Metro Nashville/Davidson County
Annual MS4 Report
Permit TNS068047

METRO WATER SERVICES

December 2019

Reporting Period:
July 1, 2018 - June 30, 2019

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1.0 Introduction

The Metropolitan Government of Nashville Davidson County (Metro) was issued the third cycle of the Municipal Separate Storm Sewer System (MS4) permit effective February 1, 2012. Under this permit, the reporting period for each permit year coincides with Metro's Fiscal Year (FY) (July 1st through June 30th). The reporting period for this report will be referred to as Fiscal Year 2019 (FY19), which represents the period between July 1, 2018 through June 30, 2019.

Each year, there are numerous individuals within different Metro Departments that work toward achieving overall MS4 permit compliance. As a measure to ensure permit compliance within the various facets of Metro government, the National Pollutant Discharge Elimination System Section (NPDES) was created to oversee all MS4 permit compliance activities. NPDES is a section within the Metro Water Services (MWS) Stormwater Division and is responsible for performing specific MS4 permit requirements such as public education activities, illicit discharge investigations, runoff/discharge sampling, construction site inspections, field screening inspections, industrial inspections, etc. In addition, the NPDES is responsible for coordinating with various other Metro Departments to ensure permit compliance measures are being followed on a Metro-wide basis.

The following table is a list of certain individuals that have contributed directly to specific to MS4 permit compliance activities/information during FY19. Any inquiries regarding information represented in this report should be directed to the MWS Stormwater NPDES Office (Attn: Josh Hayes) at 1607 County Hospital Rd, Building A, Nashville, Tennessee, 37218, Phone: 615-880-2420, Email: Josh.Hayes@Nashville.gov.

Table 1 - Contact List

Name	Agency	Position/Responsibility
Scott Potter	Metro Water Services	Director
Tom Palko	Metro Water Services	Assistant Director, Stormwater Division
Sonia Allman	Metro Water Services	Manager of Strategic Communications
Julie Berbiglia	Metro Water Services	Public Education Specialist
Jennifer Harrman	Metro Water Services	New Media Specialist
Ricky Swift	Metro Water Services	Program Manager, Stormwater Maintenance Section
Casey Cooper	Metro Water Services	Project Manager, Stormwater Maintenance Section
Hal Balthrop	Metro Water Services	Assistant Director, Development Services Division
Kimberly Hayes	Metro Water Services	Engineer, Development Services Division, Single Family
Michael Hunt	Metro Water Services	Program Manager, Stormwater NPDES Section
Bonnye Holt	Metro Water Services	Office Support Specialist, Stormwater NPDES Section
Howard Jackson	Metro Water Services	Office Support Specialist, Stormwater NPDES Permit Group
Dale Binder	Metro Water Services	Construction Inspection Manager, Stormwater NPDES Section
Shawn Herman	Metro Water Services	Construction Site Inspector, Stormwater NPDES Section
Katherine O'Hara	Metro Water Services	Construction Site Inspector, Stormwater NPDES Section
Denice Johns	Metro Water Services	Construction Site Inspector, Stormwater NPDES Section
Donald Erves	Metro Water Services	Construction Site Inspector, Stormwater NPDES Section
Ken Tranter	Metro Water Services	Construction Site Inspector, Stormwater NPDES Section
Leigh Nelson	Metro Water Services	Construction Site Inspector, Stormwater NPDES Section
Lynda Kelly	Metro Water Services	Construction Site Inspector, Stormwater NPDES Section
Rebecca Dohn	Metro Water Services	Special Projects Manager, Stormwater NPDES Section
Josh Hayes	Metro Water Services	Permit Group Manager, Stormwater NPDES Section
Kevin Turner	Metro Water Services	Permit Group Inspector, Stormwater NPDES Section
Kalee Hotchkiss	Metro Water Services	Permit Group Inspector, Stormwater NPDES Section
Liz Stienstraw	Metro Water Services	Permit Group Inspector, Stormwater NPDES Section
Allison Davis	Metro Water Services	Permit Group Inspector, Stormwater NPDES Section
Aujuah Jackson	Metro Water Services	Permit Group Inspector, Stormwater NPDES Section
Matthew Lockhart	Metro Water Services	Permit Group Inspector, Stormwater NPDES Section
Jessica Bell	Metro Water Services	Permit Group Inspector, Stormwater NPDES Section
Mary Bruce	Metro Water Services	Watershed Group Manager, Stormwater NPDES Section
Veronica Logue	Metro Water Services	Watershed Group Inspector, Stormwater NPDES Section
Stephanie Petty	Metro Water Services	Watershed Group Inspector, Stormwater NPDES Section
Naomi Rotramel	Metro Water Services	Urban Forester/Arborist
Carol Edwards	Metro Water Services	Soil Conservationist
Sharon Smith	Department of Public Works	Solid Waste Division
Donna Ryman	Department of Public Works	Solid Waste Division
Clayton Hand	Department of Public Works	Engineer, Solid Waste Division
Phillip Jones	Department of Public Works	Assistant Director of the Street Services Division
Ernie Kurgan	Department of Public Works	Street Services Division
Will Robinson	Department of Public Works	Street Services Division
Wade Hill/Jon Michael	Codes Department	Chief Plans Reviewer
Anita McCaig	Metro Planning Department	Planner
Christopher Michie	Metro Health Department	Septic System Oversight
Steve Crosier	Metro Health Department	Restaurant Inspection
Greg Ballard	Metro Water Services	Program Manager, Overflow Abatement
Matt Lott	Metro Water Services	Program Manager, System Services Overflow Response
Rebecca Ratz	Metro Parks Department	Parks and Recreation Planning Division
Tim Netsch	Metro Parks Department	Assistant Director
Jerry Terfinko	Metro Parks Department	Maintenance Division
Ted Taylor	Metro Water Services	Laboratory Superintendent
Andy Welch	Metro Water Services	Program Manager, Pre-treatment/FOG
Anna Kuoppamaki	Metro Water Services	GIS Analyst, Stormwater Master Planning Section

Note: There are many other personnel that contribute to the overall MS4 compliance program not listed on this table (i.e. Engineers in MWS Development Services, Various Maintenance Workers, etc.).

The following list is a description of commonly used acronyms throughout the document:

303(d)	State's List of Non-attainment Waterways (Water Quality Criteria for Use Classifications)
BMP	Best Management Practice
CCTV	Closed Circuit Televising
CSS	Combined Sewer System
CWN	Clean Water Nashville Program
EMC	Event Mean Concentration
EPA	Environmental Protection Agency
EPSC	Erosion Prevention and Sediment Control
FY19	Fiscal Year 2019
FEMA	Federal Emergency Management Agency
GIS	Geographic Information System software
LA	Load Allocations for Streams with Approved TMDLs
LID	Low Impact Development
MEP	Maximum Extent Practicable
MDPW	Metro Department of Public Works
Metro	Metro Nashville Davidson County Government
MNPR	Metro Nashville Parks and Recreation
MNPS	Metro Nashville Public Schools
MS4	Municipal Separate Storm Sewer System
MWS	Metro Water Services
NOV	Notice of Violation
NON	Notice of Noncompliance
NPDES	National Pollutant Discharge Elimination System Section within MWS Stormwater Division
O&M	Operations and Maintenance
OEM	Mayor's Office of Emergency Management
PIE	Public Information/Education Plan
RMCP	Ready Mix Concrete Plant
RMP	Runoff Management Plan
SCM	Stormwater Control Measure (Post-Construction Stormwater Treatment)
SOP	Standard Operating Procedure
SSD	System Services Division
SWMC	Stormwater Management Committee
SWMM	Stormwater Management Manual
SWMP	Stormwater Management Plan
SWO	Stop Work Order
TDEC	Tennessee Department of Environment and Conservation
TMDL	Total Maximum Daily Load of Pollutants Allowed within Streams
TMSP	Tennessee Multi-Sector Permit for Industrial Stormwater Discharges
TMI	Tennessee Macroinvertebrate Index
TSS	Total Suspended Solids
WIES	Watershed Improvement Evaluation System
WLA	Waste Load Allocation

1.1 Objective of the Program

The objective of the Stormwater Management Program is to implement specific pollution prevention programs designed to improve the quality of Metro's water resources to the Maximum Extent Practicable (MEP), particularly as it relates to improving the quality of discharges from Metro's MS4. This leads to an overall goal of maintaining MS4 permit compliance, while simultaneously achieving water quality improvements in every Metro stream reach, including those listed on the Tennessee Department of Environment and Conservation's (TDEC's) 303(d) list of impaired streams. It is Metro's long-term goal to reduce pollutant loadings from the MS4 as much as possible so as to remove a majority of the streams from the 303(d) list that are indicated as being impaired by MS4 runoff. As Metro maintains compliance with the current MS4 permit requirements, it is important to evaluate the success of the major pollution prevention programs that have been implemented in the first 3 permit cycles. Over the first 3 permit cycles, Metro has made great strides to improve stormwater runoff from construction sites, industrial sites, commercial sites, residential sites, and Metro roadways/properties. Overall, the implementation of these control programs has worked to significantly reduce and minimize pollutants from entering the MS4 drainage system and the receiving streams.

1.2 Major Stormwater Pollution Findings

Each year there are fewer and fewer major discoveries of pollution to the MS4 drainage system. This can be largely attributed to the long-term implementation of core pollution prevention programs described further in this document. As Metro's MS4 program has matured over the last few years, additional focus and resources have been dedicated to addressing the long-term inspection and maintenance of post-construction Stormwater Control Measures (SCMs). As a result of this new dedication, Metro has had success in achieving the proper maintenance of many SCMs within Davidson County. The paragraphs below describe some of the more notable investigations and compliance actions that have directly benefited the water quality of the MS4 and Metro streams during FY19.

1.2.1 MWS Coordination, Containment, and Clean-up of Sanitary Sewer Sludge Spill

In the winter of 2018, a large MWS sewer force main that routes sludge from the Whites Creek Wastewater Treatment Plant to the Biosolids facility had a line failure, which caused large amounts of sludge to discharge into the MS4. MWS System Services' crews quickly responded and placed materials to contain and prevent as much sludge as possible from entering the downstream canal system that eventually routes to the Cumberland River. MWS System Services' crews also quickly notified NPDES staff to respond and advise on the proper clean-up of the MS4. NPDES worked together with MWS System Services to have a contractor vacuum up and properly dispose of all the spilled sludge materials.

Photographs of the Sanitary Sewer Remediation

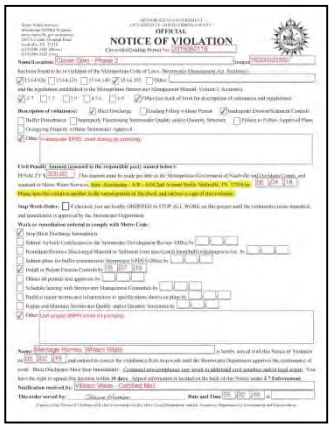
1.2.2 Private Sanitary Sewer Discharge

NPDES received reports of exposed sewage material on the ground at a local convenience store. Upon investigating, NPDES determined that the sanitary service line was broken and left unrepaired for at least a week's time. As a result, a significant amount of sanitary sewer waste was discharging to the MS4. A Notice of Violation (NOV) and administrative penalty was issued to the property owner, requiring an expedited repair of the sanitary sewer service line. The sanitary sewer service line was repaired immediately after NPDES enforcement activities, therefore, eliminating hundreds of gallons of untreated sanitary sewer from otherwise discharging to the MS4.

Photographs of the Private Sanitary Sewer Discharge to the MS4

1.2.3 Construction Violation

During a normal, routine grading permit inspection, an NPDES inspector observed a muddy discharge from the construction site to a nearby tributary. Upon further investigation, it was determined that the site's Erosion Prevention and Sediment Control (EPSC) practices were not being properly maintained. The NPDES inspector directed site personnel to immediately maintain and repair all EPSC controls and issued a NOV to the site with an assessed administrative penalty of $450. As a result of the enforcement, the site immediately repaired the EPSC measures and remediated lost sediment from the site.


NOTICE OF VIOLATION

Grading Permit Violation Pictures and Resulting Enforcement

1.2.4 Improper Discharge of Wash Water

While performing a routine inspection of SCMs on the property of a commercial truck washing facility, NPDES inspectors observed commercial wash water discharges flowing through the facility's SCMs and into a nearby tributary to Hurricane Creek. An engine of a large commercial truck was being pressure washed with de-greasers and detergents on the outside pavement despite the facility having indoor wash bays available that route wash water to the sanitary sewer. NPDES personnel immediately talked to the site management and instructed them to halt all outside washing operations. Enforcement proceedings, including the assessment of a $100 administrative penalty, were also initiated. As a result of the enforcement proceedings, the discharge of wash water was eliminated to the tributary to Hurricane Creek.

Discharge of Wash Water from Local Commercial Wash Facility

1.2.5 Commercial Carpet Cleaning Illicit Discharge

In following up on a report from a concerned citizen, NPDES discovered an illicit discharge of commercial wash water from a local carpet washing company into a private storm drain that routes directly to the MS4. In conversations with the carpet cleaning company, it was learned that dumping the waste wash water on the ground was a normal practice for them. An NOV with a $500 administrative penalty was issued to the company responsible for the discharge.

Illicit Discharge of Carpet Cleaning Wash Water

1.2.6 NPDES Spill Response Program

NPDES provides a support role to first responders in the event of major spills. Due to Metro's expansive stormwater GIS inventory, NPDES is able to assist first responders on determining where spilled material will drain/route, so decisions can be made quickly on containment and clean-up measures. NPDES responds to provide assistance, when needed, on many large spills even when they occur outside of Metro's MS4 jurisdiction, such as within one of the Metro satellite cities or one of the Tennessee Department of Transportation roadways. One example during FY19 includes a large railroad tanker derailment that took place in the Metro satellite city of Berry Hill.

Example Spills responded to in FY19

1.2.7 NPDES Watershed Group Discovery and Elimination of Chronic Source of Bacterial Discharge to Bosley Branch

The NPDES Watershed Group has been investigating elevated bacteria levels within Bosley Springs Branch (tributary to Richland Creek) for several years. Bosley Springs Branch is identified on the 303(d) list as being impaired by pathogens caused by sanitary sewer discharges. Over the years, NPDES has found and eliminated several sources of sanitary sewer discharges to the creek. While subsequent sampling has indicated improved water quality conditions of Bosley Springs Branch, the *E. coli* levels have continued to exceed TDEC's water quality standards for pathogens. In FY19, NPDES Watershed Group was sampling Bosley Springs Branch, when they noted an intermittent flow coming from an outfall of a large, multi-story commercial complex during dry weather conditions. Detergents were noted in the discharge and sampling results indicated elevated levels of HuBac via qPCR analysis, which indicated a potential sanitary sewage cross-connection was present. The maintenance manager for the building was immediately contacted and bypass pumping was installed to route the suspicious flow to the sanitary sewer while dye trace investigations were initiated to find the potential sources. Through continued coordination with the maintenance manager, it was determined that several small cross connections of sanitary sewer to the storm drains were found and eliminated within the building. Since these repairs, the outfall monitoring has indicated non-detect levels of HuBac and detergents.

Photo of the bypass pumping of storm drain receiving sanitary waste

1.3 Major Stormwater Management Program Accomplishments and Highlights

1.3.1 MWS Stormwater Division

The MWS Stormwater Division has continued to facilitate major accomplishments in the development of the overall Stormwater Management Program. Particular accomplishments performed in recent years are listed below:

SWMP Implementation/Updates:
In FY19, NPDES continued to implement Metro's MS4 Storm Water Management Plan (SWMP) that was developed during previous permit reporting periods. The SWMP, as required by the current MS4 permit, is a formal document that provides a comprehensive narrative description of Metro's overall Stormwater Management Program. The SWMP describes Metro's methods of achieving each MS4 permit-required activity. The SWMP is an internal program document that is reviewed routinely to determine if improvements or updates are needed. During the previous year (FY18), the SWMP was reviewed and some minor updates were implemented as supplemental appendices to the document. The overall SWMP will be completely revised to reflect changes in the program once a new MS4 permit is issued.

Please note that Metro's permit cycle ended on January 31, 2017, but is currently administratively extended until such time as the permit is reissued by TDEC. With the pending issuance of the 4th iteration of Metro's MS4 permit, Metro believes some changes can be made to improve the efficiency of pollution prevention programs. Attachment B includes several communications submitted to TDEC detailing proposed changes to the Stormwater Management Program, which NPDES is currently implementing during the transition/"extension" period between permits. NPDES met with TDEC on November 16, 2017 to discuss these changes and TDEC approved of testing out the slight MS4 program modifications during the transition/"extension" period. On March 30, 2018, NPDES submitted a follow-up letter to TDEC explaining how the modifications have been beneficial to the program. During FY19, NPDES continued to implement the changes detailed in these communications to TDEC.

Public Education:
In FY19, NPDES and other departments continued an aggressive approach to public education/involvement activities by implementing various actions detailed in the Public Involvement/Education (PIE) plan. Through the more than 20 years of public education activities, there is undoubtedly an observable increase in general awareness of stormwater issues. NPDES will continue to build upon the successes of the public education programs and will always look for new outreach opportunities. The below paragraphs highlight some of the specific public education activities that were conducted during FY19:

- Post-Construction Stormwater Control Measure Inspection and Maintenance Training
  During this reporting period, NPDES continued to coordinate with the Tennessee Stormwater Management Training Program to assist in implementing the state-wide post-construction SCM Inspection and Maintenance Training/Certification Program. The class is designed to provide foundational knowledge for professionals that wish to be certified to perform inspection and maintenance functions of various types of SCMs (i.e. detention ponds, water quality units, bioretention basins, and pervious pavement). By the end of FY19, 159 individuals have been trained and certified to inspect and maintain SCMs state-wide.

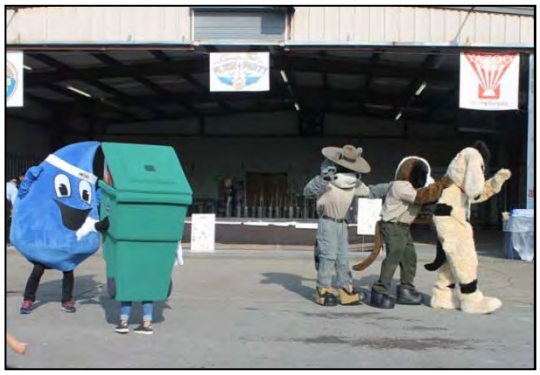
  NPDES also hosted a workshop with SCM maintenance companies during FY19 to discuss the latest developments in inspection, maintenance, and annual reporting requirements. Over 30 individuals from private SCM maintenance companies attended this workshop where NPDES presented the latest resources being dedicated to inspecting SCMs maintenance conditions and the proposed changes NPDES is pursuing on the submittal process for annual inspection summary reports. There was also time set aside to have an open discussion on issues that SCM maintenance companies may be encountering in the field. NPDES looks to expand educational outreach opportunities in future permit years as

SCM inspection/maintenance education for property owners and maintenance companies are some of the most important factors affecting SCM Inspection and Maintenance compliance.


Photos from the SCM Maintenance Workshop

- Urban Runoff 5K

  During FY19, MWS continued to partner with TDEC and the Tennessee Stormwater Association (TNSA) to host the 6th annual Urban Runoff 5K and Water Quality Festival. The event was a family-oriented run/walk through a portion of Shelby Park. As part of the event, TNSA held a contest that offered a grant to the winning non-profit group to help fund and implement a stormwater improvement project. Public education signage was present throughout the route to explain the benefits of trees and other "green" features on reducing impacts to stormwater runoff. In addition to the actual race, several local organizations and government agencies hosted exhibitor booths as part of the Water Quality Festival that occurred during and after the race. Over 200 runners, volunteers and other "walk-ons" attended the 5K and Water Quality Festival.

Photos form the Urban Runoff 5K Hosted in FY19

- Social Media Post

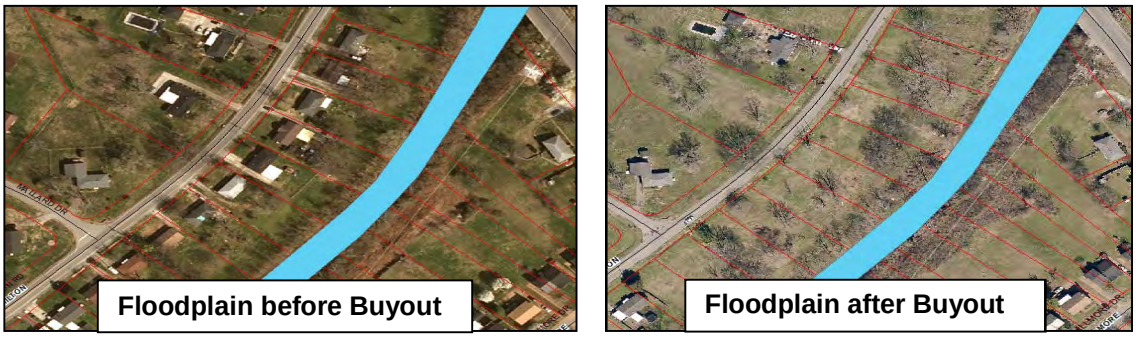
  In FY19, MWS continued to expand stormwater messaging on its social media platform. MWS routinely updates Facebook and Twitter messages, which has proven to be an effective method in reaching the new generation, who get most of their news from the various social media platforms. A benefit to using social media to distribute public education messages is that actual audience sizes can be tabulated in terms of views. In FY19, MWS posted a total of 9 separate stormwater educational messages to social media that reached a total audience size of 12,145 individual views. Below are some FY19 social media posts.

Example Social Media Posts with Stormwater Messages in FY19

- Metro's Adopt-A-Stream Program
  For many years MWS has been coordinating with the Cumberland River Compact (CRC) to facilitate the Adopt-A-Stream program. The program provides an opportunity for local businesses, civic groups, watershed associations, churches, schools, etc. to work together in protecting and enhancing the watershed in which they live or work. Stream adoptions last for a period of 2 years and adopters are required to do at least one stream clean-up per year. During FY19, the CRC signed up or renewed contracts with 22 new adopters for 20.36 miles of stream. To date, there are over 41 active stream adoptions in the county. Stream clean-up activities by adopting groups in FY19 accounted for more than 56 tons of trash removed from streams by over 470 volunteers.

Floodplain Buyout Properties

Over the years, the MWS Stormwater floodplain buyout program has worked to restore floodplain storage and riparian habitat in various watersheds within Metro. The MWS Stormwater Division has been participating in the Federal Emergency Management Agency (FEMA) home buyout program for more than 20 years. Since MWS began participating in the home buyout program, Metro has purchased over 421 floodplain properties (over 191.11 acres) in which structures and other impervious surfaces such as driveways have been removed. For the restored floodplain parcels, Metro has ceased mowing areas directly adjacent to streams, allowing riparian buffers to naturally reestablish. MWS Stormwater has also coordinated the plantings of hundreds of native trees and shrubs within many of these floodplain properties. Many of the buyout sites are adjoining parcels within the same floodplain, resulting in the restoration of large continuous tracks of riparian floodplain. Some of these floodplain properties also provide recreational value to local neighborhoods as they are now managed and protected by the Metro's Parks Department.



Example Screen Capture of Floodplain Buyout Properties along Whites Creek

Watershed Improvement Fund

During FY18, NPDES broke ground on the first stormwater retrofit project constructed for the sole purpose of improving the quality of stormwater runoff from a specific Metro property to an impaired stream. This project was funded by the Watershed Improvement Fund (WIF), which is a dedication of certain stormwater user fee funds to implementing proactive projects that are specifically designed to improve the quality of stormwater runoff in various watersheds. Projects implemented with WIF funds will include structural and non-structural controls to include some retrofits of previously developed properties.

Through wet weather monitoring, NPDES found elevated levels of bacteria consistently present in runoff from one of Metro's community dog parks during storm events. Metro's Pitts Dog Park, located at 299 Tusculum Road, was found to have unique circumstances where all the runoff for the park routes directly to a defined ditch, then into the MS4 and, shortly thereafter, into the headwaters of Sorghum Branch. The elevated levels of bacteria represent a specific concern as Sorghum Branch is listed on the 303(d) list of impaired waterways for exceeding the pathogen levels recommended for recreational streams. In order to develop a project to minimize bacteria runoff from the dog park, NPDES hired a contractor to design a bioretention structure to retain/infiltrate/treat stormwater runoff from the dog park. The bioretention basin was constructed at the end of FY18.

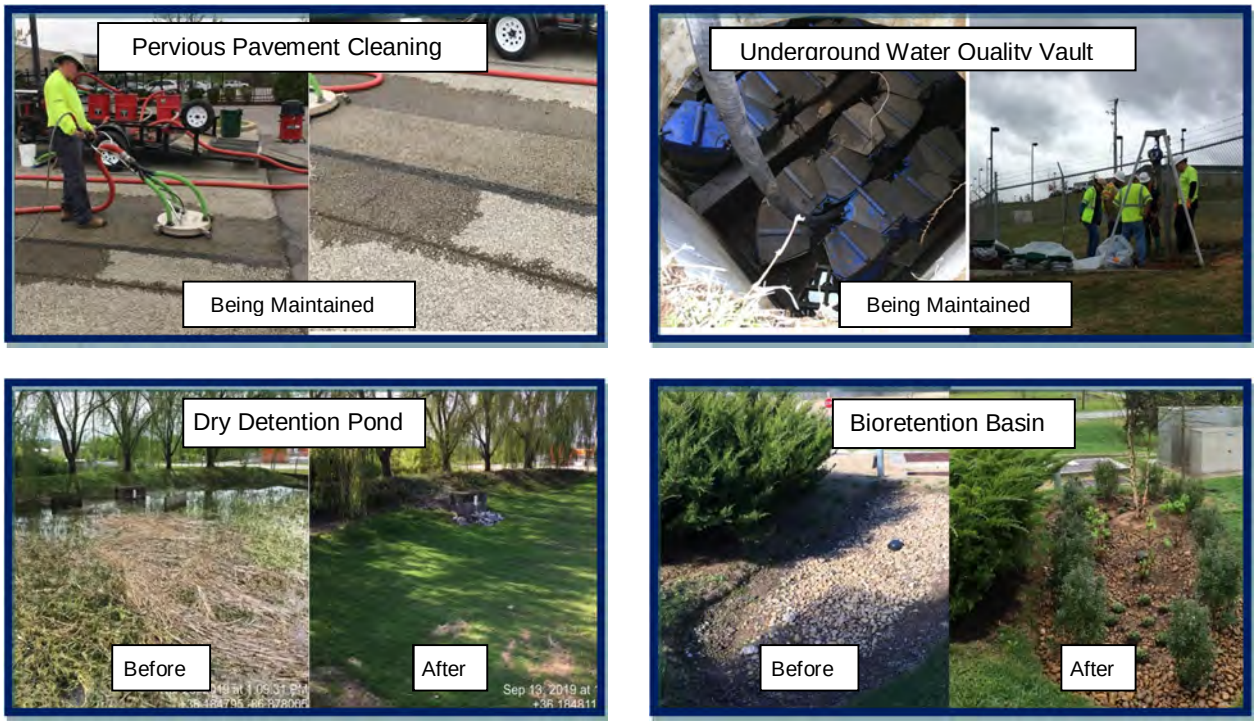
In FY19, Metro began acquiring monitoring equipment to evaluate the volume of stormwater runoff flowing into and out of the basin. ADS ECHO monitoring devices were purchased and installed in junction boxes upstream and downstream of the bioretention basin in March of 2019. Since installation, NPDES has been collecting data, as well as performing some water quality sampling during wet weather conditions. Initial results are very encouraging, indicating a reduction in overall stormwater volume and bacteria levels discharging from the dog park property.

Bioretention and Monitoring Equipment Installed at Pitts Park

Stormwater Control Measure Oversight Program

At the time this report was compiled, Nashville had inventoried 5,332 post construction SCMs that have been built to treat stormwater runoff from the developed environment, as required by grading permit regulations. These structures include older dry detention ponds, wet retention ponds, water quality vaults, and the relatively new green features such as bioretention basins, infiltration trenches and pervious pavement. NPDES began expanding its program personnel to devote more resources to SCM inspection services over the last few years. NPDES's current work plan has 4 personnel dedicated to inspecting and following up with property owners to ensure these structures are being properly maintained. In addition, NPDES also has 1 administrative staff receiving and documenting owner-submitted annual maintenance reports.

NPDES logs all the SCM inspection and reporting documentation into the Cityworks database, which is a city-wide database that documents all the grading permits within the County. During FY19, NPDES performed inspections and/or re-inspections of 1,092 properties for SCM maintenance compliance. Since the average grading permit property contains an average of 3 SCM structures, it is estimated that NPDES inspected over 3,000 individual SCM structures. As a result of the inspections, NPDES issued 441 notices to property owners informing them of the inspection results and any required maintenance. In addition, NPDES issued 11 Notices of Noncompliance to property owners that failed to respond to maintenance needs or have altered the function of SCM structures. One of the more challenging aspects NPDES has encountered over the first few years of the expanded SCM maintenance oversight program has been tracking down and contacting residential SCM property owners. In FY19, NPDES began coordinating with the Metro Legal Department to determine the most effective method of requiring maintenance for residential SCMs, in which Homeowners Associations are non-existent or have never been delegated responsibility. The inspection and follow-up with SCMs located on commercial or industrial-owned properties, however, has proven to be much more successful, which should directly translate to continually improving stormwater runoff from these facilities. Below are some before and after photographs of SCM structures that NPDES inspected and coordinated with the property owner to perform maintenance.



Pictures of SCM Maintenance Performed after NPDES Inspection and Follow-up Coordination

Table 2 – FY19 NPDES SCM Oversight Program

Office Support Specialist 2	Receiving, documenting owner-submitted annual inspection/maintenance reports. Assist with distributing SCM owner education materials.
Environmental Compliance Officer 1	SCM Enforcement Coordinator – To put together and distribute all NONs, NOVs, and coordinate with Metro Legal on unresolved SCM enforcement cases. Coordinate SCM complaint responses. Assist, as needed, on other SCM inspections/follow-up.
Environmental Compliance Officer 1	Metro Department SCM Coordinator – To inspect and coordinate annually with all Metro departments on their property's SCM maintenance needs. Responsible for SCM inspections and initial coordination with property owners in the downtown inner loop.
Environmental Compliance Officer 1	Responsible for SCM inspections and initial coordination with property owners for the large geographic area east of Interstate 65 (excluding downtown inner loop). Assists with SCM complaint investigations within same geographic area.
Environmental Compliance Officer 1	Responsible for SCM inspections and initial coordination with property owners for the large geographic area west of Interstate 65 (excluding downtown inner loop). Assists with SCM complaint investigations within same geographic area.

Urban Forestry Program and Soil and Water Conservation Programs within Stormwater

During FY18, NPDES broadened its technical resources to include a new Urban Forestry Program and the Davidson County Soil & Water Conservation Program. These are important programs to house within the NPDES program, as tree canopy coverage and soil conservation practices are some of the most important factors in protecting water resources within Metro Nashville.

Urban Forestry Program:

As part of the livable Nashville process, Metro has adopted a goal of planting 500,000 trees by 2050. This investment will protect air and water quality, reduce heat-island impacts, improve public health, and save taxpayer dollars on heavy (grey) stormwater infrastructure. The Urban Forestry Program was established to strengthen Metro Nashville's capacity to maintain and preserve existing tree canopy and enhance coordination across Metro departments on tree-related issues. As a component, Metro recently launched the Root Nashville program, which is a public-facing tree planting campaign that utilizes public-private partnership to plant/maintain trees and increase public awareness on the importance of trees. During FY19, Executive Order 40 was enacted, which established trees as a part of Nashville's critical infrastructure. In addition, NPDES implemented a new inventory system to track Metro's trees and maintenance needs, hired a company to inventory street trees and trees on Metro property, and coordinated an initial strategy to mitigate damage caused by the Emerald Ash Borer, which threatens to kill an estimated 5% of Metro's urban tree canopy in the next five years. Moving forward, MWS will be leading the tree canopy improvement campaign by example by planting 1,000 trees on MWS properties.

Davidson County Soil and Water Conservation:

The Davidson County Soil Conservation District was established in 1946 as a subdivision of the state government. The mission of the Davidson County Soil Conservation District has been to provide conservation planning, education, information and technical assistance to landowners, groups and units of government so they can enhance and benefit from the proper management of our natural resources. At the start of FY19, Metro reorganized this program to be housed within the MWS Stormwater NPDES Office due to the common goals of the programs and operational efficiencies.

The Soil and Water Conservation Program is complimentary to the NPDES program as they perform various functions such as educating local landowners on soil and water conservation practices, livestock management processes that reduce impacts to water resources and local watersheds from certain landowner activities. In addition, the program also provides technical assistance to landowners on conservation techniques, specifically by offering cost share funds allocated from Tennessee Department of Agriculture and USDA/NRCS for best management practices for Davidson County Watersheds. The Conservation programs reduce soil erosion, enhance water supply, improve water quality, increase wildlife habitat and reduce damages caused by floods and other natural disasters. This program is unique in that it promotes the installation of best management practices that can directly benefit water quality runoff from private property.

Watershed Improvement Evaluation System

For an MS4 program, one of the most important, but difficult tasks is to evaluate various programs effectiveness and quantify the benefits these programs have to the MS4 and community waters. Some program elements produce hard data that can be analyzed and quantified, while other program elements are implemented without producing specific data or results that can be evaluated for effectiveness. For instance, it's much harder to evaluate a non-structural control such as public education programs verses the structural controls such as the implementation of stormwater retrofitting projects. NPDES hired a contractor (Paradigm Environmental) to, not only calculate the seasonal pollutant loadings in year 5 of the third permit cycle, but to also develop a database to assist with future tracking and calculation of the pollutant loading reductions in relation to the implementation of various stormwater programs.

Throughout FY19, NPDES worked with Paradigm Environmental on the development of a web-based application to not only track the MS4 Pollutant Loading calculations, as required by the MS4 Permit, but also to track the beneficial pollutant reduction aspects of the overall stormwater management program. This database is called the Davidson County Watershed Improvement & Evaluation System (WIES) and will assist with calculating/estimating pollution removal efficiencies of both structural and non-structural MS4 programs so that MS4 managers are able to evaluate and allocate resources to the most efficient aspects of the programs. In FY19, NPDES began uploading data that NPDES tracks in various databases for structural and non-structural aspects of the overall stormwater management program. This year's annual report includes several reports and graphs of output data from the WIES database. In FY20, NPDES will work with Paradigm to further refine the calculations in the database and build the dashboard of visual graphic depictions. Selected pollutant loading reduction graphs and reports are included within Attachment C of this report.

1.3.2 Other Metro Department Activities:

In addition to MWS Stormwater Division activities, many other Metro Departments perform critical roles in promoting improved stormwater quality runoff throughout Metro.

Metro Parks and Recreation Department

Metro Nashville Parks and Recreation Department (MNPR) has been a key player in improving stormwater runoff and riparian habitat on Metro properties. Below are some of the major MNPR activities that have either been performed or are planned that serve to improve the quality of stormwater runoff:

Warner Park Stream Mitigation – Parks has partnered with Friends of Warner Park to work with the firm of Lord and Winter to evaluate and identify 10 stream segments within Percy and Edwin Warner Parks as potential mitigation projects. Currently, the Cumberland River Compact is reviewing these segments for potential funding for the mitigation.

Environmental Education Programs - Metro Parks Nature Centers have a direct and valuable positive impact on water quality and conservation through its environmental education programs, interpretive exhibits, green facilities, and watershed protection. Of the

approximately 27,000 individuals who participated in nature center programs last year, as many as 10,000 received education and information directly related to water resources. Up to 142,000 more park visitors were exposed to water resources education through educational exhibits at the four Metro Parks nature centers. Each of these nature centers also feature amenities that conserve water resources and provide passive education opportunities to visitors. These include green roofs, water chains, rain barrels, teaching ponds, stream bank restoration areas, pervious paving materials, rain gardens and cisterns.

Dog Waste Pick-up On MNPR Property – During the reporting year, approximately 588,000 dog waste bags were distributed at MNPR properties. Based on the amount of dog waste bags distributed, it is estimated that approximately 127,160 pounds (63.58 tons) of dog waste were collected for proper disposal.

Mill Ridge Property – During the previous fiscal years, MNPR acquired several hundred acres of property in the southeastern portion of the county. This property, which is mostly old farm land, is rich with water resources as several tributaries to Hurricane Creek and Collins Creek are present throughout the parcels of land. NPDES began coordinating with MNPR on some potential stream/wetland enhancement projects on the property in previous permit years. In FY18, MNPR acquired an additional 60 acres of land that contain additional degraded headwater streams that may serve as potential stream mitigation projects in the future.

Parks Land Conservation - The majority of the Parks and Recreation Department's 14,000 plus acres and over 60 miles of greenway corridor have continued to be maintained in a natural condition, providing vitally important protection to our watersheds, including many critical headwater streams. Each year MNPR plants many trees on a variety of MNPR properties.

Metro Nashville Planning Department

Nashville's Planning Department focuses on sustainable development as described in the *Community Character Manual,* which encourages sustainable development and preservation in Nashville/Davidson County's fourteen community plans that guide future land use entitlements and infrastructure decisions. A foundational principle of the *Community Character Manual* is the commitment to create sustainable communities through sustainable development. Key strategies include actions to address each property's unique location and geographic features, while avoiding sensitive environmental features. This benefits the community by protecting water quality, as well as reducing the impact of development on surrounding infrastructure and the community through the use of best practices in stormwater and wastewater management. In addition, the *Community Character Manual* includes objectives of the EPA and Metro Nashville's Stormwater Management Program, such as incorporating green infrastructure, protecting steep slopes and headwater areas, minimizing and/or recovering floodplain loss, and retaining or re-creating natural stream buffers. The *Community Character Manual* also includes a section of general principles which highlights the importance of minimizing the impact of development on the natural environment, especially air and water quality, and of integrating green space in developments for preservation, recreation, and healthy lifestyles.

In 2015, the Planning Department completed the city's update to Nashville's General Plan, which was created with city-wide community involvement and input. The process is referred to as NashvilleNext and is the vision and priorities for Nashville/Davidson County for the next 25 years. NashvilleNext includes a Growth & Preservation Concept Map that encourages additional development along the city's corridors and in mixed use centers, while preserving rural areas and areas of sensitive natural features.

One of the four foundations of the plan is a healthy environment. In addition, one of the seven principles in NashvilleNext is to champion the environment. NashvilleNext discusses the importance of how we as a city:

- Build a community founded on land and water conservation, preservation of sensitive environmental conditions, and sustainable development practices.
- Promote efficient transportation and well-designed neighborhoods to achieve healthy living, preserve the natural environment, and encourage resiliency and safety in the face of natural and manmade disasters.
- Sustain the ecological function, resource value, and character of sensitive environmental and rural lands.
- Bring nature into the city through parks, greenways, a healthy urban forest, and clean streams, creeks and rivers.
- Leave future generations an environment that is healthier than today's.

On a day-to-day basis, having quality natural areas betters the quality of life for people, plants, and animals. Nashville's current and projected population growth could degrade the current quality of life and jeopardize Nashville's natural and built environment. In addition to the pressure of sheer growth, demographic changes, such as the growth of Baby Boomer and Millennials seeking more compact, walkable communities, and the increase of single-person households will also drive new locations and forms of development in our communities. A renewed emphasis on public outreach, education, and personal responsibility will activate new stewardship to conserve energy, eliminate and reduce waste, preserve land, build high performance buildings, and create a culture of sustainability. Meanwhile, public policies, incentives, and private decision-making must provide a clear direction on what to preserve and how to build and grow our city in a more sustainable fashion than we do today. This will enable us to secure the best Nashville for current and future generations.

NashvilleNext contains seven plan elements. Nashville/Davidson County's natural resources area is discussed in three elements—Natural Resources & Hazard Adaptation; Health, Livability & the Built Environment; and Land Use, Transportation & Infrastructure. Each element discusses goals, policies, and actions that guide Nashville's future. Relevant element goals, policies, and actions include to:

- Conserve natural resources in order to mitigate floods and other natural hazards, ensure clean air and water, raise food locally, provide outdoor recreation, and preserve Nashville's culture and character.
- Invest in and increase Nashville's natural environment for beauty, biodiversity, recreation, food production, resiliency, and response to climate change through mitigation and adaptation strategies.
- Preserve Nashville's existing tree canopy, including urban trees, street trees, and larger tracts of forested lands.
- Enjoy (all communities) equally high levels of environmental protection, equitable access to nature, and opportunities to improve their health and quality of life.
- Conserve and efficiently use land, energy, water, and resources while reducing waste and pollution.
- Establish a wide-ranging green education campaign that focuses on the "why" and "how" for water conservation, energy efficiency and reductions, recycling and waste reduction, natural resources preservation, and outdoor activity.
- Ensure all communities have access to parks, green areas, cultural amenities, and recreation opportunities that support mental and physical well-being.
- Optimize sewer, water, stormwater, and other infrastructure within Nashville's centers and corridors to prepare for or coordinate with redevelopment. Use green infrastructure to reduce the need for upgrades and to improve streetscapes.
- Reduce the impact of construction on surrounding infrastructure and community through use of best practices in stormwater management, wastewater management, and reducing heat island effect and light pollution.
- Expand programs and institute more complete regulations to protect Nashville's sensitive environmental resources.

During summer and fall of 2018, the Planning Department worked on a corridor plan along Charlotte Avenue from I-440 west to White Bridge Road. The study area includes a section of Richland Creek, a tributary of the Cumberland River, and a planned greenway extension. One of the study's objectives is to reclaim Richland Creek's previously developed floodway/floodplain through development incentives for increased density/intensity in exchange for reclamation of riparian areas. Reclaiming this area would buffer the built environment while also enhancing the riparian function of the creek and the scenic context along the greenway.

During 2019, the Planning Department worked on a corridor plan for properties along Dickerson Pike, from its southern terminus north to Trinity Lane. The study area included properties with floodplains, stream buffers, and steep slopes associated with Pages Branch, a tributary to the Cumberland River. The plan calls for ample greenspace, including a greenway along Pages Branch that would connect with the Cumberland River. Creating a greenway provides additional opportunities to orient buildings and recreational activities towards the trail, provides mobility and recreation options, and enhances natural resources. As properties redevelop, other goals and objectives will focus on the protection of natural resources through best practices for stormwater infrastructure and incorporation of protected natural features into any redevelopment's site designs.

The Planning Department continues its collaboration with Metro Parks and Greenways and the Land Trust for Tennessee by identifying properties that would be good additions to Nashville's open space network. This includes properties that are important to preserve for headwater areas, wildlife habitats, and water management in flood-prone areas.

On a daily basis, the Planning Department meets with property owners and development professionals to discuss property ideas and projects. Planning staff discuss the importance of preserving sensitive environmental features and working within the natural features of each site as well as regarding them as community amenities, including features such as waterways, wet weather conveyances, drainage patterns, steep slopes, woodlands, riparian habitat, and mature trees. Where appropriate, Planning staff direct property owners and development professionals to continue those discussions with Metro Water Services and the Stormwater Division for additional guidance and ideas.

MWS Engineering Division

The MWS Engineering Division and the Clean Water Nashville (CWN) program overseeing the sanitary sewer systems have worked diligently to minimize the volume of unintentional discharges of sanitary sewer overflow material to the MS4 and community waterways. MWS has dramatically increased its involvement on projects to reduce overflows from both the Combined Sewer System (CSS) and the Separate Sewer System (SSS). Table 3 lists some of the major projects undertaken by the MWS Overflow Abatement Program (OAP) that have been completed which serve to greatly reduce discharges of sanitary waste to stormwater drainage and streams. Table 4 provides a list of future projects that are planned to be completed in future reporting years depending on funding availability.

MWS System Services Division

The Metro Water Services System Services Division (SSD) and its contractors continued to inspect and clean sewers to assess conditions and prevent potential overflows. In FY19 SSD and contractors inspected with Closed Circuit TV (CCTV) approximately 622,701 linear feet and cleaned approximately 313,195 linear feet of Metro sewer line. During FY19, SSD continuously reviewed information from CCTV sewer inspection reports that indicated sewer problems with grease or roots. In some instances letters were sent out to notify customers of roots or grease in their private service lines or main lines and recommend corrective actions to prevent private sewer overflows. The estimated/reported MWS sewer overflows for FY19 are depicted in Table 7H.5 within Section 3 of this report.

Table 3 – MWS Engineering Projects to Reduce Sanitary Overflows

Type of Projects	Miles of Sanitary Lines	Money Spent	Watersheds Where Work was Performed
Shelby Park Rehabilitation - Area 5 - Cooper Lane: Design began in June 2016 on this project, which will reduce infiltration/inflow (I/I) related issues in the collection system. Design was completed in December 2016. Construction began in August 2017 and was completed in January 2019	9.55	$4,211,898	Cooper Creek, Cumberland River
Loves Branch Rehabilitation: Design began in October 2016 for this project, which will reduce I/I related issues in the collection system. Design was completed in June 2017. Construction began in December 2017 and was completed in April 2019.	6.64	$3,518,306	Loves Branch, Cumberland River
Hidden Acres Rehabilitation: Design began in October 2016 for this project, which will reduce I/I related issues in the collection system. Design was completed in June 2017. Construction began in April 2018 and was completed in December 2018.	1.29	$1,223,634	Cumberland River
Ewing Creek - Brick Church Equalization Facility: Design was initiated in August 2015 for this project, which will provide 10.6 MG of storage for wet weather events to reduce SSO events. Design was completed in October 2016, with construction starting in May 2017. Construction was completed in January 2019.	N/A	$9,578,487	Ewing Creek, Whites Creek, Cumberland River
Total Completed Projects in FY 2019	**17.48**	**$18,532,325**	

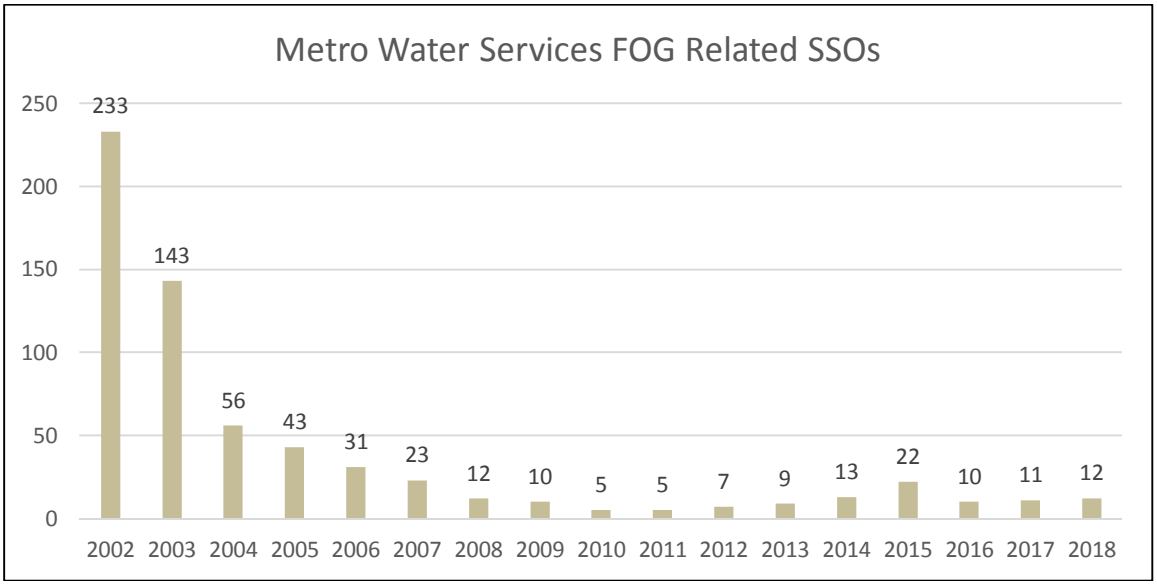
Table 4 – Future MWS Engineering Projects to Reduce Sanitary Overflows

Project	Miles	Costs	Watersheds
Davidson Branch Wastewater Pumping Station (WWPS) and Equalization Facility: Design of this facility, which will provide a new WWPS for reliability and 6 MG of storage for wet weather flows to reduce Sanitary Sewer Overflows (SSO) events, began in May 2015 and was completed on October 2016. Construction is dependent upon funding, which is anticipated to become available in FY 2020.		est. $23.4M	Davidson Branch, Cumberland River
Gibson Creek Equalization Facility: Design of this facility, which will provide 10 MG of storage capacity for wet weather flows to reduce SSO events, began in August 2016. Design was completed in December 2017 and construction is dependent on funding, which is anticipated to be provided in FY 2020.		est. $16.5M	Gibson Creek, Cumberland River
Central Wastewater Treatment Plant - Capacity Improvements and CSO Reduction: The design - build process for improvements to the CWWTP for Optimization, CSO reduction, and other improvements began with the selection of two teams for Planning and Design and engagement of a Construction Manager at Risk. Design began in June 2017 and will conclude in FY 2020. Various construction packages will be delivered to the CMAR for construction services beginning in FY 2020.		est. $380M	Cumberland River
Annual Rehabilitation 2017 - Dry Creek: Design began in May 2017 for this project, which will reduce I/I related issues in the collection system. Design was completed in September 2017. Construction is dependent on funding, which is anticipated to be available in FY 2020.	4.92	est. $4.6M	Dry Creek, Cumberland River
Annual Rehabilitation 2017 - Shepherd Hills: Design began in May 2017 for this project, which will reduce I/I related issues in the collection system. Design was completed October 2017. Construction is dependent on funding, which is anticipated to be available in FY 2020.	5.49	est. $3.8M	Dry Creek, Cumberland River
Shelby Park Rehabilitation - Area 6 - Shelby Trunk: Design began in February 2017 on this project, which will reduce I/I related issues in the trunk sewer located in the Shelby Park basin. Design was completed in December 2017 and construction is dependent on funding, which is anticipated to be available in FY 2020.	3.89	est. $10.25M	Cooper Creek, Cumberland River
Smith Springs Rehabilitation - Area 3 - Harbour Town: Design began in June 2017 for this project, which will reduce I/I related issues in the collection system. Design was completed in January 2018. Construction is dependent on funding, which is anticipated to be available in FY 2020.	5.30	est. $5.1M	Hamilton Creek (East Fork), Percy Priest Reservoir
Vandiver Rehabilitation: Design began in December 2016 for this project, which will reduce I/I related issues in the collection system. Design was completed in June 2017. Construction began in March 2018 and is anticipated to be completed in FY 2020.	5.80	$3.96M	Cumberland River
Hurricane Creek Pipe Improvements: Design of this project, to increase capacity and eliminate I/I issues within the existing trunk sewer, began in April 2016 and was completed in January 2018. Construction is anticipated to begin in FY 2020 dependent upon permit & easement acquisitions and funding availability.	2.29	est. $11M	Hurricane Creek, Percy Priest Reservoir
Sevenmile Creek Rehabilitation - Area 1: Design of this project to reduce I/I issues in the Mill Creek basin began in July 2018 and was completed in March 2019. Construction is anticipated to be scheduled in FY 2021 pending funding availability.	7.80	est. $12.6M	Sevenmile Creek, Mill Creek, Cumberland River

MWS Environmental Compliance Section

The MWS Environmental Compliance Section proactively inspects grease control equipment at food service establishments to ensure they are being maintained appropriately and functioning to prevent Fats, Oils, and Grease (FOG) from discharging to the sanitary sewer system. In Calendar year of 2018, MWS issued 105 Noncompliance Notifications (NCNs) to food service establishments for a variety of discovered failures in the grease control equipment that, if left uncorrected, could cause Sanitary Sewer Overflows (SSOs) to the MS4.

When FOG is identified as the primary cause of an SSO, Metro Water Services responds by investigating the possible FOG sources and issuing enforcement action notifications as necessary to prevent any future SSO events. For the year 2018, there were 12 SSOs identified as FOG related in which MWS Environmental Compliance performed follow-up coordination and education with the facilities or residences that could have been possible contributors. In addition to responding to FOG caused SSOs, MWS Environmental Compliance tracks apartment complexes in the FOG database to identify potential sources of recurring problems within particular sewer line segments. Metro Water Services Environmental Compliance personnel or their FOG program contractor, meet with apartment, condominium, or duplex managers or owners regarding any FOG blockages and SSO problems that occur downstream from their facilities. An apartment and property management database has been developed that includes 566 locations with over 85,000 units. Environmental Compliance is working with the MWS Strategic Communications Section to identify other ways to communicate to the customers regarding prevention of FOG discharge to the sewer system. As a result of MWS Environmental Compliance efforts, FOG caused SSOs have been dramatically reduced over the years.



