

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, TN 37218

November 29, 2016

Tisha Calabrese-Benton, Director
Tennessee Department of Environment & Conservation - Division of Water Resources
William R. Snodgrass Tennessee Tower
Attention: Compliance Review
312 Rosa L. Parks Avenue, 11th Floor
Nashville, Tennessee 37243

RE: **NPDES Permit No. TNS068047**
Metro Nashville/Davidson County
Permit Cycle Three, Year Five Annual Report

Dear Director:

Per the provisions of Section 5.7 of the Metro Nashville/Davidson County MS4 NPDES permit (TNS068047), I hereby authorize Michael Hunt as my duly authorized representative to submit reports and other information as required per NPDES Permit TNS068047.

I do so by virtue of Mr. Hunt's position as the MS4 Permit Program Manager for Metro Nashville/Davidson County, Metro Water Services - Stormwater's NPDES Office, which oversees Metro's MS4 permit compliance activities.

I further state that Mr. Hunt has apprised me of the contents of the Permit Cycle Three, Year Five Annual Report.

Sincerely,

A handwritten signature in black ink, appearing to read "Scott Potter".

Scott Potter
Metro Water Services, Director

cc: Paul Higgins, TDEC DWS; Central Office Permitting
April Grippo, TDEC WPC; Nashville Environmental Assistance Center
Tom Palko, Assistant Director; Metro Water Services Stormwater Division
Michael Hunt, Metro Water Services Stormwater Division NPDES Office

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, TN 37218

November 29, 2016

Tisha Calabrese-Benton, Director
Tennessee Department of Environment & Conservation - Division of Water Resources
William R. Snodgrass Tennessee Tower
Attention: Compliance Review
312 Rosa L. Parks Avenue, 11th Floor
Nashville, Tennessee 37243

RE: **NPDES Permit No. TNS068047**
Metro Nashville/Davidson County
Permit Cycle Three, Year Five Annual Report

Dear Director:

Attached is the submission of Metro Nashville/Davidson County's (Metro's) MS4 NPDES Permit Cycle Three, Year Five Annual Report documenting permit-related activities from July 1, 2015 to June 30, 2016.

I am by virtue of my position as the MS4 Permit Program Manager for Metro Nashville/Davidson County, Metro Water Services, duly authorized to review and certify this document per the attached signature authorization.

I further attest that Mr. Scott Potter, the delegated principal executive officer (Director) of the Metro Nashville/Davidson County MS4 Permit, has been apprised of the contents of this Annual Report.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly 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 there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

A handwritten signature in black ink that reads "Michael Hunt".

Michael Hunt
Metro Water Services - Stormwater Division, NPDES Office Program Manager

cc: Paul Higgins, TDEC DWS; Central Office Permitting
April Grippo, TDEC WPC; Nashville Environmental Assistance Center
Scott Potter, Director; Metro Water Services
Tom Palko, Assistant Director; Metro Water Services - Stormwater Division

Enclosures: Signature Authorization Document
Permit Cycle Three, Year Five Annual Report

**Metro Nashville/Davidson County
Annual MS4 Report
Permit TNS068047**



**November 2016
Reporting Period:
July 1, 2015 - June 30, 2016**



TABLE OF CONTENTS

1.0 INTRODUCTION	1
1.1 OBJECTIVE OF THE PROGRAM.....	4
1.2 MAJOR STORMWATER DEFICIENCY FINDINGS.....	4
1.3 MAJOR STORMWATER MANAGEMENT PROGRAM ACCOMPLISHMENTS AND HIGHLIGHTS.....	7
2.0 MS4 PROGRAM ANNUAL REPORT FORM REQUIRED BY TDEC.....	19
3.0 REQUIRED MS4 REPORTING TABLES	40
4.0 SUPPORTING PROGRAM DATA.....	68
ATTACHMENT A – PROTECTED SPECIES REPORT	109
ATTACHMENT B – UPDATED PIE PLAN, ERP, AND FIELD SCREENING SOP	116
ATTACHMENT C – APPLICATION FOR NEW 4TH CYCLE MS4 PERMIT	164

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 2016 (FY16), which represents the period between July 1, 2015 through June 30, 2016.

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, which is a section within the Metro Water Services (MWS) Stormwater Division, 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, 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 individuals that have contributed to specific permit compliance activities/information during FY16. Any inquiries regarding information represented in this report should be directed to the MWS Stormwater NPDES Section (Attn: Josh Hayes) at 1607 County Hospital Rd, 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
John Kennedy	Metro Water Services	Assistant 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
Ricky Swift	Metro Water Services	Program Manager, Stormwater Maintenance Section
Casey Cooper	Metro Water Services	Project Manager, Stormwater Maintenance Section
Roger Lindsey	Metro Water Services	Program Manager, Stormwater Development Review and Permitting
Jennifer Knauf	Metro Water Services	Engineer, Stormwater Development Review and Permitting
Steve Mishu	Metro Water Services	Engineer, Stormwater Development Review and Permitting
Courtney Larson	Metro Water Services	Engineer, Stormwater Development Review and Permitting
Roy Nestor	Metro Water Services	Engineer, Stormwater Development Review and Permitting
Kimberly Hayes	Metro Water Services	Engineer, Stormwater Development Review and Permitting
Jennifer Hill	Metro Water Services	Administration Service Manager, Stormwater
Michael Hunt	Metro Water Services	Program Manager, Stormwater NPDES Section
Bonnye Holt	Metro Water Services	Office Support Representative, Stormwater NPDES Section
Dale Binder	Metro Water Services	Construction Inspection Manager, Stormwater NPDES Section
Harold Bryant	Metro Water Services	Construction Site Inspector, 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
Michael Pate	Metro Water Services	Construction Site Inspector, Stormwater NPDES Section
Leigh Nelson	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
Mary Bruce	Metro Water Services	Watershed Group Manager, Stormwater NPDES Section
Jane Wilson	Metro Water Services	Permit Group Inspector, Stormwater NPDES Section
Gillian Walshe-Langford	Metro Water Services	Permit Group Inspector, Stormwater NPDES Section
Beth Wilson	Metro Water Services	Permit Group Inspector, Stormwater NPDES Section
Veronica Mullen	Metro Water Services	Watershed Group Inspector, Stormwater NPDES Section
Stephanie Petty	Metro Water Services	Watershed Group Inspector, Stormwater NPDES Section
Jeff Campbell	Department of Public Works	Assistant Director, Engineering Division
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	Manager of the Street Services Division
Wade Hill/Joey Hargis	Codes Department	Chief Plans Reviewer
Anita McCaig	Metro Planning Department	Planner
Christopher Michie	Metro Public Health Department	Septic System Oversight
Steve Crosier	Metro Public Health Department	Restaurant Inspection
Greg Ballard	Metro Water Services	Program Manager, Overflow Abatement
Matt Lott	Metro Water Services	Program Manager, System Services Overflow Response
Al Corlew	Metro Parks Department	Parks and Recreation Planning Division
Tim Netsch	Metro Parks Department	Assistant Director
Scott Harris	Mayor's Office of Emergency Management	Spill Response Coordinator
Hugh Garrison	Metro Water Services	Laboratory Superintendent
Andy Welch	Metro Water Services	Program Manager, Pre-treatment/FOG
Anna Kuoppamaki	Metro Water Services	GIS Analyst, Stormwater NPDES Section



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

303(d)	State's List of Impaired Waterways (Below Water Quality Criteria for Use Classifications)
ARAP	Aquatic Resource Alteration Permit
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
FY15	Fiscal Year 2015
FEMA	Federal Emergency Management Agency
GIS	Geographic Information System software
GP	Grading Permit
HHW	Household Hazardous Waste
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
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
SSS	Sanitary Sewer System
SWMC	Stormwater Management Committee
SWMM	Stormwater Management Manual
SWMP	Stormwater Management Plan
SWO	Stop Work Order
TAB	Tennessee Association of Broadcaster's Public Education Program
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
TDF	Tennessee Department of Agriculture-Division of Forestry
TMI	Tennessee Macroinvertebrate Index
TSS	Total Suspended Solids
USACOE	U.S. Army Corps of Engineers
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 included 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 now works to complete 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. With the upcoming/pending issuance of the 4th term of the MS4 Permit, Metro believes some changes can be made to improve efficiency of pollution prevention programs. Attachment C includes Metro Nashville's official request/application for a new/reissued Phase 1 MS4 Permit along with detailed information on specific proposed changes.

1.2 Major Stormwater Deficiency 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 further matures, a renewed focus has been shifted to further addressing the long-term inspection and maintenance of post-construction Stormwater Control Measures (SCMs). Moving forward, some of the more notable findings will likely include improperly maintained SCMs. The paragraphs below describe some of the more notable findings impacting water quality of the MS4 and Metro streams during FY16.

1.2.1 Private Sanitary Sewer Leak to the Groundwater and MS4 Drainage

NPDES received a citizen complaint about water seeping onto Percy Warner Boulevard during dry weather conditions. Upon investigating, MWS performed bacteria sampling and detergent screening tests, which revealed the water seeping into the roadway was contaminated with sanitary sewer waste. MWS System Services Division and NPDES then initiated a complex investigation that involved video-inspecting the sanitary sewer line, dye testing the Metro sewer trunk line and private service lines, and collecting bacteria samples at different transects in the receiving stream. As a result of the investigation, a private apartment complex's sanitary sewer lines were found to be damaged and leaking into the subsurface, mixing with groundwater and eventually discharging into the MS4. MWS System Services and NPDES coordinated with the apartment complex to require excavation and repair of the collapsed sanitary sewer line. After the repair was completed, NPDES continued to monitor the groundwater discharge to the street until the bacteria levels lowered to acceptable numbers.





Groundwater Contaminated with Sanitary Waste Seeping into MS4 in Dry Conditions



Private Sanitary Manhole Found Backed-up, Indicating Damaged Service Line

1.2.2 Large Tanker Truck Spill and Discharge to Richland Creek

NPDES was notified by the Office of Emergency Management (OEM) regarding an asphalt truck that had flipped over and leaked tar and hydrocarbons into Lower Walkers Creek. NPDES responded and observed at least 40 gallons of spilled product comprised of a tar, diesel fuel, and motor oil that had leaked into Lower Walkers Creek. NPDES and OEM worked together required the appropriate containment and remediation of the lost product. Following several site visits by NPDES staff and additional coordination with the remediation crews, all the spilled material in the creek was appropriately remediated.



Photographs of the Spill into Lower Walkers Creek



1.2.3 Construction Illicit

During routine wet weather inspections of construction sites, an excessive amount of sediment was observed discharging into Metro's MS4. The sediment contaminated runoff eventually discharged into Browns Creek. It was determined that a lack of proper erosion prevention and sediment control (EPSC) led to the contaminated discharge. The inspector for the site issued a Notice of Violation (NOV) with an associated \$600 administrative penalty. As a result of the enforcement actions, the contractor for the site made adjustments to the EPSC to prevent future sediment discharges from the site. Below are photographs of the sediment discharging to the MS4 during the rain event.



Sediment Runoff from a Grading Permit Site in Metro that Received NPDES Enforcement

1.2.4 Illicit Cross-Connection found during Stormwater Maintenance Activities

MWS Stormwater Routine Maintenance Crews were performing ditch cleaning activities, when they discovered a strange PVC pipe plumbed from a residential garage to the MS4. The discharge point for the pipe contained a layer of staining and the pooled water within the ditch contained high levels of detergents, indicating the discharge from the pipe likely consisted of some type of waste water or wash water component. NPDES issued a Notice of Violation with associated administrative penalties to the home owner, requiring the illicit cross-connection to be removed. In follow-up conversations with the owner, NPDES learned that the occupant of the home had plumbed a washing machine to this drain, which was only intended to convey groundwater from the foundation. The owner quickly repaired the connection and the grey water discharge was eliminated from the MS4.





Discharge of Wash Water from the Illicit Cross-Connection

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:

In FY16, 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 new 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 changes need to be made. During FY16, the SWMP was reviewed and some minor updates were made to the Field Screening Standard Operating Procedures (SOP), which is included in Attachment B. At the end of this current MS4 Permit Cycle (1/31/17), NPDES plans on revising the entire SWMP and posting an updated version on our web page.

Public Education:

MWS' Stormwater Department continued to increase involvement on public education activities by implementing various prescribed actions of the Public Involvement/Education (PIE) plan. The PIE plan, which is a sub-section of the overall SWMP, was also reviewed at the end of FY16. Like the overall SWMP, some minor changes were made to the PIE plan, which are also included in Attachment B. At the end of this current MS4 Permit Cycle (1/31/17), the entire PIE plan will be re-evaluated and updated. Below are some highlights of public education activities that were conducted during FY16:

- **Post-Construction Stormwater Control Measure Inspection and Maintenance Training**
During this reporting period, NPDES coordinated with the Tennessee Stormwater Management Training Program to assist in developing the first state-wide post-construction SCM inspection and maintenance training/certification program. The class is designed to provide a foundational knowledge and background for professionals that would 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).



Field Demonstration Portion of the First SCM Certification Class

- Cigarette Butt Campaign

In FY16, NPDES continued its partnership with the Public Works Beautification Program on a grant awarded from the Keep America Beautiful organization to implement an anti-cigarette littering campaign during the popular Country Music Association Festival (CMA). Personnel from MWS and Public Works co-hosted a booth during the CMA at which thousands of pocket ashtrays were handed out to the general public.



- Urban Runoff 5K

During FY16, MWS continued the partnership with TDEC, the Tennessee Department of Agriculture, and the Tennessee Stormwater Association (TNSA) to host the 3rd Annual Urban Runoff 5K. The event was a family-oriented run/walk through Nashville that highlighted several stormwater-friendly, green infrastructure projects in and around Nashville's Centennial Park. The actual route took runners/walkers over the 28th Avenue Connector, which is one of Nashville's first green streets. 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 250 runners, volunteers and other walk-ons attended the 5K and Water Quality Festival.

URBAN RUNOFF 5K
A GREEN GALLOP THROUGH NASHVILLE

3rd Annual Runoff 5K & Water Quality Festival
Saturday, August 29th, 7:30 a.m.
Centennial Park

Building healthier communities through clean water education

Nashville's Metro Water Services, the Tennessee Department of Environment & Conservation and the Tennessee Stormwater Association have teamed up together to host the 3rd Annual Urban Runoff 5K in Nashville. The fun-packed water quality festival will be full of prizes, activities and booths from our sponsors and local partners to communicate the importance of improving stormwater quality in achieving healthier streams, rivers, and lakes for our good health, wildlife and recreational enjoyment.

The run begins at 7:30 a.m. at Centennial Park and weaves its way past several cool and innovative green stormwater management practices.

Runners/Walkers of all abilities are encouraged to participate. Festivities are for the whole family to enjoy, so feel free to bring children and/or pets.

Registration Info
Active.com:
www.active.com/nashville-to/journal/distance-running/races/nashville-urban-runoff-5k-2014

\$30 prior to August 29th
\$40 on Race Day

All participants will receive a performance T-shirt. Top three finishers in each category will receive a certificate and prize.

Course: Certified 5K

Race Partners

METRO WATER SERVICES, METRO PARKS, TNSA, TN Department of Environment & Conservation, TENNESSEE FORESTRY



Advertisement and photos from the 3rd Annual Urban Runoff 5K

- Residential Public Education Mail-Out

NPDES received several complaints about citizens with vehicles leaking oil and dumping grass clippings within the Oak Chase subdivision. In an effort to improve educational awareness on residential pollution, NPDES coordinated with the management company for the Oak Chase Homeowners Association (HOA) to send out a residential mail-out to all the homes within the subdivision. The management company included our residential brochure in their quarterly newsletter that went to approximately 500 homeowners. This was a critical educational effort, since the Oak Chase subdivision is located within a watershed considered impaired for several water quality parameters.





NPDES Section
1607 County Hospital Road
Nashville, TN 37218
615-880-2420 or 615-313-PURE
www.nashville.gov/stormwater

Residential Stormwater

Improving Water Quality Starts At Home!

Some of the most everyday activities we perform at our homes can cause unfortunate impacts to our beloved waterways.
Small changes can make a large difference!
Join Metro Nashville in protecting our precious water resources!

Common Stormwater Pollution from Residential Activities:



Vehicle Maintenance Fluid leaks are a significant source of stormwater pollution. Inspect and repair vehicle leaks regularly. If possible, perform maintenance indoors and always dispose of spent fluids at the proper locations. For more tips on vehicle maintenance and fluid disposal, please visit: www.nashville.gov/stormwater



Keep ditches/drains free of debris Leaves/grass clippings dumped in ditches and drains not only clog downstream culverts/bridges, but lead to an unnatural level of organic materials and potential chemicals washing into our streams, further degrading water quality. Please refer to: www.nashville.gov/Public-Works/Neighborhood-Services/Yard-Waste-Composting/Brush-Yard-Waste-Collection.aspx for proper yard waste pick-up schedules and disposal/composting tips.



Use lawn chemicals responsibly Chemicals washing from yards into streams can damage aquatic ecosystems. Fertilizers and pesticides are not only toxic to aquatic life, but cause elevated levels of nutrients (Nitrogen & Phosphorus) that spur unsightly algal blooms that literally suffocate aquatic life. Always use products according to their labels, store containers inside, and never apply lawn chemicals with rain in the immediate forecast.

Pick up pet waste Pet waste left in your yard will contaminate stormwater runoff with elevated levels of nutrients and dangerous bacteria such as *E. coli*.
Trash it! - Pet waste can be placed in a bag and tossed into the garbage can.
Flush it! - Pet waste can be placed in the toilet by itself (no plastic bags, please).
Compost it! - Dog waste can be safely disposed of with an in-ground pet waste disposal system. Look for dog waste digesters at your local pet store.
(Note: composted dog waste should not be used on edible plants.)

Allow vegetation to grow along streams Established vegetation along a creek bank increases nature's ability to filter or absorb stormwater runoff and can reduce stream bank erosion. Planting trees and shrubs along creek banks will improve water quality runoff.



Dispose of trash properly Trash such as empty motor oil containers, paint cans, detergent bottles, etc. still contain residual product that can leak and wash into our waterways if not properly stored or disposed of. Remember, trash blowing or washing from a property will usually end up in a stream. Be sure to store household product containers inside (empty or not) to protect them from contacting and contaminating stormwater runoff.



Residential Brochure included in Oak Chase Property Management Company's Newsletter

- Metro Government Department MS4 Permit Orientation Workshop
During the reporting period for FY16, NPDES developed an MS4 Permit orientation workshop for representatives from various Metro departments. Since it had been nearly 10 years since the last Metro-wide workshop, NPDES believed that there had been enough employee turnover to warrant a new MS4 Permit orientation. There were 43 managers from many of Metro's various departments in attendance. NPDES employees presented the major permit requirements and specifically how they related to other Metro department activities.





Metro MS4 Permit Workshop with Various Metro Department Managers

- Metro Nashville Network Educational Videos
NPDES created a partnership with Metro Information Technology Services (ITS) department to film stormwater Public Service Announcements (PSAs) for airing on Metro Nashville Network (Nashville's Public Access Channel). During FY16, NPDES and ITS worked on three educational videos featuring the MWS' mascot (Splash) delivering messages about activities by the general public that can contribute to polluted stormwater runoff.



Still shots from two PSAs filmed during the reporting period

Floodplain Buyout Properties

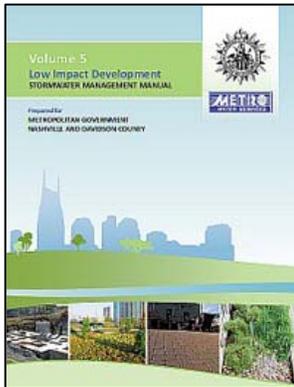
Over the years, the MWS Stormwater floodplain buyout program has worked to restore floodplain storage and riparian habitat in various watersheds within the county. The MWS Stormwater Division has been participating in the Federal Emergency Management Agency (FEMA) home buyout program for more than 18 years. Since MWS began participating in the home buyout program, Metro has purchased well over 300 floodplain properties in which structures and other impervious



surfaces such as driveways have been removed from the floodplain. Over the years, Metro has ceased mowing areas adjacent to streams, allowing 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 are also of recreational value to local neighborhoods as they are now managed and protected by the Metro's Parks Department.

Stormwater LID Manual

The Low Impact Development Manual became the required post construction water quality compliance path on February 1, 2016, which satisfies the runoff reduction requirement in Section 3.2.5 of Metro's MS4 Permit. MWS also developed a waiver process to allow projects with certain site limitations such as high water tables, shallow bedrock, etc. to use the previous standard treatment practices that was required to treat to 80% TSS removal efficiency. MWS will continue to monitor the waiver process to ensure LID is being utilized where appropriate.



Volume 5 and photos of some of the LID treatment practices promoted by Metro

Watershed Improvement Fund

During FY16, MWS Stormwater completed the process of setting up the Watershed Improvement Fund (WIF), which is a dedicated amount of money collected from the Stormwater user fee that will only be used to perform proactive projects to improve the quality of stormwater runoff in critical watersheds. The projects implemented with WIF funds will include structural and non-structural controls, which may include some retrofits of previously developed properties. The first WIF projects will be initiated during FY17.

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 served to improve the quality of stormwater runoff:

Dog Waste Pick-up On MNPR Property – During the reporting year, approximately 432,000 dog waste bags (90% of the bags distributed) were estimated as being used at MNPR properties. Based on the amount of dog waste bags distributed, it is estimated that approximately 129,600 pounds (64.8 tons) of dog waste were collected for proper disposal.



Other MNPR Projects – The following MNPR projects/land acquisitions during FY16 have also helped to protect and improve aquatic habitat throughout Davidson County:

- Centennial Park Phase One - This project included the daylighting of Cockrill Spring. Springwater is directed through a wetland garden to absorb naturally occurring phosphorus. Springwater is then used to irrigate landscape before being pumped to Lake Watauga to help with the water quality of the shallow 5-acre reservoir. Stormwater at the new Parthenon parking lot was redirected to a bioswale and rain garden before flowing into Lake Watauga. Vegetated floating wetland islands were installed to help absorb nutrients in Lake Watauga. Interpretive signage at the lake and spring educate the public on green/innovative stormwater management practices.
- Riverfront Landing – This project removed an existing asphalt road and created a new 2 acre green park space that can be enjoyed for multiple uses such as free play, temporary athletic fields, special events, tailgating and festivals and it also served to install a bioswale for infiltration. In addition, the lower park near the water's edge has been stabilized with a concrete block mat suitable for launching canoes and kayaks, which has resulted in the stabilization of 350 linear feet Cumberland River banks. There were 65 trees planted and over 500 other plants and shrubs.
- West Riverfront Park & Ascend Amphitheater – This project created a new 11 acre park along the river's edge that incorporates gardens, gathering areas, and lawns for events and other activities. The new park includes a 2,800 square foot green roof, 400,000 gallon rain harvesting tank, the planting of over 267 trees, and 9,000 square feet of permeable paving.
- Percy Warner Park Parking Lot Retrofit and Habitat Restoration - Four new parking lots have been retrofitted to utilize pervious gravel paving. In addition to providing the new parking areas, riparian zones previously damaged by cars have been naturalized and barriers added to prohibit cars. Over 7.5 miles of road have also been converted to trail, creating a 700-acre car-free zone eliminating sources of automotive fluids and erosion caused by vehicles travelling the old roads.
- Edwin Warner Park Burch Reserve Trailhead Improvements - This project involved installing a pervious gravel parking lot and two large rain gardens planted with native species to treat stormwater runoff.
- Shelby Park Stream Restoration - The Metropolitan Board of Parks and Recreation continued coordination with the Tennessee Stream Mitigation Program to restore the stream channel through Shelby Park Golf Course, which is currently piped or runs in a concrete lined channel. The design phase is currently underway.
- 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 30,000 individuals who participated in nature center programs throughout the year, as many as 10,000 received education and information directly related to water resources. Several thousand more were exposed to water resources education through educational exhibits at the four Metro Parks nature centers. Each of these nature centers also featured amenities that conserve water resources and



provided passive education opportunities to visitors. These included green roofs, water chains, rain barrels, teaching ponds, stream bank restoration areas, pervious paving materials, rain gardens and cisterns.

- Parks Land Conservation - The majority of the Parks and Recreation Department's 14,000 acres and over 60 miles of greenway corridor has continued to be maintained in a natural condition, providing vitally important protection to our watershed, including many critical headwater streams.
- Metro Parks Land Acquisition – Metro Parks continued to acquire land through FY16. Much of this land will be conserved and protected, which will provide much needed protection to many headwater streams. During FY16, Metro Parks worked on various stages of land acquisitions involving over 1,237 acres.

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 and infrastructure decisions. A fundamental 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 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 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 for Healthy & Complete Communities which highlights the importance of minimizing the impact of development on the natural environment, especially air and water quality, and of integrating open 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 improves 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; 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.

To assist in implementing the NashvilleNext's vision of preserving rural areas, the Planning Department revised Nashville's Subdivision Regulations to include guidance for rural residential areas. The guidance balances preservation and development with rural character where property is already zoned one of the conventionally suburban zoning districts. During land subdivision, the regulations conserve land that is in the floodplain or on steep slopes (slopes 15 percent or greater) and provide options for creating development that is compatible with the surrounding rural area along the frontage, while clustering development in the remaining areas.

The Planning Department also 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, for wildlife habitat, and for 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 and 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 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 OAP that have completed, in which have served 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.

MWS System Services Division

The Metro Water Services System Services Division (SSD) and contractors continued to inspect and clean sewers to assess conditions and prevent potential overflows. In FY16 SSD and contractors inspected with Closed Circuit TV (CCTV) approximately 905,429 linear feet and cleaned approximately 483,631 linear feet of Metro sewer line. SSD has been using new acoustic technology to make rapid assessments of potential blockages of sewer line segments. The tool called Sewer Line – Rapid Assessment Tool (SL-RAT) assists SSD in assessing more sewers to prevent blockages and resulting overflows. In FY16, approximately 2,990,775 linear feet of sanitary sewer line were assessed using the SL-RAT technology.

During FY16, 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 service lines or main lines and recommend corrective actions to prevent sewer overflows. The estimated/reported MWS sewer overflows for FY16 are depicted in Table 7H.5 within Section 3 of this report.



Table 3 – MWS Engineering Projects to Reduce Sanitary Overflows

Type of Projects	# of Projects	Miles of Sanitary Lines	Money Spent	Watersheds Where Work was Performed
Westchester Drive Rehabilitation: Design was initiated in FY 2014 for this project, which performed rehabilitation of the upper portion of the Brick Church Pike trunk sewer to reduce overflows into Ewing Creek. Design was completed in May 2015; construction began in July 2015 and was completed in November 2015.		0.70	\$951,183	Ewing Creek
Cowan - Riverside Rehabilitation - Area 2 (Dickerson Pike): Design of this project, which reduced I/I by rehabilitation of the collection system, began in FY 2013 and was completed in FY 2014. Construction began in July 2014 and was completed in September 2016.		6.52	\$2,861,934	Cumberland River, Pages Branch
Shelby Park Rehabilitation Phase 2 (Norvel Ave.): Design was initiated in FY 2013 for this project, which reduced I/I by rehabilitation of the collection system, and was completed in January 2014. Construction began on this project in May 2014 and was completed in October 2015.		10.00	\$5,631,107	Cumberland River, Cooper Creek
Shelby Park Rehabilitation, Phase 3(Greenland Ave.): Design of this project was initiated in FY 2013, which reduced I/I by rehabilitation of the collection system, and was completed in FY 2014. Construction began in February 2015 and was completed in April 2016		9.00	\$5,146,196	Cumberland River, Cooper Creek
Shelby Park Rehabilitation, Phase 4 (Brush Hill Road.): Design of this project was initiated in October 2014, which reduced I/I by rehabilitation of the collection system, and was completed in March 2015. Construction began in July 2016 and was completed in June 2016.		7.06	\$3,074,153	Cumberland River, Cooper Creek
Highway 100 - Tyne - Trimble Rehabilitation: Design was initiated in FY 2013 for this project, which reduced I/I by rehabilitation of the collection system. Design was completed in April 2014. Construction of the project began in August 2014 and was completed in September 2015.		5.73	\$2,561,429	Richland Creek
2013 Annual Rehabilitation: The design was initiated in FY 2013 for this project, which addressed structural and I/I issues within the collection system in areas not included in the CAP/ER for the Consent Decree program. Design was completed in June 2014; construction began in October 2015 and was completed in January 2016.		4.53	\$3,472,565	various
Sewer Rehabilitation Projects in FY16	7	43.54	23,698,567	
Pump Station and Equalization Projects in FY 2016	0		\$0	

Table 4 – Future MWS Engineering Projects to Reduce Sanitary Overflows

Type of Projects	Money Spent	Watersheds Where Work is Planned
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 is anticipated to be complete in FY 2017, with construction starting in FY 2017.	TBD	Ewing Creek, Whites Creek
West Park WWPS and Equalization Basin: Design was initiated in May 2012 for this project, which will provide 21 MG of additional storage capacity at this site to reduce SSO events. The design was completed for this project in December 2014. Construction began in April 2015 and is anticipated to be completed in FY 2017.	\$14,770,000	Richland Creek, Cumberland River
Davidson Branch 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 SSO events, began in May 2015 and is anticipated to be completed in FY 2017, with construction starting in FY 2017.	TBD	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 is anticipated to be completed in FY 2018 and construction is anticipated to begin in FY 2018.	TBD	Gibson Creek, Cumberland River
Davidson - Brook Hollow Sewer Improvements: Design was initiated in April 2014 on this project, which will provide additional capacity to eliminate overflows caused by hydraulic restrictions in the collection system. Design was completed in June 2015, and construction began in October 2015. Completion of the project is anticipated in FY 2017.	\$927,000	Ewin Branch, Richland Creek
Brick Church Pike Pipe: Design was initiated in July 2013 for this project, which will provide approximately 10,000 LF in parallel trunk sewer to increase conveyance to reduce overflows into Ewing Creek. Design was completed in February 2016, and Construction is anticipated to start in FY 2017.	TBD	Ewing Creek
Cowan - Riverside Rehabilitation - Area 3 (West Trinity Lane): Design of this project, which will reduce I/I by rehabilitation of the collection system, began in November 2014 and was completed in April 2015. Construction began in October 2015 and is anticipated to be completed in FY 2017.	\$5,130,000	Cumberland River, Pages Branch
Cowan - Riverside Rehabilitation - Area 4 (Pages Branch): Design of this project, which will reduce I/I by rehabilitation of the collection system, began in January 2015 and was completed in February 2016, at which time the previously reported Cowan - Riverside Area 5 (Youngs Lane) project was merged into a single construction project. Construction of the combined project is anticipated to begin in FY 2017 and is anticipated to be completed in FY 2018.	TBD	Cumberland River, Pages Branch
Langford Farms - Madison Heights Rehabilitation: Design of this rehabilitation project to reduce I/I issues in the collection system was begun in February 2016, and is anticipated to be complete in FY 2017. Construction is anticipated to begin in FY 2017	TBD	Old Hickory Lake, Cumberland River
28th Avenue Rehabilitation - Area 1 (Clifton Ave.): The design of this project, which will reduce I/I issues in the collection system, began in February 2015 and was completed in December 2015. Construction began in May 2016 and is anticipated to be completed in FY 2017.	\$3,775,000	Cumberland River
Smith Springs Rehabilitation - Area 1 (Priest Lake Meadows): Design began in February 2015 for this project, which will reduce I/I related issues in the collection system. Design was completed during October 2015. Construction began in February 2016, with completion anticipated in FY 2017.	\$5,983,000	Hamilton Creek, Stones River / Percy Priest Reservoir
Smith Springs Rehabilitation - Area 2 (Castlegate): Design began in February 2016 for this project, which will reduce I/I related issues in the collection system. Design is anticipated to be complete in FY 2017 with Construction to follow in FY 2017.	TBD	Hamilton Creek, Stones River / Percy Priest Reservoir
Gibson Creek Rehabilitation - Area 1 (Dupont Avenue): Design of this project, which will address I/I issues in the collection system, is anticipated to begin in August 2016 and be completed in FY 2018, with construction to follow in FY 2017.	TBD	Gibson Creek, 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 is anticipated to be completed in FY 2017. Construction is anticipated to begin in FY 2018.	TBD	Hurricane Creek, J. Percy Priest Reservoir, Stones and Cumberland Rivers
Annual Rehabilitation 2016 - South Hurricane Creek Rehabilitation: Design began in March 2016 on this project, which will address I/I related issues in the southern portion of the Hurricane Creek basin. Design is anticipated to be completed in FY 2017, with construction to follow in FY 2017.	TBD	Hurricane Creek, J. Percy Priest Reservoir, Stones and Cumberland Rivers



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

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 fifth reporting period of this iteration of permit cycle was from 07/01/15 to 06/30/16. This Annual Report coincides with Metro's Fiscal Year 2016 (FY16) activities. Please note that the first annual report submitted under this current permit covered only the period from February 1, 2012 to June 30, 2012 of this existing permit cycle. Each subsequent report has coincided with Metro FY periods.

2. Protection of State or Federally Listed Species

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

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 Yes No
303(d) list?

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). At the time of the preparation of this report, the proposed 2016 list of impaired streams has not been approved by the EPA, therefore, the below list represents the 2014 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	Yes X No	Yes X No
McCrary Creek (TN05130203-001-0150)	Alteration in stream-side or littoral veg. cover, Nitrite+Nitrate	X Yes No	X Yes No
McCrary 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
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	X Yes No	Yes X No
Dry Fork Creek (TN05130203-035-0300)	Siltation	X Yes 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)	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	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	
		Yes	No	Yes	No
Sugartree Creek (TN05130202-314-0400)	E. coli, Other Anthropogenic Habitat Alterations, Total Phosphorus, Nitrite+Nitrate, Low DO	X	No	X	No
Bosley Springs Branch (TN05130202-314-0300)	E. coli, Other Anthropogenic Habitat Alterations, Total Phosphorus, Nitrite+Nitrate	X	No	X	No
Richland Creek (TN05130202-314-1000)	Other Anthropogenic Habitat Alterations, Total Phosphorus, Nitrite+Nitrate, E. coli	X	No	X	No
Cooper Creek (TN05130202-209-1000)	E. coli, Other Anthropogenic Habitat Alterations	X	No	X	No
Ewing Creek (TN05130202-010-0900)	E. coli, Other Anthropogenic Habitat Alterations	Yes	X	Yes	X
Drakes Branch (TN05130202-010-0200)	E. coli, siltation	X	No	X	No
Whites Creek (TN05130202-101-2000)	E. coli, Alteration in stream-side or littoral vegetative cover, Siltation	X	No	X	No
Whites Creek (TN05130202-010-1000)	Nutrients	X	No	X	No
Gibson Creek (TN05130202-212-1000)	Other Anthropogenic Habitat Alterations, Flow Alteration	Yes	X	Yes	X
Neelys Branch (TN05130202-212-0100)	E. coli	X	No	X	No
Dry Creek (TN05130202-027-2000)	Other Anthropogenic Habitat Alterations	Yes	X	Yes	X
Dry Creek (TN05130202-027-1000)	E. coli	X	No	X	No
Loves Branch (TN05130202-211-1000)	Other Anthropogenic Habitat Alterations	Yes	X	Yes	X
Pages Branch (TN05130202-202-1000)	E. coli	X	No	X	No
Davidson Branch (TN05130202-001T-0700)	E. coli	Yes	X	Yes	X



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)? 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 (*Orconectes shoupi*). A portion of the Harpeth River in Davidson County is listed as a State Scenic Riverway.

X Yes No



E. Are you implementing additional specific provisions to ensure the continued integrity of ETWs or ONRWS located within your jurisdiction? Specific public education activities have been implemented and are planned 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.

X Yes No
 N/A

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, NPDES performed many activities to increase public education and awareness for many stormwater issues, which is detailed in Section 4 of this document. In addressing specific outcomes, one event in particular, that directly translates to water quality improvements was the rain barrel distribution/discount program for Metro (Davidson County) residents. In an effort to increase awareness of rain harvesting practices, Metro partnered with Rainwater Solutions to provide a discounted/subsidized rate of rain barrels to Metro residents. Metro issued a press release to residents and also promoted it at several city-wide events. At the conclusion of the program in May 2016, 948 rain barrels were sold at the discounted/subsidized rate. In addition to the rain barrel distribution program, Metro 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.) to over 1,700 recipients. The various notices included information about Metro's new stormwater regulations as well as the proper use of chemicals (fertilizers, pesticides, etc.), proper management of yard wastes such as grass clippings, leaves, and brush, and the proper management of pet waste. In order to improve stormwater awareness within Metro Government, NPDES also hosted a half day workshop for various Metro Department representatives. Among the topics discussed with the various Metro Departments was the MS4 permit and the obligation Metro has to prevent pollution from any Metro facilities or maintenance activities. Another noteworthy outcome during this reporting period was the partnership between TDEC, Tennessee Stormwater Management Training Program, and Metro to create a state-wide training and certification program for inspecting and maintaining post-construction SCMs.



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. 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:

<http://www.nashville.gov/Government/NashvilleNext/Resource-Teams.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 11 separate SWMC meetings. More information about the SWMC process is available at the following website:

<http://www.nashville.gov/Water-Services/Developers.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. Prior to this reporting period, Metro promoted use of runoff 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.

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? Yes No

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

Metro Nashville manages public input in a variety of different ways throughout various departments. There are no written procedures for managing the public. Please refer to the above section on public engagement on stormwater development projects. (See Notes)

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

Have all MS4 Inspectors maintained certification under the [Tennessee Fundamentals of Erosion Prevention and Sediment Control](#), Level 1? Yes No

Have all MS4 site plan reviewers maintained certification under the [Tennessee Fundamentals of Erosion Prevention and Sediment Control](#), Level 2? Yes No

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 FY16, there were 254 grading permits issued, while 217 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.

C. How many of these active sites did you inspect this reporting period? NPDES Section performed 6,679 construction related inspections in FY16. 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.)? NPDES inspects all active construction sites at least once per month. Monthly

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

B. Have you completed a map of all known storm drain pipes of storm sewer system? 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). Please note that the entire stormwater drainage system was collected for Davidson County over a decade ago. Originally there were over 7,000 outfalls mapped within the GIS system. The criteria used during the original inventory resulted in outfalls being mapped at the intersection of every pipe and channel. This methodology incorrectly identified the number of actual MS4-permitted outfalls. During the 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 11,844 MS4-permitted Outfalls, 293 Sub-MS4 Outfalls, and 2,367 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 GIS layer was an accurate representation of actual streams, even though the coverage is more of an estimate and has not been field-verified. In future years, MWS will work to further define which outfalls receive a majority of MS4 runoff to distinguish for potential loading calculations involving runoff from the MS4.

D. How many of these outfalls have been screened for dry weather discharges? In FY16, there were 498 separate Stormwater infrastructure points screened for potential illicit discharges. All in all, there were a total of 678 ¼ mile grids completed, where an infrastructure point was screened or no MS4 infrastructure existed. Metro's MS4 permit only requires one outfall located within a ¼ mile industrial/commercial-zoned grid to be screened for potential illicit discharges. At the conclusion of FY16, there were a total of 315 grids left to be screened prior to January 31, 2017.

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 water leak or potential leak is suspected, NPDES initiates an IDDE investigation that is documented within the Cityworks database until the illicit discharge is eliminated.

F. What is your frequency for screening outfalls for illicit discharges? Each ¼ mile commercial/industrial-zoned grid will be screened before the end of Year 5 in the MS4 permit (January 31, 2017).

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)? During FY16, there were no confirmed illicit discharges and one confirmed potable water leak found during field screening activities. In addition, NPDES initiated 100 separate water quality investigations during FY16, many of them originating from citizen complaints. Refer to Table 7H.1 for a complete listing of the 100 IDDE investigations initiated during FY16. There were also 40 spill response investigations and 6 private 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 systems to be abated. During the reporting period, the Health Department issued 18 notifications to property owners for failing septic systems. (Refer to Table 7H.4)

I. 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? Yes X No

We have language in our Code, but have never pursued the option. (Not Currently)



8. Stormwater Management for Municipal Operations

A. Have Stormwater pollution prevention plans (or an equivalent plan) been developed for: 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 discovered O&M facilities. Below is a list of current Metro operated O&M sites in which a SWPPP or RMP has been developed. In addition to the below list, NPDES is currently working with the Metro Sports Authority and Tennessee Titans to develop and implement a RMP for Nissan Stadium.

1. Central Wastewater Treatment Plant
2. Dry Creek Wastewater Treatment Plant
3. Metro Fairgrounds Property
4. MWS Stormwater Maintenance Facility (County Hospital Road)
5. Metro Transit Authority (Nestor Street) Bus Maintenance Shop
6. Metro Nashville Public Schools Bus Maintenance Shop
7. Shelby Park Golf Course Maintenance Shop
8. Ted Rhodes Golf Course Maintenance Shop
9. Two Rivers Golf Course Maintenance Shop
10. Harpeth Hills Golf Course Maintenance Shop
11. Percy Warner Golf Course Maintenance Shop
12. McCabe Golf Course Maintenance Shop
13. Cedar Hill Park Maintenance Shop
14. Warner Park Golf Course
15. Public Works Maintenance Facility (5th Street)
16. 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 X Yes No

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.

All municipal maintenance yards All O&M facilities located within the MS4. X Yes No

All municipal waste handling and disposal areas X Yes No

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 waste transfer facilities or transfer stations, as it contracts those services out to private companies.

B. Are Stormwater inspections conducted at these facilities? X Yes No

Each O&M facility where the RMPs were implemented requires on-site personnel to perform weekly grounds inspections. NPDES personnel will also perform audit inspections at a frequency yet to be determined.

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.) Yes No

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 intranet web page for each O&M Department to train their own field staff. During FY16, NPDES worked conducted a Metro Department staff training, in which maintenance operations on Metro properties were highlighted. All department staff that attended the training were asked to ensure key maintenance staff were trained on the material NPDES posted to the Metro intranet site.

D. Do you have a prioritization system for storm sewer system and permanent BMP inspections? Yes No

In the first year of the permit, NPDES submitted a BMP Maintenance Verification Plan to TDEC that outlined a multipronged strategy to ensure stormwater 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 been reevaluating this process and has determined that a greater amount of attention should be devoted 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 could not be entirely trusted.

During FY16, NPDES decided to take a different approach to verifying the required inspection/maintenance of SCM structures. The new approach will be similar to the NPDES Construction Oversight program, in which NPDES staff performs numerous inspections and follows up compliance coordination. During FY16, NPDES procured the services of a contractor to assist in inspecting 822 SCM structures. The primary focus of these inspections was on proprietary devices (underground water quality vaults) that were installed in watersheds listed as being impaired by siltation. After performing these inspections NPDES began performing follow-up compliance coordination with the sites that were found with structural issues or in need of critical maintenance. During future permit years, NPDES will look to expand resources toward the SCM inspections and maintenance oversight.

E. On average, how frequently are catch basins and other inline treatment systems inspected? Yes No Varies

F. On average, how frequently are catch basins and other inline treatment systems cleaned out/maintained? Yes No Varies

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 FY16. It is estimated that approximately 179,376 cubic yards of material were removed from the MS4 ditches and culverts, approximately 144,999 pounds of material was removed from 16,111 inlets, and approximately 170,932 square feet of erosion control matting were deployed during the FY16 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 dirt on the street. Refer to Table 8F.2 for street sweeping collection numbers in FY16.

