Tennessee Department of Environment and Conservation
Division of Water Resources
William R. Snodgrass Tennessee Tower,
312 Rosa L. Parks Avenue, 11th Floor, Nashville, Tennessee 37243
1-888-891-8332 (TDEC)

Phase II Small Municipal Separate Storm Sewer System (MS4) Annual Report

1. MS4 Information

Name of MS4: Shelby County		MS4 Permit Number: TNS075663
Contact Person: Chris Masin, PE		Email Address: chris.masin@shelbycountytn.gov
Telephone: (901) 222-7746		MS4 Program Web Address: www.shelbycountytn.gov/3478/stormwater
Mailing Address: 6463 Haley Road		
City: Memphis	State: TN	ZIP code: 38134

What is the current population of your MS4? 100.849

What is the reporting period for this annual report? July1 2019 to June 30 2020

2. Discharges to Waterbodies with Unavailable Parameters or Exceptional Tennessee Waters (Section 3.1)

A. Does your MS4 discharge into waters with unavailable parameters (previously referred to as impaired) for pathogens, nutrients, siltation or other parameters related to stormwater runoff from urbanized areas as listed on TN's most current 303(d) list and/or according to the on-line state GIS mapping tool (tdeconline.tn.gov/dwr/)? If yes, attach a list. ☒ Yes ☐ No

B. Are there established and approved TMDLs (http://www.tn.gov/environment/article/wr-ws-tennessees-total-maximum-daily-load-tmdl-program) with waste load allocations for MS4 discharges in your jurisdiction? If yes, attach a list. ☒ Yes ☐ No

C. Does your MS4 discharge to any Exceptional Tennessee Waters (ETWs - http://environment-online.tn.gov:8080/pls/enf_reports/f?p=9034:34304:4880790061142)? If yes, attach a list. ☒ Yes ☐ No

D. Are you implementing specific Best Management Practices (BMPs) to control pollutant discharges to waterbodies with unavailable parameters or ETWs? If yes, describe the specific practices: Public Education, Construction Inspection, Illicit Discharge Detection, Post-Construction BMP Inspection, and Municipal Good Housekeeping. Staff has received training in illicit discharge detection and Erosion Prevention and Sediment Control. They have been instructed to search for issues while preforming their normal duties, and to report any observed issues to the County Stormwater Engineer. ☒ Yes ☐ No

3. Public Education/Outreach and Involvement/Participation (Sections 4.2.1 and 4.2.2)

A. Have you developed a Public Information and Education plan (PIE)? ☒ Yes ☐ No

B. Is your public education program targeting specific pollutants and sources, such as Hot Spots? If yes, describe the specific pollutants and/or sources targeted by your public education program: Siltation, E. Coli, Nitrates and Phosphate ☒ Yes ☐ No

C. Do you have a webpage dedicated to your stormwater program? If yes, provide a link/URL: www.shelbycountytn.gov/3478/stormwater ☒ Yes ☐ No

D. Summarize how you advertise and publicize your public education, outreach, involvement and participation opportunities: Email, Flyers, and Newspaper https://www.shelbycountytn.gov/3478/Stormwater

E. Summarize the public education, outreach, involvement and participation activities you completed during this reporting period: Presentation of Educational Materials at booths and Presentation of Workshops for Clubs and HOA's. Students, local water quality professionals and contractors observed demonstration of erosion prevention products. Demonstration was conducted during the Tennessee Stormwater Conference held at the Shelby Farms Agricenter. Due to Covid-19 the Smart Yard Workshop was cancelled.

F. Summarize any specific successful outcome(s) (e.g., citizen involvement, pollutant reduction, water quality improvement, etc.) fully or partially attributable to your public education and participation program during this reporting period: Provided education to over 300 members of the public including stormwater professionals and students from local schools.

