City of Phenix City, Alabama

Engineering /Public Works Department
1206 7th Avenue
P.O. Drawer 279
Phenix City, Alabama 36868-0279
Ph. 334-448-2760/Fax 334-291-4848

VIA CERTIFIED MAIL

March 28, 2016

Alabama Department of Environmental Management
Stormwater Management Branch
Attn: Marla Smith
P. O. Box 301463
Montgomery, AL 36130-1463

Re: 2015-2016 Annual Stormwater Report

Madam:

Attached please find the Annual Stormwater Management Program Annual Report for Phenix City, Alabama. If you have any questions, please do not hesitate to contact my office.

Sincerely,

Angel Moore, P.E.
City Engineer

Cc: File

STORMWATER MANAGEMENT PROGRAM ANNUAL REPORT

City of Phenix City

March 2015 – March 2016

SUBMITTED IN ACCORDANCE WITH THE REQUIREMENTS OF
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

PERMIT NUMBER ALR040019

City of Phenix City

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEMS (NPDES)
PERMIT NUMBER ALR040019
MUNICIPAL STORMWATER PROGRAM ANNUAL REPORT

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly fathered and evaluated the information submitted. Based on my inquiry of the persons who manage the system, or those persons directly responsible for fathering the information submitted, said information is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment for knowing violations.

Eddie Lowe 3/28/16
Eddie Lowe Date
Mayor, City of Phenix City
601 12th Street
Phenix City, Alabama 36867

(334) 448-2704

Wallace B. Hunter 3/24/16
Wallace B. Hunter Date
City Manager, City of Phenix City
601 12th Street
Phenix City, Alabama 36867

(334) 448-2702

3/24/16
Angel Moore, P.E. Date
City Engineer, City of Phenix City
1206 7th Avenue
Phenix City, Alabama 36868

(334) 448-2773

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I. INTRODUCTION

In response to the National Pollutant Discharge Elimination System (NPDES) Phase II Stormwater Regulations, the City of Phenix City (City) applied for and received an NPDES permit for stormwater discharges from the Alabama Department of Environmental Management (ADEM) in March 2003. The original permit was issued for a 5-year time period ending in March 2008. The City of Phenix City sent the General Phase II Municipal Separate Storm Sewer System (MS4) Stormwater Permit Renewal Notice of Intent and the accompanying fee on August 31, 2007, for Permit Number ALR040019. On February 17, 2009, the City of Phenix City sent an updated Notice of Intent to reflect changes in Responsible Official and Permit contact due to personnel changes in the positions of Mayor and City Engineer. The City continued to operate under this permit while the new NPDES permit was finalized. On October 29, 2009, after reviewing the first draft of the new permit, the City of Phenix City submitted comments to the ADEM Water Division. On September 23, 2010, a Phenix City representative attended the NPDES Construction General Permit Update in Auburn, AL. Having received the revised draft of the new MS4 permit on February 12, 2010, the City once more submitted comments to the ADEM Water Division. On January 31, 2011, the City of Phenix City received the reissued NPDES Permit No. ALR0400019 and is currently implementing all changes in this permit period.

This report is being submitted to ADEM pursuant to Part V; paragraph C of NPDES Permit ALR040019.

This annual report covers the reporting period from March 2015 through March 2016.

II. SITE DESCRIPTION

The City of Phenix City is located in East Alabama on the banks of the Chattahoochee River. A map of the City is provided in Appendix I. The city limits encompass an area of approximately 28.01 square miles (17,926 acres) as of January 2014. The current population of Phenix City is approximately 32,822 per the 2010 U.S. Census. The City has grown compared to the 2000 census which had a population of 28,265. The City approved 3 residential subdivisions and 7 commercial plats in 2015. The City issued 10 land disturbing permits during 2015-2016. See Appendix A.

III. KNOWN OR SUSPECTED WATER QUALITY PROBLEMS

The City's storm sewer system discharges into streams located in three primary watersheds: Mill Creek, Holland Creek, and Cochgaleechee Creek watersheds.

Mill Creek is currently on the 303(d) list (AL03130003-0101-100) for organic enrichment.

IV. RESPONSIBLE PARTY

The City's Stormwater Management Program (SWMP) is composed of several programs operating under various departments within the City's organization. Components of the SWMP are as follows:

Engineering Department – Monitors residential and commercial construction and conducts erosion and sediment control inspections; Manages water quality sampling program; Manages public education and outreach program; Annual detention pond inspections; Manages overall SWMP and compliance with the Phase II Stormwater Permit. One Graduate Engineer, the City Engineering Inspector and the Erosion Control Coordinator are QCI certified.