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. The Stormwater Maintenance Section retroactively completed the water quality evaluation worksheets for all of the projects that have been designed within the last few years. As a result, NPDES was able to estimate that the large flood control projects designed during FY16 provided the following benefits to water quality.

- Removal of approximately 839 cubic yards of accumulated sediment,
- Stabilization of approximately 1,014 linear feet of stream bank, and
- Planting of approximately 102 trees and shrubs.

Illicit discharge detection and elimination

X Yes No

If Yes, identify the number of municipal employees trained Throughout FY16, there were a total of 16 NPDES staff members that had the adequate training to respond to and enforce on illicit discharge investigations. NPDES utilizes an Illicit Discharge rotation schedule with 4 people within the Permit Group. In addition to the primary on-call personnel, there are an additional 12 staff members within the office that can respond to complaints of illicit discharges. Note: NPDES has also worked with various O&M sections to properly identify and report illicit discharges. Note that staff levels fluctuate each year, but NPDES plans on increasing staff levels that can respond to illicit discharge investigations during future permit years.

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 16 NPDES staff members that had adequate training (TDEC Level 1 EPSC Workshop) to respond to and inspect Stormwater runoff from construction activities. Seven of the employees are dedicated fulltime to inspecting development sites under construction. Note that staff levels fluctuate each year, but NPDES plans on increasing staff levels that can routinely inspect runoff controls from construction activities.

Permanent stormwater management in new development and redevelopment

X Yes No

If Yes, identify the number of municipal employees trained During FY16, there were an average of six engineers employed within the Stormwater Development and Review Section that have been through the TDEC Level II Design Principles for Erosion Prevention and Sediment Control for Construction Sites. Four of the engineers were fully dedicated to reviewing plans for grading permit sites. Toward the end of FY16, MWS was undergoing a reorganization to merge water and sewer engineers with stormwater engineers. During FY17, NPDES expects the reorganization to be complete and updated numbers of engineers dedicated to stormwater review will be reported.

Pollution prevention/good housekeeping for municipal operations

X Yes No

If Yes, identify the number of municipal employees trained In FY16, NPDES coordinated with all Metro Departments to remind them of stormwater issues that may occur from normal maintenance activities. As mentioned above, NPDES coordinated a training workshop with all major Metro Departments in which 43 separate managers attended.



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? MWS Stormwater has compiled a new volume to the Stormwater Management Manual. Volume 5 (also referred to as the LID Manual) provides specifications for development or redevelopment sites to follow in installing “green” stormwater. The requirements with this manual became mandatory in February 2016. X Yes No

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 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.

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? There were 3,034 plans submitted to the MWS Development Review Section during FY16. 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 FY16.

G. How many development and redevelopment project plans were approved? There were 1,450 plans approved during FY16. 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 FY16, there were 254 grading permits issued.

H. How many permanent Stormwater management practices/facilities were inspected? There were 822 inspections by NPDES staff and contractor staff during FY16.

I. How many were found to have inadequate maintenance? Of the 822 NPDES inspections conducted in FY16, of mostly privately-owned SCMs, there were a total of 94 properties that were flagged as containing one or more structures that require critical maintenance actions. In addition, there were 32 sites that contained one or more structures that exhibited signs of structural damage and 116 sites with one or more structures flagged as needing moderate maintenance.



J. Of those, how many were notified and remedied within 30 days? (If window is different than 30 days, please specify) Toward the end of FY16, NPDES began the compliance coordination efforts and issued 9 separate Notices of Noncompliance to SCM owners. NPDES expects to continue compliance coordination during FY17 to address all the sites that were identified as containing one or more structure that was flagged as needing critical maintenance.

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

SCM compliance coordination efforts were initiated toward the end of FY16. NPDES will expand compliance coordination efforts in FY17 and will report progress on the compliance numbers in next year's annual report.

L. Do you use an electronic tool (e.g., GIS, database, spreadsheet) to track post-construction BMPs, inspections and maintenance? The NPDES Section currently uses a Microsoft Access database to track inspections. The database can be linked into GIS. Metro is currently mapping all post-construction stormwater treatment structures as a feature within the GIS database. Once completed, NPDES will work with the Metro Planning Department to make the mapped structures available to the public on the map viewer program.

Yes No

M. Do all municipal departments and/or staff (as relevant) have access to this tracking system?

Yes No

N. Has the MS4 developed a program to allow for incentive standards for redeveloped sites?

Yes No

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

Approximately 254, which is an assumed number based on the number of grading permits issued during FY16.

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.

Yes No

Hazardous waste treatment, storage and disposal facilities

Yes No

Industries subject to reporting requirements pursuant to SARA Title III section 313

Yes No

Industrial facilities that the MS4 determines are contributing a substantial loading of pollutants to the municipal separate storm sewer system

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: (Specific language within the MS4 permit requires Metro Nashville to monitor and control runoff from the following types of industrial facilities.)

- 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.

- 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; and 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. 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.

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. 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 downloads updates from the EPA TRI website each year, so the number of SARA Title III, Section 313 sites varies from year to year. At the time of this report, there were 53 industrial facilities listed within NPDES' database as holding the SARA Title III, Section 313 designation. Most of the inspections of the SARA Title III, Section 313 sites were completed in previous reporting years. In FY16, NPDES completed 19 industrial site inspections, which included both the SARA Title III, Section 313 sites and other industrial facilities in which complaints were received from citizens. X Yes No

F. Provide a listing of inspections performed during this reporting year: During FY16 NPDES inspected 19 industrial facilities. Refer to Table 10.F.1 for a list of Industrial Facilities that were inspected during FY16



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.

Action	Construction	Permanent Stormwater Controls	Illicit Discharge	Authority?
Notice of violation	<u>87</u>	# _____	<u>6</u>	X Yes <input type="checkbox"/> No
Administrative Penalties	<u>\$34,690</u>	<u>\$0</u>	<u>\$700</u>	X Yes <input type="checkbox"/> No
Stop Work Orders	<u>23</u>	# _____	# _____	X Yes <input type="checkbox"/> No
Civil penalties	# _____	# _____	# _____	<input type="checkbox"/> Yes X No
Criminal actions	# _____	# _____	# _____	<input type="checkbox"/> Yes X No
Administrative orders	# _____	# _____	# _____	X Yes <input type="checkbox"/> No
Other:	_____	<u>9 Notices of Non Compliance</u>	_____	X Yes <input type="checkbox"/> 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 FY16, NPDES, which oversees various MS4 compliance activities, operated under a budget of \$1.57 million. The overall MWS Stormwater Division’s budget, which includes NPDES, Development and Review engineers and Stormwater Maintenance, was \$14.44 million. 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 FY17 budget includes \$1.72 million dedicated to the Stormwater NPDES Section, while the overall Stormwater Department is operating under a budget of \$18.44 million.

C. Do you have an independent financing mechanism for your Stormwater program? 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 \$14.44 million

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)? At the conclusion of the reporting period, there were 82 employees within the overall MWS Stormwater Division and 11 vacancies that have been budgeted so that the eventual total employees will be 93.

F. Do you share program implementation responsibilities with any other entities? Yes 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?

Within the last few 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. While long-term trends cannot be extrapolated at this time, 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 FY16 reporting period. Please note that previous Annual Reports contain 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. The NPDES Watershed Group routinely analyzes the sampling data to determine if negative trends are observed within any of the sampled tributaries. When negative trends are found, the NPDES Watershed Group performs source tracking investigations. Whenever identifiable sources are not found, NPDES initiates targeted public education campaigns in those watersheds. The MS4-Permit prescribed Ambient Sampling, Wet Weather Sampling, and Benthic Sampling data is summarized in Table 13A.3, Table 13A.4, and Table 13A.5 respectively. In addition, the Benthic Sampling data for other streams within Metro's jurisdiction that have approved TMDLs is summarized in Table 13A.6. NPDES's Watershed Group collected approximately 384 water quality samples and performed visual stream assessments on approximately 19.4 miles of 303(d)-listed streams within FY16.

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, an effort was made in previous reporting periods to review individual IDDE case files for a four year period to calculate an estimated loading reduction on a yearly basis. Based on the calculations, it was found that in a four year period, NPDES directly or indirectly contributed to the average estimated reduction of 8,568.14 pounds of general Stormwater pollutants such as sediment, metals, etc. and 1,511,414 pounds of sewage-related waste to the MS4 or receiving streams each year. The exercise in calculating pollutant removal has also sparked a renewed effort within the program to improve documentation processes to produce more reliable pollutant reduction estimates by creating new reporting mechanisms within databases. As Metro Nashville's MS4 permit nears the permit expiration date, NPDES has taken the opportunity to evaluate the overall effectiveness of the SWMP to determine what changes could be made in the 4th cycle of the MS4 permit. The goal of the evaluation was to ensure the most effective/efficient program can be implemented in the new permit cycle, which may include petitioning TDEC for changes to specific MS4 permit language. Please refer to Attachment C for a detailed summary of the evaluation and proposed changes to the SWMP and associated MS4 permit requirements.



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.

As described above, it is hard to perform any statistical analysis on water quality sampling as sampling locations, methodologies, and frequencies have changed over the three permit cycles. Metro Nashville is nearing the end of the monitoring plan under the current MS4 permit and TMDL monitoring requirements. This data will hopefully be useful in performing future analysis on a watershed basis in determining SWMP effectiveness. NPDES intends to propose a more customized MS4 Permit monitoring plan in the future that will focus on producing quality data that could be used to make stormwater management decisions, pinpoint sources of pollution, and assess the overall quality of streams within Metro Nashville's jurisdiction.

In reviewing some of the performance measures over the last ten years (summarized in Table 13A.2), it becomes obvious to conclude that the overall number of water quality (IDDE) investigations and Stormwater-specific enforcements have been dramatically reduced and therefore so has the amount of pollutants into the MS4 and receiving streams. We believe this can be contributed to the robust IDDE program, public education and outreach and proactive monitoring/screening efforts.

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, NPDES has noticed fewer and fewer illicit discharge findings over the years that 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.

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.

During FY16, NPDES did not request any program/permit modifications.

Changes to replace an ineffective or unfeasible BMP. There are no major changes to report during FY16.

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, collected all of the Stormwater infrastructure into the GIS database, and began performing maintenance services for the newly annexed area.

Changes to the program as required by the division. No major changes occurred during FY16.



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 ^{Manager}
_{Propan}
Printed Name and Title

Michael Hunt
Signature

11/28/16
Date

3.0 Required MS4 Reporting Tables

List of Tables

Table 6B.1 – Grading Permit Projects Initiated/Completed within FY16.....	41
Table 6C.1 – Small Construction Site Oversight in FY16.....	42
Table 7H.1 – Illicit Discharge Investigations Initiated During FY16.....	43
Table 7H.2 – Spill Response Investigations Initiated by NPDES During FY16.....	45
Table 7H.3 – Private Sewer Discharge Investigations Initiated by NPDES During FY16.....	46
Table 7H.4 - Failing Septic System Investigations Performed by the Health Department in FY16.....	47
Table 7H.5 – MWS Estimated/Reported Sewage Overflows in FY16.....	48
Table 8F.1 - MWS Stormwater Maintenance Work Order Numbers for FY16.....	49
Table 8F.2 - MWS Stormwater Contracted Street Sweeping Collection Numbers for FY16.....	50
Table 9F.1 - Development and Review Section Plan Review Numbers for FY16.....	51
Table 10C.1 - Industrial Sites Inventoried within Metro’s Database	52
Table 10F.1 - Industrial Sites Inspected during FY16.....	56
Table 13A.1 – TMDL Monitoring Data for FY16.....	57
Table 13A.2 - SWMP Quantifiable Statistics	60
Table 13A.3 – Ambient Monitoring Data for the FY16 Reporting Period	61
Table 13A.4 – Wet Weather Monitoring for the FY16 Reporting Period	62
Table 13A.5 – Benthic Monitoring Data for the FY16 Reporting Period.....	63
Table 13A.6 – Benthic Monitoring Data For TMDL Streams During FY16 Reporting Period.....	64



Table 6B.1 – Grading Permit Projects Initiated/Completed within FY16

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	2,899	2,634	2,260



Table 6C.1 – Small Construction Site Oversight in FY16

Building permit signed off for new construction (with stormwater checklists)	1,695
Follow up site visits for Infill Developments	1,362

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 through 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.



Table 7H.1 – Illicit Discharge Investigations Initiated during FY16

ID Number	Date/Time Initiated	Description	Dispatched To	Problem Address
636626	7/6/2015 7:00	Water Quality Complaint	HAYES, JOSH	2625 Locust Street
638680	7/10/2015 8:10	Water Quality Complaint	TERRYNELSON, ANNELI	5040 Trousdale Drive
640619	7/16/2015 8:21	Water Quality Complaint	HAYES, JOSH	629 Old Hickory
641061	7/17/2015 11:54	Water Quality Complaint	MULLEN, VERONICA	2744 Mossdale Drive
641653	7/21/2015 7:44	Water Quality Complaint	DOHN, REBECCA	3805 Green Hills Village Drive
641815	7/21/2015 11:13	Water Quality Complaint	HAYES, JOSH	1004 Pinot Chase,
641955	7/21/2015 15:13	Water Quality Complaint	DOHN, REBECCA	3815 Green Hills Village
643744	7/28/2015 9:16	Water Quality Complaint	HAYES, JOSH	611 North 5th Street
644832	7/30/2015 11:03	Water Quality Complaint	HAYES, JOSH	705 B Fort Negley Court
646464	8/4/2015 13:25	Water Quality Complaint	HAYES, JOSH	649 Magnolia Lane
649348	8/13/2015 9:37	Water Quality Complaint	GARMON, MARY	765 McMurray Dr
650890	8/18/2015 14:47	Water Quality Complaint	DOHN, REBECCA	2 Victory
651659	8/20/2015 13:30	Water Quality Complaint	DRURY, TRAVIS D	641 Fogg St
652865	8/25/2015 13:02	Water Quality Complaint	HAYES, JOSH	64 East Thompson Lane
653962	8/28/2015 8:01	Water Quality Complaint	HAYES, JOSH	6430 Charlotte Pike
654901	9/1/2015 11:01	Water Quality Complaint	DRURY, TRAVIS D	230 A Cumberland Bend
654942	9/1/2015 12:24	Water Quality Complaint	DRURY, TRAVIS D	2222 Ashwood Ave
657550	9/11/2015 8:30	Water Quality Complaint	HAYES, JOSH	625 Smith
658136	9/14/2015 12:45	Water Quality Complaint	HAYES, JOSH	37 Rutledge
658974	9/16/2015 13:17	Water Quality Complaint	HAYES, JOSH	4037 Murfreesboro
661507	9/24/2015 13:41	Water Quality Complaint	HAYES, JOSH	3511 Belmont Boulevard
661525	9/24/2015 14:14	Water Quality Complaint	HAYES, JOSH	2506 12th Ave. South
662613	9/29/2015 12:42	Water Quality Complaint	HAYES, JOSH	4109 Coleridge
662614	9/29/2015 12:48	Water Quality Complaint	HAYES, JOSH	1011 Edwin Warner
665088	10/8/2015 7:10	Water Quality Complaint	HAYES, JOSH	4685 Trousdale Drive
665323	10/8/2015 12:53	Water Quality Complaint	DRURY, TRAVIS D	3445 Percy Priest Drive
666015	10/12/2015 10:11	Water Quality Complaint	DOHN, REBECCA	7601 Highway 70 S
666888	10/14/2015 13:39	Water Quality Complaint	WILSON, JANE	Church Street & First Avenue North
667125	10/15/2015 9:33	Water Quality Complaint	HAYES, JOSH	1209 Gallatin Pike South
669362	10/23/2015 7:36	Water Quality Complaint	HAYES, JOSH	620 Hicks Road
669696	10/26/2015 8:47	Water Quality Complaint	LANGFORD, GILLIAN	123 Donellsonwood Drive
669968	10/26/2015 13:57	Water Quality Complaint	HAYES, JOSH	1607 County Hospital Road
670809	10/29/2015 9:16	Water Quality Complaint	DOHN, REBECCA	55 Willow
671638	11/2/2015 12:41	Water Quality Complaint	WILSON, JANE	2201 21st Avenue South
672878	11/5/2015 14:47	Water Quality Complaint	WILSON, JANE	3730 Amy Lynn Drive
673415	11/9/2015 9:17	Water Quality Complaint	KELLEY, LYNDA Y	2506 Felts Avenue
675057	11/16/2015 7:12	Water Quality Complaint	LANGFORD, GILLIAN	1911 Nolensville Rd
677521	11/25/2015 7:47	Water Quality Complaint	LANGFORD, GILLIAN	1077 General George Patton Road
681889	12/11/2015 12:27	Water Quality Complaint	HAYES, JOSH	3436 Towne Village
684231	12/22/2015 12:45	Water Quality Complaint	LANGFORD, GILLIAN	121 Wentworth Avenue
684424	12/23/2015 10:12	Water Quality Complaint	WILSON, JANE	Cumberland River (MM 185 & 190)
685531	12/30/2015 13:35	Water Quality Complaint	WILSON, ELIZABETH	47 Hart Street
685620	12/30/2015 14:35	Water Quality Complaint	WILSON, JANE	Cumberland River At Stones River
686435	1/5/2016 7:59	Water Quality Complaint	WILSON, JANE	1005 Dr. Db Todd Jr Blvd
686719	1/5/2016 14:51	Water Quality Complaint	WILSON, JANE	115 Cherokee Hills Drive
687033	1/6/2016 13:16	Water Quality Complaint	LANGFORD, GILLIAN	6101 New York Avenue
687483	1/7/2016 14:45	Water Quality Complaint	LANGFORD, GILLIAN	913 Joseph Avenue
687513	1/7/2016 15:58	Water Quality Complaint	HAYES, JOSH	515 Davidson
687551	1/8/2016 7:03	Water Quality Complaint	LANGFORD, GILLIAN	Bandywood Drive & Hillsboro Circle
687718	1/8/2016 12:26	Water Quality Complaint	LANGFORD, GILLIAN	2202 Rosa Parks Ave



Table 7H.1 – Illicit Discharge Investigations Initiated during FY16 (Continued)

ID Number	Date/Time Initiated	Description	Dispatched To	Problem Address
688075	1/11/2016 11:39	Water Quality Complaint	WILSON, JANE	4456 Winton Drive
689938	1/19/2016 8:37	Water Quality Complaint	WILSON, ELIZABETH	5531 Edmondson Pike
690209	1/19/2016 12:33	Water Quality Complaint	WILSON, JANE	600 Twin Oaks Drive
690804	1/21/2016 14:41	Water Quality Complaint	WILSON, JANE	801 Royal Parkway
693974	2/2/2016 11:01	Water Quality Complaint	WILSON, ELIZABETH	1726 Arthur Ave
694545	2/3/2016 11:47	Water Quality Complaint	WILSON, ELIZABETH	254 New Sawyer Brown Road
695019	2/4/2016 13:06	Water Quality Complaint	WILSON, ELIZABETH	15 Lindley Ave.
695415	2/5/2016 14:03	Water Quality Complaint	WILSON, ELIZABETH	6114 Keeling
698243	2/17/2016 13:03	Water Quality Complaint	WILSON, JANE	4507b Granny White Pike
699652	2/22/2016 11:43	Water Quality Complaint	LANGFORD, GILLIAN	1814 Guest Drive
701474	2/26/2016 11:10	Water Quality Complaint	LANGFORD, GILLIAN	6413 Robertson Avenue
701706	2/29/2016 7:11	Water Quality Complaint	WILSON, ELIZABETH	7008 Charlotte Pike
701842	2/29/2016 9:44	Water Quality Complaint	WILSON, ELIZABETH	6410 Charlotte Pike
702011	2/29/2016 12:02	Water Quality Complaint	HAYES, JOSH	2200 Elm Hill Pike
702618	3/1/2016 14:42	Water Quality Complaint	WILSON, ELIZABETH	400 Benita Drive
703394	3/3/2016 13:13	Water Quality Complaint	LANGFORD, GILLIAN	282 Becklea Drive
703783	3/4/2016 13:21	Water Quality Complaint	WILSON, JANE	6930 Charlotte Pike
704041	3/7/2016 9:36	Water Quality Complaint	HAYES, JOSH	7492 Harness
704256	3/7/2016 13:12	Water Quality Complaint	WILSON, ELIZABETH	Atumn Crossing
704625	3/8/2016 11:35	Water Quality Complaint	LANGFORD, GILLIAN	5010 Charlotte Avenue
705259	3/9/2016 11:35	Water Quality Complaint	HAYES, JOSH	7851 Strawberry Hill
706710	3/14/2016 14:27	Water Quality Complaint	WILSON, JANE	3003 Dickerson Pike
710246	3/24/2016 13:30	Water Quality Complaint	WILSON, ELIZABETH	3701 Hillsbrook Drive
712116	3/30/2016 14:43	Water Quality Complaint	WILSON, ELIZABETH	5615 Charlotte Pike
714462	4/6/2016 8:39	Water Quality Complaint	HAYES, JOSH	715 Massman Drive
714719	4/6/2016 14:10	Water Quality Complaint	LANGFORD, GILLIAN	6775 Holt Road
715094	4/7/2016 10:33	Water Quality Complaint	WILSON, ELIZABETH	206 Bonnallynn Drive
715340	4/7/2016 14:33	Water Quality Complaint	LANGFORD, GILLIAN	1602 21st Ave South
716701	4/12/2016 10:22	Water Quality Complaint	PETTY, JACQUELYN	544 Raleigh Drive
716704	4/12/2016 10:25	Water Quality Complaint	PETTY, JACQUELYN	5360 Edmondson Pike
716708	4/12/2016 10:28	Water Quality Complaint	PETTY, JACQUELYN	1162 Antioch Pike
717114	4/13/2016 9:17	Water Quality Complaint	WILSON, JANE	1801 Jefferson Street
718525	4/18/2016 8:48	Water Quality Complaint	WILSON, JANE	831 Sutton Hill Road
720255	4/21/2016 14:21	Water Quality Complaint	LANGFORD, GILLIAN	136 Hickory Street
721595	4/26/2016 9:09	Water Quality Complaint	WILSON, ELIZABETH	1018 2nd Avenue South
724356	5/3/2016 10:48	Water Quality Complaint	WILSON, ELIZABETH	2508 Elm Hill Pike
726805	5/10/2016 7:43	Water Quality Complaint	HAYES, JOSH	3248 Blackwood Drive
729414	5/16/2016 14:21	Water Quality Complaint	LANGFORD, GILLIAN	8898 Highway 70
732034	5/23/2016 12:57	Water Quality Complaint	WILSON, ELIZABETH	1101 Cherry Ave
735055	6/1/2016 7:43	Water Quality Complaint	WILSON, ELIZABETH	Village Trail Drive
736066	6/2/2016 13:54	Water Quality Complaint	HAYES, JOSH	4936 Stillwood
737526	6/6/2016 13:52	Water Quality Complaint	HAYES, JOSH	208 Fesslers Lane
738670	6/8/2016 13:15	Water Quality Complaint	HAYES, JOSH	611 N. Fifth Street
739982	6/10/2016 14:41	Water Quality Complaint	LANGFORD, GILLIAN	108 Westwood Trace
740419	6/13/2016 14:44	Water Quality Complaint	LANGFORD, GILLIAN	131 Bellevue Road
741070	6/14/2016 14:45	Water Quality Complaint	LANGFORD, GILLIAN	902b Moynar Ave
742995	6/17/2016 13:35	Water Quality Complaint	HAYES, JOSH	Paragon Mills & Nolensville
743628	6/20/2016 13:45	Water Quality Complaint	WILSON, ELIZABETH	25 Lutie Street
744153	6/21/2016 13:27	Water Quality Complaint	WILSON, ELIZABETH	2104 Hobbs Rd
745888	6/24/2016 10:41	Water Quality Complaint	HAYES, JOSH	1433 Cowan Court

Note: While many of the investigations resulted in the detection and elimination of illicit discharges, there were many that resulted in no issues being found. Every investigation, regardless of the findings, were tracked within the Cityworks database.



Table 7H.2 – Spill Response Investigations Initiated by NPDES during FY16

ID Number	Date/Time Initiated	Description	Dispatched To	Problem Address
636226	7/2/2015 4:47	Spill Response	BINDER, DALE	165 South Mm95
640547	7/16/2015 6:51	Spill Response	BINDER, DALE	202 Neelys Bend Dr
640640	7/16/2015 8:38	Spill Response	MULLEN, VERONICA	Old Hickory Blvd And Andrew Jackson Pkwy
641451	7/20/2015 12:29	Spill Response	BINDER, DALE	707 N 5th Street
645397	7/31/2015 12:30	Spill Response	HAYES, JOSH	3400 Briley Park Boulevard
652569	8/25/2015 7:44	Spill Response	HAYES, JOSH	Massman & Appleton
655823	9/3/2015 14:11	Spill Response	GARMON, MARY	4410 Elkins
666504	10/13/2015 14:19	Spill Response	DRURY, TRAVIS D	Appleton Dr
669312	10/23/2015 5:58	Spill Response	BINDER, DALE	95 Wallace Road
670400	10/28/2015 8:49	Spill Response	BINDER, DALE	165 At Exit 95
672388	11/4/2015 12:37	Spill Response	BINDER, DALE	939 Anderson Road
672923	11/6/2015 6:32	Spill Response	BINDER, DALE	2901 Bell Road
673219	11/6/2015 14:14	Spill Response	HAYES, JOSH	1411 Dickerson Pike
673477	11/9/2015 11:26	Spill Response	WILSON, JANE	1328 Dalemere Drive
676735	11/22/2015 22:06	Spill Response	HAYES, JOSH	1229 Lischey Ave
679659	12/7/2015 10:24	Spill Response	BINDER, DALE	Wedgewood @ I65
684053	12/22/2015 7:33	Spill Response	WILSON, JANE	4711 Andrew Jackson Pkwy
685952	1/4/2016 8:13	Spill Response	WILSON, JANE	944 21st Avenue North
686289	1/4/2016 13:49	Spill Response	WILSON, JANE	4613 Lebanon Pike
687926	1/11/2016 8:33	Spill Response	BINDER, DALE	2106 Buena Vista Pike
691097	1/25/2016 10:00	Spill Response	WILSON, JANE	2728 Eugenia Avenue
697484	2/16/2016 9:06	Spill Response	BINDER, DALE	1400 Eagleview
699169	2/19/2016 13:31	Spill Response	WILSON, JANE	317 Arlington Avenue
699516	2/22/2016 9:50	Spill Response	BINDER, DALE	Bryan Street & Old Hickory
703540	3/4/2016 7:31	Spill Response	BINDER, DALE	2601 Murfreesboro Pike
706333	3/14/2016 7:04	Spill Response	BINDER, DALE	2201 Whites Creek
706370	3/14/2016 8:10	Spill Response	HAYES, JOSH	3200 Clarksville
708411	3/18/2016 11:28	Spill Response	WILSON, JANE	Fredericksburg Way At Carriage Ct
708542	3/18/2016 14:43	Spill Response	WILSON, JANE	546 Donelson Pike
712646	3/31/2016 13:00	Spill Response	WILSON, ELIZABETH	523 Bellmore Place
719976	4/21/2016 7:50	Spill Response	LANGFORD, GILLIAN	5855 Charlotte Pike
725782	5/6/2016 8:45	Spill Response	WILSON, JANE	645 Longhunter Court
726812	5/10/2016 8:07	Spill Response	LANGFORD, GILLIAN	2901 Lower Walker Creek Road
728163	5/12/2016 14:31	Spill Response	WILSON, JANE	1837 Glade Street
728390	5/13/2016 7:42	Spill Response	WILSON, JANE	3066 Penn Meade Way
731631	5/23/2016 7:24	Spill Response	BINDER, DALE	120 2nd Ave North
732997	5/25/2016 13:05	Spill Response	WILSON, ELIZABETH	2700 Eugina Ave
736985	6/4/2016 13:13	Spill Response	LANGFORD, GILLIAN	4424 Lebanon Pike
744078	6/21/2016 11:23	Spill Response	WILSON, ELIZABETH	4101 Lebanon Pike
744406	6/22/2016 7:42	Spill Response	WILSON, ELIZABETH	Trinity Lane



Table 7H.3 – Private Sewer Discharge Investigations Initiated by NPDES during FY16

ID	Date/Time Initiated	Description	Dispatched To	Problem Address
643454	7/27/2015 10:40	Private SSO	Dohn, Rebecca	100 Emely
681627	12/10/2015 13:27	Private SSO	Hayes, Josh	800 Reeves Drive
683678	12/18/2015 13:02	Private SSO	Hayes, Josh	431 Wimpole
686228	1/4/2016 11:52	Private SSO	Langford, Gillian	2327 Una Antioch Pike
699710	2/22/2016 13:02	Private SSO	Hayes, Josh	4753 Post
726501	5/9/2016 12:53	Private SSO	Hayes, Josh	1316 Tulip Grove



Table 7H.4 - Failing Septic System Investigations Performed by the Health Department in FY16

Map & Parcel	Date Received	Street Name	Last Name	Job Description	Environmentalist	Sewage on Ground	Notice Issued
039-00-0 226.00	7/15/2015	5267 Simpkins Road	Fortmeyer	Failure	Fellwock	7/28/2015	
024-00-0 074.00	10/21/2015	753 Dry Creek Road	Garland	Failure	Fellwock	10/21/2015	
113-00-0 131.00	9/18/2015	7640 Buffalo Road	Boyce	Failure	Fellwock	10/5/2015	
021-00-0 084.00	11/2/2015	5110 Rawlings Road	Fronheiser	Failure	Fellwock	11/5/2015	
011-00-0 016.00	11/9/2015	3376 Ivey Point	Spencer	Failure	Fellwock	11/9/2015	
021-00-0 296.00	3/1/2016	6141 Clarksville Pike	Reynolds	Failure	Fellwock	3/4/2016	3/10/2016
168-07-0 005.00	3/31/2016	8508 Old Harding Lane	McGrady	Failure	Fellwock	4/4/2016	
149-04-0 047.00	4/4/2016	335 Bell Road	McDaniel	Failure	Fellwock	4/5/2016	
058-7-0 002.00	4/1/2016	4806 Drakes Branch Road	Moore	Failure	Fellwock	4/19/2016	4/21/2016
047-00-0 040.00	3/30/2016	5158 Old Hydes Ferry Pike	Smith	Failure	Fellwock	4/25/2016	4/26/2016
174-00-0 145.00	4/25/2016	5633 Cane Ridge Road	Bryant	Failure	Fellwock	5/4/2016	5/5/2016
008-00-0 186.00	4/28/2016	7780 Whites Creek Pike	Graves	Failure	Fellwock	5/5/2016	5/19/2016
124-00-0 048.00	4/26/2016	2366 Granny Wright Lane	Stabenow	Failure	Fellwock	5/18/2016	5/19/2016
011-00-0 201.00	6/22/2016	2942 Greer Road	Pathammazong	Failure	Fellwock	6/22/2016	6/23/2016
174-00-0 056.00	6/17/2016	3447 Old Franklin Road	Clark	Failure	Fellwock	6/22/2016	6/24/2016
164-00-0 141.01	6/16/2016	12466 Old Hickory Blvd	Barrett	Failure	Fellwock	6/22/2016	6/24/2016
155-00-0 007.00	6/28/2016	8533 McCrory Lane	Thoni	Failure	Fellwock	6/28/2016	6/29/2016
032-00-0 095.00	5/28/2015	4494 Brick Church Pike	Grant	Failure	Fellwock	6/1/2015	6/3/2015



Table 7H.5 – MWS Estimated/Reported Sewage Overflows in FY16

	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	Total
Wet Weather Overflows - CSO Permitted	29	8	15	13	13	10	2	14	14	5	16	26	165
Wet Weather Overflows - sewer (non pumps)	1	1	2	3	6	11	4	14	6	3	3	5	59
Wet Weather Overflows - Pump Stations	0	0	0	1	9	3	1	12	3	1	1	0	31
Wet Weather Overflows SSO- TOTAL	1	1	2	4	15	14	5	26	9	4	4	5	90
Dry Weather Overflows - sewer (non-pumps)	1	2	5	5	4	9	9	4	10	3	4	3	59
Dry Weather Overflows - Pump Stations	2	0	1	0	0	0	0	0	0	0	0	0	3
Dry Weather Overflows - TOTAL	3	2	6	5	4	9	9	4	10	3	4	3	62
# of Overflows that Required Remediation	0	0	0	0	0	0	0	0	0	0	0	0	0
# of Overflows that Reached Creeks - Sewer	29	8	17	15	20	26	11	28	23	7	19	31	234
# of Overflows that Reached Creeks - Pump Stations (All)	2	0	1	1	9	3	1	12	3	1	1	0	34
# 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, but the term “Remediation” is reserved for large overflows/line breaks in which more significant clean-up actions are required that may include hiring outside contractors.



Table 8F.1 - MWS Stormwater Maintenance Work Order Numbers for FY16

Ditch Excavation & Repair	
Ditch Excavated/Repaired (linear feet)	34,678
Debris Removed (cubic yards)	1,638
Debris Removal (misc)	
Debris Removed (cubic yards)	177,738
Inlet Maintenance	
Inlets Cleaned	16,111
Inlets Repaired	1,174
Estimated Material Removed (pounds)	144,999
Walls & Headwalls	
Walls/Headwalls Built	407
Walls/Headwalls Repaired	24
Cross Drains	
Cross Drains Cleaned	321
Cross Drains Replaced	0
Erosion	
Matting Used (square feet)	170,932

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 FY16

	July	August	September	October	November	December	January	February	March	April	May	June	Total
Debris Collected (tons)	331.49	239.17	307.96	465.81	682.28	396.82	254.42	291.20	253.92	302.29	302.29	455.82	4,283.47
Miles of Street Swept	1,857.42	1,265.63	1,565.48	1,457.66	1,946.57	1,524.05	1,457.06	1,499.09	943.69	1,152.94	1,152.94	1,485.17	17,307.69



Table 9F.1 - Development and Review Section Plan Review Numbers for FY16

	July	August	September	October	November	December	January	February	March	April	May	June	Total
Number of Plan Submittals	287	230	273	331	178	256	238	268	247	247	177	302	3034
Number of Plan Approvals	133	104	113	162	122	111	110	130	127	120	98	120	1450
Number of Projects Submitted Using Low Impact Development Techniques	8	5	6	11	3	6	6	6	13	11	6	14	95

Note: The Cityworks report is called "SW Annual Plan Review" and is run on any data range entered by the user. The data is compiled by month. The 1st row (Number of Plan Submittals) is a summary of specific plan review activities (SWRV_SUF, SWRV_TCH, SWRV_AB and PLRVWSW) made available for review on SWGR or any Planning application. The 2nd row (Number of Plan Approvals) is a summary of specific plan review activities (SWRV_SUF, SWRV_TCH, SWRV_AB and PLRVWSW) on SWGR or any Planning application that were completed with a result code that allows them to move forward "'APPROVED', 'COND', 'IGNORENA', 'NO PERMIT', 'PLAPPROVED', 'PLAWC', 'PLNOTAPP', 'PLCOND', 'PLIGNORENA'..



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

Site Name	Site Location	SARA Site	TMSP Site	RMCP Site	Subst. Loader	Date Insp.
PSC Metals, Inc.	710 S 1st St	No	Yes	No	Yes	8/21/15
Carlex Nashville Glass Plant (Carlex)	7200 Centennial Bv	Yes	No	No	No	6/10/14
CMC Rebar Nashville	851 Visco Dr	Yes	No	No	No	4/17/14
Cone Solvents Inc Nashville (Frontier Logistical Services)	1830 Linder Industrial Dr	Yes	No	No	No	4/1/14
Country Delite Farms Llc (Suiza)	1401 Church St	Yes	No	No	No	5/22/14
Exxon Mobil Pipeline Corp Nashville Terminal	1741 Ed Temple Blvd	Yes	No	No	No	7/8/14
Five Star Foods	2621 Eugenia Ave	Yes	No	No	No	2/25/13
Harcros Chemicals Inc	1418 Poplar Ln	Yes	No	No	No	1/15/16
Hennessy Industries	1601 J P Hennessy Dr	Yes	No	No	No	5/2/14
Land O'lakes Purina Feed Llc - Nashville Tn	3601 Trousdale Dr	Yes	No	No	No	3/18/16
Motiva Nashville Terminal	1717 61st Ave N	Yes	No	No	No	6/23/16
Nashville Chemical & Equipment Co Inc	7001 Westbelt Dr	Yes	No	No	No	6/27/13
Nashville Wire Products	295 Driftwood St	Yes	No	No	No	7/18/14
Palm Commodities International, Inc Sales	1717 J P Hennessy Dr	Yes	No	No	No	4/30/14
Perfection Molders	213 Connell St	Yes	No	No	No	5/8/14
Polar Technology Llc (Hudson)	1360 Foster Ave	Yes	No	No	No	2/5/14
Quad Graphics Nashville	2947 Brick Church Pike	Yes	No	No	No	4/15/14
Reddy Ice-Nashville	7261 Centennial Bv	Yes	No	No	No	6/17/16
Superior Trim (Doodleco)	511 Bridgeway Ave	Yes	No	No	No	4/23/14
Triumph (Vought) Aircraft Industries Inc (Triumph)	1432 Vultee Blvd	Yes	No	No	No	6/16/14
U S Smokeless Tobacco Manufacturing Co	800 Harrison St	Yes	No	No	No	5/8/14
Whirlpool Corp	1714 Heil Quaker Bv	Yes	No	No	No	1/31/14
All Star Recycling	460a Craighead Street	No	No	No	No	
Vulcan Quarry - Hermitage	Central Pike	No	No	No	No	
A. Schulman, Inc.	481 Allied Dr	Yes	Yes	No	No	11/21/12
Akzo Nobel Coatings Inc.	20 Culvert St	Yes	Yes	No	No	3/8/16
Ashland Distribution (Nexeo Solutions)	2315 Clifton Ave	Yes	Yes	No	No	3/13/14
Cumberland Terminals, Inc.	7260 Centennial Bv	Yes	Yes	No	No	2/12/14
E. I. Dupont De Nemours & Co., Inc. - Old Hickory	1002 Industrial Dr	Yes	Yes	No	No	5/29/14
Ergon Terminals, Inc. - Nashville	1114 Visco Dr	Yes	Yes	No	No	8/25/16
Fiberweb, Inc. (Polymer Group)	70 Old Hickory Blvd	Yes	Yes	No	No	5/29/14
Greer Stop Nut	481 McNally Dr	Yes	Yes	No	No	2/5/14
Innophos, Inc.	4600 Centennial Bv	Yes	Yes	No	No	5/7/14
Marathon Petroleum Company Llc	930 Youngs Ln	Yes	Yes	No	No	5/16/14
Marathon Petroleum Company Llc	5 Main St	Yes	Yes	No	No	5/16/14
Marathon Petroleum Company, Llc - Bordeaux Terminal	2922 Hydes Ferry Rd	Yes	Yes	No	No	5/16/14
Marathon Terminal (Blanchard Terminal)	1409 51st Ave N	Yes	Yes	No	No	4/29/14
North American Galvanizing Co.(Azz Galvanizing)	200 32nd Ave N	Yes	Yes	No	No	3/18/14
Peterbilt Motors Company	430 Myatt Dr	Yes	Yes	No	No	2/5/14
Purity Dairies	360 Murfreesboro Pike	Yes	Yes	No	No	6/3/16
Safety-Kleen Systems, Inc.	215 Whitsett Rd	Yes	Yes	No	No	4/23/14
Sherman-Dixie Concrete Industries, Inc.	3641 Central Pike	Yes	Yes	No	No	12/10/13
Springs Global Us-Nashville Plant	7200 Cockrill Bend Blvd	Yes	Yes	No	No	2/5/16
Warren Paint & Color Co	700 Wedgewood Ave	Yes	Yes	No	No	4/9/14
3M	400 Swinging Bridge Road	No	Yes	No	No	
AAA Industries Inc.	3141 Ambrose Ave	No	Yes	No	No	
Abernathy Truck Salvage, Inc.	865 W Trinity Ln	No	Yes	No	No	
ABF Freight System, Inc. - Nashville	890 Visco Dr	No	Yes	No	No	
Advanced Composites (Tn)	3050 Sidco Dr	No	Yes	No	No	
All State Auto Parts, Inc.	515 Nawakwa Trl	No	Yes	No	No	
Allied Systems Ltd - Nashville	741 Harding Pl	No	Yes	No	No	
Allied Waste	700 Murfreesboro Park	No	Yes	No	No	
American Appliance Products - Madison	1129 Myatt Blvd	No	Yes	No	No	
Associated Wholesale Grocers	500 S Cartwright St	No	Yes	No	No	
ATI Metal Working Products	1 Teledyne Place	No	Yes	No	No	
Bellar Auto Parts, Inc.	670 James Ave	No	Yes	No	No	2/18/14
Besway Systems Inc	305 Williams Ave	No	Yes	No	No	
BFI Of Nashville	700 Murfreesboro Pike	No	Yes	No	No	



