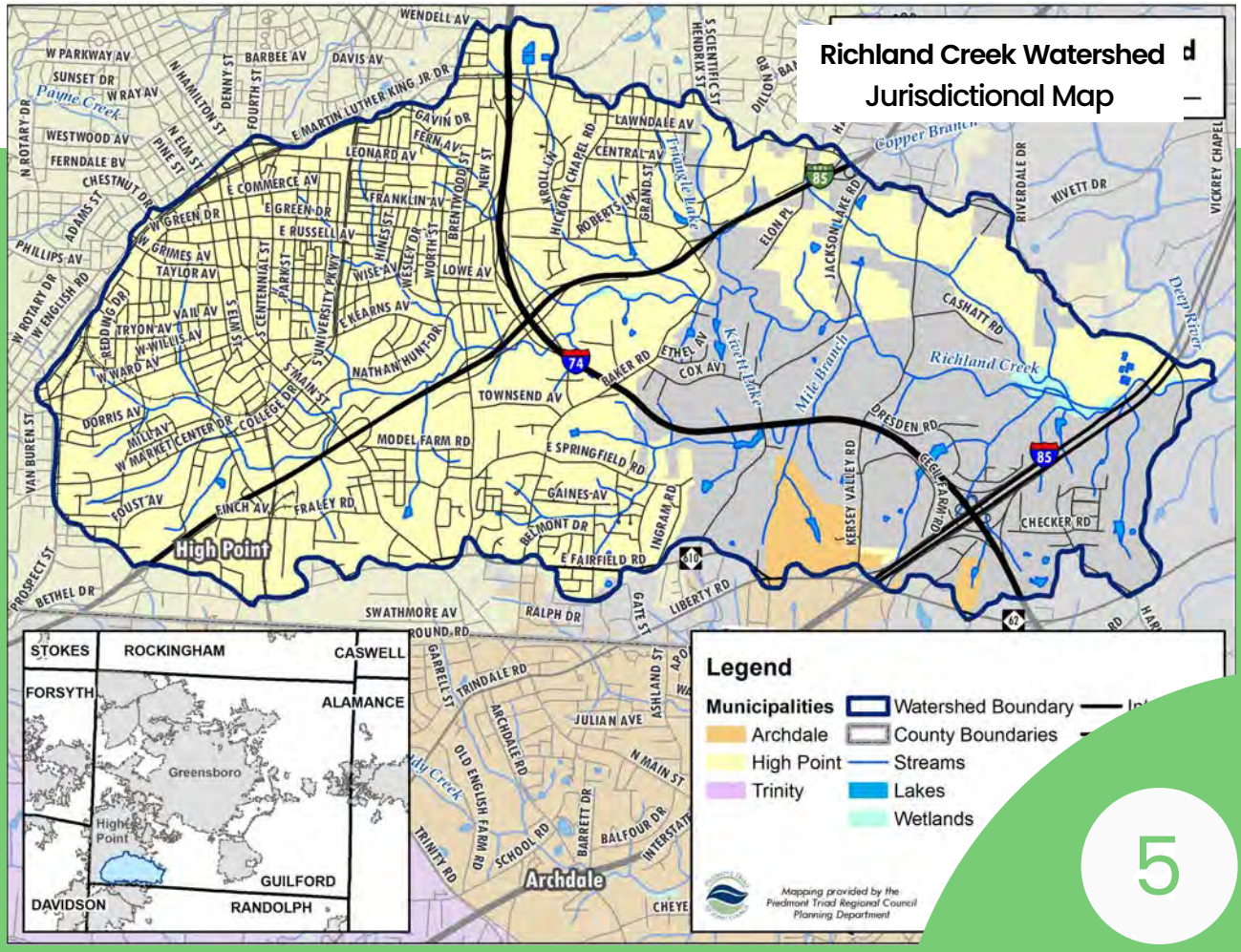
- **Green Infrastructure Projects:** Guidance for stormwater control measures along the proposed Southwest High Point Heritage Greenway
- **Streambank Restoration:** Proposed improvements for areas with advanced erosion
- **Community Involvement:** Opportunities for education and outreach to help residents get involved in pollution prevention and cleanup efforts.

WATERSHED OVERVIEW:

GEOGRAPHY

Richland Creek and its tributaries are located within Guilford County, North Carolina, in the Piedmont region. The headwaters originate in the southeastern section of the jurisdictional area of the City of High Point and flow eastward under Business I-85, parallels I-74 and flows under I-85. It includes a drainage area of approximately 16 square miles comprised of the City of High Point's urban area and primarily rural area of the unincorporated area of Guilford County.

It is a headwater tributary to the Deep River located within Guilford County to the north of Randolph County. These streams and watershed are part the Cape Fear River Basin. Richland Creek watershed is one of six watersheds within the City of High Point. Nineteen percent of High Point is within the Richland Creek watershed boundary, along with a small portion in the northern section of Archdale.



WATERSHED OVERVIEW:

HISTORY

PHOTO CREDIT: Highland Yarn Mills; Historical Marker Database,

A significant piece of this region's history involves the industrial legacy of the **Highland Cotton Mill.** one of first planned neighborhoods in High Point.

"Because they were dependent on water power, North Carolina's early textile mills were built along streams, mostly in rural areas."

The Industrial Legacy of High Point, NC and Highland Cotton Mills Village by Laura Phillips

The City's website notes that the Highland neighborhood was established in 1913 by Highland Cotton Mill. All the houses, a total of about 150, were built by the Mill. At least one family member had to work for the mill for a family to live in one of the houses. Around 1962 the Mill sold the houses to employees. The Mill closed in the 70s. People who bought the houses have either passed away, or moved away. The families of the ones who passed away did not want to live in them, so they rented or sold them resulting in a very diverse neighborhood. It is now on the National Register of Historic Places.

A wooden sign says Welcome to Historic Highland Village, 1913

WATERSHED OVERVIEW:

IMPAIRMENT CLASSIFICATION

Based on monitoring by NC Department of Environmental Quality (DEQ) Division of Water Resources (DWR) Planning Modeling and Assessment, Richland Creek was initially listed as impaired in 1998 for exceeding fecal coliform. The hydrologic unit code (HUC) for the Richland Creek watershed is HUC-030300030103 and it was listed on the 2002 North Carolina 303(d) impaired waters due to high fecal coliform bacteria and a lack of aquatic life. In 2004 the *Total Maximum Daily Load (TMDL) for Fecal Coliform for Richland Creek and Muddy Creek, North Carolina*, was established requiring an 82% reduction of fecal coliform in order to achieve the designated use classification of WS-IV. This goal needs to be achieved in order to protect drinking water supplies, and to meet water quality standards specified for WS-IV and WS-IV CA waters. Class C, to protect aquatic life and secondary contact recreation.

Impaired Waterbody (2002 303(d) List):

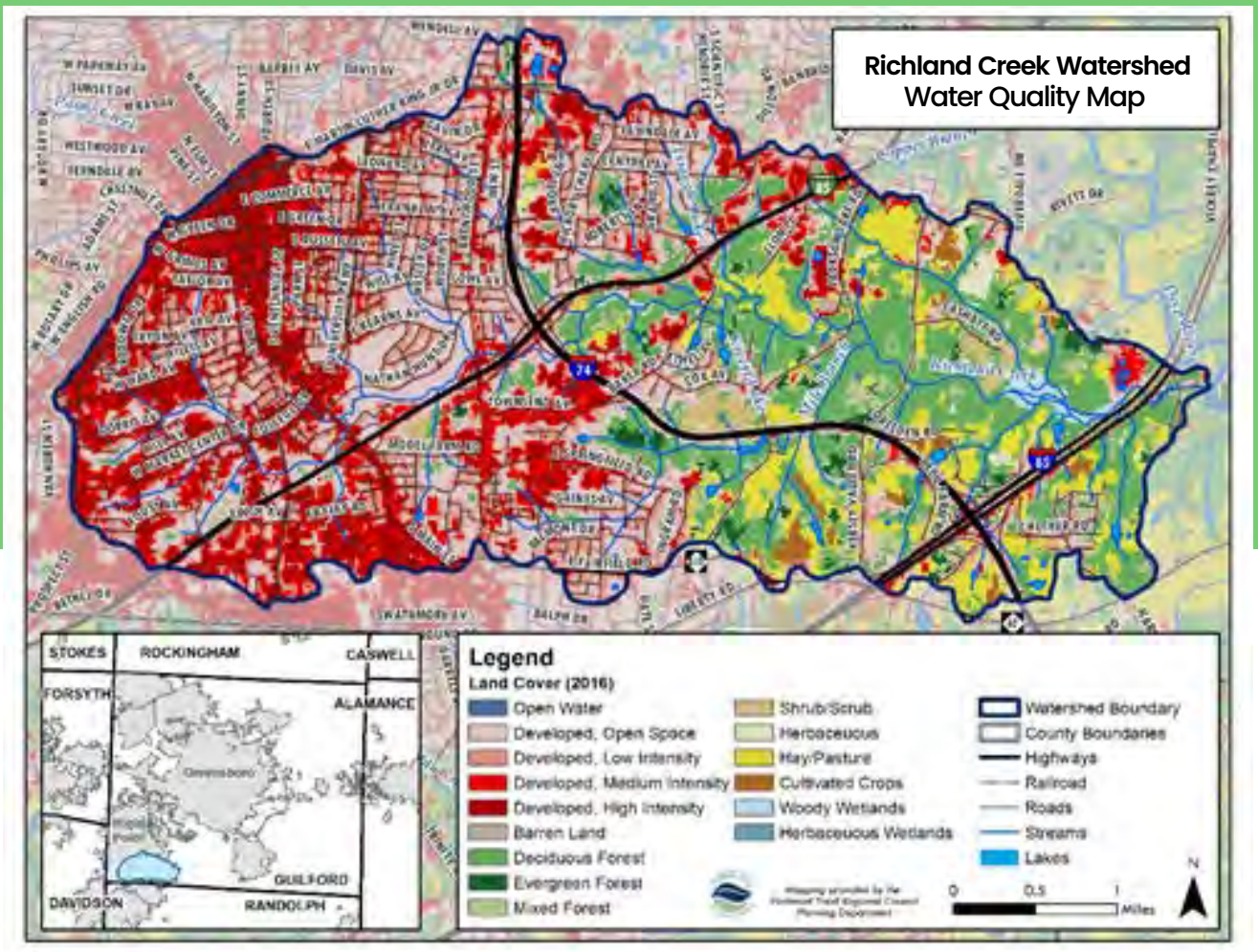
Waterbody Name - (ID)	Water Quality Classification	Impairment	Length (mi)
Richland Creek - 17-7-(0.5)	WS-IV - Aquatic life and secondary contact recreation	Fecal Coliform	6.4
Richland Creek - 17-7-(4)	WS-IV CA- Aquatic life and secondary contact recreation	Fecal Coliform	2.6