2.0 MS4 Program Annual Report Form Required By TDEC

Tennessee Department of Environment and Conservation
Division of Water Pollution Control
Enforcement and Compliance Section
L&C Annex, 6th Floor, 401 Church Street
Nashville, TN 37243
TNS068047
Municipal Separate Storm Sewer System (MS4) Annual Report

1. MS4 Information

Nashville/Davidson County Municipal Separate Storm Sewer System (No. TNS068047)
Name of MS4

Michael Hunt/Josh Hayes
Name of Contact Person

615-880-2420
Telephone (including area code)

1607 County Hospital Rd
Mailing Address

Nashville	TN	37218
City	**State**	**ZIP code**

What is the current population of your MS4? *Approximately 600,000+*

What is the reporting period for this annual report? *The reporting period for this Annual report is from 07/01/18 to 06/30/19, which is the 8th reporting period under the current permit. This Annual Report coincides with Metro's Fiscal Year 2019 (FY19) activities. This annual report period took place after the permit's expiration date, which has been administratively extended for Metro to continue to perform all MS4 Permit activities detailed within the permit.*

2. Protection of State or Federally Listed Species

A. Do any of the MS4 discharges or discharge-related activities likely jeopardize state or federally listed species ☐ Yes **X** No

B. Please attach the determination of the effect of the MS4 discharges on state or federally listed species per subpart *Endangered Species Assessment included in Attachment A.*

3. Water Quality Priorities

A. Does your MS4 discharge to waters listed as impaired on your state 303(d) list? **X** Yes ☐ No

B. If yes, identify each impaired water, the impairment(s), whether a TMDL has been approved by EPA for each, and whether the TMDL identifies your MS4 as a source of the impairment *(See below Checklist). The below list represents the approved 2018 list.*

Impaired Water	Impairment	Approved TMDL	MS4 Assigned to WLA
East Fork Hamilton Creek (TN05130203-539-1000)	Habitat Alteration, Siltation	Yes X No	Yes X No
West Fork Hamilton Creek (TN05130203-539-1000)	Habitat Alteration, Siltation	Yes X No	Yes X No
Suggs Creek (TN05130203-232-1000)	Siltation, Nutrients	Yes X No	Yes X No
McCrory Creek (TN05130203-001-0150)	Alteration in stream-side or littoral veg. cover, Nitrite+Nitrate	X Yes No	X Yes No
McCrory Creek (TN05130203-001-0100)	*E. coli*, Alteration in stream-side or littoral veg. cover, Nitrite+Nitrate, Siltation	X Yes No	X Yes No
Unnamed Trib. to Stoners Creek (TN05130203-035-0400)	Siltation	X Yes No	X Yes No
Stoners Creek (TN05130203-035-1000)	*E. coli*, Siltation	X Yes No	X Yes No
Stoners Creek (TN05130203-035-2000)	*E. coli*	Yes X No	Yes X No
Stones River (TN05130203001-1000)	Low DO, Odor, Sulfides, Flow Alteration	Yes X No	Yes X No
Scotts Creek (TN051302 03-035-0100)	Total Phosphorus, Nitrate+Nitrite, Siltation	Yes X No	Yes X No
Dry Fork Creek (TN05130203-035-0300)	Siltation	Yes X No	Yes X No
West Branch Hurricane Creek (TN05130203-036-0200)	Nutrients, Siltation	X Yes No	X Yes No
Hurricane Creek (TN05130203-036-0100)	*E. coli*, Siltation, Nutrients,	X Yes No	X Yes No
Mill Creek (TN05130202-007-5000)	Siltation, Total Phosphorus, Low DO, *E. coli*	X Yes No	X Yes No
Pavillion Branch (TN05130202007-1500)	*E. coli*	X Yes No	X Yes No
Holt Creek (TN05130202-007-1100)	*E. coli*, Nitrate+Nitrite, Total Phosphorus	Yes X No	Yes X No
Owl Creek (TN05130202-007-0900)	Alteration in stream-side or littoral veg. cover, Siltation, Total Phosphorus	Yes X No	Yes X No
Indian Creek (TN05130202-007-0800)	*E. coli*, Total Phosphorus	Yes X No	Yes X No
Collins Creek (TN05130202-007-0600)	Alteration in stream-side or littoral veg. cover, Siltation	Yes X No	Yes X No

Impaired Water	Impairment	Approved TMDL	MS4 Assigned to WLA
Whittemore Branch (TN05130202-007-1200)	*E. coli*, Habitat Alteration	Yes X No	Yes X No
Mill Creek (TN05130202-007-3000)	Siltation, Total Phosphorus, Low DO	Yes X No	Yes X No
Sorghum Branch (TN05130202-007-1300)	Habitat Alteration, Siltation, *E. coli*	Yes X No	Yes X No
Cathy Jo (TN05130202-007-1490)	*E. coli*, Nitrate+Nitrite, Total Phosphorus, Other Anthropogenic substrate alterations, Siltation	Yes X No	Yes X No
Shasta Branch (TN05130202-007-1410)	*E. coli*	X Yes No	X Yes No
Sevenmile Creek (TN05130202-007-1450)	*E. coli*, Total Phosphorus, Nitrite+Nitrate	X Yes No	X Yes No
Sevenmile Creek (TN05130202-007-1400)	*E. coli*, Other Anthropogenic Habitat Alteration, Total Phosphorus, Nitrite+Nitrate, Low DO	X Yes No	X Yes No
Finley Branch (TN05130202-007-0300)	*E. coli*, Other Anthropogenic Habitat Alteration, Total Phosphorus	X Yes No	X Yes No
Mill Creek (TN05130202-007-2000)	Siltation, Total Phosphorus, Low DO	Yes X No	Yes X No
Sims Branch (TN05130202-007-0150)	Other Anthropogenic Habitat Alteration, Low DO, Propylene Glycol	Yes X No	Yes X No
Sims Branch (TN05130202-007-0100)	*E. coli*, Other Anthropogenic Habitat Alteration, Total Phosphorus, Low DO	X Yes No	X Yes No
Mill Creek (TN05130202-007-1000)	*E. coli*, Siltation, Total Phosphorus, Low DO	X Yes No	X Yes No
Manskers Creek (TN05130202-220-2000)	*E. coli*, Siltation, Low DO	X Yes No	X Yes No
Walkers Creek (TN05130202-220-0200)	*E. coli*	X Yes No	X Yes No

Impaired Water	Impairment	Approved TMDL	MS4 Assigned to WLA
Lumsley Fork (TN05130202-220-0100)	*E. coli*	X Yes No	X Yes No
Manskers Creek (TN05130202-220-1000)	*E. coli*, Siltation	X Yes No	X Yes No
Unnamed Trib. to Walkers Creek (TN05130202-220-1000)	Flow Alteration	Yes X No	Yes X No
West Fork Browns Creek (TN05130202-023-0300)	*E. coli*, Total Phosphorus, Nitrite+Nitrate	X Yes No	X Yes No
Middle Fork Browns Creek (TN05130202-023-0200)	*E. coli*, Other Anthropogenic Habitat Alterations, Total Phosphorus, Nitrite+Nitrate	X Yes No	X Yes No
East Fork Browns Creek (TN05130202-023-0100)	*E. coli*, Other Anthropogenic Habitat Alterations, Total Phosphorus, Nitrite+Nitrate, Oil & Grease	X Yes No	X Yes No
Browns Creek (TN05130202-023-2000)	*E. coli*, Other Anthropogenic Habitat Alterations, Total Phosphorus, Nitrite+Nitrate, Oil & Grease	X Yes No	X Yes No
Browns Creek (TN05130202-023-1000)	*E. coli*, Other Anthropogenic Habitat Alterations, Total Phosphorus, Nitrite+Nitrate, Oil & Grease	X Yes No	X Yes No
Richland Creek (TN05130202-314-3000)	Other Anthropogenic Habitat Alterations, Total Phosphorus, Nitrite+Nitrate, *E. Coli*	X Yes No	X Yes No
Vaughns Gap Branch (TN05130202-314-0750)	*E. coli*, Other Anthropogenic Habitat Alterations	X Yes No	X Yes No
Vaughns Gap Branch (TN05130202-314-0700)	*E. coli*, Other Anthropogenic Habitat Alterations, Total Phosphorus, Nitrite+Nitrate	X Yes No	X Yes No
Jocelyn Hollow Branch (TN05130202-314-0800)	*E. coli*, Total Phosphorus, Nitrite+Nitrate	X Yes No	X Yes No
Richland Creek (TN05130202-314-2000)	Other Anthropogenic Habitat Alterations, Total Phosphorus, Nitrite+Nitrate, *E. Coli*	X Yes No	X Yes No

Impaired Water	Impairment	Approved TMDL	MS4 Assigned to WLA
Sugartree Creek (TN05130202-314-0400)	*E. coli*, Other Anthropogenic Habitat Alterations, Total Phosphorus, Nitrite+Nitrate, Low DO	X Yes No	X Yes No
Bosley Springs Branch (TN05130202-314-0300)	*E. coli*, Other Anthropogenic Habitat Alterations, Total Phosphorus, Nitrite+Nitrate	X Yes No	X Yes No
Richland Creek (TN05130202-314-1000)	Other Anthropogenic Habitat Alterations, Total Phosphorus, Nitrite+Nitrate, *E. coli*	X Yes No	X Yes No
Cooper Creek (TN05130202-209-1000)	*E. coli*, Other Anthropogenic Habitat Alterations	X Yes No	X Yes No
Ewing Creek (TN05130202-010-0900)	*E. coli*, Other Anthropogenic Habitat Alterations	Yes X No	Yes X No
Drakes Branch (TN05130202-010-0200)	*E. coli*, siltation	X Yes No	X Yes No
Whites Creek (TN05130202-101-2000)	*E. coli*, Alteration in stream-side or littoral vegetative cover, Siltation	X Yes No	X Yes No
Whites Creek (TN05130202-010-1000)	Nutrients	X Yes No	X Yes No
Gibson Creek (TN05130202-212-1000)	Other Anthropogenic Habitat Alterations, Flow Alteration	Yes X No	Yes X No
Neelys Branch (TN05130202-212-0100)	*E. coli*	X Yes No	X Yes No
Dry Creek (TN05130202-027-2000)	Other Anthropogenic Habitat Alterations	Yes X No	Yes X No
Dry Creek (TN05130202-027-1000)	*E. coli*	X Yes No	X Yes No
Loves Branch (TN05130202-211-1000)	Other Anthropogenic Habitat Alterations	Yes X No	Yes X No
Pages Branch (TN05130202-202-1000)	*E. coli*	X Yes No	X Yes No
Davidson Branch (TN05130202-001T-0700)	*E. coli*	Yes X No	Yes X No

Impaired Water	Impairment	Approved TMDL	MS4 Assigned to WLA
Unnamed Trib. to Cheatham Reservoir (TN05130202-001T-0700)	Iron, TDS	Yes X No	Yes X No
Cheatham Reservoir (TN05130202-001-3000)	*E. coli*	Yes X No	Yes X No
Overall Creek (TN05130202-001T-0900)	Siltation, Flow Alteration	Yes X No	Yes X No
Otter Creek (TN05130204-021-0100)	Total Phosphorus, Alteration in stream-side or littoral vegetative cover, Siltation, Flow Alteration	X Yes No	X Yes No
Little Harpeth River (TN05130204-021-1000)	Alteration in stream-side or littoral vegetative cover, Siltation, *E. coli*	X Yes No	X Yes No
Harpeth River (TN05130204-009-2000)	Total Phosphorus, Low DO	X Yes No	X Yes No
Trace Creek (TN05130204-009-0900)	Physical Substrate Habitat Alteration, Siltation	X Yes No	X Yes No
Flat Creek (TN05130204-009-0400)	Alteration in stream-side or littoral vegetative cover, Siltation	X Yes No	X Yes No
Unnamed Trib. to South Harpeth (TN05130204-010-0200)	Flow Alteration	Yes X No	Yes X No
Unnamed Trib. to South Harpeth (TN05130204-010-0300)	Alteration in stream-side or littoral vegetative cover	X Yes No	X Yes No
Harpeth River (TN05130204-009-3000)	Total Phosphorus, Low DO	X Yes No	X Yes No
Beech Creek (TN05130204-009-1100)	Alteration in stream-side or littoral vegetative cover, Siltation	X Yes No	X Yes No

C. What specific sources of these pollutants of concern are you targeting?

Pathogens (pet waste, sanitary sewer leaks), siltation (construction sites), oil & grease (industries/commercial sites), and nutrients (pet waste, sanitary sewer leaks, fertilizer application)

D. Do you have discharges to any Exceptional TN Waters (ETWs) or Outstanding National Resource Waters (ONRWs)?

X Yes ☐ No

A large portion of Metro drains to Mill Creek, which is listed as an ETW due to the presence of the federally endangered Nashville Crayfish (Faxonius shoupi). A portion of the Harpeth River in Davidson County is listed as a State Scenic Riverway.

E. Are you implementing additional specific provisions to ensure the continued integrity of ETWs or ONRWS located within your jurisdiction? X Yes ☐ No ☐ N/A

Specific public education activities have been implemented in the past for certain residential areas that drain to the Harpeth River and commercial/industrial areas that drain to Mill Creek. Nutrient and pathogen reduction education has been and will be focused on that area. The Stormwater Maintenance Sections and the MWS Sanitary Sewer Division have been trained on limiting in-creek excavation work within the Mill Creek watershed. Metro also implements a robust construction oversight program to prevent excess sediment from draining to these high valued waterways.

4. Public Education and Public Participation

A. Is your public education program targeting specific pollutants and sources of those pollutants? X Yes ☐ No

B. If yes, what are the specific causes, sources and/or pollutants addressed by your public education program?

Pathogens (pet waste), siltation (construction sites), nutrients (residential lawn maintenance & pet waste), and oil & grease (commercial/industrial facilities).

C. Note specific successful outcome(s) (NOT tasks, events, publications) fully or partially attributable to your public education program during this reporting period.

During the reporting period of FY19, NPDES performed many activities to increase public education and awareness for many diverse stormwater issues, all of which are detailed in Section 4 of this document. In particular, NPDES continued to utilize the social media presence in order educate the new generation of customers about stormwater issues and pollution. Three main social media sources (Facebook, Twitter, and Instagram) were utilized to reach local citizens. Typical content of the posts focused on drawing the connection of storm drains to our local water resources to encourage the general public to work towards reducing pollution. Various types of visual media were used to depict the kinds of pollutants that can end up in our streams and how Metro residents can do their part to reduce it. Pollutants that were specifically targeted included lawn chemicals, cigarette butts, lawn wastes, pet waste, and general trash. In particular, during FY19, Metro posted various stormwater-related social media messages that reached over 12,145 different recipients. NPDES also continued to achieve specific public education outcomes by sending out email or mail-out notices to various audience groups (i.e. development community, specific neighborhoods, etc.) In FY19, MWS started including public education inserts in all the water bills. Two of the water bill inserts contained stormwater educational messages that were included in approximately 422,000 water bills during FY19. The February and March 2019 water bills contained messages of proper application of lawn chemicals and being responsible pet owners by picking up pet waste.

D. Do you have an advisory committee or other body comprised of the public and other stakeholders that provides regular input on your stormwater program?

Metro has a Stormwater Management Committee (SWMC) that reviews cases where development/redevelopment activities are unable to meet specific provisions of the stormwater regulations and hears appeals of violation decisions by the Director's office. The members of the committee are appointed by the Mayor's office. The SWMC monthly meetings are televised on Metro's Local Channel 3 which provides visibility of Metro stormwater matters as well as public education.

X Yes ☐ No

E. Provide a summary of all public meetings required by the permit.

Metro has various agencies that perform projects involving public meetings. For example, the MWS Stormwater Remedial Maintenance Section holds meetings for certain large-scale maintenance projects on an as-needed basis. The Metro General Services Department holds various public meetings for large Metro Development activities. In addition, the Metro Planning Department provides numerous opportunities designed to receive feedback from the general public or other stakeholders on a routine basis. Over the past few years, the Planning Department has created several "Resource Teams" that are made up of various stakeholders from the private and public sector involved in advising the Planning Department on future development activities, much of which involves sustainable stormwater practices. Information on the resource teams and other community outreach activities can be found at the following website links:

http://www.nashville.gov/Government/NashvilleNext/Resource-Teams.aspx

https://www.nashville.gov/Planning-Department/Meetings-Deadlines-Hearings.aspx

MWS Stormwater also specifically facilitates monthly meetings with the Stormwater Management Committee for sites appealing specific stormwater regulations. These meetings are available for the public to attend and comment, and are advertised on the internet and at the property in question with a standard public notification sign. During the reporting period, Metro Stormwater facilitated 12 separate SWMC meetings. More information about the SWMC process is available at the following website:

http://www.nashville.gov/Water-Services/Developers/Stormwater-Review/Variance-Appeal-Information/Meeting-Dates-Deadlines.aspx

5. Codes and Ordinances Review and Update

A. Is a completed copy of the EPA Water Quality Scorecard submitted with this report? *A copy of the scorecard was submitted in the FY12 annual report*. ☐ Yes X No

B. Include status of implementation of code, ordinance and/or policy revisions associated with permanent Stormwater management.

MWS Stormwater has already developed a new volume of the Stormwater Management Manual (SWMM) (Volume 5) dedicated to promoting/incentivizing the use of Low Impact Development (LID) techniques for post development stormwater management. A few years ago, Metro promoted/incentivized use of runoff reduction/100% pollution reduction practices, but still allowed development sites to utilize standard stormwater quality treatment practices of 80% total suspended solids (TSS) removal. In February of 2016, however, Metro revised the SWMM to require all development activities to pursue runoff reduction practices for stormwater quality treatment, unless certain site constraints were demonstrated to be present (i.e. high ground water table, clay soils, karst areas, brown fields, etc.). MWS Stormwater has developed a waiver process for sites that are requesting to revert to the standard water quality treatment practices. At the time this report was compiled, MWS has received LID Waiver request from 211 projects, in which 163 sites were granted waivers. During FY19, MWS began the process of updating the entire SWMM to improve the overall stormwater regulations, including updating some of the LID controls and requirements. This update is expected to be completed and implemented in FY20.

6. Construction

A. Do you have an ordinance or adopted policies stipulating:

Erosion and sediment control requirements?	X Yes ☐ No
Other construction waste control requirements?	X Yes ☐ No
Requirement to submit construction plans for review?	X Yes ☐ No
MS4 enforcement authority?	X Yes ☐ No
Have you developed written procedures for site plan review and approval?	X Yes ☐ No

Do the written procedures for site plan review and approval include an evaluation of plan completeness and overall BMP effectiveness? X Yes ☐ No

Have you developed written procedures for managing public input on projects? ☐ Yes X No

Metro Nashville manages public input in a variety of different ways throughout various departments. There are no written procedures for managing the public feedback. Please refer to the above section on public engagement on stormwater development projects. MWS also publishes a list of Metro projects that have received coverage under a TDEC Construction General Permit once a month, which is posted on the web page. (See Notes)

Have you developed written procedures for site inspection and enforcement? X Yes ☐ No

Have all MS4 Inspectors maintained certification under the Tennessee Fundamentals of Erosion Prevention and Sediment Control, Level 1? X Yes ☐ No

Have all MS4 site plan reviewers maintained certification under the Tennessee Fundamentals of Erosion Prevention and Sediment Control, Level 2? X Yes ☐ No

Most of the engineers have taken the Level 2 training, however, the few of the newer engineers that have not taken the training have a Professional Engineer's (P.E) license, which also satisfies the MS4 permit requirement.

B. How many active construction sites disturbing at least one acre were there in your jurisdiction this reporting period?

Refer to attached Table 6B.1. In FY19, there were 327 grading permits issued, while 250 grading permit sites were completed (signed-off). Not all of the Grading Permits were for sites over an acre (requiring a TDEC General Construction Stormwater Permit). All sites that grade over an acre are required to also obtain a grading permit and must have coverage under the State's General Construction Stormwater Permit prior to receiving a Metro Grading Permit. At the time this report was completed, there were 759 active grading permits as Metro requires permits for grading over 10,000 square feet (and certain other criteria per Chapter 3 of Volume 1 of the Metro SWMM).

C. How many of these active sites did you inspect this reporting period?

NPDES Section performed 7,962 construction-related inspections in FY19. The inspections were performed on Grading Permit sites under construction and complaint inspections of construction activity without permits. In addition, MWS Stormwater also provides oversight and guidance to small residential construction activities usually with total disturbed area of less than 10,000 square feet (not requiring a standard grading permit). Refer to the attached Table 6C.1 for small construction project oversight numbers.

D. On average, how many times each, or with what frequency, were these sites inspected (e.g., weekly, monthly, etc.)? Monthly

NPDES inspects all active construction sites at least once per month. Some sites become inactive and have no exposed soils. These sites don't get inspected as often.

E. Do you prioritize certain construction sites for more frequent inspections? X Yes ☐ No

If Yes, based on what criteria?

*All **active** permit sites are prioritized to receive inspections at least once per month. This meets and exceeds the permit requirement to perform monthly inspections of 303(d) listed siltation-impaired streams.*

7. Illicit Discharge Elimination

A. Have you completed a map of all known outfalls and receiving waters of your storm sewer system? X Yes ☐ No

B. Have you completed a map of all known storm drain pipes of storm sewer system? X Yes ☐ No

C. How many outfalls have you identified in your system?

Metro has undergone several iterations of mapping updates of Stormwater infrastructure into the Geographic Information System (GIS). During previous reporting periods, MWS Stormwater's contractor completed a project to re-delineate the outfall layer (grid by grid) with the focus of verifying "actual" MS4 permitted outfalls. While the focus was mapping MS4-permitted outfalls, NPDES also had the contractor create the following two outfall layers: 1) Sub-MS4 Outfalls – Outfalls within the MS4 system upstream of the discharge point to Waters of the State, but usually where two large systems combine; and 2) Private Outfalls – Point at which Stormwater from private properties drain to either Waters of the State or MS4. Currently there are 11,860 MS4-permitted Outfalls, 360 Sub-MS4 Outfalls, and 2,412 Private Outfalls mapped within Metro's GIS database. Please note that in determining the point at which MS4 outfalls drain to Waters of the State, NPDES had to assume the streams layer in GIS was an accurate representation of actual streams, even though the coverage is more of an estimate and has not been field-verified.

D. How many of these outfalls have been screened for dry weather discharges?

In FY19, NPDES received approval from TDEC to implement a new form of field screening, where up to three commercial and industrial properties are screened within ½ mile grids for potential stormwater runoff issues such as exposed grease, waste materials, sediment, etc. Prior to this change, NPDES inspectors were required to look only at infrastructure points for potential illicit discharges, which was very time consuming and produced very few results. Refer to Attachment B for complete coordination on modifications to the field screening program.

During FY19, NPDES screened 36 separate ½ mile grids for potential stormwater runoff issues, which included looking at 77 separate business practices and infrastructure points.

E. How many of these have been screened more than once?

None are required to be screened twice per our new permit, however, if a non-stormwater/"illicit" flow is suspected, NPDES initiates an IDDE investigation that is documented within the Cityworks database until the illicit discharge is eliminated. When NPDES inspectors find site management issues at sites, they initiate education actions with site management and usually return within a few days to determine if corrective actions have taken place.

F. What is your frequency for screening outfalls for illicit discharges?

All 2,047 ¼ mile commercial and industrial-zoned grids were screened by the end of Year 5 of the MS4 permit (January 31, 2017). This requirement is no longer in effect with the approved modification to this program element per the administrative extension agreement. Despite this, NPDES is committed to continuing regular routine dry weather field screening practices, as the newly defined process has yielded very positive results.

G. Do you have an ordinance that effectively prohibits illicit discharges? X Yes ☐ No

H. During this reporting period, how many illicit discharges/illegal connections have you discovered (or been reported to you)?

In FY19, there were 7 confirmed illicit discharges in which NPDES issued a Notice of Violation and associated administrative penalty to the property owner to eliminate the discharge. In addition to the confirmed illicit discharges, NPDES initiated 124 separate water quality investigations during FY19, most of which, originated from citizen complaints. Refer to Table 7H.1 for a complete listing of the 124 IDDE investigations initiated during FY19. There were also 22 spill response investigations and 14 sanitary sewer discharge investigations initiated by NPDES during the reporting period (refer to Tables 7H.2 and 7H.3 respectively.) The Metro Health Department also responds to failing septic systems and issues notices and/or citations requiring failing septic systems to be abated. During the reporting period, the Health Department issued 14 notifications to property owners for failing septic systems (refer to Table 7H.4)

Of those illicit discharges/illegal connections that have been discovered or reported, how many have been eliminated?

All illicit connections found during the reporting period were rectified swiftly and eliminated.

J. Do you have the authority to recover cost for addressing illicit discharges? X Yes ☐ No

We have appropriate language in our Code, but have never pursued the option.

8. Stormwater Management for Municipal Operations

A. Have Stormwater pollution prevention plans (or an equivalent plan) been developed for Municipal operations:

NPDES developed a comprehensive Stormwater Management Plan (SWMP) in 2012, which was submitted in a previous annual report. The SWMP included site-specific Runoff Management Plans (RMPs) for key municipal Operations and Maintenance (O&M) facilities, which are plans equivalent to SWPPPs. Since the time the original SWMP and associated RMPs were developed, NPDES has developed additional RMPs for newly identified O&M facilities. Below is a list of current Metro operated O&M sites in which a SWPPP or RMP has been developed:

- *Central Wastewater Treatment Plant*
- *Dry Creek Wastewater Treatment Plant*
- *Metro Fairgrounds Property*
- *MWS Stormwater Maintenance Facility (County Hospital Road)*
- *Metro Transit Authority (Nestor Street) Bus Maintenance Shop*
- *Metro Nashville Public Schools Bus Maintenance Shop*
- *Shelby Park Golf Course Maintenance Shop*
- *Ted Rhodes Golf Course Maintenance Shop*
- *Two Rivers Golf Course Maintenance Shop*
- *Harpeth Hills Golf Course Maintenance Shop*
- *Percy Warner Golf Course Maintenance Shop*
- *McCabe Golf Course Maintenance Shop*
- *Cedar Hill Park Maintenance Shop*
- *Warner Park Golf Course*
- *Public Works Maintenance Facility (5th Street)*
- *Public Works West Maintenance Facility (Charlotte Avenue)*

All municipal parks, ball fields and other recreational facilities X Yes ☐ No

RMPs were developed for O&M facilities such as golf course and park maintenance facilities. RMPs were not developed for every ball field location.

All municipal turf grass/landscape management activities (*See Note Above*) X Yes ☐ No

All municipal vehicle fueling, operation and maintenance activities

As per the MS4 Permit, RMPs were created for Municipal O&M facilities, some of which include fueling stations. Some fueling sites are stand-alone with no other maintenance operations present and RMPs were not necessary (although spill kits are at those locations).

X Yes ☐ No

All municipal maintenance yards All O&M facilities located within the MS4.

X Yes ☐ No

All municipal waste handling and disposal areas

SWPPPs were created for the Central Wastewater Treatment Plant and the Dry Creek Wastewater Treatment Plant as they retain a Tennessee Multi-Sector Permit for Industrial Stormwater runoff. Metro Nashville does not operate any large waste transfer facilities or transfer stations, as it contracts those services out to private companies. Metro does operate some recycling/waste collection facilities where residents can bring their waste to put in large compactor dumpsters. In FY20, NPDES will begin inspecting these facilities to ensure there are no runoff issues.

X Yes ☐ No

B. Are Stormwater inspections conducted at these facilities?

Each O&M facility where the RMPs were implemented requires on-site personnel to perform weekly grounds inspections. Toward the end of FY19, NPDES personnel began performing random audit inspections to ensure each individual site is being maintained as designated in the RMP. In FY20, NPDES plans on completing the audit inspections and updating each RMP accordingly.

X Yes ☐ No

If Yes, at what frequency are inspections conducted? *See above answer*

C. Have standard operating procedures or BMPs been developed for all MS4 field activities? (e.g., road repairs, catch basin cleaning, landscape management, etc.)

SOPs have been developed for most of the major O&M field activities. MWS posted all of the RMPs, individual water quality SOPs, and a general MS4 educational video to an internal Metro intranet web page for each O&M Department to train their own field staff.

X Yes ☐ No

D. Do you have a prioritization system for storm sewer system and permanent BMP inspections?

In the first year of the permit, NPDES submitted a BMP Maintenance Verification Plan to TDEC that outlined a multipronged strategy to ensure permanent Stormwater Control Measures (SCMs) are being properly maintained. The strategy varies according to which set of Metro's regulations the SCMs were constructed under. The plan includes some inspections by NPDES personnel as well as requiring owner/operators to perform their own inspections/maintenance annually. Since the original SCM maintenance verification plan was submitted to TDEC, NPDES has since re-evaluated this process and has decided to dedicate a greater amount of resources to ensuring the proper maintenance of these structures. NPDES found that there was very low participation in the owner self-inspection/reporting requirements for newly installed SCMs. In addition, NPDES discovered that some of the inspection and maintenance reports that were submitted were not accurate and lacking in content.

X Yes ☐ No

During FY19, NPDES continued to expand resources dedicated to SCM inspection and maintenance oversight. In FY19, NPDES hired 2 additional SCM inspectors bringing the total staff dedicated to SCM inspection and maintenance oversight to 5 staff members (4 inspectors and 1 administrative support staff). Current organization of the SCM inspection and maintenance program is further explained in Section 1.3.1 of this document.

E. On average, how frequently are catch basins and other inline treatment systems inspected?

Varies depending on numbers of complaints or other maintenance tasks.

F. On average, how frequently are catch basins and other inline treatment systems cleaned out/maintained?

Frequency of cleanings depends on conditions. The Stormwater Maintenance Section has developed a rain route list of common stormwater infrastructure sites that clog with debris, leaves, gravel, and sediment on a frequent basis. Maintenance crews visit and clean out these sites and perform maintenance prior to many large rain events. Depicted within Table 8F.1 is a summary of some of the major routine maintenance activities performed on MS4 Stormwater infrastructure during FY19. It is estimated that approximately 202,090 cubic yards of material was removed from the MS4 ditches and culverts, approximately 274,446 pounds of material was removed from 20,494 inlets, and approximately 534,307 square feet of erosion control matting was deployed during the FY19 reporting period. In addition to performing routine maintenance and cleaning of stormwater infrastructure, the Stormwater Maintenance Section also operates a preventative maintenance program by aggressively sweeping public "curb and gutter" streets. MWS Stormwater prioritizes certain streets for sweeping activities based on the accumulation of material on the street. Refer to Table 8F.2 for street sweeping collection numbers in FY19.

In addition to the routine maintenance activities such as inlet and pipe cleaning, MWS Stormwater also performs various large projects to correct neighborhood flooding issues. In previous reporting periods, NPDES coordinated with the MWS Stormwater Remedial Maintenance Division to complete a water quality evaluation form for each large flood control project. As a result, engineers are being asked to consider use of green infrastructure or other low impact design techniques. Based on the water quality evaluation sheets submitted, NPDES was able to estimate that the large flood control projects designed during FY19 would provide the following benefits to water quality.

Removal of approximately 527 cubic yards of accumulated sediment,
Planting of approximately 138 trees and shrubs,
Removal of approximately 154 linear feet of concrete-lined ditch, and
Stabilization of 3,574 linear feet of redefined ditches.

G. Have all applicable municipal employees received training, as identified in each of the following permit sections:

Illicit discharge detection and elimination X Yes ☐ No

If *Yes*, identify the number of municipal employees trained

Throughout the majority of FY19, the Permit Group section within NPDES had 6 people that were primarily dedicated to investigating and enforcing on illicit discharge issues. In addition to the primary on-call personnel, there were additionally 13 staff members within the NPDES office that could respond to complaints of illicit discharges. Note: NPDES has also worked with various O&M sections to properly identify and report illicit discharges. Also, please note that staff levels fluctuate each year due to turnover.

Construction site stormwater runoff control X Yes ☐ No

If *Yes*, identify the number of municipal employees trained:

At the time this report was completed, there were 18 NPDES staff members that had adequate training (TDEC Level 1 EPSC Workshop) to respond to and inspect Stormwater runoff from construction activities. Eight of the employees are dedicated fulltime to inspecting development sites under construction. Note that staff levels fluctuate each year based on staff turnover. .

Permanent stormwater management in new development and redevelopment X Yes ☐ No

If *Yes*, identify the number of municipal employees trained

During FY19, there was an average of 8 engineers employed within the MWS Development Services Section that perform some form of review and approval of the design of permanent stormwater management controls for grading permits. The current internal policy for the MWS Development Services is to require all review engineers to take the TDEC Level II Design Principles for Erosion Prevention and Sediment Control for Construction Sites at least once. In addition to the TDEC Level II training, all inspectors within the NPDES Section that perform inspections on SCMs go through the Stormwater Control Measures Inspection and Maintenance training and certification program.

Pollution prevention/good housekeeping for municipal operations X Yes ☐ No

If *Yes*, identify the number of municipal employees trained:

In a previous reporting period, NPDES coordinated with all Metro Departments to remind them of stormwater issues that may occur from normal maintenance activities. During last FY, NPDES hosted a training workshop with all major Metro Departments in which 43 separate managers attended. During FY19, NPDES inspected and coordinated with some of the sites in which Runoff Management Plans were developed to determine if the sites were being managed properly. NPDES plans on completing all MS4 O&M RMP audits in FY20. In FY19, NPDES began a new process of inspecting all Metro-owned SCMs for maintenance compliance. Each department was sent a report on maintenance conditions of their department's SCMs.

9. Permanent Stormwater Controls

A. Do you have an ordinance or other mechanism to require:

Site plan reviews of all new and re-development projects? X Yes ☐ No

Maintenance of Stormwater management controls? X Yes ☐ No

Retrofitting of existing BMPs with green infrastructure BMPs? X Yes ☐ No

MWS Stormwater compiled a new volume to the Stormwater Management Manual (SWMM). Volume 5 (also referred to as the LID Manual) provides specifications for development or redevelopment sites to follow in installing "green" stormwater control measures. The requirements with this manual became mandatory in February 2016 for new development or significant redevelopment.

B What is the threshold for new/redevelopment Stormwater plan review? (e.g., all projects, projects disturbing greater than one acre, etc.)

Metro actually has more stringent requirements for development than TDEC's Construction General Permit. All development of redevelopment sites grading more than 10,000 square feet must obtain a grading permit. In order to obtain a grading permit, engineered plans must be submitted to the Stormwater Development Review Section for review and approval per Metro's stormwater regulations. All developments increasing the impervious footprint are required to install permanent stormwater treatment measures for water quality and quantity per SWMM criteria.

C. Have you implemented and enforced performance standards for permanent Stormwater controls? X Yes ☐ No

D. Do these performance standards go beyond the requirements found in paragraph and require that pre-development hydrology be met for:

Flow volumes (New LID Manual deals with reductions in site runoff volumes) X Yes ☐ No

Peak discharge rates X Yes ☐ No

Discharge frequency ☐ Yes X No

Flow duration ☐ Yes X No

E. Please provide the URL/reference where all permanent Stormwater management standards can be found.

https://www.nashville.gov/Water-Services/Developers/Stormwater-Review/Stormwater-Management-Manual.aspx

F. How many development and redevelopment project plans were reviewed for this reporting period?

According to Cityworks queries, there were 2,911 plans submitted to the MWS Development Review Section during FY19. This number includes initial grading permit plans, re-submitted plans, as-built final submittals, etc. Refer to attached Table 9F.1 for the total number of plans reviewed by Stormwater Development Review staff in FY19.

G. How many development and redevelopment project plans were approved?

According to Cityworks queries, there were 1,205 plans approved during FY19. This number includes initial grading permit submittals, final as-built signoffs, etc. Refer to Table 9F.1 for a complete listing. A better reflection of actual new development projects approved for construction would be the number of grading permits issued. In FY19, there were 327 grading permits issued.

H. How many permanent Stormwater management practices/facilities were inspected?

There were over 3,100 inspections of individual SCM structures by NPDES staff during FY19. This is an estimate based on the number of properties inspected as we track our inspections within the database based on site grading permit. This number of inspections also includes re-inspections of grading permit properties to verify that the necessary maintenance was performed. Most properties have multiple SCMs, therefore, when a property is inspected or re-inspected, several SCM structures often get inspected. For this number we consider there is an average of 3 SCMs located per each grading permit property. The estimated 3,200 structure inspection/re-inspections included 1,092 separate site visits to completed grading permit properties.

How many were found to have inadequate maintenance?

Of the 1,092 grading permit sites visited by NPDES in FY19, inspectors issued 441 notices to properties that were found to have issues requiring moderate to major maintenance needs. These notices include verbal notices in person or over the phone, formal letters, and/or emails. During FY19, NPDES begin transitioning tracking all SCM inspection and maintenance documentation from an old Access database to the Cityworks permitting database, which is now used by all Metro departments to track permitting processes.

J. Of those, how many were notified and remedied within 30 days? (If window is different than 30 days, please specify)

While NPDES has numerous informal conversations with SCM owners about the maintenance status of their SCM(s), official Notices of Noncompliance (NONs) were submitted to SCM property owners when critical maintenance needs were observed or when SCM structures were found to be altered. Performing the necessary maintenance on SCM takes time and not all of the SCMs in need of maintenance were remedied within 30 days. NPDES performs follow-up compliance inspections when a no response is received as a result of the NON. There are many nuances involved in identifying responsible parties associated with residential "open space" SCMs. Some of these residential-owned structures can take months if not years to bring into compliance.

K. How many enforcement actions were taken that address inadequate maintenance?

In FY19, 11 NONs were issued to property owners for SCM maintenance issues, mostly involving sites that have made unauthorized authorizations to the structures (i.e. modification of a small bioretention basin in a back yard).

L. Do you use an electronic tool (e.g., GIS, database, spreadsheet) to track post-construction BMPs, inspections and maintenance?

In the beginning of FY19, NPDES transitioned to using the Cityworks permitting database to track inspections, follow-up notifications, etc. The Cityworks database is a city-wide database that is used by all Metro departments to track permits ranging from plumbing permits to grading permits. The database tracks compliance by the property/parcel that the permit is tied to. MWS Stormwater NPDES also tracks each SCM structure within a GIS database, which is used to coordinate and plan inspections. All documentation notes involving inspection and maintenance records are recorded within the Cityworks database for the site's original grading permit. X Yes ☐ No

M. Do all municipal departments and/or staff (as relevant) have access to this tracking system? *All departments and general public can access the locations of SCMs on the parcel viewer program on Nashville's Planning Department website.* X Yes ☐ No

N. Has the MS4 developed a program to allow for incentive standards for redeveloped sites? X Yes ☐ No

O. How many maintenance agreements has the MS4 approved during the reporting period?

Approximately 327, which is an assumed number based on the number of grading permits issued during FY19.

10. Industrial and High Risk Runoff

A. Has the MS4 developed and implemented a program to monitor and control pollutants in runoff from the following types of industrial and high risk facilities and activities:

Municipal landfills All municipally operated landfills in Metro were closed years ago. The Metro Department of Public Works, Division of Solid Waste oversees all closed landfills' associated groundwater monitoring. X Yes ☐ No

Hazardous waste treatment, storage and disposal facilities X Yes ☐ No

Industries subject to reporting requirements pursuant to SARA Title III section 313 X Yes ☐ No

Industrial facilities that the MS4 determines are contributing a substantial loading of pollutants to the municipal separate storm sewer system X Yes ☐ No

B. Has the MS4 maintained a database of industrial and high risk facilities and activities in the City which includes the following types of industries:

- municipal landfills;
- hazardous waste treatment, storage and disposal facilities;
- industries subject to reporting requirements pursuant to SARA Title III, Section 313; and
- industrial and commercial facilities that the permittee determines are contributing a substantial loading of pollutants to the municipal separate storm sewer system.

During the first permit year, NPDES built a robust industrial inspection database that comprises the above categories of industrial properties. In addition to the above category of industrial sites (Metro is required to inspect), NPDES has also included within the database all of the industrial facilities with active Tennessee Multi-Sector Permits (TMSPs) for industrial Stormwater runoff, all facilities with active Ready Mix Concrete Permits (RMCPs), and all facilities with active individual NPDES permits to discharge process water. The database is a Microsoft Access database that is interactive with GIS. Please note that most TMSP or RMCP sites do not qualify as industrial facilities subject to SARA Title III, Section 313 reporting requirements and are not required to be inspected by Metro per the current MS4 permit.

Those listed in 10 (A) above — X Yes ☐ No

Facilities covered by individual NPDES permits — X Yes ☐ No

Facilities covered under the TMSP — X Yes ☐ No

Facilities regulated by the pretreatment program;
NPDES has a Microsoft Excel spreadsheet list of Pre-treatment Program sites for reference purposes, but the sites are not entered into the Industrial Monitoring Microsoft Access database. The Pre-treatment Program notifies NPDES when they become aware of stormwater issues on these sites. — X Yes ☐ No

C. Has the MS4 updated the database of industrial and high risk facilities and activities at least yearly? — X Yes ☐ No
If yes, provide a listing of any additionally identified industrial and high-risk facilities and activities which discharge stormwater into the MS4:

Facility/Activity

Refer to the attached Table 10.C.1 for a listing of all the industrial facilities NPDES has inventoried into the database. As mentioned above, Metro also inventoried other industrial facilities such as TMSP and RMCP facilities, which are not required to be inspected within the three year period. NPDES routinely adds facilities to the database based on reviews of the TDEC permitting database.

D. Has the MS4 developed and implemented procedures, including an inspector manual and checklist, for routine inspections of industrial and high-risk facilities and activities*?*
NPDES has created a Standard Operating Procedure (SOP) for performing inspections of industrial facilities. NPDES has also performed numerous co-inspections with TDEC Nashville Field Office staff to ensure the industrial inspection process reviews site controls and paperwork similarly to TDEC inspection staff. — X Yes ☐ No

E. Is the MS4 performing these inspections at such a rate that all required industries will be inspected at least once every three years?
As per the MS4 permit, NPDES is required to inspect all SARA Title III, Section 313 industrial facilities once every 3 years. NPDES completed all of the inspections of facilities designated as having the SARA Title III, Section 313 and Treatment, Storage and Disposal (TSD) facilities by the end of the permit term (January 31, 2017). Following completion of these inspections, NPDES sent a letter to TDEC that addressed the planned modifications to inspections of industrial facilities during the transition/"extension" *period before the new permit is reissued. A copy of this letter can be found in Attachment B of this document. The new inspection focus during the* transition/"extension" *period between permits will be based on the types of industrial facilities that typically have the most exposed materials that can pose a risk to stormwater runoff. TDEC approved the new approach and in FY19, NPDES vastly increased the number of inspections on facilities that typically have more exposure issues.* — X Yes ☐ No

F. Provide a listing of inspections performed during this reporting year:
During FY19 NPDES inspected 32 industrial facilities. Refer to Table 10.F.1 for a list of Industrial Facilities that were inspected during FY19.

11. Enforcement

A. Identify which of the following types of enforcement actions you used during the reporting period, indicate the number of actions, the minimum measure (e.g., construction, illicit discharge, permanent stormwater control) or note those for which you do not have authority: *Please note that Stop Work Orders are included as part of the same Notice of Violation for construction sites. The below enforcement numbers are for grading permit sites involving the grading of more than 10.000 square feet. MWS Development Services also issues enforcements for Single Family Residential (SFR) developments. In FY19, MWS Development Services issued 42 NOVs that included an assessment of total of $9,650 administrative penalties.*

Action	Construction	Permanent Stormwater Controls	Illicit Discharge	Authority?
Notice of violation	73	1	7	X Yes ☐ No
Administrative Penalties	$31,593	$100	$1,700	X Yes ☐ No
Stop Work Orders	34	#	#	X Yes ☐ No
Civil penalties	#	#	#	☐ Yes X No
Criminal actions	#	#	#	☐ Yes X No
Administrative orders	#	#	#	X Yes ☐ No
Other:		11 Notices of Non Compliance	9 Notices off Non Compliance	X Yes ☐ No

B. Do you use an electronic tool (e.g., GIS, data base, spreadsheet) to track the locations, inspection results, and enforcement actions in your jurisdiction? X Yes ☐ No

C. What are the 3 most common types of violations documented during this reporting period?

Failure to maintain erosion prevention and sediment control measures, illicit discharges from construction and non-construction sites, and grading without applying for or receiving a Metro Grading Permit.

12. Program Resources

A. What was your annual expenditure to implement the requirements of your MS4 NPDES permit and SWMP this past fiscal year?

In FY19, NPDES, which oversees various MS4 compliance activities, operated under a budget of $2,726,800. The overall MWS Stormwater Division's budget, which includes NPDES, Development Services Review engineers, Stormwater Planning and Stormwater Maintenance, was $24,170,600. Please note that various other Metro Departments, while not included in this budget analysis, perform activities that contribute to MS4 permit compliance.

B. What is next fiscal year budget for implementing the requirements of your MS4 NPDES permit and SWMP?

The FY20 budget includes $3,091,500 dedicated to the Stormwater NPDES Section, while the overall Stormwater Department is operating under a budget of $24,936,000.

C. Do you have an independent financing mechanism for your Stormwater program? X Yes ☐ No

D. If so, what is it/are they (e.g., Stormwater fees), and what is the annual revenue derived from this mechanism?

Source: Stormwater User Fee; Estimated Amount $34,152,000

E. How many full-time employees does your municipality devote to the Stormwater program (specifically for implementing the Stormwater program vs. municipal employees with other primary responsibilities that dovetail with Stormwater issues)?

The anticipated FY20 budgeted staff includes 115 employees (including 7 current vacancies).

F. Do you share program implementation responsibilities with any other entities? ☐ Yes X No

Entity	Activity/Task/Responsibility	Your Oversight/Accountability Mechanism

13. Evaluating/Measuring Progress

A. What indicators do you use to evaluate the overall effectiveness of your Stormwater Management Program, how long have you been tracking them, and at what frequency? Note that these are not measurable goals for individual BMPs or tasks, but large-scale or long-term metrics for the overall program, such as in-stream macroinvertebrate community indices, measures of effective impervious cover in the watershed, indicators of in-stream hydrologic stability, etc?

For over 10 years, the NPDES Watershed Group has been performing detailed sampling for TMDL streams throughout Metro, some of which is proactive and not required per the MS4 permit. The data collection has proven beneficial in identifying segments of streams where pollutants are elevated or within water quality standard criteria. Please refer to the attached Table 13A.1 (TMDL Sampling Data) for the complete quarterly sampling results for the FY19 reporting period. Please note that previous Annual Reports contained additional data for monitoring conducted during those reporting periods. NPDES performs various monitoring activities as prescribed by the MS4 Permit. The MS4 permit-required sampling (i.e. Wet Weather Monitoring, Ambient Sampling, and Benthic Sampling) was changed in the current iteration of the permit (See Attachment B). The NPDES Watershed Group routinely analyzes the sampling data to determine if negative trends are observed within any of the sampled tributaries. (refer to the E. coli trends analysis in Section 4) When negative trends are found, NPDES performs source tracking investigations. Whenever identifiable sources are not found, NPDES considers initiating targeted public education campaigns in those watersheds to address other potential impacts, such as pet waste. The MS4 Permit-prescribed Ambient Sampling and Benthic Sampling data is summarized in Table 13A.3 and Table 13A.4 respectively. NPDES's Watershed Group collected approximately 277 water quality samples and performed visual stream assessments on approximately 125,500 linear feet of 303(d)-listed streams within FY19.

Over the years, NPDES has also looked at other non-analytical data to evaluate the program's effectiveness. Refer to Table 13A.2 (SWMP Quantifiable Statistics). Many of the functions such as IDDE efforts, public education, etc. NPDES performs do not easily translate into quantifiable loading reduction numbers. As an attempt to quantify pollutant loading reduction numbers from various sources, NPDES hired a contractor in previous years to develop a database that will track loading reductions of structural and non-structural controls implemented as part of Metro's SWMP. This database will be known as the Watershed Improvement Evaluation System (WIES) and will be web-based, which will allow NPDES to track pollutant reduction efforts of current SWMP elements as well as potential benefits through program modifications. While the WIES database is still in the development stage, the database did become operational in FY19. Specific tables and graphs of FY19 estimated pollutant loading runoff numbers and pollutant loading reduction efforts by SWMP structural and non-structural controls are presented in Attachment C.

In addition to pursuing development of a database that can actively track and analyze pollution reduction efforts of the SWMP, NPDES also conducted an internal review of many of the MS4 permit-prescribed programs to assess the effectiveness and efficiency at the end of the 5th year of the current MS4 permit. As a result of the review, NPDES detailed proposed revisions to some of the MS4 permit elements in the proposed application for reissuance of the MS4 permit and subsequent coordination with TDEC, which is also included in Attachment B.

B. Provide a summary of data (e.g., water quality information, performance data, modeling) collected in order to evaluate the performance of permanent Stormwater controls installed throughout the system. This evaluation may include a comparison of current and past permanent Stormwater control practices.

Please refer to the answer above and Section 3 of this document for a summary of various water quality data collected by NPDES during this reporting period. As mentioned above, a more comprehensive evaluation of pollutant reduction estimates of major SWMP program elements is included in Attachment C.

C. What environmental quality trends have you documented over the duration of your Stormwater program? (If you have reports or summaries, you can either attach them electronically, or provide the URL to where they may be found on the Web.) *As mentioned above, while reported potential illicit discharges, have increased, NPDES has actually found fewer illicit discharges to the MS4 over the years. This reduction in actual confirmed illicit discharges to the MS4 can be contributed to a robust IDDE program and increased public awareness. In addition, there have been fewer notices of violations issued for construction site infractions. Middle Tennessee contractors have become acutely aware of Metro's construction site requirements and enforcement program and, therefore, have increasingly complied with our regulations. It has also been noted that many of the concerns from citizens usually involve relatively minor issues as compared to concerns reported in the beginning of the NPDES program many years ago.*

14. Stormwater Management Program Update

A. Describe any changes to the MS4 program, per Section 3.5 of the permit, during the reporting period including but not limited to:

Changes adding (but not subtracting or replacing) components, controls or other requirements.

A the end of year 5 of the current MS4 permit, NPDES submitted a request to change the dry weather field screening, industrial monitoring, and wet weather sampling elements for the transition/"extension" *period between permit expiration and reissuance. (Refer to Attachment B) NPDES also requested these items to be adjusted in the reissued permit as well. NPDES analyzed work hours per each task verses the benefit to the program in hopes of developing the most efficient and effective program possible. A summary of the proposed changes can be found in Attachment B. During FY19, NPDES continued to implement the updated, SWMP program elements and have generally been pleased with the more efficient and effective programs.*

Changes to replace an ineffective or unfeasible BMP.

Refer to above answer

Information (e.g., additional acreage, outfalls, BMPs) on program area expansion based on annexation or newly urbanized areas.

Just prior to the issuance of this cycle of the MS4 permit, the former satellite city of Lakewood voted to dissolve and become part of Metro Nashville and Davidson County. Upon that transition becoming official, NPDES field screened the commercial areas for potential illicit discharge connections, inventoried and added all of the Stormwater infrastructure into the GIS database, and began performing stormwater maintenance services for the newly annexed area.

Changes to the program as required by the division.

No major changes occurred during FY19.

15. Certification

This report must be signed by a ranking elected official or by a duly authorized representative of that person. See signatory requirements in subpart 5.7 of the permit.

"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 gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted 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."

Michael Hunt
System Services MANAGER
Printed Name and Title

Michael Hunt
Signature

12/19/19
Date

3.0 Required MS4 Reporting Tables

List of Tables

Table 6B.1 – Grading Permit Projects Initiated/Completed within FY19

Year	Preconstruction Meetings	Grading Permits Issued	Permits Completed
Total FY03	257	198	102
Total FY04	305	270	159
Total FY05	284	271	220
Total FY06	296	252	196
Total FY07	251	239	188
Total FY08	222	165	205
Total FY09	148	109	238
Total FY10	146	121	117
Total FY11	130	135	131
Total FY12	152	142	153
Total FY13	167	138	133
Total FY14	249	318	159
Total FY15	292	276	259
Total FY16	268	254	217
Total FY17	297	262	203
Total FY18	331	311	264
Total FY19	345	327	250
Total	**4,140**	**3,788**	**3,194**

Table 6C.1 – Small Construction Site Oversight in FY19

New Infill Permits Issued	1,437
Follow up site visits for Infill Developments	3,089
NOVs Issued to Single Family Residential Development	42

Note: Midway through FY15, Metro passed new legislation establishing the new Infill Development Permits. Projects that create 800 to 15,000 square feet of additional net impervious area though new development, redevelopment, or rehabilitation of a residential structure in existing neighborhoods are required to obtain Infill Development Permits. As such, MWS Stormwater staff provides oversight to require stormwater controls to be installed to treat stormwater runoff during and after construction, which is above and beyond MS4 permit requirements.