Parks and Recreation Department – Performs maintenance within City Parks and handles recycling within the Parks. Informs Engineering of any problems found.

Building Department, Code Enforcement Division – Assists with monitoring of residential and commercial construction; Issues citations as needed. Informs Engineering of any problems found. One Code Enforcement Officer is QCI Certified.

Public Works Department – Performs maintenance of stormwater infrastructure, operates the recycling program; and operates and manages the street sweeping program. Informs Engineering of any problems found.

The person responsible for the coordination and implementation of the individual SWMP is as follows:

Angel Moore, P.E., City Engineer
City of Phenix City Engineering Department
1206 7th Avenue
Phenix City, AL 36868

(334) 448-2760
amoore@phenixcityal.us

V. STORMWATER MANAGEMENT PROGRAM COMPONENTS

The Phase II stormwater regulations require operators of small Municipal Separate Storm Sewer Systems (MS4s) in urbanized areas to develop and implement stormwater management programs employing best management practices (BMP's) to adequately address six minimum control measures. The control measures include:

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Public Education and Outreach;

Public Involvement/Participation;

Illicit Discharge Detection and Elimination;

Construction Site Stormwater Runoff Control;

Post-Construction Stormwater Management; and

Pollution Prevention/Good Housekeeping for Municipal Operations.

This report describes the measures taken to fulfill all required controls, to further maintain their applications and objectives, and any additional actions put in place since the last reporting period. Included with this report are copies of all Land Disturbing Permits issued by the City of Phenix City since the last reporting period (see Appendix A).

VI. PUBLIC EDUCATION AND OUTREACH ON STORMWATER IMPACTS

A. Brochure Publications

Pamphlets and brochures are an effective way to present and explain stormwater issues. Unlike other communication vehicles, pamphlets and brochures can be distributed in many locations without requiring staffing and the location of distribution can specifically target the audience you are trying to reach. The goal for brochure publications is to provide two (2) brochures per year. During the permit year 2015-2016, two (2) brochures were provided for distribution by the City. Brochures provided by the City over the past year include:

Protect Your Drinking Water. EPA 816-F-02-012
The Need to Protect America's Precious Resource, Drinking Water. EPA Publication.

Copies of the previous brochures, which are still in use, were submitted with past reports.

B. Website

Citizens can go to the City's website to obtain information on items of local interest. The web page is accessible 24 hours per day and can serve citizens that do not have the time or the ability to physically meet with staff during normal working hours.

Citizens can find out more information on Stormwater, download the Erosion and Sediment Control ordinance or report areas of concern.

The webpage was added during the 2013 permit year and is kept current and updated by the Engineering Department.

For more information on the website please visit:

http://www.phenixcityal.us

C. Recycling Center

The City of Phenix City currently has two drop off centers where residents can leave a variety of recyclable materials. The Coca-Cola/NRC Bin Grant awarded bins to be distributed in local parks and sporting complexes. A policy for the collection of electronics was developed in order to better manage electronic waste. All City Buildings have received recycling bins for use by employees.

D. Posters

Posters were developed during the initial permitting cycle and remain on display in public buildings including the lobbies of the Engineering and Building Department's. The purpose of these posters is both to educate and to help express the need for community involvement in the fight against pollution. These posters describe how stormwater can become polluted and show practices that can be followed to help prevent pollution. Copies of these posters have been submitted with past reports.

E. Utilities Department Call Waiting Messages

The City of Phenix City has recorded three (3) messages to be used when customers are on hold. The messages are entitled:

We All Want to Protect Our Planet
9 Inexpensive Ways You Can Prevent Erosion
10 Ways You Can Protect Our Water.

These messages went into use in 2013. We hope these messages can educate the public and perhaps spark an interest in becoming involved with the environment.

VII. PUBLIC INVOLVEMENT/PARTICIPATION

A. Feedback Form

A feedback form was created during the initial permitting cycle and was attached to a compact printout of the first brochure. The feedback form allows citizens to assess the areas in which they live and give feedback that will help the City identity the community's needs. It also inquires into the usage of the City's recycling centers. Contact information is given on the forms so that City personnel can assist the public in finding answers relating to pollution. A Feedback Form/Suggestion Box has been placed in the lobby of the Engineering Department and provides a means for the public to inform the City of their concerns, while also allowing the City to evaluate its own progress.

Contact information is also shown on all brochures and posters to encourage the public to communicate with the Phenix City Engineering Department any concerns including erosion and sediment control and other water quality issues.