Data excerpted from EPA How's My Waterway? https://mywaterway.epa.gov/plan-summary/21NC01WQ/9799

Photo: Tributary of Richland Creek at Southside Recreation Greenway, March 17, 2021

WATERSHED OVERVIEW:

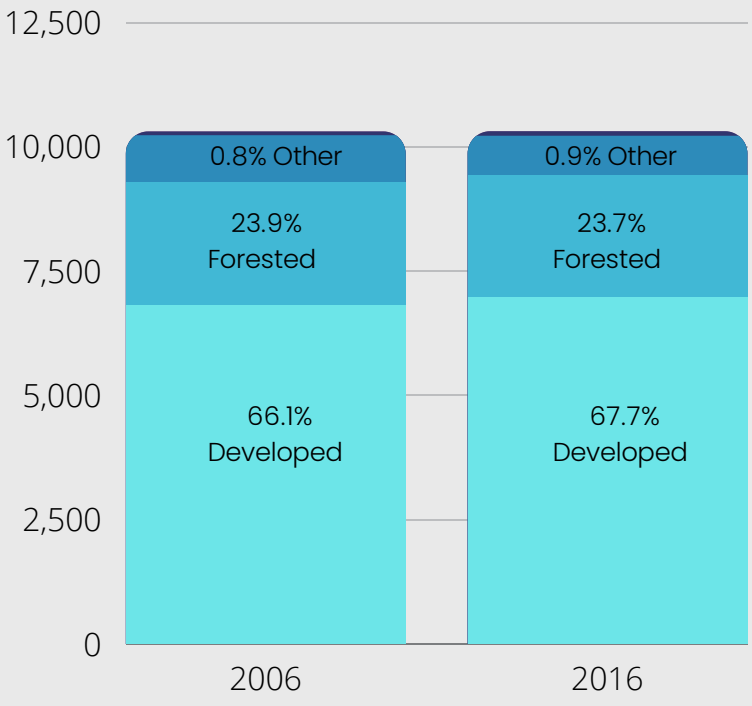
DEVELOPMENT PATTERNS



Based on the 2016 National Land Cover Data (NLCD) for the Richland Creek watershed, the most intense form of development is located within the City of High Point, of which development patterns include low, medium and high intensity development. This area also contains the headwaters of Richland Creek and correlates to the "highest" point of the watershed. In the eastern region of the watershed, it is the more rural area, unincorporated area of Guildford County, where the bulk of the forested, natural areas are located. The few areas of “high intensity development” noted in this area are the Kersey Valley Landfill and the Eastside High Point Wastewater Treatment Plant (WWTP).

RULES FOR LAND COVER

The City of High Point has an approved alternative high density option with the purpose of keeping development pressure out of undeveloped areas of the Randleman Lake water supply area. Through this option the City is encouraging development and redevelopment where infrastructure already exists. Additional information regarding the rules can be found Randleman Lake Water Supply Watershed: Protection and Maintenance of Existing Riparian Buffers.



NATIONAL LAND COVER DATA: COMPARSION 2006 TO 2016

With total population in Richland Creek watershed of 10,304. Chart includes Developed (low, med, high intensity; Forest- Vegetated; Agriculture (hay, crop, cultivated); Other (water, wetlands, barren)

DEVELOPMENT:

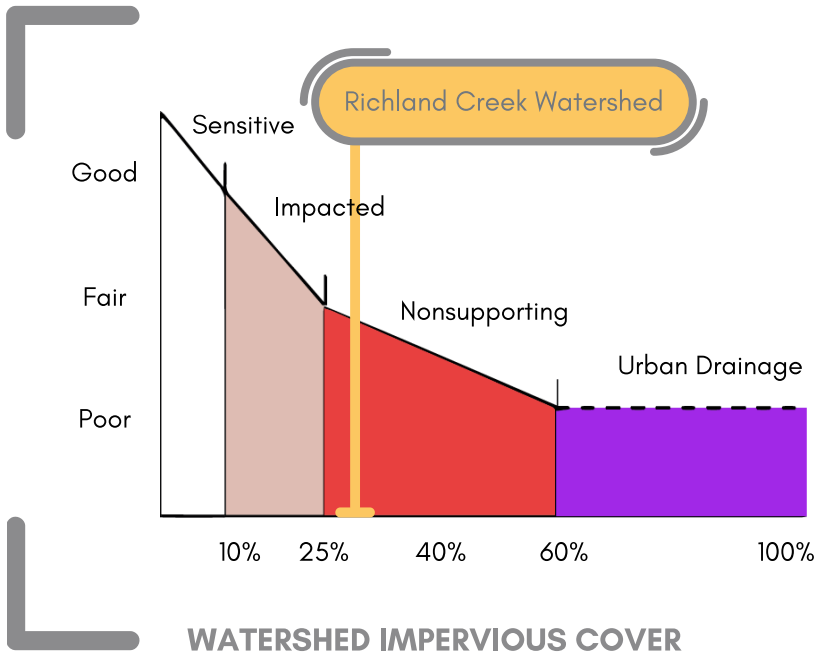
IMPERVIOUS COVER

Impervious surfaces such as roads, parking lots and roofs have a direct correlation to the developed regions of the watershed. The more impervious surfaces that exist, the less likely it is that water will properly soak into the ground. Instead, water remains on the surface after rain events, resulting in a significant increase in the volume of stormwater that runs off the land.

Impervious cover results in additional flooding, increased erosion, higher stream temperatures, and transport of pollutants that affect aquatic species. According to research from the Center for Watershed Protection, streams can be negatively impacted when impervious surfaces exceed 10% of a watershed, and streams in watersheds with over 25% impervious cover typically cannot support aquatic life. These ecological impacts can be offset by increasing greenspace, encouraging infill and redevelopment, and by encouraging low impact development through the use of stormwater control measures or green infrastructure.

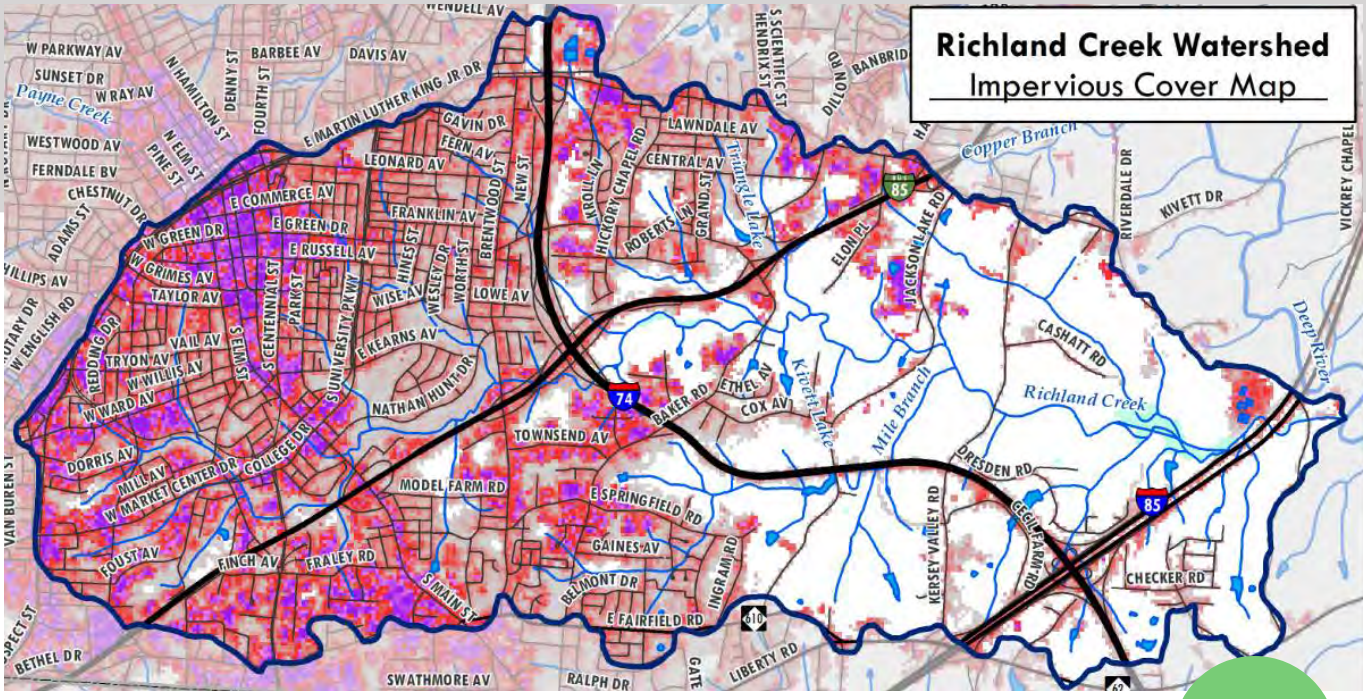
DEVELOPMENT:

IMPERVIOUS COVER



WATERSHED IMPERVIOUS COVER

Richland Creek Watershed is considered 28.2% impervious, with its largest concentration of "gray area" in the western half of the watershed. This is where the highest and most intense development is located.



100% HIGH

0-10% LOW

PROTECTIONS

Richland Creek is designated as Class C Water Supply (WS) Class IV waters. From its headwaters to confluence of Deep River it flows 9.0 miles; this drains into Randleman Reservoir. Between the main stem and tributary reaches, including Mile Branch, this combines to be about 43 miles. The Creek drains 16 square miles of the watershed. It is referenced as a HUC-12 at #030300030103. There is a one-point source discharger, the Eastside High Point Wastewater Treatment Plant (WWTP), owned and operated by the City of High Point.

This photograph from March 17, 2021 shows signage along the Southside Recreation Greenway in High Point.

Class C waters are protected for secondary recreation, fishing, wildlife, fish consumption, aquatic life including propagation, survival & maintenance of biological integrity, & agriculture.