Table 7H.1 – Illicit Discharge Investigations Initiated during FY19

ID	Problem Address	Initiated By	Date Time Initiated
2019037653	919 GENERAL GEORGE PATTON RD 37221	Aujuah Jackson	6/25/2019 10:18
2019037170	500 2ND AVE N 37201	Allison Davis	6/24/2019 7:35
2019035844	319 ANDERSON LN 37115	Matthew Lockhart	6/18/2019 7:44
2019035840	204 WHITE BRIDGE PIKE 37209	Jessica Bell	6/18/2019 7:05
2019035621	5653 DEER VALLEY TRL 37013	Joshua Hayes	6/17/2019 8:58
2019034683	2506 12TH AVE S 37204	Aujuah Jackson	6/12/2019 8:29
2019034669	1200 COUNTY HOSPITAL RD 37218	Joshua Hayes	6/12/2019 8:06
2019033295	13153 OLD HICKORY BLVD 37013	Aujuah Jackson	6/6/2019 8:11
2019033220	13153 OLD HICKORY BLVD 37013	Aujuah Jackson	6/5/2019 16:07
2019032989	203 MAPLE ST 37115	Aujuah Jackson	6/5/2019 9:55
2019032851	1512 J P HENNESSY DR 37086	Aujuah Jackson	6/4/2019 16:19
2019030686	4001 MURFREESBORO PIKE 37013	Aujuah Jackson	5/24/2019 15:16
2019030545	725 BROOK HOLLOW RD 37205	Aujuah Jackson	5/24/2019 9:05
2019030288	623 MYATT DR 37115	Aujuah Jackson	5/23/2019 9:04
2019029454	1717 61ST AVE N 37209	Aujuah Jackson	5/20/2019 12:24
2019028930	5252 HICKORY HOLLOW PKWY 37013	Aujuah Jackson	5/16/2019 14:37
2019028743	200 DOWNEYMEADE DR 37214	Aujuah Jackson	5/16/2019 9:05
2019026998	565 BRICK CHURCH PARK DR 37207	Aujuah Jackson	5/9/2019 8:00
2019026744	1607 COUNTY HOSPITAL RD 37218	Aujuah Jackson	5/8/2019 9:42
2019026052	936 FIRESTONE PKWY 37086	Aujuah Jackson	5/6/2019 8:18
2019024727	1440 ARDEE AVE 37216	Stephanie Petty	4/29/2019 13:03
2019024399	123 EWING DR #1 37207	Aujuah Jackson	4/26/2019 10:04
2019024330	308 SLAYTON DR 37115	Aujuah Jackson	4/26/2019 8:14
2019023189	112 WEST END CLOSE 37205	Aujuah Jackson	4/22/2019 9:22
2019022980	100 WOODLAND ST 37213	Aujuah Jackson	4/19/2019 10:24
2019021132	420 DONELSON PIKE 37214	Allison Davis	4/11/2019 11:12
2019020916	3952 STEWARTS LN 37218	Allison Davis	4/10/2019 13:41
2019020703	127 GALLATIN PIKE N 37115	Aujuah Jackson	4/9/2019 16:19

Table 7H.1 – Illicit Discharge Investigations Initiated during FY19 (Continued)

ID	Problem Address	Initiated By	Date Time Initiated
2019020321	5801 CENTENNIAL BLVD 37209	Aujuah Jackson	4/8/2019 13:43
2019019152	805 BELTON DR 37205	Aujuah Jackson	4/2/2019 16:02
2019019140	3249 GALLATIN PIKE 37216	Aujuah Jackson	4/2/2019 15:31
2019019094	865 BELLEVUE RD 37221	Joshua Hayes	4/2/2019 13:43
2019018274	2819 WINDEMERE DR 37214	Aujuah Jackson	3/28/2019 15:55
2019018268	3108 BLEVINS RD 37189	Aujuah Jackson	3/28/2019 15:38
2019017488	3327 A MOOREWOOD DR 37207	Aujuah Jackson	3/26/2019 8:53
2019016133	0 BOMBADIL LN 37013	Aujuah Jackson	3/19/2019 15:18
2019015481	2503 DICKERSON PIKE 37207	Aujuah Jackson	3/18/2019 8:18
2019014568	1804 BARNWELL CT 37076	Aujuah Jackson	3/13/2019 8:47
2019014492	2827 HILLSIDE DR 37212	Aujuah Jackson	3/12/2019 15:15
2019014430	6340 NOLENSVILLE PIKE 37211	Aujuah Jackson	3/12/2019 12:38
2019014308	915 WALDKIRCH AVE 37204	Aujuah Jackson	3/12/2019 9:41
2019012456	4220 HARDING PIKE 37205	Aujuah Jackson	3/4/2019 9:14
2019011817	3800 CHARLOTTE AVE 37209	Joshua Hayes	2/28/2019 8:02
2019011645	1103 BELL GRIMES LN 37207	Aujuah Jackson	2/27/2019 11:09
2019010830	2197 NOLENSVILLE PIKE #100B 37211	Aujuah Jackson	2/22/2019 16:21
2019010829	111 SPACE PARK SOUTH DR 37211	Aujuah Jackson	2/22/2019 16:04
2019010383	2100 JADE DR 37210	Aujuah Jackson	2/21/2019 8:17
2019010067	806 LEWIS CT 37115	Aujuah Jackson	2/20/2019 8:02
2019009453	758 1ST AVE N 37201	Aujuah Jackson	2/15/2019 10:15
2019007723	1136 2ND AVE N 37208	Aujuah Jackson	2/7/2019 7:53
2019007256	5032 OLD HICKORY BLVD 37218	Aujuah Jackson	2/5/2019 10:41
2019005846	812 SANDBURG PL 37214	Aujuah Jackson	1/30/2019 7:59
2019004157	2417 CROCKER SPRINGS RD 37072	Aujuah Jackson	1/22/2019 14:25
2019003881	13010 OLD HICKORY BLVD 37013	Aujuah Jackson	1/22/2019 7:24
2019003588	904 TOTE LN	Kalee Hotchkiss	1/18/2019 12:48
2019003115	2580 MURFREESBORO PIKE 37217	Aujuah Jackson	1/16/2019 14:33

Table 7H.1 – Illicit Discharge Investigations Initiated during FY19 (Continued)

ID	Problem Address	Initiated By	Date Time Initiated
2019002852	4217 BRACKENWOOD DR 37138	Aujuah Jackson	1/15/2019 15:46
2019002847	736 FESSLERS LN 37210	Aujuah Jackson	1/15/2019 15:35
2019002519	2350 8TH AVE S 37204	Aujuah Jackson	1/14/2019 16:08
2019002185	1015 NELSON MERRY ST 37203	Aujuah Jackson	1/11/2019 14:04
2019001377	5314 OLD HICKORY BLVD 37218	Aujuah Jackson	1/8/2019 14:35
2019001147	429 COVENTRY DR 37211	Aujuah Jackson	1/8/2019 8:01
2019000530	920 HALCYON AVE 37204	Elizabeth Stienstraw	1/4/2019 6:34
2019000475	1433 COWAN CT 37207	Aujuah Jackson	1/3/2019 14:32
2018080150	0 ROBERTSON AVE 00000	Joshua Hayes	12/28/2018 10:32
2018079467	104 LAKEWOOD DR 37115	Joshua Hayes	12/21/2018 8:50
2018078425	2555 WOODBERRY DR 37214	Aujuah Jackson	12/18/2018 8:06
2018078114	331 WIMPOLE DR 37211	Aujuah Jackson	12/14/2018 15:42
2018077770	424 WELLINGTON SQ 37214	Aujuah Jackson	12/13/2018 12:59
2018077540	4487 POST PL #1 37205	Aujuah Jackson	12/12/2018 16:36
2018074334	5316 LANCELOT RD 37027	Joshua Hayes	11/28/2018 7:00
2018073584	0 CULBERTSON RD 37013	Aujuah Jackson	11/21/2018 12:52
2018073440	1450 E CEDAR LN 37115	Aujuah Jackson	11/21/2018 9:02
2018071587	2901 12TH AVE S 37204	Aujuah Jackson	11/13/2018 12:28
2018071159	3040 CODY HILL RD 37211	Aujuah Jackson	11/9/2018 12:50
2018070260	5013 COUNTRYSIDE DR 37013	Aujuah Jackson	11/6/2018 16:15
2018069594	5557 KNOB RD 37209	Aujuah Jackson	11/2/2018 15:12
2018069331	1104 RICHMOND DR 37216	Aujuah Jackson	11/1/2018 14:49
2018067873	2205 ARBOR POINTE WAY 37076	Aujuah Jackson	10/25/2018 13:31
2018067264	120 BUSH RD 37217	Elizabeth Wilson	10/23/2018 14:22
2018066823	3912 B CAYLOR DR 37215	Aujuah Jackson	10/22/2018 11:21
2018066382	3855 CLARKSVILLE PIKE 37218	Joshua Hayes	10/19/2018 7:17
2018066380	7529 OLD HARDING PIKE 37221	Elizabeth Stienstraw	10/19/2018 7:09
2018066097	3939 HILLSBORO CIR 37215	Jessica Bell	10/18/2018 7:24
2018065100	5468 OAK CHASE DR 37013	Jessica Bell	10/12/2018 14:08

Table 7H.1 – Illicit Discharge Investigations Initiated during FY19 (Continued)

ID	Problem Address	Initiated By	Date Time Initiated
2018064359	4864 MYRA DR 37076	Elizabeth Wilson	10/10/2018 10:59
2018064321	106 HARDING PL 37205	Elizabeth Wilson	10/10/2018 9:35
2018064255	3428 WYNFALL LN 37211	Aujuah Jackson	10/10/2018 7:17
2018063989	3906 APACHE TRL 37013	Elizabeth Wilson	10/9/2018 9:51
2018063852	4801 NOLENSVILLE PIKE 37211	Elizabeth Wilson	10/8/2018 15:12
2018063045	550 HARDING PL #F-101 37211	Aujuah Jackson	10/4/2018 7:05
2018061966	5 MAIN ST 37213	Elizabeth Wilson	9/28/2018 14:26
2018060738	219 OVERBY DR 37013	Aujuah Jackson	9/24/2018 15:01
2018060558	7385 OLD HARDING PIKE 37221	Elizabeth Wilson	9/24/2018 10:21
2018059981	106 HARDING PL 37205	Elizabeth Wilson	9/20/2018 9:54
2018059773	2235 TWO RIVERS PKWY 37214	Elizabeth Wilson	9/19/2018 13:32
2018059745	1901 ED TEMPLE BLVD 37208	Elizabeth Wilson	9/19/2018 13:05
2018058494	123 B EWING DR 37207	Jessica Bell	9/13/2018 12:46
2018057857	701 S 15TH ST 37206	Joshua Hayes	9/11/2018 10:06
2018056601	1805 DICKERSON PIKE 37207	Elizabeth Wilson	9/5/2018 9:21
2018056016	1425 COWAN CT 37207	Elizabeth Wilson	8/31/2018 9:40
2018056001	5275 LITTLE MARROWBONE RD 37015	Elizabeth Wilson	8/31/2018 9:04
1031299	108 Vickey Court	Jane Wilson	8/21/2018 15:02
1031097	7601 Highway 70 South	Elizabeth Wilson	8/21/2018 10:02
1030152	1200 Dickerson Road	Jane Wilson	8/17/2018 11:10
1028956	Thompson & Glennrose	Joshua Hayes	8/14/2018 13:51
1027766	250 5th	Joshua Hayes	8/10/2018 11:50
1027080	625 Smith Ave	Elizabeth Wilson	8/9/2018 8:11
1026406	448 American Road	Jane Wilson	8/7/2018 15:43
1026214	431 35th Avenue North	Jane Wilson	8/7/2018 11:00
1025796	1004 9th Ave South	Elizabeth Wilson	8/6/2018 13:48
1025077	821 Cleveland Hall Court	Jane Wilson	8/3/2018 11:18
1024916	25 Vantage Way	Elizabeth Stienstraw	8/3/2018 8:31
1024611	3759 Nolensville Pike	Jane Wilson	8/2/2018 11:34

Table 7H.1 – Illicit Discharge Investigations Initiated during FY19 (Continued)

ID	Problem Address	Initiated By	Date Time Initiated
1024296	422 Benita Drive	Jane Wilson	8/1/2018 15:41
1023062	2564 Hessey Pass	Elizabeth Wilson	7/30/2018 11:15
1023031	2525 Brittany Drive	Elizabeth Wilson	7/30/2018 10:43
1022737	Bandywood Drive and Hillsboro Court	Jane Wilson	7/27/2018 21:56
1021851	621 Howerton Street	Jane Wilson	7/25/2018 15:08
1019254	3824 Woodmont Lane	Jane Wilson	7/18/2018 14:12
1016744	Korean Veterans Blvd	Jane Wilson	7/11/2018 14:19
1014341	200 3rd Ave S	Jane Wilson	7/5/2018 12:08
1013302	450 Donelson Pike	Jane Wilson	7/2/2018 12:49

Table 7H.2 – Spill Response Investigations Initiated by NPDES during FY19

ID	Problem Address	Initiated By	Date Time Initiated
2019035588	0 KNIGHTS OF COLUMBUS BLVD 37214	Kenneth Tranter	6/17/2019 7:57
2019033977	2020 LUCAS LN 37207	Dale Binder	6/10/2019 6:44
2019024041	525 SOUTHGATE AVE 37203	Dale Binder	4/25/2019 5:51
2019022341	2809 CLARE AVE 37209	Dale Binder	4/17/2019 8:58
2019021554	1149 OLD HICKORY BLVD 37207	Aujuah Jackson	4/12/2019 14:23
2019021315	444 PATINA CIR 37209	Aujuah Jackson	4/12/2019 8:12
2019019826	212 B BROADWAY 37201	Dale Binder	4/5/2019 7:07
2019016286		Aujuah Jackson	3/20/2019 9:51
2019015137	ANNEX AVE & CHARLOTTE PIKE	Dale Binder	3/15/2019 7:16
2019011866	798 BERRY RD 37204	Aujuah Jackson	2/28/2019 8:55
2019010834	817 GALLATIN PIKE S 37115	Aujuah Jackson	2/22/2019 16:34
2019002512	7474 OLD CHARLOTTE PIKE 37209	Aujuah Jackson	1/14/2019 15:50
2018080306		Dale Binder	12/31/2018 10:59
2018074677	1830 LINDER INDUSTRIAL DR 37209	Aujuah Jackson	11/28/2018 16:32
2018074300	2802 NOLENSVILLE PIKE 37211	Aujuah Jackson	11/27/2018 15:17
2018065252	13010 OLD HICKORY BLVD 37013	Elizabeth Stienstraw	10/15/2018 10:00
2018059060	4106 HILLSBORO PIKE 37215	Aujuah Jackson	9/17/2018 12:16
2018054914	1425 COWAN CT 37207	Dale Binder	8/28/2018 5:55
1029074	13000 OLD HICKORY BLVD	Dale Binder	8/15/2018 6:38
1025946	105 TIMBERLAKE CIRCLE	Dale Binder	8/7/2018 6:54
1023890	I40W & Church Street	Jane Wilson	7/31/2018 16:10
1019801	5264 Hickory Hollow Pkwy	Jane Wilson	7/19/2018 14:33

Table 7H.3 – MWS Sewer Discharge Investigations Initiated by NPDES during FY19

ID	Problem Address	Initiated By	Date Time Initiated
2019030095	337 CLEVELAND ST 37207	Aujuah Jackson	5/22/2019 13:49
2019026027	3590 HERMITAGE INDUSTRIAL DR 37076	Joshua Hayes	5/6/2019 7:31
2019023511	1281 MURFREESBORO PIKE 37217	Allison Davis	4/23/2019 10:00
2019022960	6126 HILL CIR 37209	Aujuah Jackson	4/19/2019 9:50
2019021825	341 WALLACE RD 37211	Allison Davis	4/15/2019 12:19
2019017468	1006 N 16TH ST 37206	Aujuah Jackson	3/26/2019 8:22
2019016784	300 HUNTINGTON RIDGE DR	Aujuah Jackson	3/21/2019 15:17
2019011987	335 HARDING PL 37211	Joshua Hayes	2/28/2019 11:41
2019009381	100 TANGLEWOOD CT 37211	Aujuah Jackson	2/15/2019 8:25
2019003869	6727 CHARLOTTE PIKE 37209	Aujuah Jackson	1/22/2019 6:22
2018078719	1780 TYNE BLVD 37215	Aujuah Jackson	12/18/2018 11:56
2018071567	895 MURFREESBORO PIKE 37217	Aujuah Jackson	11/13/2018 12:02
2018069474	2245 ROSA L PARKS BLVD 37228	Jessica Bell	11/2/2018 10:27
2018060743	1828 RIVER DR 37218	Elizabeth Wilson	9/24/2018 15:15

Table 7H.4 - Failing Septic System Investigations Performed by the Health Department in FY19

Date Received	Street Name	Job Description	Date Investigated	Sewage on the Ground	Notice Issued	Citation Issued	Date Abated
7/2/2018	7210 Apple View Road	Failure	7/2/2018	N			-
6/15/2018	1750 Reynolds Road	Failure	7/2/2018	Y	7/3/2018		9/2/2018
7/14/2018	8473 Whites Creek Pike	Failure	7/17/2018	N			-
7/17/2018	3703 Alessio Road	Failure	7/17/2018	Y	7/18/2018		9/18/2018
7/17/2018	6098 Clarksville Pike	Failure	7/19/2018	Y			7/26/2018
-	3457 Baxter Road	Failure	8/3/2018	N			-
8/3/2018	7628 Bidwell Road	Failure	8/6/2018	Y			9/18/2018
8/8/2018	5142 Lickton Pike	Failure	8/8/2018	Y			4/16/2019
8/15/2018	129 Cato Road	Failure	8/15/2018	Y	8/17/2018	9/19/2018	
9/6/2018	5076 Pine Hill Road	Failure	9/10/2018	Y			10/23/2018
9/11/2018	2501B Whites Creek Pike	Failure	9/12/2018	N			-
9/12/2018	1034 Mitchell Drive	Failure	9/13/2018	Y			11/26/2018
9/19/2018	2000 Shaw Road	Failure	9/20/2018	N			-
9/17/2018	1340 Hunters Lane	Failure	9/20/2018	Y			10/23/2018
10/1/2018	4916 Clarksville Pike	Failure	10/1/2018	Y			10/3/2018
10/9/2018	2036 Neelys Bend Road	Failure	10/15/2018	Y			12/19/2018
11/13/2019	5100 Rawlings Road	Failure	11/13/2018	N			-
10/22/2018	616 Mt. Pisgah Court	Failure	11/19/2018	N			-
ongoing	5022 Old Hydes Ferry Pike	Failure	11/27/2018	Y			11/27/2018
	1806 Union Hill Road	Failure	12/3/2018	N			-
12/6/2018	Edmondson Pike	Failure	12/13/2018	N			-
12/22/2019	3708 Baxter Road	Failure	12/13/2018	Y			4/1/2019
	5000 Clarksville Highway	Failure	12/13/2018				-
1/7/2019	807 Dry Creek Road	Failure	1/8/2019	N			-
1/7/2019	4629 Bull Run Road	Failure	1/8/2019	N			-
1/7/2019	5996 Edmondson Pike	Failure	1/10/2019	Y	1/14/2019		3/5/2019
1/11/2019	2480 Union Hill Road	Failure	1/11/2019	N			-
1/16/2019	5941 Lickton Pike	Failure	1/16/2019	N			-
1/18/2019	2417 Crocker Springs Road	Failure	1/22/2019	N			-
1/22/2019	2627 Old Buena Vista Pike	Failure	1/22/2019	N			-
2/11/2019	36363 Baxter Road	Failure	2/12/2019	Y			4/9/2018
2/19/2019	6610 Clarksville Pike	Failure	2/19/2019	N			-

Table 7H.4 - Failing Septic System Investigations Performed by the Health Department in FY19 (Continued)

Date Received	Street Name	Job Description	Date Investigated	Sewage on the Ground	Notice Issued	Citation Issued	Date Abated
2/19/2019	3001 Claylick Road	Failure	2/19/2019	N			-
2/21/2019	2384 Baker Road	Failure	2/20/2019	N			-
2/20/2019	3575 Bear Hollow Road	Failure	2/21/2019	N			-
2/20/2019	4064 Manning Hollow Road	Failure	2/21/2019	Y	2/22/2019		6/19/2019
2/1/2019	3756 Mt. View Road	Failure	2/25/2019	N	3/8/2019		5/31/2019
2/26/2019	401 Cumberland Hills Drive	Failure	2/26/2019	N			-
3/1/2019	467 Dry Creek Road	Failure	3/4/2019	N			3/27/2019
3/6/2019	4951 Bull Run Road	Failure	3/6/2019	N			-
3/4/2019	3896 Stewarts Lane	Failure	3/6/2019	Y	4/22/2019		
3/18/2019	5735 Eatons Creek Road	Failure	3/18/2019	Y	4/11/2019		5/24/2019
3/14/2019	4311 Stenberg Road	Failure	3/18/2019	N			-
3/25/2019	1599 Springfield Highway	Failure	3/27/2019	N			-
3/18/2019	4049 Maxwell Road	Failure	3/27/2019	N			-
4/1/2019	461 Dry Creek Road	Failure	4/2/2019	Y			6/6/2019
4/8/2019	3829 Cantarutti Road	Failure	4/8/2019	N			-
4/4/2019	5630 Higdon Road	Failure	4/9/2019	N			-
4/2/2019	6789 Gower Road	Failure	4/9/2019	N			-
4/4/2019	8432 Rolling Hills Road	Failure	4/11/2019	N			-
4/19/2019	5130 Clarksville Highway	Failure	4/22/2019	Y	4/25/2019		
4/23/2019	3214 Glencliff	Failure	4/23/2019	Y	4/30/2019		
4/29/2019	5044 Old Hydes Ferry Pike	Failure	4/29/2019	N			-
5/2/2019	4307 Central Pike	Failure	5/2/2019	Y	5/9/2019		
5/6/2019	3395 Freeman Hollow Road	Failure	5/6/2019	N			-
5/6/2019	6149 Eatons Creek Road	Failure	5/6/2019	Y			6/5/2019
4/29/2019	2220 Smith Springs Road	Failure	5/7/2019	N			-
5/6/2019	3435 Shellbark Drive	Failure	5/8/2019	Y	5/15/2019		7/8/2019
5/8/2019	1016 New Providence Pass	Failure	5/10/2019	Y	5/13/2019		
5/9/2019	3609 Forte Road	Failure	5/13/2019	N			-
-	3844 S. Mt. Juliet Road	Failure	5/15/2019	N			-
5/17/2019	500 Meade Avenue	Failure	5/17/2019	Y	5/20/2019		
5/29/2019	9044 S. Harpeth Court	Failure	6/3/2019	N			-

Table 7H.5 – MWS Estimated/Reported Sewage Overflows in FY19

	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
Wet Weather Overflows - CSO Permitted	15	26	24	10	14	10	10	27	11	17	7	24	195
Wet Weather Overflows - sewer (non pumps)	0	0	4	6	6	9	8	73	3	8	2	4	123
Wet Weather Overflows - Pump Stations	1	0	2	17	15	17	22	90	13	5	1	14	197
Wet Weather Overflows SSO- TOTAL	1	0	6	23	21	26	30	163	16	13	3	18	320
Dry Weather Overflows - sewer (non-pumps)	5	7	10	2	5	2	6	9	13	7	4	7	77
Dry Weather Overflows - Pump Stations	1	0	1	0	2	0	0	2	1	0	2	2	11
Dry Weather Overflows - TOTAL	6	7	11	2	7	2	6	11	14	7	6	9	88
# of Overflows that Reached Creeks - Sewer	3	5	7	5	8	7	9	53	13	12	2	7	131
# of Overflows that Reached Creeks - Pump Stations (All)	2	0	3	17	17	17	22	92	14	5	3	16	208
# of Overflow Response Staff per sewer event	2	2	2	2	2	2	2	2	2	2	2	2	2
# of Sewer Vac Trucks per sewer event	1	1	1	1	1	1	1	1	1	1	1	1	1

*Note: Most of the dry-weather overflows involve a small level of clean-up performed by Department personnel. Most of the overflows that reach creeks occur during wet weather conditions.

Table 8F.1 - MWS Stormwater Maintenance Work Order Numbers for FY19

ITEM	FY 2019 TOTAL
Ditch Excavated/Repaired (Linear Feet)	155,192
Debris Removed - Ditch Exc. & Repair (cubic yards)	1,054
Debris Removed - General (cubic yards)	201,036
Inlets Cleaned	30,494
Inlets Repaired	23
Material Removed (lbs)	274,446
Walls/Headwalls Built	707
Walls/Headwalls Repaired	49
Cross Drains Cleaned	399
Cross Drains Replaced	13
Matting Used (square feet)	534,307
Driveway Pipes Cleaned	1,193
Driveway Pipes Replaced	285
Preventative Maintenance Hours	3,064
Rain Routes Hours	1,358

Note: (Some assumptions are used in the quantity estimates)
*All statistics are reported based on the actual finish date of the task(s), not the work order(s).
*All cubic yardage is computed from the loads reported for each truck size.
*Debris Removed' under Ditch Exc. & Repair is the total of all cubic yardage reported under work orders that had a *Redefine Ditch' task. 'Debris Removed' under Debris Removal (misc.) is the total of cubic yardage reported under all other work orders not counted in the first Debris Removal figure.
*Inlets Repaired number includes those that were replaced with "bike-friendly" grates.

Table 8F.2 - MWS Stormwater Contracted Street Sweeping Collection Numbers for FY19

	July	August	September	October	November	December	January	February	March	April	May	June	Total
Debris Collected (tons)	224.9	310.52	306.87	378.31	406.39	437.44	343.76	249.58	420.36	437.42	364.35	405.94	4,285.84
Miles of Street Swept	1,380.8	1,846.5	1,541.3	1,724.0	1,107.4	1,261.5	1,201.3	1,135.5	1,684.4	2,047.1	1,429.8	1,695.2	18,054.7

Table 9F.1 - Development and Review Section Plan Review Numbers for FY19

	July	August	September	October	November	December	January	February	March	April	May	June	Total
Number of Plan Submittals	196	270	196	206	219	180	236	191	274	293	332	318	2,911
Number of Plan Approvals	91	124	106	98	112	88	95	72	103	90	124	102	1,205

Note: This spreadsheet represents all plan submittals, re-submittals, including grading permit plans, plat reviews/approvals, as-built drawings, including Single Family Stormwater plan reviews, etc.

Table 10C.1 - Industrial Sites Inventoried within Metro's Database

Site Name	Site Location	SARA Site	TMSP Site	RMCP Site
Mid-South Wire	1070 Visco Drive	No	Yes	No
Smitty's Auto Parts	1609 Bell Road	No	Yes	No
All Star Recycling	460A Craighead Street	No	Yes	No
N & S Inc.	361 Herron Drive	No	Yes	No
United Parcel Service - TCI	7525 Hickory Hills Court	No	Yes	No
Truck Center, Inc. (Business Moved)	518 Hagan Street	No	Yes	No
Southern Recycling (Metal Management Nashville, LLC)	1840 Linder Industrial Drive	No	Yes	No
Rivergate Auto Parts, Inc. (Nashville Truck Parts)	1471 N. Gallatin Rd	No	Yes	No
Four Lane Auto Salvage Inc.	400 W Trinity Ln.	No	Yes	No
Neely's Bend Inc.	1327 Neely's Bend Road	No	Yes	No
West Nashville Auto Recycling Inc.	5604 Centennial Blvd	No	Yes	No
LKQ Pick Your Part Southeast LLC	2030 Lucas Lane	No	Yes	No
Shrum Auto Salvage	1050 Old Buck Hill Road	No	Yes	No
Pull-A-Part, LLC	7114 Centennial Boulevard	No	Yes	No
All State Auto Parts, Inc.	515 Nawakwa TL	No	Yes	No
Howard Baer, Inc.	1301 Foster Ave	No	Yes	No
Abernathy Truck Salvage, Inc.	865 W. Trinity Ln.	No	Yes	No
Metro Salvage, Inc.	1975 Springfield Highway	No	Yes	No
Tennessee Imports Auto Salvage	326 Oriel Avenue	No	Yes	No
Marathon Petroleum Company, LLC - Bordeaux Terminal	2920 Old Hydes Ferry Road	Yes	Yes	No
Magellan Nashville II Terminal - Holding, LP	1441 51st Ave. N.	No	Yes	No
River Hills MRF		No	Yes	No
Carlex Glass America	7200 CENTENNIAL BLVD	Yes	No	No
Magellan Nashville I Terminal	1609 63rd Ave. N.	No	Yes	No
RelaDyne (J B Weimar)	7281 Centennial Blvd	Yes	Yes	No
Cumberland Terminals, Inc.	7260 Centennial Blvd.	Yes	Yes	No
IMI Ready Mix- Robertson Road	6616 Robertson Road	No	No	Yes
Smyrna Ready Mix Concrete, 2nd Ave	1136 2nd Avenue North	Yes	No	Yes
Foley Products (Sherman-Dixie Concrete Industries, Inc.)	200 42nd Avenue N.	Yes	No	Yes
Nashville Ready Mix - Cowan Ct.	1436 Cowan Street	Yes	Yes	Yes
Smyrna Mix Concrete	6677 River Road Pike	No	No	Yes
IMI Nashville Airport	141 Bush Road	No	No	Yes
Marathon Petroleum Company LLC	930 Youngs Lane	Yes	Yes	No

Table 10C.1 - Industrial Sites Inventoried within Metro's Database (Continued)

Site Name	Site Location	SARA Site	TMSP Site	RMCP Site
Nashville Ready Mix West Nashville	5853 River Road	Yes	No	Yes
Smyrna Ready Mix	3040 Brandau Road	No	No	Yes
IMI Ready Mix - Cowan Street	1433 Cowan Court	No	No	Yes
Nashville Ready Mix, Inc. Baptist World	1326 Baptist World Center Drive	No	Yes	Yes
Smyrna Ready Mix Concrete INC. - Visco Drive	1020 Visco Drive	Yes	No	Yes
TDSI Nashville Auto Distribution Center (Allied Systems Ltd)	743 Harding Place	No	Yes	No
TDSI- Auto Distribution Center	600 Veritas St	No	Yes	No
John W. McDougall Co., Inc.	3731 Amy Lynn Drive	No	Yes	No
CSX Intermodal, Inc - Nashville Terminal	3086 Sidco Dr	No	Yes	No
TRANSFLO Terminal Services, Inc. (Nashville)	426 Chestnut St	No	Yes	No
United Parcel Service - Nashville Whites Creek Pike	3205 Whites Creek Pike	No	Yes	No
M & W Transportation Co., Inc.	101 Terminal Ct	No	Yes	No
Summit Constructors	1516 Fort Negley	No	No	No
Hilltop Auto Salvage	2408 Dickerson Rd.	No	Yes	No
Tradebe Treatment and Recycling of Nashville LLC.	450 Edenwold Road	No	No	No
Smyrna Ready Mix (Hailey's Harbor, Inc.)	3730 AMY LYNN DR	No	Yes	No
MPLX Terminals LLC-Nashville (Marathon)	5 Main St	Yes	Yes	No
Restone Quarry	711 Basswood Drive	No	No	Yes
S&H Plating		No	No	No
Warren Paint & Color Co	700 Wedgewood Avenue	Yes	Yes	No
The Mulch Company	1215 Everett Road	No	Yes	No
Vaughn Manufacturing Co	757 DOUGLAS AVE	No	Yes	No
Delek Logistics LLC	90 Van Buren Street	No	No	No
Pine Bluff Materials- Visco	1030 Visco Drive	No	Yes	No
TREW Industrial Wheels Inc.	310 Wilhagan Road	No	Yes	No
Waste Management Truck Maintenance Facility/Garbage Transfer St	1428 Antioch Drive	No	Yes	No
Greyhound Lines	709 5th Ave. South	No	Yes	No
Florida Rock & Tank Lines	2921 Hydes Ferry Rd.	No	Yes	No

Table 10C.1 - Industrial Sites Inventoried within Metro's Database (Continued)

Site Name	Site Location	SARA Site	TMSP Site	RMCP Site
Southern Services (Waste Management Of Tennessee-Nashville)	4651 Amy Lynn Drive	No	Yes	No
Waste Management C&D Recycle Center	3211 Franklin Limestone Road	No	No	No
Mid Tn Recycling	3533 Hermitage Industrial Drive	No	Yes	No
Supreme Oil Central, Inc. (Stratas Foods)	189 Spence Lane	No	Yes	No
Rivergate Mrf (Qrs River Hills Recycling Facility)	630 Myatt Dr	No	Yes	No
North American Galvanizing Co.(Azz Galvanizing)	200 32nd Ave. N.	Yes	Yes	No
Siskin Steel	Ashland City Highway	No	Yes	No
Pine Bluff Materials (Formerly Hunter Marine)	Robertson Ave	No	Yes	No
Innophos, Inc.	4600 Centennial Blvd	Yes	Yes	No
Nashville Chemical & Equipment Co Inc	7001 Westbelt Dr	Yes	No	No
Whirlpool Corp	1714 Heil Quaker Blvd	Yes	No	No
A. Schulman, Inc. (Out Of Business)	481 Allied Drive	Yes	Yes	No
Twb Antioch	6050 Dana Way	Yes	No	No
Five Star Foods (Cargil)	2621 Euginia	Yes	No	No
Superior Trim	511 Bridgeway Ave	Yes	No	No
Ergon Terminaling, Inc. - Nashville	1114 Visco Drive	Yes	Yes	No
Airgass USA LLC	7236 Centennial Blvd	Yes	No	No
Motiva Nashville Terminal	1717 61st Ave N	Yes	No	No
Reddy Ice-Nashville	7261 Centennial Blvd	Yes	No	No
Purity Dairies	360 Murfreesboro Pike	Yes	Yes	No
Rogers Group, Inc. (Reostone Quarry)	6514 Robertson Avenue	No	Yes	No
Quickrete - Nashville	6614 Robertson Road	No	Yes	No
Land O'lakes Purina Feed Llc - Nashville Tn	3601 Trousdale Dr	Yes	Yes	No
Azko Nobel Coatings Inc.	20 Culvert Street	Yes	Yes	No
Green Tree Processing (On-Site Environmental)	1501 Baptist World Center Dr.	No	Yes	No

Table 10C.1 - Industrial Sites Inventoried within Metro's Database (Continued)

Site Name	Site Location	SARA Site	TMSP Site	RMCP Site
Green Tree Processing (Onsite Environmental)	Baptist World Drive	Yes	Yes	No
Springs Global Us-Nashville Plant	7201 Cockrill Bend Blvd.	Yes	Yes	No
Harcros Chemicals Inc	1418 Poplar Ln	Yes	Yes	No
Rogers Group (Whites Creek Asphalt Plant)	2827 Whites Creek Pike	No	Yes	No
Psc Metals, Inc.	710 S. 1st St.	No	Yes	No
Superior Solvents & Chemicals	518 Swinging Bridge Rd	Yes	No	No
Parman Energy		No	No	No
Nashville Wire Products	295 Driftwood St	Yes	No	No
Exxon Mobil Pipeline Corp Nashville Terminal	1741 Ed Temple Blvd	Yes	No	No
Lawson Ready Mix	5915 River Road	Yes	No	Yes
Triumph (Vought) Aircraft Industries Inc (Triumph)	1431 Vultee Blvd	Yes	No	No
E. I. Dupont De Nemours & Co., Inc. - Old Hickory	1002 Industrial Road	Yes	Yes	No
Fiberweb, Inc. (Polymer Group)	70 Old Hickory Blvd.	Yes	Yes	No
Country Delite Farms Llc (Suiza)	1401 Church St	Yes	No	No
U S Smokeless Tobacco Manufacturing Co	800 Harrison St	Yes	No	No
Perfection Molders	213 Connel Street	Yes	No	No
Hennessy Industries	1601 Jp Hennessy Dr	Yes	No	No
Palm Commodities International, Inc Sales	1717 Jp Hennessey Dr	Yes	No	No
Blanchard Terminal Company, Llc (Marathon Terminal)	1409 51st Ave. N.	Yes	Yes	No
Safety-Kleen Systems, Inc.	215 Whitsett Rd	Yes	Yes	No
Cmc Rebar Nashville	852 Visco Dr Suite 101	Yes	No	No
Quad Graphics Nashville	2947 Brick Church Pike	Yes	No	No
Cone Solvents Inc Nashville (Frontier Logistical Services)	1830 Linder Industrial Dr	Yes	No	No
Ashland Distribution (Nexeo Solutions)	2315 Clifton Ave	Yes	Yes	No
Bellar Auto Parts, Inc.	670 James Avenue	No	Yes	No
Polar Technology Llc (Hudson)	1360 Foster Ave	Yes	No	No

Table 10C.1 - Industrial Sites Inventoried within Metro's Database (Continued)

Site Name	Site Location	SARA Site	TMSP Site	RMCP Site
Peterbilt Motors Company	430 Myatt Dr	Yes	Yes	No
Greer Stop Nut	481 McNally Drive	Yes	Yes	No
Vulcan Quarry - Hermitage		No	No	No
Dicaperl Minerals Corp. (Chemrock)	2601 Osage Road	No	Yes	No
Embraer Aircraft Maintenance Services, Inc	10 Airways Blvd	No	Yes	No
Nashville Recycling Co	10 Van Buren St.	No	Yes	No
John Bouchard & Sons Co	1024 Harrison St.	No	Yes	No
BFI Waste Services of TN (BFI of Nashville)	700 Murfreesboro Pike	No	Yes	No
Coca-Cola Bottling Co. of Nashville	407 Craighead Street	No	Yes	No
Earthgrains Banking Co., Inc (Sara Lee Bakery)	2407 Franklin Pike	No	No	No
Flexsol Packaging Corp.	1105 Visco Drive	No	Yes	No
John C. Tune Airport	110 Tune Airport Drive	No	Yes	No
Essex Plastics Midwest, LLC D.B.A. Flexol Packaging Corp.	1105 Visco Drive	No	Yes	No
Star Transportation (Volunteer Express)	1125 Foster Avenue	No	Yes	No
American Appliance Products - Madison	1129 Myatt Blvd	No	Yes	No
Firstexpress Inc.	1135 Freightliner Drive	No	Yes	No
Circle Delivery Service, Inc.	125 Caden Drive	No	Yes	No
Rolling Frito-Lay Sales, LP - Nashville DC	130 Spence Ln.	No	Yes	No
First Response, Inc.	1411 S. Dickerson Pike	No	Yes	No
Dry Creek Wastewater Treatment Plant	1600 2nd Ave. N.	No	Yes	No
Nashville Central STP	1600 2nd Ave. N.	No	Yes	No
Nashville Wire Products	1604 County Hospital Rd	No	Yes	No
Lone Star Industries, Inc. d/b/a Buzzi Unicem USA - Nashville	1702 2nd Ave N	No	Yes	No
Steel Summit Tennessee	1718 J.P. Hennessy Dr.	No	Yes	No
Reading Midwest Distribution (FTEC, Inc. (Palfleet Truck))	1801 Lebanon Pike	No	Yes	No
River Cement Sales Co dba Buzzi Unicem USA	1818 Cement Plant Rd	No	Yes	No
Radiant Technologies	1845 Elm Hill Pike	No	Yes	No
Federal Express - BNAA	1931 Air Lane Drive, Suite G	No	No	No

Table 10C.1 - Industrial Sites Inventoried within Metro's Database (Continued)

Site Name	Site Location	SARA Site	TMSP Site	RMCP Site
Wikoff Color Corporation	214 Omonhundro Place	No	Yes	No
Tennessee Commercial Warehouse - Nashville	22 Stanley Street	No	Yes	No
Tennessee Air National Guard	240 Knapp Boulevard	No	Yes	No
Besway Systems Inc	305 Williams Ave	No	Yes	No
Advanced Composites (TN)	3050 Sidco Drive	No	Yes	No
Sequatchie Concrete Service, Inc.	306 Cowan St.	No	Yes	No
AAA Industries Inc.	3141 Ambrose Ave	No	Yes	No
Titan Logistics LLC (BNE Properties, Inc).	317 Arlington Ave	No	Yes	No
Vulcan Construction Materials, LLC - Danley Asphalt (Lojac)	3185 Franklin Limestone Rd	No	Yes	No
Lee Brick and Block	3201 Franklin Limestone Road	No	Yes	No
Paulo Products Company	3206 Ambrose Ave	No	Yes	No
Fed Ex Ground - Nashville Knight Rd	3301 Knight Rd	No	Yes	No
Truck Shine	332 Wilhagan Rd	No	Yes	No
Central Pike Class IV Landfill	3530 Central Pike, Suite 105	No	Yes	No
Vulcan Construction Materials - Hermitage Asphalt (Lojac)	3552 Hermitage Industrial Drive	No	Yes	No
Kohl & Madden Plant #1	404 Harding Ind. Dr.	No	Yes	No
Southeastern Freight Lines, Inc.	4141 Murfreesboro Rd	No	Yes	No
Schreiber Foods, Inc.	4350 Hurricane Creek Blvd.	No	Yes	No
Sadler Bros Trucking & Leasing Company, Inc.	436 Enos Reed Drive	No	Yes	No
LoJac Nashville River Road Plant	4404 River Rd	No	Yes	No
Cummings Signs Arch. and Banking Div. (Inactive)	4560 Trousdale Dr	No	Yes	No
Berry Global Group (Clopay Plastics Products)	463 Harding Industrial Drive	No	Yes	No
Hamilton Machine Co Inc	464 Woodycrest Ave	No	Yes	No
Lojac Downtown Plant	500 Cowan St	No	Yes	No
USF Holland, Inc.	500 Oak Bluff Ln	No	Yes	No
Cherokee Marine Terminal	520 Cowan Street	No	Yes	No
Nashville Machine Elevator Inc	520 Interstate Blvd S.	No	Yes	No
Vintage Millworks Inc	525 Merritt Ave	No	Yes	No
Nashville Machine Company	530 Woodycrest Ave	No	Yes	No
Portland Express, Inc.	531 Woodycrest Avenue	No	Yes	No
Servitech Industries, Inc.	550 Brick Chruch Park Drive	No	Yes	No

Table 10C.1 - Industrial Sites Inventoried within Metro's Database (Continued)

Site Name	Site Location	SARA Site	TMSP Site	RMCP Site
VF Imagewear, Inc.	554 Hickory Hills Blvd	No	Yes	No
Clopay Advanced Printing	555 Harding Industrial Drive	No	Yes	No
Grooms Engines	611 4th Ave. S.	No	Yes	No
D & R Motors & Recycling	616 Durett Drive	No	Yes	No
Vietti Foods Company, Inc.	636 Southgate Ave.	No	Yes	No
Allied Waste (BFI of Nashville)	700 Murfreesboro Road	No	Yes	No
Southland Brick and Block	3201 Franklin Limestone Rd	No	Yes	No
United Parcel Service - Nashville Massman Dr.	705 Massman Drive	No	Yes	No
Smurfit-Stone Container -- Nashville	707 19th Ave. N.	No	Yes	No
Nashville VMF	707 Chestnut St	No	Yes	No
Quality Plating	71 Fesslers Lane	No	Yes	No
Techno-Aide, Inc.	7117 Centennial Blvd	No	Yes	No
Pepsi Bottling Group	715 Thompson Lane	No	Yes	No
Jones Bros. Contractors Asphalt Plant #1 (Danley)	820 Ezell Pike	No	Yes	No
Milan Express Co., Inc. - Nashville	825 Visco Dr	No	Yes	No
ABF Freight System, Inc. - Nashville	890 Visco Dr	No	Yes	No
Metro Nashville District Energy System	90 Peabody Street	No	Yes	No
Nashville Wilbert Burial Vault Co.	432 Woodycrest Ave	No	Yes	No
GAF Materials Corp.	970 Fiberglass Road	No	Yes	No
Jones Brothers, LLC	129 BUSH RD	No	Yes	No
Rogers Manufacturing Company	110 Transit Avenue	No	Yes	No
Dixie Wire	5901 California Avenue	No	Yes	No
PlastiCycle	5801 Centennial Boulevard	No	Yes	No
3M Company	400 Swinging Bridge Road	No	Yes	No
Associated Wholesale Grocers	500 S Cartwright St	No	Yes	No
Kennametal Inc (ATI Metal Working Products)	1 Teledyne Place	No	Yes	No
Ford Nashville Property (Automotive Components)	Centennial Boulevard	No	Yes	No
Harpeth Valley Utility District	5910 River Road	No	No	No
American Airlines Fuel Storage Facility at BNA	929 Airport Service Road	No	No	No
Metro Nashville Airport Authority	1 Terminal Drive	No	No	No
Bridgestone Americas Tire Operations, LLC	1201 Bridgestone Parkway	No	No	No
Music City Processing	1629 Elm Hill Pike	No	No	No
Precision Fabrics Group, Inc	530 Myatt Drive	No	No	No

Table 10C.1 - Industrial Sites Inventoried within Metro's Database (Continued)

Site Name	Site Location	SARA Site	TMSP Site	RMCP Site
American Fabricators Inc	570 Metroplex Drive	No	Yes	No
Amazon.com Services, Inc. - DNA1	2813 Brick Church Pike	No	Yes	No
Music City Pick A Part, LLC	922 Lebanon Pike	No	Yes	No
CMC Steel US, LLC	4280 Sidco Drive	No	Yes	No
Dynamic Lifecycle Innovations TN LLC	3520 Ambrose Ave	No	Yes	No
January Environmental Services, Inc.	91 Van Buren St	No	Yes	No
Amazon, LLC Sort Center / BNA5	50 Airways Blvd	No	Yes	No
Jones Stone Co Inc	2705 Larmon Drive	No	Yes	No
Sinomax East, Inc.	1740 JP Hennessey Drive	No	Yes	No
48Forty Solutions (CHEP Recycled Pallet Solutions, LLC)	601 Space Park S.	No	Yes	No
Robert Orr / Sysco	1 Hermitage Plaza	No	Yes	No
Rock Harbor Marine/Marina	525 Basswood Ave	No	Yes	No
Jacob Holm Opco Inc.	1002 Industrial Rd	No	Yes	No
Living Earth - West Nashville	6401 Centennial Blvd	No	Yes	No
Living Earth - East Nashville	1511 Elm Hill Pike	No	Yes	No

Table 10F.1 - Industrial Sites Inspected during FY19

Site Name	Site Location	SARA Site	TMSP Site	RMCP Site	Last Date Inspected
Inspected During Start of FY20					
Mid-South Wire	1070 Visco Drive	No	Yes	No	10/4/2019
Smitty's Auto Parts	1609 Bell Road	No	Yes	No	10/1/2019
All Star Recycling	460A Craighead Street	No	Yes	No	9/27/2019
N & S Inc.	361 Herron Drive	No	Yes	No	9/24/2019
United Parcel Service - TCI	7525 Hickory Hills Court	No	Yes	No	9/18/2019
Truck Center, Inc. (Business Moved)	518 Hagan Street	No	Yes	No	9/17/2019
Southern Recycling (Metal Management Nashville, LLC)	1840 Linder Industrial Drive	No	Yes	No	9/13/2019
Rivergate Auto Parts, Inc. (Nashville Truck Parts)	1471 N. Gallatin Rd	No	Yes	No	9/10/2019
Four Lane Auto Salvage Inc.	400 W Trinity Ln.	No	Yes	No	9/4/2019
Neely's Bend Inc.	1327 Neely's Bend Road	No	Yes	No	8/23/2019
West Nashville Auto Recycling Inc.	5604 Centennial Blvd	No	Yes	No	8/16/2019
LKQ Pick Your Part Southeast LLC	2030 Lucas Lane		Yes		8/14/2019
Shrum Auto Salvage	1050 Old Buck Hill Road	No	Yes	No	8/8/2019
Pull-A-Part, LLC	7114 Centennial Boulevard	No	Yes	No	7/19/2019
All State Auto Parts, Inc.	515 Nawakwa TL	No	Yes	No	7/12/2019
Howard Baer, Inc.	1301 Foster Ave	No	Yes	No	7/8/2019
Abernathy Truck Salvage, Inc.	865 W. Trinity Ln.	No	Yes	No	7/3/2019
Inspected During FY19					
Metro Salvage, Inc.	1975 Springfield Highway	No	Yes	No	6/28/2019
Tennessee Imports Auto Salvage	326 Oriel Avenue	No	Yes	No	6/26/2019
Marathon Petroleum Company, LLC - Bordeaux Terminal	2920 Old Hydes Ferry Road	Yes	Yes	No	6/24/2019
Magellan Nashville II Terminal - Holding, LP	1441 51st Ave. N.	No	Yes	No	6/13/2019
River Hills MRF			Yes		6/11/2019
Carlex Glass America	7200 CENTENNIAL BLVD	Yes	No	No	6/4/2019
Magellan Nashville I Terminal	1609 63rd Ave. N.	No	Yes	No	5/30/2019
RelaDyne (J B Weimar)	7281 Centennial Blvd	Yes	Yes	No	5/22/2019
Cumberland Terminals, Inc.	7260 Centennial Blvd.	Yes	Yes	No	5/21/2019
IMI Ready Mix- Robertson Road	6616 Robertson Road	No	No	Yes	5/16/2019
Smyrna Ready Mix Concrete, 2nd Ave	1136 2nd Avenue North	Yes	No	Yes	5/15/2019
Foley Products (Sherman-Dixie Concrete Industries, Inc.)	200 42nd Avenue N.	Yes	No	Yes	5/14/2019
Nashville Ready Mix - Cowan Ct.	1436 Cowan Street	Yes	Yes	Yes	5/10/2019
Smyrna Mix Concrete	6677 River Road Pike	No	No	Yes	5/2/2019
IMI Nashville Airport	141 Bush Road	No	No	Yes	5/2/2019
Marathon Petroleum Company	930 Youngs Lane	Yes	Yes	No	4/30/2019

Table 10F.1 - Industrial Sites Inspected during FY19 (Continued)

Site Name	Site Location	SARA Site	TMSP Site	RMCP Site	Last Date Inspected
Nashville Ready Mix West Nashville	5853 River Road	Yes	No	Yes	4/22/2019
Smyrna Ready Mix	3040 Brandau Road	No	No	Yes	4/18/2019
IMI Ready Mix - Cowan Street	1433 Cowan Court	No	No	Yes	4/16/2019
Nashville Ready Mix, Inc. Baptist World	1326 Baptist World Center Drive	No	Yes	Yes	4/9/2019
Smyrna Ready Mix Concrete INC. - Visco Drive	1020 Visco Drive	Yes	No	Yes	4/4/2019
TDSI Nashville Auto Distribution Center (Allied Systems Ltd)	743 Harding Place	No	Yes	No	3/28/2019
TDSI- Auto Distribution Center	600 Veritas St	No	Yes	No	3/28/2019
John W. McDougall Co., Inc.	3731 Amy Lynn Drive	No	Yes	No	3/14/2019
CSX Intermodal, Inc - Nashville Terminal	3086 Sidco Dr	No	Yes	No	3/13/2019
TRANSFLO Terminal Services, Inc. (Nashville)	426 Chestnut St	No	Yes	No	2/13/2019
United Parcel Service - Nashville Whites Creek Pike	3205 Whites Creek Pike	No	Yes	No	1/17/2019
M & W Transportation Co., Inc.	101 Terminal Ct	No	Yes	No	12/12/2018
Summit Constructors					10/18/2018
Hilltop Auto Salvage	2408 Dickerson Rd.	No	Yes	No	9/19/2018
Tradebe Treatment and Recycling of Nashville LLC.	450 Edenwold Road	No	No	No	8/30/2018
Smyrna Ready Mix (Hailey's Harbor, Inc.)	3730 AMY LYNN DR	No	Yes	No	7/17/2018