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

Site Name	Site Location	SARA Site	TMSP Site	RMCP Site	Subst. Loader	Date Insp.
BNE Properties, Inc.	317 Arlington Ave	No	Yes	No	No	
Central Pike Class IV Landfill	3530 Central Park	No	Yes	No	No	
Cherokee Marine Terminal	520 Cowan St	No	Yes	No	No	
Circle Delivery Service, Inc.	125 Caden Dr	No	Yes	No	No	
Clopay Advanced Printing	555 Harding Industrial Dr	No	Yes	No	No	
Clopay Plastics Products	463 Harding Industrial Dr	No	Yes	No	No	
Coca-Cola Bottling Co. of Nashville	407 Craighead Street	No	Yes	No	No	
CSX Intermodal, Inc - Nashville Terminal	3086 Sidco Dr	No	Yes	No	No	
Cummings Signs Arch. and Banking Div.	4560 Trousdale Dr	No	Yes	No	No	
D & R Motors & Recycling	616 Durrett Dr	No	Yes	No	No	
Dicaperl Minerals Corp. (Chemrock)	2601 Osage St	No	Yes	No	No	6/13/12
Dixie Wire	5901 California Avenue	No	Yes	No	No	
Dry Creek Wastewater Treatment Plant	1600 2nd Ave N	No	Yes	No	No	
Earthgrains Banking Co., Inc (Sara Lee Bakery)	2407 Franklin Pike	No	Yes	No	No	
Embraer Aircraft Maintenance Services, Inc.	50 Airways Blvd	No	Yes	No	No	
Essex Plastics Midwest, LLC D.B.A. Flexol Packaging Corp.	1105 Visco Dr	No	Yes	No	No	
Fed Ex Ground - Nashville Knight Rd	3301 Knight Dr	No	Yes	No	No	
Federal Express - BNAA	1931 Air Lane Dr	No	Yes	No	No	
First Response, Inc.	1411 Dickerson Pike	No	Yes	No	No	
Firstexpress Inc.	1135 Freightliner Dr	No	Yes	No	No	
Flex Sol Packaging Corp.	1105 Visco Drive	No	Yes	No	No	
Four Lane Auto Salvage Inc.	400 W Trinity Ln	No	Yes	No	No	
FTEC, Inc. (Palfleet Truck)	1801 Lebanon Park	No	Yes	No	No	
GAF Materials Corp.	970 Fiber Glass Rd	No	Yes	No	No	
Green Tree Processing (On-site Environmental)	1501 Baptist World Center Dr	No	Yes	No	No	2/19/16
Grooms Engines	611 4th Ave S	No	Yes	No	No	
Hailey's Harbor, Inc.	3730 Amy Lynn Dr	No	Yes	No	No	11/5/15
Hamilton Machine Co Inc	464 Woodycrest Ave	No	Yes	No	No	
Hilltop Auto Salvage	2408 Dickerson Park	No	Yes	No	No	1/12/16
HMA Contractors Asphalt Plant #1	820 Ezell Pike	No	Yes	No	No	
Howard Baer, Inc.	1301 Foster Ave	No	Yes	No	No	
Ingram Materials Sand Yard	1030 Visco Dr	No	Yes	No	No	
John Bouchard & Sons Co	1024 Harrison St	No	Yes	No	No	
John C. Tune Airport	110 Tune Airport Dr	No	Yes	No	No	
John W. McDougall Co., Inc.	3731 Amy Lynn Dr	No	Yes	No	No	
Jones Brothers, LLC	129 Bush Rd	No	Yes	No	No	
Kohl & Madden Plant #1	404 Harding Ind Dr	No	Yes	No	No	
Lee Brick and Block	3201 Franklin Limestone Rd	No	Yes	No	No	
Lion Oil Company - Nashville	90 Van Buren St	No	Yes	No	No	
Lojac Danley Plant	3185 Franklin Limestone Rd	No	Yes	No	No	
Lojac Downtown Plant	500 Cowan St	No	Yes	No	No	
LoJac Hermitage Asphalt Plant	3552 Hermitage Industrial Dr	No	Yes	No	No	
LoJac Nashville River Road Plant	4404 River Rd	No	Yes	No	No	
Lone Star Industries, Inc. d/b/a Buzzi Unicem USA - Nashville	1702 2nd Ave N	No	Yes	No	No	
M & W Transportation Co., Inc.	101 Terminal Ct	No	Yes	No	No	
Magellan Nashville I Terminal	1609 63rd Ave N	No	Yes	No	No	
Magellan Terminals Holdings LP	1441 51st Ave N	No	Yes	No	No	
Metal Management Nashville, LLC	1840 Linder Industrial Dr	No	Yes	No	No	
Metro Nashville District Energy System	90 Peabody St	No	Yes	No	No	
Metro Salvage, Inc.	1975 Springfield Hwy	No	Yes	No	No	
Mid-South Wire	1070 Visco Dr	No	Yes	No	No	
Milan Express Co., Inc. - Nashville	825 Visco Dr	No	Yes	No	No	
N & S Inc.	361 Herron Dr	No	Yes	No	No	
Nashville Central STP	1600 2nd Ave N	No	Yes	No	No	
Nashville Machine Company	530 Woodycrest Ave	No	Yes	No	No	
Nashville Machine Elevator Inc	510 Interstate Blvd S	No	Yes	No	No	
Nashville Recycling Co	10 Van Buren St	No	Yes	No	No	
Nashville VMF	707 Chestnut St	No	Yes	No	No	



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

Site Name	Site Location	SARA Site	TMSP Site	RMCP Site	Subst. Loader	Date Insp.
Nashville Wire Products	1604 COUNTY HOSPITAL RD	No	Yes	No	No	
Neely's Bend Inc.	1327 NEELYS BEND RD	No	Yes	No	No	
Paulo Products Company	3206 AMBROSE AVE	No	Yes	No	No	
Pepsi Bottling Group	715 THOMPSON LN	No	Yes	No	No	
PlastiCycle	5801 CENTENNIAL BLVD	No	Yes	No	No	
Portland Express, Inc.	531 WOODYCREST AVE	No	Yes	No	No	
Pull-A-Part, LLC	7114 Centennial Boulevard	No	Yes	No	No	
QRS River Hills Recycling Facility	630 MYATT DR	No	Yes	No	No	
Quality Plating	71 FESSLERS LN	No	Yes	No	No	
Quickrete - Nashville	6614 ROBERTSON AVE	No	Yes	No	No	4/27/16
Radiant Technologies	1845 ELM HILL PARK	No	Yes	No	No	
River Cement Sales Co dba Buzzi Unicem USA	1818 CEMENT PLANT RD	No	Yes	No	No	
Rivergate Auto Parts, Inc.	1471 GALLATIN PIKE	No	Yes	No	No	
Rogers Group, Inc. (Reostone Quarry)	6514 Robertson Avenue	No	Yes	No	No	5/11/16
Rogers Manufacturing Company	110 Transit Avenue	No	Yes	No	No	
Rolling Frito-Lay Sales, LP - Nashville DC	130 SPENCE LN	No	Yes	No	No	
Sadler Bros Trucking & Leasing Company, Inc.	436 ENOS REED DR	No	Yes	No	No	
Schreiber Foods, Inc.	4350 HURRICANE CREEK BLVD	No	Yes	No	No	
Sequatchie Concrete Service, Inc.	306 COWAN ST	No	Yes	No	No	
Servitech Industries, Inc.	550 BRICK CHURCH PARK DR	No	Yes	No	No	
Smitty's Auto Parts	1609 BELL RD	No	Yes	No	No	
Smurfit-Stone Container -- Nashville	707 19TH AVE N	No	Yes	No	No	
Southeastern Freight Lines, Inc.	4141 MURFREESBORO PARK	No	Yes	No	No	
Southland Brick and Block	686 FRANKLIN LIMESTONE RD	No	Yes	No	No	
Star Transportation	1125 FOSTER AVE	No	Yes	No	No	
Steel Summit Tennessee	1718 J P HENNESSY DR	No	Yes	No	No	
Supreme Oil Central, Inc.	185 SPENCE LN	No	Yes	No	No	4/24/13
Techno-Aide, Inc.	7117 CENTENNIAL BV	No	Yes	No	No	
Tennessee Air National Guard	240 KNAPP BLVD	No	Yes	No	No	
Tennessee Commercial Warehouse - Nashville	22 STANLEY ST	No	Yes	No	No	
Tennessee Imports Auto Salvage	326 ORIEL AVE	No	Yes	No	No	
The Mulch Company	665 VERNON AVE	No	Yes	No	No	
TRANSFLO Terminal Services, Inc. (Nashville)	426 CHESTNUT ST	No	Yes	No	No	
TREW Industrial Wheels Inc.	310 WILHAGAN RD	No	Yes	No	No	
Truck Center, Inc.	518 HAGAN ST	No	Yes	No	No	
Truck Shine	332 WILHAGAN RD	No	Yes	No	No	
United Parcel Service - Nashville Massman Dr.	705 MASSMAN DR	No	Yes	No	No	
United Parcel Service - Nashville Whites Creek Pike	3205 WHITES CREEK PARK	No	Yes	No	No	
United Parcel Service - TCI	7525 HICKORY HILLS CT	No	Yes	No	No	
USF Holland, Inc.	500 OAKBLUFF LN	No	Yes	No	No	
Vaughn Manufacturing Co	757 DOUGLAS AVE	No	Yes	No	No	
VF Imagewear, Inc.	554 HICKORY HL	No	Yes	No	No	
Vietti Foods Company, Inc.	636 SOUTHGATE AVE	No	Yes	No	No	
Vintage Millworks Inc	525 MERRITT AVE	No	Yes	No	No	
Waste Management C&D Recycle Center	3211 FRANKLIN LIMESTONE RD	No	Yes	No	No	
Waste Management of Tennessee-Nashville	4651 AMY LYNN DR	No	Yes	No	No	
Waste Mangement Truck Maintenance Facility/Garbage Transfer St	1428 ANTIOCH PARK	No	Yes	No	No	
West Nashville Auto Recycling Inc.	5604 CENTENNIAL BV	No	Yes	No	No	
Wikoff Color Corporation	214 Omonhundro Place	No	Yes	No	No	
Lawson Ready Mix	5915 RIVER RD	Yes	No	Yes	No	6/19/14
Nashville Ready Mix of West Nashville	5853 RIVER RD	Yes	No	Yes	No	
Sherman-Dixie Concrete Industries, Inc.	200 42ND AVE N	Yes	No	Yes	No	8/13/15
Smyrna Ready Mix Concrete, 2nd Ave	1136 2ND AVE N	Yes	No	Yes	No	4/1/15
SmyrnaaReady Mix Concrete, Inc. - Visco Drive	1020 VISCO DR	Yes	No	Yes	No	1/30/14
IMI Ready Mix - Cowan Street	1433 COWAN CT	No	No	Yes	No	6/22/16
IMI Ready Mix- Robertson Road	6616 ROBERTSON AVE	No	No	Yes	No	4/7/16
Smyrna Mix - Basswood Drive	711 BASSWOOD AVE	No	No	Yes	No	
Smyrna Mix Concrete	6677 RIVER ROAD PIKE	No	No	Yes	No	
Smyrna Ready Mix	3040 BRANDAU RD	No	No	Yes	No	



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

Site Name	Site Location	SARA Site	TMSP Site	RMCP Site	Subst. Loader	Date Insp.
Nashville Ready Mix, Inc. Baptist World	1326 BAPTIST WORLD CENTER DR	No	Yes	Yes	No	
Airgass USA LLC	7236 Centennial	Yes	No	No	No	7/22/16
Azko Nobel	20 Culvert Street	Yes	No	No	No	
J B Weimar	7281 Centennial Blvd	Yes	No	No	No	
Superior Solvents & Chemicals	518 SWINGING BRIDGE RD	Yes	No	No	No	1/5/15
TWB Antioch	6050 Dana Way	Yes	No	No	No	
American Airlines Fuel Storage Facility at BNA	929 Airport Service Road	No	No	No	No	
Automotive Components Holdings, LLC Nashville Property	7200 Centennial Blvd	No	No	No	No	
Bridgestone Americas Tire Operations, LLC	1201 Bridgestone Parkway	No	No	No	No	
Elite Septic Tank Service	450 Edenwold Road	No	No	No	No	
Harpeth Valley Utility District	5910 River Road	No	No	No	No	
Hunter Marine	6615 Robertson Ave.	No	No	No	No	3/29/16
Metro Nashville Airport Authority	1 Terminal Drive	No	No	No	No	
Music City Processing	1629 Elm Hill Pike	No	No	No	No	
Parman Energy	7101 Cockrill Bend Blvd	No	No	No	No	11/24/14
Precision Fabrics Group, Inc	530 Myatt Drive	No	No	No	No	
Green tree Processing (Onsite Environmental)	1421 Baptist World Center Drive	Yes	Yes	No	No	2/19/16
Rogers Group (Whites Creek Asphalt Plant)	2827 Whites Creek Pike	No	Yes	No	No	9/30/15
Shrum Auto Salvage	1050 Old Buck Hill Road	No	Yes	No	No	3/21/13



Table 10F.1 - Industrial Sites Inspected during FY16

Facility Name	Address	SARA Title III, Sec. 313	Inspection Date
Motiva Nashville Terminal	1717 61st Ave N	Yes	6/23/2016
IMI Ready Mix - Cowan Street	1433 Cowan Ct	No	6/22/2016
Reddy Ice-Nashville	7261 Centennial Blvd	Yes	6/17/2016
Purity Dairies	360 Murfreesboro Pike	Yes	6/3/2016
Rogers Group, Inc. (Reostone Quarry)	6514 Robertson Avenue	No	5/11/2016
Quickrete - Nashville	6614 Robertson Ave	No	4/27/2016
IMI Ready Mix- Robertson Road	6616 Robertson Ave	No	4/7/2016
Hunter Marine	6615 Robertson Ave.	No	3/29/2016
Land O'lakes Purina Feed Llc - Nashville Tn	3601 Trousdale Dr	Yes	3/18/2016
Akzo Nobel Coatings Inc.	20 Culvert St	Yes	3/8/2016
Green Tree Processing (Onsite Environmental)	1421 Baptist World Center Drive	Yes	2/19/2016
Green Tree Processing (On-Site Environmental)	1501 Baptist World Center Dr	No	2/19/2016
Springs Global Us-Nashville Plant	7200 Cockrill Bend Blvd	Yes	2/5/2016
Harcros Chemicals Inc	1418 Poplar Ln	Yes	1/15/2016
Hilltop Auto Salvage	2408 Dickerson Park	No	1/12/2016
Hailey's Harbor, Inc.	3730 Amy Lynn Dr	No	11/5/2015
Rogers Group (Whites Creek Asphalt Plant)	2827 Whites Creek Pike	No	9/30/2015
PSC Metals, Inc.	710 S 1st St	No	8/21/2015
Sherman-Dixie Concrete Industries, Inc.	200 42nd Ave N	Yes	8/13/2015



Table 13A.1 – TMDL Monitoring Data for FY16

Date	Time	Site Name	Samplers (initials)	DO	DO	Cond.	Temp.	pH	Flow ft ³ /sec	E. coli mpn
				%	mg/L	uS	Celcius			
7/28/2015	955	Finley	MB/VM	58.6	5.04	905	22.4	7.65	0.06	90.8
8/3/2015	1002	Finley	TD/VM	70.7	6.21	486	21.8	7.49	0.19	172.2
8/4/2015	938	Finley	MB/TD	61	5.31	530	22.1	7.52	0.26	153.9
8/5/2015	1053	Finley	TD	61.5	5.37	592	21.8	7.48	0.01	184.2
8/12/2015	1004	Finley	TD/MB	60.1	5.44	583	21.2	7.55	0.01	248.1
10/7/2015	1008	Finley	VML	60.8	5.53	252.6	19.9	7.69	0.05	73.3
10/8/2015	1000	Finley	VML	59.1	5.56	529	19.5	7.57	0.37	71.7
10/20/2015	1019	Finley	TD/JW	52.4	5.2	552	15.7	7.73	0.00	90.6
10/21/2015	1033	Finley	VML/JW	51.6	4.71	797	17.3	7.25	0.10	150
11/5/2015	939	Finley	TD/VML	57	5.33	569	18.5	7.61	0.19	143.9
2/22/2016	10:00	Finley	MB/SP	105.3	11.52	528	11	8.71	0.47	85.7
2/29/2016	9:30	Finley	MB/SP	110.2	12.2	521	10.7	8.3	0.00	1203.3
3/7/2016	9:30	Finley	MB/SP	105.8	11.5	526	11.4	8.47	0.54	686.7
3/8/2016	8:55	Finley	MB/SP	108.4	11.76	529	11.3	8.2	0.30	325.5
3/9/2016	9:08	Finley	MB/SP	110.4	11.39	529	13.9	8.21	0.27	1732.9
4/19/2016	10:20	Finley	MB/GWL	71.5	7.31	555	14.2	7.68	0.05	>2419.6
4/20/2016	10:25	Finley	VL/SP	68.3	6.78	525	15.9	7.69	0.00	170.2
4/25/2016	10:25	Finley	VL/SP	67.5	6.77	538	15.1	7.75	0.19	141.4
5/9/2016	9:25	Finley	MB/SP	62	6.07	530	15.9	7.49	0.20	488.4
5/16/2016	10:10	Finley	MB/SP	62	6.3	520	14.5	7.6	0.14	410.6
7/28/2015	825	Mill 1	MB/VM	93.4	7.24	557	28.4	8.33	24.00	16
8/3/2015	848	Mill 1	TD/VM	89.7	7.27	647	26	7.93	12.00	84.2
8/4/2015	835	Mill 1	MB/TD	87	7.02	596	26.6	8.12	11.00	105.4
8/5/2015	705	Mill 1	MB/JH	89.2	7.1	565	27.1	8.1	10.00	58.3
8/12/2015	900	Mill 1	TD/MB	73.7	6.03	558	25.3	7.98	12.00	75.9
10/7/2015	848	Mill 1	VML	78.6	7.11	264.3	20.3	8.09	18.00	117.8
10/8/2015	828	Mill 1	VML	73.1	6.42	510	20.6	8.05	15.00	79.4
10/20/2015	745	Mill 1	TD/JW	98.3	10.46	592	12.5	8.23	7.20	50.4
10/21/2015	920	Mill 1	VM/JW	96	9.8	418	14.3	7.58	7.20	77.1
11/5/2015	825	Mill 1	TD/VML	80.2	7.52	665	18.3	8.02	34.00	825
2/8/2016	9:55	Mill 1	MB/SP	<Null>	10.6	554	8.9	8.4	190.00	98.8
2/22/2016	8:33	Mill 1	MB/SP	<Null>	9.8	543	14.3	8.2	190.00	118.7
2/29/2016	8:15	Mill 1	MB/SP	<Null>	10	527	12.2	8.3	129.00	123.6
3/1/2016	8:56	Mill 1	MB/SP	<Null>	9.5	527	13	8.5	113.00	178.5
3/8/2016	7:45	Mill 1	MB/SP	<Null>	9.7	521	12.7	8.5	113.00	93.3
4/19/2016	9:20	Mill 1	MB/GWL	<Null>	5.8	538	18.8	7.9	29.00	46.1
4/20/2016	9:20	Mill 1	VL/SP	<Null>	5.8	530	19.1	8	27.00	37.9
4/25/2016	9:07	Mill 1	VL/SP	<Null>	5.4	516	20.3	8	21.00	73.3
5/9/2016	9:30	Mill 1	VL/GWL	<Null>	5.1	515	21.4	8.2	15.00	75.4
5/16/2016	9:07	Mill 1	MB/SP	<Null>	11.5	508	19	8.7	11.00	79.4
7/28/2015	920	Pavillion	MB/VM	79.8	6.9	633	22.5	7.85	0.16	488.4
8/3/2015	936	Pavillion	TD/VM	104.4	9.01	520	20.6	7.89	0.54	456.9
8/4/2015	920	Pavillion	MB/TD	82	7.22	648	21.6	7.85	0.34	629.4
8/5/2015	1035	Pavillion	TD	81.4	7.16	648	21.6	7.83	0.49	920.8
8/12/2015	945	Pavillion	TD/MB	83.3	7.49	637	20.4	7.86	0.57	285.1
10/7/2015	944	Pavillion	VML	73	6.88	597	18.1	7.77	0.86	235.9
10/8/2015	940	Pavillion	VML	71	6.81	642	18	7.71	1.06	222.4
10/20/2015	958	Pavillion	TD/JW	84.9	9.2	616	11.6	8.02	0.40	360.9
10/21/2015	1009	Pavillion	VM/JW	78.9	8.29	751	13.2	7.27	0.97	193.5
11/5/2015	913	Pavillion	TD/VML	81.6	7.68	591	18.2	7.87	1.42	68.9
2/22/2016	9:35	Pavillion	MB/SP	109.9	11.87	557	11.8	8.16	1.82	137.6
2/29/2016	9:05	Pavillion	MB/SP	107.4	11.77	550	11.2	8.03	2.17	166.4
3/1/2016	9:38	Pavillion	MB/SP	112.3	12.34	553	11.1	8.11	1.53	129.6
3/7/2016	8:59	Pavillion	MB/SP	111.3	12.13	566	11.6	8.22	1.34	139.6
3/8/2016	8:34	Pavillion	MB/SP	112.4	12.12	561	12	8.08	1.16	159.7
4/19/2016	10:05	Pavillion	MB/GWL	95.9	9.81	601	14.2	7.91	0.76	72.4
4/20/2016	9:40	Pavillion	VL/SP	93.1	9.17	598	16	7.95	0.84	67.9
4/25/2016	9:59	Pavillion	VL/SP	87.6	8.74	612	15.4	7.92	0.68	410.6
5/9/2016	10:15	Pavillion	VL/GWL	78.2	7.52	626	17.1	7.78	0.70	770.1
5/16/2016	9:51	Pavillion	MB/SP	87.5	9.22	631	12.9	7.91	0.30	248.9
7/28/2015	1030	Sevenmile 1	MB/VM	98.4	8.16	558	24.5	8.22	12.21	225.4



Table 13A.1 – TMDL Monitoring Data for FY16 (Continued)

Date	Time	Site Name	Samplers (initials)	DO	DO	Cond.	Temp.	pH	Flow	E. coli
				%	mg/L	uS	Celcius		ft ³ /sec	mpn
8/3/2015	905	Sevenmile 1	MB/ATN	87.6	7.69	552	21.7	8.01	4.14	721.5
8/4/2015	920	Sevenmile 1	VM/ATN	88.5	7.65	528	22.4	8.08	17.63	228.2
8/5/2015	1025	Sevenmile 1	MB/VM	88.5	7.6	545	23.5	8.01	20.53	248.1
8/12/2015	942	Sevenmile 1	VM	85.7	7.39	752	22.6	8.1	7.03	209.8
10/7/2015	1035	Sevenmile 1	VML	90.8	8.49	307.1	18.6	8.16	9.67	248.1
10/20/2015	1044	Sevenmile 1	TD/JW	98.6	10.86	574	11	8.37	2.39	118.7
10/21/2015	1100	Sevenmile 1	VM/JW	100	10.5	840	13	7.93	1.18	66.3
11/4/2015	914	Sevenmile 1	TD/VML	104.1	10.04	596	17	8.23	6.95	325.5
11/5/2015	1001	Sevenmile 1	TD/VML	102.1	9.59	595	18.4	8.34	8.71	201.4
2/22/2016	10:26	Sevenmile 1	MB/SP	121.9	13.15	538	11.9	8.8	40.57	228.2
2/29/2016	9:55	Sevenmile 1	MB/SP	121.5	13.3	534	11.3	8.41	76.67	517.2
3/7/2016	9:56	Sevenmile 1	MB/SP	121.9	13.11	528	12	8.91	31.43	159.7
3/8/2016	9:15	Sevenmile 1	MB/SP	120.4	12.88	532	12.2	8.69	34.63	167
3/9/2016	9:31	Sevenmile 1	MB/SP	121.7	12.37	533	14.8	8.42	157.50	110
4/19/2016	9:36	Sevenmile 1	VL/SP	105.8	10.36	520	16.4	8.28	10.79	49.4
4/20/2016	9:10	Sevenmile 1	MB/GWL	98.2	9.68	522	15.9	8.12	17.32	61.7
4/25/2016	9:35	Sevenmile 1	MB/GWL	101.8	9.74	534	17.5	8.1	12.92	66.3
5/9/2016	9:52	Sevenmile 1	MB/SP	89.7	8.46	544	18	8.06	14.55	290.9
5/16/2016	9:07	Sevenmile 1	VL	92.6	9.7	541	13.2	8.02	10.43	307.6
7/28/2015	1055	Sevenmile 2	MB/VM	102.1	8.52	596	24.5	8.26	3.35	209.8
8/3/2015	940	Sevenmile 2	MB/ATN	92.3	8.05	609	21.8	8.12	3.56	198.9
8/4/2015	1000	Sevenmile 2	VM/ATN	95.4	8.16	476	22.6	8.15	1.37	290.9
8/5/2015	1040	Sevenmile 2	MB/VM	107.6	8.95	491	24.5	8.22	2.92	298.7
8/12/2015	1007	Sevenmile 2	VM	92.9	7.86	719	22.7	8.26	2.45	325.5
10/7/2015	1113	Sevenmile 2	VML	99.6	9.27	594	18.7	8.27	1.77	260.3
10/20/2015	1110	Sevenmile 2	TD/JW	107.1	11.81	617	10.9	8.46	1.12	248.9
10/21/2015	1115	Sevenmile 2	VM/JW	119.3	12.51	497	13.3	8.1	0.93	186
11/4/2015	946	Sevenmile 2	TD/VML	110.9	10.73	632	16.9	8.27	3.22	73.3
11/5/2015	1025	Sevenmile 2	TD/VML	117.1	10.97	643	18.4	8.29	3.86	114.5
2/22/2016	10:58	Sevenmile 2	MB/SP	136.3	14.75	568	11.7	8.89	12.13	95.9
2/29/2016	10:19	Sevenmile 2	MB/SP	143.2	15.55	558	11.6	8.52	18.42	193.5
3/7/2016	10:30	Sevenmile 2	MB/SP	147.6	15.67	544	12.6	9.13	14.77	80.1
3/8/2016	9:37	Sevenmile 2	MB/SP	150.5	16.08	548	12.4	8.71	13.01	133.4
3/9/2016	9:53	Sevenmile 2	MB/SP	161.8	16.3	552	15	8.58	10.83	75.9
4/19/2016	10:10	Sevenmile 2	VL/SP	146.7	14.38	563	16.2	8.55	4.92	62.1
4/20/2016	9:35	Sevenmile 2	MB/GWL	120.2	11.89	568	15.8	8.4	4.12	70.3
4/25/2016	10:05	Sevenmile 2	MB/GWL	125.5	12.07	565	17.2	8.19	2.64	185
5/9/2016	10:20	Sevenmile 2	MB/SP	95.8	9.15	587	17.6	8.14	3.34	185
5/16/2016	9:40	Sevenmile 2	VL	108.7	11.48	581	12.7	8.5	3.10	501.2
7/28/2015	1111	Shasta	MB/VM	90.5	7.95	812	21.7	8.03	0.15	816.4
8/3/2015	930	Shasta	MB/ATN	88.7	8.15	788	19.4	7.96	0.58	579.4
8/4/2015	1012	Shasta	VM/ATN	87.1	7.9	786	19.7	7.99	0.59	1732.9
8/5/2015	1105	Shasta	MB/VM	104.9	9.3	781	20.8	8.03	1.17	1046.2
8/12/2015	1025	Shasta	VM	72	72.3	963	20.4	7.93	0.06	1203.3
10/7/2015	1132	Shasta	VML	80.9	7.8	860	17.8	8.06	0.51	238.2
10/20/2015	1125	Shasta	TD/JW	80	8.67	818	11.7	8.2	0.25	261.3
10/21/2015	1145	Shasta	VM/JW	79.9	8.11	299.1	14.4	7.72	0.55	501.2
11/4/2015	1005	Shasta	TD/VML	78.5	7.59	873	16.8	8.15	0.74	116
11/5/2015	1041	Shasta	TD/VML	81.3	7.68	874	18	8.06	0.45	117.8
2/22/2016	11:11	Shasta	MB/SP	115.5	12.32	756	12.3	8.45	1.24	410.6
2/29/2016	10:40	Shasta	MB/SP	124.8	13.28	744	12.4	8.36	2.52	307.6
3/7/2016	10:45	Shasta	MB/SP	127.2	13.27	723	13.3	8.84	0.57	222.4
3/8/2016	9:52	Shasta	MB/SP	130.8	13.64	745	13.4	8.46	1.51	191.8
3/9/2016	10:07	Shasta	MB/SP	146.3	14.56	736	15.5	8.43	0.76	193.5
4/19/2016	10:24	Shasta	VL/SP	97.1	9.69	765	15.3	8.13	0.23	61.4
4/20/2016	9:55	Shasta	MB/GWL	88.4	8.88	759	15.2	8.02	0.23	73.3
4/25/2016	10:20	Shasta	MB/GWL	98	9.52	760	16.5	7.99	0.22	686.7
5/9/2016	10:35	Shasta	MB/SP	81.2	7.97	772	16.3	8.06	0.27	325.5
5/16/2016	10:09	Shasta	VL	89.5	9.5	763	12.5	8.11	0.30	270



Table 13A.1 – TMDL Monitoring Data for FY16 (Continued)

Date	Time	Site Name	Samplers (initials)	DO	DO	Cond.	Temp.	pH	Flow	E. coli
				%	mg/L	uS	Celcius		ft ³ /sec	mpn
7/28/2015	850	Sims 1	MB/VM	82	6.83	683	24.6	7.98	6.34	387.3
8/3/2015	905	Sims 1	TD/VM	113.5	9.86	587	22.2	7.98	2.53	248.9
8/4/2015	850	Sims 1	MB/TD	86.5	7.36	731	23.3	8.03	2.77	201.4
8/5/2015	1008	Sims 1	TD	90.2	7.69	719	23.3	8.02	2.87	230
8/12/2015	918	Sims 1	TD/MB	90.2	7.9	702	21.7	8.01	2.83	249.5
10/7/2015	911	Sims 1	VML	84.8	7.91	425.5	18.7	7.82	137.55	290.9
10/8/2015	900	Sims 1	VML	82.4	7.74	678	18.8	7.9	3.56	290.9
10/20/2015	920	Sims 1	TD/JW	9.53	89.8	550	12.6	8.04	2.62	111.9
10/21/2015	940	Sims 1	VM/JW	93.1	9.56	696	14.1	7.68	3.66	231
11/5/2015	841	Sims 1	TD/VML	92.4	8.7	762	18.2	8.09	2.60	96
2/8/2016	10:15	Sims 1	MB/SP	114.7	13.15	707	9.2	8.29	10.13	96
2/22/2016	8:50	Sims 1	MB/SP	102.6	11.05	683	11.9	8.2	10.13	172.2
2/29/2016	8:35	Sims 1	MB/SP	107	11.74	661	11.2	8.19	10.54	129.6
3/1/2016	9:15	Sims 1	MB/SP	114.5	12.56	657	11.2	8.36	7.56	178.5
3/8/2016	8:02	Sims 1	MB/SP	108.2	11.63	663	12	8.12	7.38	275.5
4/19/2016	9:40	Sims 1	MB/GWL	102.8	10.3	707	15.2	8.12	0.95	75.7
4/20/2016	9:30	Sims 1	VL/SP	101.1	9.7	707	17	8.05	3.35	87.6
4/25/2016	9:24	Sims 1	VL/SP	88.9	8.06	695	16.5	8.73	3.09	117.8
5/9/2016	9:50	Sims 1	VL/GWL	87.1	8.12	715	18.6	7.85	3.33	1119.9
5/16/2016	9:25	Sims 1	MB/SP	88.8	9.09	667	14.2	7.99	1.94	184.2



Table 13A.2 - SWMP Quantifiable Statistics

Categories	FY05	FY06	FY07	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15	FY16
Recycled Oil (tons)	9.1	17.82	20.27	26.88	35.38	36.4	35.32	36.52	28.15	33	23.31	18.85
Recycled Glass (tons)	1,052.70	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
Total Brush Collection (tons)	31,702.78	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
Total Waste Collected (tons)	157,622.99	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
# of Water Quality Complaints (non-construction) Investigations Initiated in Database	213	287	156	135	133	139	138	122	131	114	99	100
# of Construction Stormwater-Related Inspections	5,509	5,721	6,552	6,327	6,160	5,079	5,457	5,843	5,170	6,064	6,082	6,684
# of Grading Permits Issued	271	252	239	165	109	121	135	142	138	318	276	254
# of Engineered Plans Submitted to Stormwater Development and Review	1,562	1,427	1,505	1,970	1,600	1,367	1,319	1,525	1,791	1,813	2,572	3,034
# of Construction Plans Approved or Declared No Permit Needed by Stormwater Development and Review	449	507	619	871	687	506	559	1,174	1,411	1,360	1,998	1,450
# of Stormwater Enforcements (NOVs and SWOs)	197	283	190	342	188	123	148	94	96	168	128	116



Table 13A.3 – Ambient Monitoring Data for the FY16 Reporting Period

Date	Time	Site Name	Samplers (initials)	DO	DO	Cond	Temp.	pH	Flow	E. coli	BOD5	COD	NH3	TKN	Nitrate-Nitrite	Total Nitrogen	Diss P	Total P	Lead	Zinc	Cr	Copper	Nickel	Oil and Grease	TSS	TDS
				%	mg/L	uS	Celcius		ft ³ /sec	mpn	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
8/5/2015	630	Trip Blank	MB/JH	N/A	N/A	N/A	N/A	N/A	N/A	<1	<2	<20	<0.4	<0.25	<0.1	<0.35	<0.1	<0.1	<0.001	<0.001	<0.001	<0.001	<0.001	<5	<1	10
8/5/2015	700	Field Blank	MB/JH	N/A	N/A	N/A	N/A	N/A	N/A	<1	<2	<20	<0.4	<0.25	<0.1	<0.35	<0.1	<0.1	<0.001	<0.001	<0.001	<0.001	<0.001	<5	<1	17
8/5/2015	705	Mill 1	MB/JH	89.2	7.1	565	27.1	8.1	10.0	58.3	<2	<20	<0.4	0.401	0.251	0.652	0.225	0.286	<0.001	0.009	<0.001	<0.001	<0.001	<5	4	382
11/17/2015	945	Mill 3	TD/VML	91.8	9.96	675	11.6	7.91	25.2	43.5	3	<20	<0.4	0.158	0.362	0.52	0.176	0.162	<0.001	<0.001	<0.001	<0.001	<0.001	<5	4	336
2/23/2016	922	Mill 3	MB/GWL	92.7	10.24	388.2	11	8.69	124.5	1553	3	<20	<0.4	<0.1	0.613	<0.713	0.125	0.146	<0.001	<0.001	<0.001	<0.001	<0.001	<5	<1	304
2/23/2016	922	Mill 3 (Duplicate)	MB/GWL	96.3	10.58	388.3	11	8.63	---	1553	3	<20	<0.4	0.17	0.614	0.784	0.128	0.161	<0.001	<0.001	<0.001	<0.001	<0.001	<5	1	315
4/26/2016	943	Mill 3	VL/SP	84.5	7.58	520	19.8	8.2	0.0	12	<2	<20	<0.4	0.333	0.148	0.481	0.164	0.234	<0.001	<0.001	<0.001	<0.001	<0.001	<5	<1	---
8/5/2015	725	Stones 2	MB/JH	66.1	5.5	354.5	24.6	7.56	138.0	21.1	2	<20	<0.4	0.465	<0.1	<0.565	<0.1	<0.1	<0.001	0.002	<0.001	<0.001	<0.001	<5	8	229
11/17/2015	915	Stones 2	TD/VML	102	10.02	315.4	16.2	6.97	1820.0	1	2	<20	<0.4	<0.1	<0.1	<0.2	<0.1	<0.1	<0.001	<0.001	<0.001	<0.001	<0.001	<5	12	111
2/23/2016	842	Stones 2	MB/GWL	108.6	13.31	357.5	6.4	8.97	5990.0	6	4	<20	<0.4	0.372	0.594	0.966	<0.1	<0.1	<0.001	<0.001	<0.001	<0.001	<0.001	<5	4	197
4/26/2016	915	Stones 2	VL/SP	83.9	7.77	402.2	18.1	8.05	131.0	27.4	4	<20	<0.4	0.77	0.06	0.83	<0.1	0.101	0.001	<0.001	<0.001	<0.001	<0.001	<5	12	---



Table 13A.4 – Wet Weather Monitoring for the FY16 Reporting Period

Date	Time	Site Name	Samplers (initials)	Flow	E. coli	BOD5	COD	NH3	TKN	Nitrate-Nitrite	Total N	Diss. P	Total P	Lead	Zinc	Cr	Copper	Nickel	Oil and Grease	TSS	TDS
				ft3/sec	mpn	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L
8/17/15	745	Comm FF	MB/VM	0.0	980.00	6.30	76.00	0.1	0.9	0	1.279	0.259	0.537	3.27	85.8	2.34	15.6	<5	4.7	26	138
8/17/15	850	Comm 1HR	MB/VM	0.1	1850.00	<5.00	66.00	<0.1	1.1	<0.25	<1.31	0.259	0.497	4.04	88.2	2.24	13.2	<5	5.2	46.8	43
11/18/15	630	Comm FF	JH	0.8	686.70	9.00	84.00	<0.1	1.0	<0.25	<1.247	0.112	0.322	3.81	112	2.32	14.6	<5	2.7	74	52
11/18/15	730	Comm 1HR	JH	0.4	980.40	8.00	76.00	0.1	0.7	<0.25	<0.966	0.119	0.205	1.53	45.9	<2	9.11	<5	7.67	15.6	83
3/1/16	1100	Comm FF	MB/SP	0.1	1.00	<2	<20	0.6	<0.5	2	<2.52	0.033	0.212	<1.5	<5	<2	<4	<5	2.1	<4	628
3/1/16	1210	Comm 1HR	MB	0.3	73.80	12.00	50.00	0.3	0.7	<0.25	<0.95	0.043	0.267	2.9	86.5	3.34	13.3	<5	4.2	23.2	90
8/17/15	818	Ind FF	MB/VM	0.0	5650.00	7.73	66.00	<0.1	0.8	<0.25	<1	0.088	0.159	1.7	35.5	<2	8.71	<5	<1.4	5.6	149
8/17/15	930	Ind 1HR	MB/VM	0.0	7030.00	<5.00	38.00	<0.1	0.8	<0.25	<1.033	0.135	0.172	1.64	17.8	<2	<4	<5	<1.4	<4	72
9/9/15	1852	Ind FF	TD	0.7	3690.00	5.37	32.00	0.1	0.8	0	1.189	0.25	0.339	1.85	127	<2	5.06	<5	<1.4	21.6	59
9/9/15	1952	Ind 1HR	TD	0.0	1460.00	<5.00	<20	<0.1	<0.5	0	<0.789	0.202	0.208	<1.5	46.3	<2	4.03	<5	<1.4	<4	64
11/18/15	638	Ind FF	TD	0.2	178.50	11.00	88.00	<0.1	1.3	<0.25	<1.5	0.108	0.391	5.3	179	2.42	7.48	<5	<1.4	146	39
11/18/15	738	Ind 1HR	TD	0.1	721.00	8.00	58.00	<0.1	<0.5	<0.25	<0.75	0.108	0.198	2.44	38.1	<2	<4	<5	6	24.4	45
3/1/16	1145	Ind FF	MB/SP	0.1	3.10	6.00	27.00	0.2	0.7	0	0.935	0.088	0.229	2.17	87.9	<2	5.52	<5	2.7	14	58
3/1/16	1245	Ind 1HR	MB	0.0	4.10	<2	<20	0.1	<0.5	<0.25	<0.75	0.071	0.143	<1.5	43.9	<2	<4	<5	<1.4	8	58
5/10/16	640	Ind FF	MB	1.0	1986.30	14.00	69.00	0.1	1.6	1	2.13	0.158	0.603	2.58	119	<2	<4	<5	<1.4	95.2	37
5/10/16	740	Ind 1HR	SP	0.0	613.10	<10	<20	<0.2	0.6	0	0.962	0.116	0.134	<1.5	23.2	<2	<4	<5	<1.4	5.71	40
8/19/15	1843	Res FF	TD	0.0	18600.00	6.14	36.00	<0.1	0.9	0	1.185	0.403	0.487	<1.5	268	<2	10.1	<5	<1.4	12.4	74
8/19/15	1945	Res 1HR	TD	0.0	32820.00	<5.00	<20	<0.1	<0.5	<0.25	<0.75	0.283	0.366	1.86	147	<2	5.95	<5	<1.4	8.4	70
9/9/15	1840	Res FF	MB	0.0	3180.00	341.00	578.00	0.8	9.7	2	11.44	0.967	1.62	4.51	417	<2	21.7	<5	<1.4	217	449
11/18/15	745	Res FF	JH	0.0	63000.00	3.00	36.00	<0.1	0.7	<0.25	<0.921	0.267	0.429	<1.5	90.5	<2	<4	<5	<1.4	67.7	29
11/18/15	845	Res 1HR	JH	0.0	7170.00	4.00	39.00	<0.1	1.0	0	1.393	0.901	1.07	<1.5	74	<2	<4	<5	<1.4	6.8	85
3/1/16		Res *																			
5/10/16	704	Res FF	SP	0.0	72700.00	9.00	43.00	<0.1	1.7	1	3.02	0.907	1.11	<1.5	99.7	<2	5.16	<5	<1.4	11.2	82
8/17/15	755	Trans FF	TD	0.1	1220.00	5.31	133.00	<0.1	0.9	0	1.339	0.078	0.222	1.85	39	2.74	14.4	<5	4.1	16	151
8/17/15	915	Trans 1HR	TD	0.4	2720.00	<5.00	48.00	<0.1	0.6	<0.25	<0.833	0.031	0.263	2.54	52.7	2.56	10.3	<5	3	36.5	35
9/9/15	1835	Trans FF	TD	0.9	1320.00	9.00	85.00	0.2	1.2	1	1.801	0.064	0.291	3.72	80.1	4.59	19.1	<5	4	48.8	93
9/9/15	1935	Trans 1HR	TD	0.1	22.60	<5.00	<20	<0.1	<0.5	<0.25	<0.75	0.067	0.105	<1.5	10.4	<2	4.54	<5	1.9	<4	63
11/18/15	620	Trans FF	TD	0.1	10.80	<2.00	43.00	<0.1	<0.5	<0.25	<0.75	0.074	0.102	1.71	11.3	<2	<4	<5	4.86	5.6	31
11/18/15	721	Trans 1HR	TD	0.4	33.10	<2.00	32.00	0.1	<0.5	<0.25	<0.76	0.205	0.102	<1.5	19.5	<2	<4	<5	4.74	12.4	36
3/1/16	1135	Trans FF	MB/SP	0.2	25.30	6.00	65.00	0.3	0.8	0	1.169	0.071	0.443	4.18	91.9	4.61	12.7	<5	1.6	37.2	100
3/1/16	1245	Trans 1HR	MB	0.2	17.30	3.00	36.00	0.2	<0.5	<0.25	<0.75	0.05	0.277	3.37	84.8	4.43	11.1	<5	3.9	33.2	79
5/10/16	620	Trans FF	MB	3.7	533.50	17.00	157.00	0.2	3.4	1	3.954	0.12	0.82	4.24	139	2.1	16.2	<5	4.7	204	70
5/10/16	720	Trans 1HR	MB	0.1	2419.60	4.00	34.00	<0.1	<0.5	0	<0.96	0.064	0.123	<1.5	18.1	<2	4.59	<5	<1.4	6	65
8/17/16		Open *																			
9/9/16		Open *																			
11/18/15	1006	Open FF	TD	0.0	10430.00	10.00	98.00	0.1	2.8	1	3.313	0.784	1.9	3.47	506	3.99	5.19	<5	3.57	416	207
11/18/15	1107	Open 1HR	TD	0.6	5460.00	2.00	36.00	<0.1	<0.5	1	<1.21	0.367	0.457	<1.5	9.2	<2	<4	<5	4.29	4.4	239
3/1/16		Open *																			
5/2/16		Open *																			
5/10/16		Open *																			
5/20/16		Open *																			

*Despite a qualifying rain event, there was no discharge at sample outfall to obtain sample.