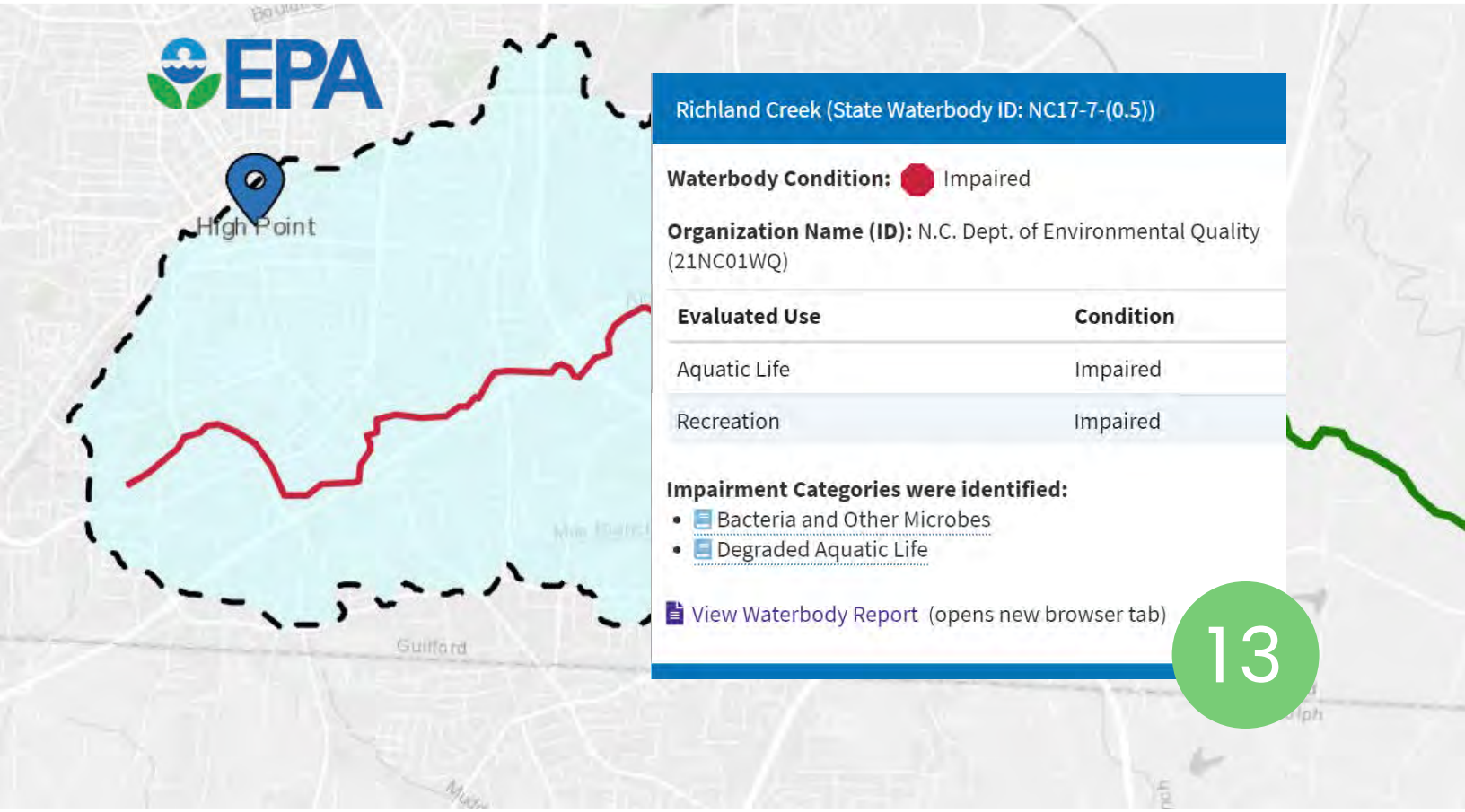
PROTECTIONS:

AQUATIC LIFE AND RECREATION IMPAIRMENTS

Swimming | **Eating Fish** | **Aquatic Life**

Degraded aquatic life (impaired biota) means that the biological community normally expected in a lake, stream or other waterway is unhealthy, much reduced, or absent.

Bacteria and other microbes (pathogens) are potentially disease-causing organisms from human or animal waste that enter water from faulty septic systems, sewage discharges, farm and feedlot manure runoff, boat discharges, and pet waste. People can become ill by eating contaminated fish or shellfish or swimming in waters with high levels of these microbes.

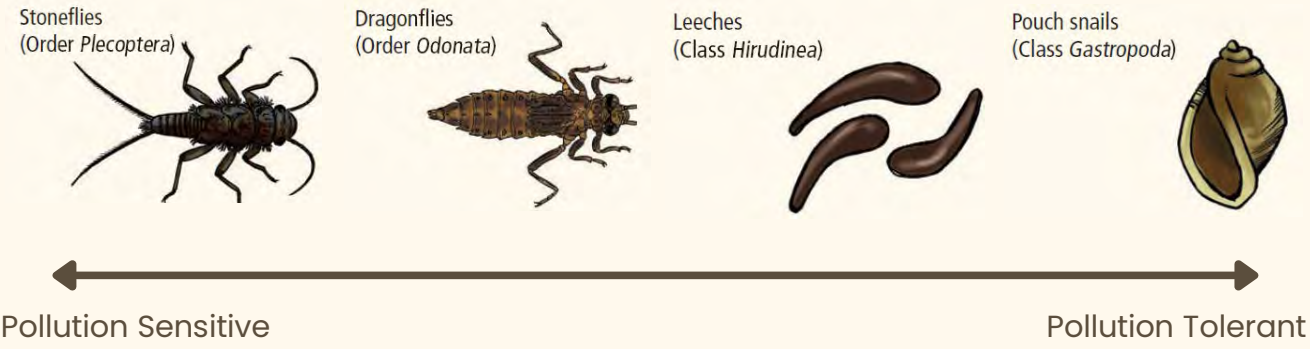


WATER QUALITY INFORMATION:

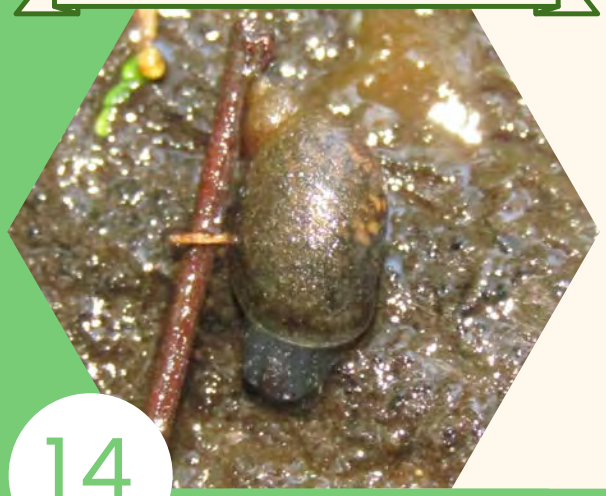
BIOASSESSMENT & CLASSIFICATION

Benthic macroinvertebrates (benthos) are small aquatic invertebrates sampled to determine water quality conditions. Each waterbody receives a bio-classification rating (Excellent, Good, Fair or Poor) based on the amount and diversity of benthos found from sampling.

Between 1983 and 2003, two sampling sites revealed a Poor-to-Fair biological rating for Richland Creek. NC DWR's Biological Assessment Branch regularly conducts biological sampling across the state to monitor water quality conditions.



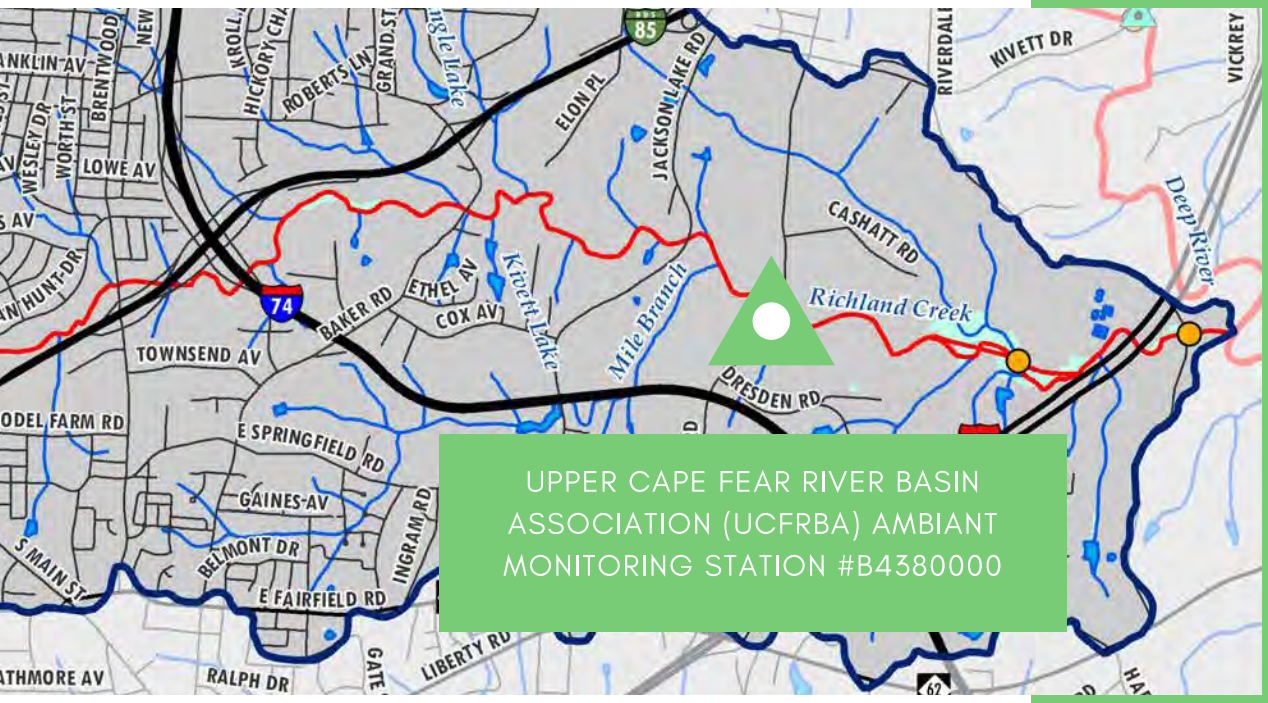
POUCH SNAIL IN RICHLAND CREEK WATERSHED (SEPT 2020)



Healthy waterbodies support a wide variety of **pollution sensitive** and **pollution tolerant** species in high quantities. While leeches and pouch snails are expected throughout healthy waterways in the Cape Fear River Basin, it is *the lack of* abundant pollution-sensitive aquatic macroinvertebrates that results in a poor bio-classification.