4. Illicit Discharge Detection and Elimination (Section 4.2.3)

A.	Have you developed and do you continue to update a storm sewer system map that shows the location of system outfalls where the municipal storm sewer system discharges into waters of the state or conveyances owned or operated by another MS4?	☒ Yes	☐ No
B.	If yes, does the map include inputs into the storm sewer collection system, such as the inlets, catch basins, drop structures or other defined contributing points to the sewershed of that outfall, and general direction of stormwater flow?	☒Yes	☐ No
C.	How many outfalls have you identified in your storm sewer system? Approx. 2,665		
D.	Do you have an ordinance, or other regulatory mechanism, that prohibits non-stormwater discharges into your storm sewer system?	☒Yes	☐ No
E.	Have you implemented a plan to detect, identify and eliminate non-stormwater discharges, including illegal disposal, throughout the storm sewer system? If yes, provide a summary: Provide multiple venues for reporting problems, and then investigating them.	☒ Yes	☐ No
F.	How many illicit discharge related complaints were received this reporting period? 24		
G.	How many illicit discharge investigations were performed this reporting period? 24		
H.	Of those investigations performed, how many resulted in valid illicit discharges that were addressed and/or eliminated? 19		

5. Construction Site Stormwater Runoff Pollutant Control (Section 4.2.4)

A.	Do you have an ordinance or other regulatory mechanism requiring:		
	Construction site operators to implement appropriate erosion prevention and sediment control BMPs consistent with those described in the TDEC EPSC Handbook?	☒ Yes	☐ No
	Construction site operators to control wastes such as discarded building materials, concrete truck washout, chemicals, litter, and sanitary waste?	☒ Yes	☐ No
	Design storm and special conditions for unavailable parameters waters or Exceptional Tennessee Waters consistent with those of the current Tennessee Construction General Permit (TNR100000)?	☒ Yes	☐ No
B.	Do you have specific procedures for construction site plan (including erosion prevention and sediment BMPs) review and approval?	☒ Yes	☐ No
C.	Do you have sanctions to enforce compliance?	☒ Yes	☐ No

D. Do you hold pre-construction meetings with operators of priority construction activities and inspect priority construction sites at least monthly? ☒ Yes ☐ No

E. How many construction sites disturbing at least one acre or greater were active in your jurisdiction this reporting period? 22, Due to the Covid-19 pandemic inspections were not conducted between March 202 and July 2020.

F. How many active priority and non-priority construction sites were inspected this reporting period? 18

G. How many construction related complaints were received this reporting period? 6

6. Permanent Stormwater Management at New Development and Redevelopment Projects (Section 4.2.5)

A. Do you have a regulatory mechanism (e.g. ordinance) requiring permanent stormwater pollutant removal for development and redevelopment projects? If no, have you submitted an Implementation Plan to the Division? ☒ Yes ☐ No / ☒ Yes ☐ No

B. Do you have an ordinance or other regulatory mechanism requiring:

Site plan review and approval of new and re-development projects? ☒ Yes ☒ No

A process to ensure stormwater control measures (SCMs) are properly installed and maintained? ☒ Yes ☐ No

Permanent water quality riparian buffers? If yes, specify requirements: See attached Memphis/Shelby County Stormwater Management Manual, Section 5.16 "Buffers" ☒ Yes ☐ No

C. What is the threshold for development and redevelopment project plans plan review (e.g., all projects, projects disturbing greater than one acre, etc.)? All projects submitted to Land Use Control Board and individual home builders submitted to Code Enforcement on sites for (4) acres or larger.

D. How many development and redevelopment project plans were reviewed for this reporting period? 22

E. How many development and redevelopment project plans were approved? 22

F. How many permanent stormwater related complaints were received this reporting period? 0

G. How many enforcement actions were taken to address improper installation or maintenance? 0

H. Do you have a system to inventory and track the status of all public and private SCMs installed on development and redevelopment projects? ☒ Yes ☐ No

I. Does your program include an off-site stormwater mitigation or payment into public stormwater fund? If yes, specify. _____ ☐ Yes ☒ No

7. Stormwater Management for Municipal Operations (Section 4.2.6)

A. As applicable, have stormwater related operation and maintenance plans that include information related to maintenance activities, schedules and the proper disposal of waste from structural and non-structural stormwater controls been developed and implemented at the following municipal operations:

Streets, roads, highways? ☒ Yes ☐ No

Municipal parking lots? ☒ Yes ☐ No

Maintenance and storage yards? ☒ Yes ☐ No

Fleet or maintenance shops with outdoor storage areas? ☒ Yes ☐ No

Salt and storage locations? ☒ Yes ☐ No

Snow disposal areas? ☒ Yes ☐ No

Waste disposal, storage, and transfer stations? ☒ Yes ☐ No

B. Do you have a training program for employees responsible for municipal operations at facilities within the jurisdiction that handle, generate and/or store materials which constitute a potential pollutant of concern for MS4s? ☒ Yes ☐ No