FF - First Flush
1HR- Sample taken at least 1 hour after first flush sample
Comm = Commercial
Trans = Transportation
Ind = Industrial
Res = Residential
Open = Open space

Table 13A.5 – MS4 Permit Benthic Monitoring Data for the FY16 Reporting Period

Mill Creek 09/22/2015	Biometrics	TMI (Target =32)	Habitat Score (Target ≥127)	Stones River 11/11/2015*	Biometrics	TMI (Target =32)	Habitat Score (Target ≥111)
TOTAL NO. OF ORGANISMS	178			TOTAL NO. OF ORGANISMS	230		
TOTAL NO. OF TAXA	17	2		TOTAL NO. OF TAXA	26	6	
EPT	6	2		EPT	3	2	
%EPT-CHEUM	39.33%	4		%EPT-CHEUM	6.52%	0	
%OC	8.43%	6		%OC	49.57%	4	
NCBI	4.99	4		NCBI	6.14	4	
%CLINGERS	64.04%	6		%CLINGERS	33.48%	4	
%TNUOTOL	45.51%	4		%TNUOTOL	23.04%	6	
		28	162			26	77
Mill Creek 06/06/2016	Biometrics	TMI (Target =32)	Habitat Score (Target ≥127)	Stones River 04/22/2016*	Biometrics	TMI (Target =32)	Habitat Score (Target ≥111)
TOTAL NO. OF ORGANISMS	238			TOTAL NO. OF ORGANISMS	207		
TOTAL NO. OF TAXA	29	6		TOTAL NO. OF TAXA	8	2	
EPT	4	2		EPT	0	0	
%EPT-CHEUM	4.20%	0		%EPT-CHEUM	0.00%	0	
%OC	64.71%	2		%OC	80.19%	0	
NCBI	7.04	2		NCBI	6.23	4	
%CLINGERS	19.75%	2		%CLINGERS	62.80%	6	
%TNUOTOL	69.75%	2		%TNUOTOL	59.90%	2	
		16	169			14	46
Mill Duplicate 06/06/2016	Biometrics	TMI	Habitat Score (Target ≥127)	Davidson Branch 05/06/2016**	Biometrics	TMI (Target =32)	Habitat Score (Target ≥127)
TOTAL NO. OF ORGANISMS	211			TOTAL NO. OF ORGANISMS	226		
TOTAL NO. OF TAXA	29	6		TOTAL NO. OF TAXA	20	4	
EPT	3	2		EPT	4	2	
%EPT-CHEUM	7.58%	0		%EPT-CHEUM	2.21%	0	
%OC	32.70%	4		%OC	31.86%	4	
NCBI	5.21	6		NCBI	6.48	4	
%CLINGERS	21.33%	2		%CLINGERS	5.31%	0	
%TNUOTOL	64.45%	2		%TNUOTOL	81.86%	0	
		22	169			14	151
* Two riffles were sampled to achieve sample size of 200 +/- 20 individuals							
** Davidson Branch was sampled in Spring of FY16 as a makeup for Spring ambient sample FY15							

Note: Based on coordination with TDEC, this annual report was the first report to include the SQSH scoring results instead of Biological Condition Scoring



Table 13A.6 – Benthic Monitoring Data for TMDL Streams during FY16 Reporting Period

Trace Creek 05/11/2015	Biometrics	TMI (Target=32)	Habitat Score (Target ≥127)
TOTAL NO. OF ORGANISMS	187		
TOTAL NO. OF TAXA	27	4	
EPT	7	4	
%EPT-CHEUM	11.23%	0	
%OC	33.69%	4	
NCBI	6.59	2	
%CLINGERS	15.51%	0	
%TNUTOL	59.89%	2	
		16	148
Harpeth River 05/26/2015	Biometrics	TMI (Target=32)	Habitat Score (Target ≥127)
TOTAL NO. OF ORGANISMS	236		
TOTAL NO. OF TAXA	18	2	
EPT	9	4	
%EPT-CHEUM	15.68%	6	
%OC	26.69%	2	
NCBI	5.39	4	
%CLINGERS	66.53%	2	
%TNUTOL	75.85%	6	
		26	152
Little Harpeth 06/17/2015	Biometrics	TMI (Target=32)	Habitat Score (Target ≥127)
TOTAL NO. OF ORGANISMS	181		
TOTAL NO. OF TAXA	22	4	
EPT	5	2	
%EPT-CHEUM	23.20%	2	
%OC	13.81%	6	
NCBI	5.05	4	
%CLINGERS	75.14%	6	
%TNUTOL	54.70%	2	
		26	153
Flat Creek 06/24/2015	Biometrics	TMI (Target=32)	Habitat Score (Target ≥127)
TOTAL NO. OF ORGANISMS	218		
TOTAL NO. OF TAXA	23	4	
EPT	6	2	
%EPT-CHEUM	31.65%	2	
%OC	19.27%	6	
NCBI	4.57	6	
%CLINGERS	38.99%	4	
%TNUTOL	35.32%	4	
		28	141



**Table 13A.6 – Benthic Monitoring Data for TMDL Streams during FY16 Reporting Period
 (Continued)**

Beech Creek 04/22/2016	Biometrics	TMI (Target=32)	Habitat Score (Target ≥127)
TOTAL NO. OF ORGANISMS	191		
TOTAL NO. OF TAXA	29	6	
EPT	6	2	
%EPT-CHEUM	25.13%	2	
%OC	52.36%	2	
NCBI	4.98	4	
%CLINGERS	23.04%	2	
%TNUTOL	26.70%	6	
		24	129
McCrary Creek (1) 05/23/2016	Biometrics	TMI (Target=32)	Habitat Score (Target ≥127)
TOTAL NO. OF ORGANISMS	196		
TOTAL NO. OF TAXA	24	4	
EPT	4	2	
%EPT-CHEUM	20.41%	2	
%OC	19.90%	6	
NCBI	5.81	4	
%CLINGERS	31.63%	2	
%TNUTOL	52.55%	4	
		24	152
McCrary Creek (2) 05/25/2016	Biometrics	TMI (Target=32)	Habitat Score (Target ≥127)
TOTAL NO. OF ORGANISMS	218		
TOTAL NO. OF TAXA	35	6	
EPT	5	2	
%EPT-CHEUM	3.67%	0	
%OC	31.19%	4	
NCBI	5.16	4	
%CLINGERS	12.84%	0	
%TNUTOL	56.88%	2	
		18	133
Otter Creek 05/27/2016	Biometrics	TMI (Target=32)	Habitat Score (Target ≥127)
TOTAL NO. OF ORGANISMS	221		
TOTAL NO. OF TAXA	28	6	
EPT	6	2	
%EPT-CHEUM	38.46%	4	
%OC	28.05%	4	
NCBI	4.79	6	
%CLINGERS	32.13%	2	
%TNUTOL	35.29%	4	
		28	126



**Table 13A.6 – Benthic Monitoring Data for TMDL Streams during FY16 Reporting Period
 (Continued)**

Stoners Creek 06/01/2016	Biometrics	TMI (Target=32)	Habitat Score (Target ≥127)
TOTAL NO. OF ORGANISMS	238		
TOTAL NO. OF TAXA	30	6	
EPT	10	6	
%EPT-CHEUM	25.21%	2	
%OC	28.57%	4	
NCBI	4.64	6	
%CLINGERS	60.08%	6	
%TNUTOL	23.11%	6	
		36	141
Hurricane Branch 06/09/2016	Biometrics	TMI (Target=32)	Habitat Score (Target ≥121)
TOTAL NO. OF ORGANISMS	239		
TOTAL NO. OF TAXA	25	6	
EPT	8	6	
%EPT-CHEUM	8.37%	0	
%OC	12.13%	6	
NCBI	5.87	4	
%CLINGERS	15.48%	0	
%TNUTOL	68.20%	2	
		24	139
Scotts Creek 06/10/2016	Biometrics	TMI (Target=32)	Habitat Score (Target ≥127)
TOTAL NO. OF ORGANISMS	240		
TOTAL NO. OF TAXA	25	4	
EPT	4	2	
%EPT-CHEUM	12.92%	0	
%OC	29.17%	4	
NCBI	6.72	2	
%CLINGERS	10.83%	0	
%TNUTOL	65.42%	2	
		14	104
Dry Fork 06/13/2016	Biometrics	TMI (Target=32)	Habitat Score (Target ≥127)
TOTAL NO. OF ORGANISMS	232		
TOTAL NO. OF TAXA	32	6	
EPT	6	2	
%EPT-CHEUM	19.40%	2	
%OC	20.69%	6	
NCBI	4.78	6	
%CLINGERS	33.19%	2	
%TNUTOL	38.36%	4	
		28	148



**Table 13A.6 – Benthic Monitoring Data for TMDL Streams during FY16 Reporting Period
 (Continued)**

Dry Fork-Duplicate 06/13/2016	Biometrics	TMI (Target=32)	Habitat Score (Target ≥127)
TOTAL NO. OF ORGANISMS	219		
TOTAL NO. OF TAXA	28	6	
EPT	5	2	
%EPT-CHEUM	15.98%	0	
%OC	15.07%	6	
NCBI	4.45	6	
%CLINGERS	25.11%	2	
%TNUTOL	47.95%	4	
		26	148



4.0 Supporting Program Data

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

MWS Central Wastewater Treatment Plant Video/SOP Training Employee Sign-in Sheets.....	69
Metro Department-wide MS4 Permit Orientation Sign-in Sheets.....	72
Metro Stormwater Employee Miscellaneous Training Sign-in Sheets.....	75
Summary of Public Education Activities by MWS PIO during FY16.....	78
MWS PIO Public Education Program Activities during FY16.....	81
NPDES Public Education Events/Presentations during FY16	90
Metro Department of Public Works Waste Collection During FY16	97
Metro Department of Public Works Hazardous Spills Responded to During FY16.....	98
Metro Department of Public Works Deicing Activities During FY16	100
Mayor’s Spring Clean Event Advertisement.....	101
Contracted Street Sweeper SOP – Sweeper Equipment Fluid Releases.....	102
Contracted Street Sweeper SOP – Sweeper Equipment Fluid Releases Training	103
Article about Nashville’s Green Infrastructure within the National Publication: Stormwater Magazine	104
MWS Newsletter Highlighting Thermograph Investigations	105
Metro’s Public Notice for the FY16 MS4 Permit Annual Report.....	108



MWS Central Wastewater Treatment Plant Video/SOP Training Employee Sign-in Sheets

**Metro Nashville Stormwater (MS4)
 Operations and Maintenance Employee Training Sign-in Sheet**

Metro Department	MWS CWWTP
Supervisor Performing Training (Signature)	Mary Nickelson
Rain Check Training Video (31 minutes)	<input checked="" type="checkbox"/>
Operations and Maintenance SOP Review	<input checked="" type="checkbox"/>

Employee Name	Employee Signature	Date Trained
JOE MOUNT	Joe Mount	6/24/15
KEVIN BIGGS	Ki Biggs	6-25-15
Roger Davis	Roger Davis	6-25-15
Paul S. Lovell	Paul S. Lovell	6-25-15
Twayne Higgins	Twayne Higgins	6/25/15
Travers, Donald J	Donald Travers	6/25/2015
Calvin JASPER	Calvin Jasper	6/25/2015
CHARLES FORD	Charles Ford	6/25/2015
Charles Hockett	Charles Hockett	6/25/15
Nathan Fesley	Nathan Fesley	6-25-2015
Marvin Spears	Marvin W. Spear	6-25-2015
Troy Hamilton	Troy Hamilton	6-25-15
Mike Clinton	Mike Clinton	6/25-15
Ronnie Wright	Ronnie Wright	6/25-15
JOE MOUNT	Joe Mount	6/25/2015
Chad Tidwell	Chad Tidwell	7/7/15
RANDY MAGGARD	Randy Maggard	7-7-15
Ronald A. Bradley Jr	Ronald A. Bradley Jr	7-7-15
Tony Walker	Tony Walker	7-7-15
Tommy Hudgens	Tommy Hudgens	7-7-15
Tommy Belter	Tommy Belter	7-7-15
Timothy Jay	Timothy Jay	7-7-15
Joe Holcomb	Joe Holcomb	7-14-15

Please scan in the completed form and email to Josh.Hayes@Nashville.gov or Metro mail a copy of the completed form to Josh Hayes at the MWS Stormwater, NPDES Office, 1607 County Hospital Road.



MWS Central Wastewater Treatment Plant Video/SOP Training Employee Sign-in Sheets

**Metro Nashville Stormwater (MS4)
 Operations and Maintenance Employee Training Sign-in Sheet**

Metro Department	MWS (CWTP)
Supervisor Performing Training (Signature)	Michael D. Binkley II (Michael D. Binkley II)
Rain Check Training Video (31 minutes)	<input checked="" type="checkbox"/>
Operations and Maintenance SOP Review	<input checked="" type="checkbox"/>

Employee Name	Employee Signature	Date Trained
Michael Binkley	Michael D Binkley II	6-22-16
Brian Kenner	Brian Kenner	6-22-16
Demetrius Knowles	Demetrius Knowles	6/22/16
Steve Rottaro	Steve Rottaro	6-22-16
Belachew Dante	Belachew Dante	6-22-16
Robert C. McDowall	Robert C. McDowall	6-22-2016
Michael Yang	Michael Yang	6-22-2016
Matt Hillis	Matt Hillis	6/22/2016
Michael Barrett	Michael W. Barrett	6-22-16
Kenneth W. Sanders	Kenneth W. Sanders	6-22-16
Eric Slaughter	Eric Slaughter	6/23/16
Tara Powell	Tara Powell	6-23-16
Robert Humphrey Jr	Robert Humphrey Jr	6-23-16
Joseph Henson	Joseph Henson	6-23-16
Dennis Tollison	Dennis Tollison	6-24-16
Michael Calloway	Michael Calloway	6-24-16
Shannon Freeman	Shannon Freeman	6-24-16
Mark King	Mark King	6/24/16

Please scan in the completed form and email to Josh.Hayes@Nashville.gov or Metro mail a copy of the completed form to Josh Hayes at the MWS Stormwater, NPDES Office, 1607 County Hospital Road.



MWS Central Wastewater Treatment Plant Video/SOP Training Employee Sign-in Sheets

Metro Nashville Stormwater (MS4)
 Operations and Maintenance Employee Training Sign-in Sheet

Metro Department	CWWTP - MAINTENANCE	
Supervisor Performing Training (Signature)	Randy Haggard	
Randy Haggard	Rain Check Training Video (31 minutes)	<input checked="" type="checkbox"/>
	Operations and Maintenance SOP Review	<input checked="" type="checkbox"/>

Employee Name	Employee Signature	Date Trained
LINTON EVANS	Linton Evans	7-8-16
Tommy Hedgus	Tommy Hedgus	11
KEVIN BIGGS	Kevin Biggs	7-8-16
Jay Lincoln	Jay Lincoln	7-8-16
Calvin Jasper	Calvin Jasper	7-8-16
Walter Powell	Walter Powell	July 8, 2016
CHARLES ROPE	Charles Rope	7/8/2016
William F. Buchanan	William F. Buchanan	7/8/2016
Michael Cline	Michael Cline	7-8-16
DON COPLEY	Don M. Copley	07-08-2016
Charles Hockett	Charles Hockett	7-8-16
Tony Walker	Tony Walker	7-8-16
Chad Tidwell	Chad Tidwell	7-8-16
RONNIE WRIGHT	Ronnie Wright	7/8/16
Steve Lovell	Steve Lovell	7-8-16
Tommy Behler	Tommy Behler	7-8-16
Don Travers	Don Travers	8 July 2016
ERNIE SMITHSON	Ernie Smithson	8 Jul 16
Marvin Spears	Marvin Spears	8 Jul - 16
James Wolcott	James Wolcott	7-8-16
JOE YOUNT	Joe Yount	7/8/16

Please scan in the completed form and email to Josh.Hayes@Nashville.gov or Metro mail a copy of the completed form to Josh Hayes at the MWS Stormwater, NPDES Office, 1607 County Hospital Road.



Metro Stormwater Employee Miscellaneous Training Sign-in Sheets

11

May 11, 2016

Staff mtg

Doug Kinsey w/ Ben. Sue's = New Contact

Sign In Sheet w/ Paul Davis

Names	Signature
Bonnye Holt	Bonnye Holt
Michael Hunt	Michael Hunt
Anna K.	Anna K.
Gillian Walshe-Lanford	Gillian Walshe-Lanford
Shawn Herman	Shawn Herman
Lynda Kelley	Lynda Kelley
Stephanie Petty	Stephanie Petty
Beth Wilson	Beth Wilson
Leigh Nelson	Leigh Nelson
Josh Hayes	Josh Hayes
Dale Biddet	Dale Biddet
Denice Johns	Denice Johns
Mary Bruce	Mary Bruce
Veronica Mullen	Veronica Mullen
Michael Pate	Michael Pate
Jane Wilson	Jane Wilson
Beth Wilson	Beth Wilson



Metro Stormwater Employee Miscellaneous Training Sign-in Sheets

Street Sweeping & Storm Drain
Cleaning

6/30/16

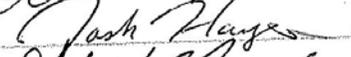
Print Name

Signature

Rebecca Dohn



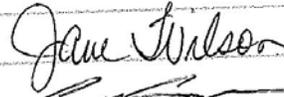
Josh Hayes



~~Bob Wilson~~



Jane Wilson



Casey Cooper



Metro Stormwater Employee Miscellaneous Training Sign-in Sheets

NACWA Stormwater Committee

Phase II MS4 Court Ruling 9-9-15

1:00 PM → 2:15 PM

Attendees

Josh Hayes Josh Hayes

Michael Hunt Michael Hunt



Summary of Public Education Activities by MWS PIO during FY16

Summary of non-point source education for NPDES – School Year 2015/16

Summary

During the 2015/16 reporting period, Metro Water Services presented 229 school-based and 2 Master Gardener Association-based non-point source education programs, reaching 5684 students and 125 Master Gardeners. Based on evaluation data, the programs successfully communicated residential sources of non-point source pollution and the preventative measures individuals can take.

Description of programs

Metro Water Services presented free programs using the hands-on EnviroScape model. The programs focused on non-point source pollution sources and prevention. School program targets were 4th grade, middle school, high school science. The 4th grade was chosen based on curriculum fit. Adult/community programs are targeted to Master Gardeners Certification classes. Master Gardeners classes were chosen based on the impacts on water quality of improper lawn chemical use, erosion, and lawn care.

Evaluation Methods and Summary of Results

We used voluntary, anonymous surveys to evaluate elementary school programs for teacher acceptance of the programs, student engagement. We collected student writing and drawing samples as evidence that students were able to explain specific non-point source pollution prevention strategies.

We used surveys to evaluate Master Gardener education programs to determine whether participants learned specific pollution prevention techniques that they anticipate using in the future.

Summary of Evaluation of Elementary school program (4th grade) - The Water Cycle & Me

Teacher Surveys:

Program value to teachers, based on survey results:

- Teachers assign value to the program, specifically in the areas of reinforcing science standards and engaging students in relevant hands on activities.
- Teachers report interest in scheduling the program again
- Teachers report intention to recommend the program to other teachers.
- Teachers report satisfaction with the content and format of the program.

Evaluation numbers:

- 47 teachers returned surveys (26% of all programs)
- 100% of teachers responding to the survey agreed/strongly agreed with the following statements:
 - My students were engaged during the program.
 - Our academic standards were reinforced by the program.
 - I would schedule this program again.
 - I would recommend this program to other teachers
- 83% of teachers responding to the survey used the take home page providing additional information to adults in the students' household

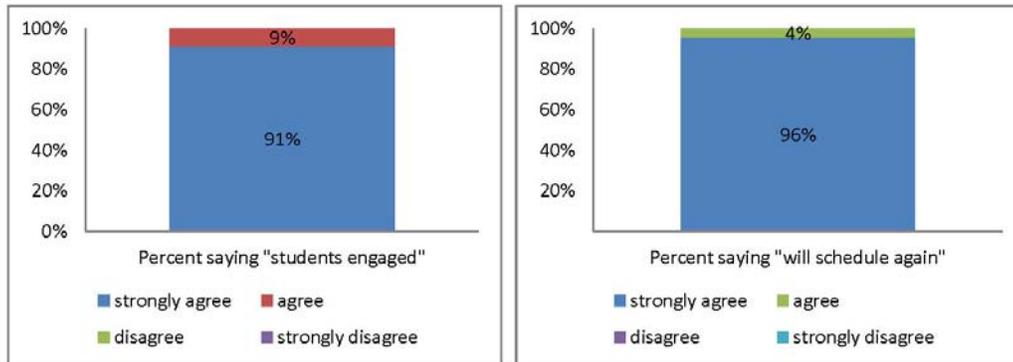
Metro Water Services
Nashville, TN



Summary of Public Education Activities by MWS PIO during FY16 (Continued)

Summary of non-point source education for NPDES – School Year 2015/16

Responses to teacher surveys



Evidence of Student Learning:

- Student work demonstrated evidence of learning water pollution sources and non-point source water pollution prevention habits.
- Examples of student work were posted on Metro Water Services Facebook page to reach the community. (see attached at end of report)

Summary of Evaluation for Master Gardener Programs

40 participants in the Master Gardener training class returned surveys indicating their intention to take specific pollution prevention measures when gardening.

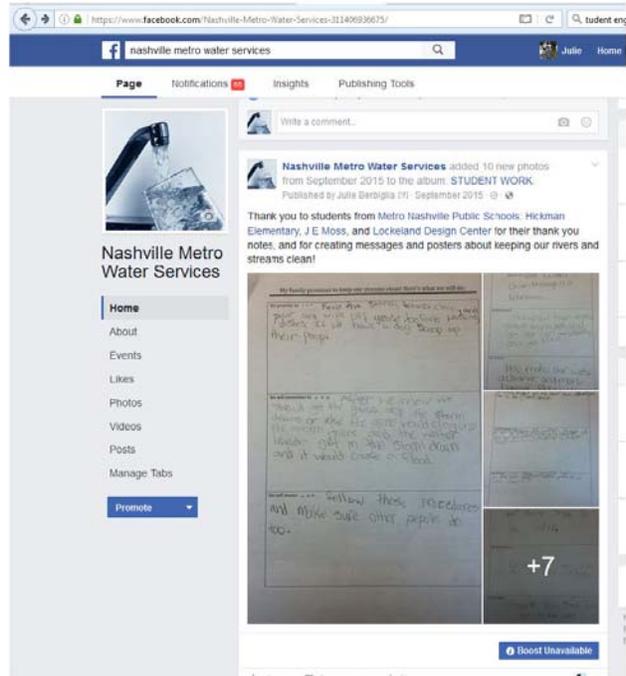
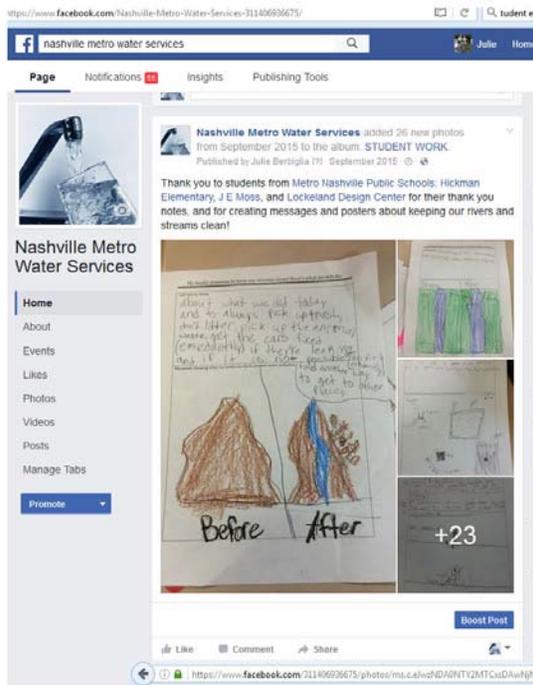
- 20 participants mentioned proper use of lawn chemicals
- 2 mentioned fixing oil leaks
- 18 mentioned other gardening activities

Metro Water Services
Nashville, TN



Summary of Public Education Activities by MWS PIO during FY16 (Continued)

Non-Point Source Water Pollution Education – Student Work, 2015-2016 On Facebook Page



Metro Water Services, Nashville, TN



MWS PIO Public Education Program Activities during FY16

Metro Water Services Programs & Activities

Report Dates: From 7/1/2015 to 6/30/2016

496 Programs/Activities 11487 Students 433 Adults

ActivityType: Classroom Activity		194 Programs/Activities		
TOTAL	Teacher Led Activity	194 Programs/Activities	4534 Students	Adults
The Journey of Your Water Video		194 Programs/Activities	4534 Students	Adults
8/24/2015	Mills, Dan Elementary	4	100	4th grade
8/31/2015	Maxwell Elementary School	5	125	4th grade
9/3/2015	Tom Joy Elem.	4	100	4th grade
9/4/2015	Hickman Elementary	4	91	4th grade
9/9/2015	Carter-Lawrence Elementary Magnet	3	71	4th grade
9/11/2015	Cotton, Hattie Elementary	4	80	4th grade
9/15/2015	Granbery Elementary	3	75	4th grade
9/16/2015	Moss, J.E. Elementary	8	162	4th grade
9/17/2015	Granbery Elementary	3	75	4th grade
9/18/2015	Old Center Elem.	3	75	4th grade
9/28/2015	Lockeland Elem. Design Center	3	75	4th grade
9/29/2015	Stratton Elem.	3	75	4th grade
9/30/2015	Stratton Elem.	3	75	4th grade
10/1/2015	Percy Priest Elem.	5	125	4th grade
10/2/2015	Shayne Elem.	6	150	4th grade
10/13/2015	Pennington Elem.	3	54	4th grade
10/19/2015	Tulip Grove Elem.	5	110	4th grade
10/20/2015	Gateway Elementary	3	60	4th grade
10/21/2015	Jackson, Andrew Elementary	5	125	4th grade
11/2/2015	Ruby Major Elem.	4	100	4th grade
11/4/2015	Una Elem.	5	115	4th grade
11/5/2015	Una Elem.	4	100	4th grade
11/12/2015	David Lipscomb Elementary School	4	72	4th grade
11/16/2015	Dupont Elementary	4	75	4th grade
11/19/2015	Dodson Elementary	4	80	4th grade
12/4/2015	Whitsitt Elem.	2	50	4th grade
12/11/2015	Whitsitt Elem.	3	75	4th grade



MWS PIO Public Education Program Activities during FY16 (Continued)

12/15/2015	Crieve Hall Elementary	3	75	4th grade
1/8/2016	Stanford Elem. Montessori Design Ctr.	3	54	4th grade
1/12/2016	Haywood Elementary	7	172	4th grade
1/26/2016	Harpeth Valley Elementary	6	150	4th grade
1/28/2016	Cumberland Elementary	4	100	4th grade
1/29/2016	Eakin Elementary	5	125	3rd grade
2/2/2016	Sylvan Park Elem. Paideia Design Ctr.	4	100	4th grade
2/3/2016	Kirkpatrick Elem. Enhanced Option	3	57	4th grade
2/5/2016	Amqui Elementary	4	100	4th grade
2/17/2016	Buena Vista Elementary Enhanced Option	3	51	3rd grade
2/18/2016	Buena Vista Elementary Enhanced Option	3	60	4th grade
3/2/2016	Cole Elementary	2	50	4th grade
3/3/2016	Cole Elementary	2	50	4th grade
3/4/2016	Cole Elementary	2	50	4th grade
3/7/2016	Robert Churchwell Museum Magnet	3	75	4th grade
3/8/2016	Robert Churchwell Museum Magnet	3	75	4th grade
3/15/2016	Mt. View Elem.	4	100	4th grade
3/16/2016	Mt. View Elem.	3	100	4th grade
4/1/2016	Gower Elementary	5	125	4th grade
4/12/2016	Glenn Elementary Enhanced Option	4	100	3rd & 4th grade
4/14/2016	Westmeade Elem.	2	50	4th grade
4/15/2016	Westmeade Elem.	3	50	4th grade
5/9/2016	Lakeview Elem. Design Center	2	50	3rd grade
5/10/2016	Donelson Christian Academy	3	45	4th grade
5/12/2016	Lakeview Elem. Design Center	2	50	3rd grade
5/17/2016	Lakeview Elem. Design Center	2	50	3rd grade

ActivityType:	Classroom Program	239	Programs/Activities
----------------------	--------------------------	------------	----------------------------

TOTAL Classroom Program	239	Programs/Activities	6416	Students	10	Adults
--------------------------------	------------	----------------------------	-------------	-----------------	-----------	---------------

Career Fair	6	Programs/Activities	650	Students	Adults
--------------------	----------	----------------------------	------------	-----------------	---------------

9/24/2015	Lakeview Elem. Design Center Truck Day	2	200	3rd & 4th grade
-----------	---	---	-----	-----------------

11/13/2015	Head Middle Magnet General MWS careers highlighted	1	200	middle school
------------	---	---	-----	---------------



MWS PIO Public Education Program Activities during FY16 (Continued)

11/20/2015	East Literature Magnet Lab careers highlighted	1	200	7th & 8th grade
4/5/2016	Lakeview Elem. Design Center	2	50	3rd & 4th grade
Enviroscape		47 Programs/Activities	1112 Students	Adults
9/2/2015	Baxter, Jere Middle read info on pollutants, record data on type of pollutants	3	75	5th grade
9/21/2015	J.T. Moore Middle pollution prevention poster reading	1	25	5th grade
9/22/2015	J.T. Moore Middle pollution prevention poster reading	3	75	5th grade
9/23/2015	J.T. Moore Middle pollution prevention poster reading	3	75	5th grade
9/24/2015	J.T. Moore Middle pollution prevention poster reading	3	75	6th grade
9/25/2015	J.T. Moore Middle pollution prevention poster reading	3	75	6th grade
10/15/2015	East Literature Magnet wastewater focus, reading	2	50	5th grade
10/16/2015	East Literature Magnet wastewater focus, reading	3	75	5th grade
10/29/2015	Franklin Road Academy history of water/wastewater in Nashville	3	80	7th grade
10/30/2015	Croft Middle Design Center Art/garden classes	4	80	5th - 8th grade
11/10/2015	Overton High Agriscience class	2	40	9th-11th grades
11/11/2015	Overton High Agriscience class	2	40	9th-11th grade
11/17/2015	Hume Fogg High Magnet Biology	2	50	9th grade
11/18/2015	Hume Fogg High Magnet Biology class	2	50	9th grade
12/1/2015	Donelson Christian Academy Environmental Science class	2	35	11th & 12th grades
5/2/2016	Martin Luther King Magnet	4	100	8th grade
6/16/2016	Special Group Owls Hill Summer Camp	1	25	elemmentary
6/17/2016	Jr. Master Gardeners enviroscape, backflow prevention	1	25	middle school



MWS PIO Public Education Program Activities during FY16 (Continued)

6/21/2016	Special Group Summer Academy at Vanderbilt for the Yount, water treatment focus, KRH and WCWWTP videos	1	12	7th grade
6/23/2016	Special Group Owls Hills Summer Camp	1	25	elementary
6/30/2016	Special Group Owls Hill Summer Camp	1	25	elementary
The Water Cycle & Me		182 Programs/Activities	4572 Students	Adults
7/27/2015	Special Group GROW Enrichment summer camp	1	5	elementary
8/24/2015	Mills, Dan Elementary	4	100	4th grade
8/31/2015	Maxwell Elementary School	4	125	4th grade
9/3/2015	Tom Joy Elem.	4	100	4th grade
9/4/2015	Hickman Elementary	4	91	4th grade
9/9/2015	Carter-Lawrence Elementary Magnet	3	71	4th grade
9/11/2015	Cotton, Hattie Elementary	4	80	4th grade
9/15/2015	Granbery Elementary	3	75	4th grade
9/16/2015	Moss, J.E. Elementary	4	162	4th grade
9/17/2015	Granbery Elementary	3	75	4th grade
9/18/2015	Old Center Elem.	3	75	4th grade
9/28/2015	Lockeland Elem. Design Center	3	75	4th grade
9/29/2015	Stratton Elem.	3	75	4th grade
9/30/2015	Stratton Elem.	3	75	4th grade
10/1/2015	Percy Priest Elem.	5	125	4th grade
10/2/2015	Shayne Elem.	6	150	4th grade
10/13/2015	Pennington Elem.	3	54	4th grade
10/19/2015	Tulip Grove Elem.	5	110	4th grade
10/20/2015	Gateway Elementary	3	60	4th grade
10/21/2015	Jackson, Andrew Elementary	5	125	4th grade
11/2/2015	Ruby Major Elem.	4	100	4th grade
11/4/2015	Una Elem.	4	115	4th grade
11/5/2015	Una Elem.	4	100	4th grade
11/12/2015	David Lipscomb Elementary School	4	72	4th grade
11/16/2015	Dupont Elementary	3	75	4th grade
11/19/2015	Dodson Elementary	4	80	4th grade



MWS PIO Public Education Program Activities during FY16 (Continued)

12/4/2015	Whitsitt Elem.	2	50	4th grade
12/11/2015	Whitsitt Elem.	3	75	4th grade
12/15/2015	Crieve Hall Elementary	3	75	4th grade
1/8/2016	Stanford Elem. Montessori Design Ctr.	2	54	4th grade
1/12/2016	Haywood Elementary	4	200	4th grade
1/26/2016	Harpeth Valley Elementary	3	150	4th grade
1/28/2016	Cumberland Elementary	4	100	4th grade
1/29/2016	Eakin Elementary	5	125	3rd grade
2/2/2016	Sylvan Park Elem. Paideia Design Ctr.	4	100	4th grade
2/3/2016	Kirkpatrick Elem. Enhanced Option	3	57	4th grade
2/5/2016	Amqui Elementary	4	100	4th grade
2/17/2016	Buena Vista Elementary Enhanced Option	3	51	3rd grade
2/18/2016	Buena Vista Elementary Enhanced Option	3	60	4th grade
3/2/2016	Cole Elementary	2	50	4th grade
3/3/2016	Cole Elementary	2	50	4th grade
3/4/2016	Cole Elementary	2	50	4th grade
3/7/2016	Robert Churchwell Museum Magnet	3	75	4th grade
3/8/2016	Robert Churchwell Museum Magnet	3	75	4th grade
3/15/2016	Mt. View Elem.	4	100	4th grade
3/16/2016	Mt. View Elem.	3	75	4th grade
3/31/2016	Stanford Elem. Montessori Design Ctr. Garden Club	1	20	mixed elementary
4/1/2016	Gower Elementary	5	125	4th grade
4/12/2016	Glenn Elementary Enhanced Option	4	100	3rd & 4th grade
4/14/2016	Westmeade Elem.	2	50	4th grade
4/15/2016	Westmeade Elem.	2	50	4th grade
5/9/2016	Lakeview Elem. Design Center	2	50	3rd grade
5/10/2016	Donelson Christian Academy	3	45	4th grade
5/12/2016	Lakeview Elem. Design Center	2	50	3rd grade
5/16/2016	Akiva School included water treatment and Brownie WOW activity	1	10	2nd grade
5/17/2016	Lakeview Elem. Design Center	2	50	3rd grade
Water & Wastewater Enviroscape		1 Programs/Activities	12 Students	Adults



MWS PIO Public Education Program Activities during FY16 (Continued)

7/13/2015	BoyScouts for merit badge	1	12	middle school	
Water Fun & Games		3 Programs/Activities	70 Students	10 Adults	
7/8/2015	Library: Thompson Lane clog prevention, water games	1	20	preschool - 4th grade	
3/22/2016	Library: Hadley Park water stretch game and Splash	1	25	6yrs to 12 years old	
6/15/2016	Library: Thompson Lane Splash, water olympics, water twister	1	25	elementary	10
ActivityType: Community Outreach Event		12 Programs/Activities			
TOTAL Booth		1 Programs/Activities	Students	50 Adults	
Booth/Table		1 Programs/Activities	Students	50 Adults	
4/11/2016	Health Spring Earth Day Celebration at Health Trust/HCA	1			50
TOTAL Event		1 Programs/Activities	Students	50 Adults	
Special Event		1 Programs/Activities	Students	50 Adults	
4/14/2016	Special Group Earth Day/Green Team presentation	1			50
TOTAL Provide Water		10 Programs/Activities	Students	Adults	
Jockey Box		1 Programs/Activities	Students	Adults	
9/12/2015	Wine on the River	1			
Water Fountain		5 Programs/Activities	Students	Adults	
7/4/2015	Hot Chicken Festival	1			
7/25/2015	Brewers Festival	1			
9/11/2015	State Fair multi day event	1			
9/26/2015	Special Event Midtown Hills Bike Rodeo				
10/2/2015	Special Event Celebrate Nashville	1			
4/23/2016	Earth Day Festival	1			
Water Truck		4 Programs/Activities	Students	Adults	
8/2/2015	Special Event Family Day at Ascend Amphitheater and Park	1			
8/30/2015	Special Event Lost Loon Triathlon	1			
9/12/2015	Dragon Boat & River Festival	1			



MWS PIO Public Education Program Activities during FY16 (Continued)

9/25/2015	Special Event Scouting on the run	1		
ActivityType: Community Presentation		10 Programs/Activities		
TOTAL Presentation		8 Programs/Activities	20 Students	53 Adults
Special Presentation		1 Programs/Activities	20 Students	Adults
9/21/2015	J.T. Moore Middle school wetlands project and stream adoption plans	1	20	5th grade
Water Treatment & Quality		7 Programs/Activities	Students	53 Adults
8/31/2015	National Business College water treatment processes, backflow and clog prevention	1		7
9/8/2015	National Business College treatment processes, backflow and clog prevention	1		9
9/10/2015	National Business College treatment processes, backflow and clog prevention	1		9
12/2/2015	National Business College water processes, backflow and clog prevention	1		8
4/27/2016	National Business College water & wastewater processes, clog prevention, backflow prevention	1		7
4/28/2016	National Business College water & wastewater processes, clog prevention, backflow prevention	2		13
TOTAL Program		2 Programs/Activities	Students	125 Adults
Wise Watering		2 Programs/Activities	Students	125 Adults
3/3/2016	Master Gardeners MG monthly meeting	1		50
3/10/2016	Master Gardeners	1		75
ActivityType: Tour		41 Programs/Activities		
TOTAL Tour: Biosolids		3 Programs/Activities	64 Students	Adults
Biosolids Facility Tour: Students		3 Programs/Activities	64 Students	Adults
9/14/2015	Vanderbilt School of Science & Math (High Schoo	1	26	9th grade
12/4/2015	Goodpasture Christian School	1	17	Juniors/Seniors
4/20/2016	Martin Luther King Magnet APES class	1	21	12th grade
TOTAL Tour: MWS Facilities		3 Programs/Activities	Students	8 Adults
Facilities Tour		3 Programs/Activities	Students	8 Adults
10/28/2015	Special Group David Briley tour	1		2
11/16/2015	Special Group CM Rosenberg			
Tuesday, September 06, 2016		Page 7 of 9		



MWS PIO Public Education Program Activities during FY16 (Continued)

11/24/2015	Special Group Mayor Tour				
12/18/2015	Special Group CM Murphy tour				
4/16/2016	Special Group Council members	1			4
5/3/2016	Special Group Council member, Mayors office staff	1			2
TOTAL Tour: WTP		15 Programs/Activities		202 Students	67 Adults
K.R. Harrington Tour: Adults		1 Programs/Activities		Students	15 Adults
11/3/2015	University: Vanderbilt Reading seminar on water	1		Junior/Senior	15
K.R. Harrington Tour: Students		14 Programs/Activities		202 Students	52 Adults
8/5/2015	BoyScouts For merit badge	1	8	middle school	4
8/27/2015	Stratford High ISR Vanderbilt group	1	25	20th grade	
9/14/2015	Vanderbilt School of Science & Math (High School)	1	26	9th grade	
10/9/2015	Girl Scout Event Brownie Wonders of Water Program	1	8	3rd grade	6
10/9/2015	Goodpasture Christian School	1	17	high school	
10/13/2015	Harpeth Hall	2	52	6th grade	
10/28/2015	Martin Luther King Magnet APES classes	2	40	Junior/Senior	
6/20/2016	Hillsboro High	2	16	11th grade	
6/22/2016	Special Group Schrader Lane Church of Christ, STREAM program	1	10	high school	
6/24/2016	Special Group TSU Uperward Bound Program for Davidson County High School Students	2		9th-12th grade	42
TOTAL Tour: WWTP		20 Programs/Activities		251 Students	70 Adults
White's Creek Tour: Adults		4 Programs/Activities		Students	64 Adults
11/6/2015	Aquinas Ecosystems class	1			15
4/7/2016	University: Trevecca Nazarene Ecology Class	1			15
4/12/2016	University: Belmont University Microbiology class	1			17
4/13/2016	University: Belmont University Microbiology class	1			17



MWS PIO Public Education Program Activities during FY16 (Continued)

Whites Creek Tour: Students		16 Programs/Activities		251 Students		6 Adults	
7/16/2015	Special Group MTSU summer camp for high school students	1	18	high school			
8/25/2015	Stratford High ISR Program (Vanderbilt)	1	25	10th grade			
8/26/2015	Home School Group	1	10	9-14 years old		5	
9/14/2015	Vanderbilt School of Science & Math (High School)	1	26	9th grade			
11/6/2015	John Early Middle Paideia Magnet Art-2-STEM class	1	18	5th-9th grade			
11/24/2015	West End Middle Art-2-STEM class	1	13	5th-8th grade			
12/2/2015	Goodpasture Christian School	1	17	11th/12th grade			
2/19/2016	St. Cecilia Academy	1	16	12th grade			
2/24/2016	Hume Fogg High Magnet Honors Biology class	1	10	seniors			
3/17/2016	Montgomery Bell Academy	2	22	12th grade			
3/21/2016	Head Middle Magnet 1 teacher	1	2	middle school			1
4/6/2016	Martin Luther King Magnet	1	36	12th grade			
4/8/2016	BoyScouts	1	6	4th grade			
6/20/2016	Hillsboro High	1	16	11th grade			
6/28/2016	Special Group Vanderbilt University Program for Talented Youth	1	16	9th and 10th grade			



NPDES Public Education Events/Presentations during FY16

Date	Event	Education Type	Audience Number	Audience	Target Audience/Pollutant	Staff Lead	Event Notes
7/2/2015	Landscaping debris mail-out	Mail-out	1	Property management company	Leaves/Brush/Trash Dumping	Drury	Landscaping debris mail-out sent to property management company (Synergy Real Estate Group Inc., 179 Belle Forest Circle, Suite 302) due to large pile of leaves found on stream bank during benthic macroinvertebrate sampling.
7/2/2015	Landscaping debris mail-out	Mail-out	1	Homeowners	Leaves/Brush/Trash Dumping	Drury	Landscaping debris mail-out due to landscaping debris found dumped on stream bank during stream walk
7/2/2015	Landscaping debris mail-out	Mail-out	1	Homeowners	Leaves/Brush/Trash Dumping	Drury	Landscaping debris mail-out due to landscaping debris found dumped on stream bank during stream walk
7/2/2015	Landscaping Debris Mail-out	Mail-out	1	Homeowners	Leaves/Brush/Trash Dumping	Drury	Landscaping debris mail-out due to landscaping debris dumped on bank found during stream walk
7/15/2015	Landscaping Mail-out	Mail-out	5	8029 Arbor Drive	Leaves/Brush/Trash Dumping	Hayes	Caller wanted us to send them brochures on the landscaping information and stormwater pollution.
7/21/2015	Oak Chase Public Education Mail out HOA	Mail-out	500	Residents at Oak Chase Subdivision	Leaves/Brush/Trash Dumping	Hayes	Due to a complaint about resident on Oak Chase Drive about dumping grass clippings in the storm drain, JH talked to Clint Hawkins about including our residential mail-out brochure in their next newsletter. They said they would and it would go out to about
7/23/2015	SCM Inspection Workshop	Public/Group Meeting	15	Vendors and Metro Department reps	SCM Inspection/Maintenance	TerryNelson	NPDES hosted a workshop geared toward educating owners of SCMs on proper maintenance procedures.
7/30/2015	Grass Clipping education	Mail-out	1	Residential	Leaves/Brush/Trash Dumping	TerryNelson	Residential brochure
7/31/2015	TDEC Level I Certification	Presentation	85	Prospective Level 1 EPSC Professionals	Construction/Development Education	Binder	Dale Binder presented Metro's grading permit information to prospective EPSC professionals.
8/3/2015	Mossdale Neighborhood Educational Mail-out	Mail-out	7	block of neighbors surrounding Hamilton Creek	Leaves/Brush/Trash Dumping	Mullen	mailed out residential brochure to residents listed in spreadsheet above. In response to SR#641061-investigated and found grass clippings in street and in East Fork Hamilton
8/25/2015	Thompson Lane Shopping Plaza Outreach	Brochure/Door Hanger Distribution	2	Thompson Lane Shopping Plaza	Commercial Runoff	Hayes	JH received complaint call of dumping of mop water from the #1 Chinese Restaurant and the Wine & Liquor Store. JH dropped off brochure with the restaurant and liquor store and explained that if it happens again, it could lead to enforcement actions.