WATER QUALITY:

CURRENT MONITORING



Richland Creek Water Quality Map (016)

Richland Creek watershed is part of the Upper Cape Fear River Basin Association (UCFRBA) coalition monitoring network, where 1 ambient monitoring station – #B4380000 is monitored monthly for physical, chemical, and biological parameters.

Based on 10 years of water quality data collected at station #B4380000, stormwater runoff and other nonpoint sources of pollution are contributing to the impacts above High Point Eastside WWTP.

Richland Creek is unable to adequately support aquatic life and fails to meet water quality standards for biological and turbidity parameters.

Physical parameters: temperature, pH, conductivity, and dissolved oxygen

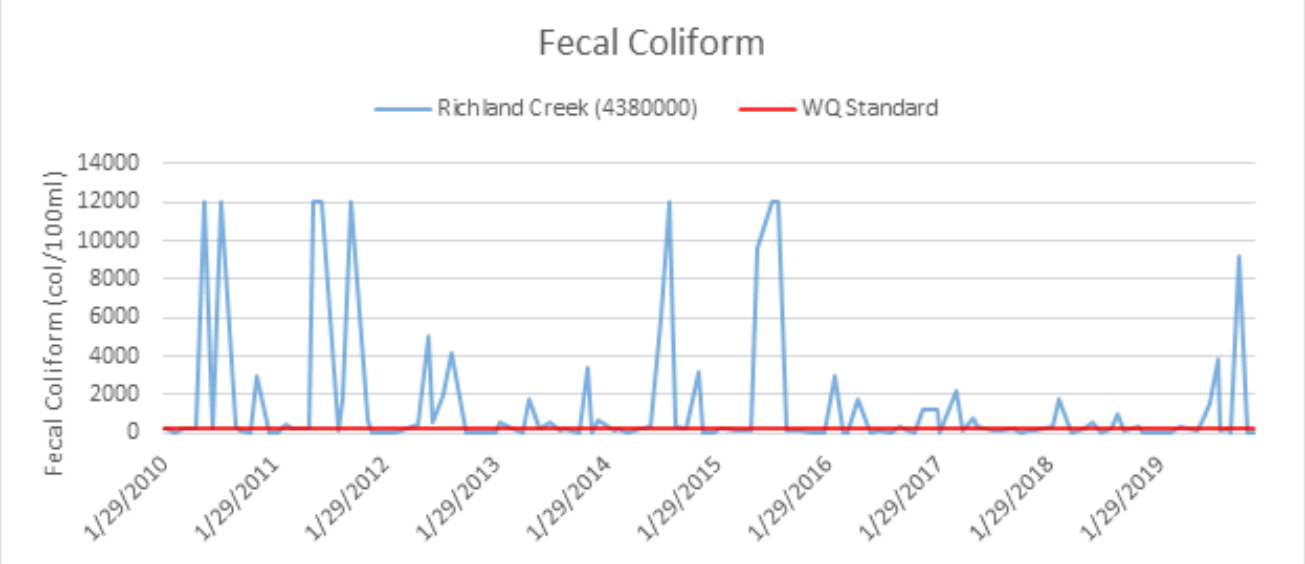
Chemical parameters: Total Suspended Residue (TSS), turbidity, Total Nitrogen and Total Phosphorous

Biological parameters: fecal coliform

WATER QUALITY MONITORING:

FECAL COLIFORM BACTERIA

UCFRBA Station #B4380000



Potential Sources of Fecal Coliform

Human: failing, leaking or old public sewer systems or septic systems

City of High Point includes areas of aging infra-structure. These areas can be significant sources of fecal coliform during low flow periods. During heavy rain events, there can be leaking sewers due to increased infiltration and subsequent sanitary sewer overflows. (Total Maximum Daily Loads for Fecal Coliform for Richland Creek and Muddy Creek, North Carolina, February 2004.)

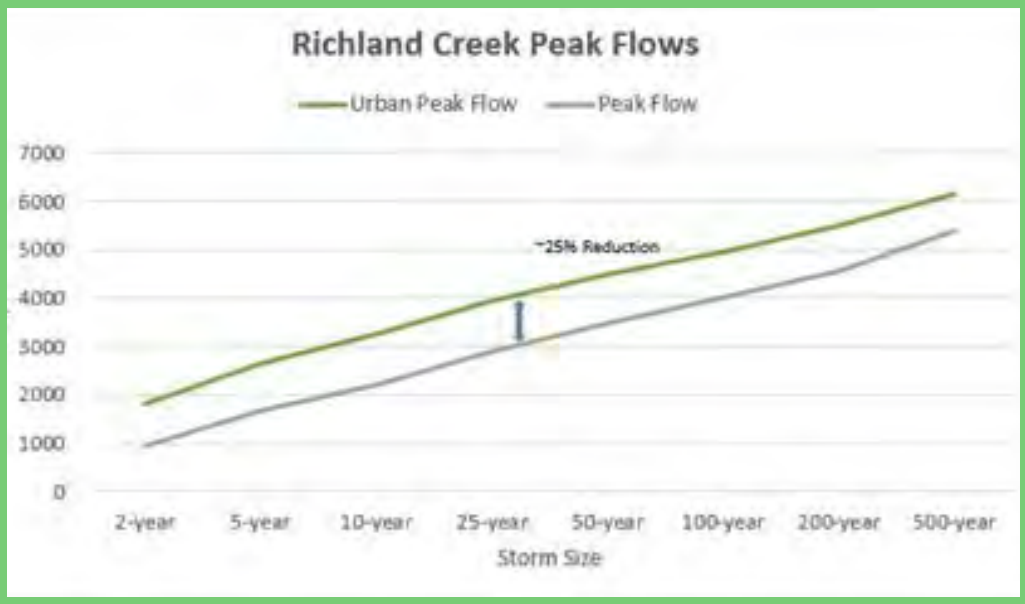
Non-human: domestic pet or animal waste (pigs, cows, geese, wildlife, etc.), transported thru stormwater runoff

WATER QUALITY MONITORING:

TURBIDITY

UCFRBA Station #B4380000

High turbidity and sedimentation can kill algae, a major food source for benthic macro-invertebrates, and smother benthic organisms and fish eggs. Generally, high turbidity is caused by unmanaged stormwater runoff, soil erosion of streambanks and a lack of riparian (or vegetated) buffers



Peak storm-water flows in the Richland Creek water-shed are about 25% higher than average based on soils and precipita-tion for this region.

In urban areas, increased peak stormwater flows can primarily be caused by the higher concentration of impervious surfaces. To best address address water quality concerns from stormwater runoff, a 25% reduction in stormwater flows is recommended. This Watershed Action Plan's recommended management measures are intended to help meet this goal and are prioritized based on their ability to be implemented and reduce stormwater loads.

WATER QUALITY MONITORING:

TMDL MONITORING EFFORTS

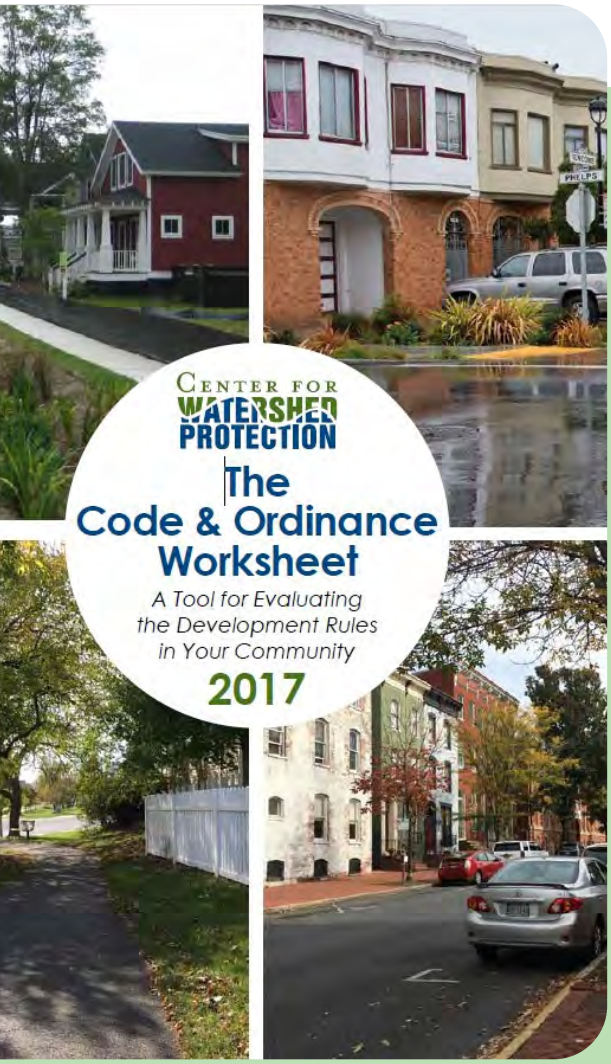
City of High Point Water Quality Sampling locations

The City of High Point conducts quarterly water quality sampling at 12 sites along Richland Creek. Each of the site is sampled once per week for five consecutive weeks. These samples are analyzed for fecal coliform.

Stormwater staff analyze season, weather conditions and land use to determine best management practices for mitigating fecal coliform bacteria in the Richland Creek watershed. Geometric means are used to assess compliance of numeric targets of the fecal concentrations. Additional sample sites may need to be added going forward to locate potential sources within the Richland Creek watershed.

SOURCE ASSESSMENT: LOCAL GUIDANCE

The Code and Ordinance Worksheet (COW) is a set of questions that was developed by the Center for Watershed Protection (CWP) to help communities systematically review local development regulations with the goal of reducing impervious cover, conserving natural areas, and preventing stormwater pollution. Questions are tailored for different community types (rural, suburban, urban, and highly urban) and cover four main topic areas: residential streets and parking lots, lot development, conservation and natural areas, and runoff reduction.