If yes, are new applicable employees trained within six months, and existing applicable employees trained and/or retrained within the permit term? ☒ Yes ☐ No

8. Reviewing and Updating Stormwater Management Programs (Section 4.4)

A. Describe any revisions to your program implemented during this reporting period including but not limited to:

Modifications or replacement of an ineffective activity/control measure. 0

Changes to the program as required by the division to satisfy permit requirements. 0

Information (e.g. additional acreage, outfalls, BMPs) on newly annexed areas and any resulting updates to your program. 0

B. In preparation for this annual report, have you performed an overall assessment of your stormwater management program effectiveness? If yes, summarize the assessment results, and any modifications and improvements scheduled to be implemented in the next reporting period. Improvements have been made in the way investigations are entered, tracked and stored. Staff has received training in illicit discharge detection and Erosion Prevention and Sediment Control. ☒ Yes ☐ No

9. Enforcement Response Plan (Section 4.5)

A. Have you implemented an enforcement response plan that includes progressive enforcement actions to address non-compliance, and allows the maximum penalties specified in TCA 68-221-1106? If no, explain. _____ ☒ Yes ☐ No

B. As applicable, identify which of the following types of enforcement actions (or their equivalent) were used during this reporting period; indicate the number of actions, the minimum measure (e.g., construction, illicit discharge, permanent stormwater management), and note those for which you do not have authority:

Action	Construction	Permanent Stormwater	Illicit Discharge	In Your ERP?	
Verbal warnings	#22	#0	#0	☒ Yes	☐ No
Written notices	#0	#0	#0	☒ Yes	☐ No
Citations with administrative penalties	#0	#0	#0	☒ Yes	☐ No
Stop work orders	#0	#0	#0	☒ Yes	☐ No
Withholding of plan approvals or other authorizations	#0	#0	#0	☒ Yes	☐ No
Additional Measures	#0	#0	#0	Describe: _____	

C. Do you track instances of non-compliance and related enforcement documentation? ☒ Yes ☐ No

D. What were the most common types of non-compliance instances documented during this reporting period? silt fence needs maintenance

10. Monitoring, Recordkeeping and reporting (Section 5)

A. Summarize any analytical monitoring activities (e.g., planning, collection, evaluation of results) performed during this reporting period. Completed 10 cycles of analytical testing including E. Coli, TSS, Phosphate and Nitrate.

B. Summarize any non-analytical monitoring activities (e.g., planning, collection, evaluation of results) performed during this reporting period. Solicited contractors to perform stream monitoring. University of Memphis finalizing a contract for $447,917.00 contract to perform visual assessment of 300 miles of streams in the unincorporated county of Shelby.

C. If applicable, are monitoring records for activities performed during this reporting period submitted with this report. ☐ Yes ☒ No

11. Certification

This report must be signed by a ranking elected official or by a duly authorized representative of that person. See signatory requirements in sub-part 6.7.2 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."

Darren Sanders,
County Engineer
Printed Name and Title

Darren J. Sanders
Signature

9/30/2020
Date

Annual reports must be submitted by September 30 of each calendar year (Section 5.4) to the appropriate Environmental Field Office (EFO), identified in the table below:

EFO	Street Address	City	Zip Code	Telephone
Chattanooga	1301 Riverfront Pkwy, Suite 206	Chattanooga	37402	(423) 634-5745
Columbia	1421 Hampshire Pike	Columbia	38401	(931) 380-3371
Cookeville	1221 South Willow Ave.	Cookeville	38506	(931) 520-6688
Jackson	1625 Hollywood Drive	Jackson	38305	(731) 512-1300
Johnson City	2305 Silverdale Road	Johnson City	37601	(423) 854-5400
Knoxville	3711 Middlebrook Pike	Knoxville	37921	(865) 594-6035
Memphis	8383 Wolf Lake Drive	Bartlett	38133	(901) 371-3000
Nashville	711 R S Gass Boulevard	Nashville	37216	(615) 687-7000

Table 2.A.