NPDES Public Education Events/Presentations during FY16 (Continued)

Date	Event	Education Type	Audience Number	Audience	Target Audience/Pollutant	Staff Lead	Event Notes
8/29/2015	Urban Runoff 5K	Citywide Event	234	5K and Water Quality Festival Audience	General Stormwater Pollution	Hayes	MWS cohosted the race and water quality festival with TDEC and TNSA. We had 234 registered runners and the route contained stormwater LID theme signs throughout. We also had an education booth set up at the event.
9/2/2015	Eastland Avenue Residential Mail-out	Mail-out	28	Residents of East Avenue	Leaves/Brush/Trash Dumping	Mullen	Called caller and left message about mail out-caller complained of neighbors putting grass clippings in storm drains
9/12/2015	Dragon Boat Races	Citywide Event	100	Dragon Boat Racers, and citizens at park opening	General Stormwater Pollution	Mullen	Not a lot of children at this event-which is who our booth was aimed toward.
9/22/2015	TDEC Level I Certification	Presentation	100	Prospective Level 1 EPSC Professionals	Construction/Development Education	Binder	Dale Binder presented Metro's grading permit information to prospective EPSC professionals.
9/24/2015	J.T. Moore Middle School	Presentation	30	5th Grade Class at J.T. Moore Middle School	General Stormwater Pollution	Hayes	Josh Hayes and Veronica Mullen met with the 5th grade class at J.T. Moore Elementary to talk about stormwater runoff and wetlands.
9/26/2015	Green Alley Rain Garden Build	Public/Group Meeting	28	Volunteers	General Stormwater Pollution	Dohn	
9/29/2015	Nashville's MS4 Program Presentation	Presentation	50	TDEC Staff at the Annual Retreat	General Stormwater Pollution	Hunt	Michael presented aspects of Nashville's MS4 program to TDEC staff at the annual retreat.
10/12/2015	Litter at Dollar General	Brochure/Door Hanger Distribution	1	Manager at Dollar General	Leaves/Brush/Trash Dumping	Walshe-Langford	While field screening I noticed a lot of trash near the storm drain behind Dollar General on Bell Road. This storm drain did not have a proper cover, just a piece of pallet, and so there was a good chance that a some of the trash would enter the storm drain.
10/20/2015	TNSA Annual Conference - Urban Runoff 5K	Presentation	100	TNSA Membership - Other MS4s in the State	General Stormwater Pollution	Hayes	Josh presented alongside of JeniLind Brinkman (TDEC) and Jennifer Watson (TNSA) about the Urban Runoff 5K.
10/21/2015	TNSA Annual Conference - SCM Maintenance	Presentation	25	TNSA Membership - Other MS4s in Tennessee	SCM Inspection/Maintenance	Hunt	Michael presented the issue of SCM maintenance that Nashville is working to reconcile.
10/29/2015	Homeschool career day	School	10	West Nashville Home School Group	General Stormwater Pollution	Mullen	Talked to a group of homeschoolers about careers in water quality and monitoring streams for different types of pollution. We also marked 3 storm drains around the church.

NPDES Public Education Events/Presentations during FY16 (Continued)

Date	Event	Education Type	Audience Number	Audience	Target Audience/Pollutant	Staff Lead	Event Notes
11/2/2015	responding to illicit call	Brochure/Door Hanger Distribution	1	resident at 2036 Sherbrooke Lane	Oil and Grease	Walsh-Langford	I responded to a call from a neighbor that this resident had leaking oil from his car. There was no one home when I called at the house so I left a door hanger with information on protecting storm drains.
11/2/2015	Mail out prepared for Scotts Creek Trail	Mail-out	41	Residents of area surrounding Scotts Creek Trail	Leaves/Brush/Trash Dumping	Walsh-Langford	After a call from a resident complaining that a neighbor was putting waste in the storm drain, we prepared a mail out for the whole neighborhood to educate on the proper way of disposing of yard waste, and how to protect storm drains.
11/3/2015	Scotts Creek Trail drain marking	Drain Stenciling/Marking	14	Residents	Leaves/Brush/Trash Dumping		Went out and marked 14 drains with no dumping sticker.
11/9/2015	Landscaping-education mail out	Mail-out	40	Neighborhood and Landscaping company	Leaves/Brush/Trash Dumping	Mullen	Resident complained that Ron's Lawn's Landscaping service is blowing leaves into the storm drain. I spoke with Ms. Hammond and she wants someone to dredge the stream. I told her we don't really do that, but we would send out education flyers and that w
11/20/2015	Zoo Retrofit Workshop	Presentation	35	Professional	General Stormwater Pollution	Dohn	Presentation on retrofitting opportunities in Metro & the 2016 SWMM revisions.
12/1/2015	Mail out prepared for landscape refuse in drainage ditches	Brochure/Door Hanger Distribution	34	Residents on Spain Ave and Birchwood Avenue	Leaves/Brush/Trash Dumping	Walsh-Langford	Complaint from member of the public stating that a developer pushed dirt, rock etc. into a creek/conveyance when clearing the lot which blocked the flow causing it to back up. Upon inspection by Boots the only site that seemed similar to the complaint was
12/1/2015	Mail out prepared for paint in stream event	Brochure/Door Hanger Distribution	27	Residents	General Stormwater Pollution	Walsh-Langford	We responded to a call regarding milky white water in a stream. It became apparent that a resident had washed out some brushes or trays near the stream and paint had washed into the stream. A patch of paint was visible on the grass behind some of the condos
12/3/2015	Leaves piled up and falling in stream	Mail-out	34	Residents of Demoss street and surroundings	Leaves/Brush/Trash Dumping	Walsh-Langford	While out field screening I noticed that a resident on Demoss street had a large pile of leaves at the edge of their yard that were falling into the neighboring stream. I thought I would send a mail out as there was no one home when I called, and so that
12/7/2015	TDEC Level I Certification	Presentation	135	Prospective Level 1 EPSC Professionals	Construction/Development Education	Binder	Dale Binder presented Metro's grading permit information to prospective EPSC professionals.

NPDES Public Education Events/Presentations during FY16 (Continued)

Date	Event	Education Type	Audience Number	Audience	Target Audience/Pollutant	Staff Lead	Event Notes
12/8/2015	David Lipscomb Water Resources Class	School	25	David Lipscomb Water Resources Class		Hunt	Michael Hunt set in on a class session with the water resources department and helped to provide information of stormwater management.
12/22/2015	Development Community Email	Mail-out	132	Grading permit pre-con meeting contacts	Construction/Development Education	Binder	Sent welcome email notice out to new development community contacts notifying them of our staff contacts.
12/23/2015	Email notice	Mail-out	22	Contacts of grading permitted sites in downtown area	Construction/Development Education	Binder	Sent email notice to 22 contacts that are involved with 14 grading permit sites in the downtown area. Notice was sent due to the discharges observed in the Cumberland River from a storm outfall. They are to inspect and maintain all site controls and dis
1/4/2016	Email notice	Mail-out	749	Contacts of grading permitted sites	Construction/Development Education	Binder	Email notice sent to development community contacts. Notice included several reminders, issues noted, and notice of new reg. change.
1/13/2016	Outreach to Jarret Builders	Outbound Calling	1	Metro-Contracted Parking lot Maintenance	General Stormwater Pollution	Wilson (Beth)	Emailed Jarret Builders regarding potential stormwater pollution associated with parking lot maintenance and how to be pro-active in preventing pollution.
2/3/2016	New Sawyer Brown RD-Door Hangers	Brochure/Door Hanger Distribution	3	Local Residents	Leaves/Brush/Trash Dumping	Wilson (Beth)	Left 3 door hangers on resident's doors near storm drains where reported household grease was being dumped. Also put 2 storm drain stickers on the storm drains in the neighborhood.
2/9/2016	2016 Stormwater Regulation Revision	Presentation	18	Development Community	Construction/Development Education	Hunt	Presentation to Development community on new regulations.
2/19/2016	School of Rock	Presentation	73	Engineers	Construction/Development Education	Dohn	Presentation to engineering community on new regulations.
2/23/2016	TDEC Level I Certification	Presentation	120	Prospective Level 1 EPSC Professionals	Construction/Development Education	Binder	Dale Binder presented Metro's grading permit information to prospective EPSC professionals.
3/3/2016	Nashville Lawn and Garden Show	Citywide Event	1200	Attendees of the Lawn and Garden Show	General Stormwater Pollution	Wilson (Beth)	Gave out 1200 flyers about the rain barrel sale. Also displayed 3 banners; Clean water begins at home, garden chemicals, and yard waste. Passed out about 500 pens, and about 100 cozies and Frisbees.
3/4/2016	Autumn Crossing Way Storm Drain Marking	Drain Stenciling/Marking	25	Residents on Autumn Crossing Way	General Stormwater Pollution	Walshe-Langford	Complaint of dog feces being disposed of in storm drains. Marked 25 storm drains in the area.

NPDES Public Education Events/Presentations during FY16 (Continued)

Date	Event	Education Type	Audience Number	Audience	Target Audience/Pollutant	Staff Lead	Event Notes
3/8/2016	Becklea Drive Brochure Distribution	Brochure/Door Hanger Distribution	12	Residents of Becklea Drive	General Stormwater Pollution	Walshe-Langford	Due to complaints about neighborhood resident creating run off into the storm drain GWL and BW hung door hangers on the houses in the area to educate on what can go down the drain.
3/8/2016	Becklea Drive Stenciling	Drain Stenciling/Marking	2	Residents of Becklea Drive		Walshe-Langford	To go along with a neighborhood door hanging event due to resident washing unknown liquids down the storm drain, GWL and BW marked two storm drains in the neighborhood.
3/11/2016	Mayors Night Out	Citywide Event	200	Attendees of Mayors Night Out	General Stormwater Pollution	Hunt	Displayed the clean water starts at home banner and put out a rain barrel demo.
3/11/2016	Overton High School Tour Days	School	250	Overton HS Sophomores	General Stormwater Pollution		Metro Water will provide briefings using the Watershed Model, provided by the National Weather Service, and will also demonstrate the engineering design plans for several of the riverbank projects constructed along the river at Nissan Stadium and the Brid
3/24/2016	Door Hangers on Wallace Road	Brochure/Door Hanger Distribution	7	Residents along Wallace Road	General Stormwater Pollution	Wilson (Beth)	3/24/2016 Resident at 3701 Hillsbrook Drive (211 Wallace Drive) called to complain about excessive trash build up from stormwater flowing through her property. Door hangers were distributed to houses upstream from the property to control trash inputs into
3/28/2016	General Contractor EPSC Rules	Presentation	1	Local General Contractor	Construction/Development Education	Johns	Denice met with a local contractor and spent an hour going over various regulations required for construction sites.
4/7/2016	Door Hangers on Bonnalynn Drive	Drain Stenciling/Marking	9	Residents on Bonnalynn Drive	General Stormwater Pollution	Wilson (Beth)	Left 9 door hangers on houses around 206 Bonnalynn Drive following a complaint of grease and other trash being dumped into the ditch.
4/13/2016	AWRA	Presentation	100	Attendees of the AWRA Conference - 2016	SCM Inspection/Maintenance	Hayes	Josh Hayes presented the latest lessons learned in overseeing long term maintenance of SCM structures.
4/18/2016	Stream Clean Mail Out	Mail-out	45	Residents Near Mill Creek	General Stormwater Pollution	Wilson (Beth)	Mailed out 45 letters about the Mayors clean-up and why to clean up trash to keep the streams clean.
4/19/2016	Rain Barrel Discount Program	Citywide Event	948	Nashville Citizens	General Stormwater Pollution	Wilson (Beth)	Press Release in April for Rain Barrel program to encourage residents to purchase rain barrels. Program ended in May with 948 barrels sold.

NPDES Public Education Events/Presentations during FY16 (Continued)

Date	Event	Education Type	Audience Number	Audience	Target Audience/Pollutant	Staff Lead	Event Notes
4/19/2016	Metro Wide MS4 Permit Meeting	Metro Employee MS4 Compliance	43	Metro Employees	MS4 Permit Compliance	Wilson (Beth)	Held a meeting with 43 metro employees from various departments. Updated them on our MS4 permit and how they help with us staying compliant with the MS4 permit and future works that we can do together to remain in compliance.
4/21/2016	SCM Inspection and Maintenance Certification	Presentation	25	Local SCM Operators/Engineers	SCM Inspection/Maintenance	Hayes	Josh Hayes presented Nashville's oversight role on Post Construction SCMs to seekers of the State-wide Certification Program.
4/22/2016	Party for the Planet, Nashville Zoo	Citywide Event	250	Students	General Stormwater Pollution	Wilson (Beth)	Had a booth at the Nashville Zoo Party for the Planet event. Booth contained 2 banners, Scoop the Poop and Clean water begins at home. Also showcased the rain barrels and the Urban Runoff 5K. Stormwater stretch was also played by various children. Also
5/9/2016	Distributing landscaping leaflet to HOA	Mail-out	40	40 Households Williams Grove HOA		Walshe-Langford	Contacted HOA of Williams Grove subdivision about a complaint we had received regarding the quantity of chemicals being applied to the grassed areas of the subdivision by landscaping companies. I supplied a leaflet for the company on proper use of chemical
5/9/2016	distribution of leaflet to HOA	Mail-out	40	40 Households		Walshe-Langford	Contacted HOA of Wexford Downs subdivision about a complaint we had received regarding the quantity of chemicals being applied to the grassed areas of the subdivision by landscaping companies. I supplied a leaflet for the company on proper use of chemical
5/10/2016	Woodmont Lane Mail Out	Mail-out	20	Residents on Woodmont Lane and Surrounding area	Leaves/Brush/Trash Dumping	Wilson (Beth)	Sent out a yard waste management letter to 20 properties around Woodmont Lane
5/10/2016	TDEC Level I Certification	Presentation	120	Prospective Level 1 EPSC Professionals	Construction/Development Education	Binder	Dale Binder presented Metro's grading permit information to prospective EPSC professionals.
5/17/2016	Municipal Wet Weather Conference - EPA, IEACA	Presentation	50	EPA, Stormwater Managers	General Stormwater Pollution	Hunt	Michael Hunt presented the evolution of the Nashville MS4 program to the national conference.
5/18/2016	Provincetown HOA SCM Identification	Metro Employee MS4 Compliance	0	Provincetown HOA Members & Groundskeeper	SCM Inspection/Maintenance	Wilson (Jane)	JW & JH met with Provincetown HOA Board Members (Rebecca Carey & Rhonda Gordon-Hardy) & Groundskeeper to provide guidance with inspection and maintenance of four wet ponds on property owned by HOA.

NPDES Public Education Events/Presentations during FY16 (Continued)

Date	Event	Education Type	Audience Number	Audience	Target Audience/Pollutant	Staff Lead	Event Notes
5/25/2016	TN SW Stds Law and Railway Challenges to SW fees	Presentation	50	Nationwide Stormwater Managers	Construction/Development Education	Hunt	Michael Hunt and Jennifer Watson presented via conference call/Webcast issues associated with new Tennessee State Law limiting the use of LID.
5/31/2016	Storm Drain Markers on Village Trail Drive	Drain Stenciling/Marking	16	Residents on Village Trail and Brickmont Drive	General Stormwater Pollution	Wilson (Beth)	Marked 16 storm drains after an illicit call about people dumping in the sewer on Village Trail Drive and Brickmont Drive.
6/9/2016	CMA Fest Booth	Educational Booth	3000	CMA Fest Attendees	Leaves/Brush/Trash Dumping	Wilson (Beth)	Co-Sponsored a booth with Nashville Beautification Committee to pass out pocket ash trays to festival attendees to prevent litter from entering out streets and storm drains.
6/10/2016	Door hanger distribution	Brochure/Door Hanger Distribution	18	Residents of Westwood Trace	Leaves/Brush/Trash Dumping	Walshe-Langford	A resident of the Westwood Trace subdivision called to complain that someone had dumped brush and tree limbs near the entrance to the subdivision.
6/16/2016	Stormwater Management Challenges Workshop	Presentation	40	Professionals	Construction/Development Education	Dohn	
4/23/2016	Nashville Earth Day Celebration	Citywide Event	10000	Earth Day Celebration Attendees	General Stormwater Pollution	Wilson (Beth)	Held a booth at the Earth Day Festival. Booth featured 3 banners, Scoop the Poop, Clean Water Starts at Home, and Storm Drains. Also featured at the booth was the rain barrel and promoting the rain barrel sale, flyers for the Urban Runoff 5K, and also t



Metro Department of Public Works Waste Collection During FY16

	July	August	September	October	November	December	January	February	March	April	May	June	Total
Recycling													
<i>Curbside Recycling/In-house Recycling/Recycling Dumpsters</i>													
Mixed Recyclables	996.88	1,122.37	932.44	1,048.90	1,081.73	1,113.43	1,189.79	1,019.74	1,036.77	1,182.95	1,060.64	1,001.03	12,786.67
Monthly Totals	996.88	1,122.37	932.44	1,048.90	1,081.73	1,113.43	1,189.79	1,019.74	1,036.77	1,182.95	1,060.64	1,001.03	12,786.67
<i>Household Hazardous Waste Facility</i>													
Oil	1.72	1.31	1.7	1.93	0.56	1.65	1.15	0.32	2.88	1.72	1.8	2.11	18.85
Anti-Freeze	2	1.1	1.7	1.7	0.56	1.64	0.76	0.22	1.8	1.1	1.2	0.5	14.28
Electronics	0	0	43.35	0	0	0	0	10.18	27.73	25.16	46.77	16.02	169.21
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	0	0	0	0.86	11.17	0	7.28	0	1.16	0	0	0.69	21.16
Monthly Totals	3.72	2.41	46.75	4.49	12.29	3.29	9.19	10.72	33.57	27.98	49.77	19.32	223.5
<i>Drop Off Recycling Centers & Convenience Centers</i>													
Carpet/Carpet Pad	20.44	11.68	11.68	11.68	10.95	10.95	7.30	2.19	14.60	8.76	5.11	14.60	129.94
Mixed Recyclables	14.59	29.62	16.46	14.15	14.15	26.04	14.24	11.40	17.88	18.78	23.60	22.99	223.90
Aluminum & Tin	-	-	-	-	-	-	-	-	-	-	-	-	-
Glass	178.06	183.57	175.78	176.98	176.79	220.35	161.79	192.90	209.42	189.30	197.13	202.39	2,264.46
Mixed Paper	182.47	225.13	168.70	192.17	204.15	236.81	167.48	173.55	223.76	171.87	168.39	199.69	2,314.17
OCC	172.89	161.29	139.86	154.08	164.25	201.50	183.09	170.32	166.91	153.11	182.34	214.78	2,064.42
Plastic	44.51	46.93	34.41	41.35	43.94	45.07	37.93	40.08	43.70	39.80	46.24	43.31	507.27
Plastic Bottles & Metal Cans	26.46	23.29	22.36	25.28	25.36	28.15	20.79	31.99	39.05	26.83	28.00	30.44	328.00
Scrap Metal	47.91	37.84	40.90	41.38	41.44	45.04	34.61	39.93	76.01	71.61	58.45	84.73	619.85
Tires	122.23	473.91	480.37	790.67	345.57	667.86	1,071.48	574.98	404.02	914.42	449.80	1,384.21	7,679.52
Monthly Totals	809.56	1,193.26	1,090.52	1,447.74	1,026.60	1,481.77	1,698.71	1,237.34	1,195.35	1,594.48	1,159.06	2,197.14	16,131.53
Waste Collection													
Total Metro Public Works Trash Collection	4,704.44	3,886.27	4,176.78	4,213.53	3,876.64	4,597.69	3,610.79	3,737.04	4,689.48	3,979.48	4,168.58	4,304.93	49,945.65
Total Convenience Center Trash	1,718.96	1,586.01	1,447.35	1,586.05	1,378.06	1,423.55	1,198.15	1,408.14	1,839.95	1,750.78	1,776.97	1,659.71	18,773.68
Contracted Residential	8,815.23	7,239.94	7,568.50	7,599.37	7,124.21	8,900.81	7,090.06	6,588.34	8,369.90	7,878.51	7,921.79	8,524.78	93,621.44
Monthly Totals	15,238.63	12,712.22	13,192.63	13,398.95	12,378.91	14,922.05	11,899.00	11,733.52	14,899.33	13,608.77	13,867.34	14,489.42	162,340.77
Brush Collection													
Unground -- Grapple Hook	3186.38	1821.83	1435.04	3636.87	1725.82	1445.85	2204.01	1828.51	2032.76	2092.47	1762.74	1023.24	24,195.52
Unground -- Dropped Off	0	0	0	0	0	0	0	0	0	0	0	0	-
Unground -- Contractor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-
Ground -- Dropped Off	17.09	50.44	41.35	39.92	31.97	23.42	66.23	51.34	35.53	39.38	39.64	73.16	509.47
Leaves -- Metro	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-
Leaves -- Dropped Off	0.00	7.36	18.81	166.23	714.96	744.97	139.91	75.39	66.05	53.90	31.16	18.28	2,037.02
Monthly Totals	3,203.47	1,879.63	1,495.20	3,843.02	2,472.75	2,214.24	2,410.15	1,955.24	2,134.34	2,185.75	1,833.54	1,114.68	26,742.01



Metro Department of Public Works Hazardous Spills Responded to During FY16

ID	Date	Origin	Notified	Location	Situation	Personnel	Arrived	Actions	Departed	Agencies	Report By
1717	5/20/16	OEM	7:58	Emery Dr	Unknown Amount Of Unknown Product Slimy Spill On Road	Escue / Allen	8:08	Covered With 1200 Pounds Spill Gone Using The Spreader Truck	9:09	PW/PD	Escue
1716	5/19/16	Ricky Lloyd	10:02	2417 Kimberly Dr	Hydraulic Fluid Spill On Road Approximately 20 Gallons	Escue / Lancaster	10:07	Covered And Cleaned Up With Spill Gone	10:38	PW	Escue
1707	4/18/16	OEM	2:15	5th Ave N @ Church St	10 Gallons Hydraulic Oil Spill On Road	Gann	3:00	Covered With 400 Pounds Spill Gone With Spreader Truck	4:07	PW	Gann
1708	4/18/16	OEM	12:55	Murfreesboro @ Ohb	10 Gallons Oil Spill On Roadway	Gann	13:17	Covered With 400 Pounds Spill Gone	15:00	PW	Gann
1706	4/9/16	E. Kurgan	14:37	Food Lion On Richards Rd	4 Gallons of Hydraulic Oil Spill On Parking Lot	Gann	14:45	Covered With 25 Pounds Spill Gone	15:11	PW	Gann
1643	3/25/16	M. Jackson	12:08	Anderson Rd. @ Mossdale Dr.	40 Gallons of Hydraulic Oil Spill on Road Spill	B. Gann	1:04	Put Down 600 Pounds Absorbent	3:35	PW & RIR	Brandon Gann
1641	3/18/16	Elliott	13:40	3020 Wilford Pack Ct	50 Gallons of Hydraulic Oil Spill On Rd	Gann / Hatcher	14:09	Covered With 500 Pounds Absorbent With Spreader Truck	15:51	PW	Gann
1639	3/17/16	J. Elliott	14:11	University Ct. Housing & Lafatette	Hydraulic Spill	K. Hatcher	14:38	Spread 100 Pounds Of Absorbent	15:43	PW	K.Hatcher
1636	3/2/16	Kurgan	15:24	Dorden Pl @ West Hillwood Dr	40 Gallons of Hydraulic Oil Spill On Road	Gann/Hatcher	15:59	Covered With 260 Pounds Spill Gone With Spreader Truck	17:16	PW	Gann
1633	2/4/16	Kurgan	15:08	S 11th St @ Fatherland St	60 Gallons of Hydraulic Oil Spill On Road	Gann / Hatcher	15:30	Covered With 1000 Pounds Spill Gone, Used Spreader Truck	17:49	PW	Gann
1627	12/29/15	Kurgan	10:00	Anderson Lane Con. Center	Hydraulic Oil Spill On Roadway	Allen	10:30	Covered With 600 Pounds Spill Gone	13:00	PW	Allen
1624	12/15/15	Escue	11:30	Hester Beasley Rd @ Hwy 100	15 Gallons Hydraulic Oil Spill On Road	Gann	12:27	Covered With 150 Pounds Spill Gone	13:41	PW	Gann



Metro Department of Public Works Hazardous Spills Responded to During FY16 (Continued)

Id	Date	Origin	Notified	Location	Situation	Personnel	Arrived	Actions	Departed	Agencies	Report By
1621	12/10/15	OEM	23:45	15th Ave N. & Hatnes St.	Hydraulic Spill From Charlotte& 18th To 15th. Avenue	Kortland Hatcher	12:01	West Nashville Was Called To Do Clean Up	2:03	PW/OEM	K. Hatcher
1618	11/28/15	Escue	9:00	Beechwood Ave @ Sweetbriar Av In Alley	40 Gallons Hydraulic Oil Spill In Alley	Gann / Hatcher	10:00	Covered With 1200 Pounds Spill Gone	12:15	PW	Gann
1612	11/6/15	OEM	9:48	OHB Near Hwy 70	Sheen On Roadway From Fuel Spill Unknown Amount	Escue/ Allen	10:16	Covered With 100 Pounds Spill Gone	10:34	FD/PW	Escue
1611	11/5/15	Kurgan	10:00	111 Whisett Rd Hartford Apt	Hydraulic Spill From Trash Truck	Elliott / Green	10:30	Covered With 200 Pounds Spill Gone (Approx. 5 Gallons)	10:45	PW	Elliott
1610	11/3/15	Kurgan	14:03	939 Anderson Ln	30 Gallons Hydraulic Spill	Hatcher	15:10	Used 400 Pounds Of Spill Gone To Cover	16:33	Pw	Hatcher
1607	10/19/15	OEM	17:21	Hillsboro @ Woodmont	MVA 46 With 15 Gallons Gas Spill	Hatcher	17:40	Used 30 Pounds Spill Gone To Cover	19:30	PW/PD/ FD	Hatcher
1703	8/21/15	Doolittle	6:30	Granbery Elementry School	Hydraulic Oil Spill In School Parking Lot	Escue/ Allen	6:59	Used 600 Pounds Spill Gone To Clean Up	9:40	PW	Escue
1704	8/21/15	M. Jackson	12:47	101 University Ct	25 Gallons Hydraulic Oil Spill On Rd	Gann / Allen	13:01	Covered With 800 Pounds Spill Gone	16:05	PW	Gann
1698	7/15/15	OEM	16:58	Neelys Bend @ Gallatin	Over Turned Tractor Trailer Leaking About 50 Gallons Diesel Spill	Hatcher	16:58	Used 200 Pounds Spill Gone To Contain Fuel	20:15	PW / FD / PD	Hatcher



Metro Department of Public Works Deicing Activities During FY16

	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	4,015.33	1,120.54	0	0	0	0	5,135.87



Mayor's Spring Clean Event Advertisement

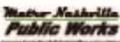
SATURDAY, APRIL 23

Join
MAYOR BARRY'S
CITYWIDE
SPRING CLEAN

WHAT YOU CAN DO:

- 1 Call your friends and organize a clean-up on April 23rd in your neighborhood!
- 2 Volunteer at an existing clean-up.

Visit StopLitter.Nashville.gov or call (615) 862-8418 to learn more about organizing a clean-up, find out how to get FREE supplies and see a list of upcoming clean-ups.

   StopLitter.Nashville.gov
 /MetroNashvillePublicWorks  /NashvillePW



Contracted Street Sweeper SOP – Sweeper Equipment Fluid Releases



Sweeper Equipment Fluid Releases Standard Operating Procedure

1. Complete a visual “walk around” inspection of all sweeper equipment prior to starting. Inspect for damaged hoses and for puddles or stains from leaking fluids under your machine. If fluid leaks are evident, do not start equipment. Notify your Supervisor and the mechanic.
2. Periodically scan the equipment management system on the dashboard/console of the machine for flashing lights/warning sounds that may indicate a system failure. Move to a safe area, stop and inspect the sweeper/chassis for leaks and malfunctions as necessary.
3. Routinely glance through the mirrors at the machine components that are susceptible to damage, for example lift cylinders, hydraulic hoses, grease and oil seals. Listen as you operate your machine for unusual noises that may be an indication of a mechanical failure. If so, move to a safe area, stop the sweeper and notify your Supervisor and the mechanic.
4. As you make a “pass” in a forward direction and prepare to change direction, look out your mirrors and or windows and inspect the ground for streaks of oil and or anti freeze. If leaks are observed, move machine to a safe area, shut the sweeper down, contain spill using a bucket, pan, or absorbent and notify Supervisor and mechanic.
5. If a machine loses more than one gallon of fluid notify your Supervisor. He/She will follow the Hazardous Materials Spill Response Standard Operating Procedure.

Note: Safe operation of a sweeper can be easily attained by the application of common sense and logic. Develop an awareness of how your machine operates that will allow you to quickly identify any malfunction.

Consequence of Non-Compliance to Instruction:

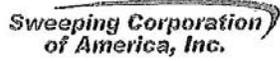
- Sweeper breakdown – high cost of replacement parts
- Reduced productivity
- Regulatory violations and potential fines

Benefit of Compliance to Instruction:

- Increased life span of sweeper
- Operator safety
- Environmental protection
- Increased productivity
- Regulatory Compliance



Contracted Street Sweeper SOP – Sweeper Equipment Fluid Releases Training



713 Melpark Drive
Nashville, TN 37204
Phone: 615.385.4422
Fax: 615.385.4798

SAFETY MEETING

SCA LOCATION: Nashville 000
CONDUCTED BY: Arson Palmeri
DATE: 12-8-15
SUBJECTS: standard operating
procedures
for fluid releases

SIGNATURES OF THOSE ATTENDING:

NAME (Please Print)	SIGNATURE
<u>Ron Goodman</u>	<u>R Goodman</u>
<u>Jody Logan</u>	<u>Jody Logan</u>
<u>Kenny Eden</u>	<u>Kenny Eden</u>
<u>Billy Kinnard</u>	<u>Billy Kinnard</u>
<u>Melvin Robinson</u>	<u>Melvin Robinson</u>
<u>NATHANIEL WATKINS</u>	<u>Nathanial Watkins</u>
<u>James Menzies</u>	<u>James Menzies</u>
<u>Calvin Shaw</u>	<u>Calvin Shaw</u>
<u>MIKE KUTTS</u>	<u>Mike Kutt</u>
<u>JAMES STEPHAN</u>	<u>James Stephan</u>
<u>Bill Seymour</u>	<u>Bill Seymour</u>
<u>Adrian Mullins</u>	<u>Adrian Mullins</u>
<u>Neena Dagen</u>	<u>Neena Dagen</u>



Article about Nashville's Green Infrastructure within the National Publication: Stormwater Magazine



In Tune With Green Infrastructure

How Nashville manages its occasionally erratic rainfall

BY MARGARET BURANEN

Nashville, TN, has a watershed of 311,212 acres. Annual rainfall is 48.5 inches. But those figures don't mean much if what happened in Nashville on May 1–2, 2010—or something close to it—happens again. That Saturday, 6.3 inches of rain fell in a 24-hour period. Over 12 hours on Sunday, the city received another

7.2 inches of rain. It was the heaviest rainfall ever recorded in Nashville, and resulted in massive flooding.

In some sections of the city, cleanup went on for months afterward. Because of the flood, EPA even granted Nashville an extension of time for work related to the consent decree it had levied on the city.

"The May 2010 flood reinforced to us how important it

is to apply our stormwater regulations to new developments, and especially to the repair of flood damaged structures," says Tom Palko, assistant director of the Stormwater Division, Metro Water Services (MWS).

He adds, "We aggressively pursued mitigation funding from FEMA [the Federal Emergency Management Agency] to purchase flood damaged properties and restore those areas to open space. We will continue to look for similar opportunities in the future. We need to do everything we can to mitigate structures that are prone to repetitive losses."

"Rain in Nashville tends to be heavy and of short duration. The bottom drops out and we get a ton of rain," says Sonia Allman, a former environmental compliance officer in the Stormwater Division of MWS and now the public information officer.

Allman, who has been involved in public outreach and other jobs related to various stormwater projects in Nashville, says that the Cumberland River presents her city with

challenges for managing its stormwater.

The river "has lots of tributaries and some very flashy streams." Add in "a lot of floodplain areas, because in the 1950s and 1960s there were no regulations against building homes there," she explains.

The city has bought a lot of homes in these floodplain neighborhoods, torn down the buildings, and left the land vacant. Building codes are stricter now, too.

"We require four feet above base elevation. FEMA only requires one foot," says Allman.

Reflecting on the flood, Rebecca Dohn, low-impact development and sustainability coordinator for MWS, says, "One of the more interesting (to us) impacts on policy was the affirmation that our existing stormwater regulations were fairly protective. After evaluating our four-feet-above-base-floor-elevation requirement for residential, our stakeholder committee decided we were adequately conservative."

Allman sees water quality as another challenge to managing stormwater in Nashville. Because water is plentiful, "people don't always appreciate it and don't want to protect it. Our stormwater fee was just implemented in 2009. It's only three dollars a month, but there was a big public outcry."

Palko says funding "is a constant challenge. Currently we have a stormwater user fee in place that provides funding for our program, but those funds provide only a limited ability to construct capital projects to address stormwater concerns."

Dohn sees another challenge. "The one-inch requirement will become a mandate in Nashville in early 2016. Middle Tennessee has a lot of karst topography, and it will be difficult to integrate green infrastructure in some areas."

She adds, "Nashville's challenge will be to give site designers flexibility, while still protecting water quality. In return, we hope our engineers will work creatively to design around a both a site's constraints and its beneficial environmental features."

Even with sudden heavy rains, Nashville is managing its stormwater through various chords that allow green infrastructure to resound. Acquisition of open green space, financial incentives for green roofs, revitalization of the city's riverfront, and installation of Complete Streets and other public and private projects show that green infrastructure is humming along nicely in Nashville.

Music City Center

To many people around the world, Nashville is synonymous with country music. As recording studios and musicians of other types of music moved there, the city acquired its nickname of "Music City."

This name sings across one of the city's major buildings, the Music City Center. As distinctive a landmark as the old Ryman Auditorium (from where the Grand Ole Opry's country music shows were broadcast to a national radio audience), the Music City Center is Nashville's convention arena.

The Music City Center has 1.2 million square feet of meeting and exhibition space. Certified LEED Gold, the building has solar panels and other measures that allow it to consume on average 20% less energy and 40% less water than similar buildings that are conventionally designed.

MWS Newsletter Highlighting Thermograph Investigations

High-Flying Investigations

On a cold winter night in February, MWS Environmental Compliance Officer Jane Wilson climbed into the Metro Police Operations helicopter. The pilot, guided by Jane's GPS information, searched for targets while the co-pilot operated the infrared camera. The mission was successful and the images were downloaded for analysis.

Back at the NPDES Stormwater headquarters, two teams of investigators were dispatched. Gilliam Walsche Landford and Jane Wilson headed to the Harpeth River; Beth Wilson and NPDES Watershed staffer Stephanie Petty made their way to Stoners Creek. Both teams searched for answers about the anomalies indicated on the infrared photos. What they found had never before been documented.

The MWS Aerial Thermography Program is one of the tools we use to detect discharges into our streams and rivers. In the winter, the infrared photos taken from the helicopter show where warmer water is flowing into a stream. This technology helps MWS identify possible leaks from the drinking water system, the sewer system, and unauthorized discharges. Field investigators follow up to identify the source of the warmer water.

After the field work and analysis were completed, MWS NPDES Stormwater and Watershed staff determined the anomalies found during that cold winter in 2016 were caused by groundwater seepage. Another investigation was closed.

Flight: 2/11/2016, Investigation: 3/22/2016

Property Owned by State of Tennessee



Map of thermal plume



FLIR imagery of thermal plume



Urban Runoff 5K Results



The 4th annual Urban Runoff 5K and Water Quality festival was a huge success. The fun filled day began with a mascot race and ended with a water quality festival. Congratulations to the top overall Male finishers, Jack Kaiser (17:06), Connor Blair (17:34), and David Adams (17:50) and the top overall Female finishers, Hannah Hoots (20:36), Karen Guenard (21:19), and Marie Palko (22:42). All age divisions and results can be found at <http://www.tn.gov/environment/article/urban-runoff-5k-nashville>.

Thank you to all of our participants and sponsors.

Welcome Aboard!



Philip Hight - Safety

Tyler Jones - CS

Brian Henley - Operations

Ego Cornell - HR



Nashville's Press Release on the Green Ribbon Committee Updated Report



METROPOLITAN GOVERNMENT OF NASHVILLE AND DAVIDSON COUNTY

Karl F. Dean
Mayor

OFFICE OF THE MAYOR
METROPOLITAN COURTHOUSE
NASHVILLE, TENNESSEE 37201

FOR IMMEDIATE RELEASE
Sept. 1, 2015

Contact: Bonna Johnson
(615) 862-6461 direct
(615) 389-3405 cell
bonna.johnson@nashville.gov

Mayor Releases Update to Green Ribbon Committee Report

*Report Shows Nashville Has Implemented Nearly All Recommendations for
Increasing Environmental Sustainability*

NASHVILLE, Tenn. – Mayor Karl Dean has released the Green Ribbon Committee Report Update, which shows the city has implemented or is in the process of implementing all 16 of its goals and 65 of its 71 recommendations that were set six years ago by the Mayor's Green Ribbon Committee on Environmental Sustainability. That is a 93 percent success rate.

The report was released on Monday to Metro officials and committee members at Metro Government's new Center of Responsible Energy during a celebration of the committee's success in implementing all of the goals and nearly all of the recommendations it established six years ago.

"The Green Ribbon Committee members, along with Metro agencies, businesses, nonprofits and our citizens, have truly championed sustainability throughout our community," Mayor Dean said. "These accomplishments take us much closer to our ambitious vision for Nashville's future as the greenest city in the Southeast."

Mayor Dean established the Green Ribbon Committee by executive order in 2008. Since the committee delivered its original report, "Together Making Nashville Green," to Mayor Dean in June 2009, the city has:

- Preserved 4,534 acres of open space, easily surpassing a key goal of the Open Space Plan, which called for preserving 3,000 acres by 2021.
- Increased parkland by 25 percent and greenways by 50 percent, with 40 miles of new trails.
- Completely removed more than 45 miles of streams from the U.S. Environmental Protection Agency's 303(d) list of impaired and threatened waters.

-more-



Nashville's Press Release on the Green Ribbon Committee Updated Report (Continued)

Page 2, Mayor Releases Update to Green Ribbon Committee Report

- Added more than 200 miles of sidewalk and 97 miles of bikeways, resulting in approximately 1,070 total sidewalk miles and 147 bikeway miles throughout Nashville and Davidson County; launched bike-sharing program Nashville B-Cycle; created the Music City Bikeway, and offered bus rapid transit lite service on three Metro Transit Authority routes, with a fourth scheduled to go into service later this year.
- Achieved LEED Silver or greater levels of LEED certification for 23 new and renovated Metro buildings. Another nine buildings are on track to earn at least LEED Silver.

Earlier this year, Metro launched the Center of Responsible Energy, or CORE, which helps Metro General Services monitor energy use in its buildings. The CORE includes a control room at the Howard Office Building, where energy professionals monitor Nashville's energy vital signs. The center uses five primary technologies to increase the city's energy efficiency: building automation systems; demand response systems; DES meters for monitoring the steamed and chilled water provided to several of Metro's largest buildings; charging station monitors for electric vehicles; and solar power monitors.

Green Ribbon Committee members had an opportunity to see the CORE's nerve center before hearing from Mayor Dean; Metro General Services Director Nancy Whittemore; and Lipscomb University President Randy Lowry, who co-chaired the committee with Ingram Industries Chairman John Ingram.

Mayor Dean thanked the members of the Green Ribbon Committee for their work "to move closer to a vision of Nashville as a place with clean air, clean water and open spaces – qualities that make us a vibrant, welcoming community."

"But the work is only beginning; the responsibility for realizing a sustainable future is truly in the hands of all of you and all our citizens," Mayor Dean said.

The 2009 Green Ribbon Committee Report and the new Report Update are available at www.nashville.gov/sustainability.

###



Metro's Public Notice for the FY16 MS4 Permit Annual Report

(REVISED)

STORMWATER MANAGEMENT COMMITTEE MEETING NOTICE

Meeting Date: 01-December-2016
Meeting Time: 8:00 a.m. - 12:00 p.m.
Location: Metro Office Building
First Floor - Development Services Conference Room
800 Second Avenue South
Nashville, Tennessee 37210
Contact: Paula Kee
Coordinator - Stormwater Management Committee (SWMC)
Phone: (615) 880-2334 Email: Paula.Kee@nashville.gov

AGENDA

- I. Call to Order
- II. Approval of 03-Nov-2016 Meeting Minutes
- III. Approval of 03-Nov-2016 Decision Letters
- IV. Item of Business
 1. Metro Water Services Staff Presentation: 2016 Annual Report – NPDES MS4 Permit
- V. Cases to be Heard
 - 201600035 817 FOOTPATH TERRACE (SINGLE FAMILY RESIDENTIAL)
Wet-Floodproofing
Minimum Finished Floor Elevation
 - 201600036 2655 MIAMI AVENUE (SINGLE FAMILY RESIDENTIAL)
Floodway and Floodway Buffer Disturbance
Modified Buffer Signage and Placement
Continuous Mowing/Maintenance Of Buffer
 - 201600037 2659 MIAMI AVENUE (SINGLE FAMILY RESIDENTIAL)
Floodway and Floodway Buffer Disturbance
Modified Buffer Signage and Placement
Continuous Mowing/Maintenance Of Buffer
 - 201600038 2661 MIAMI AVENUE (SINGLE FAMILY RESIDENTIAL)
Floodway and Floodway Disturbance
Modified Buffer Signage and Placement
Continuous Mowing/Maintenance Of Buffer
 - 201000024 THE PARK AT EWING CREEK SP, PHASE 1
(3120 WHITES CREEK PIKE)
Show Cause Hearing – Variance #201000024
Disturbance of >50% of the Floodplain
Floodway and Floodway Buffer Disturbance
Stormwater BMP in the Buffer
Continuous Mowing and Maintenance of the Floodway and Floodway Buffer



ATTACHMENT A – Protected Species Report



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

(Reporting Period 07/01/15– 06/30/16)

Reviewed and Updated:
October, 2016

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 20 rare or protected aquatic species that have known to 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 17 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, and,
- “T” Threatened

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 – FY16

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	<i>Sphalloplana buchani</i>	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	<i>Ambystoma barbouri</i>	Streamside Salamander	G4	No Status	D	Seasonally ephemeral karst streams; middle Tennessee.	S2
	Vertebrate Animal	<i>Cryptobranchus alleganiensis</i>	Hellbender	G3G4	No Status	D	Rocky, clear creeks and rivers with large shelter rocks.	S3
	Vertebrate Animal	<i>Etheostoma luteovinctum</i>	Redband Darter	G4	No Status	D	Limestone streams; Nashville Basin & portions of Highland Rim.	S4
	Vertebrate Animal	<i>Etheostoma microlepidum</i>	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	<i>Percina phoxocephala</i>	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	<i>Orconectes shoupi</i>	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	<i>Epioblasma florentina walkeri</i>	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	<i>Simpsonaias ambigua</i>	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	<i>Lithasia duttoniana</i>	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	<i>Haliaeetus leucocephalus</i>	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	<i>Acipenser fulvescens</i>	Lake Sturgeon	G3G4	No Status	E	Bottoms of large, clean rivers and lakes.	S1
	Vertebrate Animal	<i>Carpodius velifer</i>	Highfin Carpsucker	G4G5	No Status	D	Large rivers, mostly in Tennessee River drainage.	S2S3
	Vertebrate Animal	<i>Cycleptus elongatus</i>	Blue Sucker	G3G4	No Status	T	Swift waters over firm substrates in big rivers.	S2
	Vertebrate Animal	<i>Macrochelys temminckii</i>	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	<i>Epioblasma brevidens</i>	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	<i>Lampsilis abrupta</i>	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	<i>Plethobasus cooperianus</i>	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	<i>Ranunculus aquatilis</i> var. <i>diffusus</i>	White Water-buttercup	G5T5	No Status	E	Ponds And Streams	S1



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 three-prong approach is in place:

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

Monitoring the Overall Water Quality and Health of Nashville's Streams

NPDES performs intense monitoring of Metro Nashville, Davidson County streams. In previous years, Dr. Steve Winesett 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). Since his departure, Veronica Mullen (NPDES) has been processing the paperwork with TWRA and the USFWS to receive the same permit/certification. 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 – Updated PIE Plan, ERP, and Field
Screening SOP**





Metro Nashville Municipal Separate Storm Sewer System Permit Public Information & Education Plan

Created: August 2012

Updated: October 2016 – (New Personnel and Outreach Strategies)

1.0 INTRODUCTION:

With issuance of the third cycle of Metro Nashville’s Municipal Separate Storm Sewer System (MS4) permit, there is an increased emphasis on the amount of public education and outreach Metro Water Services (MWS) will be responsible for overseeing. The first major undertaking will involve developing a detailed public information and education (PIE) plan. The PIE plan will outline the stormwater educational strategies, identify targeted educational approaches, and list specific yearly goals and accomplishments. A majority of MS4 permit items are coordinated and overseen by the MWS Stormwater NPDES Section, however, development and implementation of the PIE plan will be a joint effort between NPDES and MWS Public Information Section.