Development ordinances for the City of High Point and Guilford County were scored using the COW to better evaluate how well natural resources are currently being protected and identify opportunities for policy improvements. **The CWP generally recommends that local governments aim for a score of 80% or above.**

56%

City of High Point = 72 /127 points

64%

Guilford County = 71.5/111 points

61%

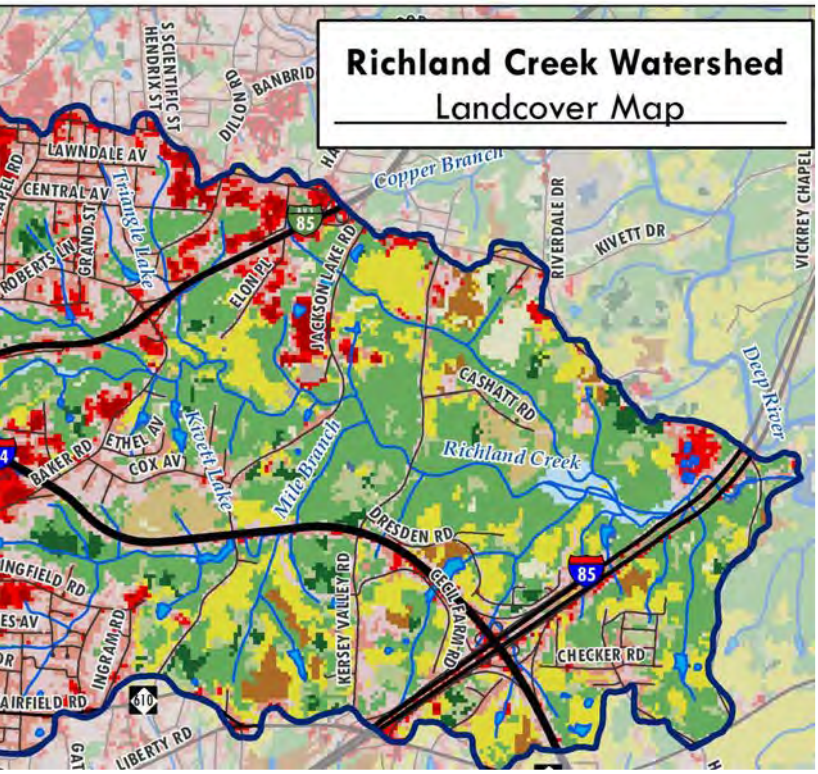
Combined, both jurisdictions achieved 143.5/237

SOURCE ASSESSMENT: LOCAL GUIDANCE

Code and Ordinance Worksheet Results Table

			High Point		Guilford County	
	Category	Possible Points	Points Achieved	Percentage	Points Achieved	Percentage
Residential Streets and Parking Lots	Street Width	3 | 2	1	33%	1	50%
	Street Length	1 | 1	1	100%	1	100%
	Right-of-Way	3 | 2	1	33%	1	50%
	Cul-de-Sacs	5 | 5	3	60%	2	40%
	Vegetated Open Channels	2 | 1	2	100%	1	100%
	Parking Ratios	2 | 2	0	0%	0	0%
	Parking Codes	6 | 4	2	33%	3	75%
	Parking Lots	5 | 5	4	80%	2	40%
	Structured Parking	1 | 0	0	0%	NA	NA
	Parking Lot Runoff	7 | 7	5	71%	5	71%
		35 | 29	19	54%	16	55%
Lot Development	Open Space Design	10 | 10	8	80%	9	90%
	Setbacks and Frontages	2 | 2	2	100%	2	100%
	Sidewalks	5 | 5	2	40%	3	60%
	Driveways	5 | 5	1	20%	0	0%
	Open Space Management	9 | 9	4	44%	6	67%
	Rooftop Runoff	7 | 0	3	43%	NA	NA
		38 | 31	20	53%	20	65%
Conservation and Natural Areas	Buffer Systems	9 | 9	7	78%	7	78%
	Buffer Management	5 | 5	3	60%	3	60%
	Clearing and Grading	5 | 5	4	80%	4	80%
	Tree Conservation	10 | 9	2	20%	5.5	61%
	Land Conservation Incentives	4 | 4	4	100%	4	100%
	Stormwater Outfalls	5 | 5	2	40%	2	40%
		38 | 37	22	58%	25.5	69%
Runoff Reduction	Stormwater Codes	8 | 8	6	75%	6	75%
	Installation and Maintenance of Practices	6 | 6	4	67%	4	67%
	Off-Site Compliance	2 | 0	1	50%	NA	NA
		16 | 14	11	69%	10	71%
	Total	**127 | 111**	**72**	**57%**	**71.5**	**64%**

SOURCE ASSESSMENT:
POINT SOURCE



There is one major NPDES permitted discharger, Eastside Waste Water Treatment Plant (WWTP) and one minor NPDES water plant/water conditioning discharger, Frank L. Ward Water Treatment Plant (WTP).

The City of High Point operates the Eastside WWTP plant, with a capacity of 26.0 MGD, 5-Stage Biological Nutrient Removal Facility where the final, disinfected flow is pumped 1.5 miles downstream to the Randleman Reservoir. Sanitary treatment at this location dates back to 1928, Eastside Sewage Plant. Rebuilding and various modifications and upgrades occurred in 1961, 1967 and 2004. The current plant treats and dischargers an average of 16.7 MGD.

Eastside Wastewater Treatment Plant

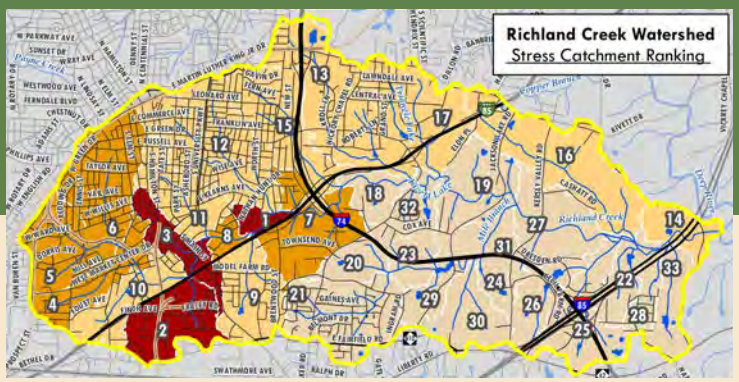
SOURCE ASSESSMENT:

NON-POINT SOURCE

The project team developed a watershed prioritization tool using GIS modeling that would best target and prioritize restoration efforts. Thirteen data layers were analyzed and overlaid on the Stress Catchment Ranking Map

Stress Layers Parameters	
Floodplain	Hydric Soils
High Density of Impact Sites	Large Parcel Size
High Impervious Surface	Low Canopy Cover
High Impact Zoning	Publicly Owned Lands
High Population Density	Stream Buffer Analysis (100-foot buffer)
High Soils Erodibility	Streams & Wetlands
	Steep Slope

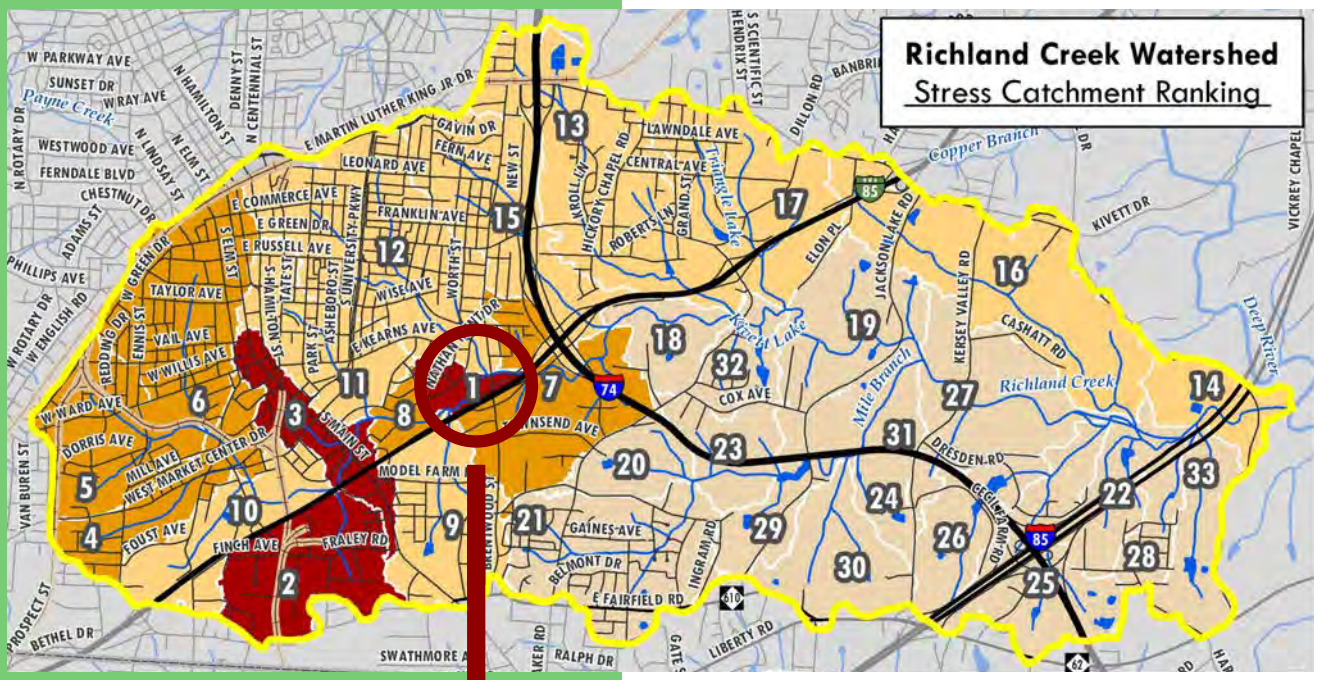
GIS Data Parameters for Stress Assessment



Stress Catchment Ranking Map

This model compares demographic, land use, and environmental characteristics in order to predict where water resources are under the greatest stress from non-point source pollution. Individual catchments are scored and ranked based on the combination of input data and environmental conditions. Catchments with higher concentrations of pollutant sources received a higher score and rank, while those in relatively pristine condition received lower scores and priority.

SOURCE ASSESSMENT: NON-POINT SOURCE



Stress Catchment Ranking Map

The darker red areas have the greatest stress affecting water quality in the Richland Creek watershed. Starting with Catchment #1, these dark red areas are of top priority to address for environmental enhancements.