Waters with Unavailable Parameters

ID	WATER_NAME
TN08010100001_1000	Mississippi River
TN08010100001_2000	Mississippi River
TN08010209001_0100	Todd Creek
TN08010209001_1000	Loosahatchie River
TN08010209002_0100	Unnamed Trib to Loosahatchie River
TN08010209002_0200	Rocky Branch
TN08010209002_0400	Oliver Creek
TN08010209002_0500	Buckhead Creek
TN08010209002_0700	Howard Creek
TN08010209002_1000	Loosahatchie River
TN08010209002_2000	Loosahatchie River
TN08010209004_1000	Loosahatchie River
TN08010209013_0300	East Beaver Creek
TN08010209016_0100	West Beaver Creek
TN08010209016_0200	Middle Beaver Creek
TN08010209016_1000	Beaver Creek
TN08010209021_0100	Jakes Creek
TN08010209021_0110	Bear Creek
TN08010209021_0200	Royster Creek
TN08010209021_0300	North Fork Creek
TN08010209021_0600	Crooked Creek Canal
TN08010209021_0610	Unnamed Trib to Crooked Creek Canal
TN08010209021_1000	Big Creek
TN08010209021_2000	Big Creek
TN08010209021_3000	Big Creek
TN08010210001_0100	Harrington Creek
TN08010210002_2000	Wolf River
TN08010210003_0100	Johnson Creek
TN08010210022_0100	Unnamed Trib to Grays Creek
TN08010210022_0300	Marys Creek
TN08010210022_0350	Marys Creek
TN08010210022_1000	Grays Creek
TN08010210023_0200	Unnamed Trib to Fletcher Creek
TN08010210023_1000	Fletcher Creek
TN0801021100720_0300	Unnamed Trib to Nonconnah Creek
TN0801021100720_0400	Unnamed Trib to Nonconnah Creek
TN0801021100720_0500	Unnamed Trib to Nonconnah Creek
TN0801021100720_2000	Nonconnah Creek
TN0801021100720_3000	Nonconnah Creek

Table 2.B.

Waterbodies where a TMDL has been approved

1. Mississippi River - Total Maximum Daily Load for Chlordane, Dioxins, and Polychlorinated Biphenyls (PCBs) in the Mississippi River Watershed in Dyer, Lake, Lauderdale, Tiptom and Shelby Counties, Approved 07/25/2008

2. Loosahatchie River - Total Maximum Daily Loads for Polychlorinated Biphenyls (PCBs) in the Loosahatchie River Watershed in Shelby County. Approved 10/15/2008

3. Nonconnah Creek - Total Maximum Daily Load for Arsenic in the Nonconnah Creek Watershed (HUC 08010211) in Shelby and Fayette Counties. Approved 06/20/2014

4. Wolf River - Total Daily Maximum Load for Chlordane, and Polychlorinated Biphenyls (PCBs) in the Wolf River Watershed in Shelby County. Approved 12/13/2007

5. Wolf River - Total Daily Maximum Load for Dioxins in the Wolf River Watershed in Shelby County. Approved 12/13/2007

6. Wolf River - Total Daily Maximum Load for Metals in the Wolf River Watershed in Shelby County. Approved 12/13/2007

7. Wolf River - Total Daily Maximum Load for E. coli in the Wolf River Watershed in Fayette, Hardeman, and Shelby Counties. Approved 11/28/2017

Table 2.C.

Exceptional TN Waters (ETWs)

HUC	Watershed Name	Waterbody	Basis for Inclusion	From Lat	To Lat	From Long	To Long
8010100	Mississippi	Barnishee Bayou	Meeman Shelby Forest State Natural Area	35.3380	35.3788	-90.0740	-90.0268
8010100	Mississippi	Big Cypress Slough	Meeman Shelby Forest State Natural Area	35.3769	35.3398	-90.0650	-90.0693
8010100	Mississippi	Brinkley Bayou	Shelby Forest State Natural Area	35.3146	35.3375	-90.0825	-90.0746
8010100	Mississippi	Dry Bayou	Meeman Shelby Forest State Natural Area.	35.3199	35.3035	-90.0905	-90.0787
8010100	Mississippi	Eagle Lake	Meeman Shelby Forest State Natural Area.	35.2976	35.2955	-90.0820	-90.0786
8010100	Mississippi	Grassy Lake	Meeman Shelby Forest State Natural Area.	35.3159	35.3196	-90.0805	-90.0767
8010100	Mississippi	Gum Slough	Meeman Shelby Forest State Natural Area.	35.3619	35.3530	-90.0664	-90.0675
8010100	Mississippi	Little Cypress Slough	Meeman Shelby Forest State Natural Area.	35.3599	35.3511	-90.0735	-90.0763
8010100	Mississippi	Marie Lake	Meeman-Shelby Forest State Park.	35.3296	35.3320	-90.0394	-90.0362
8010100	Mississippi	Piersol Lake	Meeman-Shelby Forest State Park.	35.3399	35.3392	-90.0354	-90.0419
8010100	Mississippi	Poplar Tree Lake	Meeman-Shelby Forest State Park.	35.4660	35.4998	-89.9155	-89.9191
8010210	Wolf	Wolf River	State threatened Blue Sucker	35.1836	35.1621	-90.0569	-89.8874