In the new permit, Stormwater is required to target specific “hot areas”, which are defined in the permit as: *“an area where land use or activities generate highly contaminated runoff, with concentrations of pollutants in excess of those typically found in stormwater. Examples might include operations producing concrete or asphalt, auto repair shops, auto supply shops, large commercial parking areas and restaurants.”* The main goals of stormwater education activities will be to increase public awareness for purposes of eliminating illicit discharges and improper disposals, reducing nonpoint source pollutants through better land management practices (i.e. fertilizer, sediment, oil, etc), reducing overall runoff quantities through innovative development strategies, and ultimately improving water quality of receiving streams. In some of Nashville’s sub-watersheds, public education will be the primary Best Management Practice (BMP) implemented for improving stormwater runoff quality, therefore, improving receiving water quality. For example, watersheds that are specifically listed as being impaired for nutrients (i.e. phosphorus and nitrogen) will be targeted for public education campaigns aimed at reducing non-point source runoff from fertilizer, pet waste, etc.

1.1 RESPONSIBLE PERSONNEL:

While the entire NPDES Section and MWS Public Relations Section will be contributing to implementing PIE plan objectives, specific personnel within each department have been identified to oversee certain aspects of the plan. Table 1 depicts general PIE plan objectives and responsible personnel.



Table 1 – PIE Plan Responsible Party

Personnel	PIE Plan Responsibility	Contact Information
Michael Hunt	<ul style="list-style-type: none"> ☼ Reviews/Oversees PIE Plan objectives to be consistent MS4 permit requirements. 	615-880-2420 michael.hunt@nashville.gov
Sonia Allman	<ul style="list-style-type: none"> ☼ Reviews/Approves all distribution of public information/education materials. 	615-862-4494 sonia.allman@nashville.gov
Julie Berbiglia	<ul style="list-style-type: none"> ☼ Oversees school-specific education programs. ☼ Oversees/coordinates all major public education events. ☼ Oversees development of public educational materials 	615-862-4506 julie.berbiglia@nashville.gov
Josh Hayes	<ul style="list-style-type: none"> ☼ Reviews/Oversees PIE Plan objectives to be consistent MS4 permit requirements. ☼ Assists with development of public education materials. 	615-880-2420 josh.hayes@nashville.gov
Beth Wilson	<ul style="list-style-type: none"> ☼ Coordinates MS4 permit specific educational activities (industrial, commercial, construction education) ☼ Assists with coordinating and participating in major public education events. ☼ Documents public education events and activities for Annual Report submittals. ☼ Coordinates targeted mail-outs and outbound calling public education activities. ☼ Develops public education materials. ☼ Assists in the updating of NPDES web pages 	615-880-2420 Beth.Wilson@nashville.gov
Jennifer Harrman	<ul style="list-style-type: none"> ☼ Promotion of education and outreach events on social media outlets ☼ Assists in the updating of NPDES web pages 	615-862-4521 jennifer.harrman@nashville.gov

1.2 PIE PLAN GOALS AND TIMEFRAMES:

Goals for the PIE plan will be broken up into the following three main categories:

- ☼ **Goal 1:** Meet and/or exceed MS4 permit requirements
- ☼ **Goal 2:** Increase the fundamental understanding of water pollution for Nashville students, residents, businesses and municipal employees.
- ☼ **Goal 3:** Encourage use of better management practices that result in improved water quality of runoff from MS4 and private facilities within Metro’s MS4 jurisdiction.

Measuring the success of each goal will involve different evaluation procedures. Goal 1 will be, perhaps, the easiest objective to measure. While some of the MS4 permit language is vague, there are some identified milestones and deadlines that can be assessed in each MS4 annual report for completeness. Table 2 depicts some of the major permit requirements and their desired timeframes. Assessing the effectiveness of the PIE plan in accomplishing



Goals 2 and 3 will be more difficult and are discussed in greater detail in Section 5 of this document.

Table 2 – Goal 1 (MS4 Permit Required Education) Objectives and Timeframes.

MS4 Permit Objectives	Completion Deadlines
Develop PIE Plan as part of overall Stormwater Management Plan	December, 2012
Perform adequate stormwater training for all pertinent Metro maintenance staff.	July, 2013
Implement educational programs at a minimum of 6 large public events per calendar year	Annually 2012 - 2017
Track and maintain records of public education and outreach activities	Annually 2012 - 2017
Assess the change in public awareness	January, 2017
Implement public notice programs for volunteer programs (i.e. tree plantings, stream clean-ups, illicit discharge detection identification & elimination, etc.)	Annually 2012 - 2017
Implement public notices for large Metro projects	July, 2013
Provide specific maintenance education to stormwater BMP owners	February, 2017
Hold a public meeting to go over each Annual Report	Annually 2012 - 2017

Note: Some of the deadlines are internal to NPDES, as actual MS4 permit deadlines are vague.

2.0 Targeted Audience Groups:

In order to accomplish the PIE plan objectives, the first step is to identify targeted audiences for which education delivery methods will be tailored towards. The targeted audience will be determined based on a variety of factors, some of which will include general land use, business/community types, geographical areas, previous complaints, and perceived educational needs.

2.1 School Groups/Youth Camps

School children and youth are perhaps one of the most important demographics to target for stormwater education, as they will shape the future of water quality within Metro. In



order to convey one consistent water quality message, the MWS Public Relations Section will lead all academic based education efforts. MWS will target 4th grade for primary distribution of stormwater educational activities.

2.2 Geographical “Hot Areas” within Metro

As discussed in Section 1, the new MS4 permit requires Metro to target “hot areas” as we designate. MWS NPDES will utilize its vast monitoring data, general knowledge from field investigations, and TDEC-designated watershed impairment status to aid in determining geographic “hot areas”. Geographic “hot areas” will be delineated into three main categories based on overall land use associated pollutants of concern. Table 3 refers to the typical pollutants expected in runoff from each major urban land use category. For purposes of public education, the three major urban land use categories have been identified to target specific messages: Residential, Commercial, and Industrial.

Table 3 – Typical Pollutant Runoff form Major Land Use Categories

Major Land Use	Typical Pollutants	Typical Source	Resulting Water Quality Degradation to Target in Educational Messages
Residential	<ol style="list-style-type: none"> 1. Nutrients 2. Sediment 3. Pathogens 4. Organics 	<ol style="list-style-type: none"> 1. Over-fertilization, Pet Waste, Human Waste and Detergents from failing septic systems. 2. Grading areas without maintained controls. Removing stream bank vegetation. 3. Failing septic systems, illegal cross-connections of sanitary and stormwater, and pet waste. 4. Dumping of leaves/grass clippings in conveyances 	<ol style="list-style-type: none"> 1. Increased algal blooms, depleted dissolved oxygen levels from decaying algae. 2. Reduced water clarity for aquatic plants, smothers aquatic life, transports other pollutants. 3. Potentially harmful to human health. 4. Decomposition depletes dissolved oxygen levels within streams.
Light Commercial	<ol style="list-style-type: none"> 1. Hydrocarbons (Oil & Grease) 2. Trash 3. Nutrients 4. Sediment 	<ol style="list-style-type: none"> 1. High-traffic parking lot areas, leaking storage tanks, etc. 2. Poor grounds upkeep, especially in parking areas and around dumpsters. 3. Landscaping/golf courses. 4. Grading/developing without maintained controls. Removing stream bank vegetation. 	<ol style="list-style-type: none"> 1. Toxic to aquatic life and impact drinking water supplies. 2. Aesthetically displeasing, can block drainage pipes causing erosion, can be harmful to wildlife. 3. Increased algal blooms, depleted dissolved oxygen levels from decaying algae. 4. Reduced water clarity for aquatic plants, smothers aquatic life, transports other pollutants.
Industrial/ Heavy Commercial	<ol style="list-style-type: none"> 1. Metals 2. Sediment 3. Hydrocarbons (Oil & Grease) 	<ol style="list-style-type: none"> 1. Exposed industrial processes/improper disposal. 2. Exposed industrial processes/improper disposal. Gravel parking lots with heavy truck traffic. 3. Equipment leakage, leaking storage containers, high-traffic pervious areas. 	<ol style="list-style-type: none"> 1. Acute or chronic toxic impacts to aquatic wildlife. 2. Reduced water clarity for aquatic plants, smothers aquatic life, transports other pollutants. 3. Toxic to aquatic life and impact drinking water supplies.



Table 4, below, provides a description of the designated geographic “hot areas” that have been identified thus far. The geographic “hot areas” will receive an increased amount of location/pollutant of concern-specific education. Figure 1 depicts the overall locations of the geographical-designated “Hot Areas”. Individual maps of each geographic “hot area” can be found in Appendix A.

Table 4 – Geographical-Designated Hot Areas for Targeted Education

Area Name	Watershed	Land Use	Size (Acres)
Area 1	Browns Creek	Industrial/Heavy Commercial	2290
Area 2	Browns Creek	Residential	2294
Area 3	McCrorry Creek	Residential	2068
Area 4	Harpeth River	Residential	497
Area 5	Harpeth River	Residential	4059
Area 6	Sugartree Creek	Residential	1486
Area 7	Bosley Springs Branch	Residential	1170
Area 8	Richland Creek	Industrial/Heavy Commercial	926
Area 9	Richland Creek	Light Commercial	731
Area 10	Mill Creek	Industrial/Heavy Commercial	1986
Area 11	Mill Creek	Industrial/Heavy Commercial	1460
Area 12	Sevenmile	Industrial/Heavy Commercial	207
Area 14	Hurricane Creek	Industrial/Heavy Commercial	1859
Area 15	W. Branch Hurricane Creek	Residential	717
Area 13	Mill Creek Upper	Light Commercial	810
Area 16	Whites Creek	Residential	1843
Area 17	Manskers Creek	Residential	2289
Area 18	Gibson and Dry Creek	Light Commercial	1211

2.3 Business Type/Community “Hot Areas”

There are certain types of businesses scattered throughout the county (not bound by geographic boundaries) in which MWS NPDES have found to have a high potential for polluted runoff. While some of the business-designated “hot areas” may overlap with the geographically-designated “hot areas”, MWS will conduct additional targeted educational campaigns towards these respective businesses. Business types that will be recipients of targeted education will include:

- 🔧 Ready Mix Concrete Plants – focus on sediment runoff;
- 🔧 Asphalt Mixing Plants – focus on sediment and oil & grease runoff;
- 🔧 Recycling Centers – focus on sediment, metals, and trash runoff;
- 🔧 Automotive Salvage Yards – focus on sediment and automotive fluid runoff;
- 🔧 Large Automotive Repair Shops – focus on automotive fluid runoff; and
- 🔧 Landscaping companies – focus on sediment runoff and application of pesticides, herbicides, fertilizers, and fungicides.



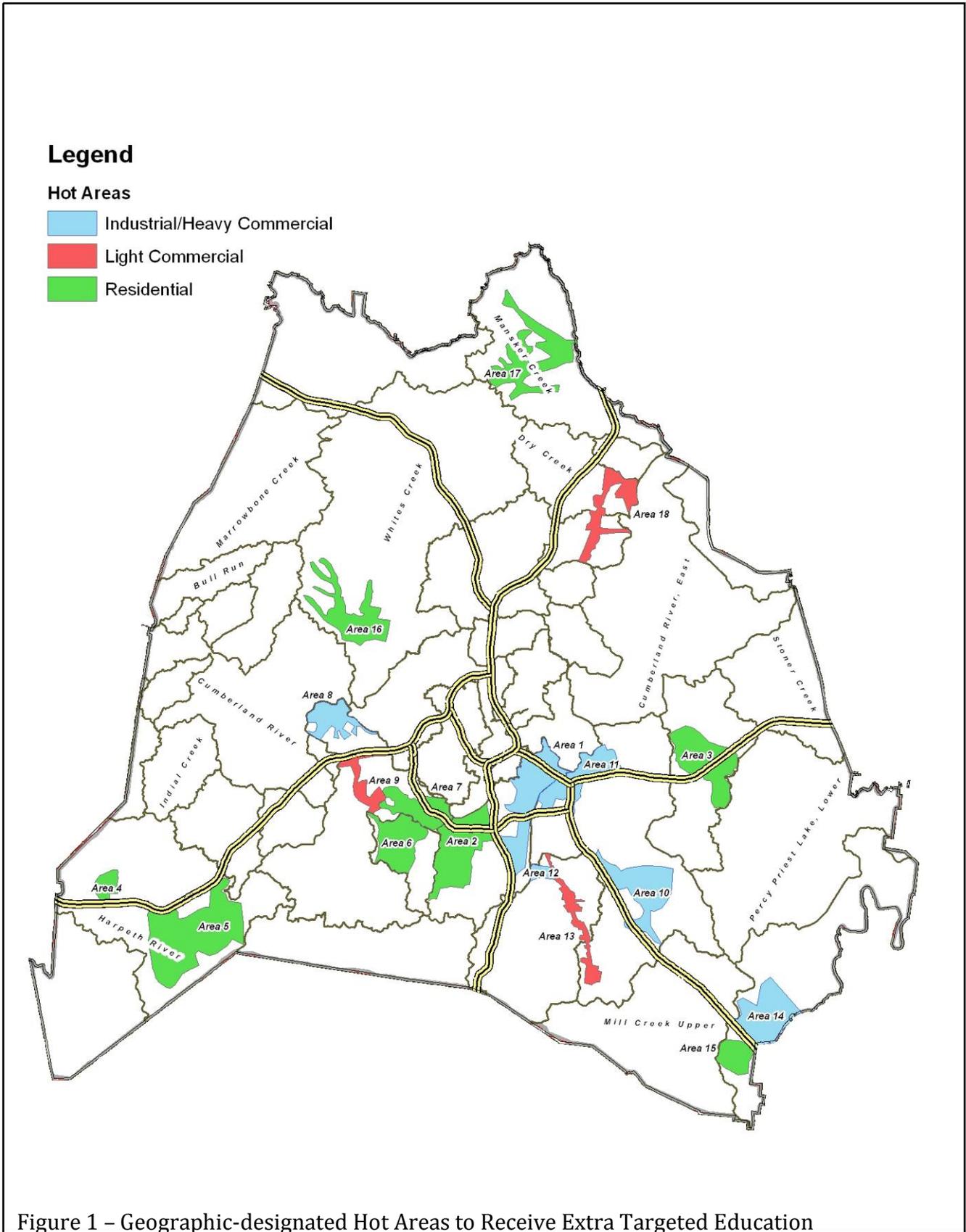


Figure 1 – Geographic-designated Hot Areas to Receive Extra Targeted Education



2.4 High Citizen Complaint Zones

MWS receives numerous complaints about a variety of issues throughout the county. Complaints range from people dumping materials in storm ditches (leaves, limbs, trash, etc.) to people discharging illegal substances to the storm system. Upon analysis of complaints, MWS may choose to target certain areas that may not be part of the above-defined geographic “hot areas” for problem-specific, localized education. This type of education will be performed on a case by case basis.

2.5 Large Civic Educational Events

As prescribed in the MS4 permit, Metro is required to perform stormwater education at a minimum of six large public events per calendar year. MWS Stormwater will satisfy this requirement by participating in large community events that relate to environmental awareness. The following large civic events have been preliminarily identified for Metro to participate with a stormwater education component:

1. Nashville Lawn and Garden Show
2. Earth Day –Public Works
3. CMA Festival
4. Cumberland River Compact’s WaterFest
5. Urban Runoff 5K
6. Tomato Festival

2.6 Post Construction Treatment Devices (SCM) Owners

Developing sites that meet certain thresholds within the county are required to install permanent stormwater treatment devices, otherwise referred to as Stormwater Control Measures(SCMs), that are usually designed to treat stormwater runoff for water quality and quantity purposes. Once the site is completely developed, the property owner becomes responsible for permanent maintenance of SCMs. Metro will specifically target owners of BMPs to achieve proper maintenance.

2.7 Grading Contractors/Development Community

The development community, including land developers and grading contractors, will be the target of specific educational outreach. Education geared toward the development community will be focused on the impacts of sediment runoff during construction and general pollutant runoff from pervious surfaces after construction is completed.

2.8 Municipal Maintenance Employees

All Metro departments with field maintenance staff will be a key target audience for distributing stormwater education materials. As prescribed in the MS4 permit, municipal maintenance employees shall be trained on potential stormwater impacts that could result from maintenance activities. In addition, municipal field staff shall be trained on identifying and reporting occurrences of illicit discharges.

2.9 General Metro Residency

Perhaps the most important constituency within Metro to educate for stormwater quality purposes is the general residents within Metro. While there may exist overlap within the above-described target areas, Metro will also implement techniques to try to reach the masses on more general terms.



3.0 Education Techniques for Targeted Audiences:

MWS will utilize a variety of tools to perform stormwater education. Education delivery methods will be designed to achieve maximum distribution to the targeted audiences. For example, educational efforts for the above-described “hot areas” may include mail-outs, outbound calling, coordinating with local non-profit watershed groups, and possibly holding community meetings. Table 5 matches the potential educational technique to the specific targeted audiences. As the MS4 public information plan proceeds, new techniques may be utilized for specific targeted audiences and the PIE Plan will be updated accordingly.

Table 5 – Educational Delivery Methods For Each Targeted Audience Group

Targeted Audience Group	Public Education/Outreach Technique
School Groups /Youth Camps	<ul style="list-style-type: none"> ☼ In-person presentations/demonstrations ☼ Distribution of educational materials designed for youth. (i.e. games, puzzles, tests, etc.)
Geographic-Designated “Hot Areas”	<ul style="list-style-type: none"> ☼ Mail-outs (area-specific) ☼ Outbound calling (area-specific) ☼ Soliciting help from local non-profit watershed groups in distributing educational materials ☼ Co-host community meetings with local non-profit watershed groups
Community/Business Type “Hot Areas”	<ul style="list-style-type: none"> ☼ Mail-outs (business-specific) ☼ Handing out materials ☼ Hosting workshops
High Citizen Complaint Zones	<ul style="list-style-type: none"> ☼ Mail-outs (problem/complaint-specific) ☼ Outbound calling (problem/complaint specific)
Large Community Events	<ul style="list-style-type: none"> ☼ Staffing stormwater educational booths ☼ Performing stormwater demonstrations ☼ Handing out educational materials
Post Construction BMP Owners	<ul style="list-style-type: none"> ☼ Mail-outs ☼ Handing out materials/Drop in visits by NPDES
Grading Contractors/Development Community	<ul style="list-style-type: none"> ☼ Face to face during Grading Permit process ☼ Participate in TDEC’s Level 1 EPSC Workshop
Municipal Maintenance Employees	<ul style="list-style-type: none"> ☼ In-person presentations/video ☼ Handing out materials
General Metro Residency (General Stormwater Education)	<ul style="list-style-type: none"> ☼ Channel 3 Public Service Announcements (PSAs) ☼ Public signage (vehicle decals, billboards, etc.) ☼ Website and social media information available and updated

4.0 Education Implementation Timeframe:

PIE Plan implementation will be based, first and foremost, on MS4 Permit deadlines. In order to keep track of stormwater education deadlines and responsibilities, a Public Education Matrix Table has been developed that will be the blueprint for yearly public education activities. The Matrix Table incorporates at least one type of education activity geared toward each Targeted Audience Group.



Table 6 – Public Education Individual Task Matrix

Task	Public Education Activity	Education Deadline	Lead Staff
1	Complete PIE Plan	December 2012	Josh Hayes Julie Berbiglia
2	Give presentations at least 150 schools	Annually by June 31 st (Starting in Permit Year 2)	Julie Berbiglia
3	Send mail-outs, perform outbound calling, work with local non-profit watershed groups to distribute educational materials, or host community meetings for at least 4 geographic “hot areas” focused on the issues important to those areas. (i.e. pet waste, fertilizer application education to residential areas)	February 2017	Josh Hayes Julie Berbiglia
4	Send Mail-outs to or personally visit to drop off educational materials to at least 25 designated Business Type/Community designated “hot areas”. (i.e. applicators/distributors of pesticides, fertilizers, etc.)	February 2017	NPDES Staff
5	Co-host an industrial stormwater workshop with TDEC for all current TMSP sites.	By June 31, 2013	Josh Hayes
6	Send Mail-outs or perform outbound calling to high complaint zones as determined necessary	As Deemed Necessary	Sonia Allman Beth Wilson
7	Participate in or host at least 6 large community/civic events	Annually by June 31 st (Starting in Permit Year 2)	Julie Berbiglia Beth Wilson
8	Send Mail-outs to critical post-construction BMP owners that were installed as per Metro’s grading permit requirements to treat water quality and water quantity runoff.	February 2017	Josh Hayes Jane Wilson Rebecca Dohn
9	Give out stormwater educational materials at every pre-construction meeting for Grading Permits.	Annually by June 31 st (Starting in Permit Year 1)	Dale Binder
10	Distribute stormwater educational materials to building permit applicants for single family homes	Annually by June 31 st (Starting in Permit Year 1)	Kimberly Hayes
11	Present at all TDEC Level 1 EPSC workshops in Nashville.	As scheduled by TDEC	Dale Binder
12	Perform in-person training or provide maintenance personnel with stormwater educational materials	At least one Metro Department per year.	Josh Hayes Beth Wilson Michael Hunt
13	Air at least 6 PSAs on Metro’s Channel 3	Annually by June 31 st (Starting in Permit Year 2)	Veronica Logue Gillian Walshe- Langford
15	Provide opportunity for public participation/involvement for stormwater awareness projects (i.e. stream clean-ups, tree plantings, etc.)	Annually by June 31 st (Starting in Permit Year 2)	Sonia Allman
16	Provide public notice for all large Metro construction projects (possibly web-site postings)	Annually by June 31 st (Starting in Permit Year 2)	Michael Hunt Anna Kuoppamaki
17	Make updates to the stormwater website to reflect latest regulations, technology, etc.	As Deemed Necessary	Michael Hunt Anna Kuoppamaki Jennifer Harrman
18	Present each Annual Report to a public forum (i.e. Stormwater Management Committee or Stormwater Advisory Committee may suffice.	Annually by December 31 st (Starting in Permit Year 1)	Michael Hunt Josh Hayes



PIE Task	06/31/12	12/31/12	06/31/13	12/31/13	06/31/14	12/31/14	06/31/15	12/31/15	06/31/16	12/31/16
1. Complete PIE Plan										
2. Give presentations at least 150 schools classes PY 1&2										
PY3										
PY4										
PY5										
3. Distribute educational materials to at least 4 geographic "hot areas" PY1&2										
PY3										
PY4										
PY5										
4. Send Mail-outs or personally visit at least 25 business "hot areas" PY1&2										
PY3										
PY4										
PY5										
5. Co-host an industrial stormwater workshop with TDEC for all current TMSP sites.										
6. Send Mail-outs or perform outbound calling to high complaint zones as determined necessary										
7. Participate in or host at least 6 large community/civic events PY1&2										
PY3										
PY4										
PY5										
8. Send Mail-outs to all known post-construction BMP owners										
9. Give out stormwater educational materials at every pre-construction meeting for Grading Permits.										
10. Distribute stormwater educational materials to building permit applicants for single family homes										
11. Present at all TDEC Level 1 EPSC workshops in Nashville.										
12. Perform stormwater training or provide maintenance personnel										
13. Air at least 6 PSAs on Metro's Channel 3 PY1 &2										
PY3										
PY4										
PY5										
14. Air at least 2 pollutant specific slideshows PY1&2										
PY3										
PY4										
PY5										
15. Provide opportunity for public participation/involvement for stormwater awareness projects										
16. Provide public notice for all large Metro construction projects (possibly web-site postings)										
17. Make updates to the stormwater website to reflect latest regulations, technology, etc.										
18. Present each Annual Report to a public forum PY1&2										
PY3										
PY4										
PY5										

Note: PY = Permit Year

Sonia Allman	Julie Berbiglia	Michal Hunt	Josh Hayes	Dale Binder	NPDES Staff	Beth Wilson	Kimberly Hayes
							



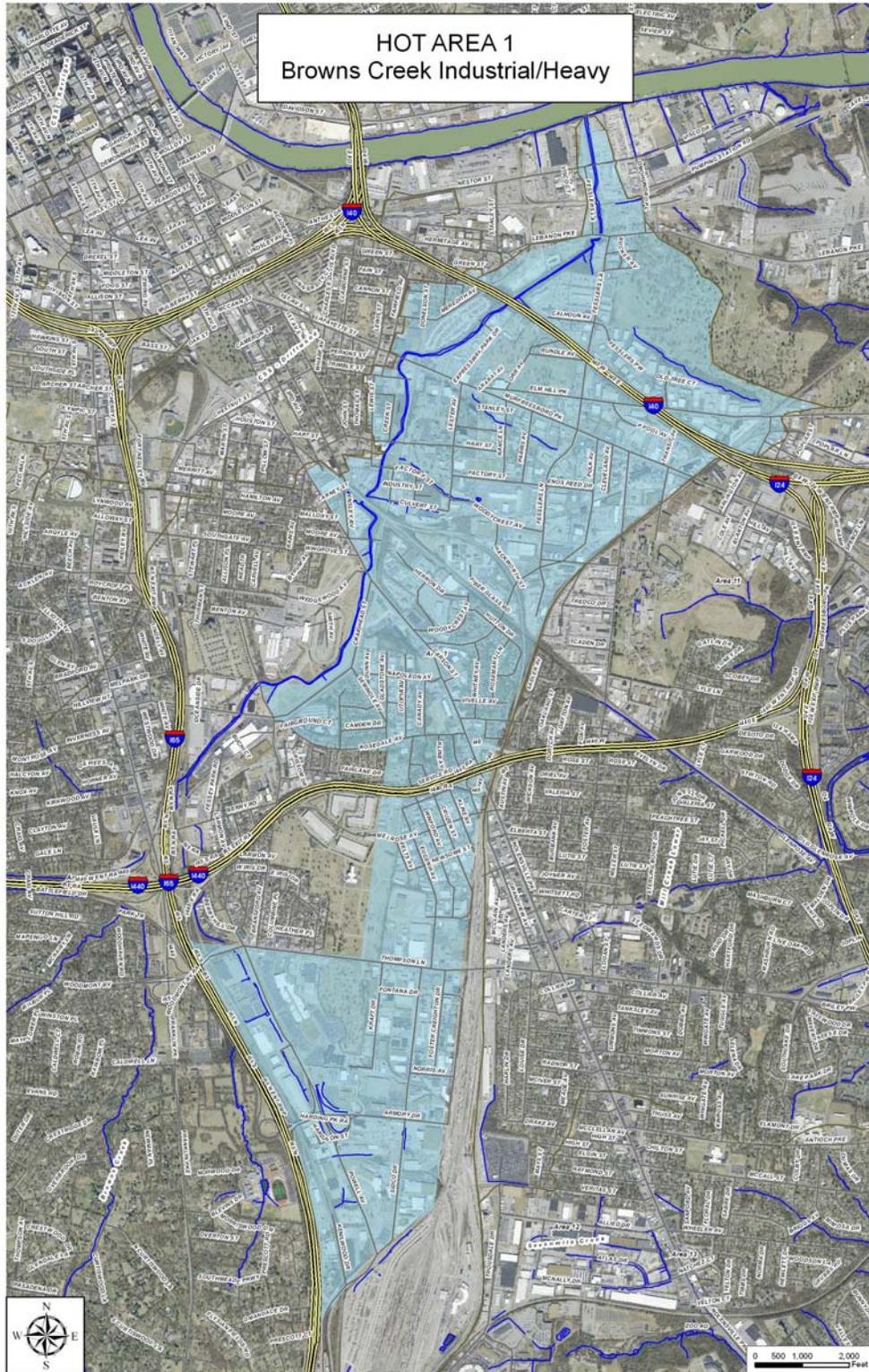
5.0 PIE Plan Effectiveness Assessment:

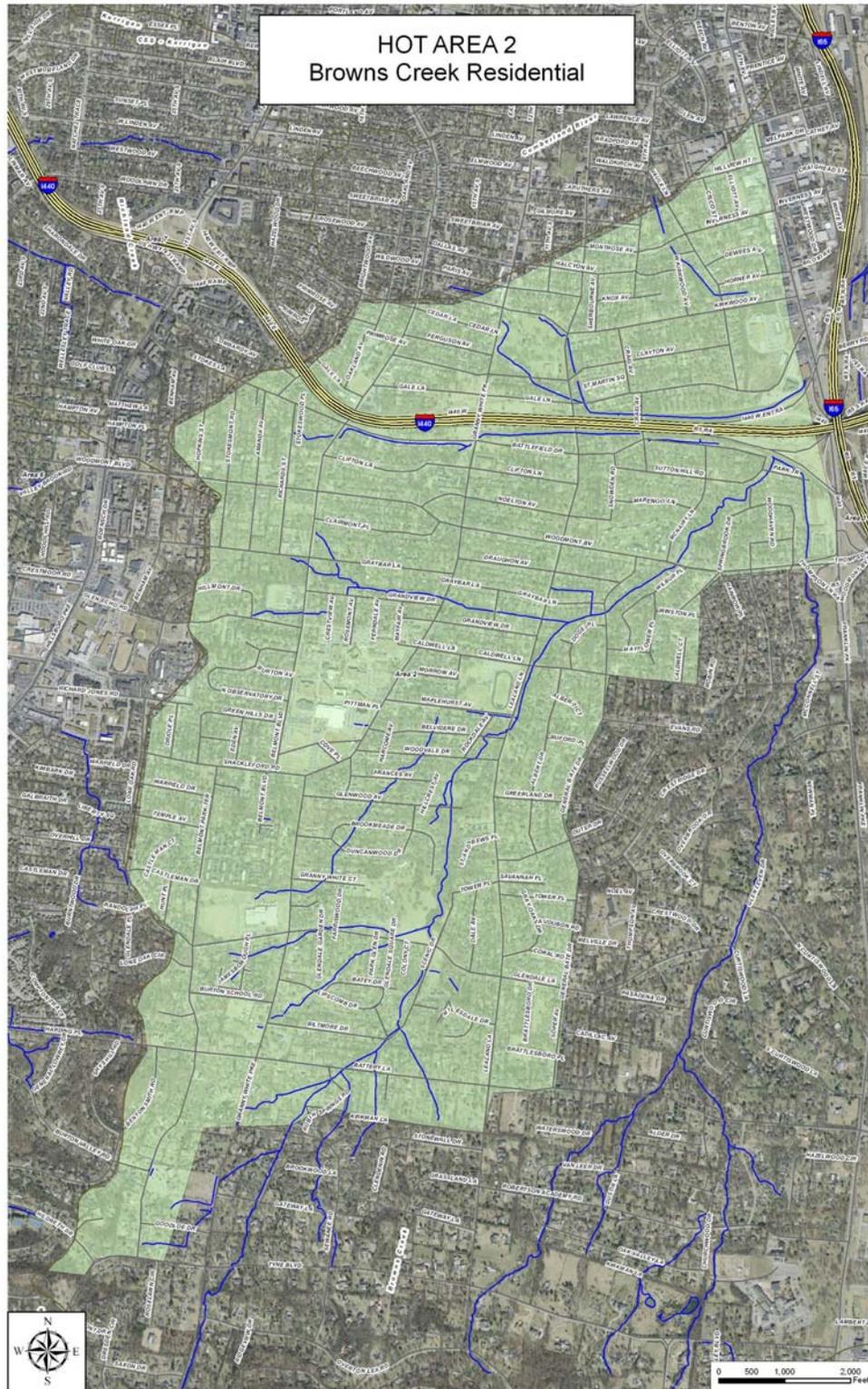
Throughout implementation of the PIE Plan, MWS will attempt to assess the effectiveness of the educational messages. Some potential assessment methods may include performing surveys to certain target audiences during presentations and analyzing monitoring data before and after targeted education has been performed.