PTRC completed field assessment of publicly accessible property known for lack of a vegetative buffer. The team identified issues in four main categories:

Erosion

Litter

No Riparian Buffer

No floodplain access (channelized)

SOURCE ASSESSMENT:

NON-POINT SOURCE

Multiple stream segments throughout the Richland Creek watershed have exposed stream banks that are eroding due to stormwater runoff and a lack of vegetation. In particular, there is a lack of woody vegetation to provide adequate buffers and shade. Stream channels have also been altered to protect property from erosion and accommodate roads and other development. This drastically alters the natural flow of the stream and destroys aquatic habitat.

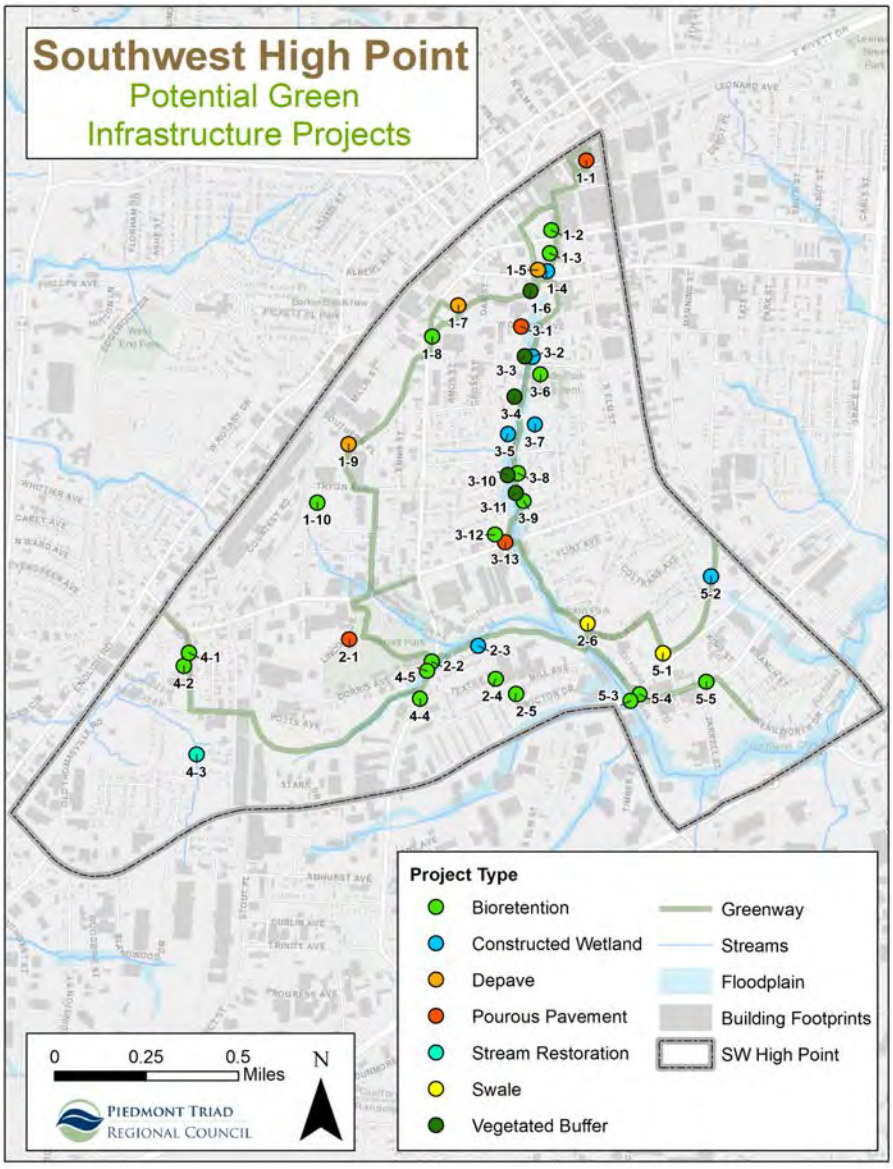
PHOTO: Heavy streambank erosion along Richland Creek within Blair Park Golf Course in High Point, March 2021

Areas of Greatest Need

Rating	Priority #	General Location/Stress Observations
Top 10%	#1	Residential housing; roadways north I-85, between Austin St and Brentwood St up to Burge Place
		Heavy residential, streambank erosion along Richland Creek within Blair Park Golf Course
	#2	South of Bus.-85 into industrial district, contains XYZ railway
		High concentration of impervious surface (parking lots, roofs, roadways, etc.); Richland Creek lacks healthy or functioning riparian buffer
11-25%	#4-6	Straddles I-74 and I-85, west of S. Main St.
		Contains large impervious areas (buildings, parking lots, roofs, road corridors); Richland Creek contained in pipes with little to no access to the surface; Eroded and entrenched streambanks

GREEN INFRASTRUCTURE

PTRC worked with the Southwest Renewal Foundation and communities in Southwest High Point to identify over **40** green infrastructure projects in the areas labeled as "most stressed", including de-paving, constructed wetlands, bioretention, stormwater swales, permeable pavement, stream bank stabilization measures, and more.



Map of SWHP Proposed Green Infrastructure project locations

The best options for improving water quality and overall watershed health will:

- address aging infrastructure
- implement green infrastructure
- install stormwater control measures
- protect or acquire property
- stabilize streambanks
- eradicate invasive species
- establish riparian or vegetative buffers
- engage and educate the community

STORMWATER REGULATIONS

Guilford County is a Phase II NPDES MS4 Tipped County, meaning it is designated as an urbanizing county and they are "tipped in" to just the post-construction portion of the MS4 requirements but do not receive MS4 permits. County staff have been enforcing watershed protection since 1984.

The City of High Point enforces the state water-supply-watershed development regulations for Randleman Reservoir and it is required to follow the National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) permit requirements. Richland Creek drains most of the General Watershed Overlay District and the downstream portions of the watershed which include Randleman Reservoir's Critical Area.

The primary components of a NPDES MS4 permit include program administration, any applicable Total Maximum Daily Load (TMDL) requirements, and programs to address each of the six required Minimum Control Measures (MCMs) as listed below:

- Public Education & Outreach
- Public Involvement & Participation
- Illicit Discharge Detection & Elimination
- Construction Site Runoff Controls
- Post-Construction Site Runoff Controls
- Pollution Prevention & Good Housekeeping

Both the City of High Point and Guilford County could help further protect natural resources by limiting impervious surface cover, conserving existing open space, and requiring stormwater control measures for new development over a certain size. Landscaping requirements could also be amended to help reduce stormwater runoff.

RIPARIAN ASSESSMENT

A riparian buffer is a vegetated area along a stream or other waterbody. These vegetated areas help shade and partially protect streams from the impact of adjacent land uses. Riparian buffers filter nutrients and other pollutants, lower water temperature, improve aquatic habitat, reduce flooding, stabilize streambanks and enhance areas for recreation and wildlife.

Riparian buffer conditions in the Richland Creek watershed were evaluated using a combination of aerial imagery and tree canopy data from the National Land Cover Database (NLCD). Stream segments were classified as Pristine, Impacted, Managed, Degraded or Absent based on the level of vegetation present at each section. The results of riparian buffer assessment for Richland Creek watershed area shown below

Buffer Classifications	% identified in Richland Creek
Pristine Buffer	2%
Impacted and Degraded	64%
Managed Human Activity	17%
No Riparian Buffer	16%

IMPACTED BUFFERS

Piped streams + lots of impervious cover = Increased Stormwater Impacts

Lack of healthy buffer+ Invasive vegetation = Poor Water Quality

GOOD BUFFER

ROLES & RESPONSIBILITIES

Watershed Action Plan Team

These are core stakeholders that will include the WAP project manager and other paid professionals with programs in the WAP area. This group could also include many other stakeholders in the WAP area. Responsibilities can include:

- Implementation Plan Review
- Continued WAP Development
- Technical assistance on funding for Implementation plans
- Assist Project Manager
- Provide training
- Provide data and information to enhance the WAP

Watershed Action Plan Project Manager

The person responsible for:

- Developing the initial plan framework
- Start Continued Plan Development process
- Updating and coordinating information from the Continued Plan Development process.
- Review of Implementation Plans
- Monitoring

COMMUNITY OUTREACH & EDUCATION: LEARN! HELP! HAVE FUN!

The City of High Point Stormwater Department knows that those who live, work, and play in the Richland Creek Watershed want to enjoy water that is clean and healthy; yet people of all ages are often unaware of the impacts of our stormwater runoff on local waterways, and the simple things we can all do to prevent stormwater pollution. There are several ways for members of the public to learn, help, and have fun while participating in the watershed plan for Richland Creek.

LEARN!

City of High Point maintains an informative website addressing frequently asked questions about stormwater, while Stormwater staff provides hands-on lessons in classrooms, summer camps, and other community learning centers. Staff welcome opportunities to provide outreach at public speaking engagements, workplace Lunch and Learns, fairs and festivals and other tabling events.

HELP!

Volunteers remind everyone that it's everyone's job to support a healthy community. Stream cleanups and storm drain marking are ways to keep litter out of the water and prevent illegal dumping in our storm drains. Learn more about how you can volunteer with Adopt-A-Stream and Keep High Point Beautiful!