5.15 Dikes and Floodwalls

The design of dikes and floodwalls for flood protection purposes should consider several factors, including alternate compensating storage, possible surcharge in flood heights, overtopping, and failure.

Dikes are generally earth embankments that can extend around sections of a building. Fill material used in their construction should be dredged from the floodplain to aid in providing compensating storage. The fill material shall be placed on cleared ground, compacted in layers, and protected from seepage. Buildings shall have a minimum setback from the base of the dike of 20 feet or twice the height of the embankment, whichever is greater.

Floodwalls are preferred for locations with limited space and can be constructed as cantilever I-type steel piles, cellular walls, buttress walls, or gravity walls. They shall be well founded with cutoffs installed to prevent seepage. Areas located behind a dike or floodwall should be drained by conduits installed with automatic flap gates to prevent backflow, or by manually operated valves that are closed during flooding, or by a combination of these methods.

5.16 Buffers

New development and significant redevelopment in or adjacent to the floodplain and floodway shall include buffers in the proposed plans. The buffer along waterways will be an area where the surface is left in a natural state and is not disturbed by construction activity.

5.16.1 Buffer Areas Defined

The buffer shall be defined as follows:

1. Within 250 feet of the top of the bank on streams having a drainage area greater than 100,000 acres.

2. Within 200 feet of the top of bank on streams having a drainage area less than 100,000 acres but greater than 20,000 acres.

3. Within 100 feet of the top of bank on streams having a drainage area less than 20,000 acres but greater than 5,000 acres.

4. Within 50 feet of the top of bank on streams having a drainage area less than 5,000 acres but greater than 100 acres.

5. At a minimum, a waterway buffer shall be applied to all major waterways serving more than 100 acres of tributary area. The minimum buffer width shall be 25 feet extending from the top of bank of streams and/or 25 feet from the edge of the normal pool for impoundments, ponds, lakes, and wetlands.

Reductions, exemptions or modifications to this requirement may be approved subject to proper technical justification and approval by the county or city engineer. A special uses permit is required for dredging or earth extraction within the floodway; and clearing of timber or grading within the floodway is limited within these defined buffers.

No new construction of any building or structure shall be permitted in the buffer except as may be permitted by the city or county engineer and supported with adequate technical and environmental analysis and appropriate mitigation measures. For example, mitigation strategies may include:

1. Publicly dedicated greenways

2. Restoration of impacted waterways with bioengineering or green approaches

3. New and innovative technologies are applied to address water quantity or quality

4. Modification to density, trees or other development requirements acceptable to the city or county engineering and planning departments

5.16.2 Performance Criteria

The following additional performance criteria shall apply:

1. To maintain the functional value of the buffer area, indigenous vegetation may be removed only to provide for reasonable sight lines, access paths, general woodlot management, and storm water quality BMPs, as follows:

    a. Tree pruning or removal shall be minimized, but permitted as necessary to provide for sight lines and vistas, provided that where removed trees shall be replaced with other vegetation that is equally effective in retarding runoff, preventing erosion, and filtering nonpoint source pollution from runoff.

b. Any path, for public or private use, shall be constructed and surfaced so as to effectively control erosion and minimize increases in excess storm water runoff volume and velocity.

c. Dead, diseased, or dying trees or shrubbery may be removed at the discretion of the landowner.

2. When the application of the buffer area would result in the extreme loss of buildable area, as defined by a 50% or greater loss on a lot or parcel, modifications to the width of the buffer area may be allowed by the appeals process.