B. Website Hotline

In an effort to provide the general public with an additional means of reporting potential erosion control violations, the City developed the "Action Center". Citizens now have the ability to log on to the website 24 hours a day and provide information on suspected violations. The information is forwarded to the Engineering Department and an investigation is initiated. The website hotline has proven to be a valuable tool over the course of the past years by assisting City personnel in responding to citizens' concerns. The Action Center can be used to report a number of items. For more information concerning the hotline, please visit
http://www.phenixcityal.us/Default.asp?ID=14&pg=Action+Center

Of course, the public can always contact the Engineering Department at 334 448 2760 if they would prefer to talk with a person.

VIII. ILLICIT DISCHARGE DETECTION AND ELIMINATION

A. Inspection of Drainage System

The Public Works Department conducts routine inspections of its drainage system in order to maintain free flowing conditions. During this process, key stream sections, bridges, and culverts are inspected and routine maintenance is conducted. As areas are identified for maintenance, the work is listed on the maintenance schedule and a crew is assigned to perform the task. City Inspectors also inform Public Works of any drainage systems they find that need repair/cleaning. The Public Works Department has obtained a portable Vactor Jet and an International 7400 Vactor Jet to facilitate storm drain clean up.

B. Water Sampling Program

In 2012, the City of Phenix City began a water-sampling program in an effort to analyze the water quality of streams within the City. The City currently maintains three (3) sampling sites as Phenix City Water Watch. Test results are uploaded to the Alabama Water Watch Database.

In February 2014, the City of Phenix City purchased a LaMotte Storm Drain Monitoring Kit and began conducting random tests of storm drains in the city.

The City has returned to the use of the standard Alabama Water Watch Water Chemistry kit.

C. Storm Sewer Map

The City updated its Storm sewer map in 2013, showing the location of outfalls and the names and location of all waters of the State that receive discharges from those outfalls. A copy of this map is attached (see Appendix I).

IX. CONSTRUCTION SITE STORMWATER RUNOFF CONTROL

A. Erosion and Sediment Control Ordinance

The original Erosion and Sediment Control Ordinance (Ordinance) adopted by the City of Phenix City was Ordinance 98-09, adopted on February 17, 1998.

The Ordinance was reviewed and underwent major changes in 2005. This Ordinance was adopted on August 16, 2005.

The Ordinance was reviewed and amended again on February 21, 2007 as Ordinance 2007-07. This is the current Ordinance that is in force at this time.

The Ordinance is reviewed each year.

The policy provides for a regional set of rules that can be applied to contractors, citizens, developers and engineers in the area. As sites which are less than one (1) acre are not required to have an approved ESC plan, the City continues to require that those obtaining building permits sign a letter of notification stating that they are aware of the policy and its provisions. This letter of notification was revised following the amendments to the Erosion and Sediment Control Policy that were adopted in February 2007. These notifications also require that basic contact information be submitted by the developer or builder, which assists in communication during construction.

B. Erosion Control Inspections

The City, in an effort to patrol the management of erosion and sediment control measures on active construction sites, initiated a construction site inspection program in 2005. The inspection program is designed to identify deficiencies in erosion control and initiate corrective action. Inspections are performed after each ¾ inch rainfall event or a minimum of once per month. 20 subdivision sites and 6 commercial sites underwent inspections in 2015. Three (3) Notices of Violation (NOV's) were issued. The City Engineering Department maintains copies of all reports. Attached is a list of all violations (see Appendix C).

C. Rainfall Data Collection

In 2005, the City began maintaining historical rainfall data records. Three rain gauges are maintained by the City. One is located on the City yard at 1206 7th Avenue. Another is located at the landfill. A third was installed near the Parks & Recreation office. Data is input into an Excel spreadsheet. The total rainfall amount recorded on the City yard for 2015 was 70.9 inches of rain. The total rainfall amount for 2014 was 56.5 inches. That was a difference of 14.4 inches for the two year period.

D. Monitoring through Plan Review

A Graduate Engineer monitors erosion and sediment control through plan review and regular site inspections to ensure that the provisions of the policy are being met. The City Inspector also monitors erosion and sediment control on new developments through regular inspections. The Erosion Control Coordinator conducts regular and rainfall inspections on all sites in the area, meets with developers, builders, and property owners to discuss any issues and how to handle them. The Erosion Control Coordinator also handles the annual detention pond inspections, sends letters, inspection reports, documents any issues, and provides photographic documentation.

X. POST-CONSTRUCTION STORMWATER MANAGEMENT IN NEW DEVELOPMENT AND REDEVELOPMENT

A. Stormwater Management Details and Standards

The City of Phenix City is currently in the process of updating the Subdivision Regulations. These regulations include all Details and Standards, including updating the Stormwater Details and Standards.