Table 13A.1 – TMDL Monitoring Data for FY19

Date	Time	Site Name	Samplers (initials)	DO mg/L	Conductivity µS	Temp. °C	pH	Flow ft3/sec	*E. coli* MPN/100mL
7/10/2018	9:28	Hurricane	MB VL	7.37	530	23.3	7.69	0.89787	95.9
7/23/2018	8:48	Hurricane	MB VL	7.08	558	23.1	7.84	3.1416	104.6
7/24/2018	9:25	Hurricane	VL SP	7.88	484	22.5	7.86	1.275	135.4
7/30/2018	9:59	Hurricane	VL SP	6.65	497	23.2	7.88	5.9456	228.2
7/31/2018	9:33	Hurricane	MB SP	8.24	540	22.7	7.82	2.4081	121.1
8/27/2018	10:32	Hurricane	MB VL	7.91	566	24.9	7.97	*	98.7
9/17/2018	10:04	Hurricane	VL SP	5.94	571	23.3	7.85	*	167.4
10/22/2018	8:52	Hurricane	VL SP	10.37	569	11.7	7.9	*	104.3
10/22/2018	8:52	Hurricane (duplicate)	VL MB	*	*	*	*	*	90.6
11/19/2018	9:31	Hurricane	VL SP	9.76	596	13.4	7.55	*	83.9
12/27/2018	8:56	Hurricane	VL SP	10.57	571	11.5	7.78	*	60.2
1/28/2019	9:29	Hurricane	VL SP	11.52	456	9.7	7.48	*	81.3
1/28/2019	9:23	Hurricane (duplicate)	VL SP	*	*	*	*	*	77.1
2/4/2019	9:32	Hurricane	MB VL	11.91	520	11	8.18	*	68.3
3/13/2019	8:56	Hurricane	VL SP	10.34	378.1	12.7	7.24	*	201.4
4/24/2019	8:10	Hurricane	MB SP	9.44	503	15.4		*	184.2
5/30/2019	9:04	Hurricane	MB	6.11	559	22.3	7.77	*	101.4
6/28/2019	9:20	Hurricane	VL SP	7.11	405.9	19.9	7.28	*	>2419.6
7/23/2018	9:05	Little Harpeth	SP	7.31	534	23.8	8.00	3.48	131.7
7/24/2018	9:25	Little Harpeth	MB	7.46	504	22.9	8.21	8.45	83.6
7/25/2018	9:22	Little Harpeth	MB	6.91	556	23.5	8.07	*	161.6
7/30/2018	9:40	Little Harpeth	MB	6.59	567	22.1	8.10	1.60	125.9
7/31/2018	9:30	Little Harpeth	VL	6.23	426.6	23.8	8.04	1.29	108.6
8/27/2018	7:55	Little Harpeth	MB SP	6.36	581	24.5	8.17	4.06	686.7
8/27/2018	7:55	Little Harpeth (duplicate)	MB SP	*	*	*	*	*	613.1
9/17/2018	13:47	Little Harpeth	VL SP	8.63	590	24.5	8.34	*	124.6
10/22/2018	10:56	Little Harpeth	VL SP	11.75	581	11	8.27	*	228.2
11/19/2018	9:37	Little Harpeth	MB	10.01	545	12.5	7.73	*	77.1
12/27/2018	11:03	Little Harpeth	VL SP	12.96	536	10.5	8.33	*	43.5
1/28/2019	9:56	Little Harpeth	VL SP	12.22	515	7.8	8.12	*	62.7
2/4/2019	9:12	Little Harpeth	SP	11.55	491	11.5	8.24	*	73.3
3/13/2019	9:08	Little Harpeth	MB	10.14	425.8	12.3	8.08	*	150.0
3/13/2019	9:08	Little Harpeth (duplicate)	MB	*	*	*	*	*	95.9
4/24/2019	10:58	Little Harpeth	MB SP	10.93	442.5	16.1	**	*	90.8
5/30/2019	9:59	Little Harpeth	MB	7.26	505	24.5	8.20	*	193.5
6/28/2019	11:20	Little Harpeth	VL SP	7.79	424.6	20.1	7.36	*	1553.1
7/10/2018	10:10	McCrory 1	MB VL	6.6	690	22.4	7.68	0.767	1119.6
7/23/2018	9:27	McCrory 1	MB VL	6.25	544	22.4	7.92	5.087	365.4
7/24/2018	10:17	McCrory 1	VL SP	6.59	490	21.7	7.93	0.928	201.4
7/30/2018	10:23	McCrory 1	VL SP	6.01	721	22.1	7.98	1.088	275.5
7/31/2018	10:18	McCrory 1	MB SP	6.25	831	21.8	7.86	0.717	344.8
8/27/2018	11:16	McCrory 1	MB VL	6.29	764	22.9	7.86	*	280.9
9/17/2018	10:37	McCrory 1	VL SP	5.23	790	22.6	7.83	*	261.3
10/22/2018	9:29	McCrory 1	VL SP	9.22	759	11.5	8.05	*	298.7
11/19/2018	10:15	McCrory 1	VL SP	10.02	752	11.9	7.87	*	325.5

Table 13A.1 – TMDL Monitoring Data for FY19 (Continued)

Date	Time	Site Name	Samplers (initials)	DO mg/L	Conductivity µS	Temp. °C	pH	Flow ft3/sec	*E. coli* MPN/100mL
12/27/2018	9:30	McCrory 1	VL SP	10.97	717	10.3	7.93	*	148.3
12/27/2018	9:29	McCrory 1 (duplicate)	VL SP	*	*	*	*	*	115.3
1/28/2019	10:03	McCrory 1	VL SP	11.31	627	8.9	8.04	*	90.9
2/4/2019	10:26	McCrory 1	MB VL	10.99	621	10.8	8.09	*	81.6
3/13/2019	9:37	McCrory 1	VL SP	10.5	531	12.2	7.2	*	238.2
4/24/2019	8:48	McCrory 1	MB SP	8.99	582	15		*	298.7
5/30/2019	7:29	McCrory 1	MB	5.13	771	22.2	7.94	*	1299.7
6/10/2019	9:58	McCrory 1	VL SP	*	*	*	*	*	1553.1
7/10/2018	11:15	Stoners 1	MB VL	7.65	491	23.7	8	1.626	214.2
7/23/2018	9:45	Stoners 1	MB VL	6.26	572	23	8.01	10.080	1553.1
7/24/2018	10:39	Stoners 1	VL SP	8.09	610	21.8	7.94	12.337	344.8
7/30/2018	10:48	Stoners 1	VL SP	6.05	815	22.9	7.76	4.131	67.6
7/31/2018	10:37	Stoners 1	MB SP	7.38	593	21.7	7.87	2.409	344.8
8/27/2018	11:31	Stoners 1	MB VL	7.49	849	22.6	7.86	*	435.2
9/17/2018	11:00	Stoners 1	VL SP	6.75	981	22.4	7.88	*	686.7
10/22/2018	9:47	Stoners 1	VL SP	9.57	678	13.3	8.1	*	290.9
11/19/2018	10:45	Stoners 1	VL SP	10.13	611	12.4	8.01	*	249.5
12/27/2018	9:49	Stoners 1	VL SP	11.21	648	11.2	7.98	*	648.8
1/28/2019	10:23	Stoners 1	VL SP	10.61	531	9.3	8.02	*	105.0
2/4/2019	10:46	Stoners 1	MB VL	10.8	612	11.4	8.48	*	88.6
3/27/2019	9:33	Stoners 1	VL SP	9.34	551	11	8.14	*	93.3
4/24/2019	9:12	Stoners 1	MB SP	9.51	523	16	*	*	167.0
5/30/2019	7:55	Stoners 1	MB	5.74	826	23.3	*	*	146.7
6/28/2019	10:20	Stoners 1	VL SP	8.29	451.7	20.8	7.91	*	980.4
7/10/2018	10:55	Stoners 2	MB VL	7.15	800	23	7.76	6.091	235.9
7/23/2018	10:05	Stoners 2	MB VL	6.91	508	23.1	8.17	5.500	150.0
7/24/2018	11:00	Stoners 2	VL SP	7.87	461	22.8	8.12	0.510	686.7
7/30/2018	11:07	Stoners 2	VL SP	7.18	450.9	24.7	8.2	4.342	129.6
7/30/2018	11:09	Stoners 2 (duplicate)	*	*	*	*	*	*	111.9
7/31/2018	10:55	Stoners 2	MB SP	6.71	503	23.3	8.01	0.706	218.7
8/27/2018	11:47	Stoners 2	MB VL	6.89	530	24.7	8.06	*	104.3
9/17/2018	11:16	Stoners 2	VL SP	5.07	521	23.8	8.01	*	344.8
10/22/2018	10:02	Stoners 2	VL SP	10.56	536	11	8.37	*	261.3
11/19/2018	10:52	Stoners 2	VL SP	10.86	448.8	11.6	8.2	*	135.4
12/27/2018	10:14	Stoners 2	VL SP	12.51	509	10.2	8.29	*	410.6
1/28/2019	10:58	Stoners 2	VL SP	12.48	448.9	8.6	8.3	*	95.9
2/4/2019	11:04	Stoners 2	MB VL	11.94	462	10.7	8.33	*	101.9
3/27/2019	9:56	Stoners 2	VL SP	11.13	435.7	8.9	8.33	*	248.1
4/24/2019	9:27	Stoners 2	MB SP	9.47	446.7	16.1	**	*	248.9
5/30/2019	8:15	Stoners 2	MB	4.96	493	24	8.03	*	285.1
5/30/2019	8:15	Stoners 2 (duplicate)	MB	*	*	*	*	*	325.5
6/28/2019	10:37	Stoners 2	VL SP	8.17	421.7	20.8	8.14	*	816.4

* indicates parameter not available for QAQC samples or not required

** indicates meter inoperable

Table 13A.2 - SWMP Quantifiable Statistics

Categories	FY06	FY07	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19
Recycled Oil (tons)	17.82	20.27	26.88	35.38	36.4	35.32	36.52	28.15	33	23.31	18.85	32.73	29.95	29.35
Recycled Glass (tons)	1,107.05	1,116.52	1,607.48	2,110.05	1,866.14	2,207.29	2,160.19	2,199.85	2,136.16	1,654.97	2,264.46	2,339.31	2,582.55	2,608.48
Total Brush Collection (tons)	30,498.85	30,269.40	27,785.25	30,972.21	29,456.10	38,634.89	32,795.37	28,486.59	27,178.37	21,014.68	26,742.01	31,893.67	25,932.64	25,287.66
Total Waste Collected (tons)	150,972.54	152,430.24	153,266.01	149,474.79	151,425.06	151,501.17	148,297.40	151,131.01	153,795.70	155,738.78	163,340.77	162,884.18	165,720.90	175,580.57
# of Water Quality Complaints (non-construction) Investigations Initiated in Database	287	156	135	133	139	138	122	131	114	99	100	107	120	123
# of Construction Stormwater-Related Inspections	5,721	6,552	6,327	6,160	5,079	5,457	5,843	5,170	6,064	6,082	6,684	6,787	7,277	8,342
# of Grading Permits Issued	252	239	165	109	121	135	142	138	318	276	254	262	311	327
# of Engineered Plans Submitted to Stormwater Development and Review	1,427	1,505	1,970	1,600	1,367	1,319	1,525	1,791	1,813	2,572	3,034	3,636	3,293	2,911
# of Construction Plans Approved or Declared No Permit Needed by Stormwater Development and Review	507	619	871	687	506	559	1,174	1,411	1,360	1,998	1,450	1,419	1,415	1,205
# of Stormwater Enforcements (NOVs and SWOs)	283	190	342	188	123	148	94	96	168	128	116	159	112	125

Table 13A.3 – Ambient Monitoring Data for the FY19 Reporting Period

Date	Time	Site Name	Samplers (initials)	DO	DO	Cond	Temp. C	pH	Flow	*E. coli*	BOD5	COD	NH3	TKN	NO3 +NO2	Diss. P	Total P.	Pb	Zn	Cr	Cu	Ni	Oil and Grease	TSS	TDS
				%	mg/L	uS	C		ft3/sec	mpn	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L	mg/L	mg/L
8/15/2018	7:12	Trip Blank	MGB VL	*	*	*	*	*	*	*	ND	*	ND	ND	ND	ND	ND	ND	4.149	ND	0.595	0.172	ND	ND	1
8/15/2018	11:08	Stones 2	MGB VL	55.0	4.57	288.7	24.6	7.98	10.70	43.2	ND	*	ND	0.5	ND	0.02	0.05	0.665	4.965	0.818	1.761	1.297	ND	14	183
8/15/2018	9:04	Harpeth 2	MGB VL	71.8	5.75	433.3	26.4	7.90	97.73	13.2	ND	*	ND	0.5	0.433	0.41	0.49	0.172	2.496	0.226	0.631	0.449	ND	28	272
9/19/2018	8:20	Harpeth 2	MB SP	68.1	5.62	500	25.0	8.01	43.00	29.2	ND	*	ND	ND	1.134	0.39	0.44	0.434	4.11	0.412	1.316	1.04	ND	12	298
9/19/2018	9:53	Stones 2	MB VL SP	71.4	5.97	262.4	24.4	7.83	119.00	4.1	ND	*	ND	ND	0.683	0.01	0.05	0.144	2.571	0.154	0.569	0.409	ND	1	142
9/19/2019	8:20	Field Blank	MB SP	*	*	*	*	*	*	*	ND	*	ND	ND	ND	0.01	ND	ND	3.525	ND	0.581	0.181	ND	ND	ND
5/8/2019	8:17	Harpeth 2	MB SP	85.2	7.76	389.5	20.0	8.03	296.01	75.4	ND	ND	0.145	0.25	0.788	0.29	0.35	0.191	3.986	ND	1.176	0.487	ND	12	232
5/8/2019	8:17	Harpeth 2 (duplicate)	MB SP	83.6	7.60	389.9	20.0	7.95	*	77.6	ND	ND	ND	0.25	0.789	0.28	0.35	0.178	4.314	ND	0.917	0.521	ND	11	234
5/8/2019	9:19	Stones 2	MB SP	53.2	5.11	373.4	16.8	7.79	92.60	39.3	ND	15	ND	0.15	0.268	0.05	0.04	ND	3.79	ND	0.776	0.503	ND	3	237
6/4/2019	8:40	Harpeth 2	VL SP	76.4	6.51	448.4	24.1	8.20	47.81	35	2	17	ND	0.49	0.306	0.3	0.48	0.388	5.341	ND	1.314	0.87	ND	13	276
6/4/2019	10:03	Stones 2	VL SP	71.3	6.41	300.3	20.3	7.85	-57.30	119	ND	21	ND	0.32	ND	ND	0.05	ND	3.409	ND	0.887	0.459	ND	2	181

* indicates parameter not available for QAQC samples

Table 13A.4 – Benthic Monitoring Data for TMDL Streams during FY19 Reporting Period

Station ID	Site Name	Date	Time	Collection	Habitat Score	TMI
HARPE048.9DA	Harpeth 2	8/15/2018	0904	SQKICK	162	32
STONE004.3DA	Stones River	9/19/2018	0918	SQKICK	111	24
OTTER000.8DA	Otter Creek	9/20/2018	0934	SQKICK	117	26
STONE000.9DA	Stoners Creek	10/25/2018	0918	SQKICK	160	30
FLAT000.7DA	Flat Creek	10/30/2018	0943	SQKICK	142	12
FLAT000.7DA	Flat Creek	10/30/2018	1000	SQKICK	131	8
LHARP000.6DA	Little Harpeth	10/31/2018	0957	SQKICK	173	32
TRACE000.5DA	Trace Creek	10/31/2018	0856	SQKICK	138	14
BEECH000.2DA	Beech Creek	3/26/2019	0933	SQKICK	136	28
MCCRO001.5DA	McCrory 1	3/28/2019	0909	SQKICK	115	20
SHARP7.2T0.3DA	UT to South Harpeth	4/2/2019	0917	SQKICK	114	30
DRY000.1DA	Dry Fork Creek	4/4/2019	0933	SQKICK	120	24
MCCRO003.3DA	McCrory 2	4/17/2019	1012	SQKICK	155	20
SCOTT000.1DA	Scotts Creek	4/18/2019	0715	SQKICK	125	18
HURRI000.26DA	Hurricane Creek	4/25/2019	1023	SQKICK	170	34
WFHAM000.2DA	West Fork Hamilton	4/30/2019	0956	SQKICK	128	22
STONE1.9T0.1DA	Tributary to Stoners	5/14/2019	0927	SQKICK	96	20
STONE006.7DA	Stones River	5/21/2019	0930	SQKICK	72	22
WBHUR000.1DA	W. Branch Hurricane	5/30/2019	1001	SQKICK	130	28
WBHUR000.1DA	W. Branch Hurricane	5/30/2019	1001	SQKICK	N/A	30
HARPE048.9DA	Harpeth 2	6/3/2019	0927	SQKICK	168	14
HARPE048.9DA	Harpeth 2	6/3/2019	0927	SQKICK	163	20
SUGGS007.5WS	Suggs Creek	6/11/2019	0922	SQKICK	127	34
EFHAM001.1DA	E Fork Hamilton	6/12/2019	0927	SQKICK	94	20

4.0 Supporting Program Data

The following is supplemental data that supports Metro Nashville's MS4 Permit Compliance:

2019 National Phase MS4 Program Award from the Water Environment Federation

National Municipal Stormwater and Green Infrastructure Awards Program

The Water Environment Federation honors
Metro Nashville Water Services – Stormwater Division for its outstanding
stormwater management program and commitment to installing green infrastructure.

Metro Nashville Water Services – Stormwater Division
has been awarded special winner of:

Overall Highest Score, Phase I

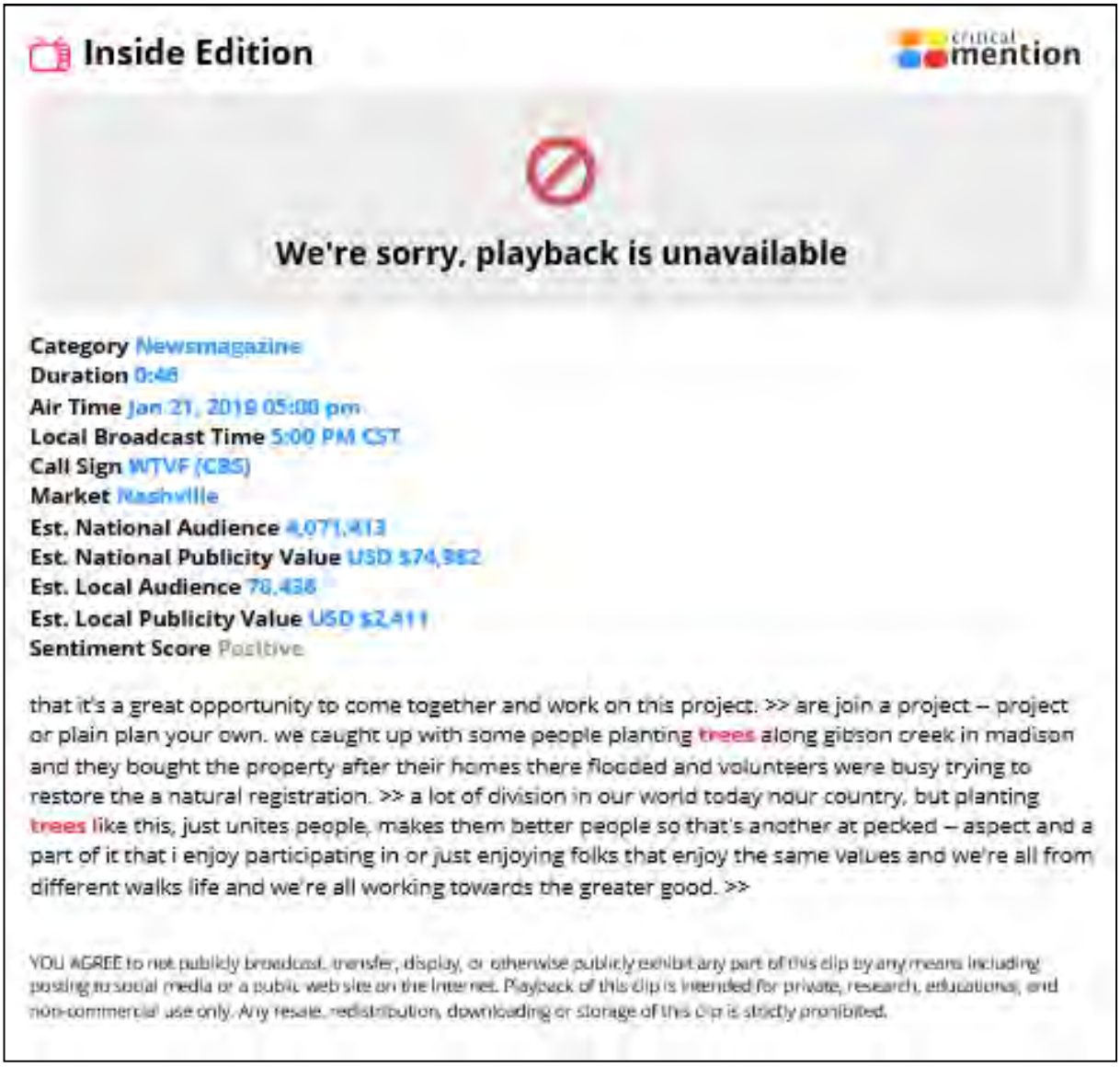
In addition, you have been also categorized as the following:

Innovation: Gold Level | Program Management: Gold Level

Eileen J. O'Neill, Ph.D.
Executive Director
Water Environment Federation

Water Environment Federation
the water quality people

Critical Mention of a News Report on the Local CBS Affiliate on Metro's Tree Program



Inside Edition

critical mention

We're sorry, playback is unavailable

Category Newsmagazine
Duration 0:46
Air Time Jan 21, 2019 05:00 pm
Local Broadcast Time 5:00 PM CST
Call Sign WTVF (CBS)
Market Nashville
Est. National Audience 4,071,413
Est. National Publicity Value USD $74,982
Est. Local Audience 78,438
Est. Local Publicity Value USD $2,411
Sentiment Score Positive

that it's a great opportunity to come together and work on this project. >> are join a project – project or plain plan your own. we caught up with some people planting trees along gibson creek in madison and they bought the property after their homes there flooded and volunteers were busy trying to restore the a natural registration. >> a lot of division in our world today nour country, but planting trees like this, just unites people, makes them better people so that's another at pecked – aspect and a part of it that i enjoy participating in or just enjoying folks that enjoy the same values and we're all from different walks life and we're all working towards the greater good. >>

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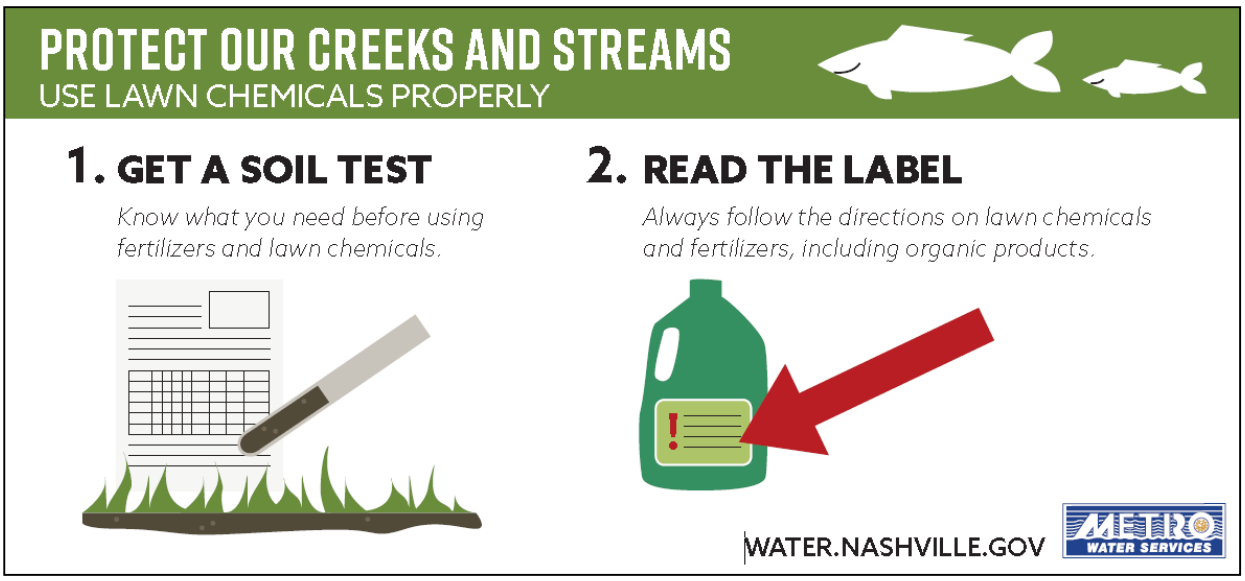
Example of one of MWS Stormwater Social Media Posts

MWS Water Bill Inserts with Stormwater Education Messages in February and March 2019



Various Stats Tracked for the Water Quality Improvement Project with the Cumberland River Compact

	Current Project			Past Project	Total of Both
Data as of: 8/31/2019	3/1/15-Present (2/28/20)			3/1/09-3/1/15	3/12/09-Present (2/28/20)
Partnership Progress Summary Table	W-QIP			SEP	Total
	W-QIP	Current	%	SEP	Completed to date
SEP Goal Criteria	Goal	# Done	Done	Total	
Facilitate 50 rain gardens being built/yr for 5 years	250	250	100%	300	550
Facilitate planting of 12,500 trees 1/2" or greater	12,500	26,507	212%	12,486	38,993
Educate 10,000 Davidson County residents about green	12,500	40,716	326%	69,115	109,831
Recreation Opportunities on the River	12,500	20,653	165%	NA	20,653
Facilitate the adoption of at least 25 stream segments	25	60	240%	16	76
Remove impermeable pavement (reporting square footage	NA	3,000	NA	0	3,000
start date =	3/1/2015				
end date =	2/28/2020				

Example Meeting Minutes from the Stormwater Management Committee during FY19

DAVID BRILEY
MAYOR

METROPOLITAN GOVERNMENT OF NASHVILLE AND DAVIDSON COUNTY

DEPARTMENT OF WATER AND SEWERAGE SERVICES
Development Services
800 Second Avenue South
P.O. Box 196300
Nashville, Tennessee 37219-6300

Minutes
of the
Stormwater Management Committee (SWMC)
January 3, 2019
* * * * * * * * * * * *
8:15 AM
800 Second Avenue South
Metro Office Building, Development Services Conference Center

STORMWATER MANAGEMENT COMMITTEE
(Quorum Required: Four Members)
Committee Members Present:
Ms. Debra Grimes
Mr. Slade Sevier, P.E. – Chairman
Ms. Carrie Stokes, P.E.
Ms. Anna Maddox, P.E.
Mr. Dodd Galbreath – Vice Chairman
Ms. Ronette Adams-Taylor

Committee Members Absent:
Mr. Roy Dale, P. E.

I. CALL TO ORDER

Mr. Dodd Galbreath (vice-chair) called meeting to order at 8:22 a.m.

II. APPROVAL OF DECEMBER 6, 2018 MEETING MINUTES & DECISION LETTERS

A motion was made by Ms. Carrie Stokes and seconded by Ms. Ronette Adams-Taylor for approval of the minutes and decision letters with the correction to page one of the minutes clarifying the starting time of the meeting which was stated in two locations as different starting times. Ms. Stokes, Ms. Adams-Taylor, and Mr. Dodd Galbreath voted in favor of the motion. The motion carried.

Ms. Debra Grimes, Mr. Slade Sevier, and Ms. Anna Maddox were not present at the time of the voting of the minutes and decision letters.

If you need assistance or an accommodation, please contact Metro Water Services, at 615-862-4862, 1600 Second Avenue North, Nashville, Tennessee 37208.

Example Meeting Minutes from the Stormwater Management Committee during FY19 (Continued)

Mr. Dobb Galbreath asked that the Stormwater Staff revisit the decision that was made by the committee in stating in the minutes the name of the member and how they voted as it pertained to the items of business. Mr. Galbreath stated that there are times records may need to be obtained and knowing the correct person to reach for the clarification of their voting decision is of importance. Members of the committee agreed that it had been discussed for the names to be added in the minutes.

A presentation of Metro Nashville FY18 Annual Report was presented by Josh Hayes – Metro Water Services – MP3 Section under the direction of Michael Hunt was the opening for 2019. Mr. Hayes discussed examples of stormwater pollution eliminated during FY18 and ways in which it was handled by the department. An example of a private sanitary sewer failure and a construction violation were highlighted.

Highlighted stats from MS4 Program Items which included; street sweeping, stormwater maintenance, stormwater development review, construction inspections, non-construction water quality inspections, stormwater enforcement actions, stormwater sampling/monitoring, and public education were discussed. Mr. Hayes stated that the increase in the social media campaign was allowing a larger community audience to be reached. At the end of the presentation, there was an opened-floor where committee members or individuals present at the meeting could ask questions.

To view presentations in its entirety go to:
http://www.nashville.gov/Water-Services/Community/Education/Reports/NPDES.aspx

Committee Legal Counsel requested that the vote on the minutes and decision letters be held again. At the time of the first vote there were only three members present and at-least four members are required to have a quorum.

A motion was made by Ms. Carrie Stokes and seconded by Ms. Ronette Adams-Taylor for approval of the minutes and decision letters with the correction to page one of the minutes clarifying the starting time of the meeting which was stated in two locations as different starting times. Ms. Stokes, Ms. Adams-Taylor, Mr. Dodd Galbreath, Ms. Debra Grimes, Ms. Anna Maddox, and Mr. Slade Sevier voted in favor of the motion. The motion carried.

III. STORMWATER MANAGEMENT COMMITTEE AGENDA

Comments were solicited from the Planning and Codes Departments for the following Agenda items.

1. **201800029**
   Cumberland Landing Expansion
   0 Opry Mills Drive — APN 07300003900
   Inspector: (Donald Erves) — CD-15 (Jeff Syracuse)

Example Meeting Minutes from the Stormwater Management Committee during FY19 (Continued)

Stormwater Management Committee
January 3, 2019
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Case was previously deferred on December 6, 2018 to allow the following: 1) Disturbance of floodway buffer, 2) Disturbance of stream buffer, 3) Continuous mowing and maintenance, and 4) Disturbance of floodway buffer for permanent SCM's (Bioretention).

APPLICANT'S REQUEST: Is to allow the following:

1. Disturbance of floodway buffer.
2. Disturbance of stream buffer.
3. Continuous mowing and maintenance.
4. Disturbance of floodway buffer for permanent SCM's (Bioretention).

APPELLANT: (Opryland Attractions, Inc.)
REPRESENTATIVE: Jeff Cundiff (Barge Design Solutions)
COMMENTS:
SW STAFF: No comment provided.
CODES: No comment provided.
PLANNING: Site is zoned CA, defer to Stormwater for review.
GREENWAYS: Greenways defers to decision of Storm Water Management Committee.

Ms. Carrie Stokes recused herself from case # 201800029.

Mr. Jeff Cundiff (Barge Design Solutions) spoke on behalf of request at the location at 0 Opry Mills Drive. Mr. Cundiff stated that the existing building was located in the floodway buffer and that due to the constraints of the existing property, the proposed expansion would also be in the buffer. The crawl space will allow entry/exit of floodwaters per Section 5.5.4. A no-rise was completed and the result was a no change in the flood elevation due to the proposed building expansion.

Mr. Cundiff stated that the concerns from the committee at the meeting on December 6, 2018 were heard and meet. The design of the building is now pulled back taking it out of the Zone 1 buffer; water quality treatments and pervious pavers are being added.

After discussion during the Executive Session of the Committee on January 3, 2019 and review of the information presented, Mr. Dodd Galbreath made a motion to approve with the following standard Conditions # 1-2 and Condition # 3. Ms. Debra Grimes seconded the motion. Ms. Ronette Adams-Taylor, Mr. Galbreath, Ms. Grimes, Ms. Anna Maddox, and Mr. Slade Sevier voted in favor of the motion. The motion carried.

1. The Appellant shall have the landscaper who installs the required mitigation plantings to certify MWS Stormwater – NPDES Office, in writing (referencing Variance #201800029), once plantings are installed per approved variance plans and again once plantings have been found to meet a two full growing season requirement. The owner shall maintain a minimum of 75 percent survivability of plantings through two full growing seasons.
2. This variance will expire on January 3, 2020. However, if a Grading Permit, Stormwater Single Family Permit, or Building Permit is issued within that period, the variance expiration date will run

Example Meeting Minutes from the Stormwater Management Committee during FY19 (Continued)

concurrent with that permit expiration date. The variance is valid only so long as the plan presented to the Stormwater Management Committee does not change.

3. The Appellant is to submit plans for plantings to MWS Stormwater Staff for approval.

NOW THEREFORE, it is the decision of the Committee that the request in Variance Request No. 201800029 as set out above and further described in the case record, be and is hereby **GRANTED.**

2. 201800033
McDougall Building Addition
3731 Production Way — APN 06800009800
Inspector: (Leigh Nelson) — CD-01 (Jonathan Hall)

APPLICANT'S REQUEST: Is to allow the following:

1. Disturbance and encroachment of the Cumberland River floodway and floodway buffer with a 10,736 sf storage shed addition to the existing building.
2. Waiver of water quality requirements.

APPELLANT: Alec (McDougall) AWM Family LLC
REPRESENTATIVE: Kevin Gangaware (Civil Site Design Group)
COMMENTS:
SW STAFF: No comment provided.
CODES: No comment provided.
PLANNING: Site is zoned IR, defer to Stormwater for review.
GREENWAYS: Greenways defers to decision of Storm Water Management Committee.

Mr. Kevin Gangaware (Civil-Site Design Group) and Mr. Alec McDougall (Owner) spoke on behalf of the request at the location of 3731 Production Way. Mr. Gangaware stated that the project consists of a proposed storage shed addition to the existing manufacturing build. Currently metal, wood, plastic, and other materials in the area are stored outside by the owner in the area of the proposed shed. The mentioned materials are used in the manufacturing, shipping and storage related to the products that are created. Rainwater currently comes into contact with these materials and then drains onto the compacted stone and discharges into catch basins that are in the storage yard.

Mr. McDougall (Owner) stated that the catch basins have filters to catch any trash, grit, sediments, etc. that drains in the area. The discharge is monitored frequently by Triad Engineering Inc. in accordance with EPA and TDEC requirements. Mr. McDougall stated he is proposing to cover the stored material to eliminate the current condition of having rainwater come in contact with the various materials. With the construction of the proposed shed, rainwater will only contact the clean aluminum shed roof and the compacted stone base. This will result in cleaner runoff for the area.

After discussion during the Executive Session of the Committee on January 3, 2019 and review of the information presented a motion Mr. Slade Sevier made a motion to approve with the following standard Conditions # 1-2. Ms. Ronette Adams-Taylor seconded the motion.

Example Meeting Minutes from the Stormwater Management Committee during FY19 (Continued)

Stormwater Management Committee
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Ms. Adams-Taylor, Mr. Dodd Galbreath, Ms. Debra Grimes, Ms. Anna Maddox, Mr. Sevier, and Ms. Carrie Stokes voted in favor of the motion. The motion carried.

1. The Appellant shall have the landscaper who installs the required mitigation plantings to certify MWS Stormwater – NPDES Office, in writing (referencing Variance #201800033), once plantings are installed per approved variance plans and again once plantings have been found to meet a two full growing season requirement. The owner shall maintain a minimum of 75 percent survivability of plantings through two full growing seasons.
2. This variance will expire on January 3, 2020. However, if a Grading Permit, Stormwater Single Family Permit, or Building Permit is issued within that period, the variance expiration date will run concurrent with that permit expiration date. The variance is valid only so long as the plan presented to the Stormwater Management Committee does not change.

NOW THEREFORE, it is the decision of the Committee that the request in Variance Request No. 201800033 as set out above and further described in the case record, be and is hereby **GRANTED.**

3. 201800034
2135 Antioch Pike
2135 Antioch Pike — APN 14800004400
Inspector: (Logan Bowman) — CD-28 (Tanaka Vercher)

APPLICANT'S REQUEST: Is to allow the following:
1. Allowance of unpermitted gravel, an unpermitted carport, and unpermitted wood planking to remain in the buffer.
2. Continuous mowing and maintenance of the buffer area.
3. Waiver of buffer signage.

APPELLANT: Hawre Rashed (Music City Auto)
REPRESENTATIVE: Chester Rhodes (Rhodes Engineering & Environmental Services)
COMMENTS:
SW STAFF: No comment provided.
CODES: No comment provided.
PLANNING: Site is zoned CS, defer to Stormwater for review.
GREENWAYS: Greenways defers to decision of Storm Water Management Committee.

Mr. Jamie Hollins attorney for Mr. Hawre Rashed (Music City Auto) requested a 30 day deferral.

After discussion during the Executive Session of the Committee on January 3, 2019 and review of the information presented a motion to defer for 30 days was approved and seconded. The motion carried.

NOW THEREFORE, it is the decision of the Committee that the request in Variance Request No. 201800034 as set out above and further described in the case record, be and is hereby **DEFFERED."**

Example Meeting Minutes from the Stormwater Management Committee during FY19 (Continued)

Stormwater Management Committee
January 3, 2019
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IV. ITEMS OF BUSINESS

Mr. Steve Mishu – MWS gave an up-date on items of business.

1) MWS is working on a more efficient way of being able to submit the application and plans to the committee for review. (The size of some of the files has been noted as a concern from some members.)
2) Review of the Stormwater Management Committee (SWMC) Variance Checklist is in the process of being ready for the committee members to review, make comments or vote on the new list being implemented.
3) Staff will review discussion on previous meeting minutes.

V. ADJOURNMENT

The meeting adjourned at 9:45 a.m.

Metropolitan Stormwater Management Committee
Approved:
By: _____
Secretary

Date: 4-4-2019

NPDES Watershed Group Thermograph Report 2019

METRO WATER SERVICES

Thermograph Report 19

NPDES Watershed Group Thermograph Report 2019 (Continued)

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NPDES Watershed Group Thermograph Report 2019 (Continued)

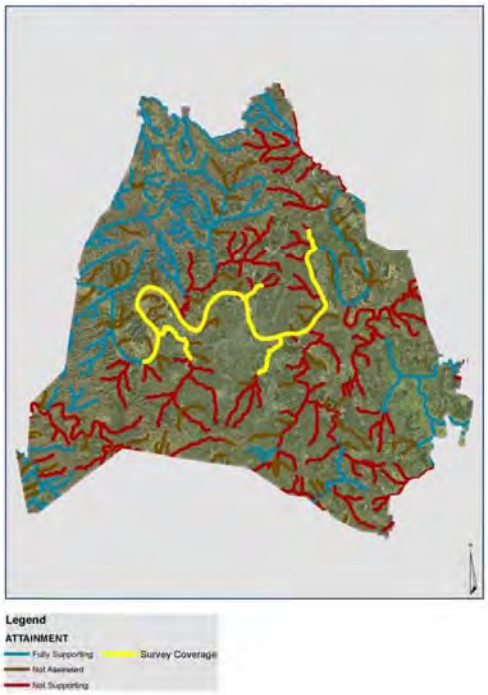
Aerial Thermograph Survey

Objective:

In cooperation with the Metropolitan Nashville Police Department (MNPD), Stormwater conducted its annual aerial thermograph survey of Davidson County's major rivers and streams. In freshwater systems, the buoyancy of relatively warm groundwater during the winter months allows for the surface identification of groundwater discharge or thermal pollution such as illicit discharges, broken water/sewer lines.

This year's survey consisted of one flight, covered ten (10) miles of major streams to include Browns Creek, Neely's Branch, Pages Branch, Richland Creek, and approximately twenty eight (28) miles of the Cumberland River.

Aerial Thermograph Survey 2019



NPDES Watershed Group Thermograph Report 2019 (Continued)

Materials and Methods:

Stream Selection Criteria:

- Time since last flight
- 303(d) listing to focus resources on impaired streams.
- Sites/areas where there is a suspicion of possible illicit discharges

Temperature is an important water-quality parameter. Thermal infrared (TIR) imaging has been previously applied to survey relatively large thermal footprints in coastal zones, lakes, reservoirs and rivers. Thermal imaging can be used to identify, visualize, and quantify differences in water temperature during the winter season that may indicate potential sources discharging to the surface waters.

Pre-flight and post-flight, mapped historical anomalies were reviewed in the ArcGIS database. Numerous anomalies were identified throughout the video during the review. Those were compared to known groundwater seeps mapped in GIS that had been discovered during previous flights.

During the survey, the co-pilot/thermographer adjusts contrast and zooms into suspect anomalies noticed in real time. The videos are then transferred to a flash drive for download and review.

Limitations:

Data limitations FLIR systems measure thermal infrared imagery emitted at the water surface. Most streams with flow have a water column that is thoroughly mixed. However, stratification can occur behind impoundments and in deep, slow moving channels.

A second flight was scheduled, however due to high wind it was cancelled.

Survey:

The flight took place on Wednesday, January 30, 2019 at 16:00. Air temperature had not been above freezing for almost 48 hrs.

Average airspeed during the survey was 50 knots (58 mph). Average altitude during the survey was 1,300 MSL (mean sea level), 600 feet AGL (above ground level). The flight crew included Pilot Sgt. Kurt Knapp, Co-pilot Bill Duggan (MNPD), and Stephanie Petty (MWS).

The first assessment began at the mouth of Neely's Bend, heading upstream. Approximately 1.4 miles of this stream was flown. The stream became too narrow and video was ceased east of Gallatin Pike, most likely due to low flow and frozen water. No anomalies were observed along the creek.

Pages Branch was flown for 1.3 miles until lost near a scrap yard/industrial area, due to the narrowing of the channel and the tree canopy became too thick. No anomalies were observed along the creek.

NPDES Watershed Group Thermograph Report 2019 (Continued)

From the west, beginning at river mile 173 and ending at river mile 201, four sweeps of the Cumberland River were covered during the flight encompassed approximately 28 miles. No new anomalies were observed along the river during the survey.

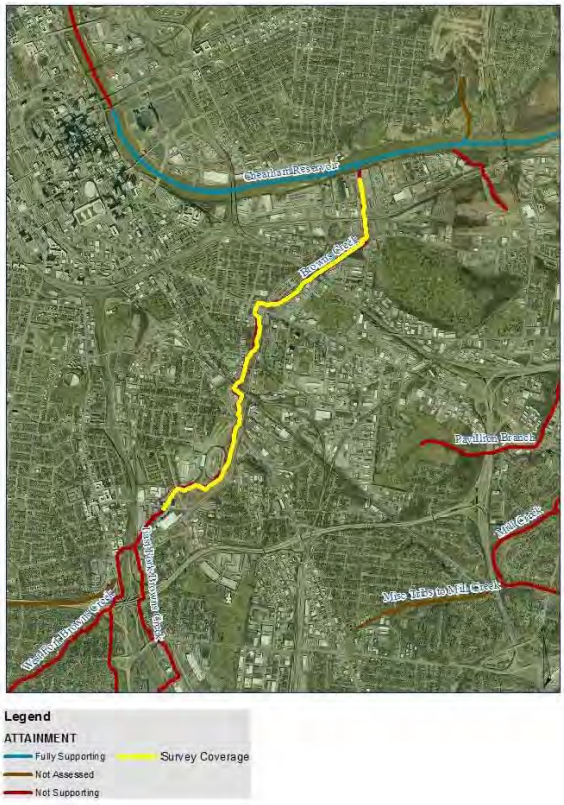
Investigations:

Field investigations were conducted by Stephanie Petty (MWS) the following week to determine the source of the anomalies identified during the survey. These are mapped in MWS' ArcGIS database for future reference.

Browns Creek:

The Brown's Creek assessment encompassed approximately 3.5 miles of the stream, beginning at the mouth of the creek to near the intersection of Berry Road and Franklin Road.

Brown's Creek



NPDES Watershed Group Thermograph Report 2019 (Continued)

A plume was observed in flight at the railroad track near Murfreesboro Road, east of Trevecca University, which had been previously identified as a false positive due to exposed soil along the bank near the railroad.

Brown's Creek

Field investigation revealed a groundwater seep. Temperature from the seep was 18.1 degrees Celsius (°C) versus the stream temperature 9.5 °C. A water sample was taken from the seep and tested for E. coli. Results were found to be 114.5 MPN, which is below TDECs threshold (Max of 126 MPN per 100mL (max as geometric mean of 5 samples within 30 days), Max of 941 MPN per 100mL in any one sample (487 in high quality waters)).

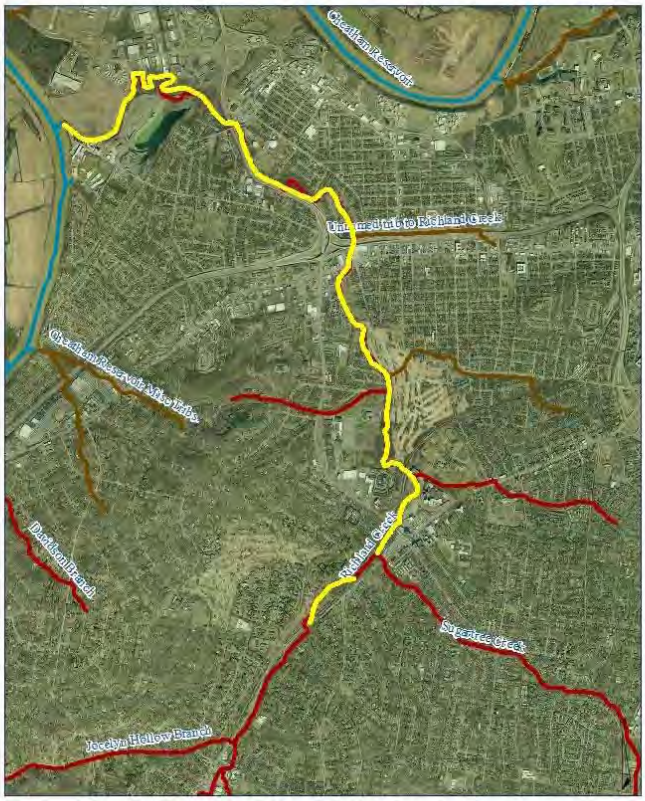
Brown's Creek	Dissolved Oxygen	Conductivity	Temperature	pH	E. coli
Anomaly	75.6%, 7.14 mg/L	566 µS/cm	18.1 °C	7.23	114.5 MPN
Upstream	113.9%, 12.99 mg/L	489 µS/cm	9.5 °C	8.62	N/A

NPDES Watershed Group Thermograph Report 2019 (Continued)

Richland Creek:

The assessment of Richland Creek covered approximately 7 miles from the mouth of the stream to near the intersection of Belle Meade Boulevard at Leake Avenue.

Richland Creek



NPDES Watershed Group Thermograph Report 2019 (Continued)

An anomaly was observed upon post flight review of video along Richland Creek, north of the intersection of Harding Road and Davidson Drive. Upon review of MWS sewer lines, it was determined this is a sewer crossing along the creek.

Richland Creek

Field investigation revealed no observed damage or leaks to the sewer pipe. A water sample was taken immediately downstream of the line crossing. Results from water sample were found to be 29.5 MPN, which is below TDECs threshold.

Richland Creek	Dissolved Oxygen	Conductivity	Temperature	pH	E. coli
Downstream	151.4%, 15.13 mg/L	488 µS/cm	15.3 °C	8.68	29.5 MPN
Upstream	155.4%, 15.57 mg/L	491 µS/cm	15.3 °C	8.60	N/A

NPDES Watershed Group Thermograph Report 2019 (Continued)

Results and Conclusions:

After review of the video and follow up field investigations, the anomaly in Brown's Creek was determined to be a groundwater seep. The Richland Creek anomaly was determined to be a sewer line crossing with no observed damage or leaks.

Water samples from both locations were below TDECs threshold (Max of 126 MPN per 100mL (max as geometric mean of 5 samples within 30 days), Max of 941 MPN per 100mL in any one sample (487 in high quality waters)).