Adopt-a-Stream volunteer activity with school-aged children in High Point

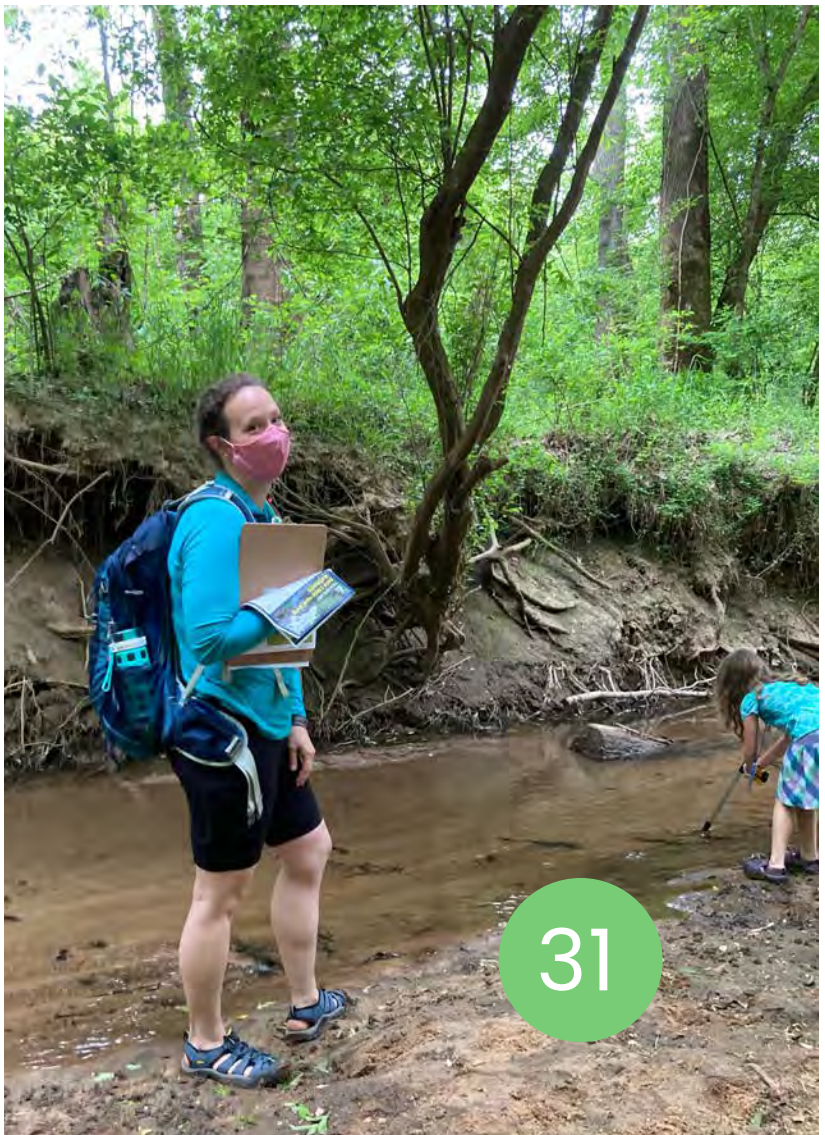
Everyone can help reduce the excess sediment, nutrient load, and chemical contamination in our waterways by practicing responsible lawn care at home and properly disposing of fluids and waste.

Getting outside and enjoying nature is an important point of life in the Richland Creek watershed. Guilford Creek Week is an annual event taking place in the spring that gives everyone an opportunity to have a wonderful, waterful time!

HAVE FUN!

You don't need to wait for spring to have fun in the watershed. City of High Point's Stormwater Scavenger Hunt is a great activity for families to do together in their neighborhoods to get to know their stormwater system!

NC Steam Watch is another way to get outside and enjoy time with friends and family, and provides a purpose to every streamside walk. The program was created by NC DEQ as a network for communities, with a platform to share information and to start making observations of the stream health.



PARTNERSHIPS

Richland Creek is one of six watershed in the City of High Point. High Point implements and manages a Stormwater Program that addresses components of the Phase II Stormwater Management Program. The City strives to educate the public on stormwater pollution and prevention through a variety of avenues. Stormwater staff is available for public speaking engagements, K-12 school programs, Lunch and Learns, tabling events, summer camp and daycare programming and any other groups interested in a professional presentation or an educational program. Additional information addresses sediment, responsible lawn care, proper disposal of trash & chemicals, automotive care & maintenance as well as pool maintenance and draining can be found under Stormwater Pollution: Help Protect Local Waters. With public education and outreach being a component of the program, the City encourages and offers volunteer opportunities such as:

- Keep High Point Beautiful, an official affiliate of Keep America Beautiful, is a program providing volunteer opportunities for all types of groups, businesses or citizen involvement to improve the health of the watershed. Over the past 10 years, KHPB has removed 60,000 + pounds of litter, debris and large discarded items in the region
- Storm Drain Marking: a good one-time activity to label and visually remind people of the connection that storm drains have with water quality of rivers, lakes and reservoirs
- Adopt-A-Stream/Adopt-A-Street/Adopt-A-Area: volunteers "adopt" a particular section of stream, street, or area in the City and conduct clean-ups of that site; helps to reduce the amount of litter or debris in the watershed

GOALS, OBJECTIVES & ACTIONS FOR LOCAL & REGIONAL STAKEHOLDERS

The Richland Creek Watershed Action Plan's goal is to collaboratively work with the City of High Point and Guilford Count to reduce or minimize the fecal coliform contamination with a sub-set goal to improve aquatic habitat by reducing stormwater impacts. Objectives and actions were identified by a team of local and regional stakeholders that will be responsible for the implementation of this plan, including the City of High Point, Guilford County, Southwest High Point Renewal Foundation, Keep High Point Beautiful, Guilford County Soil & Water Conservation District, NC Wildlife Resources Commission, and NC Division of Water Resources. This chart will continue to be updated as the needs of the watershed change and action items are completed.

GOAL

Reduce bacterial contamination in Richland Creek by 82%.

OBJECTIVES

The efforts needed to the reduce bacterial contamination include:

1. Reduce peak stormwater flows by at least 25%
2. Protect and restore riparian buffers along creeks & tributaries
3. Identify and preserve underutilized, abandoned parcels or open space
4. Identify sources of bacterial contamination
5. Continue to expand water quality monitoring
6. Enrich public knowledge with educational activities

ACTIONS

The specific steps needed to reduce bacterial contamination. For further detail, please visit the *Richland Creek Action Plan*

OBJECTIVE 1

Reduce peak stormwater flows by at least 25%

ACTIONS

- Implement identified stormwater control measure projects as highlighted in the Southwest High Point Green Infrastructure Plan
- Identify additional stormwater retrofit opportunities on public properties
- Support the City of High Point's Urban Forestry Committee
- Encourage stormwater reduction measures in future capital improvement projects
- Work with NC Department of Transportation to incorporate retrofits into highway upgrades
- Develop cost share/incentive program to encourage SCMs on private property
- Inventory existing stormwater network
- Work with businesses and homeowners to disconnect roof drains and/or to identify stormwater retrofit opportunities
- Continue to encourage the use of LIDs measures for new or redevelopment, as site appropriate
- Incorporate watershed plan recommendations into other City/County plans
- Identify maintenance priorities for stormwater conveyance repairs and consider retrofits to increase infiltration.

OBJECTIVE 2

Protect and restore riparian buffers along creeks & tributaries

ACTIONS

- Implement identified riparian buffer improvement projects using native plants
- Stabilize eroding stream banks with native plants and materials
- Groundtruth riparian buffer assessment to identify additional riparian buffer improvement and stream restoration projects
- Reference High Point Stream Improvement Planning and Feasibility Study (June 2020) as compiled by the City
- Partner with Parks & Rec to consider ecological restoration options for Richland Creek as it flows through Blair Park Golf Course
- Eradicate invasive species in identified BMP locations prior to restoration, couple with extensive treatment regime
- Identify buffers as a priority in other ordinances and plans
- Develop cost share/incentive program to encourage businesses and homeowners to restore buffers on private property
- Coordinate buffer improvements with floodplain protection, utility easements, and trail programs

ACTIONS

The specific steps needed to reduce bacterial contamination. For further detail, please visit the *Richland Creek Action Plan*

OBJECTIVE 3

Identify and preserve underutilized, abandoned parcels or open space

ACTIONS

- Work with Guilford County, City of High Point and other partners to prioritize and acquire land for conservation
- Use Code & Ordinance Worksheet to identify other opportunities to improve open space protections in City/County ordinances
- Identify potential incentives to encourage open space preservation and/or acquisition of easements.
- Implement floodplain protection and trail opportunities to meet conservation goals

OBJECTIVE 4

Protect and restore riparian buffers along creeks & tributaries

ACTIONS

- Work with Guilford County Health Department to identify areas of failing septic systems
- Obtain funding to offset costs of installing alternative on-site wastewater systems and/or investigate options available to homeowners
- Increase education and outreach to homeowners about responsibility for on-site wastewater system maintenance and functionality
- Assist City in endeavors to further address public sanitary issues
- Install additional pet waste stations in neighborhoods and/or parks

OBJECTIVE 5

Continue to expand water quality monitoring

ACTIONS

- Encourage sharing of Upper Cape Fear River Basin Association coalition data with appropriate High Point staff and departments
- Incorporate more consistent sharing of sampling data and results amongst partners for sake detection of issue concerning WQ
- Research technologies appropriate to better identify source of fecal coliform impairments
- Offer NCDWR- WIPS and SCITS trainings for application in field

ACTIONS

The specific steps needed to reduce bacterial contamination. For further detail, please visit the *Richland Creek Action Plan*

OBJECTIVE 6

Enrich public knowledge with educational activities

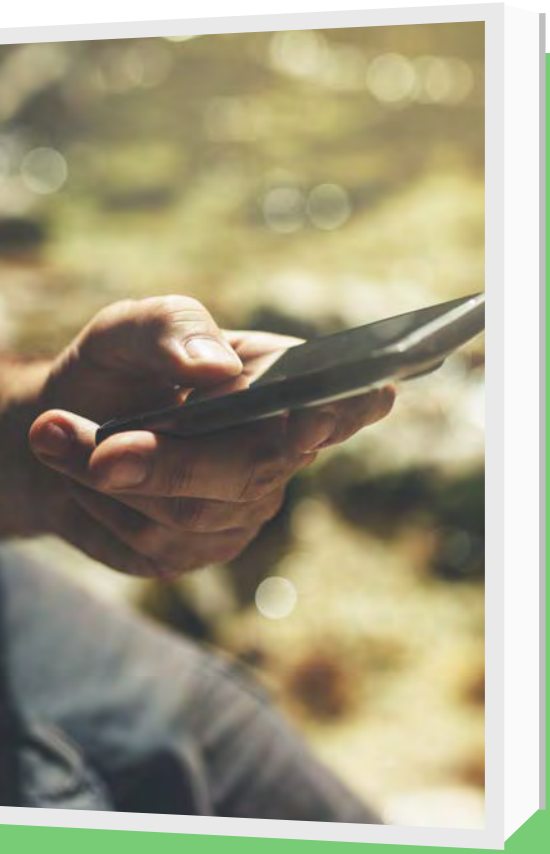
ACTIONS

- Support Southwest High Point Renewal Foundation's Green Infrastructure plan
- Promote NC StreamWatch & High Point's Adopt-a-Stream volunteer opportunities
- Install educational signage at SCM project sites and stream crossings
- Continue partnership with Guilford County Stormwater and PTRC Stormwater SMART programs to broaden direct marketing campaigns
- Continue partnership with Guilford County Stormwater and PTRC Stormwater SMART programs to broaden direct marketing campaigns
- Tailor messaging and explore other forms of media to reach diverse audiences
- Work with Keep High Point Beautiful (KHPB) and other partners to reduce litter, pet waste, and pesticide/fertilizer use in watershed
- Increase stewardship of creeks through passive recreation opportunities
- Schedule good housekeeping training/workshops
- Promote online Story Map and watershed applications
- Provide specific training opportunities to the City of High Point Parks & Rec staff
- Work with City of High Point Stormwater Management Staff to gain knowledge in applying low impact and/or green infrastructure options

WAYS TO ENGAGE:
INFORMATIONAL TOOLS

Sources and Conveyances (SCITS) and Watershed Improvement Projects (WIPS) tool was developed by NCDWR to help local stakeholders more easily collect information on potential sources of water quality stressors. Both tools utilize ESRI's Survey 123 application, which can be accessed from any phone or tablet. Sources are mapped using GPS technology and tagged with a photo and description.