B. Stream Buffer Regulations

As part of the Erosion and Sediment Control Ordinance adopted by the City Council, a minimum 25-foot non-disturbed vegetative buffer zone was required for new developments on "blue line" streams and creeks identified on USGS 7.5 minute topographic maps

C. Detention Pond Inspections

Existing detention ponds need periodic inspections to evaluate the maintenance and operation of these vital components of the City's drainage system. Because vast quantities of stormwater are collected and passed through these detention ponds every year, inspections of these facilities can identify potential problems and illicit discharges.

The City of Phenix City has 78 sites with a total of 96 ponds. The Engineering Department inspected 75 of these sites with 92 pond inspections completed, 8 ponds had no deficiencies, 71 letters were sent. No enforcement action was taken, although several sites were turned over to the City Attorney for further research.

D. Inspections

The City Engineering Inspector and the Erosion Control Coordinator monitor erosion and sediment control through regular site inspections to ensure that the provisions of the policy are being met. The City Engineering Inspector and Erosion Control Coordinator conduct regular and rainfall inspections on all sites in the area. They meet with developers, builders, and property owners to discuss any issues and how to handle them. They conduct the annual detention pond inspections, send letters and inspections reports, document any issues, and provide photographic documentation.

The City's Code Enforcement/Building Department has an Inspector who is QCI certified, and he is assisting the Engineering Department in managing post-construction storm water in new developments.

XI. POLLUTION PREVENTION/GOOD HOUSEKEEPING FOR MUNICIPAL OPERATIONS

A. Employee Training

Employees from the City's Public Works Department, Utilities Department, and the Parks and Recreation Department have participated in soil, erosion, and sediment control information sessions. The presentation presented information on types of erosion, erosion and sediment control practices and technologies, and Best Management Practices. A discussion followed and addressed the specific erosion and sediment control measures that are currently being used by these Departments and the common installation and maintenance issues associated with these measures. Employees also receive on-the-job training from their supervisors.

B. QCI Program

One Graduate Engineer, one Code Enforcement Inspector, the City Engineering Inspector and the Erosion Control Coordinator have all completed Qualified Credentialed Inspector initial or refresher training this year and all are current on their certifications. Copies of their certifications are attached (see Appendix G).

C. Newsletters

A quarterly periodical continues to be produced and distributed to all departments. Topics discussed in the 2015 newsletters include: Green Apps for Everybody, Urban Stormwater Runoff, Nonpoint Source Water Pollution and Stormwater and Its Effects. (see Appendix F).

APPENDIX

A. Land Disturbance Permits

B. Brochures

C. Notices of Violation

D. Rainfall Data

E. Detention Pond Inspection Report Summary

F. Quarterly Newsletters

G. QCI Certifications

H. Employee Training

I. City Street Map and Storm Sewer Outfall Map

APPENDIX B

Brochures

What You Can Do to Protect Your Drinking Water

Be Involved!

Photo by Tim McCabe, Natural Resources Conservation Service

- Attend public hearings on land use and permitting. Ask for an environmental impact statement. Ask questions about specific plans to protect your water source. Participate in state and water system funding decisions.
- Volunteer to monitor water quality upstream from your water source. If your water source is a river, lake or stream, you can call your state to find out how well the Clean Water Act standards for your drinking water source protect your drinking water.
- Support your local utilities.

Be Observant!

- Look for announcements in the local media for activities that could pollute your source water.
- Report any suspicious activities in or around your water supply to local authorities or call 911 immediately.

Be Informed!

- Read the annual Consumer Confidence Report provided by your public water system.
- Learn about potential threats to your water from your state's Source Water Assessment
- Find out whether Clean Water Act standards protect your drinking water source.

Don't Contaminate!

- Reduce or eliminate pesticide application.
- Reduce the amount of trash you create.
- Recycle used oil.
- Reduce paved areas.
- Keep pollutants away from boat marinas and waterways.

Unfold this brochure for an illustration of the risks and barriers that affect drinking water.

A Message from the Administrator

Christine Todd Whitman

I believe water is the biggest environmental issue we face in the 21st Century in terms of both quality and quantity. In the 30 years since its passage, the Clean Water Act has dramatically increased the number of waterways that are once again safe for fishing, swimming, and drinking. Despite this great progress in reducing water pollution, many of the nation's waters still do not meet water quality goals. I challenge you to join President Bush and me to finish the business of restoring and protecting our nation's waters for present and future generations.

For More Information

For more information, contact EPA's Safe Drinking Water Hotline at 1-800-426-4791 or visit www.epa.gov/safewater.