NPDES Watershed Group Thermograph Report 2019 (Continued)

References:

https://www.sciencedirect.com/science/article/pii/S0022169418303305

https://journals.uair.arizona.edu/index.php/jrm/article/view/9695/9307

https://sciencing.com/

https://www.oregon.gov/deq/FilterDocs/UpperDeschutesAerialSurveysWhychus.pdf

MWS PIO Public Education Program Activities during FY19

Metro Water Services Programs & Activities

Report Dates: From 7/1/18 to 6/30/19

333 Programs/Activities 3868 Students 1263 Adults

ActivityType: Classroom Program 147 Programs/Activities

TOTAL classroom program	134 Programs/Activities	2898 Students	Adults
Afterschool Flooding and flood prevention	**8 Programs/Activities**	**160 Students**	**Adults**
9/4/2018	Margaret Allen Middle YMCA NAZA	1 20	middle school
9/6/2018	Croft Middle Design Center Conexión Américas NAZA	1 20	middle school
9/10/2018	Dupont Tyler Middle YMCA NAZA	1 20	middle school
10/10/2018	Wright Middle Conexion Americas NAZA	1 20	middle school
10/30/2018	Donelson Middle Y-CAP NAZA	1 20	middle school
11/8/2018	Antioch Middle Conexion Americas NAZA	1 20	middle school
4/2/2019	East Literature Magnet	1 20	middle school
4/11/2019	Margaret Allen Middle	1 20	middle schol
Afterschool: Stormwater Control Measures	**11 Programs/Activities**	**200 Students**	**Adults**
11/1/2018	Madison Middle School	2 40	7th and 8th grade
11/5/2018	Dupont Tyler Middle YMCA NAZA	2 20	middle school
1/23/2019	Goodlettsville Middle	1 20	middle school
1/31/2019	East Literature Magnet	1 20	middle school
3/19/2019	McMurray Middle	1 20	middle school
3/20/2019	Antioch Middle	1 20	middle school
3/25/2019	Haynes Middle Health/Medical Science Design	1 20	middle school
4/1/2019	Donelson Middle	1 20	middle school
4/9/2019	Dupont Tyler Middle	1 20	
Career Fair	**3 Programs/Activities**	**Students**	**Adults**
10/26/2018	MNPS ALL SCHOOLS with CSC rep, meter model	1	9th graders

Monday, August 19, 2019 **Page 1 of 11**

MWS PIO Public Education Program Activities during FY19 (Continued)

11/28/2018	Maplewood High	1		high school
2/4/2019	Maplewood High MWS HR table	1		
The Water Cycle & Me	**35 Programs/Activities**		**703 Students**	**Adults**
7/3/2018	Special Group Summer Camp - Westwood Baptist Church	2	35	K-8th grade
7/12/2018	Special Group Summer Camp - Owls Hill	1	20	elementary
7/19/2018	Special Group Summer Camp - Owls Hill	1	20	elementary
9/13/2018	Robert E. Lillard Elem. @ Kings Lane	4	100	4th grade
10/2/2018	Warner Elem. Enhanced Option	2	20	3rd grade
11/9/2018	David Lipscomb Elementary School	3	45	3rd grade
11/13/2018	Dupont Elementary	3	75	4th grade
12/18/2018	Akiva School	4	63	K-6th grade
4/30/2019	Donelson Christian Academy	3	45	4th grade
6/3/2019	Special Group Sail Camp	1	25	elementary - middle school
6/6/2019	Special Group Owl's Hill Summer Camp	1	25	elementary- middle school
6/7/2019	Brick Church Middle STEM Girls Inc. Summer Camp	2	60	elementary - middle school
6/13/2019	Jr. Master Gardeners water pollution prevention and backflow prevention for gardeners	1	15	middle school
6/13/2019	Special Group Owl's Hill Summer Camp	1	25	elementary - middle school
6/19/2019	Special Group GROW Enrichment summer camp	1	20	elementary
6/20/2019	Special Group Owl's Hill Summer Camp	1	25	elementary - middle school
6/20/2019	Special Group Sail camp	1	25	elementary - middle school

MWS PIO Public Education Program Activities during FY19 (Continued)

6/25/2019	Special Group Sail Camp summer camp	1	25	elementary and middle school
6/26/2019	Special Group Peace Ambassadors summer camp	1	20	middle school
6/27/2019	Special Group Owls Hill Nature Center Conservation Camp	1	15	elementary
Water and Wastewater EnviroScape	**6 Programs/Activities**		**151 Students**	**Adults**
2/8/2019	Meigs Middle Magnet	1	26	6th grade
5/13/2019	Croft Middle Design Center	5	125	6th grade
Water Presentation	**1 Programs/Activities**		**20 Students**	**Adults**
1/15/2019	Harpeth Hall Preparation for their water projects	1	20	6th grade
What can we do? Human activity, effects and solutions	**35 Programs/Activities**		**784 Students**	**Adults**
9/19/2018	Crieve Hall Elementary	2	42	4th grade
9/20/2018	Crieve Hall Elementary	2	42	4th grade
10/4/2018	David Lipscomb Middle School	5	70	5th grade
1/24/2019	Ruby Major Elem.	4	100	4th grade
1/29/2019	Glencliff Elementary	4	100	4th grade
1/30/2019	Glencliff Elementary	2	50	4th grade
2/1/2019	Lakeview Elem. Design Center	5	125	4th grade
3/21/2019	Shayne Elem.	4	100	4th grade
3/22/2019	Shayne Elem.	3	75	4th grade
4/5/2019	Hickman Elementary	4	80	
When it rains does it have to flood?	**35 Programs/Activities**		**880 Students**	**Adults**
9/10/2018	Chadwell Elementary	4	100	3rd grade
9/12/2018	Glendale Elementary	4	80	3rd grade
10/5/2018	Glengarry Elementary	4	80	3rd grade
10/11/2018	Eakin Elementary	4	150	3rd grade
1/28/2019	Glencliff Elementary	4	100	3rd grade
2/14/2019	Gateway Elementary	3	75	3rd grade
3/20/2019	Cane Ridge Elementary	5	120	3rd grade
3/26/2019	Mills, Dan Elementary	3	75	3rd grade
3/28/2019	Mills, Dan Elementary	2	50	3rd grade

MWS PIO Public Education Program Activities during FY19 (Continued)

4/1/2019	Fall-Hamilton Elementary Enhanced Option	2	50	3rd grade
TOTAL Teacher Led Activity	**13 Programs/Activities**		**283 Students**	**Adults**
The Journey of Your Water Video	**13 Programs/Activities**		**283 Students**	**Adults**
9/13/2018	Robert E. Lillard Elem. @ Kings Lane	4	100	4th grade
11/9/2018	David Lipscomb Elementary School	3	45	3rd grade
11/13/2018	Dupont Elementary	3	75	4th grade
12/18/2018	Akiva School	3	63	K-6th
ActivityType:	**Community Outreach Event**		**14 Programs/Activities**	
TOTAL Booth	**7 Programs/Activities**		**Students**	**Adults**
Booth/Table	**7 Programs/Activities**		**Students**	**Adults**
9/8/2018	Dragon Boat & River Festival	1		
9/21/2018	Special Event Park(ing) Day - water quality and process	1		
9/29/2018	Special Event Good Neighbor Festival	1		
3/2/2019	Special Group Old House Fair - What not to flush, lead pipe identification	1		
4/4/2019	Percy Priest Elem. Big Green Fair	1		
5/18/2019	Master Gardeners Urban Gardening Festival: Water Pollution Prevention for Gardeners and Music City Gold promotion	1		
5/25/2019	Special Event Buena Vista Neighborhood Block Party - promote tours and tap water	1		
TOTAL Community Outreach Event	**3 Programs/Activities**		**Students**	**Adults**
Water & Booth	**3 Programs/Activities**		**Students**	**Adults**
7/8/2018	Special Event Water For Life/Water Fest - water fountain, mini golf, stormwater table	1		
8/18/2018	Special Event Urban RunOff 5K	1		
4/20/2019	Earth Day Festival water fountain and stormwater booth	1		
TOTAL Provide Water	**4 Programs/Activities**		**Students**	**Adults**
Water Fountain	**3 Programs/Activities**		**Students**	**Adults**
7/4/2018	Hot Chicken Festival	1		
9/7/2018	State Fair multi-day event	1		
9/8/2018	Wine on the River	1		
Water Station	**1 Programs/Activities**		**Students**	**Adults**

Monday, August 19, 2019 **Page 4 of 11**

MWS PIO Public Education Program Activities during FY19 (Continued)

4/27/2019	Music City Marathon	1		
ActivityType:	**Community Presentation**	**13**	**Programs/Activities**	
TOTAL Presentation		**13 Programs/Activities**	**Students**	**145 Adults**
Citizens Water Academy		**10 Programs/Activities**	**Students**	**Adults**
4/9/2019	Community Kitty Holbrook - Finance	1		
4/9/2019	Community Josh Hayes - Stormwater	1		
4/9/2019	Community Shannon Frye - Customer Service	1		
4/9/2019	Community Sonia Allman - MWS History	1		
4/16/2019	Community Ron Taylor - Clean Wtaer Nashville	1		
4/16/2019	Community Tommy Dodson - Sytem Services	1		
4/23/2019	Community Hal Balthrop - Development Services	1		
4/23/2019	Community Terry Highsmith - Biosolids	1		
4/23/2019	Community Jennifer Lind - Planning for the Future	1		
4/30/2019	Community Ted Taylor - Laboratory	1		
Special Presentation		**1 Programs/Activities**	**Students**	**Adults**
5/15/2019	Special Group Jenn Harrman - Stormwater presentation to BOMA	1		
Water Treatment & Quality		**1 Programs/Activities**	**Students**	**75 Adults**
8/21/2018	Special Group Middle Tennessee Perennial Plant Society	1		75
Wise Watering		**1 Programs/Activities**	**Students**	**70 Adults**
4/25/2019	Master Gardeners pollution prevention and backflow prevention for gardeners	1		70
ActivityType:	**Conference/Professional Training Presentation**	**10**	**Programs/Activities**	
TOTAL Presentation		**10 Programs/Activities**	**Students**	**Adults**
AWWA ACE		**3 Programs/Activities**	**Students**	**Adults**
6/12/2019	AWWA ACE Glenn Doss - Electrical Upgrade at OWTP	1		

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MWS PIO Public Education Program Activities during FY19 (Continued)

6/12/2019	AWWA ACE Nacole McCormick - Pilot Plant	1			
6/12/2019	AWWA ACE Rachel Weber - Pilot Plant	1			
AWWA KY/TN sponsored program		**2 Programs/Activities**		**Students**	**Adults**
2/7/2019	Industry Professionals Sonia Allman - WPLC - External Communications	1			
3/5/2019	Industry Professionals Sonia Allman, Jenn Harrman - YP Summit - External Communications	1			
Industry (non-AWWA)		**5 Programs/Activities**		**Students**	**Adults**
4/11/2019	TN AWRA Mary Bruce - MWS wet weather results	1			
4/11/2019	TN AWRA Kalee Hotchkiss - SCM program	1			
5/28/2019	Industry Professionals Dawn Daman - NAPMA - Grease review	1			
6/10/2019	Industry Professionals (non-AWWA) Courtney Larson - LID Lunch and Learrn/Barge Design Solutions, SWMM	1			
6/17/2019	Industry Professionals Dale Binder/Shawn Herman -TDEC Level 1 EPSC Course - grading permit process	1			
ActivityType: Job Shadowing				**5 Programs/Activities**	
TOTAL Job Shadowing		**5 Programs/Activities**		**17 Students**	**Adults**
Job Shadowing: Facilities Tour		**2 Programs/Activities**		**11 Students**	**Adults**
3/25/2019	Overton High Roger Lindsey tour for engineering academy students	1	5	high school	
3/29/2019	Overton High Roger Lindsey tour for engineering academy	1	6	high school	
Job Shadowing: KRH		**1 Programs/Activities**		**2 Students**	**Adults**
10/23/2018	Maplewood High	1	2	11th grade	
Job Shadowing: WCWWTP		**2 Programs/Activities**		**4 Students**	**Adults**
10/24/2018	Maplewood High	1	2	11th grade	
11/8/2018	Maplewood High	1	2	11th grade	
ActivityType: Tour				**144 Programs/Activities**	
TOTAL Tour: Biosolids		**4 Programs/Activities**		**37 Students**	**30 Adults**
Biosolids Facility Tour: Students		**2 Programs/Activities**		**37 Students**	**Adults**
10/29/2018	Vanderbilt School of Science & Math (High Schoo	1	25	9th grade	
11/15/2018	Nashville School of the Arts	1	12	high school	

MWS PIO Public Education Program Activities during FY19 (Continued)

Biosolids Facility Tour: Water Professionals		**2 Programs/Activities**	**Students**	**30 Adults**
8/6/2018	Special Group Fort Campbell DOD	1		15
8/8/2018	Special Group Fort Campbell DOD	1		15
TOTAL Tour: MWS Facilities		**1 Programs/Activities**	**Students**	**4 Adults**
Facilities Tour		**1 Programs/Activities**	**Students**	**4 Adults**
5/10/2019	Special Group Day in the Life Tour for Metro Public Health	1		4
TOTAL Tour: WTP		**97 Programs/Activities**	**387 Students**	**775 Adults**
K.R. Harrington Tour: College		**4 Programs/Activities**	**Students**	**60 Adults**
10/10/2018	University: TSU Introduction to Environmental Engineering class	1	college	11
2/12/2019	University: Vanderbilt Environmental Health Class	1	college	24
4/3/2019	Special Group SAE Institute	1	college	15
6/6/2019	Special Group Rep. Cooper's college interns	1	college	10
K.R. Harrington Tour: Community		**56 Programs/Activities**	**Students**	**602 Adults**
9/14/2018	Metro Employees	2		29
9/18/2018	Metro Employees	2		16
9/25/2018	Metro Employees	2		26
10/12/2018	Community	1		2
10/12/2018	Community	1		2
10/22/2018	Community	1		15
10/22/2018	Community	1		15
10/22/2018	Metro Employees Metro Connect	1		15
10/23/2018	Community	1		12
10/23/2018	Community	1		12
10/30/2018	Metro Employees Metro Connect	1		12
11/7/2018	Community	2		28
11/7/2018	Community	2		28

MWS PIO Public Education Program Activities during FY19 (Continued)

11/30/2018	Metro Employees Metro Connect	1	15
12/12/2018	Community	2	18
12/12/2018	Community	2	18
1/16/2019	Community	2	12
2/13/2019	Community	2	22
3/12/2019	Community	2	17
3/14/2019	Community	2	23
4/8/2019	Community	2	18
4/15/2019	Community	2	17
4/16/2019	Special Group Society of Manufacturing Engineers Nashville chapter	1	13
4/18/2019	Special Group Cumberland River Compact River Series	2	30
5/6/2019	Community	2	27
5/7/2019	Community	2	20
5/9/2019	Community	1	6
5/9/2019	Special Group Team Lightning	1	15
5/10/2019	Community	2	28
5/11/2019	Community	2	25
5/21/2019	Community	2	31
6/3/2019	Special Group Harrington-Oeser Family	1	10
6/14/2019	Community	2	5
6/21/2019	Special Group Middle Tenness Brewers: Rock Bottom and Little Harpeth breweries	1	4
6/24/2019	Community	1	6
6/28/2019	Special Group Middle Tennessee Brewers - Tennessee Brew Works, Black Abbey	1	10
K.R. Harrington Tour: MWS Employees	**14 Programs/Activities**	**Students**	**56 Adults**
7/12/2018	MWS Employees	1	7
7/13/2018	MWS Employees	1	7
7/16/2018	MWS Employees	1	5
7/18/2018	MWS Employees	2	14

MWS PIO Public Education Program Activities during FY19 (Continued)

7/19/2018	MWS Employees	1			2
7/20/2018	MWS Employees	2			2
7/23/2018	MWS Employees	2			3
7/24/2018	MWS Employees	2			8
8/17/2018	MWS Employees	1			5
8/28/2018	MWS Employees	1			3
K.R. Harrington Tour: Students	**19 Programs/Activities**		**387 Students**		**12 Adults**
9/27/2018	Maplewood High	1	40	10th grade	
10/9/2018	Stratford High	1	50	10th grade	
10/16/2018	Special Group 4-H Home school group	1	12	ages 9-13	8
11/2/2018	Maplewood High	1	40	10th grade	
11/13/2018	Special Group Homeschool group	1	11	ages 10-13	4
11/16/2018	Nashville School of the Arts	1	12	high school	
11/26/2018	Hillsboro High	1	15	11th and 12th	
12/4/2018	Maplewood High	1	30	10th grade	
1/25/2019	BoyScouts	1	15	3rd grade	
3/13/2019	GirlScouts	1	7	3rd grade-4th grade	
4/2/2019	Home School Group	1	13	4th - 6th grade	
4/4/2019	Home School Group	1	10	3rd - 6th grade	
4/11/2019	Special Group Academy for G.O.D	1	12	5th grade	
4/19/2019	Girl Scout Event Wonder of Water	1	15	elementary	
4/23/2019	Martin Luther King Magnet	2	50	high school	
4/24/2019	Martin Luther King Magnet	2	50	high school	
6/19/2019	Special Group MWS interns	1	5	high school	
K.R. Harrington Tour: Water Professionals	**3 Programs/Activities**		**Students**		**45 Adults**
8/6/2018	Special Group Fort Campbell DOD	1			15
8/8/2018	Special Group Fort Campbell DOD	1			15

MWS PIO Public Education Program Activities during FY19 (Continued)

5/16/2019	Special Group AWWA Ky/TN leadership class	1		15
Ohohundro Tour: College		**1 Programs/Activities**	**Students**	**Adults**
1/17/2019	University: Vanderbilt	1		
TOTAL Tour: WWTP		**42 Programs/Activities**	**246 Students**	**309 Adults**
Whites Creek Tour: College		**10 Programs/Activities**	**Students**	**158 Adults**
9/28/2018	University: Vanderbilt Class: Global History of Waste	1	college	15
10/3/2018	Belmont University Biology class	1	college	25
10/3/2018	University: Vanderbilt Engineering	1	college	5
10/8/2018	Belmont University Biology class	1	college	24
11/26/2018	University: TSU Class: Intro to Environmental Engineering	1		11
11/27/2018	Aquinas class: Ecosystems	1		10
2/5/2019	Belmont University Environmental Science Class	1		24
4/9/2019	Belmont University Microbiology Class	1		15
4/10/2019	Belmont University Microbiology Class	1		14
6/21/2019	University: TSU Incoming First Year Engineering Students	1		15
Whites Creek Tour: Community		**8 Programs/Activities**	**Students**	**90 Adults**
5/1/2019	Metro Employees	2		9
5/23/2019	Metro Employees	2		11
6/4/2019	Community	2		36
6/28/2019	Community	2		34
Whites Creek Tour: MWS Employees		**8 Programs/Activities**	**Students**	**31 Adults**
8/14/2018	MWS Employees	1		6
9/7/2018	MWS Employees	2		9
9/24/2018	MWS Employees	2		9
10/17/2018	MWS Employees	2		2

MWS PIO Public Education Program Activities during FY19 (Continued)

2/5/2019	MWS Employees 3 MWS, 2 PW employees	1			5
Whites Creek Tour: Students		**14 Programs/Activities**	**246 Students**		**Adults**
10/1/2018	Maplewood High	1	30	10th grade	
10/12/2018	Maplewood High	1	30	10th grade	
10/28/2018	BoyScouts	1	10	13 year olds	
10/29/2018	Vanderbilt School of Science & Math (High Schoo	1	25	9th grade	
11/6/2018	Harpeth Hall	1	7	12th grade	
11/15/2018	Nashville School of the Arts	1	12	high school	
11/26/2018	Hillsboro High	1	15	11th and 12th grade	
3/27/2019	Ensworth School	1	17	11th and 12th grade	
4/23/2019	Martin Luther King Magnet	2	50	high school	
4/24/2019	Martin Luther King Magnet	2	30	high school	
4/29/2019	Harpeth Hall	1	15	high school	
6/26/2019	Special Group MWS Opportunity NOW interns	1	5		
Whites Creek Tour: Water Professionals		**2 Programs/Activities**		**Students**	**30 Adults**
8/6/2018	Special Group Fort Campbell DOD	1			15
8/8/2018	Special Group Fort Campbell DOD	1			15

NPDES Public Education Events/Presentations during FY19

Date	Event	Education Type	Estimated Audience	Audience	Target Audience/Pollutant
3/19/2019	Stormwater Pollution for Residents	Brochure/Door Hanger Distribution	25	Rivendell Woods Subdivision	Oil and Grease
8/6/2018	Door Hangers on 9th Ave. South	Brochure/Door Hanger Distribution	8	Residents on 9th Ave. South	General Stormwater Pollution
5/31/2019	Timmons Property Dumping	Brochure/Door Hanger Distribution	1	Timmons Properties and Landscaping Company	Leaves/Brush/Trash Dumping
		Brochure Distribution Subtotal	**34**		
4/25/2019	Party for the Planet	Citywide Event	150	Children and Parents	General Stormwater Pollution
4/20/2019	Earth Day Festival	Citywide Event	75	Earth Day Attendees (Environmentalists)	General Stormwater Pollution
3/28/2019	SCM Maintenance Company Workshop	Citywide Event	47	All Area Maintenance Companies	SCM Inspection/Maintenance
9/8/2018	Dragon Boat Festival	Citywide Event	100	Dragon Boat Festival Attendee's	General Stormwater Pollution
8/18/2018	Nashville Urban Runoff 5K	Citywide Event	230	5K Attendees	General Stormwater Pollution
7/8/2018	Cumberland River Compact Waterfest	Citywide Event	350	Families and Kids attending Waterfest	General Stormwater Pollution
		Citywide Events Total	**952**		
3/12/2019	Water Bill Insert - Scoop the Poop Message	Mail-out	211,000	Water Bill Accounts	General Stormwater Pollution
2/12/2019	Water Bill Insert - Proper use of Lawn Chemicals	Mail-out	211,000	Water Bill Accounts	General Stormwater Pollution
9/20/2018	Shelton Ave Mail Out	Mail-out	50	Residents on Shelton Ave. and Neighborhood	Pet Waste
9/18/2018	Development Community Email	Mail-out	57	Grading permit pre-con meeting contacts	Construction/Development Education
		Mail-out Subtotal	**422,107**		
5/21/2019	KYTN-WEA Webinar	Presentation	75	KYTNWEA Members	SCM Inspection/Maintenance
5/20/2019	2019 Municipal Wet Weather Stormwater Conference	Presentation	30	EPA Region IV and State MS4 coordinators	SCM Inspection/Maintenance
5/2/2019	DCSCD Overview Presentation	Presentation	10	Metro Channel 3 viewers and SWMC members	Maintenance Activities
4/11/2019	AWRA	Presentation	40	Attendees of AWRA Conference	SCM Inspection/Maintenance
4/9/2019	Water Citizens Academy	Presentation	14	Concerned Citizens	General Stormwater Pollution

NPDES Public Education Events/Presentations during FY19 (Continued)

Date	Event	Education Type	Estimated Audience #	Audience	Target Audience/Pollutant
3/28/2019	Customer Service Call Routing	Presentation	7	Customer Service Representatives at MWS Dispatch	General Stormwater Pollution
3/25/2019	Customer Service Call Routing	Presentation	7	Customer Service Representatives at MWS Dispatch	General Stormwater Pollution
3/7/2019	Presentation on Emerald Ash borer	Presentation	20	General Public, Nature Center Staff, and Council Member	General Stormwater Pollution
1/24/2019	River Talk Root Nashville Campaign	Presentation	55	General Public	General Stormwater Pollution
1/3/2019	Stormwater Management Committee - Annual Report	Presentation	20	Stormwater Management Committee and Attendees	General Stormwater Pollution
10/30/2018	SCM Certification Class	Presentation	20	Professionals seeking the Post-Construction SCM Inspection Certification	SCM Inspection/Maintenance
10/16/2018	TNSA Annual Conference	Presentation	40	TNSA Members	MS4 Permit Compliance
10/16/2018	TNSA Annual Conference	Presentation	40	TNSA Members	MS4 Permit Compliance
9/26/2018	TDEC Level I Certification	Presentation	110	Prospective Level 1 EPSC Professionals	Construction/Development Education
8/14/2018	Low Impact Design Conference	Presentation	140	LID Conference Attendees	SCM Inspection/Maintenance
8/2/2018	Stormwater Management Training	Presentation	25	Maintenance Personnel	SCM Inspection/Maintenance
7/31/2018	TDEC Level I Certification	Presentation	130	Prospective Level 1 EPSC Professionals	Construction/Development Education
7/17/2018	MWS Development Services Idea Sharing Presentation	Presentation	25	Private Engineers	SCM Inspection/Maintenance
7/9/2018	TN/KY Water Professionals Conference	Presentation	25	TN/KY Water Professionals	SCM Inspection/Maintenance
		Presentations Subtotal	**833**		
3/11/2019	Haynes Manor HOA meeting	Public/Group Meeting	37	Residents of community	General Stormwater Pollution
		Public Meeting Subtotal	**37**		
4/26/2019	Social Media Editorial Calendar	Social Media Post	450	Twitter	General Stormwater Pollution
4/3/2019	Social Media Editorial Calendar	Social Media Post	2374	Facebook Twitter Instagram followers	Leaves/Brush/Trash Dumping

NPDES Public Education Events/Presentations during FY19 (Continued)

Date	Event	Education Type	Estimated Audience #	Audience	Target Audience/Pollutant
1/23/2019	Regular SM Editorial Calendar	Social Media Post	2246	Twitter and Facebook	Leaves/Brush/Trash Dumping
1/22/2019	Targeted SM Post	Social Media Post	251	Nextdoor	Leaves/Brush/Trash Dumping
1/17/2019	Regular SM Editorial Calendar	Social Media Post	1242	Facebook and Twitter	General Stormwater Pollution
12/18/2018	Targeted Post	Social Media Post	440	Nextdoor	Leaves/Brush/Trash Dumping
12/18/2018	Regular SM Editorial Calendar	Social Media Post	4025	Twitter, Facebook	Leaves/Brush/Trash Dumping
9/6/2018	Regular SM Editorial Calendar	Social Media Post	773	Twitter users and followers	Leaves/Brush/Trash Dumping
8/1/2018	SM Event Post	Social Media Post	344	Twitter Followers	SCM Inspection/Maintenance
Social Media Post Subtotal			**12,145**		
1/24/2019	River Talk Root Nashville Campaign	Tree/Urban Forestry	55	general public	General Stormwater Pollution
1/16/2019	Metro Tree Advisory Committee Annual Retreat	Tree/Urban Forestry	25	Metro Tree Advisory Committee	General Stormwater Pollution
10/18/2018	Rivertalk Presentation on EAB	Tree/Urban Forestry	35	General Public	General Stormwater Pollution
10/16/2018	TNSA Annual Conference	Tree/Urban Forestry	35	Tennessee Stormwater Professionals	General Stormwater Pollution
7/14/2018	Presentation on Emerald Ash Borer	Tree/Urban Forestry	2	General Public, Metro Beautification Commissioner	General Stormwater Pollution
Tree/Urban Forestry Subtotal			**152**		
Total NPDES -Specific Public Education Audience			**436,260**		

Metro Department of Public Works Waste Collection During FY19

	July	August	September	October	November	December	January	February	March	April	May	June	Total
Recycling													
Curbside Recycling/In-house Recycling/Recycling Dumpsters													
Mixed Recyclables	1,001.89	993.02	1,089.54	954.56	1,078.08	1,102.81	1,052.85	1,066.95	899.09	990.77	929.99	1,079.57	12,239.12
Monthly Totals	**1,001.89**	**993.02**	**1,089.54**	**954.56**	**1,078.08**	**1,102.81**	**1,052.85**	**1,066.95**	**899.09**	**990.77**	**929.99**	**1,079.57**	**12,239.12**
Household Hazardous Waste Facility													
Oil	2.29	2.16	0	2.52	1.82	1.45	2.44	1.65	1.66	4.16	5.7	3.5	29.35
Anti-Freeze	0.5	1.3	0	0.78	0	0.88	1	1.3	1.2	0.96	1.76	1.12	10.80
Electronics	21.52	0	11.13	18.35	0	11.35	9.16	19.82	4.77	0	14.96	8.15	119.21
Batteries	0	0	0	0	0	0	0	0	0	0	0	0	-
Tanks	0	0	0	0	0	0	0	0	0	0	0	0	-
Clean Harbors	2.44	1.38	1.6	0	4.1	0	0.42	12.32	0.67	4.19	12.63	8.39	48.14
Monthly Totals	**26.75**	**4.84**	**12.73**	**21.65**	**5.92**	**13.68**	**13.02**	**35.09**	**8.3**	**9.31**	**35.05**	**21.16**	**207.5**
Drop Off Recycling Centers & Convenience Centers													
Carpet/Carpet Pad	4.38	5.11	2.92	0.73	-	2.19	5.84	-	1.46	2.19	3.65	5.84	34.31
Mixed Recyclables	25.90	33.76	32.47	33.89	28.95	36.81	38.73	28.00	36.43	41.78	38.04	35.14	409.90
Aluminum & Tin	-	-	-	-	-	-	-	-	-	-	-	-	-
Glass	285.69	249.46	191.91	237.84	221.64	227.16	202.85	182.89	180.43	212.63	224.13	191.85	2,608.48
Mixed Paper	148.40	139.86	124.27	145.70	147.26	162.61	146.63	118.50	91.74	133.95	134.03	132.23	1,625.18
OCC	218.85	204.35	167.59	246.09	227.71	275.04	264.73	204.91	230.40	217.62	230.36	216.45	2,704.10
Plastic	54.14	42.89	40.23	32.99	28.94	33.69	32.24	28.79	29.66	33.46	33.01	34.52	424.56
Plastic Bottles & Metal Cans	31.02	30.75	29.06	43.95	44.54	39.75	40.78	35.30	37.21	41.58	44.10	37.65	455.69
Scrap Metal	71.31	71.03	187.16	187.13	118.15	60.57	86.45	64.01	92.47	100.89	101.33	96.13	1,236.63
Tires	121.86	931.43	-	1,117.18	316.14	326.20	1,739.99	166.31	935.21	134.70	736.88	374.06	6,899.96
Monthly Totals	**961.55**	**1,708.64**	**775.61**	**2,045.50**	**1,133.33**	**1,164.02**	**2,558.24**	**828.71**	**1,635.01**	**918.80**	**1,545.53**	**1,123.87**	**16,398.81**
Waste Collection													
Total Metro Public Works Trash Collection	3,649.62	4,305.71	3,619.67	3,895.16	3,928.89	3,570.46	4,015.98	3,704.61	3,718.70	3,905.77	4,049.50	3,692.32	46,056.39
Total Convenience Center Trash	2,132.12	2,415.74	2,077.52	2,032.30	1,958.65	1,991.18	2,186.62	2,118.78	2,635.13	2,617.99	2,567.97	2,483.04	27,217.04
Contracted Residential	8,122.43	8,800.72	7,184.11	8,444.88	9,207.02	8,025.63	9,435.69	7,993.13	8,171.09	8,876.34	9,569.45	8,476.65	102,307.14
Monthly Totals	**13,904.17**	**15,522.17**	**12,881.30**	**14,372.34**	**15,094.56**	**13,587.27**	**15,638.29**	**13,816.52**	**14,524.92**	**15,400.10**	**16,186.92**	**14,652.01**	**175,580.57**
Brush Collection													
Unground -- Metro	2,052.42	2,267.30	1,946.57	2,113.16	1,750.45	1,734.75	1,865.01	1,298.78	1,504.95	1,598.56	1,829.82	2,595.29	22,557.06
Unground -- Metro Citizens	158.54	122.11	107.03	173.89	147.25	128.17	116.99	101.59	200.54	203.04	192.32	263.10	1,914.57
Unground -- Parks	71.13	37.65	30.30	44.69	6.75	37.41	40.03	14.46	52.62	33.64	39.73	72.92	481.33
Ground -- Board of Education	11.35	21.85	23.56	21.77	18.58	5.71	31.20	0.38	0.90	14.64	30.74	96.48	277.16
Ground -- Library	-	2.54	-	1.18	1.00	1.70	1.07	0.33	4.64	2.61	1.14	1.29	17.50
Ground--Sheriff	-	7.71	1.34	-	4.50	1.85	2.56	-	-	13.26	4.89	2.49	38.60
Ground--Water	-	-	-	-	-	-	-	-	-	0.04	-	-	0.04
MDHA	-	1.40	-	-	-	-	-	-	-	-	-	-	1.40
Monthly Totals	**2,293.44**	**2,460.56**	**2,108.80**	**2,354.69**	**1,928.53**	**1,909.59**	**2,056.86**	**1,415.54**	**1,763.65**	**1,865.79**	**2,098.64**	**3,031.57**	**25,287.66**

Metro Department of Public Works Hazardous Spills Responses During FY19

ID	Date	Notified	Location	Situation	Arrived	Actions	Departed	Agencies
1938	6/14/19	9:43	500 Paragon Mills Rd.	30 gallons Hydraulic spill on road	10:02	Put down 100 lbs. absorbent on road	10:42	PW
1931	6/3/19	7:15	Feslers Ln @ I-40	Oil spill on road	7:40	Put 400 lbs. absorbent on spill	9:22	PW
1927	4/10/19	9:44	444 Patina Circle	Hydraulic spill on road from trash truck	10:00	Put down 500 lbs. absorbent and swept into absorb.	13:00	PW
1925	4/4/19	17:10	301 Broadway (Ole Reds)	Hydraulic spill on road from trash truck	18:20	Put 500 lbs. of absorbent on spill night crew swept up.	19:30	PW
1922	3/13/19	10:50	Jackson Hill Rd & Jackson Valley Rd	Hydraulic spill on road left from red river the day before	11:20	Removed absorbent left by red river they are supposed to come out and reapply more 3/13/19	13:00	PW/Red River
1920	2/26/19	12:00	McMurry Dr. @ Brewer Dr.	5 gallons of hydraulic oil spill on road	12:10	Used 150 lbs. absorbent	13:32	PW
1919	2/20/19	20:02	Skyline Emergency Room Hospital @ Dickerson Rd.	2 gallons Oil spill on road	20:50	Put 50 lbs. absorbent on road and cleaned up	21:56	PW
1918	2/19/19	9:30	Korean Vets Bvld. And 1st. Ave.	5 gallons Oil spill in road	9:40	Put 50 lbs. absorbent on road and cleaned up	9:50	PW
1913	2/5/19	15:09	714 Groves Park Blvd.	Hydraulic spill on road	15:15	Put down 350 lbs. Absorbent	16:55	PW
1911	1/9/19	15:00	2711 W Linden Ave	Hydraulic spill on road from trash truck	15:15	Covered hydraulic fluid with 200 lbs. absorbent (Brandon went back that night and put 50 more lbs.	16:20	PW
1909	12/27/18	14:30	Briley Pky. & Robinson Ave. Oil Spill On Road 5 Gal. Bucket	Oil spill 5 gal. Bucket oil on road	15:00	Put down 100 lbs. Absorbent spill gone (pouring rain un able to do anything else)	17:00	PW /MNPD
1905	11/27/18	12:25	East Center Convenience Center (Recycle Center)	Hydraulic spill on road in center	12:45	Put down 275 pounds absorbent	14:00	PW
1902	11/2/18	21:45	2300 Paterson St. Cent. Med . Center	Gas tank leak spill	22:10	Plug gas tank with gap seal used 25 lb. Absorbent (West Nashville cleaned up)	0:00	PW/NFD
1901	10/25/18	14:35	15th Ave & Case	Used motor oils spill on road	14:43	Applied 250 lbs. Absorbent	16:30	PW
1895	9/11/18	11:08	Dickerson Rd & Trinity Ln.	Hydraulic spill on road	11:17	Applied 150 lbs. of absorbent	11:45	PW
1891	8/25/18	5:00	Woodmont Blvd. & Belmont Blvd.	Oil spill in road from wreck	5:45	Put absorbent down and cleaned up & disposed of.	8:00	PW/MNPD
1892	8/24/18	23:00	Centennial Blvd. & Briley Parkway	Oil spill on ramp going to centennial Blvd.	11:45	Put absorbent down 50 lbs. And cleaned up	0:05	PW

Metro Department of Public Works Deicing Activities During FY19

	July	August	September	October	November	December	January	February	March	April	May	June	Total
Amount of salt/brine applied to Roadways (tons)	0	0	0	0	0	0	161.45	0	0	0	0	0	161.45

NPDES Training Session with SCM Maintenance Companies during FY19

Sign-in Sheet for NPDES SCM Workshop with Maintenance Companies

Email Mailing List Signup Sheet

If you would like to be informed of the latest news abou[illegible] [illegible]lease put your names and email address below so that we can add [illegible] [illegible]ail list.

NAME (Print)	EMAIL ADDRESS (Print)
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ATTACHMENT A – Protected Species Report

Metro Nashville Municipal Separate Storm Sewer System Permit
Federal or State-Protected Species Impact assessment

(Reporting Period 07/01/18– 06/30/19)

Reviewed and Updated:
October, 2019

Introduction:
As per the Municipal Separate Storm Sewer System (MS4) permit, Metro Nashville is required to perform an annual assessment of potential Stormwater impacts to federal and state-protected aquatic species known to exist within Metro Nashville Davidson County (Metro). In order to perform the assessment, the Metro Water Services (MWS) Stormwater NPDES Section downloaded a list of aquatic species located within Davidson County. In order to assess potential impacts to rare species, the list of rare aquatic species was analyzed and broken into specific habitat categories. Table 1 details the list of rare aquatic species that have been known to occur within Davidson County. According to the Tennessee Department of Conservation (TDEC) Natural Heritage Program (NHP), Rare Species Inventory Program there are 22 rare or protected aquatic species that occur or have historically occurred within Davidson County.

Only five of the 22 rare aquatic species have a federal protection status, all of which are listed as "Endangered", while remaining 16 of the rare aquatic species have been listed by the state of Tennessee with one of the following legal protection status:
"D" Deemed in Need of Management,
"E" Endangered,
"T" Threatened,
"S" Special Concern species, and
Rare, Not State Listed

Typical Habitat Requirements:
While the 22 species may require specific habitat conditions, the general type of aquatic habitat can be broken into three main categories:
Large River/Lake – The Cumberland River is the only large river system within Davidson County. The Cumberland River has portions of two impoundments (Cheatham Lake and Old Hickory Lake) within Davidson County. Due to the dilution factor, Nashville's Stormwater runoff would have negligible effects of the water quality/habitat of the Cumberland River.
Small Streams to Small/Medium Rivers – This particular habitat represents all of the smaller headwater streams, creeks and small rivers that drain into the Cumberland River. The small streams/rivers are more susceptible to impacts from Stormwater runoff from the MS4.
Ponds/Wetlands/Springs – This particular habitat describes floodplain wetlands, farm ponds and springheads located throughout the county, which would have the potential of being impacted by MS4 runoff.

Table 1 – List of Rare Aquatic Species for Davidson County Tennessee – FY19

General Aquatic Resource	Type	Scientific Name	Common Name	Global Rank	Fed. Status	St. Status	Habitat	State Rank
Small Headwater Streams to Small/ Medium Rivers	Invertebrate Animal	*Sphalloplana buchanani*	A Cave Obligate Planarian	G1G2	No Status	Rare, Not State Listed	Aquatic cave obligate; northern Central Basin; Davidson County; taxonomy poorly understood.	S1
	Vertebrate Animal	*Ambystoma barbouri*	Streamside Salamander	G4	No Status	D	Seasonally ephemeral karst streams; middle Tennessee.	S2
	Vertebrate Animal	*Cryptobranchus alleganiensis*	Hellbender	G3G4	No Status	E	Rocky, clear creeks and rivers with large shelter rocks.	S3
	Vertebrate Animal	*Etheostoma luteovinctum*	Redband Darter	G4	No Status	D	Limestone streams; Nashville Basin & portions of Highland Rim.	S4
	Vertebrate Animal	*Etheostoma microlepidum*	Smallscale Darter	G2G3	No Status	D	Small rivers, in deep, strongly flowing riffles with gravel, boulder, and coarse rubble substrates; Cumberland River drainage.	S2
	Vertebrate Animal	*Percina phoxocephala*	Slenderhead Darter	G5	No Status	D	Small-large rivers with moderate gradient in shoal areas with moderate-swift currents; portions of Tenn. & Cumb. river watersheds.	S3
	Invertebrate Animal	*Faxonius shoupi*	Nashville Crayfish	G1G2	LE	E	1st-order & larger streams, generally with bedrock bottom, under slab rock; endemic to Mill Creek watershed; Davidson & William. cos.	S1S2
	Invertebrate Animal	*Epioblasma florentina walkeri*	Tan Riffleshell	G1T1	LE	E	Found in river headwaters, in riffles and shoals in sand and gravel substrates; Tennessee & Cumberland river systems.	S1
	Invertebrate Animal	*Simpsonaias ambigua*	Salamander Mussel	G3	No Status	Rare, Not State Listed	In sand or silt under large, flat stones in areas of swift current; occurred historically in E Fk Stones R; 2005 obs in lower Duck R.	S1
	Invertebrate Animal	*Lithasia duttoniana*	Helmet Rocksnail	G2Q	No Status	Rare, Not State Listed	Rocky substrates in riffle systems; bedrock in flowing water below main section of riffles; Duck River (TN River system).	S2
Large Riverine Systems/ Lakes	Vertebrate Animal	*Haliaeetus leucocephalus*	Bald Eagle	G5	No Status	D	Areas close to large bodies of water; roosts in sheltered sites in winter; communal roost sites common.	S3
	Vertebrate Animal	*Acipenser fulvescens*	Lake Sturgeon	G3G4	No Status	E	Bottoms of large, clean rivers and lakes.	S1
	Vertebrate Animal	*Carpiodes velifer*	Highfin Carpsucker	G4G5	No Status	D	Large rivers, mostly in Tennessee River drainage.	S2S3
	Vertebrate Animal	*Cycleptus elongatus*	Blue Sucker	G3G4	No Status	T	Swift waters over firm substrates in big rivers.	S2
	Vertebrate Animal	*Macrochelys temminckii*	Alligator Snapping Turtle	G3G4	No Status	D	Slow moving, deep water of rivers, sloughs, oxbows, swamps, and lakes; middle and west Tennessee; obscure.	S2S3
	Invertebrate Animal	*Epioblasma brevidens*	Cumberlandian Combshell	G1	LE	E	Large creeks to large rivers, in coarse sand or mixtures of gravel, cobble, or rocks; Tennessee & Cumberland river systems.	S1
	Invertebrate Animal	*Lampsilis abrupta*	Pink Mucket	G2	LE	E	Generally a large river species, preferring sand-gravel or rocky substrates with mod-strong currents; Tennessee & Cumberland river systems.	S2
	Invertebrate Animal	*Plethobasus cooperianus*	Orangefoot Pimpleback	G1	LE	E	Large rivers in sand-gravel-cobble substrates in riffles and shoals in deep flowing water; Cumberland & Tennessee river systems.	S1
Ponds/ Wetlands/ Springs	Vascular Plant	*Ranunculus aquatilis var. diffusus*	White Water-buttercup	G5T5	No Status	E	Ponds And Streams	S1
	Vascular Plant	*Stellaria fontinalis*	Water Stitchwort	G3	No Status	S	Seeps And Limestone Creek Beds	S3
	Vertebrate Animal	*Ixobrychus exilis*	Least Bittern	G5	No Status	D	Marshes with scattered bushes or other woody growth; readily uses artificial wetland habitats.	S2B

Potential Impacts from MS4 Runoff:
Rare species that inhabit smaller streams and rivers, ponds, wetlands, and springs would be the most vulnerable to potential impacts from MS4 runoff. Impacts from MS4 runoff includes:

- Increased sediment loads smothering natural stream substrate;
- Increased nutrient runoff that cause sporadic algal blooms and accompanying reductions in available oxygen;
- Increased levels of toxic chemicals such as pesticides, oils, etc.;
- General loss of habitat from development activities.

Metro Nashville's Measures to Prevent Impacts to Aquatic Rare Species:
Metro Nashville's MS4 program deploys a simple technique to protect against impacts to rare aquatic species: "*Protect all of Nashville's Aquatic Habitat*". In order to protect Nashville's aquatic habitat, a multi-prong approach is in place:

- Control Future Development – Establish local regulations that prevent future development from destroying aquatic habitat. Monitor runoff during construction to prevent the destruction of aquatic habitat
- Enforce on developments that violate local construction regulations that could lead to the further destruction of aquatic resources.
- Control the quality of Stormwater runoff from existing properties
- Establish local regulations that prevent the discharging of pollutants to waterways
- Monitor existing properties to ensure pollutants are not being discharged to the waterways.
- Enforce on properties/individuals that violate local water pollution laws that could potentially impact aquatic habitat.
- Monitor the overall water quality and health of Nashville's streams
- Analytical sampling of certain water quality parameters
- Rotating biological surveys of Davidson County streams.

Controlling Future Development
Metro Nashville has established strict regulations protecting aquatic resources from impacts associated with development activities. All development or redevelopment activities that are over 10,000 square feet in overall footprint or involve more than 100 cubic yards of fill are required to obtain grading permits from the Metro Water Services (MWS) Stormwater Division. In order to obtain a grading permit from MWS, engineered plans have to be developed that illustrate how Stormwater runoff will be managed during and after development. Strict erosion and sediment control measures are required at all grading permit properties during construction. In order to ensure that erosion and sediment controls are maintained throughout construction, NPDES has six inspectors that inspect grading permit site construction control measures.

Metro Nashville also requires protection from impacts to aquatic resources after the construction phase of projects by requiring grading permit properties to install permanent Stormwater treatment measures that are designed to treat/address both the volume and quality of runoff from the property.

In addition to requiring development or redevelopment activities to obtain permits and treat Stormwater runoff, Metro Nashville was also one of the first municipalities in the state to establish no-disturb buffers along streams and other water resources within Metro Nashville, Davidson County. Development activities that demonstrate a hardship requiring some impacts to the no-disturb riparian buffer (i.e. for a bridge crossing, etc.) are required to go through a strict variance appeal process. Variance requests for stream crossing or other direct impacts to water resources are not granted unless any necessary TDEC Aquatic Resource Alteration Permits

(ARAPs) or Section 404 permits from the U.S. Army Corps of Engineers (USACOE) are obtained, which cannot be issued if protected species are impacted.

Controlling the Quality of Stormwater Runoff from Existing Properties

Metro Nashville has the following specific ordinance in place that prevents the discharge of pollutants to storm drains or community waters:

15.64.205 - Non-Stormwater discharges.

A. Definitions.

"Community waters" means any and all rivers, streams, creeks, branches, lakes, reservoirs, ponds, drainage systems, springs, wetland, wells and other bodies of surface or subsurface water, natural or artificial, lying within or forming a part of the boundaries of the Metropolitan Government of Nashville and Davidson County.

"Contaminant" means any physical, chemical, biological or radiological substance or matter.

"Director" means the Director of the Metropolitan Government of Nashville and Davidson County's Department of Water and Sewerage Services, or his designee.

"Discharge" means any substance disposed, deposited, spilled, poured, injected, seeped, dumped, leaked, or placed by any means, intentionally or unintentionally, into community waters, the waters of the state, or any area draining directly or indirectly into the municipal Stormwater system of the metropolitan government.

"Metropolitan government" means the Metropolitan Government of Nashville and Davidson County.

"Municipal separate storm sewer system of the metropolitan government" means a conveyance, or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, and storm drains) designed or used for collecting or conveying Stormwater; provided, however, that sanitary and combined sewers are not included in the definition of the municipal separate storm sewer system.

"Non-Stormwater discharge" means any discharge to the municipal separate storm sewer system except as permitted by subsection C of this section.

"Waters of the state" means any water, surface or underground, lying within or forming a part of the boundaries of the Metropolitan Government of Nashville and Davidson County, over which the Tennessee Department of Environment and Conservation exercises primary control with respect to Stormwater permits.

B. Except as hereinafter provided, all non-Stormwater discharges into community waters, into the waters of the state, or into the municipal separate storm sewer system of the metropolitan government are prohibited and are declared to be unlawful.

C. Unless the director has identified them as a source of contaminants to community waters, the waters of the state, or the municipal separate storm sewer system of the metropolitan government, the following discharges are permitted:

1. Stormwater as defined in TCA Section 68-221-1102(5);
2. Water line flushing;
3. Landscape irrigation;
4. Diverted stream flows;
5. Rising ground waters;

6. Uncontaminated groundwater infiltration (as defined at 40 CFR 35.2005(20)) to separate storm sewers;
7. Uncontaminated pumped groundwater;
8. Discharges from potable water sources;
9. Foundation drains;
10. Air conditioning condensate;
11. Irrigation water;
12. Springs;
13. Water from crawl space pumps;
14. Footing drains;
15. Lawn watering;
16. Individual residential car washing;
17. Flows from riparian habitats and wetlands;
18. Dechlorinated swimming pool discharges;
19. Street wash waters resulting from normal street cleaning operations;
20. Discharges or flows from emergency firefighting activities.

D. The director, with the approval of the mayor, shall have authority to implement this section by appropriate regulations. Such regulations may include but are not limited to provisions for inspection of points of origin of known or suspected non-permitted discharges by appropriate personnel of the metropolitan government.

E. Discharges pursuant to a valid and effective NPDES permit issued by the State of Tennessee are not prohibited by this section.

F. The provisions of this section, including subsection C of this section, shall not apply to sanitary or combined sewers, which are governed by Chapter 15.40 of the Metropolitan Code of Laws.

G. Violation of this section shall subject the violator to a civil penalty of not less than fifty dollars nor more than five thousand dollars per day for each day of violation. Each day of violation may constitute a separate violation.

NPDES issues enforcement notices and administrative penalties to existing facilities found to be in violation of the above non-Stormwater discharge code.

In addition to controlling polluted runoff from construction activity, NPDES implements various other pollution prevention programs:

Industrial Inspection/Monitoring Program
Proactive Field Screening/Illicit Discharge Detection Elimination Program
Pollution Reporting Hotline
Sewer Leak Detection Program (Using Thermography Technology)
Post-Construction Stormwater Treatment BMP inspection/maintenance verification program
Public Involvement/Education

<u>Monitoring the Overall Water Quality and Health of Nashville's Streams</u>
NPDES performs intense monitoring of Metro Nashville, Davidson County streams. Veronica Logue of the NPDES Division retained a permit/certification from the USFWS/TWRA to perform surveys within the Mill Creek watershed (home to the endangered Nashville Crayfish. The following programs involve field assessments of streams:

- Ambient Sampling - Seasonal water quality samples are taken and analyzed for potential pollutants. Various streams are sampled each year on a rotating basis.

- TMDL Monitoring – Quarterly flow weighted samples are collected and analyzed for bacterial and TSS of various/rotating stream segments in which TMDLs have been developed.
- Visual Stream Assessments – All State-listed 303(d) stream segments with MS4 outfalls are visually inspected on a 5 year cycle.
- Benthic Surveys – Seasonal benthic surveys are performed on various streams each year. The benthic sampling coincides with the same stream rotation schedule as the ambient sampling.

If abnormalities are found in any of the above monitoring results, individual investigations are initiated to find and eliminate potential sources of pollution.

Conclusion:
Metro Nashville's MS4 program has taken substantial steps to protect aquatic resources within Metro Nashville, Davidson County. By virtue of protecting the Nashville's water resources, critical habitat required for aquatic species has also been preserved/ protected. During this permit year, there have not been any known discharges from the MS4 that have caused the destruction of a rare species or their critical habitat.

ATTACHMENT B – Coordination with TDEC on MS4 Compliance During Administrative Extension Period of MS4 Permit

MEGAN BARRY
MAYOR

METROPOLITAN GOVERNMENT OF NASHVILLE AND DAVIDSON COUNTY

DEPARTMENT OF WATER AND SEWERAGE SERVICES
STORMWATER DIVISION
NPDES OFFICE
1607 COUNTY HOSPITAL ROAD
Nashville, Tennessee 37218

January 31, 2017

Re: Nashville Phase 1 MS4 Permit Reissuance – TNS068047

Vojin Janjic | Manager, Water-Based Systems
Division of Water Resources
William R. Snodgrass Tennessee Tower, 11th Floor
312 Rosa L. Parks Ave, Nashville, TN 37243

Dear Mr. Janjic,

We are writing you to request specific clarification on the permit reissuance process for the Metropolitan Government of Nashville, Davidson County (Metro) Municipal Separate Storm Sewer System, which expires as of today, January 31, 2017. As we approach this reissuance process and period between expired permit and reissued permit, it is our intentions to propose the following path going forward to ensure MS4 Permit compliance is maintained throughout the transition period and to ensure coordination occurs between the Division and key Metro staff to incorporate changes to specific terms and conditions of the MS4 permit.

Transition Period:
As you are aware, most of the specific requirements of the MS4 permit are ongoing and do not have certain deadlines by which to be completed. Among these, include programs such as administering stormwater management regulations requirements for post-construction stormwater controls, overseeing a vigorous inspection and oversight program for construction activities, performing public education/public involvement activities, ensuring municipal maintenance operations are not impacting stormwater runoff, and implementation of various Illicit Discharged Detection and Elimination (IDDE) programs. Metro proposes to continue these ongoing programs as prescribed in the existing active permit until the new permit becomes effective.

If :d assistance or an accommodation, please contact Metro Water Services, -862-4862, 1600 Second Avenue North, Nashville, Tennessee 37208.

There are some MS4 permit requirements, however, that list specific target dates or timeframes for the activities to be completed per Metro's active permit. Specific requirements within the MS4 permit that have declared deadlines are listed below:

- ***Dry Weather Outfall Screening***
  - *Screen one outfall within every ¼ mile commercial/industrial grid once per permit term.*
- ***Industrial Inspection/Monitoring Program***
  - *Inspect industrial high risk sites as identified by the MS4 permit (i.e. SARA Title 3, TSD sites, etc.) once every 3 years.*
- ***Post Construction Stormwater Control Measure (SCM) Inspection and Maintenance Oversight Program***
  - *Implement permittee-defined program by the end of year 5.*
- ***Various MS4 Permit-Prescribed Monitoring Activities.***
  - *Sampling programs (i.e. wet weather, ambient, visual stream assessments, etc.) prescribed in the permit to be completed on a 5 year permit term.*

It is our understanding through conversations with TDEC staff, that it may be late 2017 or possibly even next year, before our MS4 permit is reissued. With that said, we would like to propose the following compliance activities to be performed in the transition period.

- ***Dry Weather Outfall Screening***
  - *Test our newly proposed field screening protocol (i.e. screen 3 business/industrial sites for site management/housekeeping procedures in each ¼ commercial/industrial-zoned grid.) Transition period goal would be to screen at least 50 grids each year prior to the new permit being issued.*
- ***Industrial Inspection/Monitoring Program***
  - *Re-inspect only industrial sites in which issues were noted during the original inspections and/or those involved with compliant investigations. Identify and perform inspections on industrial facilities (not required to be inspected by the original MS4 permit (i.e. auto salvage lots, ready-mix facilities, etc. not identified as SARA Title 3 or TSD facilities)). A list of industrial facilities to be inspected would be sent to the TDEC Nashville Field Office. Goal would be to inspect 10 industrial facilities each year.*
- ***Post Construction Stormwater Control Measure (SCM) Inspection and Maintenance Oversight Program***
  - *Continue to respond to citizen complaints of SCM structures not being maintained properly. In addition, would inspect and enforce (if necessary) on at least 50 SCM structures per year. Currently and during the transition period, Metro will continue to build its SCM Inspection & Maintenance oversight process.*
- ***Various MS4 Permit-Prescribed Monitoring Activities.***
  - *Discontinue the following sampling activities until the new MS4 permit is issued:*
    - *Wet Weather Homogenous Land Use Sampling*
    - *Wet Weather SCM Discharge Grab Sampling*
    - *Wet Weather Industrial Sampling (1 TMSP/RMCP site per year).*

- *Continue routine ambient monitoring/sampling programs (ambient chemical/bacteriological sampling and visual stream assessments) as well as any site-specific sampling as required in the course of routine investigations. The MWS Stormwater NPDES Watershed Group would coordinate with TDEC Nashville Field Office staff on monitoring schedules (which watersheds they will be monitoring during the transition period).*

New Permit Coordination

As stated above, Metro is requesting coordination on developing specific terms and conditions of the reissued MS4 permit in an ongoing effort to improve our permit compliance activities. In particular there are several program activities that Metro is interested in modifying to make more efficient and effective. Some of these proposed changes would involve changes to MS4 permit requirements as well, if implemented. Specific changes Metro are requesting to individually listed permit requirements were included in Metro's most recent Annual Report submittal (see attachment). Metro is requesting specific meetings to be arranged between appropriate TDEC permit writer staff and MWS Stormwater NPDES personnel so that these proposed changes can be explored and discussed.

Sincerely,

Michael Hunt
Metro Water Services, Stormwater, NPDES
Program Manager

Encl. - Nashville Phase 1 MS4 Permit Application Section of MS4 Annual Report

CC:

April Grippo – TDEC Nashville Field Office
Jennifer Dodd – TDEC Central Office
John Leffew – TDEC Nashville Field Office

DAVID BRILEY
MAYOR

METROPOLITAN GOVERNMENT OF NASHVILLE AND DAVIDSON COUNTY

DEPARTMENT OF WATER AND SEWERAGE SERVICES
STORMWATER DIVISION
NPDES OFFICE
1607 COUNTY HOSPITAL ROAD
Nashville, Tennessee 37218

March 30, 2018

Re: Nashville Phase 1 MS4 Permit Reissuance – TNS068047

Vojin Janjic | Manager, Water-Based Systems
Division of Water Resources
William R. Snodgrass Tennessee Tower, 11th Floor
312 Rosa L. Parks Ave, Nashville, TN 37243

Dear Mr. Janjic,

We are writing you to provide an update to the Metropolitan Government of Nashville, Davidson County (Metro) Municipal Separate Storm Sewer System (MS4) permit compliance activities. As you are aware, Metro's MS4 permit expired on January 31, 2017 and prior to the expiration, Metro submitted several requests to alter specific permit compliance activities (See Attached letter dated January 31, 2017. As a follow-up to proposed MS4 permit compliance activities, Metro hosted a meeting with Jennifer Dodd and Karina Bynum from the Tennessee Department of Environment and Conservation to discuss the proposed changes. As a result of the meeting, TDEC provided positive feedback to the changes and requested Metro to provide an update on the proposed changes in the first quarter of 2018. The following paragraphs describe some of the already observed benefits to changes to MS4 permit compliance activities that were implemented during this transition period between permits.

Summary Transition Period MS4 Compliance Changes:
The majority of the MS4 permit compliance programs have continued without adjustment as these activities are considered as ongoing within the MS4 permit. There are a few activities that were required to be completed by year 5 of the permit, which were completed, but Metro found to be very beneficial in identifying and eliminating stormwater pollution. As such, Metro proposed changes to the following programs:

If you need assistance or an accommodation, please contact Metro Water Services, at 615-862-4862, 1600 Second Avenue North, Nashville, Tennessee 37208.