There is standalone application that provides more capabilities for project development. Click HERE to access this application. These tools are paired so stakeholders can coordinate project development.



Source Conveyance Identification Tool (SCITS):
Tool used to identify outfalls, tributaries, and other sources of water or pollution in the watershed

Watershed Improvements Project Tracker (WIPS):
Tool for tracking restoration, protection and education project information

Water Resource Valuation Tool (WR Val):
Assigns a dollar value to natural resources and projects so that return on investments can be analyzed and compared

Trash Tracker:
A simple application for collecting information about trash and litter

EFFECTIVENESS MONITORING

Effectiveness Monitoring Tools for WAP is a separate application found on the Richland Creek Story Map. To navigate the tool, enter the plan name in the white box in the upper left and the map will move to the WAP area. These tools are paired so all stakeholders can see improvements resulting from implementation of WIPS at the project level scale. Effectiveness monitoring results will be assessed in the Integrated Report every even numbered year.

Local stakeholders will track progress and measure the success of the management strategies through a variety of sources. Overall water quality is regularly monitored by the **Upper Cape Fear River Basin Association (UCFRBA)** and the **NC DWR's Ambient Monitoring System (AMS)**. This data will be pulled from publicly available databases and reviewed on an annual basis to evaluate any improvements in water quality. Key parameters of interest include conductivity, dissolved oxygen, pH, fecal coliform, turbidity, and total suspended solids. Ideally, management measures will help reduce the number of exceedances for turbidity, and fecal coliform, as well as peak flows.

ADVANCING THE PLAN

Like many small local governments, the City of High Point and Guilford County (along with existing non-profit organizations) have limited staff capacity and resources available. In order to implement elements of the Richland Creek Watershed Plan, they will likely need to rely on an established network of local and regional partners many of which were actively involved in the watershed planning process.

The tables on the following pages provides a list of organizations that could provide technical assistance on various aspects of the plan and financial resources that are available to support restoration projects, conservation, and educational programs.

FINANCIAL ASSISTANCE RESOURCES

Funding Source	Activities Funded	Match Required	Eligibility
319 Grant Program (USEPA and NCDWR)	Implementation of approved nine element watershed restoration plan(s) with approved checklist	40% of Total Award	State and Local Governments, Nonprofits, Educational Institutions
NC Land and Water (NCDNCR) (Clean Water Mgt Trust)	Protect, improve, and/or restore surface water, acquire lands with ecological, cultural, and/or historical significance (including riparian buffers)	Varies	State Agencies, Local Governments, Nonprofits
NC DEQ Water Resources Development Grant	Provide cost-share grants and technical assistance to local governments throughout the state. Grant funding for water management, stream restoration, feasibility/engineering	50% non-Federal match	Units of Local Government
205 (j) Planning Grant (USEPA and NCDWR)	Water Quality management and planning	Optional Match	Regional Councils of Governments
Z. Smith Reynolds Foundation	Improve, restore, protect water quality, and ensure access to all waters		501(c) 3 Organizations
Clean Water State Revolving Fund (USEPA and NCDWI)	Provides low interest loans to fund wastewater collection and treatment facilities as well as estuary and nonpoint source program projects	N/A	Local Governments
Five Star and Urban Waters Restoration Grant Program (NFWF)	Provide support for innovative job opportunities that expose young people, particularly urban and underserved youth to natural world and career opportunities in conservation	1:1	Non-profit 501(c) organizations, state and local government agencies, Indian tribes, and educational institutions
Flood Mitigation Assistance Grant Program	Help communities fund projects and planning that reduces or eliminates long-term risk to flood damage to structures insured under National Flood Insurance Program	varies	Most state, local governmental entities, nonprofits, federally recognized tribes, academic institutions
Parks and Recreation Trust Fund NCDPR	State park land acquisition and capital improvements, local government park and recreation purposes, and beach access	1:1	
NC Attorney General's Office - Environmental Enhancement Grant Program	Immediate or long term environmental enhancement projects that improve air, water, and/or land quality of NC.	Varies	Federal or State Agencies, Local Governments, Nonprofits
Community Conservation Assistance Program (CCAP) NCDSWC	Funds non-agricultural management measures	Up to 75%	Citizens
Duke Energy Foundation Powerful Communities	Provide funding for a variety of focus areas including: K-12 (engineering & enviro education), Nature; Local Impact; Community Initiative	Varies	Non-profit 501(c) organizations, state and local government agencies, Indian tribes, and educational institutions

TECHNICAL ASSISTANCE RESOURCES

Organization	Contact Information	Role
City of High Point	211 S. Hamilton, P.O. Box 230, High Point, NC 27261 Phone: 336-883-3111	Control infrastructure, land use, and zoning within watershed
City of High Point: Parks & Recreation	136 Northpoint Ave, High Point, NC 27262	Strives to promote passive & active recreational services
City of High Point: Urban Forestry	211 S. Hamilton, P.O. Box 230, High Point, NC 27261 Phone: 336-883-3111	Work to implement protection, maintenance, planting & removal of trees on City-owned or controlled property
Keep High Point Beautiful (KHPB)	P.O. Box 230, High Point, NC 27261	Host cleanups and other educational events to reduce litter and other waste
City of High Point: Stormwater	816 E. Green Drive, High Point, NC 27261 Phone: 336-883-3111	Assist citizens with stormwater mgt. program to address stormwater pollution
Center for Watershed Protection	11711 E. Market Place, Suite 200 Fulton, MD 20759	CWP works to protect, restore and enhance streams, rivers, lakes, wetlands & bays
Guilford County Planning Department Watershed Protection	301 West Market St. Greensboro, NC 27401	Provide technical assistance and educational resources for landowners; monitors stormwater regulations in unincorporated areas of County
Guilford County Soil & Water Conservation District	3309 Burlington Rd, Rm 108 Greensboro, NC 27405 Phone: 336-641-2440	Provide technical assistance and funding for farmers/landowners, conservation, and BMPs
North Carolina Cooperative Extension: Soil, Water, Air		Provide technical assistance and/or training regarding watershed, stream restoration & nonpoint source pollution.
North Carolina Wildlife Resources Commission	1701 Mail Service Center Raleigh, NC 27699. Phone: 919-630-3086	Provide technical assistance and funding for wildlife protection and habitat improvements
Piedmont Conservation Council	201 E. Main St, 5th Floor, Durham, NC 27701. Phone: 919-525-3037	Provide technical assistance, grant writing, and project management for projects that conserve natural resources
Piedmont Land Conservancy	PO BOX 4025, Greensboro, NC 27404. Phone: 336-691-0088	Provide technical assistance for conservation and trail projects
Piedmont Triad Regional Council	1398 Carrollton Crossing Dr. Kernersville, NC 27284. Phone: 336-904-0300	Provides technical assistance, grant writing, and project management for planning and water resource projects
Southwest High Point Renewal Foundation	501 West High Ave, High Point, NC 27260	Local non-profit, grassroots org working to environmentally and economically enhance Southwest High Point
North Carolina Department of Environmental Quality Winston-Salem Regional Office	450 W. Hanes Mill Rd, Suite 300, Winston-Salem, NC 27105. Phone: 336-776-9800	Provide technical assistance and funding for water and waste management

CROSSWALK: GUIDE TO THE STORY MAP

	EPA Nine Minimum Elements	Location on Story Map
1	Identification of causes of impairment and pollutant sources or groups of similar sources that need to be controlled to achieve needed load reductions, and any other goals identified in the watershed plan.	Story Map tab 2: Water Quality Issues-Information-Data Story Map tab 4: Source Assessment
2	An estimate of the load reductions expected from management measures.	Story Map tab 12: WAP Project Development Tools
3	A description of the nonpoint source management measures that will need to be implemented to achieve load reductions, and a description of the critical areas in which those measures will be needed to implement this plan.	Story Map tab 10: WAP Plan Tools
4	Estimate of the amounts of technical and financial assistance needed, associated costs, and/or the sources and authorities that will be relied upon to implement this plan.	Story Map tab 12: WAP Project Development Tools Story Map tab 14: Technical and Financial Assistance Resources
5	An information and education component used to enhance public understanding of the project and encourage their early and continued participation in selecting, designing, and implementing the nonpoint source management measures that will be implemented.	Story Map tab 10: Outreach & Education
6	Schedule for implementing the nonpoint source management measures identified in this plan that is reasonably expeditious.	Story Map tab 8: Goals and Objectives
7	A description of interim measurable milestones for determining whether nonpoint source management measures or other control actions are being implemented.	Story Map tab 13: Effectiveness Tool
8	A set of criteria that can be used to determine whether load reductions are being achieved over time and substantial progress is being made toward attaining water quality standards.	Story Map tab 8: Goals and Objectives Story Map tab 13: Effectiveness Tool
9	A monitoring component to evaluate the effectiveness of the implementation efforts over time, measured against the established criteria.	Story Map tab 13:Effectiveness Tool

Visit the ***PTRC Watershed Action Plan for Richland Creek***

Visit the ***RICHLAND CREEK STORY MAP***

Find additional supporting documents on the ***Richland Creek page of the PTRC website***

PIEDMONT TRIAD
REGIONAL COUNCIL