You may also contact:

U.S. Environmental Protection Agency
Office of Ground Water and Drinking Water
1200 Pennsylvania Avenue, NW (4606-M)
Washington, DC 20460

Printed on recycled paper.

Cover: water tower photo by Lynn Betts, Natural Resources Conservation Service

United States Environmental Protection Agency
Office of Ground Water and Drinking Water
EPA 816-F-02-012 • July 2002

In celebration of the 30th anniversary of the Clean Water Act, EPA presents

Protect Your Drinking Water

• 2002 •
THE YEAR OF
CLEAN WATER

Protect Your Drinking Water

We rely on a safe and abundant water supply for the health of our families and communities.

What is the Source of Our Water Supply?

If you live in a large city, your source of drinking water is probably a lake, river, or reservoir. If you live in a rural area, your source water may be ground water. In any case, your drinking water starts its journey to your tap from a watershed. A watershed is the land area that drains to a single body of surface water or to ground water. Everything that happens in the watershed can affect the quality of your water supply.

Did you know?

- **Americans drink more than one billion glasses of tap water per day.**
- **Children in the first 6 months of life consume seven times as much water per pound as the average American adult.**

What Happens in a Watershed That Can Affect Drinking Water?

Our drinking water resources are constantly under siege from multiple threats that directly affect water quality. Some are naturally occurring: storms, floods, fires. Most are caused by us: our activities at home, work, and play.

Stormwater runoff is the single biggest threat to the health of our waterways. As this water washes over roofs, pavement, farms, and grassy areas, it picks up fertilizers, pesticides, litter, etc., and deposits them in surface water and ground water. Here are some of the multiple threats that we cause through activities in our watershed.

Every Year:

- We apply *67 million pounds of pesticides* that contain toxic and harmful chemicals to our lawns.
- We produce more than 230 million tons of municipal solid waste—approximately *5 pounds of trash or garbage per person per day*—that contain bacteria, nitrates, viruses, synthetic detergents, and household chemicals.
- Nearly *half a million of our animal factory farms produce 130 times the amount of waste of the human population* and are a potential source of bacteria, viruses, nitrates, and animal steroids.
- The more than *12 million of our recreational and house boats* and 10,000 boat marinas release solvents, gasoline, detergents, and raw sewage directly into waterways.

Multiple Risks Require Multiple Barriers.

The best barrier against pollution is **Prevention.** Keeping contaminants out of the drinking water source protects the environment and reduces the need for costly treatment. Your state is in the process of identifying sources of drinking water and potential threats so that your community can take appropriate steps to protect the watershed.

After contaminants get into the source water, the best barrier is **Risk Management.** Your public water system is the first line of defense. Water utilities treat nearly 34 billion gallons of water every day. The Safe Drinking Water Act requires them to collect and treat water, hire trained and qualified operators, and have an emergency response plan in case of natural disaster or terrorist attack.

Risk and Compliance Monitoring is another important barrier to protect drinking water resources. Your community constantly monitors water quality at the source, at the treatment plant after it has been treated and disinfected, at the distribution system, which delivers water through pumps and pipes to your home, and, in some cases, at the tap.

Did you know?

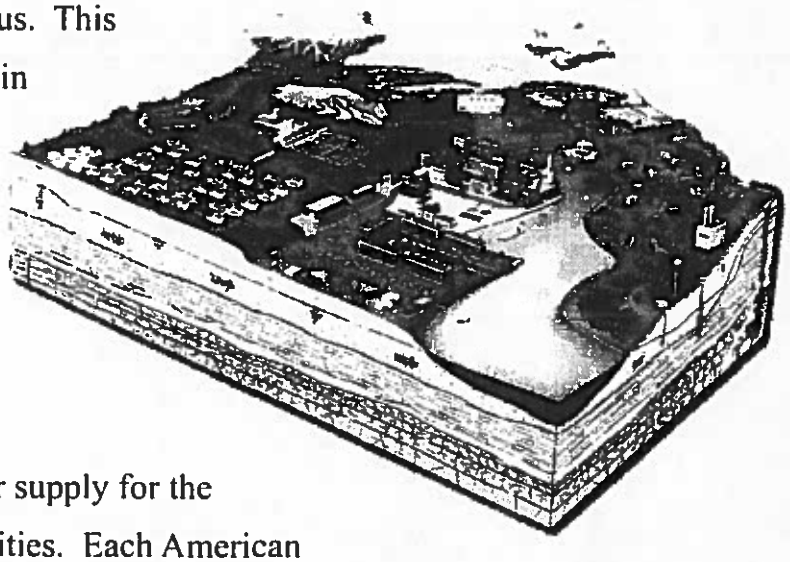
In North America, the total miles of water pipeline and aqueducts equal approximately one million miles—enough to circle the globe 40 times.