- ***Dry Weather Outfall Screening***

  Previous MS4 Permit Requirements

  - *Screen one outfall within every 1/4 mile commercial/industrial grid once per permit term.*

  New More Efficient Proposed Field Screening Program

  - *Screen 3 business/industrial sites for site management/housekeeping procedures in each ¼ commercial/industrial-zoned grid.) Transition period goal would be to screen at least 50 grids each year prior to the new permit being issued.*

  Initial Findings:

  - *This process has proven to be much more effective than looking specifically at outfalls. In the few months of testing, several poor site management practices have been found such as improper management of dumpster pads and grease recycling bins. This has allowed Metro to be more effective and proactive in talking with these businesses to educate them on proper site management issues to prevent these exposed materials from washing off to the MS4 during a rain event. It is important to note that while we are looking at business practices within grids, we still spot check stormwater infrastructure to see if there is any suspicious dry weather, potentially "illicit discharge" flow.*

  Adjustments Made to New Approach

  - *The only adjustment made was going from screening 3 businesses within a ¼ mile grid to screening 3 businesses within a ½ mile grid. Upon implementing, we quickly realized that ¼ mile grids were too limiting and in many cases did not encompass multiple parcels that could be screened.*

- ***Industrial Inspection/Monitoring Program***

  Previous MS4 Permit Requirements

  - *Inspect industrial high risk sites as identified by the MS4 permit (i.e. SARA Title 3, TSD sites, etc.) once every 3 years.*

  New More Efficient Proposed Industrial Inspectino Program

  - *Re-inspect only industrial sites in which issues were noted during the original inspections and/or those involved with compliant investigations. Identify and perform inspections on industrial facilities (not required to be inspected by the original MS4 permit (i.e. auto salvage lots, ready-mix facilities, etc. not identified as SARA Title 3 or TSD facilities)). A list of industrial facilities to be inspected would be sent to the TDEC Nashville Field Office. Goal would be to inspect 10 industrial facilities each year.*

  Initial Findings:

  - *This process has proven to be much more effective as we have been able, during this transition period, to focus resources on industrial activities that have the highest potential for stormwater pollution such as Ready Mix Concrete facilities, chrome-plating facilities, etc. This new approach has allowed us to prioritize inspections and coordinate with TDEC field office staff as needed to perform co-inspections.*

Adjustments Made to New Approach
- *There are no proposed refinements to the new approach.*

- ***Post Construction Stormwater Control Measure (SCM) Inspection and Maintenance Oversight Program***

Previous MS4 Permit Requirements
- *Implement permittee-defined program by the end of year 5.*

New More Efficient Proposed SCM Inspection and Maintenance Oversight Program
- *Continue to respond to citizen complaints of SCM structures not being maintained properly. In addition, would inspect and enforce (if necessary) on at least 50 SCM structures per year. Currently and during the transition period, Metro will continue to build its SCM Inspection & Maintenance oversight process.*

Initial Findings:
- *Metros NPDES program has vastly expanded resources dedicated to ensuring post construction SCMs are being properly inspected and maintained. As it currently stands, Metro inspects an average of 75 SCM structures each month, which is well above the pace that we originally proposed. This new approach of focusing on NPDES program inspection findings and following-up with property owners on the proper maintenance has proven very beneficial to achieving maintenance on Post-Construction SCMs.*

Adjustments Made to New Approach
- *Metro is constantly evaluating the inspection and report documentation process and will continue to adjust the program, as necessary, to achieve the highest efficiency to ensure post-construction SCM structures are maintained properly.*

- ***Various MS4 Permit-Prescribed Monitoring Activities.***

Previous MS4 Permit Monitoring Requirements
- *Sampling programs (i.e. wet weather, ambient, visual stream assessments, etc.) prescribed in the permit to be completed on a 5 year permit term.*

New More Efficient Proposed MS4 Permit Monitoring Program
- *Discontinue the following sampling activities until the new MS4 permit is issued:*
  - *Wet Weather Homogenous Land Use Sampling*
  - *Wet Weather SCM Discharge Grab Sampling*
  - *Wet Weather Industrial Sampling (1 TMSP/RMCP site per year).*
- *Continue routine ambient monitoring/sampling programs (ambient chemical/bacteriological sampling and visual stream assessments) as well as any site-specific sampling as required in the course of routine investigations. The MWS Stormwater NPDES Watershed Group would coordinate with TDEC Nashville Field Office staff on monitoring schedules (which watersheds they will be monitoring during the transition period).*

Initial Findings:
- *Elimination of the wet weather monitoring has allowed for more resources to be spent on assessing streams for various impairments. Eight biological assessments have been performed on streams that Metro hadn't previously assessed. This provides a more comprehensive and up to date watershed assessment countywide and will additionally provide TDEC with more data than they would otherwise be able to collect. In addition to the biological assessment, nutrient samples are collected at the same time.*

- *Monitoring of 2 projects has been initiated and a total of 8 samples have been collected. Both of the projects are located on Cathy Jo Branch. One of the projects is a dam removal and the other is a retrofit to a stormwater outfall that reduced sheer flow during storm events. Samples were collected before work began and will continue in order to show the effectiveness of the projects.*
- *There have been 2 investigations within the past year as a result of our regular monitoring. Both of these investigations concluded that repairs needed to be made to sewers and thus we are preventing long term discharges to nearby streams.*

Adjustments Made to New Approach

- *There have not been adjustments made to the new approach. Projects are continually being considered for monitoring in order to show project effectiveness.*

Metro is requesting specific meetings to be arranged between appropriate TDEC permit writer staff and MWS Stormwater NPDES personnel so that these proposed changes can be explored and discussed.

Sincerely,

Michael Hunt
Metro Water Services, Stormwater, NPDES
Program Manager

Encl. - January 31, 2018 Letter to TDEC of Proposed Changes to MS4 Permit Compliance Activities. Attachment C of Year 5 MS4 Annual Report

CC:

April Grippo – TDEC Nashville Field Office
Jennifer Dodd – TDEC Central Office
Karina Bynum - TDEC Central Office
John Leffew – TDEC Nashville Field Office

Hayes, Joshua (WS)

From: Hunt, Michael (WS)
Sent: Friday, March 30, 2018 2:02 PM
To: 'Karina Bynum'
Cc: 'Jennifer Dodd'; 'Ann Morbitt'; 'Wade Murphy'; 'Robert Karesh'; 'Jimmy R. Smith'; 'April Grippo'; 'Bill Murph'; 'John Leffew'; Hayes, Joshua (WS); Dohn, Rebecca (WS); Bruce, Mary (WS); Binder, Dale (WS)
Subject: RE: 16NOV17 Meeting Follow-up
Attachments: Permit Re-issuance and Transition Period_TDEC_Update_Final.pdf

Good afternoon Karina:

Per your email below, find the requested info attached (red text on pages 2-4 of attached pdf). If you have any questions, don't hesitate to let us know.

Thanks, Michael

From: Karina Bynum [mailto:Karina.Bynum@tn.gov] **Sent:** Friday, November 17, 2017 9:44 AM **To:** Hunt, Michael (WS); Hayes, Joshua (WS); Dohn, Rebecca (WS); Bruce, Mary (WS); Binder, Dale (WS) **Cc:** Jennifer Dodd; Ann Morbitt; Wade Murphy; Robert Karesh; Jimmy R. Smith; April Grippo; Bill Murph; John Leffew **Subject:** 16NOV17 Meeting Follow up

Hello Michael,

Thank you for the invitation to meet and discuss the program update you send us on January 31, 2017, regarding the Transition Period for Metro's Stormwater Program. It was very helpful to hear from your staff about the program adjustments specified in the letter and to discuss the monitoring your program is undertaking. As you conclude the year of gathering information during the transition period, please compile your findings and send them to us in the first quarter of the year 2018. Please give us about a month to review and then reach out to us to schedule a meeting to discuss your findings.

Thank you,

TN Environment & Conservation

Karina Bynum, Ph.D., P. E. Integrated Water Resources Engineer

Division of Water Resources

1221 South Willow Avenue, Cookeville, TN 38506

p. 931 - 520 - 6688

karina.bynum@tn.gov

tn.gov/environment

From: Hunt, Michael (WS) <Michael.Hunt@nashville.gov>
Sent: Tuesday, November 14, 2017 3:06 PM
To: Karina Bynum
Subject: letter....

~~ This is an EXTERNAL email. Please exercise caution. DO NOT open attachments or click links from unknown senders or unexpected email. - STS-Security~~

Michael Hunt CSM, CPMSM, CPSWQ, CFM
Program Manager
Metro Water Services - Storm Water Div - NPDES Office
1607 A County Hospital Road
Nashville, TN 37218
Phone: (615) 880-2420
http://www.nashville.gov/stormwater/
If you see water pollution in Metro Nashville, call (615) 313-PURE or (615) 880-2420 or email stormwaterquality@nashville.gov

STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
DIVISION OF WATER RESOURCES
Nashville Environmental Field Office
711 R.S. Gass Boulevard
Nashville, TN 37216
Phone 615-687-7000 Statewide 1-888-891-8332 Fax 615-687-7078

May 31, 2018

Mr. Scott Potter
Director of Metro Water Services
1600 2nd Avenue North
Nashville, TN 37208

Certified Mail Receipt
7014 2870 0001 3600 2906

RE: Compliance Evaluation Inspection
Nashville/Davidson County Municipal Separate Storm Sewer System (MS4)
NPDES Permit Tracking Number TNS068047, Davidson County

Dear Mr. Potter:

On May 16, 2018, Karina Bynum, John Leffew and Ann Morbitt with the Division of Water Resources (division) met with Michael Hunt, Rebecca Dohn, Joshua Hayes, Dale Binder, Steve Mishu and Shawn Herman with Metro Water Services to perform a routine Compliance Evaluation Inspection. The inspection included a review of regulatory mechanisms, records, procedures and other documents related to the construction site stormwater runoff control program required under the NPDES Permit TNS068047 for Discharges from the MS4 owned and operated by the Metropolitan Government of Nashville (Metro).

The construction site stormwater runoff control program is well established, the staff is trained and certified, and the program implementation is compliant with the requirements of the NPDES Permit TNS068047. The division greatly appreciates the time and commitment from your staff in their preparation before and participation during the inspection. Their availability and knowledge of the program ensured it was conducted in an efficient manner.

Permit Review
The NPDES Permit TNS068047 for stormwater discharges from Metro MS4 was issued and became effective on February 1, 2012. The permit expired on January 31, 2018, and has been administratively extended until a new permit is issued.

Records Review
The MS4 permit requires Metro to continue to implement and enforce its existing construction site stormwater runoff control program. The implementation of the following required elements was reviewed:

- Regulatory mechanisms requiring erosion prevention and sediment control for land disturbance greater than one (1) acre or less than one (1) acre if part of a larger common plan

of development are published in the Volume 1 of the *Metro's Stormwater Management Manual.*

- An inventory of all construction sites is provided in the City Works tracking system. All active sites are identified as priority sites and pre-construction meetings for all priority sites are held.
- Education of construction site operators is provided during certification classes for Erosion Protection Sediment Control (EPSC) professionals that are held in the Nashville region. Pre-construction meetings for all priority sites assure EPSC Level 1 is held by on-site operators.
- Control of waste materials is addressed in the stormwater management plan and is required in Volume 1 of the *Metro's Stormwater Management Manual* (section 6.10.8).
- Site plan review and approval procedures are coordinated with the plans review group. Qualified staff reviews plans. The review includes approval of the EPSC design and water quality buffers.
- Site inspections are conducted monthly for all priority sites. Enforcement procedures and all required sanctions are identified in the Enforcement Response Plan (Appendix D of the Stormwater Management Plan) and are outlined in the regulatory mechanisms published in the Volume 1 of the *Metro's Stormwater Management Manual.*
- Public input may be provided by phone, web page or public notice announcements.

Construction Site Visit
Site inspection procedures were evaluated by performing a site visit at the Magnolia Farms Subdivision construction site (TNR241924 and TNR242096). The stormwater program inspector, Shawn Herman, demonstrated a good working knowledge of erosion prevention and sediment control practices, and performed a comprehensive inspection with appropriate documentation and on-site communication.

Again, we would like to thank Mr. Hunt and his staff for the assistance and courtesy extended to us during our inspection. If you have any questions or need additional information, please contact John Leffew at the Nashville Environmental Field Office by email at john.leffew@tn.gov or by telephone at (615) 687-7106, or you may contact me by email at april.grippo@tn.gov or by telephone at 615-687- 7018.

Sincerely,

April Grippo
Environmental Manager
Division of Water Resources
Nashville Environmental Field Office

e-cc: Mr. Michael Hunt, Michael.Hunt@nashville.gov - Metro Water Services
Mr. John Leffew, john.leffew@tn.gov- DWR Nashville EFO
Ms. Ann Morbitt, ann.morbitt@tn.gov – DWR statewide
Ms. Karina Bynum, karina.bynum@tn.gov – DWR statewide
Ms. Jessica Murphy, jessica.murphy@tn.gov – DWR Compliance and Enforcement

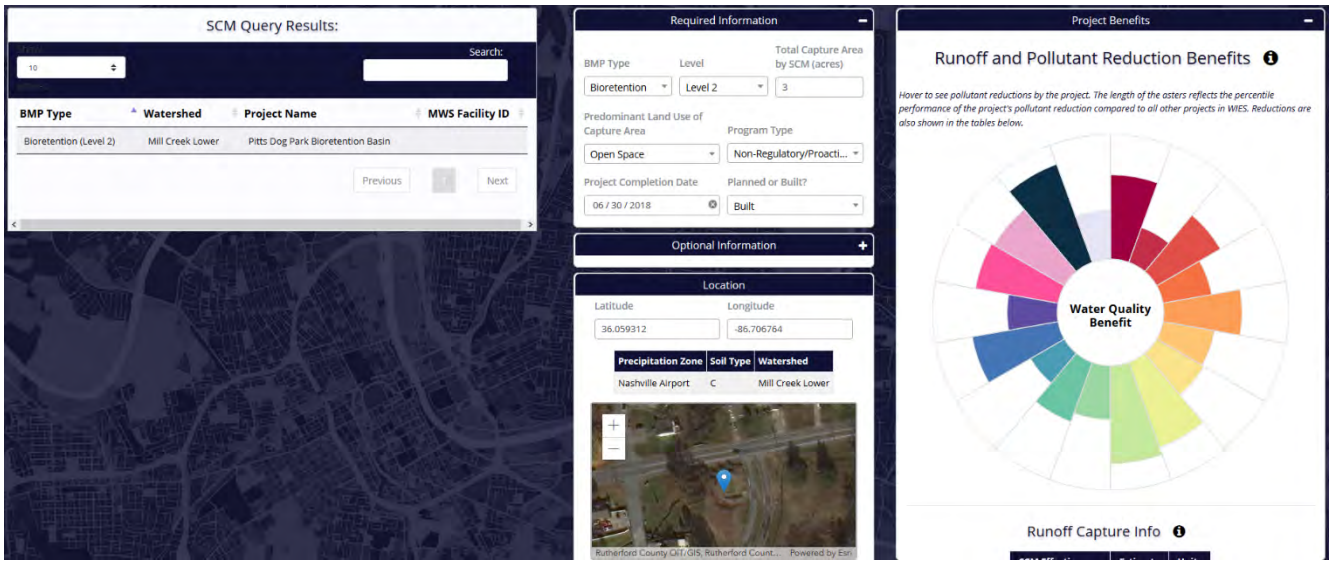
ATTACHMENT C – WIES Database Pollutant Loading Reduction Estimates of SWMP

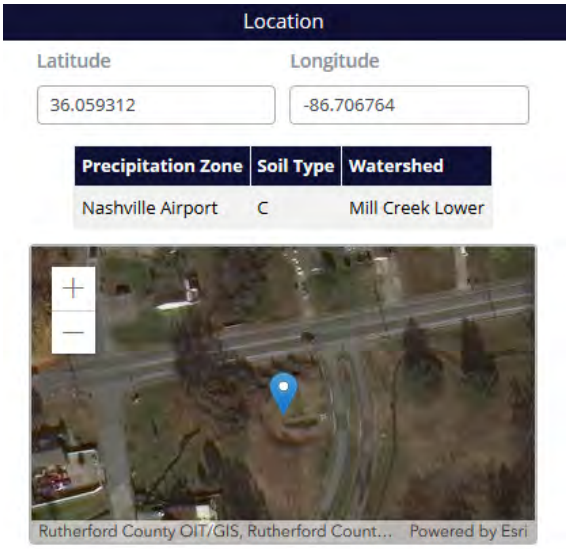
As required in Section 3.3.2 of the MS4 Permit, Metro is required to develop Event Mean Concentrations (EMC's) for all parameters listed in Table 2 of the MS4 Permit. In year 5 of the MS4 permit, Metro was required to report Seasonal Pollutant Loadings (SPL)from the MS4. The methodology for performing this calculation can be found in the year 5 annual report. In performing this calculation, Metro hired a contractor (Paradigm Environmental) to, not only develop the EMC and SPL calculations, but to generate a database that would allow Metro to produce reports on estimated SPLs for each sub-watershed within Metro's jurisdiction on an annual basis. As such, the web-based Davidson County Watershed Improvement Evaluation System (WIES) database was developed, which also gives Metro the ability to track stormwater loading reductions achieved through the implementation of Metro Nashville's SWMP. These calculations/estimations are based on structural and non-structural stormwater controls that Metro implements as prescribed by the MS4 permit.

While these calculations are considered to be estimates, our contractor utilized all available documentation from Metro's tracking databases as well as the latest hydrologic modeling programs to refine the estimates as much as possible. For example, stormwater pollutant and volume reduction numbers for structural SCMs were calculated utilizing Loading Simulation Program – C+ (LPSC) and System for Urban Stormwater Treatment Analysis and Integration (SUSTAIN) modelling programs, which take into account varying land uses and mapped soil types for each watershed and the pollutant and performance efficiencies of each types of SCMs. The modeling for SCMs even considers the effects underdrains have on bioretention basins as far as how much runoff reduction is accomplished.

Metro expends many resources implementing non-structural stormwater control measures of the SWMP, such as the IDDE program, construction inspections and oversight, FEMA home buyout program, street sweeping program, etc.). While we know these non-structural programs have been extremely beneficial in improving the quality of water resources within Metro Nashville/Davidson County over time, it has proven difficult to quantify the loading reductions of these non-structural controls. WIES tracks pollution reduction efforts of these non-structural programs by importing data from various Metro databases that track items such as number of construction sites inspected, number of water quality complaint investigations, number of FEMA floodplain buyout properties, etc. In some of these programs, assumptions are applied so loading reduction can best be effectively calculated. Over the coming years, Metro expects to further refine documentation within our databases to eliminate some of these assumptions and improve the accuracy of the calculations. The tables within this section depict the calculated SPLs per each sub-watershed and the estimated loading reduction efforts of the SWMP over the last permit reporting period (fiscal year). Please note that importing data into WIES is somewhat dependent on geo-location information available within Metro's databases, which is the source of the data export. Due to this, there may be a small discrepancy in numbers between WIES and the actual Metro documentation databases when some data is unable to be imported into WIES.

In addition to the annual reporting tables Metro is able to generate on various SWMP loading reductions, WIES also gives stormwater managers the ability to review the pollution and runoff reduction effects of individual structural SCMs through a dashboard view (depicted below).





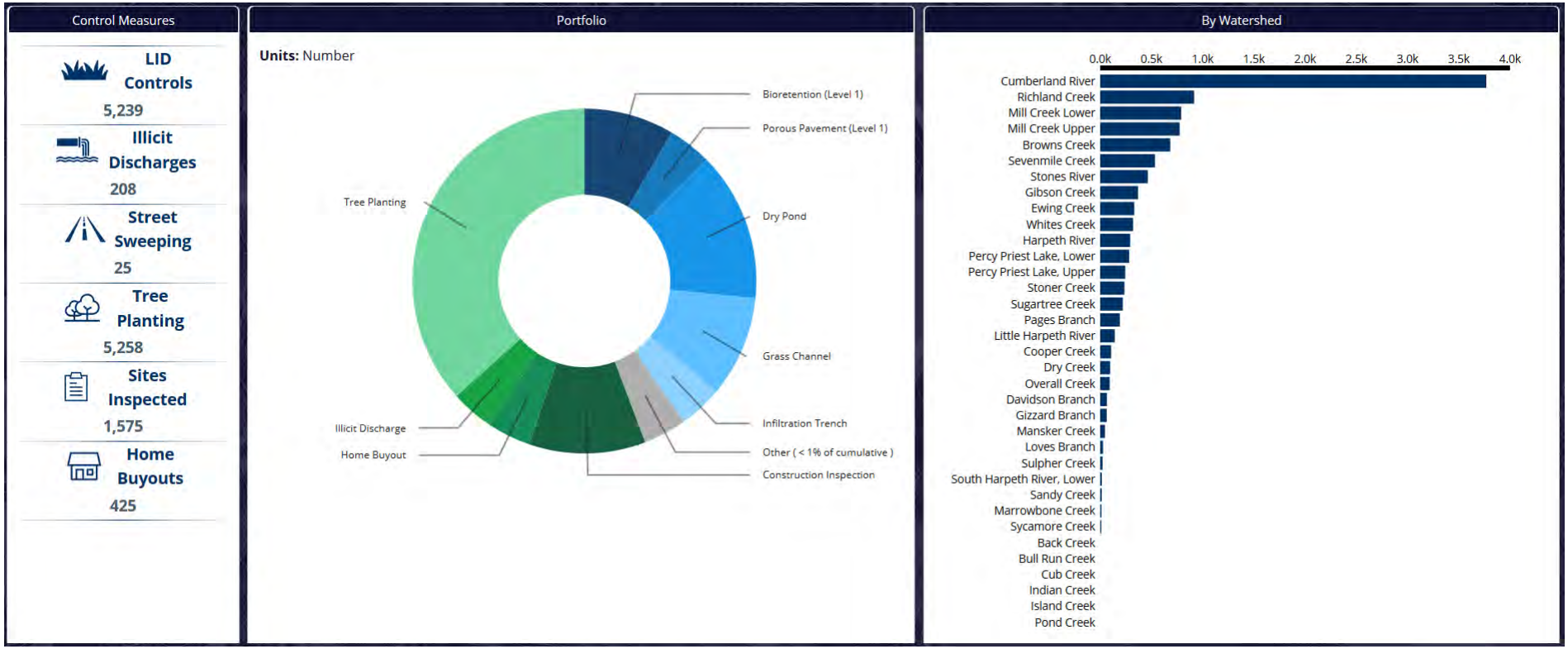
Pollutant Reduction Benefits

Pollutant	BMP Effect	Load Unit	Estimated Inflow Concentration	Concentration Unit
E. coli	12.51	MPN 10e9	2419	MPN/100 mL
BOD5	1.93	lbs	2.4	mg/L
COD	44.14	lbs	48	mg/L
NH3	0.09	lbs	0.08	mg/L
TKN	0.82	lbs	0.66	mg/L
NO2+NO3	0.2	lbs	0.29	mg/L
TN	0.76	lbs	0.87	mg/L
Diss P	0.3	lbs	0.44	mg/L
TP	0.6	lbs	0.74	mg/L
Pb	0	lbs	1.5	ug/L

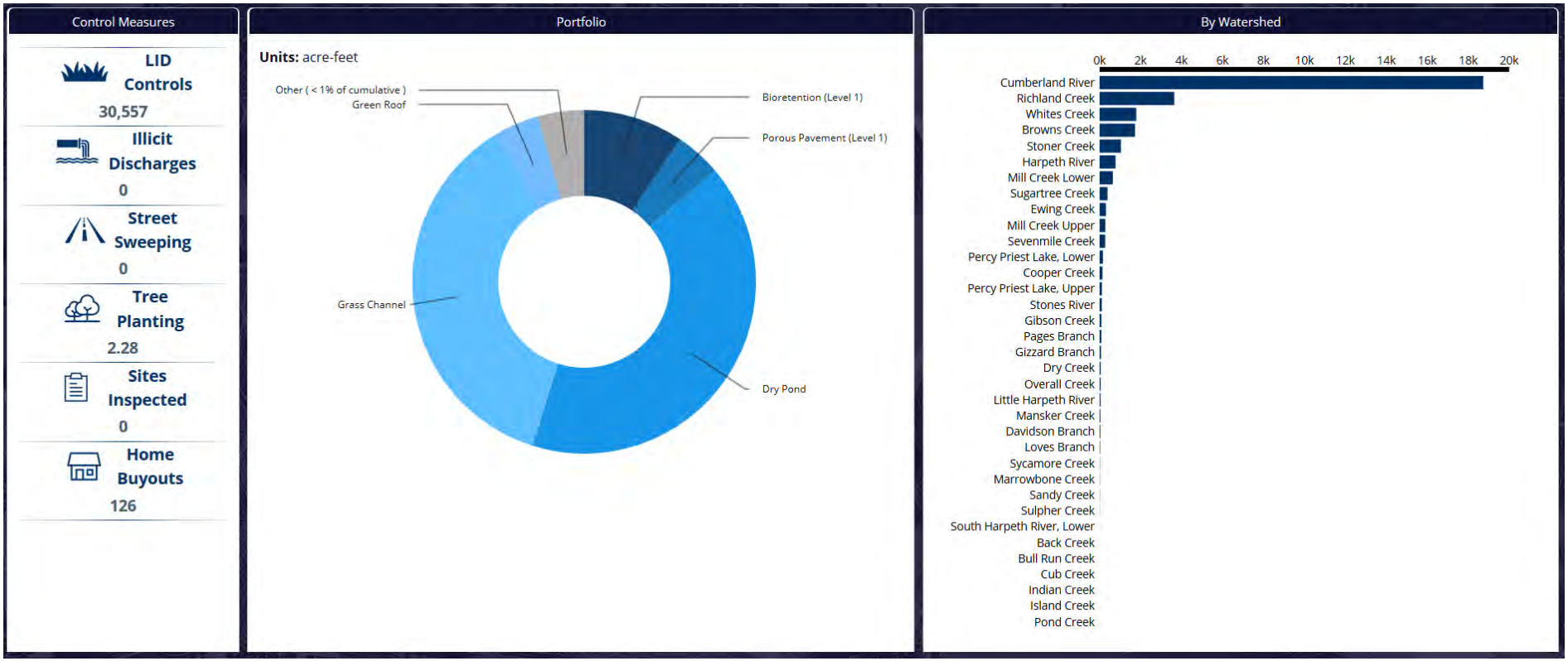
Runoff Capture Info

SCM Effectiveness	Estimate	Units
Total Inflow	0.63	ac-ft
Retained	0.24	ac-ft
Treated	0.22	ac-ft
Bypass	0.17	ac-ft
Soil Infiltration	2.00	in-hr

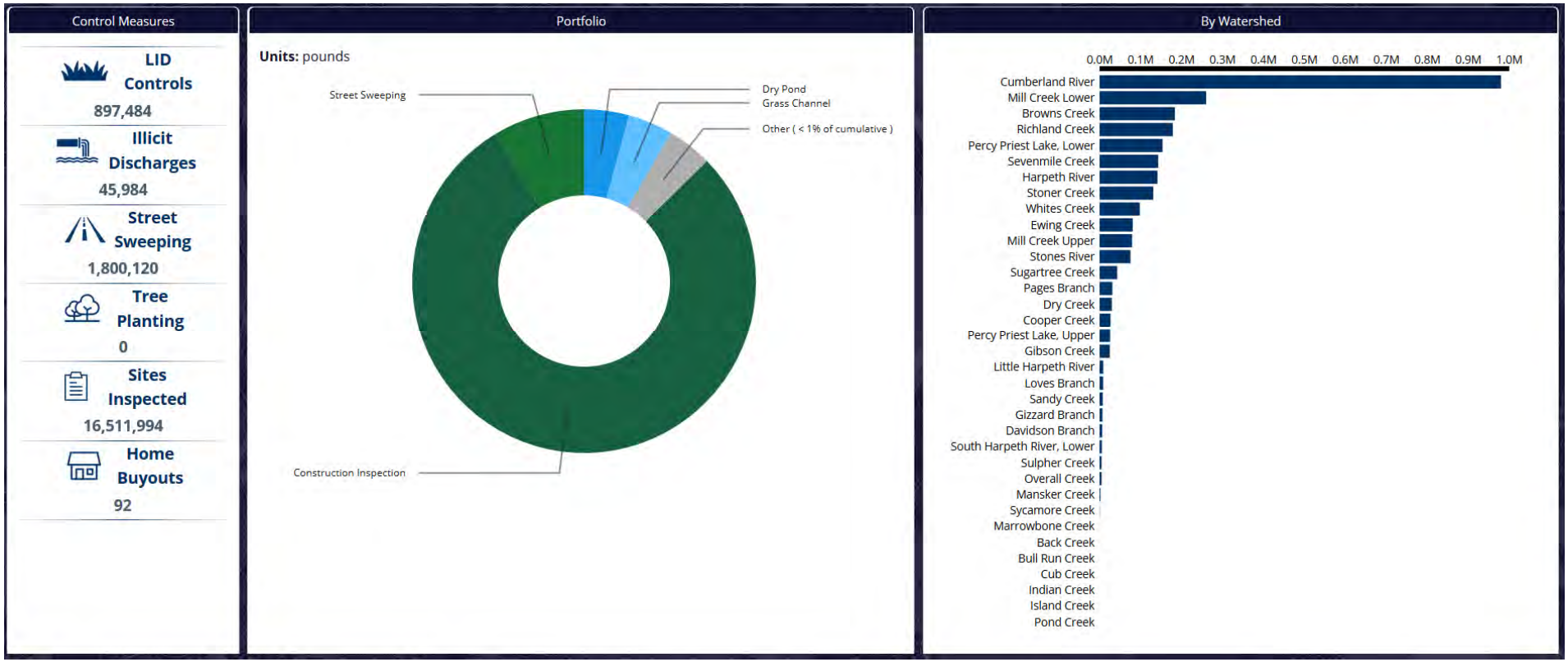
WIES also provides a Dashboard to enable watershed-wide assessment of the MWS stormwater program and its benefits. This screenshot shows a simple count of different control measures implemented across Davidson County thru FY19, organized by control measure type (left and middle) and watershed (right):



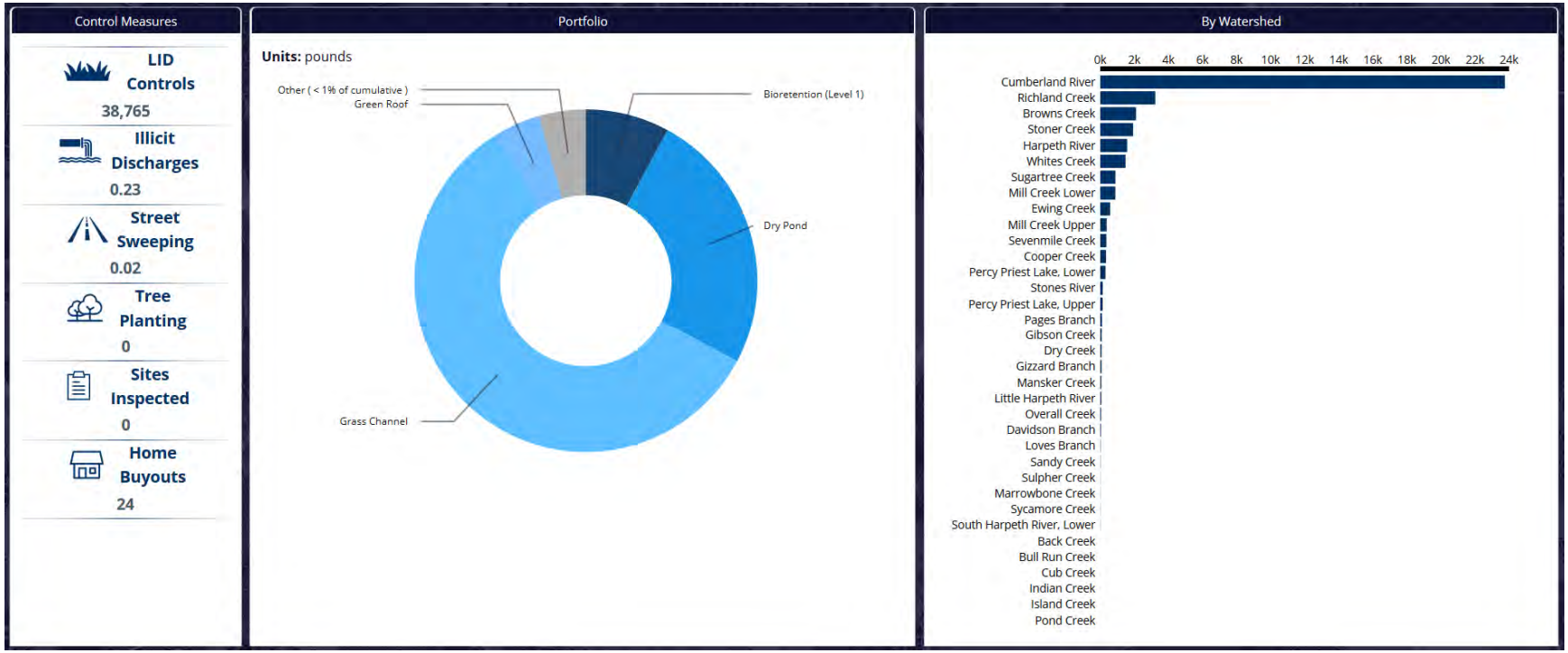
This screenshot shows the estimates of annual average runoff capture across Davidson County by each of the control measures types (left and middle) and in each watershed (right). The units for all numbers shown are acre-feet of runoff captured.



This screenshot shows the estimates of annual average TSS reduction across Davidson County by each of the control measures types (left and middle) and in each watershed (right). The units for all numbers shown are pounds of sediment removed.



This screenshot shows the estimates of annual average nitrogen reduction across Davidson County by each of the control measures types (left and middle) and in each watershed (right). The units for all numbers shown are pounds of nitrogen removed. Note that the effect of control measures greatly varies between sediment (previous page, which is most controlled by construction inspections) and nitrogen (which is most controlled by runoff retention).



MWS Control Measure Implementation during Fiscal Year								
Watershed	**Year**	SCMs Built (#)	Total SCMs in Watershed at end of FY (#)	Construction Sites Inspected (#)	IDDE Complaints Investigated (general pollution and construction runoff) (#)[1]	Street Sweeping (tons)	Total Homes Bought in Watershed by end of FY (#)	Root Nashville Trees Planted In Watershed by end of FY (#)
All Watersheds	**FY19**	**516**	**5,239**	**1,575**	**208**	**4,286**	**425**	**5,258**
Back Creek	FY19	0	0	0	0	0	0	0
Browns Creek	FY19	33	274	143	10	176	37	362
Bull Run Creek	FY19	0	0	0	0	0	0	0
Cooper Creek	FY19	5	71	60	2	51	5	28
Cub Creek	FY19	0	0	0	0	0	0	0
Cumberland River	FY19	182	1,606	671	42	981	74	2,046
Davidson Branch	FY19	10	44	9	2	13	0	19
Dry Creek	FY19	0	46	9	8	56	4	39
Ewing Creek	FY19	32	170	26	9	150	29	124
Gibson Creek	FY19	3	65	9	3	56	51	250
Gizzard Branch	FY19	5	45	3	1	13	0	17
Harpeth River	FY19	17	209	10	7	279	3	73
Indian Creek	FY19	0	0	0	0	0	0	0
Island Creek	FY19	0	0	0	0	0	0	0
Little Harpeth River	FY19	4	55	5	2	17	0	85
Loves Branch	FY19	0	22	3	4	17	1	0
Mansker Creek	FY19	2	33	9	1	0	0	13
Marrowbone Creek	FY19	0	9	0	1	0	0	2
Mill Creek Lower	FY19	34	468	64	27	544	34	261
Mill Creek Upper	FY19	19	338	18	10	163	1	426
Overall Creek	FY19	11	64	3	1	8.57	1	26
Pages Branch	FY19	7	61	47	3	64	7	120
Percy Priest Lake, Lower	FY19	4	155	12	3	347	6	118
Percy Priest Lake, Upper	FY19	38	176	22	9	47	0	59
Pond Creek	FY19	0	0	0	0	0	0	0
Richland Creek	FY19	40	340	285	15	300	67	494
Sandy Creek	FY19	0	13	24	1	17	0	0
Sevenmile Creek	FY19	30	289	28	8	321	32	205
South Harpeth River, Lower	FY19	9	15	2	0	13	0	0
Stoner Creek	FY19	9	169	11	7	257	9	51
Stones River	FY19	7	133	8	5	167	0	326
Sugartree Creek	FY19	10	184	70	5	73	1	30
Sulpher Creek	FY19	0	10	0	8	0	0	5
Sycamore Creek	FY19	0	11	4	0	0	0	0
Whites Creek	FY19	5	164	20	14	154	63	79

1 – IDDE Complaints Investigated includes general water quality complaints and complaints about runoff from properties that don't have permit coverage.

Watershed	Year	Parameter: Runoff Load Removal by MWS Control Measure Implementation during Fiscal Year (acre-foot)						
		By LID Ordinance / SCMs [1]	By Construction Sites Inspected [2]	By Illicit Discharge Program [2]	By Street Sweeping [2]	By Home Buyout Program [1]	By Trees Planted [1]	**Total Load Removed from Watershed** (ac-ft)
All Watersheds	**FY19**	**30,557**	**0**	**0**	**0**	**126**	**0**	**30,683**
Back Creek	FY19	0	0	0	0	0	0	0
Browns Creek	FY19	1,720	0	0	0	8.97	0.18	1,729
Bull Run Creek	FY19	0	0	0	0	0	0	0
Cooper Creek	FY19	136	0	0	0	5.56	0.01	141
Cub Creek	FY19	0	0	0	0	0	0	0
Cumberland River	FY19	18,706	0	0	0	24	1.11	18,731
Davidson Branch	FY19	36	0	0	0	0	<0.01	36
Dry Creek	FY19	52	0	0	0	1.04	0.02	53
Ewing Creek	FY19	300	0	0	0	6.94	0.04	307
Gibson Creek	FY19	76	0	0	0	14	0.08	90
Gizzard Branch	FY19	68	0	0	0	0	0.01	68
Harpeth River	FY19	779	0	0	0	0.74	0.01	780
Indian Creek	FY19	0	0	0	0	0	0	0
Island Creek	FY19	0	0	0	0	0	0	0
Little Harpeth River	FY19	48	0	0	0	0	0.03	49
Loves Branch	FY19	24	0	0	0	0.24	0	25
Mansker Creek	FY19	39	0	0	0	0	<0.01	39
Marrowbone Creek	FY19	13	0	0	0	0	<0.01	13
Mill Creek Lower	FY19	636	0	0	0	13	0.08	649
Mill Creek Upper	FY19	277	0	0	0	1.69	0.16	279
Overall Creek	FY19	51	0	0	0	0.25	0.01	51
Pages Branch	FY19	84	0	0	0	1.69	0.05	85
Percy Priest Lake, Lower	FY19	164	0	0	0	1.33	0.06	165
Percy Priest Lake, Upper	FY19	112	0	0	0	0	0.03	112
Pond Creek	FY19	0	0	0	0	0	0	0
Richland Creek	FY19	3,629	0	0	0	16	0.22	3,646
Sandy Creek	FY19	11	0	0	0	0	0	11
Sevenmile Creek	FY19	266	0	0	0	7.72	0.06	273
South Harpeth River, Lower	FY19	4.82	0	0	0	0	0	4.82
Stoner Creek	FY19	1,039	0	0	0	2.18	0.01	1,041
Stones River	FY19	109	0	0	0	0	0.05	109
Sugartree Creek	FY19	387	0	0	0	0.25	0.01	387
Sulpher Creek	FY19	9.16	0	0	0	0	<0.01	9.16
Sycamore Creek	FY19	13	0	0	0	0	0	13
Whites Creek	FY19	1,770	0	0	0	20	0.04	1,790

Based on average annual rainfall conditions
1 – Accounts for all control measures implemented in watershed thru end of FY
2 – Based on control measures implemented during the fiscal year

Watershed	Year	Pollutant: BOD5 Load Removal by MWS Control Measure Implementation during Fiscal Year (pounds)						
		By LID Ordinance / SCMs [1]	By Construction Sites Inspected [2]	By Illicit Discharge Program [2]	By Street Sweeping [2]	By Home Buyout Program [1]	By Trees Planted [1]	**Total Pollutant Load Removed from Watershed** (lbs)
All Watersheds	**FY19**	**222,524**	**0**	**1.01**	**52,289**	**318**	**0**	**275,133**
Back Creek	FY19	0	0	0	0	0	0	0
Browns Creek	FY19	15,306	0	0.09	2,144	12	0	17,462
Bull Run Creek	FY19	0	0	0	0	0	0	0
Cooper Creek	FY19	1,786	0	0	627	14	0	2,427
Cub Creek	FY19	0	0	0	0	0	0	0
Cumberland River	FY19	131,266	0	0.18	11,974	53	0	143,293
Davidson Branch	FY19	298	0	0	157	0	0	455
Dry Creek	FY19	549	0	0	680	2.06	0	1,231
Ewing Creek	FY19	4,589	0	0	1,830	9.11	0	6,428
Gibson Creek	FY19	418	0	0.09	680	18	0	1,115
Gizzard Branch	FY19	410	0	0	157	0	0	567
Harpeth River	FY19	8,147	0	0	3,399	5.22	0	11,551
Indian Creek	FY19	0	0	0	0	0	0	0
Island Creek	FY19	0	0	0	0	0	0	0
Little Harpeth River	FY19	293	0	0.09	209	0	0	502
Loves Branch	FY19	172	0	0.09	209	0.86	0	382
Mansker Creek	FY19	396	0	0	0	0	0	396
Marrowbone Creek	FY19	48	0	0	0	0	0	48
Mill Creek Lower	FY19	5,415	0	0.18	6,641	32	0	12,088
Mill Creek Upper	FY19	2,035	0	0	1,987	42	0	4,064
Overall Creek	FY19	350	0	0	105	0.85	0	455
Pages Branch	FY19	711	0	0	784	2.33	0	1,497
Percy Priest Lake, Lower	FY19	1,185	0	0	4,235	0.75	0	5,421
Percy Priest Lake, Upper	FY19	919	0	0.09	575	0	0	1,495
Pond Creek	FY19	0	0	0	0	0	0	0
Richland Creek	FY19	21,162	0	0.09	3,660	12	0	24,834
Sandy Creek	FY19	117	0	0	209	0	0	326
Sevenmile Creek	FY19	1,736	0	0	3,922	20	0	5,677
South Harpeth River, Lower	FY19	50	0	0	157	0	0	207
Stoner Creek	FY19	9,315	0	0	3,137	2.39	0	12,455
Stones River	FY19	963	0	0.09	2,039	0	0	3,002
Sugartree Creek	FY19	4,659	0	0	889	0.35	0	5,548
Sulpher Creek	FY19	105	0	0	0	0	0	105
Sycamore Creek	FY19	56	0	0	0	0	0	56
Whites Creek	FY19	10,070	0	0	1,882	92	0	12,044

Based on average annual rainfall conditions

1 – Accounts for all control measures implemented in watershed thru end of FY

2 – Based on control measures implemented during the fiscal year

Watershed	Year	Pollutant: COD Load Removal by MWS Control Measure Implementation during Fiscal Year (pounds)						
		By LID Ordinance / SCMs [1]	By Construction Sites Inspected [2]	By Illicit Discharge Program [2]	By Street Sweeping [2]	By Home Buyout Program [1]	By Trees Planted [1]	**Total Pollutant Load Removed from Watershed** (lbs)
All Watersheds	**FY19**	**1,853,743**	**0**	**2.66**	**0**	**589**	**0**	**1,854,335**
Back Creek	FY19	0	0	0	0	0	0	0
Browns Creek	FY19	178,659	0	0.24	0	0	0	178,660
Bull Run Creek	FY19	0	0	0	0	0	0	0
Cooper Creek	FY19	12,732	0	0	0	55	0	12,787
Cub Creek	FY19	0	0	0	0	0	0	0
Cumberland River	FY19	1,122,208	0	0.48	0	157	0	1,122,365
Davidson Branch	FY19	2,178	0	0	0	0	0	2,178
Dry Creek	FY19	4,250	0	0	0	0	0	4,250
Ewing Creek	FY19	35,814	0	0	0	0	0	35,814
Gibson Creek	FY19	3,302	0	0.24	0	18	0	3,320
Gizzard Branch	FY19	3,370	0	0	0	0	0	3,370
Harpeth River	FY19	58,484	0	0	0	0	0	58,484
Indian Creek	FY19	0	0	0	0	0	0	0
Island Creek	FY19	0	0	0	0	0	0	0
Little Harpeth River	FY19	2,358	0	0.24	0	0	0	2,358
Loves Branch	FY19	1,470	0	0.24	0	0	0	1,471
Mansker Creek	FY19	3,142	0	0	0	0	0	3,142
Marrowbone Creek	FY19	397	0	0	0	0	0	397
Mill Creek Lower	FY19	47,643	0	0.48	0	39	0	47,682
Mill Creek Upper	FY19	17,651	0	0	0	179	0	17,830
Overall Creek	FY19	2,526	0	0	0	0	0	2,526
Pages Branch	FY19	6,290	0	0	0	0	0	6,290
Percy Priest Lake, Lower	FY19	15,245	0	0	0	0	0	15,245
Percy Priest Lake, Upper	FY19	8,266	0	0.24	0	0	0	8,267
Pond Creek	FY19	0	0	0	0	0	0	0
Richland Creek	FY19	136,441	0	0.24	0	0	0	136,441
Sandy Creek	FY19	969	0	0	0	0	0	969
Sevenmile Creek	FY19	16,879	0	0	0	0	0	16,879
South Harpeth River, Lower	FY19	352	0	0	0	0	0	352
Stoner Creek	FY19	64,488	0	0	0	0	0	64,488
Stones River	FY19	7,910	0	0.24	0	0	0	7,911
Sugartree Creek	FY19	32,461	0	0	0	0	0	32,461
Sulpher Creek	FY19	751	0	0	0	0	0	751
Sycamore Creek	FY19	646	0	0	0	0	0	646
Whites Creek	FY19	66,861	0	0	0	141	0	67,002

Based on average annual rainfall conditions
1 – Accounts for all control measures implemented in watershed thru end of FY
2 – Based on control measures implemented during the fiscal year

Watershed	Year	Pollutant: NH3 Load Removal by MWS Control Measure Implementation during Fiscal Year (pounds)						
		By LID Ordinance / SCMs [1]	By Construction Sites Inspected [2]	By Illicit Discharge Program [2]	By Street Sweeping [2]	By Home Buyout Program [1]	By Trees Planted [1]	**Total Pollutant Load Removed from Watershed** (lbs)
All Watersheds	**FY19**	**6,700**	**0**	**0.04**	**0**	**3.52**	**0**	**6,704**
Back Creek	FY19	0	0	0	0	0	0	0
Browns Creek	FY19	731	0	<0.01	0	<0.01	0	731
Bull Run Creek	FY19	0	0	0	0	0	0	0
Cooper Creek	FY19	30	0	0	0	0.33	0	30
Cub Creek	FY19	0	0	0	0	0	0	0
Cumberland River	FY19	4,135	0	0.01	0	0.93	0	4,135
Davidson Branch	FY19	7.03	0	0	0	0	0	7.03
Dry Creek	FY19	15	0	0	0	<0.01	0	15
Ewing Creek	FY19	119	0	0	0	<0.01	0	119
Gibson Creek	FY19	14	0	<0.01	0	0.11	0	14
Gizzard Branch	FY19	14	0	0	0	0	0	14
Harpeth River	FY19	152	0	0	0	<0.01	0	152
Indian Creek	FY19	0	0	0	0	0	0	0
Island Creek	FY19	0	0	0	0	0	0	0
Little Harpeth River	FY19	9.55	0	<0.01	0	0	0	9.56
Loves Branch	FY19	5.48	0	<0.01	0	<0.01	0	5.48
Mansker Creek	FY19	12	0	0	0	0	0	12
Marrowbone Creek	FY19	1.99	0	0	0	0	0	1.99
Mill Creek Lower	FY19	195	0	0.01	0	0.23	0	196
Mill Creek Upper	FY19	71	0	0	0	1.06	0	72
Overall Creek	FY19	7.65	0	0	0	<0.01	0	7.65
Pages Branch	FY19	26	0	0	0	<0.01	0	26
Percy Priest Lake, Lower	FY19	36	0	0	0	<0.01	0	36
Percy Priest Lake, Upper	FY19	33	0	<0.01	0	0	0	33
Pond Creek	FY19	0	0	0	0	0	0	0
Richland Creek	FY19	450	0	<0.01	0	<0.01	0	450
Sandy Creek	FY19	3.31	0	0	0	0	0	3.31
Sevenmile Creek	FY19	49	0	0	0	<0.01	0	49
South Harpeth River, Lower	FY19	1.11	0	0	0	0	0	1.11
Stoner Creek	FY19	249	0	0	0	<0.01	0	249
Stones River	FY19	29	0	<0.01	0	0	0	29
Sugartree Creek	FY19	73	0	0	0	<0.01	0	73
Sulpher Creek	FY19	2.16	0	0	0	0	0	2.16
Sycamore Creek	FY19	3.22	0	0	0	0	0	3.22
Whites Creek	FY19	226	0	0	0	0.85	0	226

Based on average annual rainfall conditions
1 – Accounts for all control measures implemented in watershed thru end of FY
2 – Based on control measures implemented during the fiscal year

Watershed	Year	Pollutant: TKN Load Removal by MWS Control Measure Implementation during Fiscal Year (pounds)						
		By LID Ordinance / SCMs [1]	By Construction Sites Inspected [2]	By Illicit Discharge Program [2]	By Street Sweeping [2]	By Home Buyout Program [1]	By Trees Planted [1]	**Total Pollutant Load Removed from Watershed** (lbs)
All Watersheds	**FY19**	**29,665**	**0**	**0.32**	**0**	**19**	**0**	**29,685**
Back Creek	FY19	0	0	0	0	0	0	0
Browns Creek	FY19	1,305	0	0.03	0	0.93	0	1,306
Bull Run Creek	FY19	0	0	0	0	0	0	0
Cooper Creek	FY19	263	0	0	0	0.5	0	264
Cub Creek	FY19	0	0	0	0	0	0	0
Cumberland River	FY19	18,292	0	0.06	0	2.55	0	18,295
Davidson Branch	FY19	31	0	0	0	0	0	31
Dry Creek	FY19	62	0	0	0	0.16	0	62
Ewing Creek	FY19	448	0	0	0	0.71	0	449
Gibson Creek	FY19	83	0	0.03	0	1.18	0	84
Gizzard Branch	FY19	68	0	0	0	0	0	68
Harpeth River	FY19	1,302	0	0	0	0.41	0	1,302
Indian Creek	FY19	0	0	0	0	0	0	0
Island Creek	FY19	0	0	0	0	0	0	0
Little Harpeth River	FY19	61	0	0.03	0	0	0	61
Loves Branch	FY19	19	0	0.03	0	0.07	0	19
Mansker Creek	FY19	58	0	0	0	0	0	58
Marrowbone Creek	FY19	12	0	0	0	0	0	12
Mill Creek Lower	FY19	921	0	0.06	0	2.1	0	923
Mill Creek Upper	FY19	395	0	0	0	1.51	0	397
Overall Creek	FY19	41	0	0	0	0.07	0	41
Pages Branch	FY19	99	0	0	0	0.18	0	100
Percy Priest Lake, Lower	FY19	258	0	0	0	0.06	0	258
Percy Priest Lake, Upper	FY19	175	0	0.03	0	0	0	175
Pond Creek	FY19	0	0	0	0	0	0	0
Richland Creek	FY19	2,169	0	0.03	0	0.93	0	2,170
Sandy Creek	FY19	15	0	0	0	0	0	15
Sevenmile Creek	FY19	304	0	0	0	1.54	0	305
South Harpeth River, Lower	FY19	8.14	0	0	0	0	0	8.14
Stoner Creek	FY19	1,387	0	0	0	0.19	0	1,387
Stones River	FY19	130	0	0.03	0	0	0	130
Sugartree Creek	FY19	698	0	0	0	0.03	0	698
Sulpher Creek	FY19	7.16	0	0	0	0	0	7.16
Sycamore Creek	FY19	15	0	0	0	0	0	15
Whites Creek	FY19	1,040	0	0	0	5.75	0	1,045