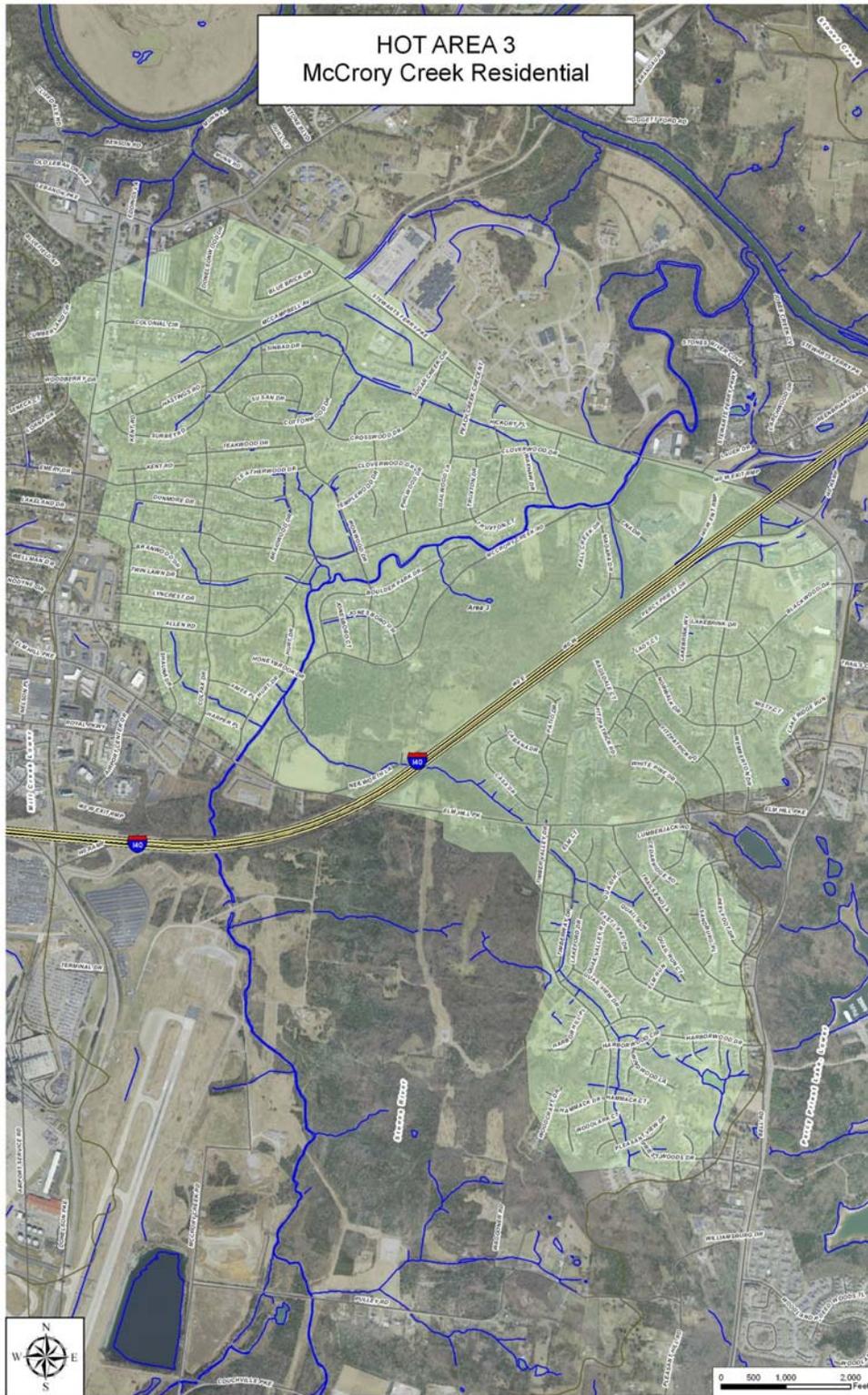


**PIE Plan
Exhibit A**
Individual Geographic “Hot Areas” Maps



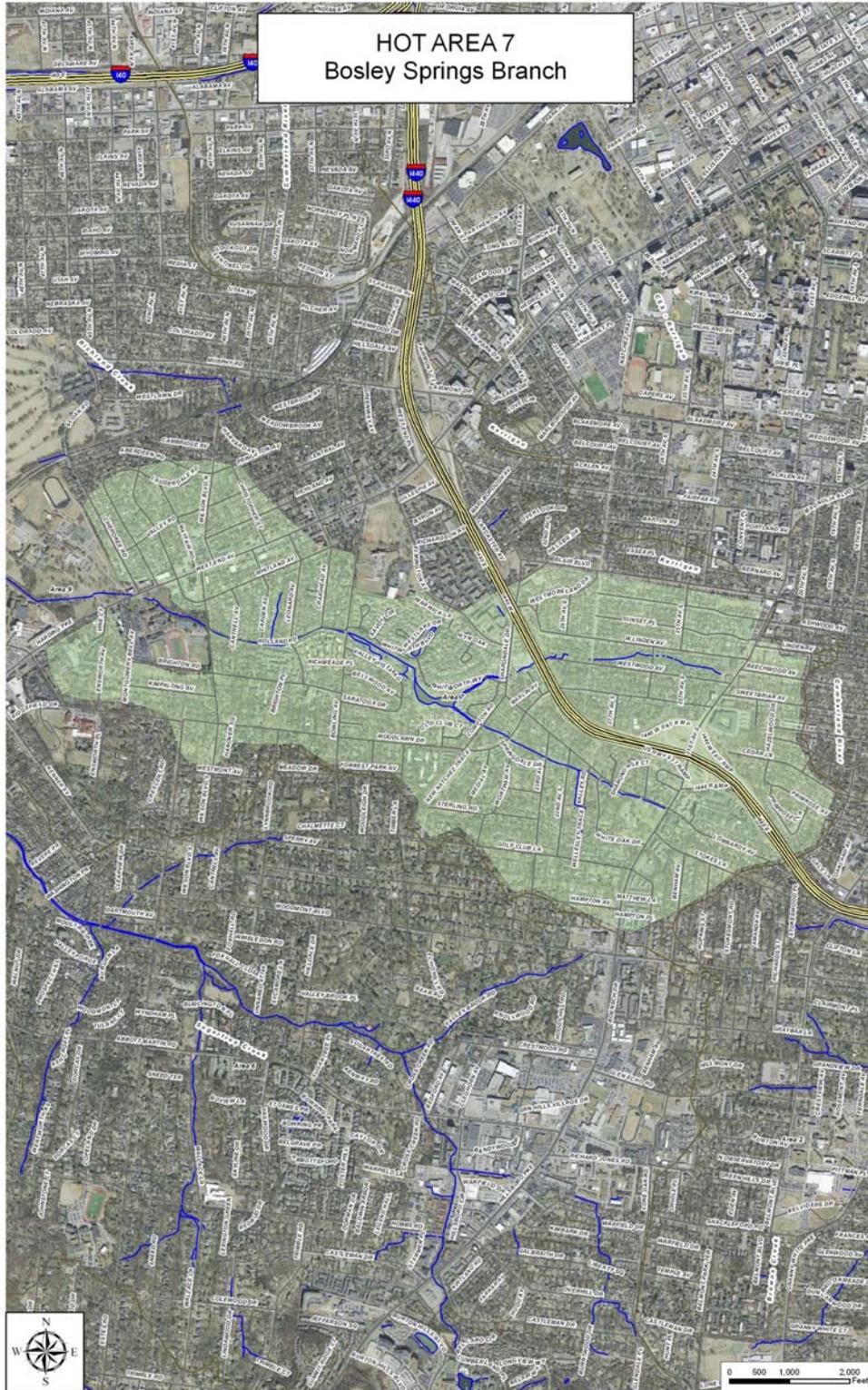


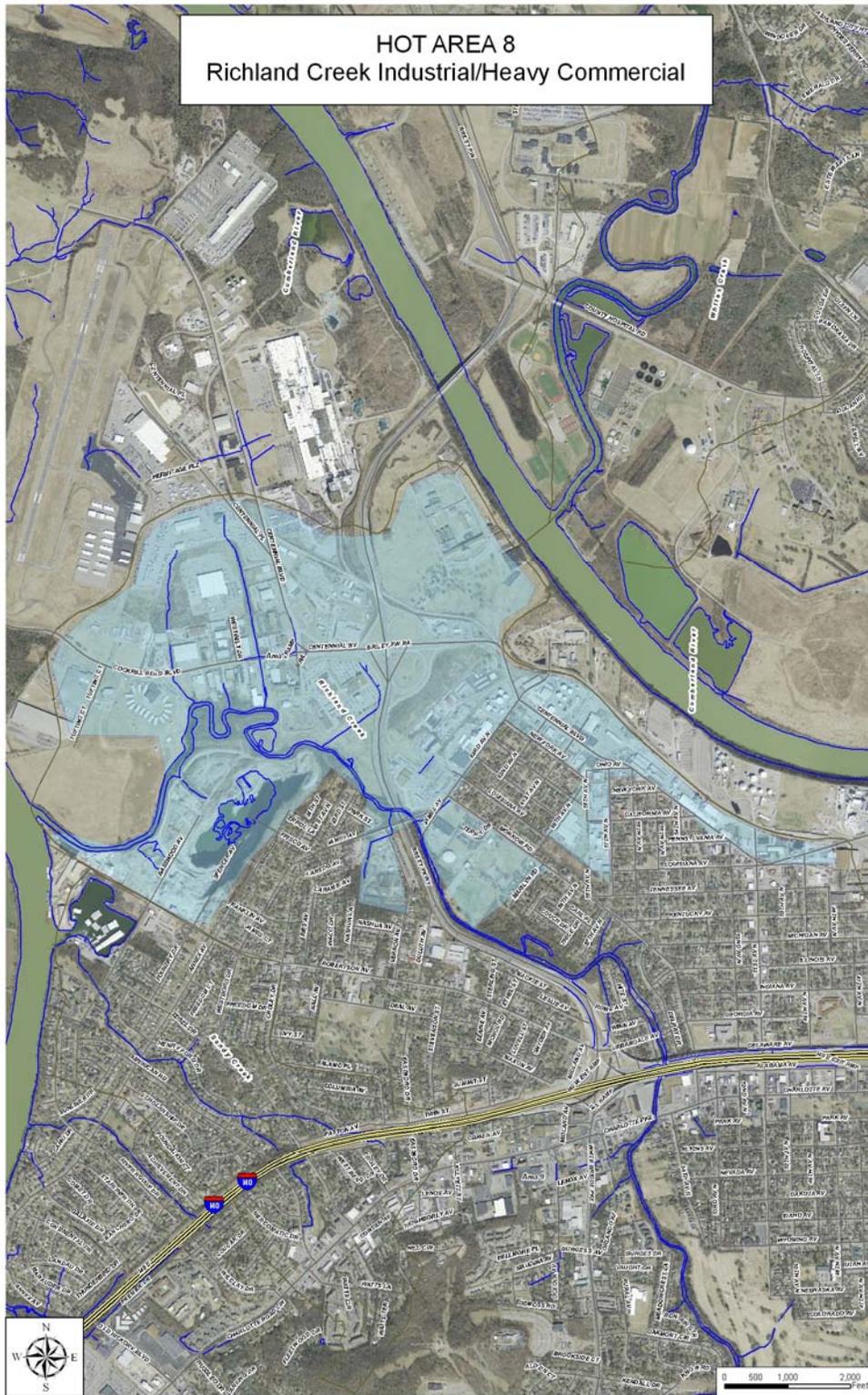




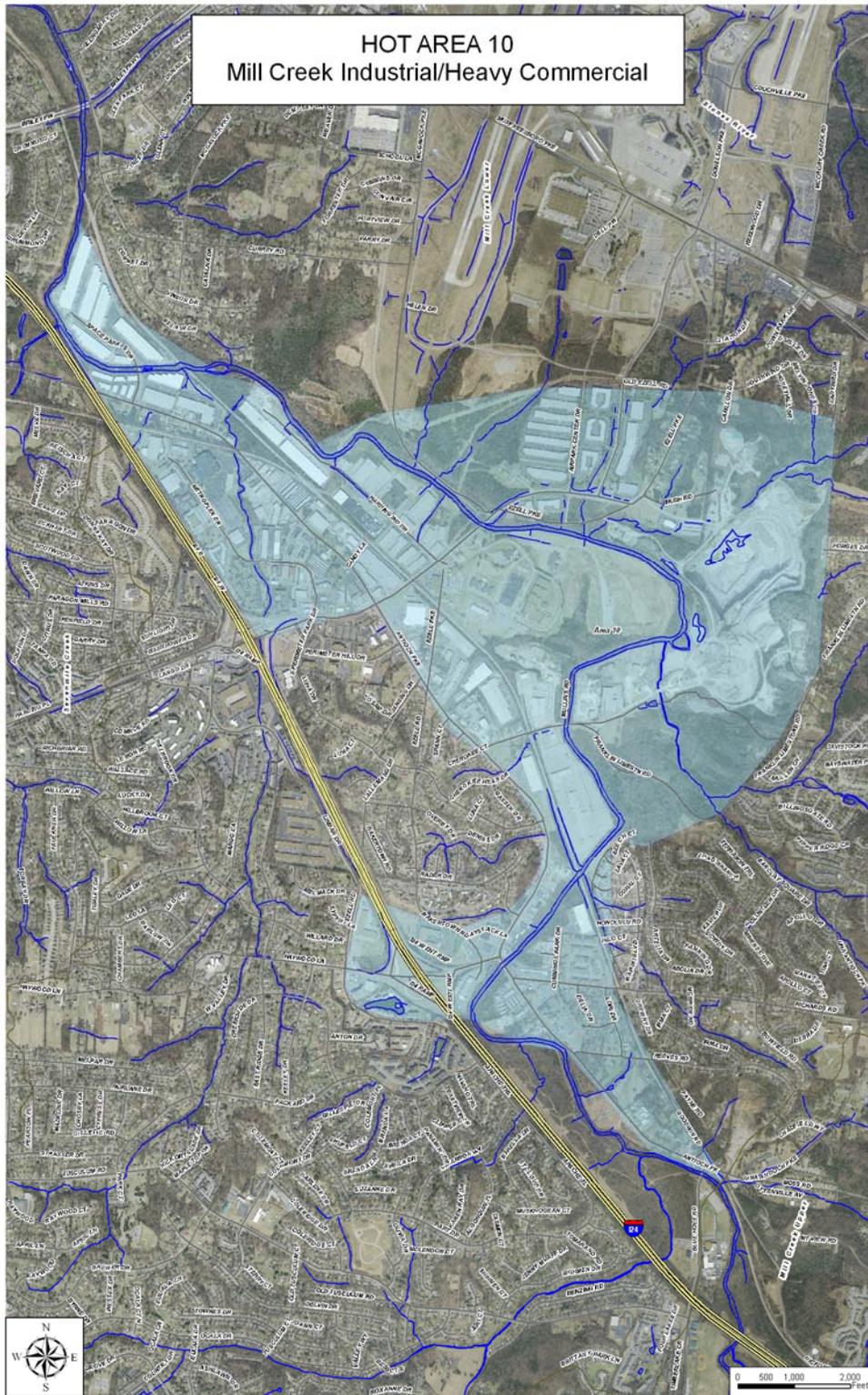


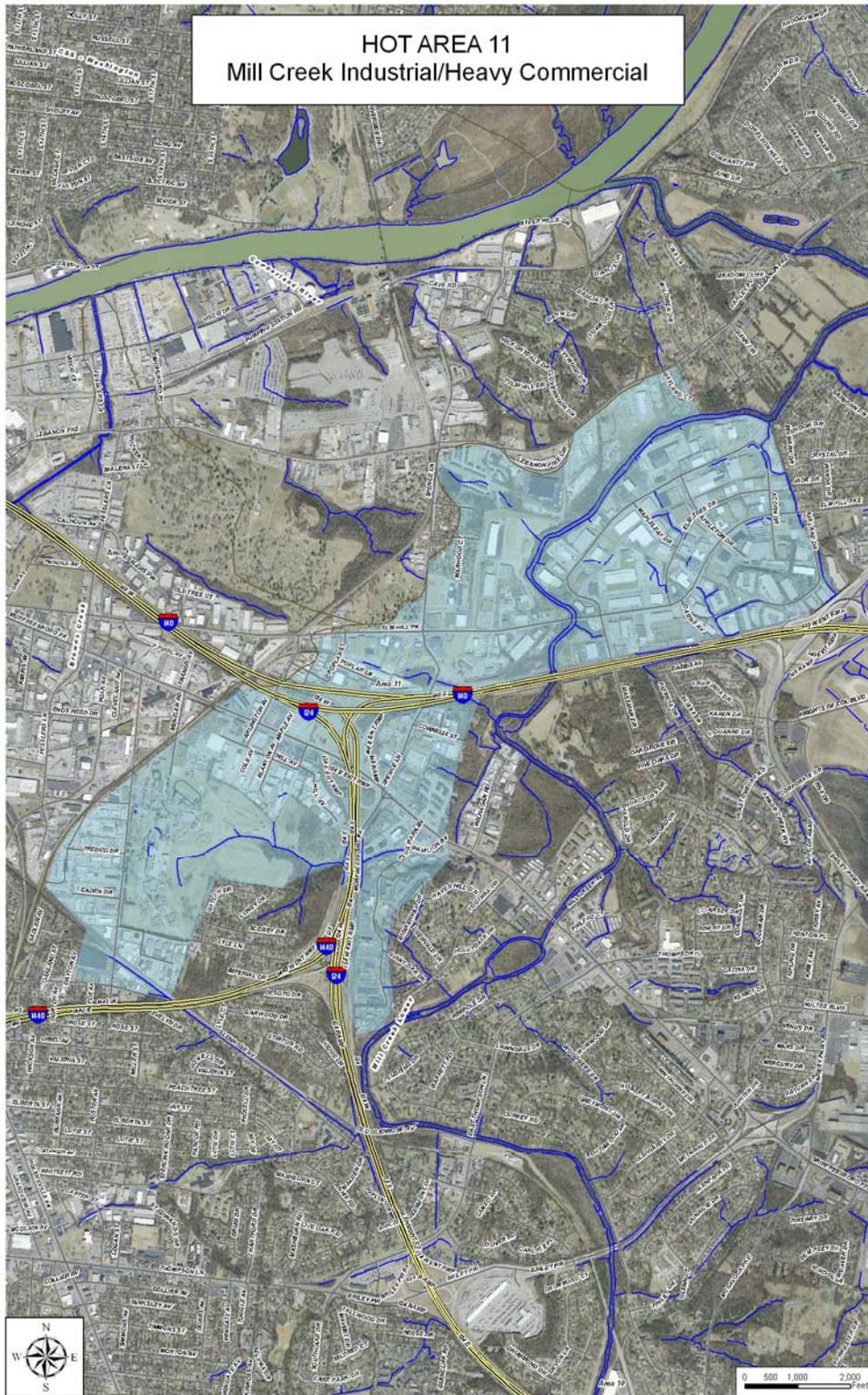


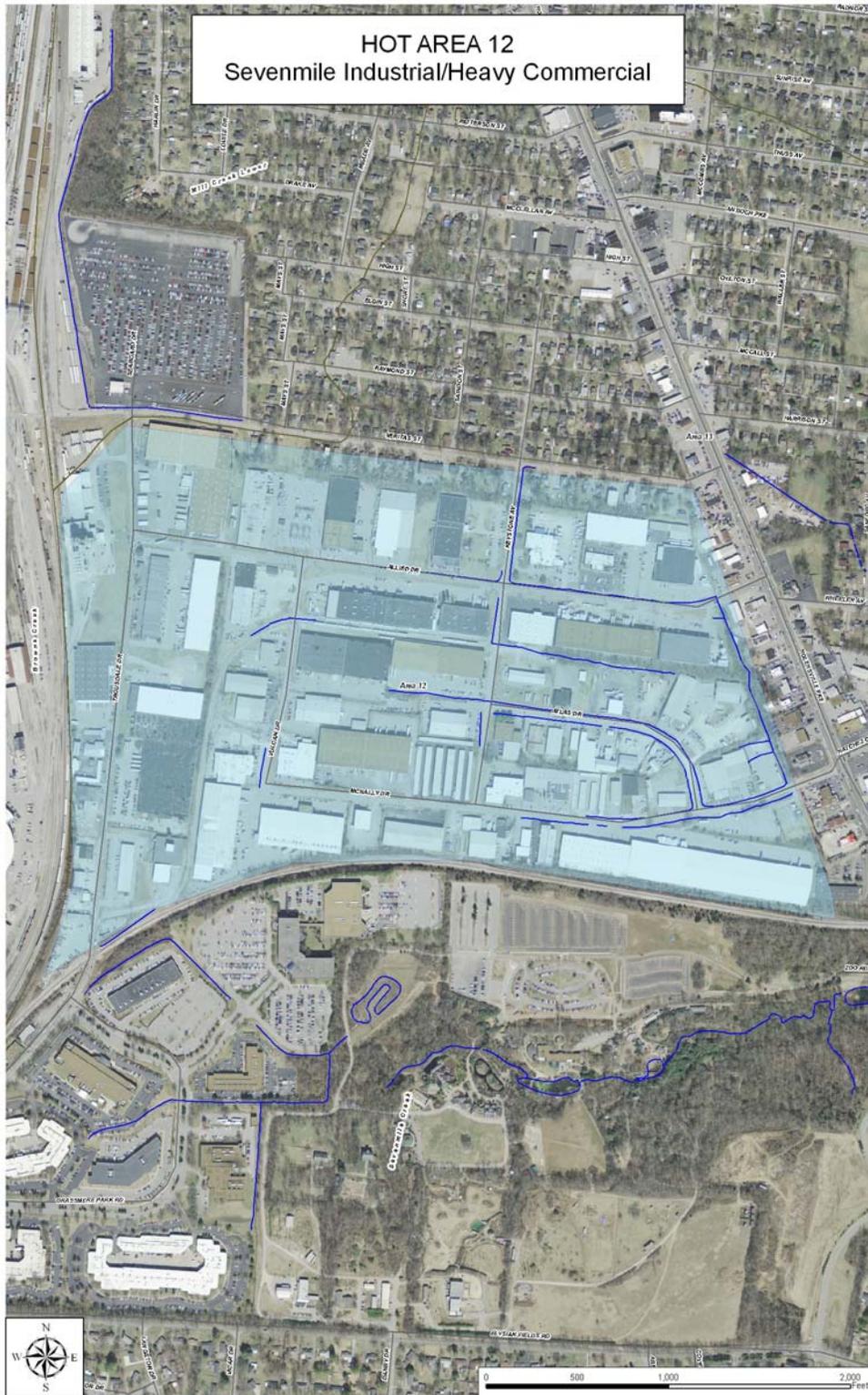


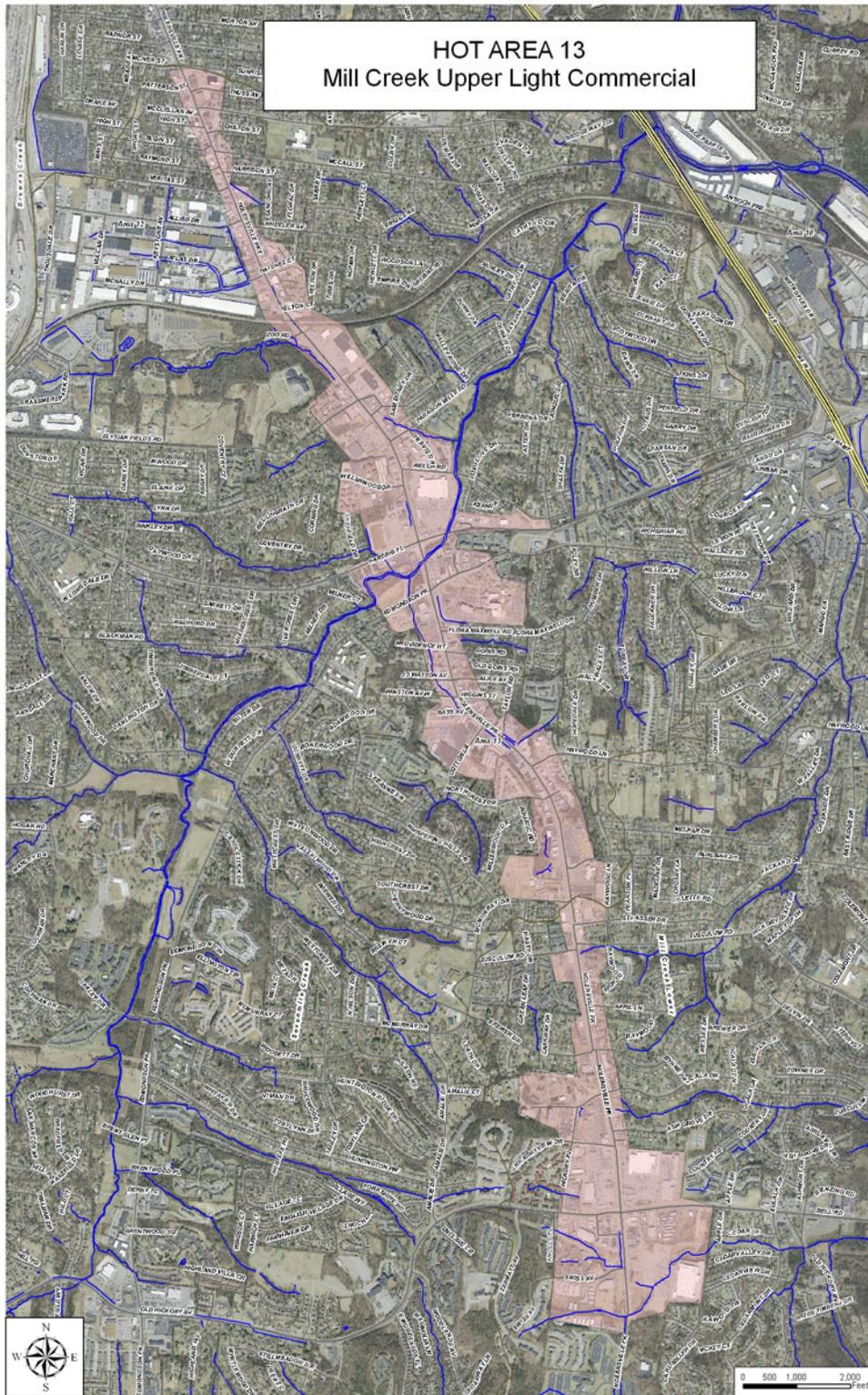


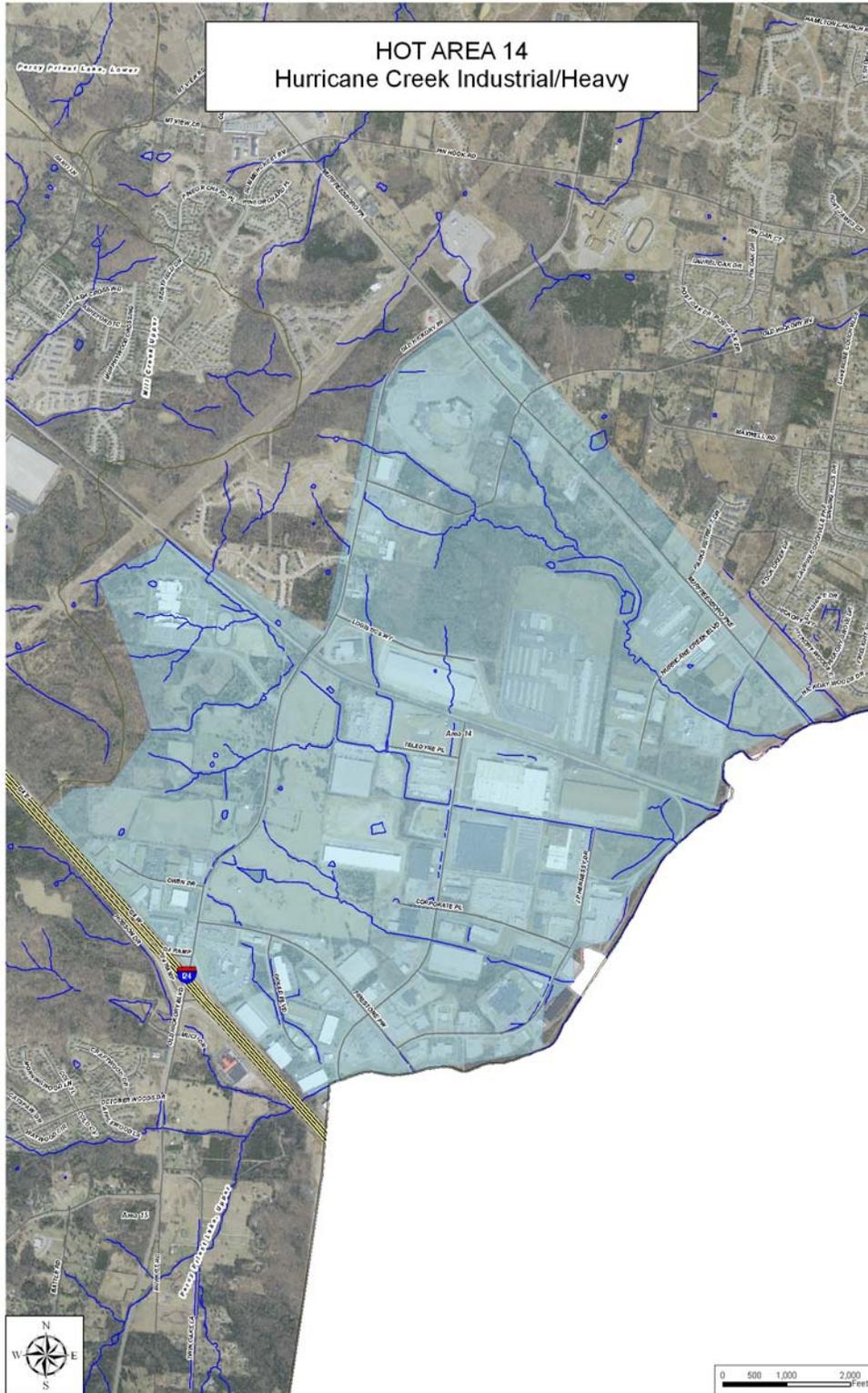


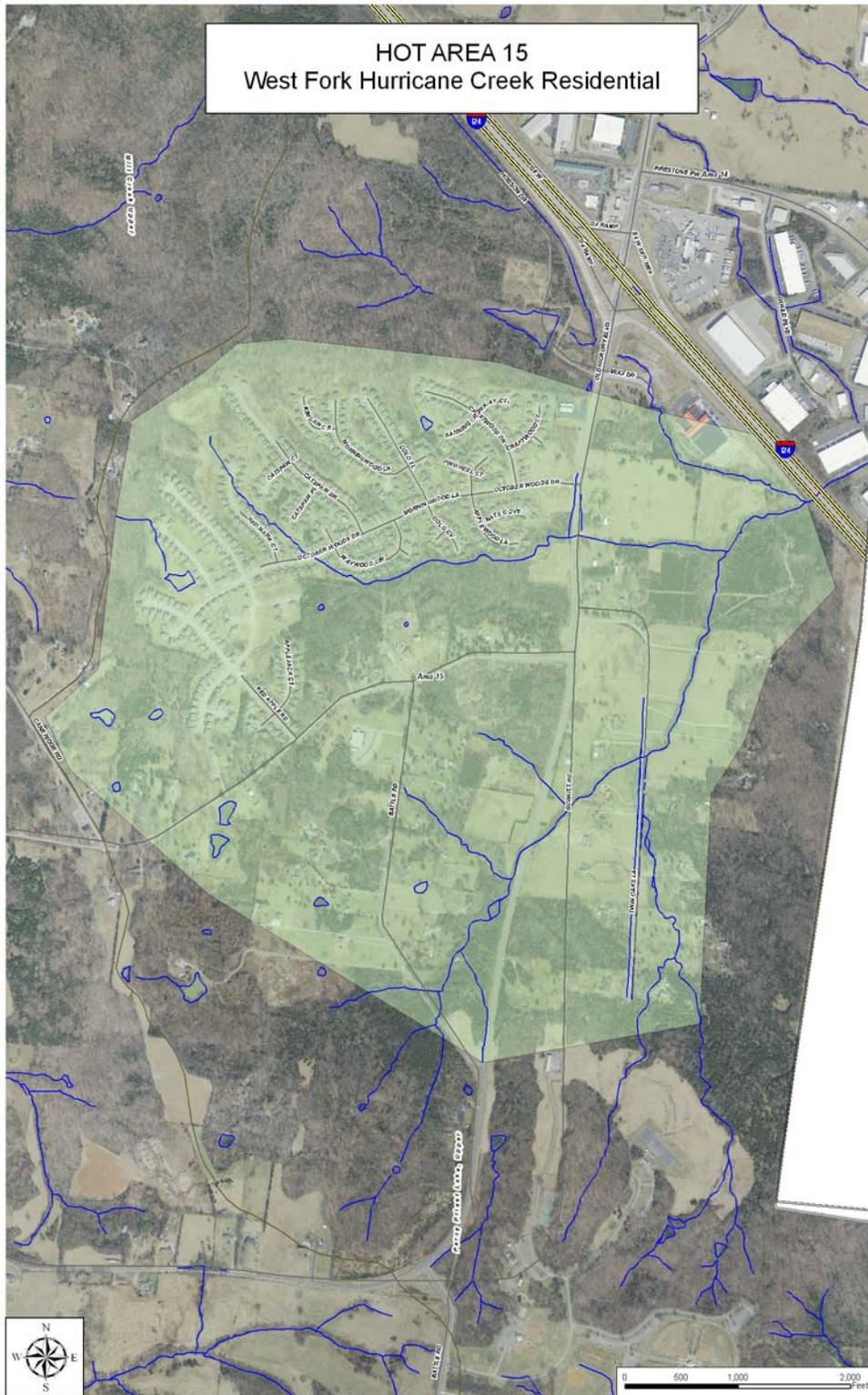


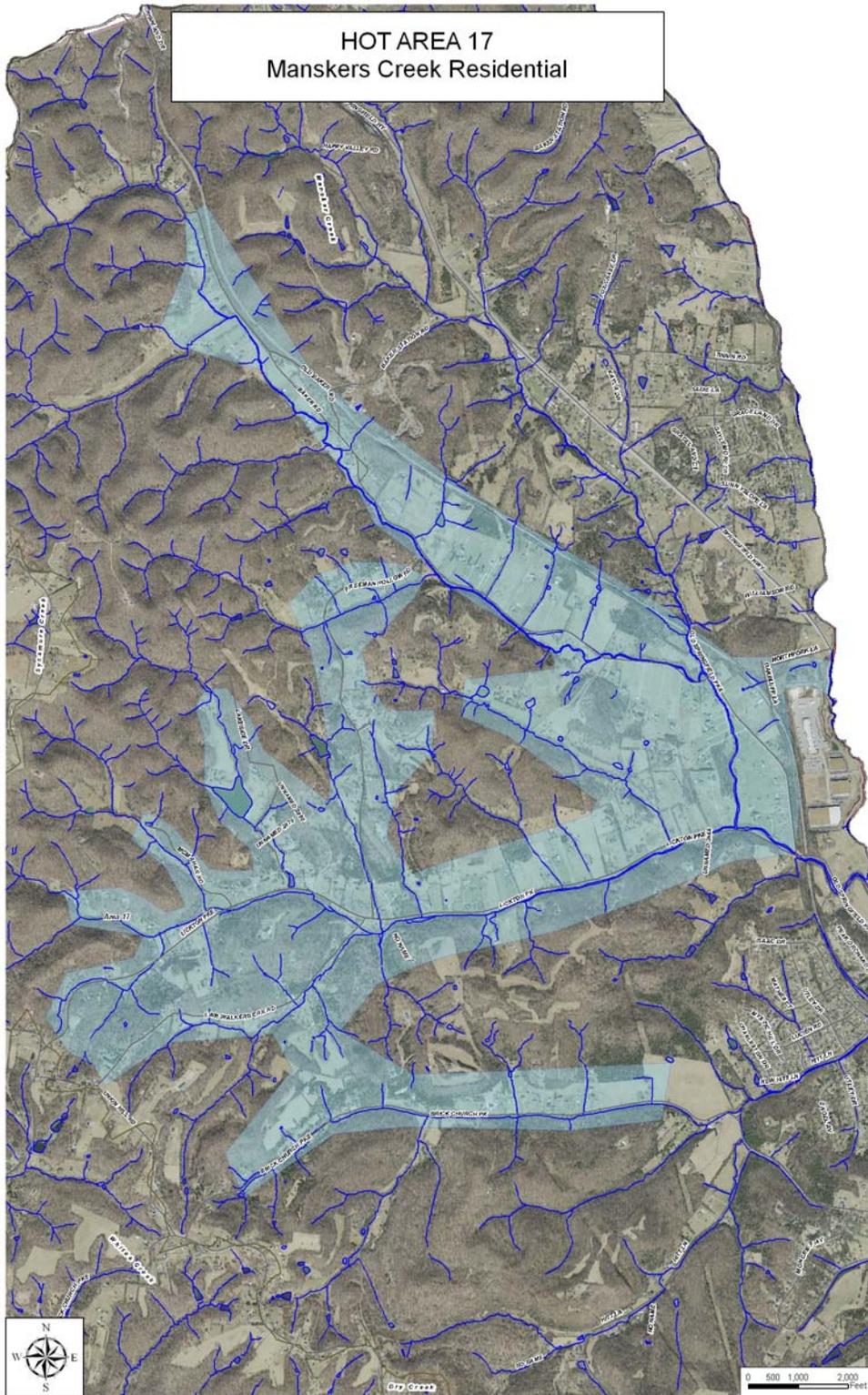


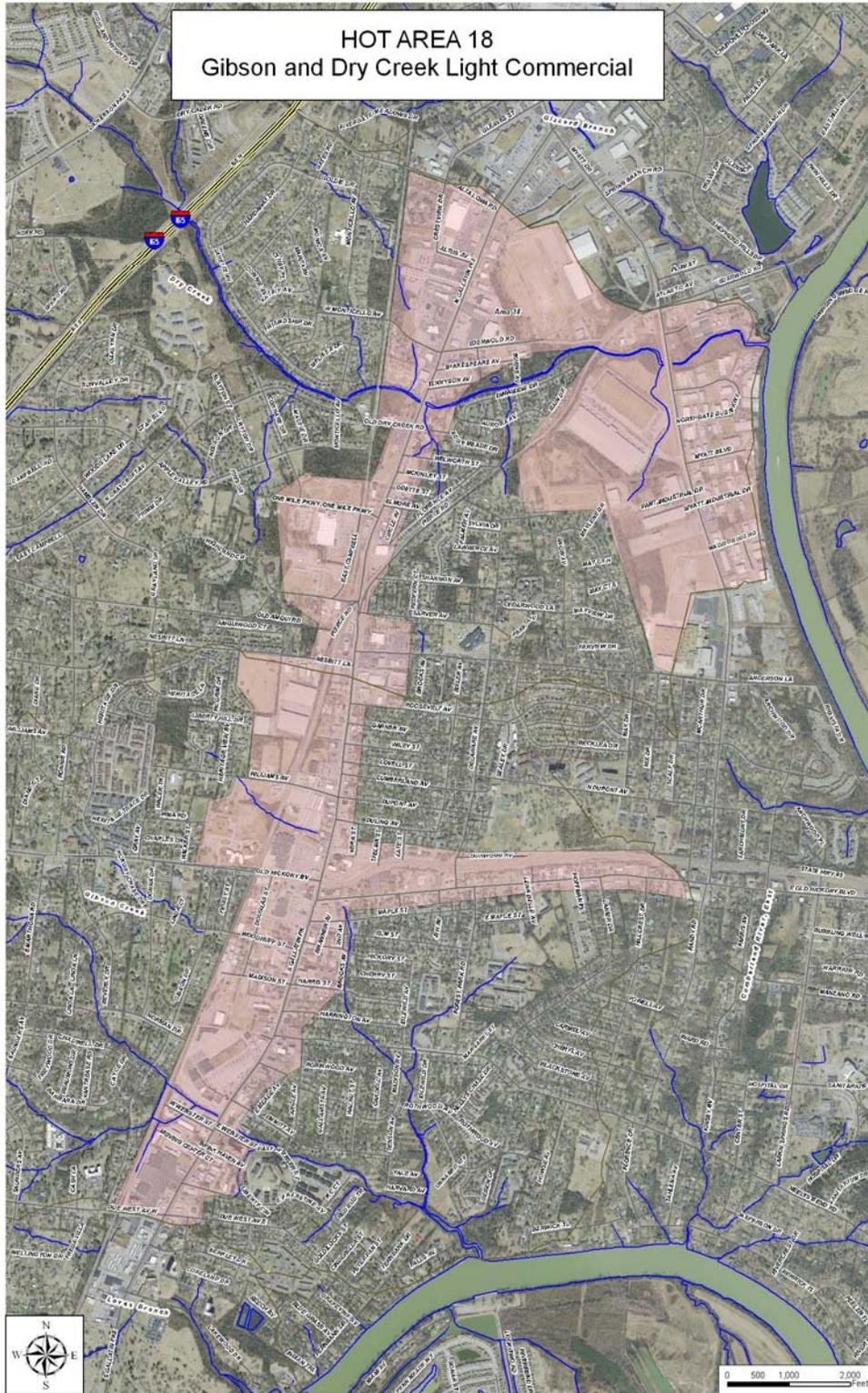












Metro Nashville/Davidson County Municipal Separate Storm Sewer System Permit Enforcement Response Plan

Created:

August, 2012

Updated:

November 15, 2016 - Added SCM Enforcement Section
November 22, Edited by Michael Hunt

Implemented by the:

MWS, Stormwater NPDES Office
1607 County Hospital Road
Nashville, TN 37218



Introduction:

The Stormwater National Pollutant Discharge Elimination System (NPDES) office is responsible for enforcing stormwater code. There are three distinct types of enforcement within the NPDES office. The first section of the Enforcement Response Plan (ERP) covers construction and development stormwater code violations. The second section of ERP covers stormwater code violation specific to illicit discharges regardless of whether they are from development properties or other sources. The final section explains the NPDES office enforcement measures for Post Construction Best Management Practice (BMP).

Section 1: Construction Related Violations:

1.1 NPDES Office EPSC Summary:

Adequate EPSC shall be required on Grading Permit erosion control plans prior to them being approved. Initial EPSC must be installed, inspected and approved prior to the grading permit being issued. Controls shall be proactively maintained (including required inspections by the permittee's EPSC Professional) during the project and until the site achieves final stabilization. EPSC that is found to be inadequate shall be upgraded by the permittee. EPSC inadequacies represent violations to Metro Code. Additionally, Metro NPDES permit obligations (per State and Federal statutes) require an effective Metro EPSC enforcement program to promote compliance.

1.2 General:

EPSC controls are expected to be installed and maintained per approved plans and associated specifications. Therefore, it is important that EPSC on approved plans be adequate. All site discharges are to be controlled in a manner that does not result in pollution.

If approved EPSC is found by NPDES staff to be inadequate once land disturbance activities commence, the permittee will be notified that enhanced BMPs are required.

Any infraction to Metro Code or the Metro Stormwater Management Manual (SWMM) is considered a separate violation that may be enforced upon.

1.3 Enforcement:

EPSC and maintenance of EPSC is the responsibility of the permittee per their Grading Permit requirements. EPSC maintenance records for a site should be used if possible by NPDES staff to determine if enforcement is warranted (to delineate negligence vs. adequate controls that failed during latest rain event).

While weather (ongoing rain) is understood to impact some types of EPSC maintenance activities (i.e. heavy equipment use), it should not be considered to preclude all/interim smaller scale EPSC maintenance efforts (such as using manpower to improve controls etc.).

Lack of EPSC BMP maintenance is a violation (per Metro SWMM). Illicit discharge of sediment due to inadequate EPSC is a violation.



1.4 Enforcement Tools:

Metro Code 15.64.020 grants the regulatory authority for the establishment of the SWMM. Under Metro Code 15.64.220(A), any violation of Chapter 15.64 regarding Stormwater Management, including a violation of the SWMM, is punishable by a civil penalty not to exceed \$500.00 dollars. Each day of violation may constitute a separate violation (such as failure to maintain EPSC, illicit discharge and grading without a permit). In certain instances, where construction site activities lead to a significant discharge of sediment to a stream, the illicit discharge penalty formula in Section 2 of the ERP can be used to calculate penalties up to \$5,000.

All compliance deadlines and requirements shall be clearly noted on all NOV/SWOs. Deadlines should be set with the mentality that they will be enforced expeditiously.

Administrative penalty calculation should be based on the NPDES itemized penalty worksheet. A copy of this completed worksheet should be saved in the appropriate file.

The processing of stormwater bonds and grading U&O signoffs will be held until the site is in compliance. Additional grading permits will not be issued for other phases of the project if a portion of the site is in non-compliance. Site compliance status will be noted within the Cityworks database through flags or other notations.

All NOV/SWO's may be appealed by the person or entity in which it was served to. A hearing must be requested in writing to the issuing Director within ten (10) days of service of the NOV. If conditions under which a Stormwater Management Committee (SWMC) variance was approved are not met, a SWO may be issued. The SWO shall have a compliance deadline. If compliance is not achieved by the deadline, the matter will be taken to the SWMC for "show cause" hearing. The committee may rehear the variance with the possibility of revocation.

1.5 Documentation:

All inspections and associated contacts must be documented within the appropriate database (Cityworks or Cityworks PLL).

Photographs should be date stamped and/or noted in the inspector's field log and saved in the appropriate network file folder. Enough photographs should be taken to document the violation and the result of the violation. Photographs should be named by year-month-date-photo #. For July 10, 2012 photo 1 would be: 120710-1

1.6 Enforcement Categories:

Official Warnings (verbal or written): should be issued to EPSC professionals, Owners (holders of the Grading Permit), Contractors, and Developers verbally, via e-mail, phone, and/or fax and should include the compliance deadline (that should take into consideration the next predicted rain event if the matter relates to possible sediment loss). These can be irrespective of when the last rain event occurred at the site.



Official warnings are given for issues not rising to the level of enforcements outlined below. All warnings must stipulate the nature of the violation / potential violation and the required corrective action to include any deadlines. All correspondence should be documented in the appropriate database and any written document scanned/saved in the appropriate network file. It is not mandatory to give official warnings in advance of other categories of enforcements below. It is however suggested that the site be given as much notice as possible of any potential future site issues.

Notice of Non-Compliance (NON) (no penalty): issued to sites where EPSC is inadequate or in need of significant maintenance, but sediment loss has not been documented/observed at the site (but maintenance or upgrading is needed to prevent sediment loss during future rain events). If improvement is not made within 7 days or before the next rainfall the site may be subject to NOV with penalty. They may also be issued to smaller non-permitted sites such as single family residences in which there are no runoff issues.

NOV (with penalty): issued to sites where EPSC is inadequate or in need of significant maintenance, and sediment loss has been documented/observed at the site. They are issued to sites in which they have not met any past specified deadlines and are still in non-compliance from the warnings or NON listed above. They are also issued to sites found having general SWMM / grading permit violations as found under the itemized penalty worksheet.

To promote compliance, a penalty may be reduced in some instances, but no lower than 50 dollars, if it is documented that the site came into compliance prior to the deadline as stipulated by the conditions in the NOV. A typical reduction will be 50 percent of the original penalty. An example may be that the unpermitted fill was removed and the site was stabilized as required prior to the deadline. Any penalty reduction conditions will be clearly written on the NOV that is issued.

SWO (with penalty): Same conditions as NOV penalty in addition to; previously issued NOV compliance conditions have not been met within the stipulated deadline or site noncompliance issues necessitate immediate mitigation (items that must be corrected prior to other work proceeding at the site as the site is losing significant amounts of sediment as evidenced by downstream structures or conveyances). A SWO should be issued to all sites found to be grading without a permit.

Environmental Court: If an offender refuses to accept a certified NOV/SWO letter or enforcement and/or is generally unresponsive to our requirements and deadlines despite our best efforts, the matter shall be taken to Metro Environmental Court.

Enforcement Assistance Request to TDEC: TDEC receives an email notification of all Metro-issued construction site-related enforcements, however in addition, there may be occasions given the circumstances where TDEC needs to be notified for enforcement assistance. For violations relating directly to streams or the construction general permit TDEC should be immediately contacted. When a request for assistance is made, proper documentation must accompany the request. This documentation would



include: photographs, copies of inspections, copies of correspondence, copies of enforcement actions taken, and a summary report.

Revocation: Upon notice and opportunity for a hearing, the Director of MWS may revoke any approval or grading permit issued under the provisions of the SWMM for any of the following reasons:

1. A false statement or misrepresentation of facts was made in the application or plans on which the permit or approval was based;
2. The developer or EPSC professional changes on a project without notifying MWS NPDES; or,
3. A permitted site has unpaid civil penalties that are delinquent by 60 days or more.

Penalty Multipliers: To promote compliance and to protect water quality, habitat, and floodplain storage penalty multipliers are incorporated within the itemized penalty worksheet.

Recording Enforcement Documents with Registrar of Deeds Office: If continued non-compliance becomes an issue, the notice of violation, stop work order, or any other enforcement correspondence will be compiled and recorded to the parcel(s) of the violation location. This process begins with a “pre notification of filing” letter being sent to the violator / property owner against which the proposed document will be filed.

Overdue Penalty Collection: If penalties have not been paid in full by the specified deadline on the NOV then a written notice will be sent out reminding them of the overdue penalty within 14 days of missed deadline date . This notice along with the date of this notice should be documented in the database and on the NOV spreadsheet. If there are overdue penalties for a grading permit site, all future signoffs, bond requests and additional grading permits will not be processed by Stormwater staff until the penalties are paid. For penalties significantly overdue and found uncollectable, the parcel in which these penalties were assessed will be flagged with a hard hold by MWS Development Services upon notice from NPDES Office of the specific need with supporting violation documentation. The flag will have comments noting the outstanding and overdue penalties. Overdue penalties in excess of \$3000 will be sent to Metro Legal.



Table 1 – Grading Permit Violation Itemized Penalty Worksheet

Itemized Penalty Worksheet					
Violation	Code / SWMM		Multiplier	Penalty	Total
Grading without a permit, development related (large quantity)	15.64.140 3.3, 5.5.6 15.64.180	yes = 1 # of acres graded in 100 yr floodplain - yes = 1	0 0 0	\$300.00 \$100.00 \$200.00	\$0.00 \$0.00 \$0.00
					\$0.00
Grading without a permit, non development related (small quantity)(SFR)	15.64.140, 3.3	yes = 1	0	\$50.00	\$0.00
					\$0.00
Failure to follow plan	4	yes = 1	0	\$200.00	\$0.00
					\$0.00
Transporting fill to a non permitted site	6.10.8	yes = 1	0	\$100.00	\$0.00
					\$0.00
Construction that may increase flooding	15.64.120	yes = 1	0	\$200.00	\$0.00
					\$0.00
Water Quality Buffer disturbance	6.9	yes = 1	0	\$200.00	\$0.00
		stream listed for habitat impairment - yes = 1	0	\$300.00	\$0.00
		buffer disturbance >5,000 sqft - yes = 1	0	\$200.00	\$0.00
					\$0.00
Failure to install / maintain epsc	2.7, 6.10	yes = 1	0	\$100.00	\$0.00
		# of separate failure locations (list on NOV)	0	\$50.00	\$0.00
		# of acres with exposed soils	0	\$50.00	\$0.00
					\$0.00
Illicit discharge of sediment	15.64.205 6.10.3	yes = 1	0	\$100.00	\$0.00
		# of separate discharge points	0	\$50.00	\$0.00
		in watershed of sediment impaired stream			
		yes = 1	0	\$200.00	\$0.00
		directly in sediment impaired stream yes = 1	0	\$300.00	\$0.00
					\$0.00
Failure to have epsc professional for gp site	4.3.3	yes = 1	0	\$200.00	\$0.00
					\$0.00
Failure to provide copies of inspection reports	4.3.3, 4.4.3	yes = 1	0	\$200.00	\$0.00
					\$0.00
Failure to post permit	4.4.1	yes = 1	0	\$50.00	\$0.00
					\$0.00
Failure to control construction waste	6.10.8	yes = 1	0	\$100.00	\$0.00
					\$0.00
Areas not stabilized within 15 days	6.10.1 6.10.4	yes = 1	0	\$50.00	\$0.00
		#of acres not stabilized	0	\$50.00	\$0.00
					\$0.00
Occupying bldg without sw certifications	15.64.110, 3.9	yes = 1	0	\$100.00	\$0.00
					\$0.00
# of previous violations for same issues		List dates of previous NOV's issued **	0	\$200.00	\$0.00
					\$0.00

PENALTY TOTAL: \$0.00

Section 2 : Illicit Discharge Violations:

2.1 NPDES Office Illicit Discharge Summary:

Metro's Non-Stormwater Discharge Code (15.64.205) specifically prohibits all non-stormwater discharges (except those exempted in the code) into community waters, into the waters of the state, or into the Municipal Separate Storm Sewer System (MS4). Additionally, the MS4 permit obligates Metro (per State and Federal statutes) to implement programs, including enforcement, that eliminate such discharges to streams and rivers. This section of the ERP details standard protocol to be followed for enforcement for violations to Metro's Non-Stormwater Discharge Code.