Funding and technical assistance can help systems provide safe drinking water. If all these efforts fail, enforcement actions can be taken against the system.

The **Individual Action Barrier** that makes the other three barriers work is -- you, and what you decide to do. Look to the next page for a variety of actions that you can take.

The Need To Protect America's Precious Resource
DRINKING WATER

If all existing water could be spread evenly over a smooth sphere the size of the Earth, it would cover the globe to a depth of almost two miles—but more than 97 percent of it is salty ocean water and unusable as a source of drinking water. Less than three percent is fresh water, and most of that is captured in ice caps and glaciers. That leaves less than one percent of all the water on Earth readily available to us. This precious and limited resource is stored in different bodies of water, including streams, rivers, lakes, reservoirs, wells, and springs. In America, we draw our drinking water from all of these sources.



We rely on a safe and abundant water supply for the health of our families and our communities. Each American household uses in excess of 94,000 gallons of fresh water a year. We drink an average of one billion glasses of tap water per day. We are an expanding population, and our need for more food, shelter, clothing, electricity, and recreation, places more demands on our water supply, or source water. The industries that produce these goods and services use billions of gallons of fresh water a day. As the number of households and businesses increase, so does the amount of natural resources that we consume and the amount of waste we produce. If we do not manage these activities effectively, what we do at home, at work, or at leisure, may contaminate the watershed and threaten the quality of our drinking water. What exactly are the threats?

> Each of us lives in a watershed. A watershed is the total land area and water bodies that drain into a single river or lake system, and/or is the source of groundwater recharge to the river or lake system.

THREATS TO THE QUALITY OF DRINKING WATER

We tend to worry about threats only after our water becomes contaminated. When drinking water becomes contaminated, one or more things may happen. You may not be able to drink your tap water for short periods of time. You may become ill and need to seek medical assistance. You may be required to pay more for your drinking water for additional treatment and monitoring. You may lose the resource altogether, making it necessary to find an alternate source.

How do contaminants get into our watersheds and drinking water? Below are some of the major threats that occur every year. The threat may be a byproduct of something that we do, or a natural condition or event. One or more may exist in your neighborhood or occur many miles away:

- Stormwater runoff is the single biggest threat to the health of our waterways. As this water washes over driveways, streets, and yards, it picks up nutrients, pollutants and litter and deposits them in surface waters or introduces them into ground water.

- We apply 67 million pounds of pesticides to lawns every year, some of which, leaches into ground water or pollutes rivers, lakes and streams.

- We produce more than 230 million tons of municipal solid waste annually—approximately 4.6 pounds of trash or garbage per person per day—that contains bacteria, nitrates, viruses, synthetic detergents, and household chemicals.

- We begin new construction that consumes more than two million acres of open space every year—increasing paved and impervious surfaces (roads, sidewalks, parking lots, driveways and roofs); these surfaces prevent rain and snow melt from soaking into the ground and returning to the water table; paved surfaces create more runoff, make runoff move faster and with greater force, and reduce infiltration to the ground water.

- Do-it-yourselfers drain about 220 million gallons of used oil from their cars, but less than 33 million gallons of this used oil is recycled.

- We drive more than 200 million passenger cars and light trucks almost 2 trillion miles every year that account for about 50 percent of air pollution nationwide, and produce acid rain that pollutes surface water and leaches into ground water.

- At least one-third of the U.S. population uses septic systems that discharge more than 1 trillion gallons of household wastewater containing bacteria, viruses, nitrates, drugs, and hormones, below the ground's surface directly or indirectly into ground water resources every year.

- Nearly half a million animal factory farms produce 130 times the amount of waste of the human population every year and are a potential source of bacteria, viruses, nitrates, and animal steroids.

- There are more than 12 million recreational and house boats and 10,000 boat marinas that may release pollutants such as solvents, gasoline, detergents and raw sewage directly into waterways.

MULTIPLE RISKS REQUIRE MULTIPLE BARRIERS

Because we know that the human activities and natural events have the potential to contaminate our drinking water, we have built four kinds of barriers to protect our drinking water—the Risk Prevention, Risk Management, Risk Monitoring & Compliance, and the Individual Action Barriers. The first three rely on government and treatment plant activities and the support of the public, for the most part. The Individual Action Barrier relies on us—what each of us does at home and in our communities. The four barriers are explained in the following table.