Based on average annual rainfall conditions

1 – Accounts for all control measures implemented in watershed thru end of FY

2 – Based on control measures implemented during the fiscal year

Watershed	Year	Pollutant: NO2+NO3 Load Removal by MWS Control Measure Implementation during Fiscal Year (pounds)						
		By LID Ordinance / SCMs [1]	By Construction Sites Inspected [2]	By Illicit Discharge Program [2]	By Street Sweeping [2]	By Home Buyout Program [1]	By Trees Planted [1]	**Total Pollutant Load Removed from Watershed** (lbs)
All Watersheds	**FY19**	**16,179**	**0**	**<0.01**	**0**	**1.29**	**0**	**16,180**
Back Creek	FY19	0	0	0	0	0	0	0
Browns Creek	FY19	922	0	<0.01	0	0	0	922
Bull Run Creek	FY19	0	0	0	0	0	0	0
Cooper Creek	FY19	90	0	0	0	0.12	0	90
Cub Creek	FY19	0	0	0	0	0	0	0
Cumberland River	FY19	9,658	0	<0.01	0	0.34	0	9,658
Davidson Branch	FY19	21	0	0	0	0	0	21
Dry Creek	FY19	29	0	0	0	0	0	29
Ewing Creek	FY19	203	0	0	0	0	0	203
Gibson Creek	FY19	27	0	<0.01	0	0.04	0	27
Gizzard Branch	FY19	29	0	0	0	0	0	29
Harpeth River	FY19	437	0	0	0	0	0	437
Indian Creek	FY19	0	0	0	0	0	0	0
Island Creek	FY19	0	0	0	0	0	0	0
Little Harpeth River	FY19	21	0	<0.01	0	0	0	21
Loves Branch	FY19	10	0	<0.01	0	0	0	10
Mansker Creek	FY19	20	0	0	0	0	0	20
Marrowbone Creek	FY19	3.37	0	0	0	0	0	3.37
Mill Creek Lower	FY19	262	0	<0.01	0	0.08	0	262
Mill Creek Upper	FY19	108	0	0	0	0.39	0	108
Overall Creek	FY19	25	0	0	0	0	0	25
Pages Branch	FY19	36	0	0	0	0	0	36
Percy Priest Lake, Lower	FY19	101	0	0	0	0	0	101
Percy Priest Lake, Upper	FY19	38	0	<0.01	0	0	0	38
Pond Creek	FY19	0	0	0	0	0	0	0
Richland Creek	FY19	1,998	0	<0.01	0	0	0	1,998
Sandy Creek	FY19	5.56	0	0	0	0	0	5.56
Sevenmile Creek	FY19	143	0	0	0	0	0	143
South Harpeth River, Lower	FY19	3.35	0	0	0	0	0	3.35
Stoner Creek	FY19	746	0	0	0	0	0	746
Stones River	FY19	56	0	<0.01	0	0	0	56
Sugartree Creek	FY19	245	0	0	0	0	0	245
Sulpher Creek	FY19	5.77	0	0	0	0	0	5.77
Sycamore Creek	FY19	2.52	0	0	0	0	0	2.52
Whites Creek	FY19	931	0	0	0	0.31	0	932

Based on average annual rainfall conditions

1 – Accounts for all control measures implemented in watershed thru end of FY

2 – Based on control measures implemented during the fiscal year

Watershed	Year	Pollutant: TN Load Removal by MWS Control Measure Implementation during Fiscal Year (pounds)						
		By LID Ordinance / SCMs [1]	By Construction Sites Inspected [2]	By Illicit Discharge Program [2]	By Street Sweeping [2]	By Home Buyout Program [1]	By Trees Planted [1]	**Total Pollutant Load Removed from Watershed** (lbs)
All Watersheds	**FY19**	**38,765**	**0**	**0.23**	**0.02**	**24**	**0**	**38,790**
Back Creek	FY19	0	0	0	0	0	0	0
Browns Creek	FY19	2,101	0	0.02	<0.01	1.1	0	2,102
Bull Run Creek	FY19	0	0	0	0	0	0	0
Cooper Creek	FY19	341	0	0	<0.01	0.78	0	342
Cub Creek	FY19	0	0	0	0	0	0	0
Cumberland River	FY19	23,757	0	0.04	<0.01	3.55	0	23,760
Davidson Branch	FY19	44	0	0	<0.01	0	0	44
Dry Creek	FY19	75	0	0	<0.01	0.19	0	75
Ewing Creek	FY19	584	0	0	<0.01	0.84	0	584
Gibson Creek	FY19	81	0	0.02	<0.01	1.45	0	82
Gizzard Branch	FY19	74	0	0	<0.01	0	0	74
Harpeth River	FY19	1,582	0	0	<0.01	0.48	0	1,583
Indian Creek	FY19	0	0	0	0	0	0	0
Island Creek	FY19	0	0	0	0	0	0	0
Little Harpeth River	FY19	64	0	0.02	<0.01	0	0	64
Loves Branch	FY19	22	0	0.02	<0.01	0.08	0	22
Mansker Creek	FY19	65	0	0	0	0	0	65
Marrowbone Creek	FY19	11	0	0	0	0	0	11
Mill Creek Lower	FY19	886	0	0.04	<0.01	2.62	0	889
Mill Creek Upper	FY19	375	0	0	<0.01	2.4	0	377
Overall Creek	FY19	52	0	0	<0.01	0.08	0	53
Pages Branch	FY19	104	0	0	<0.01	0.21	0	104
Percy Priest Lake, Lower	FY19	309	0	0	<0.01	0.07	0	309
Percy Priest Lake, Upper	FY19	144	0	0.02	<0.01	0	0	144
Pond Creek	FY19	0	0	0	0	0	0	0
Richland Creek	FY19	3,234	0	0.02	<0.01	1.1	0	3,235
Sandy Creek	FY19	16	0	0	<0.01	0	0	16
Sevenmile Creek	FY19	361	0	0	<0.01	1.81	0	363
South Harpeth River, Lower	FY19	10	0	0	<0.01	0	0	10
Stoner Creek	FY19	1,928	0	0	<0.01	0.22	0	1,929
Stones River	FY19	148	0	0.02	<0.01	0	0	148
Sugartree Creek	FY19	892	0	0	<0.01	0.03	0	892
Sulpher Creek	FY19	11	0	0	0	0	0	11
Sycamore Creek	FY19	10	0	0	0	0	0	10
Whites Creek	FY19	1,482	0	0	<0.01	7.27	0	1,489

Based on average annual rainfall conditions

1 – Accounts for all control measures implemented in watershed thru end of FY

2 – Based on control measures implemented during the fiscal year

Watershed	Year	Pollutant: Diss P Load Removal by MWS Control Measure Implementation during Fiscal Year (pounds) By LID Ordinance / SCMs [1]	By Construction Sites Inspected [2]	By Illicit Discharge Program [2]	By Street Sweeping [2]	By Home Buyout Program [1]	By Trees Planted [1]	**Total Pollutant Load Removed from Watershed** (lbs)
All Watersheds	**FY19**	**10,078**	**0**	**0**	**0**	**18**	**0**	**10,096**
Back Creek	FY19	0	0	0	0	0	0	0
Browns Creek	FY19	492	0	0	0	1.18	0	494
Bull Run Creek	FY19	0	0	0	0	0	0	0
Cooper Creek	FY19	205	0	0	0	0.04	0	205
Cub Creek	FY19	0	0	0	0	0	0	0
Cumberland River	FY19	5,752	0	0	0	1.56	0	5,754
Davidson Branch	FY19	11	0	0	0	0	0	11
Dry Creek	FY19	13	0	0	0	0.2	0	13
Ewing Creek	FY19	70	0	0	0	0.89	0	70
Gibson Creek	FY19	18	0	0	0	1.3	0	19
Gizzard Branch	FY19	14	0	0	0	0	0	14
Harpeth River	FY19	874	0	0	0	0.51	0	875
Indian Creek	FY19	0	0	0	0	0	0	0
Island Creek	FY19	0	0	0	0	0	0	0
Little Harpeth River	FY19	12	0	0	0	0	0	12
Loves Branch	FY19	3.74	0	0	0	0.09	0	3.82
Mansker Creek	FY19	8.11	0	0	0	0	0	8.11
Marrowbone Creek	FY19	0.99	0	0	0	0	0	0.99
Mill Creek Lower	FY19	116	0	0	0	2.25	0	118
Mill Creek Upper	FY19	84	0	0	0	0	0	84
Overall Creek	FY19	21	0	0	0	0.08	0	21
Pages Branch	FY19	13	0	0	0	0.23	0	14
Percy Priest Lake, Lower	FY19	135	0	0	0	0.07	0	135
Percy Priest Lake, Upper	FY19	23	0	0	0	0	0	23
Pond Creek	FY19	0	0	0	0	0	0	0
Richland Creek	FY19	820	0	0	0	1.17	0	821
Sandy Creek	FY19	2.43	0	0	0	0	0	2.43
Sevenmile Creek	FY19	123	0	0	0	1.95	0	125
South Harpeth River, Lower	FY19	3.48	0	0	0	0	0	3.48
Stoner Creek	FY19	327	0	0	0	0.24	0	327
Stones River	FY19	25	0	0	0	0	0	25
Sugartree Creek	FY19	544	0	0	0	0.03	0	544
Sulpher Creek	FY19	1.87	0	0	0	0	0	1.87
Sycamore Creek	FY19	1.44	0	0	0	0	0	1.44
Whites Creek	FY19	364	0	0	0	5.75	0	370

Based on average annual rainfall conditions
1 – Accounts for all control measures implemented in watershed thru end of FY
2 – Based on control measures implemented during the fiscal year

Watershed	Year	Pollutant: TP Load Removal by MWS Control Measure Implementation during Fiscal Year (pounds)						
		By LID Ordinance / SCMs [1]	By Construction Sites Inspected [2]	By Illicit Discharge Program [2]	By Street Sweeping [2]	By Home Buyout Program [1]	By Trees Planted [1]	**Total Pollutant Load Removed from Watershed** (lbs)
All Watersheds	**FY19**	**16,517**	**0**	**0.04**	**0.01**	**18**	**0**	**16,535**
Back Creek	FY19	0	0	0	0	0	0	0
Browns Creek	FY19	938	0	<0.01	<0.01	1.2	0	939
Bull Run Creek	FY19	0	0	0	0	0	0	0
Cooper Creek	FY19	286	0	0	<0.01	0.04	0	286
Cub Creek	FY19	0	0	0	0	0	0	0
Cumberland River	FY19	9,656	0	0.01	<0.01	1.59	0	9,658
Davidson Branch	FY19	18	0	0	<0.01	0	0	18
Dry Creek	FY19	27	0	0	<0.01	0.21	0	27
Ewing Creek	FY19	188	0	0	<0.01	0.91	0	188
Gibson Creek	FY19	31	0	<0.01	<0.01	1.32	0	32
Gizzard Branch	FY19	24	0	0	<0.01	0	0	24
Harpeth River	FY19	1,234	0	0	<0.01	0.52	0	1,234
Indian Creek	FY19	0	0	0	0	0	0	0
Island Creek	FY19	0	0	0	0	0	0	0
Little Harpeth River	FY19	22	0	<0.01	<0.01	0	0	22
Loves Branch	FY19	8.81	0	<0.01	<0.01	0.09	0	8.9
Mansker Creek	FY19	18	0	0	0	0	0	18
Marrowbone Creek	FY19	2.42	0	0	0	0	0	2.42
Mill Creek Lower	FY19	272	0	0.01	<0.01	2.3	0	274
Mill Creek Upper	FY19	155	0	0	<0.01	0	0	155
Overall Creek	FY19	32	0	0	<0.01	0.08	0	33
Pages Branch	FY19	32	0	0	<0.01	0.23	0	33
Percy Priest Lake, Lower	FY19	224	0	0	<0.01	0.07	0	225
Percy Priest Lake, Upper	FY19	58	0	<0.01	<0.01	0	0	58
Pond Creek	FY19	0	0	0	0	0	0	0
Richland Creek	FY19	1,218	0	<0.01	<0.01	1.19	0	1,219
Sandy Creek	FY19	6.28	0	0	<0.01	0	0	6.28
Sevenmile Creek	FY19	203	0	0	<0.01	1.99	0	205
South Harpeth River, Lower	FY19	5.16	0	0	<0.01	0	0	5.16
Stoner Creek	FY19	481	0	0	<0.01	0.24	0	482
Stones River	FY19	51	0	<0.01	<0.01	0	0	51
Sugartree Creek	FY19	759	0	0	<0.01	0.03	0	759
Sulpher Creek	FY19	4.59	0	0	0	0	0	4.59
Sycamore Creek	FY19	3.84	0	0	0	0	0	3.84
Whites Creek	FY19	560	0	0	<0.01	5.83	0	566

Based on average annual rainfall conditions

1 – Accounts for all control measures implemented in watershed thru end of FY

2 – Based on control measures implemented during the fiscal year

Watershed	Year	Pollutant: Pb Load Removal by MWS Control Measure Implementation during Fiscal Year (pounds)						
		By LID Ordinance / SCMs [1]	By Construction Sites Inspected [2]	By Illicit Discharge Program [2]	By Street Sweeping [2]	By Home Buyout Program [1]	By Trees Planted [1]	**Total Pollutant Load Removed from Watershed** (lbs)
All Watersheds	**FY19**	**102**	**0**	**<0.01**	**434**	**29**	**0**	**566**
Back Creek	FY19	0	0	0	0	0	0	0
Browns Creek	FY19	7.84	0	<0.01	18	0	0	26
Bull Run Creek	FY19	0	0	0	0	0	0	0
Cooper Creek	FY19	0.43	0	0	5.21	2.76	0	8.4
Cub Creek	FY19	0	0	0	0	0	0	0
Cumberland River	FY19	63	0	<0.01	99	7.83	0	170
Davidson Branch	FY19	0.13	0	0	1.3	0	0	1.43
Dry Creek	FY19	0.23	0	0	5.65	0	0	5.88
Ewing Creek	FY19	1.7	0	0	15	0	0	17
Gibson Creek	FY19	0.22	0	<0.01	5.65	0.92	0	6.79
Gizzard Branch	FY19	0.21	0	0	1.3	0	0	1.51
Harpeth River	FY19	2.28	0	0	28	0	0	31
Indian Creek	FY19	0	0	0	0	0	0	0
Island Creek	FY19	0	0	0	0	0	0	0
Little Harpeth River	FY19	0.15	0	<0.01	1.74	0	0	1.88
Loves Branch	FY19	0.09	0	<0.01	1.74	0	0	1.83
Mansker Creek	FY19	0.17	0	0	0	0	0	0.17
Marrowbone Creek	FY19	0.04	0	0	0	0	0	0.04
Mill Creek Lower	FY19	2.61	0	<0.01	55	1.94	0	60
Mill Creek Upper	FY19	1.01	0	0	17	8.94	0	26
Overall Creek	FY19	0.15	0	0	0.87	0	0	1.02
Pages Branch	FY19	0.35	0	0	6.51	0	0	6.87
Percy Priest Lake, Lower	FY19	0.6	0	0	35	0	0	36
Percy Priest Lake, Upper	FY19	0.46	0	<0.01	4.78	0	0	5.23
Pond Creek	FY19	0	0	0	0	0	0	0
Richland Creek	FY19	10	0	<0.01	30	0	0	40
Sandy Creek	FY19	0.05	0	0	1.74	0	0	1.78
Sevenmile Creek	FY19	0.85	0	0	33	0	0	33
South Harpeth River, Lower	FY19	0.02	0	0	1.3	0	0	1.32
Stoner Creek	FY19	3.64	0	0	26	0	0	30
Stones River	FY19	0.43	0	<0.01	17	0	0	17
Sugartree Creek	FY19	1.13	0	0	7.38	0	0	8.51
Sulpher Creek	FY19	0.04	0	0	0	0	0	0.04
Sycamore Creek	FY19	0.04	0	0	0	0	0	0.04
Whites Creek	FY19	4.94	0	0	16	7.06	0	28

Based on average annual rainfall conditions

1 – Accounts for all control measures implemented in watershed thru end of FY

2 – Based on control measures implemented during the fiscal year

Watershed	Year	Pollutant: Ni Load Removal by MWS Control Measure Implementation during Fiscal Year (pounds)						
		By LID Ordinance / SCMs [1]	By Construction Sites Inspected [2]	By Illicit Discharge Program [2]	By Street Sweeping [2]	By Home Buyout Program [1]	By Trees Planted [1]	**Total Pollutant Load Removed from Watershed** (lbs)
All Watersheds	**FY19**	**173**	**0**	**<0.01**	**277**	**0**	**0**	**450**
Back Creek	FY19	0	0	0	0	0	0	0
Browns Creek	FY19	6.03	0	<0.01	11	0	0	17
Bull Run Creek	FY19	0	0	0	0	0	0	0
Cooper Creek	FY19	0.27	0	0	3.33	0	0	3.6
Cub Creek	FY19	0	0	0	0	0	0	0
Cumberland River	FY19	103	0	<0.01	64	0	0	167
Davidson Branch	FY19	0.23	0	0	0.83	0	0	1.06
Dry Creek	FY19	0.34	0	0	3.61	0	0	3.95
Ewing Creek	FY19	2.27	0	0	9.71	0	0	12
Gibson Creek	FY19	0.42	0	<0.01	3.61	0	0	4.03
Gizzard Branch	FY19	0.41	0	0	0.83	0	0	1.24
Harpeth River	FY19	2.3	0	0	18	0	0	20
Indian Creek	FY19	0	0	0	0	0	0	0
Island Creek	FY19	0	0	0	0	0	0	0
Little Harpeth River	FY19	0.33	0	<0.01	1.11	0	0	1.43
Loves Branch	FY19	0.11	0	<0.01	1.11	0	0	1.22
Mansker Creek	FY19	0.29	0	0	0	0	0	0.29
Marrowbone Creek	FY19	0.07	0	0	0	0	0	0.07
Mill Creek Lower	FY19	3.78	0	<0.01	35	0	0	39
Mill Creek Upper	FY19	1.49	0	0	11	0	0	12
Overall Creek	FY19	0.24	0	0	0.55	0	0	0.79
Pages Branch	FY19	0.48	0	0	4.16	0	0	4.64
Percy Priest Lake, Lower	FY19	1.55	0	0	22	0	0	24
Percy Priest Lake, Upper	FY19	0.54	0	<0.01	3.05	0	0	3.59
Pond Creek	FY19	0	0	0	0	0	0	0
Richland Creek	FY19	24	0	<0.01	19	0	0	43
Sandy Creek	FY19	0.06	0	0	1.11	0	0	1.17
Sevenmile Creek	FY19	1.99	0	0	21	0	0	23
South Harpeth River, Lower	FY19	0.03	0	0	0.83	0	0	0.87
Stoner Creek	FY19	10	0	0	17	0	0	27
Stones River	FY19	0.7	0	<0.01	11	0	0	12
Sugartree Creek	FY19	0.85	0	0	4.71	0	0	5.57
Sulpher Creek	FY19	0.06	0	0	0	0	0	0.06
Sycamore Creek	FY19	0.05	0	0	0	0	0	0.05
Whites Creek	FY19	11	0	0	9.98	0	0	21

Based on average annual rainfall conditions

1 – Accounts for all control measures implemented in watershed thru end of FY

2 – Based on control measures implemented during the fiscal year

Watershed	Year	Pollutant: Zn Load Removal by MWS Control Measure Implementation during Fiscal Year (pounds)						
		By LID Ordinance / SCMs [1]	By Construction Sites Inspected [2]	By Illicit Discharge Program [2]	By Street Sweeping [2]	By Home Buyout Program [1]	By Trees Planted [1]	**Total Pollutant Load Removed from Watershed** (lbs)
All Watersheds	**FY19**	**2,338**	**0**	**<0.01**	**1,194**	**3,062**	**0**	**6,593**
Back Creek	FY19	0	0	0	0	0	0	0
Browns Creek	FY19	140	0	<0.01	49	82	0	271
Bull Run Creek	FY19	0	0	0	0	0	0	0
Cooper Creek	FY19	13	0	0	14	176	0	203
Cub Creek	FY19	0	0	0	0	0	0	0
Cumberland River	FY19	1,409	0	<0.01	273	596	0	2,278
Davidson Branch	FY19	3.05	0	0	3.58	0	0	6.63
Dry Creek	FY19	7.37	0	0	16	14	0	37
Ewing Creek	FY19	57	0	0	42	63	0	162
Gibson Creek	FY19	5.56	0	<0.01	16	147	0	168
Gizzard Branch	FY19	4.82	0	0	3.58	0	0	8.4
Harpeth River	FY19	68	0	0	78	36	0	181
Indian Creek	FY19	0	0	0	0	0	0	0
Island Creek	FY19	0	0	0	0	0	0	0
Little Harpeth River	FY19	3.53	0	<0.01	4.77	0	0	8.3
Loves Branch	FY19	2.27	0	<0.01	4.77	5.82	0	13
Mansker Creek	FY19	5.04	0	0	0	0	0	5.04
Marrowbone Creek	FY19	1	0	0	0	0	0	1
Mill Creek Lower	FY19	85	0	<0.01	152	275	0	512
Mill Creek Upper	FY19	32	0	0	45	559	0	636
Overall Creek	FY19	3.63	0	0	2.39	5.85	0	12
Pages Branch	FY19	11	0	0	18	16	0	45
Percy Priest Lake, Lower	FY19	12	0	0	97	5.88	0	114
Percy Priest Lake, Upper	FY19	17	0	<0.01	13	0	0	30
Pond Creek	FY19	0	0	0	0	0	0	0
Richland Creek	FY19	202	0	<0.01	84	83	0	368
Sandy Creek	FY19	1.45	0	0	4.77	0	0	6.23
Sevenmile Creek	FY19	18	0	0	90	134	0	241
South Harpeth River, Lower	FY19	0.42	0	0	3.58	0	0	4
Stoner Creek	FY19	81	0	0	72	16	0	169
Stones River	FY19	13	0	<0.01	47	0	0	60
Sugartree Creek	FY19	35	0	0	20	2.38	0	57
Sulpher Creek	FY19	1.32	0	0	0	0	0	1.32
Sycamore Creek	FY19	1.25	0	0	0	0	0	1.25
Whites Creek	FY19	105	0	0	43	846	0	994

Based on average annual rainfall conditions

1 – Accounts for all control measures implemented in watershed thru end of FY

2 – Based on control measures implemented during the fiscal year

Watershed	Year	Pollutant: Cr Load Removal by MWS Control Measure Implementation during Fiscal Year (pounds) By LID Ordinance / SCMs [1]	By Construction Sites Inspected [2]	By Illicit Discharge Program [2]	By Street Sweeping [2]	By Home Buyout Program [1]	By Trees Planted [1]	**Total Pollutant Load Removed from Watershed** (lbs)
All Watersheds	**FY19**	**85**	**0**	**<0.01**	**309**	**0**	**0**	**394**
Back Creek	FY19	0	0	0	0	0	0	0
Browns Creek	FY19	9.86	0	<0.01	13	0	0	23
Bull Run Creek	FY19	0	0	0	0	0	0	0
Cooper Creek	FY19	0.55	0	0	3.7	0	0	4.25
Cub Creek	FY19	0	0	0	0	0	0	0
Cumberland River	FY19	53	0	<0.01	71	0	0	124
Davidson Branch	FY19	0.1	0	0	0.93	0	0	1.02
Dry Creek	FY19	0.15	0	0	4.01	0	0	4.16
Ewing Creek	FY19	1.18	0	0	11	0	0	12
Gibson Creek	FY19	0.12	0	<0.01	4.01	0	0	4.13
Gizzard Branch	FY19	0.13	0	0	0.93	0	0	1.06
Harpeth River	FY19	2.37	0	0	20	0	0	22
Indian Creek	FY19	0	0	0	0	0	0	0
Island Creek	FY19	0	0	0	0	0	0	0
Little Harpeth River	FY19	0.08	0	<0.01	1.23	0	0	1.32
Loves Branch	FY19	0.06	0	<0.01	1.23	0	0	1.3
Mansker Creek	FY19	0.1	0	0	0	0	0	0.1
Marrowbone Creek	FY19	0.02	0	0	0	0	0	0.02
Mill Creek Lower	FY19	1.46	0	<0.01	39	0	0	41
Mill Creek Upper	FY19	0.58	0	0	12	0	0	12
Overall Creek	FY19	0.12	0	0	0.62	0	0	0.74
Pages Branch	FY19	0.2	0	0	4.63	0	0	4.83
Percy Priest Lake, Lower	FY19	0.77	0	0	25	0	0	26
Percy Priest Lake, Upper	FY19	0.24	0	<0.01	3.39	0	0	3.63
Pond Creek	FY19	0	0	0	0	0	0	0
Richland Creek	FY19	6.05	0	<0.01	22	0	0	28
Sandy Creek	FY19	0.04	0	0	1.23	0	0	1.27
Sevenmile Creek	FY19	0.77	0	0	23	0	0	24
South Harpeth River, Lower	FY19	0.01	0	0	0.93	0	0	0.94
Stoner Creek	FY19	2.17	0	0	19	0	0	21
Stones River	FY19	0.27	0	<0.01	12	0	0	12
Sugartree Creek	FY19	1.37	0	0	5.25	0	0	6.61
Sulpher Creek	FY19	0.03	0	0	0	0	0	0.03
Sycamore Creek	FY19	0.02	0	0	0	0	0	0.02
Whites Creek	FY19	2.87	0	0	11	0	0	14

Based on average annual rainfall conditions
1 – Accounts for all control measures implemented in watershed thru end of FY
2 – Based on control measures implemented during the fiscal year

Watershed	Year	Pollutant: Cu Load Removal by MWS Control Measure Implementation during Fiscal Year (pounds) By LID Ordinance / SCMs [1]	By Construction Sites Inspected [2]	By Illicit Discharge Program [2]	By Street Sweeping [2]	By Home Buyout Program [1]	By Trees Planted [1]	**Total Pollutant Load Removed from Watershed** (lbs)
All Watersheds	**FY19**	**245**	**0**	**<0.01**	**320**	**227**	**0**	**791**
Back Creek	FY19	0	0	0	0	0	0	0
Browns Creek	FY19	28	0	<0.01	13	1.67	0	43
Bull Run Creek	FY19	0	0	0	0	0	0	0
Cooper Creek	FY19	1.48	0	0	3.84	19	0	24
Cub Creek	FY19	0	0	0	0	0	0	0
Cumberland River	FY19	150	0	<0.01	73	56	0	279
Davidson Branch	FY19	0.33	0	0	0.96	0	0	1.29
Dry Creek	FY19	0.75	0	0	4.16	0.29	0	5.19
Ewing Creek	FY19	6.7	0	0	11	1.27	0	19
Gibson Creek	FY19	0.37	0	<0.01	4.16	8.14	0	13
Gizzard Branch	FY19	0.39	0	0	0.96	0	0	1.35
Harpeth River	FY19	6.43	0	0	21	0.73	0	28
Indian Creek	FY19	0	0	0	0	0	0	0
Island Creek	FY19	0	0	0	0	0	0	0
Little Harpeth River	FY19	0.23	0	<0.01	1.28	0	0	1.51
Loves Branch	FY19	0.25	0	<0.01	1.28	0.12	0	1.65
Mansker Creek	FY19	0.47	0	0	0	0	0	0.47
Marrowbone Creek	FY19	0.06	0	0	0	0	0	0.06
Mill Creek Lower	FY19	7.2	0	<0.01	41	16	0	64
Mill Creek Upper	FY19	2.45	0	0	12	61	0	76
Overall Creek	FY19	0.36	0	0	0.64	0.12	0	1.11
Pages Branch	FY19	1.01	0	0	4.79	0.32	0	6.13
Percy Priest Lake, Lower	FY19	1.47	0	0	26	0.1	0	27
Percy Priest Lake, Upper	FY19	1.31	0	<0.01	3.52	0	0	4.83
Pond Creek	FY19	0	0	0	0	0	0	0
Richland Creek	FY19	15	0	<0.01	22	1.66	0	39
Sandy Creek	FY19	0.17	0	0	1.28	0	0	1.44
Sevenmile Creek	FY19	1.75	0	0	24	2.75	0	28
South Harpeth River, Lower	FY19	0.03	0	0	0.96	0	0	0.99
Stoner Creek	FY19	5.84	0	0	19	0.33	0	25
Stones River	FY19	1.24	0	<0.01	12	0	0	14
Sugartree Creek	FY19	3.61	0	0	5.43	0.05	0	9.09
Sulpher Creek	FY19	0.16	0	0	0	0	0	0.16
Sycamore Creek	FY19	0.08	0	0	0	0	0	0.08
Whites Creek	FY19	7.8	0	0	12	57	0	76

Based on average annual rainfall conditions
1 – Accounts for all control measures implemented in watershed thru end of FY
2 – Based on control measures implemented during the fiscal year

Watershed	Year	Pollutant: O&G Load Removal by MWS Control Measure Implementation during Fiscal Year (pounds)						
		By LID Ordinance / SCMs [1]	By Construction Sites Inspected [2]	By Illicit Discharge Program [2]	By Street Sweeping [2]	By Home Buyout Program [1]	By Trees Planted [1]	**Total Pollutant Load Removed from Watershed** (lbs)
All Watersheds	**FY19**	**79,791**	**0**	**0.4**	**7,074**	**0**	**0**	**86,866**
Back Creek	FY19	0	0	0	0	0	0	0
Browns Creek	FY19	9,204	0	0.04	290	0	0	9,494
Bull Run Creek	FY19	0	0	0	0	0	0	0
Cooper Creek	FY19	242	0	0	85	0	0	327
Cub Creek	FY19	0	0	0	0	0	0	0
Cumberland River	FY19	48,951	0	0.07	1,620	0	0	50,571
Davidson Branch	FY19	100	0	0	21	0	0	121
Dry Creek	FY19	155	0	0	92	0	0	247
Ewing Creek	FY19	1,304	0	0	248	0	0	1,551
Gibson Creek	FY19	100	0	0.04	92	0	0	192
Gizzard Branch	FY19	132	0	0	21	0	0	153
Harpeth River	FY19	1,092	0	0	460	0	0	1,552
Indian Creek	FY19	0	0	0	0	0	0	0
Island Creek	FY19	0	0	0	0	0	0	0
Little Harpeth River	FY19	84	0	0.04	28	0	0	112
Loves Branch	FY19	58	0	0.04	28	0	0	87
Mansker Creek	FY19	108	0	0	0	0	0	108
Marrowbone Creek	FY19	14	0	0	0	0	0	14
Mill Creek Lower	FY19	1,379	0	0.07	898	0	0	2,278
Mill Creek Upper	FY19	469	0	0	269	0	0	737
Overall Creek	FY19	100	0	0	14	0	0	114
Pages Branch	FY19	190	0	0	106	0	0	296
Percy Priest Lake, Lower	FY19	851	0	0	573	0	0	1,424
Percy Priest Lake, Upper	FY19	186	0	0.04	78	0	0	264
Pond Creek	FY19	0	0	0	0	0	0	0
Richland Creek	FY19	7,071	0	0.04	495	0	0	7,567
Sandy Creek	FY19	35	0	0	28	0	0	63
Sevenmile Creek	FY19	842	0	0	531	0	0	1,373
South Harpeth River, Lower	FY19	11	0	0	21	0	0	32
Stoner Creek	FY19	2,934	0	0	424	0	0	3,358
Stones River	FY19	274	0	0.04	276	0	0	549
Sugartree Creek	FY19	568	0	0	120	0	0	688
Sulpher Creek	FY19	32	0	0	0	0	0	32
Sycamore Creek	FY19	9.46	0	0	0	0	0	9.46
Whites Creek	FY19	3,296	0	0	255	0	0	3,550

Based on average annual rainfall conditions

1 – Accounts for all control measures implemented in watershed thru end of FY

2 – Based on control measures implemented during the fiscal year

Watershed	Year	Pollutant: TSS Load Removal by MWS Control Measure Implementation during Fiscal Year (pounds)						
		By LID Ordinance / SCMs [1]	By Construction Sites Inspected [2]	By Illicit Discharge Program [2]	By Street Sweeping [2]	By Home Buyout Program [1]	By Trees Planted [1]	**Total Pollutant Load Removed from Watershed** (lbs)
All Watersheds	**FY19**	**897,469**	**16,511,994**	**45,984**	**1,800,120**	**92**	**0**	**19,255,659**
Back Creek	FY19	0	0	0	0	0	0	0
Browns Creek	FY19	107,738	685,805	2,225	73,805	0	0	869,573
Bull Run Creek	FY19	0	0	0	0	0	0	0
Cooper Creek	FY19	5,037	135,189	0	21,601	8.64	0	161,836
Cub Creek	FY19	0	0	0	0	0	0	0
Cumberland River	FY19	562,502	3,272,787	5,192	412,227	24	0	4,252,733
Davidson Branch	FY19	982	1,180,667	0	5,400	0	0	1,187,050
Dry Creek	FY19	2,006	163,908	4,450	23,402	0	0	193,765
Ewing Creek	FY19	15,678	1,631,715	2,225	63,004	0	0	1,712,622
Gibson Creek	FY19	1,550	108,828	0.1	23,402	2.87	0	133,783
Gizzard Branch	FY19	1,587	25,087	0	5,400	0	0	32,074
Harpeth River	FY19	23,629	211,714	742	117,008	0	0	353,092
Indian Creek	FY19	0	0	0	0	0	0	0
Island Creek	FY19	0	0	0	0	0	0	0
Little Harpeth River	FY19	992	44,023	742	7,200	0	0	52,957
Loves Branch	FY19	858	14,391	742	7,200	0	0	23,191
Mansker Creek	FY19	1,328	70,846	742	0	0	0	72,915
Marrowbone Creek	FY19	228	0	0	0	0	0	228
Mill Creek Lower	FY19	24,217	1,245,073	7,417	228,615	6.06	0	1,505,328
Mill Creek Upper	FY19	9,261	396,352	1,483	68,405	28	0	475,529
Overall Creek	FY19	1,179	49,978	0	3,600	0	0	54,757
Pages Branch	FY19	3,447	169,499	742	27,002	0	0	200,689
Percy Priest Lake, Lower	FY19	8,015	184,605	0	145,810	0	0	338,430
Percy Priest Lake, Upper	FY19	4,439	4,044,890	1,483	19,801	0	0	4,070,614
Pond Creek	FY19	0	0	0	0	0	0	0
Richland Creek	FY19	50,619	985,297	2,225	126,008	0	0	1,164,149
Sandy Creek	FY19	456	33,617	0	7,200	0	0	41,273
Sevenmile Creek	FY19	8,001	262,380	0	135,009	0	0	405,390
South Harpeth River, Lower	FY19	120	36,775	0	5,400	0	0	42,296
Stoner Creek	FY19	20,098	567,362	2,967	108,007	0	0	698,434
Stones River	FY19	3,696	569,684	1,483	70,205	0	0	645,068
Sugartree Creek	FY19	12,396	308,256	0	30,602	0	0	351,254
Sulpher Creek	FY19	352	0	4,450	0	0	0	4,802
Sycamore Creek	FY19	447	4,684	0	0	0	0	5,131
Whites Creek	FY19	26,612	108,583	6,675	64,804	22	0	206,696

Based on average annual rainfall conditions

1 – Accounts for all control measures implemented in watershed thru end of FY

2 – Based on control measures implemented during the fiscal year

Watershed	Year	Pollutant: TDS Load Removal by MWS Control Measure Implementation during Fiscal Year (pounds)						
		By LID Ordinance / SCMs [1]	By Construction Sites Inspected [2]	By Illicit Discharge Program [2]	By Street Sweeping [2]	By Home Buyout Program [1]	By Trees Planted [1]	**Total Pollutant Load Removed from Watershed** (lbs)
All Watersheds	**FY19**	**3,216,394**	**0**	**0**	**0**	**0**	**0**	**3,216,394**
Back Creek	FY19	0	0	0	0	0	0	0
Browns Creek	FY19	343,878	0	0	0	0	0	343,878
Bull Run Creek	FY19	0	0	0	0	0	0	0
Cooper Creek	FY19	28,218	0	0	0	0	0	28,218
Cub Creek	FY19	0	0	0	0	0	0	0
Cumberland River	FY19	1,982,413	0	0	0	0	0	1,982,413
Davidson Branch	FY19	3,012	0	0	0	0	0	3,012
Dry Creek	FY19	4,256	0	0	0	0	0	4,256
Ewing Creek	FY19	35,924	0	0	0	0	0	35,924
Gibson Creek	FY19	4,250	0	0	0	0	0	4,250
Gizzard Branch	FY19	5,052	0	0	0	0	0	5,052
Harpeth River	FY19	119,525	0	0	0	0	0	119,525
Indian Creek	FY19	0	0	0	0	0	0	0
Island Creek	FY19	0	0	0	0	0	0	0
Little Harpeth River	FY19	4,525	0	0	0	0	0	4,525
Loves Branch	FY19	1,146	0	0	0	0	0	1,146
Mansker Creek	FY19	4,199	0	0	0	0	0	4,199
Marrowbone Creek	FY19	381	0	0	0	0	0	381
Mill Creek Lower	FY19	49,092	0	0	0	0	0	49,092
Mill Creek Upper	FY19	21,656	0	0	0	0	0	21,656
Overall Creek	FY19	3,042	0	0	0	0	0	3,042
Pages Branch	FY19	5,541	0	0	0	0	0	5,541
Percy Priest Lake, Lower	FY19	48,346	0	0	0	0	0	48,346
Percy Priest Lake, Upper	FY19	5,512	0	0	0	0	0	5,512
Pond Creek	FY19	0	0	0	0	0	0	0
Richland Creek	FY19	186,185	0	0	0	0	0	186,185
Sandy Creek	FY19	953	0	0	0	0	0	953
Sevenmile Creek	FY19	40,350	0	0	0	0	0	40,350
South Harpeth River, Lower	FY19	842	0	0	0	0	0	842
Stoner Creek	FY19	162,341	0	0	0	0	0	162,341
Stones River	FY19	9,040	0	0	0	0	0	9,040
Sugartree Creek	FY19	69,821	0	0	0	0	0	69,821
Sulpher Creek	FY19	485	0	0	0	0	0	485
Sycamore Creek	FY19	291	0	0	0	0	0	291
Whites Creek	FY19	76,118	0	0	0	0	0	76,118

Based on average annual rainfall conditions

1 – Accounts for all control measures implemented in watershed thru end of FY

2 – Based on control measures implemented during the fiscal year

Watershed	Year	Pollutant: E. coli Load Removal by MWS Control Measure Implementation during Fiscal Year (most probable number to 10e9)						
		By LID Ordinance / SCMs [1]	By Construction Sites Inspected [2]	By Illicit Discharge Program [2]	By Street Sweeping [2]	By Home Buyout Program [1]	By Trees Planted [1]	**Total Pollutant Load Removed from Watershed** (MPN e9)
All Watersheds	**FY19**	**423,908**	**0**	**208**	**109,609**	**<0.01**	**0**	**533,725**
Back Creek	FY19	0	0	0	0	0	0	0
Browns Creek	FY19	14,840	0	19	4,494	<0.01	0	19,353
Bull Run Creek	FY19	0	0	0	0	0	0	0
Cooper Creek	FY19	13,133	0	0	1,315	<0.01	0	14,448
Cub Creek	FY19	0	0	0	0	0	0	0
Cumberland River	FY19	228,588	0	38	25,100	<0.01	0	253,726
Davidson Branch	FY19	494	0	0	329	0	0	823
Dry Creek	FY19	502	0	0	1,425	<0.01	0	1,926
Ewing Creek	FY19	2,437	0	0	3,836	<0.01	0	6,273
Gibson Creek	FY19	1,137	0	19	1,425	<0.01	0	2,581
Gizzard Branch	FY19	537	0	0	329	0	0	866
Harpeth River	FY19	56,180	0	0	7,125	<0.01	0	63,304
Indian Creek	FY19	0	0	0	0	0	0	0
Island Creek	FY19	0	0	0	0	0	0	0
Little Harpeth River	FY19	763	0	19	438	0	0	1,221
Loves Branch	FY19	182	0	19	438	<0.01	0	640
Mansker Creek	FY19	299	0	0	0	0	0	299
Marrowbone Creek	FY19	56	0	0	0	0	0	56
Mill Creek Lower	FY19	6,524	0	38	13,920	<0.01	0	20,482
Mill Creek Upper	FY19	6,252	0	0	4,165	0	0	10,417
Overall Creek	FY19	1,409	0	0	219	<0.01	0	1,628
Pages Branch	FY19	431	0	0	1,644	<0.01	0	2,075
Percy Priest Lake, Lower	FY19	5,273	0	0	8,878	<0.01	0	14,151
Percy Priest Lake, Upper	FY19	2,575	0	19	1,206	0	0	3,799
Pond Creek	FY19	0	0	0	0	0	0	0
Richland Creek	FY19	23,147	0	19	7,673	<0.01	0	30,839
Sandy Creek	FY19	210	0	0	438	0	0	649
Sevenmile Creek	FY19	5,478	0	0	8,221	<0.01	0	13,699
South Harpeth River, Lower	FY19	217	0	0	329	0	0	546
Stoner Creek	FY19	7,022	0	0	6,577	<0.01	0	13,598
Stones River	FY19	1,055	0	19	4,275	0	0	5,349
Sugartree Creek	FY19	34,920	0	0	1,863	<0.01	0	36,783
Sulpher Creek	FY19	57	0	0	0	0	0	57
Sycamore Creek	FY19	108	0	0	0	0	0	108
Whites Creek	FY19	10,084	0	0	3,946	<0.01	0	14,030

Based on average annual rainfall conditions

1 – Accounts for all control measures implemented in watershed thru end of FY

2 – Based on control measures implemented during the fiscal year

Watershed	Year	Parameter: Runoff							
		Baseline Pollutant Load (ac-ft)	Load Removal by MWS Control Measure Implementation during Fiscal Year (acre-foot)						Net Pollutant Load from Watershed (ac-ft)
			By LID Ordinance / SCMs [1]	By Construction Sites Inspected [2]	By Illicit Discharge Program [2]	By Street Sweeping [2]	By Home Buyout Program [1]	By Trees Planted [1]	
All Watersheds	**FY19**	**284,706**	**30,557**	**0**	**0**	**0**	**126**	**0**	**254,023**
Back Creek	FY19	131	0	0	0	0	0	0	131
Browns Creek	FY19	13,607	1,720	0	0	0	8.97	0.18	11,877
Bull Run Creek	FY19	505	0	0	0	0	0	0	505
Cooper Creek	FY19	3,283	136	0	0	0	5.56	0.01	3,141
Cub Creek	FY19	140	0	0	0	0	0	0	140
Cumberland River	FY19	53,388	18,706	0	0	0	24	1.11	34,657
Davidson Branch	FY19	2,182	36	0	0	0	0	<0.01	2,146
Dry Creek	FY19	5,197	52	0	0	0	1.04	0.02	5,145
Ewing Creek	FY19	11,412	300	0	0	0	6.94	0.04	11,106
Gibson Creek	FY19	5,570	76	0	0	0	14	0.08	5,481
Gizzard Branch	FY19	2,043	68	0	0	0	0	0.01	1,975
Harpeth River	FY19	12,782	779	0	0	0	0.74	0.01	12,002
Indian Creek	FY19	337	0	0	0	0	0	0	337
Island Creek	FY19	188	0	0	0	0	0	0	188
Little Harpeth River	FY19	2,264	48	0	0	0	0	0.03	2,215
Loves Branch	FY19	2,459	24	0	0	0	0.24	0	2,434
Mansker Creek	FY19	3,931	39	0	0	0	0	<0.01	3,892
Marrowbone Creek	FY19	2,623	13	0	0	0	0	<0.01	2,610
Mill Creek Lower	FY19	38,375	636	0	0	0	13	0.08	37,726
Mill Creek Upper	FY19	12,760	277	0	0	0	1.69	0.16	12,481
Overall Creek	FY19	2,842	51	0	0	0	0.25	0.01	2,791
Pages Branch	FY19	4,326	84	0	0	0	1.69	0.05	4,240
Percy Priest Lake, Lower	FY19	12,748	164	0	0	0	1.33	0.06	12,582
Percy Priest Lake, Upper	FY19	11,039	112	0	0	0	0	0.03	10,927
Pond Creek	FY19	230	0	0	0	0	0	0	230
Richland Creek	FY19	16,034	3,629	0	0	0	16	0.22	12,388
Sandy Creek	FY19	1,007	11	0	0	0	0	0	996
Sevenmile Creek	FY19	15,697	266	0	0	0	7.72	0.06	15,423
South Harpeth River, Lower	FY19	1,381	4.82	0	0	0	0	0	1,376
Stoner Creek	FY19	10,165	1,039	0	0	0	2.18	0.01	9,124
Stones River	FY19	11,744	109	0	0	0	0	0.05	11,635
Sugartree Creek	FY19	3,795	387	0	0	0	0.25	0.01	3,408
Sulpher Creek	FY19	818	9.16	0	0	0	0	<0.01	809
Sycamore Creek	FY19	4,704	13	0	0	0	0	0	4,692
Whites Creek	FY19	15,001	1,770	0	0	0	20	0.04	13,211

Based on average annual rainfall conditions

1 – Accounts for load removal by all control measures implemented in watershed thru end of FY

2 – Based on control measures implemented during the fiscal year

Watershed	Year	Pollutant: BOD5							
		Baseline Pollutant Load (lbs)	Load Removal by MWS Control Measure Implementation during Fiscal Year (pounds)						Net Pollutant Load from Watershed (lbs)
			By LID Ordinance / SCMs [1]	By Construction Sites Inspected [2]	By Illicit Discharge Program [2]	By Street Sweeping [2]	By Home Buyout Program [1]	By Trees Planted [1]	
All Watersheds	**FY19**	**3,365,843**	**222,524**	**0**	**1.01**	**52,289**	**318**	**0**	**3,090,710**
Back Creek	FY19	1,293	0	0	0	0	0	0	1,293
Browns Creek	FY19	142,590	15,306	0	0.09	2,144	12	0	125,129
Bull Run Creek	FY19	4,408	0	0	0	0	0	0	4,408
Cooper Creek	FY19	39,037	1,786	0	0	627	14	0	36,610
Cub Creek	FY19	1,491	0	0	0	0	0	0	1,491
Cumberland River	FY19	651,600	131,266	0	0.18	11,974	53	0	508,306
Davidson Branch	FY19	25,305	298	0	0	157	0	0	24,850
Dry Creek	FY19	60,122	549	0	0	680	2.06	0	58,890
Ewing Creek	FY19	130,727	4,589	0	0	1,830	9.11	0	124,300
Gibson Creek	FY19	76,375	418	0	0.09	680	18	0	75,260
Gizzard Branch	FY19	32,417	410	0	0	157	0	0	31,850
Harpeth River	FY19	150,528	8,147	0	0	3,399	5.22	0	138,977
Indian Creek	FY19	3,605	0	0	0	0	0	0	3,605
Island Creek	FY19	1,343	0	0	0	0	0	0	1,343
Little Harpeth River	FY19	26,832	293	0	0.09	209	0	0	26,330
Loves Branch	FY19	26,450	172	0	0.09	209	0.86	0	26,068
Mansker Creek	FY19	39,543	396	0	0	0	0	0	39,147
Marrowbone Creek	FY19	27,604	48	0	0	0	0	0	27,555
Mill Creek Lower	FY19	447,524	5,415	0	0.18	6,641	32	0	435,436
Mill Creek Upper	FY19	157,399	2,035	0	0	1,987	42	0	153,335
Overall Creek	FY19	33,904	350	0	0	105	0.85	0	33,448
Pages Branch	FY19	55,160	711	0	0	784	2.33	0	53,663
Percy Priest Lake, Lower	FY19	137,647	1,185	0	0	4,235	0.75	0	132,226
Percy Priest Lake, Upper	FY19	112,085	919	0	0.09	575	0	0	110,590
Pond Creek	FY19	2,378	0	0	0	0	0	0	2,378
Richland Creek	FY19	195,492	21,162	0	0.09	3,660	12	0	170,658
Sandy Creek	FY19	11,834	117	0	0	209	0	0	11,508
Sevenmile Creek	FY19	193,817	1,736	0	0	3,922	20	0	188,140
South Harpeth River, Lower	FY19	12,638	50	0	0	157	0	0	12,431
Stoner Creek	FY19	130,775	9,315	0	0	3,137	2.39	0	118,320
Stones River	FY19	154,735	963	0	0.09	2,039	0	0	151,733
Sugartree Creek	FY19	55,085	4,659	0	0	889	0.35	0	49,537
Sulpher Creek	FY19	7,580	105	0	0	0	0	0	7,475
Sycamore Creek	FY19	49,394	56	0	0	0	0	0	49,339
Whites Creek	FY19	167,127	10,070	0	0	1,882	92	0	155,083

Based on average annual rainfall conditions

1 – Accounts for load removal by all control measures implemented in watershed thru end of FY

2 – Based on control measures implemented during the fiscal year

Watershed	Year	Pollutant: COD							
		Baseline Pollutant Load (lbs)	Load Removal by MWS Control Measure Implementation during Fiscal Year (pounds)						Net Pollutant Load from Watershed (lbs)
			By LID Ordinance / SCMs [1]	By Construction Sites Inspected [2]	By Illicit Discharge Program [2]	By Street Sweeping [2]	By Home Buyout Program [1]	By Trees Planted [1]	
All Watersheds	**FY19**	**29,153,728**	**1,853,743**	**0**	**2.66**	**0**	**589**	**0**	**27,299,393**
Back Creek	FY19	12,694	0	0	0	0	0	0	12,694
Browns Creek	FY19	1,286,068	178,659	0	0.24	0	0	0	1,107,409
Bull Run Creek	FY19	47,296	0	0	0	0	0	0	47,296
Cooper Creek	FY19	337,524	12,732	0	0	0	55	0	324,736
Cub Creek	FY19	14,516	0	0	0	0	0	0	14,516
Cumberland River	FY19	5,527,102	1,122,208	0	0.48	0	157	0	4,404,737
Davidson Branch	FY19	235,924	2,178	0	0	0	0	0	233,746
Dry Creek	FY19	510,948	4,250	0	0	0	0	0	506,697
Ewing Creek	FY19	1,149,102	35,814	0	0	0	0	0	1,113,288
Gibson Creek	FY19	630,146	3,302	0	0.24	0	18	0	626,826
Gizzard Branch	FY19	262,958	3,370	0	0	0	0	0	259,589
Harpeth River	FY19	1,310,798	58,484	0	0	0	0	0	1,252,314
Indian Creek	FY19	34,869	0	0	0	0	0	0	34,869
Island Creek	FY19	17,096	0	0	0	0	0	0	17,096
Little Harpeth River	FY19	259,481	2,358	0	0.24	0	0	0	257,123
Loves Branch	FY19	255,393	1,470	0	0.24	0	0	0	253,922
Mansker Creek	FY19	383,340	3,142	0	0	0	0	0	380,198
Marrowbone Creek	FY19	273,490	397	0	0	0	0	0	273,093
Mill Creek Lower	FY19	3,671,336	47,643	0	0.48	0	39	0	3,623,654
Mill Creek Upper	FY19	1,328,848	17,651	0	0	0	179	0	1,311,018
Overall Creek	FY19	291,595	2,526	0	0	0	0	0	289,069
Pages Branch	FY19	455,327	6,290	0	0	0	0	0	449,037
Percy Priest Lake, Lower	FY19	1,311,853	15,245	0	0	0	0	0	1,296,608
Percy Priest Lake, Upper	FY19	1,023,006	8,266	0	0.24	0	0	0	1,014,740
Pond Creek	FY19	22,268	0	0	0	0	0	0	22,268
Richland Creek	FY19	1,691,935	136,441	0	0.24	0	0	0	1,555,494
Sandy Creek	FY19	99,922	969	0	0	0	0	0	98,953
Sevenmile Creek	FY19	1,628,660	16,879	0	0	0	0	0	1,611,781
South Harpeth River, Lower	FY19	136,138	352	0	0	0	0	0	135,785
Stoner Creek	FY19	1,077,132	64,488	0	0	0	0	0	1,012,644
Stones River	FY19	1,314,092	7,910	0	0.24	0	0	0	1,306,182
Sugartree Creek	FY19	453,816	32,461	0	0	0	0	0	421,355
Sulpher Creek	FY19	79,589	751	0	0	0	0	0	78,837
Sycamore Creek	FY19	480,374	646	0	0	0	0	0	479,729
Whites Creek	FY19	1,539,093	66,861	0	0	0	141	0	1,472,091

Based on average annual rainfall conditions

1 – Accounts for load removal by all control measures implemented in watershed thru end of FY