2.2 General:

The NPDES Office discovers illicit discharges to the MS4 system utilizing a variety of methods such as routine inspections, citizen complaints, proactive reconnaissance, etc. Some of the more typical illicit discharges include: wash water, sewage, industrial process wastewater discharges and contaminated runoff, paint, sediment, etc. Once discovered, the NPDES Office implements the below enforcement measures in order to gain compliance. The below enforcement steps do not have to be used in sequence, rather the mode of enforcement shall be chosen based on the type of violation.

2.3 Enforcement Proceedings:

Calculation of the monetary penalties associated with illicit discharges can be assessed up to \$5,000 per day, per Metro code. For the most part construction site violations are to be calculated using the penalty calculation in Table 1; however, in significant sediment loss situations, the penalty calculation found in Table 2 below can be used. Enforcement can range from simple verbal warnings to environmental court proceedings.

2.4 Enforcement Categories/Steps

Official Warnings (Notice of Non-Compliance): to be issued in the event of very minor/negligible discharges to the MS4/community waters especially when the discharge is unintentional (i.e. spill, sewer line break, etc.). In some instances, where the potential for contaminated stormwater runoff from the site is low, Metro will perform public education first. All public education communications are logged into the Public Involvement/Education (PIE) database.

In some instances, NPDES staff will observe a non-stormwater discharge or exposed pollutants on private property in which either no amount or small amounts of the discharge or contaminated runoff has reached the MS4 or community waters. In this case, the biggest threat to water quality is the potential for contaminated runoff during rain events, which makes it extremely important to issue immediate warnings to the site to expedite compliance. In most cases, the warning should be written on the standard Notice of Noncompliance (NON) form or an official letter on Metro letterhead. The Notice of Noncompliance should include specific deadlines and compliance measures



to be performed by the responsible party. Some examples of illicit discharge violations subject to official warnings include:

- Pressure washing with very small amounts of wash water discharges;
- Private sewer service line break or missing clean-out cap where only minor discharges occur;
- Accidental spills with minor amounts of material reaching the MS4 or community waters;
- Materials exposed to stormwater runoff (messy dumpster pads, fats or grease on ground, open containers of oil, etc.).

Notice of Violation (NOV) (with penalty): to be issued in the event that a more than minor/negligible amount of non-stormwater is discharged to the MS4 or community waters. Every NOV issued will be accompanied with a completed penalty assessment worksheet. All intentional discharges that are more than minor will result in monetary penalties based on various factors delineated in Table 2. For purposes of this document, “intentional” is defined as an act that was deliberately carried out or was caused by negligible actions that led to the discharge of non-stormwater material. A written violation shall clearly state the required remediation for the violation and timeframe for compliance. In most cases, the carbon copy NOV ticket shall be utilized; however, in some cases a formal letter on Metro letterhead can serve as the NOV. Some examples of illicit discharges that will be subject to a formal NOV include the following:

- ;
- Dumping of motor oil or other hazardous chemicals in an MS4 drain or stream;
- Washing out paint brushes or other construction materials in an MS4 drain or stream;
- Discharge of pit pump water or wet saw cutting slurry to the MS4 or stream;
- Washing out concrete truck trays in an MS4 drain or stream;
- Discharge of dumpster leachate to the MS4 or a stream;
- Discharge of industrial process water (without an NPDES permit) to the MS4 or stream;
- Significant amount of contaminated stormwater runoff from private property to the MS4 or stream.

Notice of Violation (NOV) (with daily penalties): to be issued only in rare cases when, for whatever the reason, the site refuses to comply with the first NOV and as a result, a substantial amount of non-stormwater material is being lost to the MS4 or community waters every day or every time it rains. In the cases where pollution only occurs every time it rains, the daily penalties shall only apply to the days rain occur. Daily penalty amounts are to be calculated using Table 2.

Environmental Court: If an offender refuses to accept a certified NOV/SWO letter or enforcement and/or is generally unresponsive to our requirements and deadlines despite our best efforts, the matter shall be taken to Metro Environmental Court.
Injunction



Enforcement Assistance Request to TDEC: TDEC receives an email notification of all Metro-issued construction site-related enforcements, however in addition, there may be occasions given the circumstances where TDEC needs to be notified for enforcement assistance. For violations involving significant discharges to streams, TDEC should be immediately contacted. When a request for assistance is made, proper documentation must accompany the request. This documentation would include: photographs, copies of inspections, copies of correspondence, copies of enforcements taken, and a summary report. Note: TDEC shall also be notified if any discharges impact “Waters of the State”

2.5 Documentation:

All correspondence should be documented in the appropriate database (i.e.Cityworks) and any photographs, scanned-in field investigation notes, etc. should be stored within the appropriate project folder. For illicit discharge documentation not related to industrial inspections or grading permit sites, all project folders should be stored within the following directory: <S:\Cityworks\NPDES\SR> Project folder names within the directory shall follow the below example:

 County Hospital Road, 1607 (paint dumping)

There should always be a database entry of any official notification given to a site. In the event that the official notification is in the form of a verbal warning, the NPDES inspector shall note the verbal warning on the complaint investigation form and within the respective database.

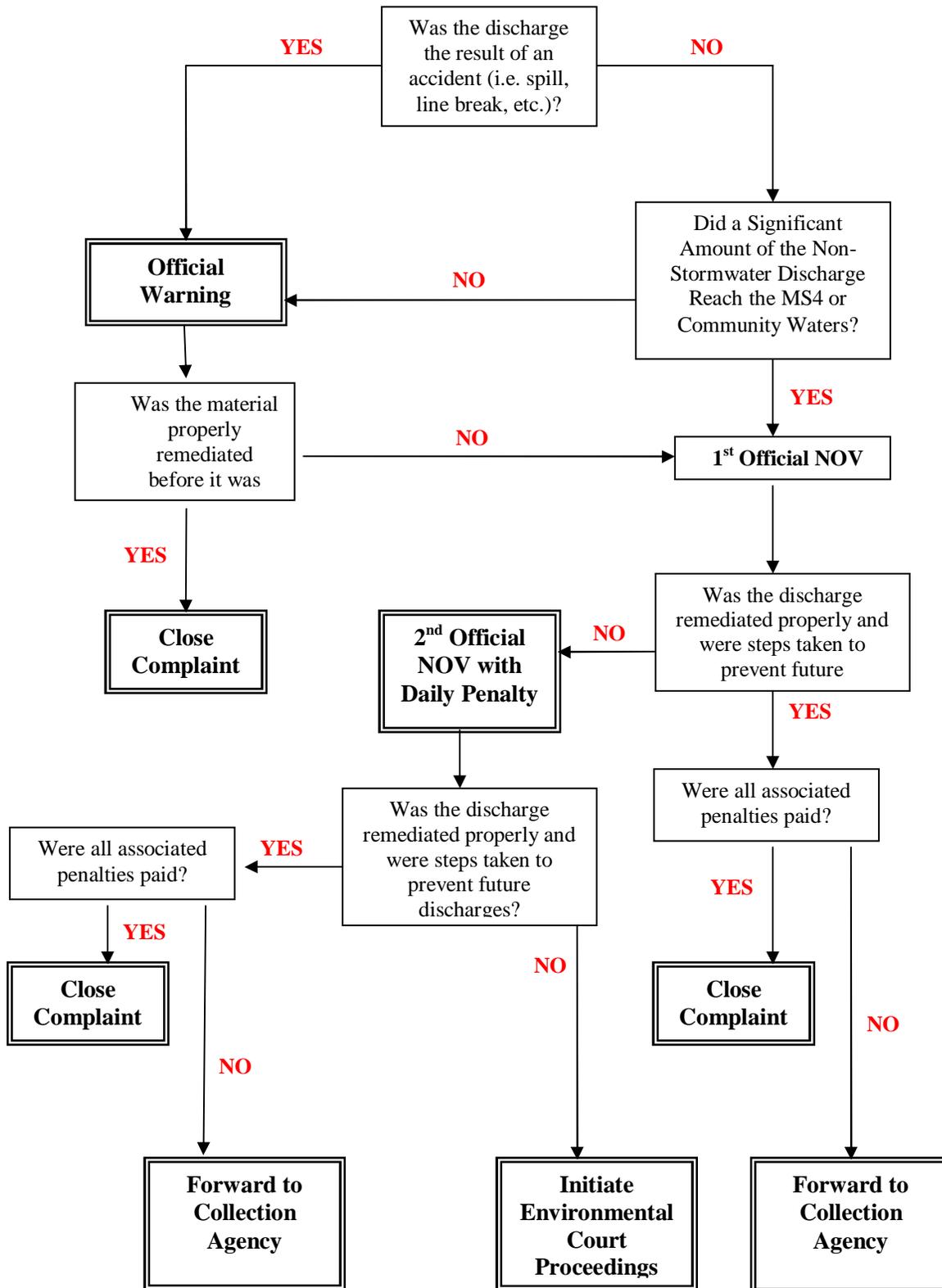


Table 2 – Illicit Discharge Penalty Calculation Worksheet

Site Name:							
Offender Category	Discharge Type	Penalty	Estimated Volume Multiplier	Biological Health Hazard Multiplier	Prior Notice Multiplier	Penalty	Total
			<10 gallons = 1				
			10 to 100 gallons = 2				
			100 to 1,000 gallons = 3				
> 1000 gallons = 5	Minor = 0	No Prior Notice = 0					
				Major = 3	Prior Notice = 2		
Accidental Spill/Discharge	Clean-up prolonged	\$50.00				\$50.00	\$0.00
	Clean-up prolonged and material lost to MS4 or Creek	\$100.00				\$100.00	\$0.00
Private Residence	Household Chemicals (Paint, cleaners, oils, batteries, pesticides)	\$100.00				\$100.00	\$0.00
	Food Waste/Grease	\$50.00				\$50.00	\$0.00
	Grass Clippings/Organics	\$50.00				\$50.00	\$0.00
	Sewage/Wash Water with Detergents	\$50.00				\$50.00	\$0.00
	Sediment	\$50.00				\$50.00	\$0.00
	Chlorinated Pool Water	\$50.00				\$50.00	\$0.00
Commercial/Industrial	Industrial Waste	\$500.00				\$500.00	\$0.00
	Hazardous Chemicals (Paint, cleaners, oils, batteries, pesticides, floor wax, etc.)	\$250.00				\$250.00	\$0.00
	FOG material	\$50.00				\$50.00	\$0.00
	Mop water/Parking lot wash water with detergents	\$50.00				\$50.00	\$0.00
	Contaminated Stormwater Runoff	\$50.00				\$50.00	\$0.00
	Sewage	\$50.00				\$50.00	\$0.00
	Dumpster leakage	\$50.00				\$50.00	\$0.00
Construction Site Illicit	Concrete Washout	\$250.00				\$250.00	\$0.00
	Pumped Sediment Water	\$500.00				\$500.00	\$0.00
	Sediment Contaminated Runoff	\$500.00				\$500.00	\$0.00
Typical Contractor-Related Discharges	Parking lot/building Wash Water with Detergents	\$50.00				\$50.00	\$0.00
	Wastewater Discharges (Carpet cleaning, floor waxes, etc.)	\$250.00				\$250.00	\$0.00
	Wet Saw Slurry Discharges	\$50.00				\$50.00	\$0.00
	Concrete Washout	\$50.00				\$50.00	\$0.00
	Other (paint, motor oil, etc.)	\$250.00				\$250.00	\$0.00

Note: Biological health hazard is based on the potential damage the discharge can do to aquatic life in the stream.

Illicit Discharge Enforcement Flow Chart



Section 3 : Post Construction SCM Maintenance Violations

3.1 General Considerations

Maintenance is required to ensure that post construction stormwater control measures (SCMs) continue to function as designed. The cleaning and/or repair of a SCM are the ultimate responsibility of the property owner. In some cases, management companies and HOAs perform the work or contract it out.

3.2 Enforcement Tools:

Metro Code 15.64.020 grants the regulatory authority for the establishment of the SWMM. Under Metro Code 15.64.220(A), any violation of Chapter 15.64 regarding Stormwater Management, including a violation of the SWMM, is punishable by a civil penalty not to exceed \$500.00 dollars. Each day of violation may constitute a separate violation.

A Maintenance Document (MD) signed by the property owner must be submitted with the Grading Permit application. The MD includes either an Inspection and Maintenance (I&M) Agreement or a Declaration of Restrictions and Covenants. Both of these documents require that the property owner maintains their SCM(s), submits annual reports detailing inspection and maintenance activities, and grants Metro the ability to perform the SCM maintenance and collect reimbursement. Sites approved prior to the 2006 revision of the SWMM do not have the annual reporting requirement.

3.3 Non-Reporting Consequences:

As mentioned above, some of the new structures installed per the latest regulations requiring the owner to perform annual inspections and reporting. If those sites fail to report, they will be added to a list of properties that will be prioritized for NPDES to perform inspections and necessary enforcement.

3.4 Enforcement:

A standard Notice of Noncompliance (NON) form should be issued to sites where a BMP needs repair or cleaning. The standard NON template should be utilized as the first step of enforcement and can be issued in the field at the time of inspection or from the office via certified mail. If the NON is filled out at the time of inspection and given to the property owner, then a carbon copy must be retained for Metro's records. The NON will list the deficiency and give a timeline for compliance as well as list the Instrument Number of the MD or Declaration of Restrictions and Covenants. If a site cannot meet their compliance deadline for a legitimate reason (e.g. weather, hardship), they may request an extension.

If compliance is not achieved by issuance of the NON, enforcement may then be elevated to an official Notice of Violation (NOV) with associated administrative penalties. The initial administrative penalty will be \$100 per each structure with maintenance issues. If the site fails to comply with the initial NOV, a second and third NOV could be issued with an administrative penalty multiplier of 2.5 for each subsequent violation.



(Not to exceed \$500.00 per structure) If the site fails to comply after issuance of 3 NOVs, then the inspector must choose the best course of action from the following enforcement options:

- Environmental Court – Injunction;
- Placing a “Hard Hold” in Cityworks on any future permitting for that property;
- Recording Enforcement Documents with Registrar of Deeds Office; and
- Performing Maintenance with Metro Equipment and Billing the Property Owner.



SCM Notice of Noncompliance Template



Metro Water Services, Stormwater NPDES
1607 County Hospital Road
Nashville, TN 37218
Office: 615-880-2420
Fax: 615-880-2425
Email: mws.scm@Nashville.gov

NOTICE OF NON-COMPLIANCE

Business Name / Residential Property Location: _____

Address/STANPAR: _____

Site Representative/Property Owner: _____ is hereby served with this Notice of Non-Compliance on: ___/___/___ for failure to maintain a Stormwater Control Measure(s) (SCM) per the Maintenance Agreement Instrument Number: _____ that was recorded with the Deed of the property. The SCM(s) on your property was installed during previous development/redevelopment activity, which obtained a Grading Permit from the Metro Water Services, Stormwater Division. The Grading Permit Number associated with your parcel's development activity was: _____. As a condition of the grading permit, the permanent SCM(s) was installed to prevent downstream flooding and stormwater pollution. Inspection and maintenance agreements, which were recorded with the Deed of your property, require the property owner (not Metro) to perform the required inspection and/or maintenance associated with the SCM(s) on your property, so that it continues to function as it was designed. A copy of the inspection and maintenance agreement for your parcel can be obtained from the Davidson County Register of Deeds website at the following link: <http://www.registerofdeeds.nashville.org/recording/>

Description of Non-compliance Maintenance Issues:

Required Corrective Actions to be Corrected By: _____

(Please note, failure to perform the required maintenance could lead to additional enforcement that may include the assessment of administrative penalties as defined in Metro's Code (Depicted on Next Page))

Notification Delivered Via: _____

This notice served by: _____ Date and Time ___/___/___ at ___:___ am/pm



Updated/Revised Field Screening SOP

E1

Field Screening

MWS NPDES will perform field screening of ¼ mile grids within the permit area that contain parcels with various land-use codes that can be generally considered "industrial" or "commercial". The first grids to be screened are those determined to be within "hot areas", areas known for high water pollution concentrations and impaired streams (hot areas are highlighted in the GIS layer for Field Screening Cycle 3). All "hot areas" will be screened by June 31st, 2014, with the remaining grids to be completed by February, 2017.

NPDES will utilize a LaMotte Smart2 Colorimeter field testing device to determine concentrations for chlorine and field test kits to analyze for detergents. In addition, NPDES will also measure, pH, dissolved oxygen (DO), and conductivity. NPDES has established baseline conditions for the various parameters found below in Table 1.

NPDES will utilize a map book, complete with 11x17 map sheets of the individual grids to be screened. All map book sheets have been printed and are located in the filing cabinet. Once the maps are screened and the data is entered into the database, the maps should be filed in the completed cabinet.

Field screening equipment will consist of LaMotte Smart 2 Colorimeter kit with the necessary reagents and waste bottles, pH meter, YSI dissolved oxygen/conductivity meter, CHEMets detergent testing kit K-9400, cooler with ice, 100ml fecal coliform sample containers and 0.5L sample bottles (equal to or greater than the number of grids to be screened), camera with date stamp set, field screening map book, tablet computer and distilled water. The pH and DO/conductivity meter must be calibrated and logged before use; they should be checked for drifting and logged back in after use. The LaMotte Smart 2 Colorimeter should be checked with standards for each parameter at least once a quarter. Chlorine standards to be used are DPD chlorine standard solutions.

NPDES must wait a minimum of 72 hours after a 0.1inches rainfall event (county wide) to perform field screening testing with the LaMotte. If outfalls in the grid have no flow at 24 hours after rain events of more than 0.1inches, then no water testing will be required, and the 72 hour wait period does not apply. If there is flow 24 hours after a rainfall event, the outfall must be revisited after 72 hours.

If there is no flow at 24 hours, or at the 72 hour return visit, the grid may be surveyed as normal, marked as completed, logged into the map book, then updated accordingly in the GIS layer frame, with a point at the outfall and corresponding data, and updating the GIS grid to complete. A picture should be taken of the outfall, and uploaded to the server under S:\NPDES\Permit\Field Screening\Photos, saved with the name of the grid.

If there is flow at the 72 hour mark and there is no obvious and acceptable source of the flow (i.e. groundwater, air conditioner condensate, etc.), the flow should be tested for the following parameters: chlorine, detergents, pH, dissolved oxygen, conductivity, temperature, and E.coli. When sulfur odors or thick algae are present, or there are suspicions of sanitary sewer discharges, samples will be analyzed with NPDES IDEXX procedures. Notes on the flow such as odor, turbidity, flow rate and any other information that may be pertinent should also be taken. If results for the parameters are higher than the IDDE Action levels (Table 1) then a formal IDDE source tracking investigation shall be

Last update 09/06/2016



Updated/Revised Field Screening SOP (Page 2)

initiated with all documentation taking place within the Cityworks database, and the SOP will follow that of an illicit discharge.

If E.coli is the only parameter above IDDE action levels, then a second sample should be taken 24 hours later, if the second sample is above the action level, an official investigation shall be implemented.

If upon investigation, the source of the discharge is a water leak or sanitary sewer overflow, mark the area with white paint and call MWS dispatch with the address and any other info that will help find the location, dispatch will create an SR and send a leak investigator. After entering the data in Cityworks, the data should be logged in the map book as usual, and updated accordingly in the GIS layer frame with a point at the outfall and corresponding data, then updating the grid to complete. A picture should be taken of the outfall, and uploaded to the server under S:\NPDES\Permit\Field Screening\Photos and saved with the name of the Grid. For example, point screened within the grid IAW29 should have a photo named IAW29.jpg. If there are two pictures taken in the same grid then the second photo should be saved as IAW29-2.jpg.

If the map indicates that the surveyed outfall lies within a known stream, wet land, pond or other water body, and flow is present, no field tests are required unless it is suspected that the water is contaminated by a sanitary sewer leak or other source. In this case, tests will be carried out as described above. Further action will only be required if test results are above IDDE Action levels described in Table 1 below.

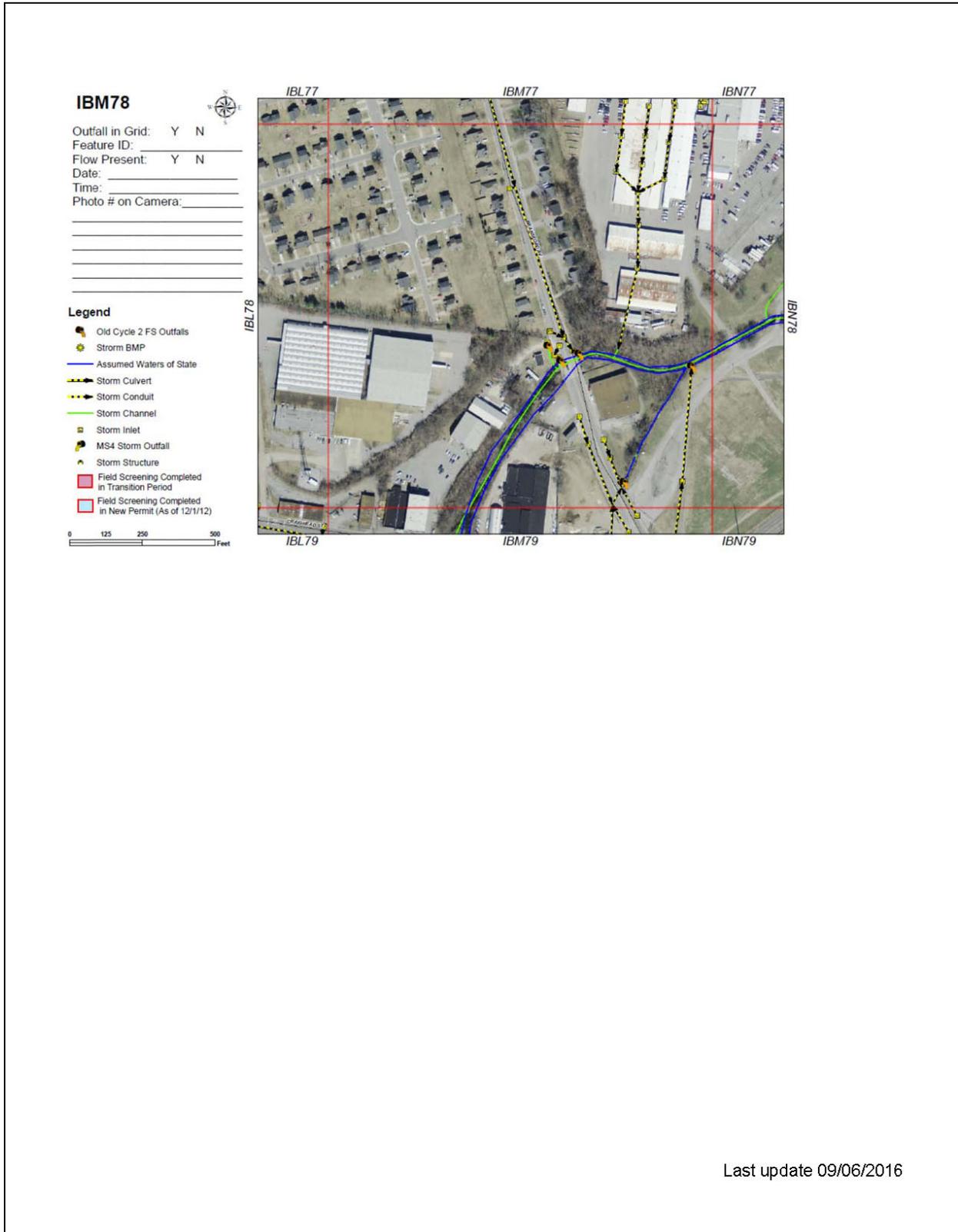
Table 1 – Field Screening Parameter IDDE Investigation Action Levels

Parameter	IDDE Action Levels
Chlorine	> 0.05 mg/l
Detergents	>0.25 mg/l
Dissolved Oxygen	<5 mg/l
Conductivity	>600 µS/cm
pH	<6 and >8
Temperature	>30.5°C
E. coli	941 CFU/100ml

Last update 09/06/2016



Updated/Revised Field Screening SOP (Page 3)



ATTACHMENT C – Application for New 4th Cycle MS4 Permit



Metro Nashville 4th Cycle MS4 Permit – Application

1. Introduction:

Metropolitan Nashville and Davidson County (Metro) hereby formally applies for reissuance of the Phase 1 Municipal Separate Storm Sewer System (MS4) permit. As the primary Metro office responsible for overseeing Metro's MS4 permit compliance measures, Metro Water Services Stormwater NPDES Section (NPDES) requests pre-application meetings to be initiated between the Tennessee Department of Environment and Conservation (TDEC) and Metro for negotiation of specific terms and provisions within our reissued MS4 NPDES permit.

Metro's first Phase 1 MS4 permit was issued on July 1, 1996, which required the implementation of various programs to manage the municipal stormwater runoff of approximately 492 square miles. Prior to applying for the 4th cycle of this MS4 permit, our office took the opportunity to perform an internal evaluation of several key components of the MS4 program. This evaluation was important as it is imperative to identify which pollution prevention programs/MS4 permit requirements have proven the most effective verses those that have been primarily unproductive in reducing respective pollutant loads. Ultimately, Metro's goal is to further refine our MS4 program to reduce stormwater pollutants to the Maximum Extent Practicable (MEP) and improve the overall quality of Metro's waterways. In order to accomplish the MEP reduction in pollutant runoff, Metro must operate the most efficient and effective programs possible. With that said, if some of the pollution prevention programs prescribed by the MS4 permit are considered ineffective and/or inefficient, Metro will request the necessary changes in the new/reissued permit.

The internal review of the MS4 program revealed that most of the key aspects of the Stormwater Management Program (SWMP) and associated MS4 permit requirements have been very successful and should continue without modification. There were some areas, however, that were identified that should be modified to improve effectiveness and efficiency. The following paragraphs describe the overall findings of the internal analysis and the proposed changes to the Metro SWMP and MS4 Permit that will further improve the program efficiency and effectiveness.

2. SWMP/MS4 Permit Efficiency/Effectiveness Evaluation:

Overall, Metro's MS4 permit requirements (SWMP activities) were analyzed to determine if they were either efficient in producing a reduction of pollutant loadings to and from the MS4 or effective in producing monitoring data useful in making management decisions or assessing the overall quality of the streams within Metro.

The evaluation was completed on both the specific "*MS4 Permit Program Elements*" (structural and non-structural pollution prevention controls) and specific "*MS4 Permit Specific Monitoring Requirements*". The cursory review involved a review of internal tracking databases and obtaining feedback from veteran staff members. Each Program/Monitoring Element was ranked based on the following 2 criteria categories:

- Estimated Staff Resource Dedication Per Year
- Pollution Abated/Prevented or Quality Data Collected



A. MS4 Permit Program Elements:

In reviewing the MS4 permit program elements as prescribed in the MS4 Permit, the following major categories and sub-categories were delineated and analyzed individually:

- I. Public Education and Outreach
- II. Public Involvement
- III. Illicit Discharge Detection and Elimination
 - a. MS4 Mapping/Updating
 - b. Dry Weather Field Screening
 - c. Complaint Response
- IV. Construction Site Stormwater Runoff Control
- V. Permanent Stormwater Management in New Development and Redevelopment
 - a. Performance Standards – Regulations
 - b. SCM Maintenance
- VI. Pollution Prevention/Good Housekeeping for Municipal Operations
 - a. Municipal Operations
 - b. Street Sweeping
 - c. Monitor and Control Industrial, Commercial, and High Risk Runoff

A summary of the evaluation findings is presented on the following page in Table 1. Based on this review, a majority of the major program elements were found to have been highly successful over the previous 3 permit cycles. There were 4 major program elements, however, that were found to require moderate to high levels of staff resources, while only producing low to moderate stormwater program benefits. Two of the program elements were found to require improvements to Metro's internal SWMP (public education/involvement and Stormwater Control Measure (SCM) maintenance), while not requiring changes to the actual MS4 permit language. There were two other program elements (dry weather field screening and industrial monitoring), however, that were found to require changes to both the Metro SWMP and future MS4 permit language.

Industrial Monitoring:

The industrial monitoring requirement within the MS4 permit states that Metro is to monitor and control runoff from the following types of properties:

- Municipal landfills
- Hazardous waste treatment, storage, and disposal facilities
- Industries subject to reporting requirements pursuant to SARA Title III, Section 313
- Industrial and commercial facilities Metro determines are contributing a substantial loading of pollutants.

In the previous 20 years of inspecting industrial facilities, Metro has found the requirement to inspect the aforementioned categories has resulted in relatively few findings of industrial processes or contaminants exposed to stormwater runoff. In general, many of the above categories of industrial facilities include those that have received "No Exposure" certification and are not subject to applying for and receiving coverage under the Tennessee Multi-Sector Permit (TMSP) for industrial stormwater runoff. The majority of pollution issues eliminated from industrial facilities through the past 3 MS4 permit terms have resulted from complaint investigations of sites with TMSP coverage or Ready Mix Concrete Permit (RMCP) coverage and were not discovered from the routine industrial inspection process prescribed within the MS4 Permit. Proposed changes to the industrial monitoring section are detailed in Section 3.



Table 1 – Effectiveness/Efficiency Evaluation of MS4 Program Elements

Major Permit Requirement Tasks	Estimated Staff Resource Dedication Per Year	Pollution Abated/Prevented or Quality Data Collected	Recommended Improvements to SWMP	MS4 Permit Language Change Required to Implement SWMP Change
Element 1 & 2 - Public Involvement/ Education	Moderate	Moderate	Recommend improvements to overall approach to Public Involvement/Education, which includes a dedication of additional resources and more-effective targeted campaigns toward pollutant types, demographics, and geographic locations within watersheds.	No
Element 3 - IDDE (MS4 Mapping/Updating)	High	High	No changes proposed to Nashville's SWMP	No
Element 3 - IDDE (Field Screening)	High	Very Low	Recommend major changes that result in screening business sites in lieu of outfalls. (*Refer to Section 3)	Yes
Element 3 - IDDE (Complaint Response)	Moderate	High	No changes proposed to Nashville's SWMP	No
Element 4 - Construction Stormwater Oversight	High	High	No changes proposed to Nashville's SWMP	No
Element 5 - Administering Post-Construction Regulations and Oversight (Regulations Revisions)	High	High	No changes proposed to Nashville's SWMP	No
Element 5 - Administering Post-Construction Regulations and Oversight (SCM Maintenance)	Moderate	Moderate	Due to the vast numbers of SCM structures in place, recommend major changes to the SWMP to allocate the necessary resources to inspecting/following up.	No
Element 6 - Pollution Prevention/Good Housekeeping for Municipal Operations (Industrial Oversight/Monitoring)	Moderate	Moderate	Recommend minor changes to SWMP to focus inspections on high-risk commercial and industrial sites (eliminate focus on SARA Title 3, Sec. 313) (*Refer to Section 3)	Yes
Element 6 - Pollution Prevention/Good Housekeeping for Municipal Operations (Municipal Site Management and Street Sweeping)	High	High	No changes proposed to Nashville's SWMP	No



Dry Weather Field Screening:

The dry weather field screening MS4 permit requirement directs Metro to perform dry-weather inspections and monitoring of MS4 outfalls within every ¼ mile grid that contains commercial and/or industrial zoned properties. During this most recent permit cycle, there were 2,407 - ¼ mile grids within Davidson County that contained commercial and/or industrial zoned properties. Screening this number of grids required a large expenditure of Metro resources. Despite the significant amount of resources devoted to performing field screening, there were very few major finds of pollution during the 3rd permit cycle. It is estimated that Metro spent approximately 3,009 hours (as shown in Table 2 below) performing dry weather field screening each permit cycle. It has been concluded that this permit requirement should be dramatically changed to produce a much more efficient field screening program. Proposed changes to the field screening program are detailed in Section 3.

Table 2 – Analysis of Dry Weather Field Screening Resource Requirements

Field Screening						
Average Hours per Day	Average Grids per Day	Hours per Grid (Including data entry, etc.)	Total Grids	Total Staff Hours Per 5 Year Permit Cycle	Total Staff Hours Per Year	Work Days Per Year Dedicated to Field Screening
8	10	1.25	2,407	3,009	602	75

B. MS4 Permit Monitoring Requirements

The MS4 monitoring program as implemented within the SWMP has largely been driven by specific MS4 Permit Requirements as prescribed in the original 40 CFR Part 122.6 and more recent TDEC TMDL/303(d)-related sampling activities. For purpose of evaluating the effectiveness of these monitoring programs, the following major monitoring requirements were evaluated:

- I. Wet Weather Land-Use Outfall Sampling
- II. MS4 Permit Ambient Sampling
- III. TMDL Monitoring (Geo-Mean Sampling)
- IV. Post Construction SCM Wet Weather Sampling
- V. Visual Stream Assessments

Based on the analysis, most of the Metro MS4 monitoring programs were found to be highly beneficial in producing valuable data that could be used to track down sources of pollution, assess overall water quality of Davidson County streams, or assess the effectiveness of specific elements within the SWMP. However, there were some necessary changes identified that require modifications to the Metro SWMP and MS4 permit language. In particular, there were two specific monitoring components that were identified as needing complete modifications, as they have been found to require a high level of resources, while producing insignificant data. These two monitoring components, which are specific requirements of the MS4 Permit, include the *wet weather land-use outfall sampling* and the *post construction SCM wet weather sampling*. A summary of the overall analysis is provided in Table 3.



Table 3 – Effectiveness/Efficiency Evaluation of MS4 Monitoring Requirements

Major Permit Requirement Tasks	Estimated Staff Resource Dedication Per Year	Pollution Abated/Prevented or Quality Data Collected	Recommended Improvements to SWMP	MS4 Permit Language Change Required to Implement SWMP Change
Wet Weather Land-Use Outfall Sampling	High	Low	Recommend replacing this sampling program with a more-effective sampling program that produces valuable data that could be used to pinpoint pollution, make stormwater management decisions and/or assess stream water quality conditions.	Yes
MS4 Permit Ambient Sampling (MS4 Mapping/Updating)	Moderate	Moderate	Recommend replacing this sampling program with a more-effective sampling program that produces valuable data that could be used to pinpoint pollution, make stormwater management decisions and/or assess stream water quality conditions.	Yes
TMDL Monitoring (Geo-Mean Sampling)	Moderate	High	No changes proposed to Nashville's SWMP	No
Post Construction SCM Wet Weather Sampling	Moderate	Low	Recommend replacing this sampling program with a more-effective sampling program that allows Metro to analyze potential retrofit opportunities with pre- and post-runoff sampling.	Yes
Visual Stream Assessments	High	Moderate	Recommend clarifying a more-efficient process for performing visual stream assessments on sections that have been previously assessed.	Yes



Wet Weather Land-Use Outfall Sampling

The wet weather land-use outfall sampling program has been required in all three cycles of the MS4 permit. As per the MS4 permit, Metro is required to collect 3 sample events for 5 homogeneous land uses each year. This requirement involves an inordinate amount of resources, while the data itself has proven of very little value to the Stormwater program. Metro estimates that it takes approximately 1,800 hours of staff resources each permit cycle to sample or attempt to sample homogeneous land use outfalls. (See Table 4)

Table 4 – Analysis of Wet Weather Land Use Sampling Resource Requirements

MS4 Permit Wet Weather Land Use Characterization Sampling						
Required Samples Per Year	Estimated Staff Hours Per Each Sample (Includes prepping samples, drive time, sampling time, transport time, data entry time, weather monitoring etc.)	Estimated Number of Events Per Year Staff Attempts Sampling (Rain stops, runoff does not result, etc.)	Staff Hours Per Each False Alarm (Includes time of several employees)	Total Staff Hours Per 5 year Permit Cycle	Total Staff Hours per year	Work Days Per Year Dedicated to Wet Weather Land Use Sampling
15	16	10	12	1,800	360	45

Post Construction SCM Wet Weather Sampling

The 3rd cycle of the MS4 Permit required Metro to collect 5 wet weather “grab” sample events for each of the following types of post-construction SCM: dry detention pond; wet pond; bioretention basin; pervious pavement; green roof; and proprietary underground water quality unit. This sampling requirement necessitates a great deal of resource dedication from Metro staff, however, similar to the land use wet weather sampling, the data has proven to be of little to the Metro NPDES program. Metro estimates that it requires approximately 640 hours to perform this MS4 permit requirement each permit cycle.

MS4 Permit Post-Construction Stormwater Control Measure Wet Weather Sampling						
Required Samples Per Year	Estimated Staff Hours Per Each Sample (Includes prepping samples, drive time, sampling time, transport time, data logging time, weather monitoring etc.)	Estimated Number of Events Per Year Staff Attempts Sampling (Rain stops, runoff does not result, etc.)	Staff Hours Per Each False Alarm (Includes time of several employees)	Total Staff Hours Per 5 year Permit Cycle	Total Staff Hours per year	Work Days Per Year Dedicated to SCM Wet Weather Sampling
6	8	10	8	640	128	16



3. Proposed Changes to MS4 Permit Language for Nashville's 4th Cycle:

As a result of the effectiveness/efficiency analysis on current SWMP elements and MS4 permit requirements, Metro has concluded that specific changes are necessary to create a more efficient and effective MS4 program. While some of the proposed changes will only require changing internal Metro NPDES programs and operating procedures, other changes have been identified that will require existing MS4 permit requirements to be adjusted moving forward. The following paragraphs describe the proposed specific changes to the existing Phase 1 MS4 permit.

A. Dry Weather Screening (Existing MS4 Permit Section 3.2.3.3 – Page 11):

As mentioned in Section 2, the effort to perform dry weather screening of outfalls within commercial and industrial-zoned ¼ mile grids has proven to be a very ineffective and inefficient use of resources. This permit requirement dates back to the original 40 CFR, Part 122, which was intended for the original Phase 1 MS4 Permit applications. Most of the major issues this program element was intended for (i.e. cross connections, illicit discharges, etc.) have been discovered in previous permit cycles. The current outfall-based screening program is a “tunnel vision” approach that looks only at the outfall at a point in time and, as a result, misses many non-point sources of pollution such as leaking/messy dumpsters, spilled oil and grease, etc., that could be addressed to prevent future contaminants from discharging to the MS4 during rain events. Metro would like to propose, in-lieu of the existing permit requirement, the following program element to be implemented.

1. Metro create “*Pollution Hot Zone*” polygons of commercial and industrial areas within the county that have been documented to have recurring issues of illicit discharges, complaints, ongoing instances of poor housekeeping, and/or low water quality conditions of receiving waters.
2. Metro create ¼ mile grid system to cover each “*Pollution Hot Zone*” and GIS-based database to track inspections/screenings of each ¼ mile grid.
3. Metro perform property-based screenings (i.e. commercial/industrial business parking lots, dumpsters, etc.) of at least 3 properties within each ¼ mile grid once per every 18 months (i.e. All “*Pollution Hot Zone*” ¼ mile grids will be screened twice per 5 year permit cycle).
4. Metro document all findings within the GIS-based database and follow-up with issues in the field with proper enforcement and/or public education efforts, so that pollutant exposure issues found during the screening process are addressed.
5. If dry weather discharges are observed during the property screening process, the appropriate field tests will be conducted to determine if the discharge is a prohibited non-stormwater discharge.



B. Industrial/High Risk Commercial monitoring (Existing MS4 Permit Section 3.2.6.7 – Page 23)

Metro has found the requirement to inspect municipal landfills, hazardous waste treatment, storage and disposal facilities, and SARA Title III, Section 313 facilities to be an ineffective prioritization system. This MS4 permit requirement dates back to the original 40 CFR Part 122, which was intended for the initial Phase 1 MS4 permit applications. Since this time, Tennessee has implemented an effective TMSP program that requires most facilities, with exposed industrial processes to obtain permit coverage. In lieu of focusing inspections on facilities described in the original 40 CFR, Metro proposes to adapt with the changing regulations and focus inspections on industrial facilities that have the greatest potential for exposure of industrial process to stormwater runoff. As such, metro proposes to change this program element to the following criteria:

1. Metro to create/maintain a GIS-based database of active industrial facilities that have received a TMSP for industrial stormwater runoff and facilities that have received a RMCP for stormwater runoff and discharges of treated process water. Additionally, Metro would inventory high-risk commercial facilities that fall outside of the industrial permitting mechanisms, such as landscaping companies, etc.
2. Within the first 6 months, Metro should perform an aerial photography review of industrially zoned properties within Metro to identify potential stormwater exposure sites that do not have proper TMSP or RMCP coverage. Based on the aerial photography survey, Metro would perform field inspections on sites identified with potential exposure issues. Metro will provide TDEC with a list of facilities that were identified to have exposed industrial processes, but lack TMSP or RMCP coverage.
3. Metro would create a priority inspection list of industrial facility types for which past complaints have shown them to be most likely to have stormwater runoff issues (i.e. salvage lots, ready mix concrete plants, fleet maintenance, high-risk commercial sites, etc.) and submit the industrial priority inspection list to TDEC within the first 6 months
4. Metro would proceed with inspecting all priority inspection sites within a 3 year period. At the conclusion of the 3rd year, Metro will perform an additional review of the TDEC permit database to determine if any new industrial sites need to be added to the Metro priority inspection list. Metro would report any updates to the priority inspection list within the Year 4 Annual Report.
5. In years 4 and 5 of the permit, Metro would inspect any new facilities added to the priority inspection list and would re-inspect those facilities in which issues were found during the original inspection to determine if the appropriate corrective actions were completed



C. Stormwater Monitoring Program (Existing MS4 Permit Section 3.3 – Page 24)

As described in Section 2, Metro has identified two existing MS4 permit monitoring requirements that have proven somewhat ineffective in producing valuable data and two existing monitoring requirements that have produced data of limited value and have caused an inefficient allocation of staff resources. Rather than proposing specific changes to those sections, Metro wishes to proceed on the same course as the newly issued Phase II MS4 permit, which allows the permittee to submit an alternative customized monitoring plan to TDEC within the first 6 months of permit reissuance. Metro requests that there be specific language that allows deviation from the original Phase 1 MS4 permit application (40 CFR Part 122), which specifically required wet weather land use outfall sampling.

Metro's customized monitoring plan will be designed to accomplish the following goals:

- Source tracking and pinpointing chronic sources of pollution to Davidson County's waterways;
- Evaluating specific SWMP pollution prevention programs and/or structures to determine effectiveness in reducing pollutant loadings to the MS4 and receiving waterbodies; and
- Assessing water quality conditions of Davidson County waterways to determine if they are meeting the water quality criteria for their designated uses – particularly as it relates to TMDL and/or 303(d) list related considerations.

Metro would initiate the monitoring program once TDEC confirms approval of the customized monitoring plan and would report all results in subsequent annual reports.