Type of Barrier	Purpose and Benefits of Barrier
Risk Prevention Barrier	• Protection of Drinking Water Sources: Drinking water is only as safe as its source. While water suppliers can treat water to remove contaminants, it is more cost effective and everyone is better off if we prevent the contaminants from entering the water in the first place. Prevention keeps water treatment costs low and avoids expensive source water clean-up costs. • Federal, tribal, state, and local governments provide laws and regulations, and voluntary programs for your community to prevent the potential threats from getting into your source of drinking water. Find out what they are and how well they are working. • Your state has completed, or is in the process of conducting an assessment of the potential threats to your source water. Is your community moving toward prevention by taking action against the potential threats that have been identified?
Risk Management Barrier	Treatment and System Operation: When contaminants do get into the watershed and your source water, the water treatment plant is the first line of defense. Treatment is only as effective as the operator and the facility. The treatment plant collects, treats, tests, and distributes water, hires trained and qualified operators, alerts your community to water problems, and carries out an emergency response plan in case of a natural disaster, vandalism or terrorist attack.
Risk Monitoring & Compliance Barrier	Detecting and Fixing Problems: Federal law (the Safe Drinking Water Act) has established a series of checkpoints for monitoring water quality and detecting and solving problems before water reaches your tap. The first checkpoint is your water system that monitors water quality before and after treatment, and in the distribution system. The system reports its findings and activities to the state. The next checkpoint is your state's Public Water Supply System program that monitors the operations of all its water systems and reports to the U.S. Environmental Protection Agency (EPA). At this checkpoint, the EPA evaluates all state and tribal programs and reports to Congress. And Congress reports to you.
Individual Action Barrier	Consumer Awareness and Participation: Contamination occurs at the local level and can best be prevented at the local level. The more that you know about drinking water, the better equipped you are to help protect it. Be informed! Be observant! Be involved! Don't contaminate! Read the next section, titled, "What You Can Do to Protect Your Drinking Water."

WHAT YOU CAN DO TO PROTECT YOUR DRINKING WATER

Be Informed

- Read the annual Consumer Confidence Report provided by your public water system, sometimes referred to as a Water Quality Report.
- Use information from your state's Source Water Assessment to learn about potential threats to your water source. Has your state identified all shallow disposal wells?
- Does your state have total maximum daily loads for those contaminants that may pose risks to drinking water?
- Find out whether Clean Water Act water quality standards for your drinking water source are intended to protect water for drinking, in addition to fishing and swimming.
- If you are one of the 15 percent of Americans who have their own sources of drinking water, such as wells, cisterns, and springs, you are responsible for protecting your water supply. Find out what activities are taking place in your watershed that may impact your drinking water; talk with local experts, test your water periodically, maintain your well, close it properly.

Be Observant

- Look around your watershed and be alert to announcements in the local media for activities that may pollute your source water.
- If you see any suspicious activities in or around your water supply, please notify the local authorities or call 9-1-1 immediately and report the incident.

Be Involved

- Attend public hearings on new construction, storm water permitting, and town planning.
- Keep your public officials accountable.
- Ask to see their environmental impact statement.
- Ask questions on any issue that may impact your water source. What specific plans have been made to prevent the contamination of your water source? Notices about hearings often appear in the newspaper or in government office buildings.
- Participate with your state, or tribal and water system as they make funding decisions.
- Volunteer or help recruit volunteers: participate in your community's contaminant monitoring activities, and encourage testing water upstream of your drinking water supply.
- Help ensure that local utilities that protect your water have adequate resources to do their job.

Don't Contaminate

- Reduce paved areas: Use permeable surfaces that allow rain to soak in, not run off, like wood, brick and gravel for decks, patios and walkways.
- Reduce or eliminate pesticide application: Test your soil before applying chemicals, and design your lawn and garden with hardy plants that require little or no watering, fertilizers or pesticides.
- Reduce the amount of trash you create: Reuse containers, recycle plastics, aluminum, and glass.
- Recycle used oil: A single quart of motor oil can contaminate up to 2 million gallons of drinking water; take used oil or antifreeze to a service station or recycling center.
- Take the bus instead of your car one day a week: On average, you will prevent 33 pounds of carbon dioxide emissions per day.
- Be careful what you put into your septic system: Harmful chemicals may end up in your drinking water.
- Keep pollutants away from boat marinas and the waterways: Keep boat motors well-tuned to prevent fuel and lubricant leaks; select nontoxic cleaning products and use a drop cloth, and clean and maintain boats away from the water.