2 – Based on control measures implemented during the fiscal year

Watershed	Year	Pollutant: NH3							
		Baseline Pollutant Load (lbs)	Load Removal by MWS Control Measure Implementation during Fiscal Year (pounds)						Net Pollutant Load from Watershed (lbs)
			By LID Ordinance / SCMs [1]	By Construction Sites Inspected [2]	By Illicit Discharge Program [2]	By Street Sweeping [2]	By Home Buyout Program [1]	By Trees Planted [1]	
All Watersheds	**FY19**	**94,772**	**6,700**	**0**	**0.04**	**0**	**3.52**	**0**	**88,068**
Back Creek	FY19	41	0	0	0	0	0	0	41
Browns Creek	FY19	4,576	731	0	<0.01	0	<0.01	0	3,845
Bull Run Creek	FY19	164	0	0	0	0	0	0	164
Cooper Creek	FY19	1,116	30	0	0	0	0.33	0	1,085
Cub Creek	FY19	45	0	0	0	0	0	0	45
Cumberland River	FY19	18,222	4,135	0	0.01	0	0.93	0	14,086
Davidson Branch	FY19	825	7.03	0	0	0	0	0	818
Dry Creek	FY19	1,688	15	0	0	0	<0.01	0	1,673
Ewing Creek	FY19	3,857	119	0	0	0	<0.01	0	3,738
Gibson Creek	FY19	2,004	14	0	<0.01	0	0.11	0	1,990
Gizzard Branch	FY19	877	14	0	0	0	0	0	863
Harpeth River	FY19	4,137	152	0	0	0	<0.01	0	3,985
Indian Creek	FY19	97	0	0	0	0	0	0	97
Island Creek	FY19	70	0	0	0	0	0	0	70
Little Harpeth River	FY19	780	9.55	0	<0.01	0	0	0	771
Loves Branch	FY19	831	5.48	0	<0.01	0	<0.01	0	826
Mansker Creek	FY19	1,235	12	0	0	0	0	0	1,223
Marrowbone Creek	FY19	751	1.99	0	0	0	0	0	749
Mill Creek Lower	FY19	12,479	195	0	0.01	0	0.23	0	12,283
Mill Creek Upper	FY19	4,077	71	0	0	0	1.06	0	4,004
Overall Creek	FY19	927	7.65	0	0	0	<0.01	0	919
Pages Branch	FY19	1,522	26	0	0	0	<0.01	0	1,496
Percy Priest Lake, Lower	FY19	3,690	36	0	0	0	<0.01	0	3,654
Percy Priest Lake, Upper	FY19	3,127	33	0	<0.01	0	0	0	3,094
Pond Creek	FY19	63	0	0	0	0	0	0	63
Richland Creek	FY19	5,709	450	0	<0.01	0	<0.01	0	5,258
Sandy Creek	FY19	324	3.31	0	0	0	0	0	321
Sevenmile Creek	FY19	5,159	49	0	0	0	<0.01	0	5,111
South Harpeth River, Lower	FY19	399	1.11	0	0	0	0	0	397
Stoner Creek	FY19	3,433	249	0	0	0	<0.01	0	3,184
Stones River	FY19	4,481	29	0	<0.01	0	0	0	4,452
Sugartree Creek	FY19	1,461	73	0	0	0	<0.01	0	1,388
Sulpher Creek	FY19	264	2.16	0	0	0	0	0	262
Sycamore Creek	FY19	1,405	3.22	0	0	0	0	0	1,401
Whites Creek	FY19	4,938	226	0	0	0	0.85	0	4,711

Based on average annual rainfall conditions

1 – Accounts for load removal by all control measures implemented in watershed thru end of FY

2 – Based on control measures implemented during the fiscal year

Watershed	Year	Pollutant: TKN							
		Baseline Pollutant Load (lbs)	Load Removal by MWS Control Measure Implementation during Fiscal Year (pounds)						Net Pollutant Load from Watershed (lbs)
			By LID Ordinance / SCMs [1]	By Construction Sites Inspected [2]	By Illicit Discharge Program [2]	By Street Sweeping [2]	By Home Buyout Program [1]	By Trees Planted [1]	
All Watersheds	**FY19**	**393,315**	**29,665**	**0**	**0.32**	**0**	**19**	**0**	**363,630**
Back Creek	FY19	163	0	0	0	0	0	0	163
Browns Creek	FY19	15,798	1,305	0	0.03	0	0.93	0	14,492
Bull Run Creek	FY19	513	0	0	0	0	0	0	513
Cooper Creek	FY19	4,404	263	0	0	0	0.5	0	4,140
Cub Creek	FY19	191	0	0	0	0	0	0	191
Cumberland River	FY19	74,572	18,292	0	0.06	0	2.55	0	56,277
Davidson Branch	FY19	2,648	31	0	0	0	0	0	2,618
Dry Creek	FY19	7,080	62	0	0	0	0.16	0	7,018
Ewing Creek	FY19	14,854	448	0	0	0	0.71	0	14,405
Gibson Creek	FY19	8,691	83	0	0.03	0	1.18	0	8,607
Gizzard Branch	FY19	3,384	68	0	0	0	0	0	3,317
Harpeth River	FY19	17,782	1,302	0	0	0	0.41	0	16,480
Indian Creek	FY19	512	0	0	0	0	0	0	512
Island Creek	FY19	115	0	0	0	0	0	0	115
Little Harpeth River	FY19	3,311	61	0	0.03	0	0	0	3,250
Loves Branch	FY19	3,090	19	0	0.03	0	0.07	0	3,071
Mansker Creek	FY19	4,934	58	0	0	0	0	0	4,875
Marrowbone Creek	FY19	3,950	12	0	0	0	0	0	3,938
Mill Creek Lower	FY19	51,585	921	0	0.06	0	2.1	0	50,662
Mill Creek Upper	FY19	19,201	395	0	0	0	1.51	0	18,804
Overall Creek	FY19	4,080	41	0	0	0	0.07	0	4,039
Pages Branch	FY19	6,182	99	0	0	0	0.18	0	6,082
Percy Priest Lake, Lower	FY19	18,477	258	0	0	0	0.06	0	18,219
Percy Priest Lake, Upper	FY19	15,057	175	0	0.03	0	0	0	14,881
Pond Creek	FY19	331	0	0	0	0	0	0	331
Richland Creek	FY19	21,498	2,169	0	0.03	0	0.93	0	19,328
Sandy Creek	FY19	1,384	15	0	0	0	0	0	1,369
Sevenmile Creek	FY19	22,689	304	0	0	0	1.54	0	22,384
South Harpeth River, Lower	FY19	1,753	8.14	0	0	0	0	0	1,745
Stoner Creek	FY19	14,988	1,387	0	0	0	0.19	0	13,601
Stones River	FY19	16,537	130	0	0.03	0	0	0	16,407
Sugartree Creek	FY19	6,011	698	0	0	0	0.03	0	5,313
Sulpher Creek	FY19	919	7.16	0	0	0	0	0	912
Sycamore Creek	FY19	6,647	15	0	0	0	0	0	6,632
Whites Creek	FY19	19,984	1,040	0	0	0	5.75	0	18,939

Based on average annual rainfall conditions

1 – Accounts for load removal by all control measures implemented in watershed thru end of FY

2 – Based on control measures implemented during the fiscal year

Watershed	Year	Pollutant: NO2+NO3							
		Baseline Pollutant Load (lbs)	Load Removal by MWS Control Measure Implementation during Fiscal Year (pounds)						Net Pollutant Load from Watershed (lbs)
			By LID Ordinance / SCMs [1]	By Construction Sites Inspected [2]	By Illicit Discharge Program [2]	By Street Sweeping [2]	By Home Buyout Program [1]	By Trees Planted [1]	
All Watersheds	**FY19**	**168,657**	**16,179**	**0**	**<0.01**	**0**	**1.29**	**0**	**152,477**
Back Creek	FY19	71	0	0	0	0	0	0	71
Browns Creek	FY19	7,881	922	0	<0.01	0	0	0	6,959
Bull Run Creek	FY19	257	0	0	0	0	0	0	257
Cooper Creek	FY19	1,848	90	0	0	0	0.12	0	1,758
Cub Creek	FY19	81	0	0	0	0	0	0	81
Cumberland River	FY19	32,395	9,658	0	<0.01	0	0.34	0	22,736
Davidson Branch	FY19	1,221	21	0	0	0	0	0	1,200
Dry Creek	FY19	3,097	29	0	0	0	0	0	3,068
Ewing Creek	FY19	6,577	203	0	0	0	0	0	6,373
Gibson Creek	FY19	3,404	27	0	<0.01	0	0.04	0	3,377
Gizzard Branch	FY19	1,374	29	0	0	0	0	0	1,344
Harpeth River	FY19	7,195	437	0	0	0	0	0	6,758
Indian Creek	FY19	202	0	0	0	0	0	0	202
Island Creek	FY19	86	0	0	0	0	0	0	86
Little Harpeth River	FY19	1,389	21	0	<0.01	0	0	0	1,368
Loves Branch	FY19	1,384	10	0	<0.01	0	0	0	1,373
Mansker Creek	FY19	2,231	20	0	0	0	0	0	2,210
Marrowbone Creek	FY19	1,582	3.37	0	0	0	0	0	1,578
Mill Creek Lower	FY19	23,052	262	0	<0.01	0	0.08	0	22,790
Mill Creek Upper	FY19	7,540	108	0	0	0	0.39	0	7,432
Overall Creek	FY19	1,672	25	0	0	0	0	0	1,647
Pages Branch	FY19	2,639	36	0	0	0	0	0	2,603
Percy Priest Lake, Lower	FY19	7,449	101	0	0	0	0	0	7,348
Percy Priest Lake, Upper	FY19	6,647	38	0	<0.01	0	0	0	6,609
Pond Creek	FY19	130	0	0	0	0	0	0	130
Richland Creek	FY19	9,429	1,998	0	<0.01	0	0	0	7,431
Sandy Creek	FY19	571	5.56	0	0	0	0	0	566
Sevenmile Creek	FY19	9,130	143	0	0	0	0	0	8,987
South Harpeth River, Lower	FY19	773	3.35	0	0	0	0	0	770
Stoner Creek	FY19	5,947	746	0	0	0	0	0	5,201
Stones River	FY19	7,267	56	0	<0.01	0	0	0	7,211
Sugartree Creek	FY19	2,346	245	0	0	0	0	0	2,101
Sulpher Creek	FY19	441	5.77	0	0	0	0	0	435
Sycamore Creek	FY19	2,717	2.52	0	0	0	0	0	2,715
Whites Creek	FY19	8,634	931	0	0	0	0.31	0	7,702

Based on average annual rainfall conditions

1 – Accounts for load removal by all control measures implemented in watershed thru end of FY

2 – Based on control measures implemented during the fiscal year

Watershed	Year	Pollutant: TN							
		Baseline Pollutant Load (lbs)	Load Removal by MWS Control Measure Implementation during Fiscal Year (pounds)						Net Pollutant Load from Watershed (lbs)
			By LID Ordinance / SCMs [1]	By Construction Sites Inspected [2]	By Illicit Discharge Program [2]	By Street Sweeping [2]	By Home Buyout Program [1]	By Trees Planted [1]	
All Watersheds	**FY19**	**548,641**	**38,765**	**0**	**0.23**	**0.02**	**24**	**0**	**509,851**
Back Creek	FY19	228	0	0	0	0	0	0	228
Browns Creek	FY19	22,820	2,101	0	0.02	<0.01	1.1	0	20,717
Bull Run Creek	FY19	744	0	0	0	0	0	0	744
Cooper Creek	FY19	6,150	341	0	0	<0.01	0.78	0	5,808
Cub Creek	FY19	265	0	0	0	0	0	0	265
Cumberland River	FY19	104,355	23,757	0	0.04	<0.01	3.55	0	80,595
Davidson Branch	FY19	3,801	44	0	0	<0.01	0	0	3,757
Dry Creek	FY19	9,906	75	0	0	<0.01	0.19	0	9,831
Ewing Creek	FY19	20,922	584	0	0	<0.01	0.84	0	20,337
Gibson Creek	FY19	11,961	81	0	0.02	<0.01	1.45	0	11,879
Gizzard Branch	FY19	4,719	74	0	0	<0.01	0	0	4,645
Harpeth River	FY19	24,551	1,582	0	0	<0.01	0.48	0	22,969
Indian Creek	FY19	693	0	0	0	0	0	0	693
Island Creek	FY19	191	0	0	0	0	0	0	191
Little Harpeth River	FY19	4,576	64	0	0.02	<0.01	0	0	4,512
Loves Branch	FY19	4,356	22	0	0.02	<0.01	0.08	0	4,334
Mansker Creek	FY19	6,932	65	0	0	0	0	0	6,867
Marrowbone Creek	FY19	5,355	11	0	0	0	0	0	5,345
Mill Creek Lower	FY19	72,547	886	0	0.04	<0.01	2.62	0	71,658
Mill Creek Upper	FY19	26,276	375	0	0	<0.01	2.4	0	25,899
Overall Creek	FY19	5,638	52	0	0	<0.01	0.08	0	5,586
Pages Branch	FY19	8,645	104	0	0	<0.01	0.21	0	8,541
Percy Priest Lake, Lower	FY19	25,150	309	0	0	<0.01	0.07	0	24,841
Percy Priest Lake, Upper	FY19	20,854	144	0	0.02	<0.01	0	0	20,710
Pond Creek	FY19	449	0	0	0	0	0	0	449
Richland Creek	FY19	30,296	3,234	0	0.02	<0.01	1.1	0	27,060
Sandy Creek	FY19	1,920	16	0	0	<0.01	0	0	1,903
Sevenmile Creek	FY19	31,287	361	0	0	<0.01	1.81	0	30,924
South Harpeth River, Lower	FY19	2,428	10	0	0	<0.01	0	0	2,418
Stoner Creek	FY19	20,653	1,928	0	0	<0.01	0.22	0	18,724
Stones River	FY19	23,357	148	0	0.02	<0.01	0	0	23,209
Sugartree Creek	FY19	8,298	892	0	0	<0.01	0.03	0	7,405
Sulpher Creek	FY19	1,313	11	0	0	0	0	0	1,302
Sycamore Creek	FY19	9,102	10	0	0	0	0	0	9,092
Whites Creek	FY19	27,904	1,482	0	0	<0.01	7.27	0	26,414

Based on average annual rainfall conditions

1 – Accounts for load removal by all control measures implemented in watershed thru end of FY

2 – Based on control measures implemented during the fiscal year

Watershed	Year	Pollutant: Diss P							
		Baseline Pollutant Load (lbs)	Load Removal by MWS Control Measure Implementation during Fiscal Year (pounds)						Net Pollutant Load from Watershed (lbs)
			By LID Ordinance / SCMs [1]	By Construction Sites Inspected [2]	By Illicit Discharge Program [2]	By Street Sweeping [2]	By Home Buyout Program [1]	By Trees Planted [1]	
All Watersheds	**FY19**	**196,677**	**10,078**	**0**	**0**	**0**	**18**	**0**	**186,581**
Back Creek	FY19	117	0	0	0	0	0	0	117
Browns Creek	FY19	5,776	492	0	0	0	1.18	0	5,282
Bull Run Creek	FY19	337	0	0	0	0	0	0	337
Cooper Creek	FY19	2,449	205	0	0	0	0.04	0	2,244
Cub Creek	FY19	128	0	0	0	0	0	0	128
Cumberland River	FY19	33,030	5,752	0	0	0	1.56	0	27,276
Davidson Branch	FY19	1,237	11	0	0	0	0	0	1,227
Dry Creek	FY19	3,358	13	0	0	0	0.2	0	3,345
Ewing Creek	FY19	7,326	70	0	0	0	0.89	0	7,256
Gibson Creek	FY19	4,380	18	0	0	0	1.3	0	4,361
Gizzard Branch	FY19	1,069	14	0	0	0	0	0	1,055
Harpeth River	FY19	11,061	874	0	0	0	0.51	0	10,186
Indian Creek	FY19	367	0	0	0	0	0	0	367
Island Creek	FY19	52	0	0	0	0	0	0	52
Little Harpeth River	FY19	1,682	12	0	0	0	0	0	1,669
Loves Branch	FY19	1,630	3.74	0	0	0	0.09	0	1,626
Mansker Creek	FY19	2,818	8.11	0	0	0	0	0	2,810
Marrowbone Creek	FY19	2,679	0.99	0	0	0	0	0	2,678
Mill Creek Lower	FY19	22,105	116	0	0	0	2.25	0	21,987
Mill Creek Upper	FY19	11,392	84	0	0	0	0	0	11,309
Overall Creek	FY19	2,284	21	0	0	0	0.08	0	2,263
Pages Branch	FY19	2,725	13	0	0	0	0.23	0	2,711
Percy Priest Lake, Lower	FY19	12,105	135	0	0	0	0.07	0	11,970
Percy Priest Lake, Upper	FY19	8,005	23	0	0	0	0	0	7,982
Pond Creek	FY19	247	0	0	0	0	0	0	247
Richland Creek	FY19	9,873	820	0	0	0	1.17	0	9,053
Sandy Creek	FY19	810	2.43	0	0	0	0	0	807
Sevenmile Creek	FY19	12,804	123	0	0	0	1.95	0	12,679
South Harpeth River, Lower	FY19	1,202	3.48	0	0	0	0	0	1,199
Stoner Creek	FY19	8,403	327	0	0	0	0.24	0	8,076
Stones River	FY19	6,077	25	0	0	0	0	0	6,052
Sugartree Creek	FY19	2,895	544	0	0	0	0.03	0	2,351
Sulpher Creek	FY19	557	1.87	0	0	0	0	0	555
Sycamore Creek	FY19	4,481	1.44	0	0	0	0	0	4,480
Whites Creek	FY19	11,216	364	0	0	0	5.75	0	10,847

Based on average annual rainfall conditions

1 – Accounts for load removal by all control measures implemented in watershed thru end of FY

2 – Based on control measures implemented during the fiscal year

Watershed	Year	Pollutant: TP							
		Baseline Pollutant Load (lbs)	Load Removal by MWS Control Measure Implementation during Fiscal Year (pounds)						Net Pollutant Load from Watershed (lbs)
			By LID Ordinance / SCMs [1]	By Construction Sites Inspected [2]	By Illicit Discharge Program [2]	By Street Sweeping [2]	By Home Buyout Program [1]	By Trees Planted [1]	
All Watersheds	**FY19**	**310,876**	**16,517**	**0**	**0.04**	**0.01**	**18**	**0**	**294,340**
Back Creek	FY19	173	0	0	0	0	0	0	173
Browns Creek	FY19	9,860	938	0	<0.01	<0.01	1.2	0	8,921
Bull Run Creek	FY19	518	0	0	0	0	0	0	518
Cooper Creek	FY19	3,793	286	0	0	<0.01	0.04	0	3,506
Cub Creek	FY19	193	0	0	0	0	0	0	193
Cumberland River	FY19	53,633	9,656	0	0.01	<0.01	1.59	0	43,976
Davidson Branch	FY19	2,059	18	0	0	<0.01	0	0	2,041
Dry Creek	FY19	5,298	27	0	0	<0.01	0.21	0	5,271
Ewing Creek	FY19	11,636	188	0	0	<0.01	0.91	0	11,448
Gibson Creek	FY19	6,941	31	0	<0.01	<0.01	1.32	0	6,910
Gizzard Branch	FY19	1,972	24	0	0	<0.01	0	0	1,948
Harpeth River	FY19	16,748	1,234	0	0	<0.01	0.52	0	15,513
Indian Creek	FY19	544	0	0	0	0	0	0	544
Island Creek	FY19	95	0	0	0	0	0	0	95
Little Harpeth River	FY19	2,770	22	0	<0.01	<0.01	0	0	2,748
Loves Branch	FY19	2,627	8.81	0	<0.01	<0.01	0.09	0	2,618
Mansker Creek	FY19	4,374	18	0	0	0	0	0	4,356
Marrowbone Creek	FY19	4,041	2.42	0	0	0	0	0	4,039
Mill Creek Lower	FY19	35,224	272	0	0.01	<0.01	2.3	0	34,949
Mill Creek Upper	FY19	17,277	155	0	0	<0.01	0	0	17,122
Overall Creek	FY19	3,502	32	0	0	<0.01	0.08	0	3,470
Pages Branch	FY19	4,403	32	0	0	<0.01	0.23	0	4,370
Percy Priest Lake, Lower	FY19	18,434	224	0	0	<0.01	0.07	0	18,209
Percy Priest Lake, Upper	FY19	12,328	58	0	<0.01	<0.01	0	0	12,270
Pond Creek	FY19	360	0	0	0	0	0	0	360
Richland Creek	FY19	16,063	1,218	0	<0.01	<0.01	1.19	0	14,843
Sandy Creek	FY19	1,225	6.28	0	0	<0.01	0	0	1,219
Sevenmile Creek	FY19	19,662	203	0	0	<0.01	1.99	0	19,457
South Harpeth River, Lower	FY19	1,835	5.16	0	0	<0.01	0	0	1,829
Stoner Creek	FY19	12,914	481	0	0	<0.01	0.24	0	12,433
Stones River	FY19	10,569	51	0	<0.01	<0.01	0	0	10,518
Sugartree Creek	FY19	4,689	759	0	0	<0.01	0.03	0	3,930
Sulpher Creek	FY19	870	4.59	0	0	0	0	0	865
Sycamore Creek	FY19	6,751	3.84	0	0	0	0	0	6,747
Whites Creek	FY19	17,496	560	0	0	<0.01	5.83	0	16,930

Based on average annual rainfall conditions

1 – Accounts for load removal by all control measures implemented in watershed thru end of FY

2 – Based on control measures implemented during the fiscal year

Watershed	Year	Pollutant: Pb							
		Baseline Pollutant Load (lbs)	Load Removal by MWS Control Measure Implementation during Fiscal Year (pounds)						Net Pollutant Load from Watershed (lbs)
			By LID Ordinance / SCMs [1]	By Construction Sites Inspected [2]	By Illicit Discharge Program [2]	By Street Sweeping [2]	By Home Buyout Program [1]	By Trees Planted [1]	
All Watersheds	**FY19**	**1,726**	**102**	**0**	**<0.01**	**434**	**29**	**0**	**1,160**
Back Creek	FY19	7.38	0	0	0	0	0	0	7.38
Browns Creek	FY19	75	7.84	0	<0.01	18	0	0	49
Bull Run Creek	FY19	8.72	0	0	0	0	0	0	8.72
Cooper Creek	FY19	21	0.43	0	0	5.21	2.76	0	13
Cub Creek	FY19	7.44	0	0	0	0	0	0	7.44
Cumberland River	FY19	318	63	0	<0.01	99	7.83	0	148
Davidson Branch	FY19	17	0.13	0	0	1.3	0	0	16
Dry Creek	FY19	29	0.23	0	0	5.65	0	0	24
Ewing Creek	FY19	63	1.7	0	0	15	0	0	46
Gibson Creek	FY19	33	0.22	0	<0.01	5.65	0.92	0	26
Gizzard Branch	FY19	15	0.21	0	0	1.3	0	0	14
Harpeth River	FY19	82	2.28	0	0	28	0	0	52
Indian Creek	FY19	8.1	0	0	0	0	0	0	8.1
Island Creek	FY19	7.64	0	0	0	0	0	0	7.64
Little Harpeth River	FY19	18	0.15	0	<0.01	1.74	0	0	16
Loves Branch	FY19	15	0.09	0	<0.01	1.74	0	0	13
Mansker Creek	FY19	18	0.17	0	0	0	0	0	18
Marrowbone Creek	FY19	13	0.04	0	0	0	0	0	13
Mill Creek Lower	FY19	207	2.61	0	<0.01	55	1.94	0	147
Mill Creek Upper	FY19	68	1.01	0	0	17	8.94	0	42
Overall Creek	FY19	19	0.15	0	0	0.87	0	0	18
Pages Branch	FY19	31	0.35	0	0	6.51	0	0	24
Percy Priest Lake, Lower	FY19	84	0.6	0	0	35	0	0	49
Percy Priest Lake, Upper	FY19	48	0.46	0	<0.01	4.78	0	0	42
Pond Creek	FY19	7.68	0	0	0	0	0	0	7.68
Richland Creek	FY19	103	10	0	<0.01	30	0	0	62
Sandy Creek	FY19	12	0.05	0	0	1.74	0	0	11
Sevenmile Creek	FY19	96	0.85	0	0	33	0	0	62
South Harpeth River, Lower	FY19	13	0.02	0	0	1.3	0	0	12
Stoner Creek	FY19	69	3.64	0	0	26	0	0	39
Stones River	FY19	72	0.43	0	<0.01	17	0	0	55
Sugartree Creek	FY19	31	1.13	0	0	7.38	0	0	22
Sulpher Creek	FY19	9.92	0.04	0	0	0	0	0	9.88
Sycamore Creek	FY19	21	0.04	0	0	0	0	0	21
Whites Creek	FY19	77	4.94	0	0	16	7.06	0	49

Based on average annual rainfall conditions

1 – Accounts for load removal by all control measures implemented in watershed thru end of FY

2 – Based on control measures implemented during the fiscal year

Watershed	Year	Pollutant: Ni							
		Baseline Pollutant Load (lbs)	Load Removal by MWS Control Measure Implementation during Fiscal Year (pounds)						Net Pollutant Load from Watershed (lbs)
			By LID Ordinance / SCMs [1]	By Construction Sites Inspected [2]	By Illicit Discharge Program [2]	By Street Sweeping [2]	By Home Buyout Program [1]	By Trees Planted [1]	
All Watersheds	**FY19**	**1,758**	**173**	**0**	**<0.01**	**277**	**0**	**0**	**1,307**
Back Creek	FY19	8.88	0	0	0	0	0	0	8.88
Browns Creek	FY19	91	6.03	0	<0.01	11	0	0	74
Bull Run Creek	FY19	9.99	0	0	0	0	0	0	9.99
Cooper Creek	FY19	18	0.27	0	0	3.33	0	0	14
Cub Creek	FY19	9.01	0	0	0	0	0	0	9.01
Cumberland River	FY19	336	103	0	<0.01	64	0	0	169
Davidson Branch	FY19	17	0.23	0	0	0.83	0	0	16
Dry Creek	FY19	33	0.34	0	0	3.61	0	0	29
Ewing Creek	FY19	62	2.27	0	0	9.71	0	0	50
Gibson Creek	FY19	29	0.42	0	<0.01	3.61	0	0	25
Gizzard Branch	FY19	17	0.41	0	0	0.83	0	0	16
Harpeth River	FY19	62	2.3	0	0	18	0	0	42
Indian Creek	FY19	9.76	0	0	0	0	0	0	9.76
Island Creek	FY19	9.15	0	0	0	0	0	0	9.15
Little Harpeth River	FY19	22	0.33	0	<0.01	1.11	0	0	21
Loves Branch	FY19	16	0.11	0	<0.01	1.11	0	0	15
Mansker Creek	FY19	21	0.29	0	0	0	0	0	21
Marrowbone Creek	FY19	16	0.07	0	0	0	0	0	16
Mill Creek Lower	FY19	232	3.78	0	<0.01	35	0	0	193
Mill Creek Upper	FY19	58	1.49	0	0	11	0	0	46
Overall Creek	FY19	19	0.24	0	0	0.55	0	0	19
Pages Branch	FY19	33	0.48	0	0	4.16	0	0	28
Percy Priest Lake, Lower	FY19	81	1.55	0	0	22	0	0	57
Percy Priest Lake, Upper	FY19	68	0.54	0	<0.01	3.05	0	0	65
Pond Creek	FY19	9.17	0	0	0	0	0	0	9.17
Richland Creek	FY19	97	24	0	<0.01	19	0	0	54
Sandy Creek	FY19	13	0.06	0	0	1.11	0	0	12
Sevenmile Creek	FY19	78	1.99	0	0	21	0	0	55
South Harpeth River, Lower	FY19	15	0.03	0	0	0.83	0	0	14
Stoner Creek	FY19	53	10	0	0	17	0	0	26
Stones River	FY19	77	0.7	0	<0.01	11	0	0	66
Sugartree Creek	FY19	27	0.85	0	0	4.71	0	0	22
Sulpher Creek	FY19	12	0.06	0	0	0	0	0	12
Sycamore Creek	FY19	22	0.05	0	0	0	0	0	22
Whites Creek	FY19	74	11	0	0	9.98	0	0	53

Based on average annual rainfall conditions

1 – Accounts for load removal by all control measures implemented in watershed thru end of FY

2 – Based on control measures implemented during the fiscal year

Watershed	Year	Pollutant: Zn							
		Baseline Pollutant Load (lbs)	Load Removal by MWS Control Measure Implementation during Fiscal Year (pounds)						Net Pollutant Load from Watershed (lbs)
			By LID Ordinance / SCMs [1]	By Construction Sites Inspected [2]	By Illicit Discharge Program [2]	By Street Sweeping [2]	By Home Buyout Program [1]	By Trees Planted [1]	
All Watersheds	**FY19**	**37,147**	**2,338**	**0**	**<0.01**	**1,194**	**3,062**	**0**	**30,553**
Back Creek	FY19	253	0	0	0	0	0	0	253
Browns Creek	FY19	1,484	140	0	<0.01	49	82	0	1,212
Bull Run Creek	FY19	278	0	0	0	0	0	0	278
Cooper Creek	FY19	479	13	0	0	14	176	0	276
Cub Creek	FY19	255	0	0	0	0	0	0	255
Cumberland River	FY19	6,309	1,409	0	<0.01	273	596	0	4,030
Davidson Branch	FY19	479	3.05	0	0	3.58	0	0	472
Dry Creek	FY19	681	7.37	0	0	16	14	0	644
Ewing Creek	FY19	1,325	57	0	0	42	63	0	1,163
Gibson Creek	FY19	847	5.56	0	<0.01	16	147	0	679
Gizzard Branch	FY19	471	4.82	0	0	3.58	0	0	462
Harpeth River	FY19	1,546	68	0	0	78	36	0	1,365
Indian Creek	FY19	270	0	0	0	0	0	0	270
Island Creek	FY19	255	0	0	0	0	0	0	255
Little Harpeth River	FY19	492	3.53	0	<0.01	4.77	0	0	484
Loves Branch	FY19	367	2.27	0	<0.01	4.77	5.82	0	354
Mansker Creek	FY19	463	5.04	0	0	0	0	0	458
Marrowbone Creek	FY19	348	1	0	0	0	0	0	347
Mill Creek Lower	FY19	4,291	85	0	<0.01	152	275	0	3,779
Mill Creek Upper	FY19	1,496	32	0	0	45	559	0	860
Overall Creek	FY19	537	3.63	0	0	2.39	5.85	0	525
Pages Branch	FY19	766	11	0	0	18	16	0	722
Percy Priest Lake, Lower	FY19	1,290	12	0	0	97	5.88	0	1,176
Percy Priest Lake, Upper	FY19	1,073	17	0	<0.01	13	0	0	1,043
Pond Creek	FY19	261	0	0	0	0	0	0	261
Richland Creek	FY19	2,093	202	0	<0.01	84	83	0	1,725
Sandy Creek	FY19	346	1.45	0	0	4.77	0	0	340
Sevenmile Creek	FY19	1,868	18	0	0	90	134	0	1,627
South Harpeth River, Lower	FY19	341	0.42	0	0	3.58	0	0	337
Stoner Creek	FY19	1,320	81	0	0	72	16	0	1,152
Stones River	FY19	1,668	13	0	<0.01	47	0	0	1,608
Sugartree Creek	FY19	775	35	0	0	20	2.38	0	718
Sulpher Creek	FY19	305	1.32	0	0	0	0	0	303
Sycamore Creek	FY19	520	1.25	0	0	0	0	0	519
Whites Creek	FY19	1,594	105	0	0	43	846	0	600

Based on average annual rainfall conditions

1 – Accounts for load removal by all control measures implemented in watershed thru end of FY

2 – Based on control measures implemented during the fiscal year

Watershed	Year	Pollutant: Cr							
		Baseline Pollutant Load (lbs)	Load Removal by MWS Control Measure Implementation during Fiscal Year (pounds)						Net Pollutant Load from Watershed (lbs)
			By LID Ordinance / SCMs [1]	By Construction Sites Inspected [2]	By Illicit Discharge Program [2]	By Street Sweeping [2]	By Home Buyout Program [1]	By Trees Planted [1]	
All Watersheds	**FY19**	**1,719**	**85**	**0**	**<0.01**	**309**	**0**	**0**	**1,325**
Back Creek	FY19	6.66	0	0	0	0	0	0	6.66
Browns Creek	FY19	72	9.86	0	<0.01	13	0	0	49
Bull Run Creek	FY19	8.56	0	0	0	0	0	0	8.56
Cooper Creek	FY19	22	0.55	0	0	3.7	0	0	18
Cub Creek	FY19	6.73	0	0	0	0	0	0	6.73
Cumberland River	FY19	301	53	0	<0.01	71	0	0	177
Davidson Branch	FY19	18	0.1	0	0	0.93	0	0	17
Dry Creek	FY19	29	0.15	0	0	4.01	0	0	25
Ewing Creek	FY19	65	1.18	0	0	11	0	0	53
Gibson Creek	FY19	32	0.12	0	<0.01	4.01	0	0	28
Gizzard Branch	FY19	13	0.13	0	0	0.93	0	0	12
Harpeth River	FY19	86	2.37	0	0	20	0	0	64
Indian Creek	FY19	7.74	0	0	0	0	0	0	7.74
Island Creek	FY19	6.99	0	0	0	0	0	0	6.99
Little Harpeth River	FY19	19	0.08	0	<0.01	1.23	0	0	17
Loves Branch	FY19	16	0.06	0	<0.01	1.23	0	0	15
Mansker Creek	FY19	22	0.1	0	0	0	0	0	22
Marrowbone Creek	FY19	17	0.02	0	0	0	0	0	17
Mill Creek Lower	FY19	191	1.46	0	<0.01	39	0	0	151
Mill Creek Upper	FY19	72	0.58	0	0	12	0	0	60
Overall Creek	FY19	19	0.12	0	0	0.62	0	0	19
Pages Branch	FY19	29	0.2	0	0	4.63	0	0	24
Percy Priest Lake, Lower	FY19	92	0.77	0	0	25	0	0	66
Percy Priest Lake, Upper	FY19	53	0.24	0	<0.01	3.39	0	0	49
Pond Creek	FY19	7.12	0	0	0	0	0	0	7.12
Richland Creek	FY19	99	6.05	0	<0.01	22	0	0	72
Sandy Creek	FY19	12	0.04	0	0	1.23	0	0	10
Sevenmile Creek	FY19	96	0.77	0	0	23	0	0	72
South Harpeth River, Lower	FY19	14	0.01	0	0	0.93	0	0	13
Stoner Creek	FY19	67	2.17	0	0	19	0	0	47
Stones River	FY19	67	0.27	0	<0.01	12	0	0	55
Sugartree Creek	FY19	29	1.37	0	0	5.25	0	0	23
Sulpher Creek	FY19	10	0.03	0	0	0	0	0	10
Sycamore Creek	FY19	27	0.02	0	0	0	0	0	27
Whites Creek	FY19	85	2.87	0	0	11	0	0	71

Based on average annual rainfall conditions

1 – Accounts for load removal by all control measures implemented in watershed thru end of FY

2 – Based on control measures implemented during the fiscal year

Watershed	Year	Pollutant: Cu							
		Baseline Pollutant Load (lbs)	Load Removal by MWS Control Measure Implementation during Fiscal Year (pounds)						Net Pollutant Load from Watershed (lbs)
			By LID Ordinance / SCMs [1]	By Construction Sites Inspected [2]	By Illicit Discharge Program [2]	By Street Sweeping [2]	By Home Buyout Program [1]	By Trees Planted [1]	
All Watersheds	**FY19**	**5,265**	**245**	**0**	**<0.01**	**320**	**227**	**0**	**4,474**
Back Creek	FY19	28	0	0	0	0	0	0	28
Browns Creek	FY19	216	28	0	<0.01	13	1.67	0	173
Bull Run Creek	FY19	33	0	0	0	0	0	0	33
Cooper Creek	FY19	68	1.48	0	0	3.84	19	0	44
Cub Creek	FY19	29	0	0	0	0	0	0	29
Cumberland River	FY19	907	150	0	<0.01	73	56	0	628
Davidson Branch	FY19	64	0.33	0	0	0.96	0	0	63
Dry Creek	FY19	93	0.75	0	0	4.16	0.29	0	87
Ewing Creek	FY19	195	6.7	0	0	11	1.27	0	176
Gibson Creek	FY19	116	0.37	0	<0.01	4.16	8.14	0	103
Gizzard Branch	FY19	60	0.39	0	0	0.96	0	0	58
Harpeth River	FY19	235	6.43	0	0	21	0.73	0	207
Indian Creek	FY19	31	0	0	0	0	0	0	31
Island Creek	FY19	29	0	0	0	0	0	0	29
Little Harpeth River	FY19	65	0.23	0	<0.01	1.28	0	0	64
Loves Branch	FY19	53	0.25	0	<0.01	1.28	0.12	0	51
Mansker Creek	FY19	67	0.47	0	0	0	0	0	67
Marrowbone Creek	FY19	49	0.06	0	0	0	0	0	49
Mill Creek Lower	FY19	590	7.2	0	<0.01	41	16	0	526
Mill Creek Upper	FY19	216	2.45	0	0	12	61	0	140
Overall Creek	FY19	69	0.36	0	0	0.64	0.12	0	68
Pages Branch	FY19	101	1.01	0	0	4.79	0.32	0	95
Percy Priest Lake, Lower	FY19	210	1.47	0	0	26	0.1	0	182
Percy Priest Lake, Upper	FY19	149	1.31	0	<0.01	3.52	0	0	144
Pond Creek	FY19	30	0	0	0	0	0	0	30
Richland Creek	FY19	306	15	0	<0.01	22	1.66	0	267
Sandy Creek	FY19	42	0.17	0	0	1.28	0	0	41
Sevenmile Creek	FY19	276	1.75	0	0	24	2.75	0	248
South Harpeth River, Lower	FY19	45	0.03	0	0	0.96	0	0	44
Stoner Creek	FY19	194	5.84	0	0	19	0.33	0	168
Stones River	FY19	234	1.24	0	<0.01	12	0	0	221
Sugartree Creek	FY19	104	3.61	0	0	5.43	0.05	0	95
Sulpher Creek	FY19	38	0.16	0	0	0	0	0	37
Sycamore Creek	FY19	78	0.08	0	0	0	0	0	77
Whites Creek	FY19	245	7.8	0	0	12	57	0	169

Based on average annual rainfall conditions

1 – Accounts for load removal by all control measures implemented in watershed thru end of FY

2 – Based on control measures implemented during the fiscal year

Watershed	Year	Pollutant: O&G							
		Baseline Pollutant Load (lbs)	Load Removal by MWS Control Measure Implementation during Fiscal Year (pounds)						Net Pollutant Load from Watershed (lbs)
			By LID Ordinance / SCMs [1]	By Construction Sites Inspected [2]	By Illicit Discharge Program [2]	By Street Sweeping [2]	By Home Buyout Program [1]	By Trees Planted [1]	
All Watersheds	**FY19**	**1,119,438**	**79,791**	**0**	**0.4**	**7,074**	**0**	**0**	**1,032,572**
Back Creek	FY19	504	0	0	0	0	0	0	504
Browns Creek	FY19	57,016	9,204	0	0.04	290	0	0	47,522
Bull Run Creek	FY19	2,152	0	0	0	0	0	0	2,152
Cooper Creek	FY19	12,222	242	0	0	85	0	0	11,895
Cub Creek	FY19	580	0	0	0	0	0	0	580
Cumberland River	FY19	214,083	48,951	0	0.07	1,620	0	0	163,512
Davidson Branch	FY19	9,602	100	0	0	21	0	0	9,481
Dry Creek	FY19	19,550	155	0	0	92	0	0	19,303
Ewing Creek	FY19	44,919	1,304	0	0	248	0	0	43,368
Gibson Creek	FY19	21,120	100	0	0.04	92	0	0	20,928
Gizzard Branch	FY19	9,257	132	0	0	21	0	0	9,104
Harpeth River	FY19	46,960	1,092	0	0	460	0	0	45,408
Indian Creek	FY19	1,359	0	0	0	0	0	0	1,359
Island Creek	FY19	942	0	0	0	0	0	0	942
Little Harpeth River	FY19	11,134	84	0	0.04	28	0	0	11,021
Loves Branch	FY19	10,875	58	0	0.04	28	0	0	10,788
Mansker Creek	FY19	16,329	108	0	0	0	0	0	16,221
Marrowbone Creek	FY19	11,297	14	0	0	0	0	0	11,283
Mill Creek Lower	FY19	139,219	1,379	0	0.07	898	0	0	136,941
Mill Creek Upper	FY19	45,426	469	0	0	269	0	0	44,688
Overall Creek	FY19	10,362	100	0	0	14	0	0	10,248
Pages Branch	FY19	16,609	190	0	0	106	0	0	16,313
Percy Priest Lake, Lower	FY19	54,544	851	0	0	573	0	0	53,120
Percy Priest Lake, Upper	FY19	43,316	186	0	0.04	78	0	0	43,052
Pond Creek	FY19	812	0	0	0	0	0	0	812
Richland Creek	FY19	65,479	7,071	0	0.04	495	0	0	57,913
Sandy Creek	FY19	3,490	35	0	0	28	0	0	3,426
Sevenmile Creek	FY19	56,931	842	0	0	531	0	0	55,558
South Harpeth River, Lower	FY19	6,318	11	0	0	21	0	0	6,286
Stoner Creek	FY19	36,402	2,934	0	0	424	0	0	33,043
Stones River	FY19	50,875	274	0	0.04	276	0	0	50,326
Sugartree Creek	FY19	15,314	568	0	0	120	0	0	14,626
Sulpher Creek	FY19	3,624	32	0	0	0	0	0	3,592
Sycamore Creek	FY19	19,246	9.46	0	0	0	0	0	19,236
Whites Creek	FY19	61,568	3,296	0	0	255	0	0	58,018

Based on average annual rainfall conditions

1 – Accounts for load removal by all control measures implemented in watershed thru end of FY

2 – Based on control measures implemented during the fiscal year

Watershed	Year	Pollutant: TSS							
		Baseline Pollutant Load (lbs)	Load Removal by MWS Control Measure Implementation during Fiscal Year (pounds)						Net Pollutant Load from Watershed (lbs)
			By LID Ordinance / SCMs [1]	By Construction Sites Inspected [2]	By Illicit Discharge Program [2]	By Street Sweeping [2]	By Home Buyout Program [1]	By Trees Planted [1]	
All Watersheds	**FY19**	**15,318,218**	**897,469**	**16,511,994**	**45,984**	**1,800,120**	**92**	**0**	**0**
Back Creek	FY19	6,681	0	0	0	0	0	0	6,681
Browns Creek	FY19	685,462	107,738	685,805	2,225	73,805	0	0	0
Bull Run Creek	FY19	26,413	0	0	0	0	0	0	26,413
Cooper Creek	FY19	182,873	5,037	135,189	0	21,601	8.64	0	21,037
Cub Creek	FY19	7,410	0	0	0	0	0	0	7,410
Cumberland River	FY19	2,908,292	562,502	3,272,787	5,192	412,227	24	0	0
Davidson Branch	FY19	123,733	982	1,180,667	0	5,400	0	0	0
Dry Creek	FY19	254,941	2,006	163,908	4,450	23,402	0	0	61,176
Ewing Creek	FY19	608,354	15,678	1,631,715	2,225	63,004	0	0	0
Gibson Creek	FY19	303,440	1,550	108,828	0.1	23,402	2.87	0	169,657
Gizzard Branch	FY19	116,373	1,587	25,087	0	5,400	0	0	84,300
Harpeth River	FY19	749,378	23,629	211,714	742	117,008	0	0	396,286
Indian Creek	FY19	17,298	0	0	0	0	0	0	17,298
Island Creek	FY19	10,636	0	0	0	0	0	0	10,636
Little Harpeth River	FY19	132,750	992	44,023	742	7,200	0	0	79,793
Loves Branch	FY19	135,427	858	14,391	742	7,200	0	0	112,236
Mansker Creek	FY19	192,291	1,328	70,846	742	0	0	0	119,375
Marrowbone Creek	FY19	135,315	228	0	0	0	0	0	135,088
Mill Creek Lower	FY19	1,842,961	24,217	1,245,073	7,417	228,615	6.06	0	337,633
Mill Creek Upper	FY19	677,035	9,261	396,352	1,483	68,405	28	0	201,506
Overall Creek	FY19	138,374	1,179	49,978	0	3,600	0	0	83,617
Pages Branch	FY19	229,302	3,447	169,499	742	27,002	0	0	28,613
Percy Priest Lake, Lower	FY19	793,567	8,015	184,605	0	145,810	0	0	455,137
Percy Priest Lake, Upper	FY19	493,353	4,439	4,044,890	1,483	19,801	0	0	0
Pond Creek	FY19	11,047	0	0	0	0	0	0	11,047
Richland Creek	FY19	919,250	50,619	985,297	2,225	126,008	0	0	0
Sandy Creek	FY19	54,100	456	33,617	0	7,200	0	0	12,827
Sevenmile Creek	FY19	886,290	8,001	262,380	0	135,009	0	0	480,900
South Harpeth River, Lower	FY19	77,874	120	36,775	0	5,400	0	0	35,578
Stoner Creek	FY19	600,629	20,098	567,362	2,967	108,007	0	0	0
Stones River	FY19	662,527	3,696	569,684	1,483	70,205	0	0	17,459
Sugartree Creek	FY19	233,840	12,396	308,256	0	30,602	0	0	0
Sulpher Creek	FY19	42,711	352	0	4,450	0	0	0	37,910
Sycamore Creek	FY19	240,529	447	4,684	0	0	0	0	235,399
Whites Creek	FY19	817,760	26,612	108,583	6,675	64,804	22	0	611,063

Based on average annual rainfall conditions

1 – Accounts for load removal by all control measures implemented in watershed thru end of FY

2 – Based on control measures implemented during the fiscal year

Watershed	Year	Pollutant: TDS							
		Baseline Pollutant Load (lbs)	Load Removal by MWS Control Measure Implementation during Fiscal Year (pounds)						Net Pollutant Load from Watershed (lbs)
			By LID Ordinance / SCMs [1]	By Construction Sites Inspected [2]	By Illicit Discharge Program [2]	By Street Sweeping [2]	By Home Buyout Program [1]	By Trees Planted [1]	
All Watersheds	**FY19**	**58,235,262**	**3,216,394**	**0**	**0**	**0**	**0**	**0**	**55,018,868**
Back Creek	FY19	29,440	0	0	0	0	0	0	29,440
Browns Creek	FY19	2,578,468	343,878	0	0	0	0	0	2,234,590
Bull Run Creek	FY19	108,799	0	0	0	0	0	0	108,799
Cooper Creek	FY19	645,916	28,218	0	0	0	0	0	617,698
Cub Creek	FY19	33,568	0	0	0	0	0	0	33,568
Cumberland River	FY19	10,657,266	1,982,413	0	0	0	0	0	8,674,853
Davidson Branch	FY19	437,537	3,012	0	0	0	0	0	434,525
Dry Creek	FY19	1,016,606	4,256	0	0	0	0	0	1,012,351
Ewing Creek	FY19	2,259,557	35,924	0	0	0	0	0	2,223,633
Gibson Creek	FY19	1,122,809	4,250	0	0	0	0	0	1,118,559
Gizzard Branch	FY19	398,930	5,052	0	0	0	0	0	393,879
Harpeth River	FY19	2,679,383	119,525	0	0	0	0	0	2,559,857
Indian Creek	FY19	87,863	0	0	0	0	0	0	87,863
Island Creek	FY19	36,963	0	0	0	0	0	0	36,963
Little Harpeth River	FY19	568,627	4,525	0	0	0	0	0	564,102
Loves Branch	FY19	542,511	1,146	0	0	0	0	0	541,366
Mansker Creek	FY19	870,717	4,199	0	0	0	0	0	866,518
Marrowbone Creek	FY19	698,637	381	0	0	0	0	0	698,256
Mill Creek Lower	FY19	7,026,841	49,092	0	0	0	0	0	6,977,749
Mill Creek Upper	FY19	2,687,782	21,656	0	0	0	0	0	2,666,127
Overall Creek	FY19	582,611	3,042	0	0	0	0	0	579,569
Pages Branch	FY19	826,311	5,541	0	0	0	0	0	820,770
Percy Priest Lake, Lower	FY19	3,234,871	48,346	0	0	0	0	0	3,186,525
Percy Priest Lake, Upper	FY19	2,449,509	5,512	0	0	0	0	0	2,443,997
Pond Creek	FY19	54,598	0	0	0	0	0	0	54,598
Richland Creek	FY19	3,168,811	186,185	0	0	0	0	0	2,982,626
Sandy Creek	FY19	197,201	953	0	0	0	0	0	196,249
Sevenmile Creek	FY19	3,181,362	40,350	0	0	0	0	0	3,141,012
South Harpeth River, Lower	FY19	358,824	842	0	0	0	0	0	357,982
Stoner Creek	FY19	2,025,249	162,341	0	0	0	0	0	1,862,907
Stones River	FY19	2,287,846	9,040	0	0	0	0	0	2,278,806
Sugartree Creek	FY19	771,453	69,821	0	0	0	0	0	701,632
Sulpher Creek	FY19	185,090	485	0	0	0	0	0	184,606
Sycamore Creek	FY19	1,154,903	291	0	0	0	0	0	1,154,612
Whites Creek	FY19	3,268,401	76,118	0	0	0	0	0	3,192,283

Based on average annual rainfall conditions

1 – Accounts for load removal by all control measures implemented in watershed thru end of FY

2 – Based on control measures implemented during the fiscal year

Watershed	Year	Pollutant: E. coli							
		Baseline Pollutant Load (MPN e9)	Load Removal by MWS Control Measure Implementation during Fiscal Year (most probable number to 10e9)						Net Pollutant Load from Watershed (MPN e9)
			By LID Ordinance / SCMs [1]	By Construction Sites Inspected [2]	By Illicit Discharge Program [2]	By Street Sweeping [2]	By Home Buyout Program [1]	By Trees Planted [1]	
All Watersheds	**FY19**	**10,328,134**	**423,908**	**0**	**208**	**109,609**	**<0.01**	**0**	**9,794,409**
Back Creek	FY19	6,485	0	0	0	0	0	0	6,485
Browns Creek	FY19	229,509	14,840	0	19	4,494	<0.01	0	210,156
Bull Run Creek	FY19	17,105	0	0	0	0	0	0	17,105
Cooper Creek	FY19	139,389	13,133	0	0	1,315	<0.01	0	124,940
Cub Creek	FY19	6,929	0	0	0	0	0	0	6,929
Cumberland River	FY19	1,663,255	228,588	0	38	25,100	<0.01	0	1,409,530
Davidson Branch	FY19	62,586	494	0	0	329	0	0	61,763
Dry Creek	FY19	173,111	502	0	0	1,425	<0.01	0	171,184
Ewing Creek	FY19	382,840	2,437	0	0	3,836	<0.01	0	376,567
Gibson Creek	FY19	249,501	1,137	0	19	1,425	<0.01	0	246,920
Gizzard Branch	FY19	52,052	537	0	0	329	0	0	51,186
Harpeth River	FY19	641,228	56,180	0	0	7,125	<0.01	0	577,924
Indian Creek	FY19	20,068	0	0	0	0	0	0	20,068
Island Creek	FY19	1,283	0	0	0	0	0	0	1,283
Little Harpeth River	FY19	78,226	763	0	19	438	0	0	77,005
Loves Branch	FY19	79,910	182	0	19	438	<0.01	0	79,270
Mansker Creek	FY19	140,672	299	0	0	0	0	0	140,374
Marrowbone Creek	FY19	139,981	56	0	0	0	0	0	139,925
Mill Creek Lower	FY19	1,119,727	6,524	0	38	13,920	<0.01	0	1,099,245
Mill Creek Upper	FY19	655,688	6,252	0	0	4,165	0	0	645,271
Overall Creek	FY19	127,569	1,409	0	0	219	<0.01	0	125,941
Pages Branch	FY19	144,267	431	0	0	1,644	<0.01	0	142,193
Percy Priest Lake, Lower	FY19	638,894	5,273	0	0	8,878	<0.01	0	624,743
Percy Priest Lake, Upper	FY19	383,972	2,575	0	19	1,206	0	0	380,173
Pond Creek	FY19	14,049	0	0	0	0	0	0	14,049
Richland Creek	FY19	513,607	23,147	0	19	7,673	<0.01	0	482,769
Sandy Creek	FY19	46,920	210	0	0	438	0	0	46,271
Sevenmile Creek	FY19	734,102	5,478	0	0	8,221	<0.01	0	720,403
South Harpeth River, Lower	FY19	59,348	217	0	0	329	0	0	58,802
Stoner Creek	FY19	492,680	7,022	0	0	6,577	<0.01	0	479,082
Stones River	FY19	289,253	1,055	0	19	4,275	0	0	283,905
Sugartree Creek	FY19	165,782	34,920	0	0	1,863	<0.01	0	128,999
Sulpher Creek	FY19	27,039	57	0	0	0	0	0	26,982
Sycamore Creek	FY19	240,938	108	0	0	0	0	0	240,830
Whites Creek	FY19	590,168	10,084	0	0	3,946	<0.01	0	576,138

Based on average annual rainfall conditions

1 – Accounts for load removal by all control measures implemented in watershed thru end of FY

2 – Based on control measures implemented during the fiscal year