APPENDIX D

Rainfall Data

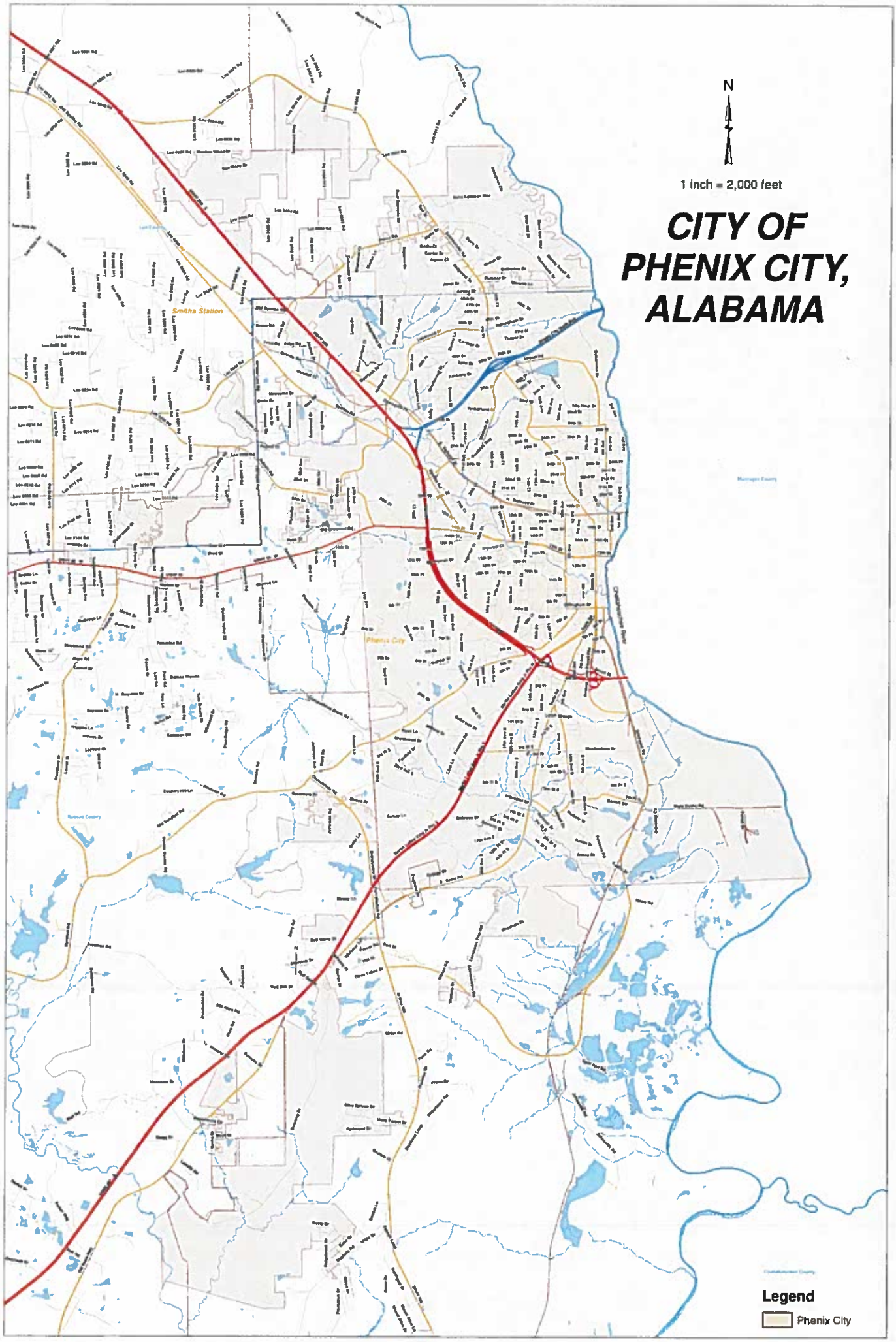
Rainfall Totals for Phenix City 2015		
January	3.4	in.
February	4.2	in.
March	2.8	in.
April	9.4	in.
May	4.3	in.
June	4.0	in.
July	3.3	in.
August	8.8	in.
September	3.7	in.
October	0.8	in.
November	9.8	in.
December	16.7	in.
Yearly Total	70.9	in.

Rainfall Totals for Phenix City 2016		
January	3.3	in.
February	4.4	in.
March	1.3	in.
April		in.
May		in.
June		in.
July		in.
August		in.
September		in.
October		in.
November		in.
December		in.
Yearly Total	9.0	in.

APPENDIX I

City Street Map

Storm Sewer Outfall Map


N
1 inch = 2,000 feet
CITY OF PHENIX CITY, ALABAMA
Smiths Station
Phenix City
Legend
Phenix City