



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: Knox County Stormwater Management Program		MS4 Permit Number: TNS075582
Contact Person: Natalie Landry		Email Address: natalielandry@knoxcounty.org
Telephone: (865) 215-5540		MS4 Program Web Address: knoxcounty.org/stormwater
Mailing Address: 205 W Baxter Ave		
City: Knoxville	State: TN	ZIP code: 37917

What is the current population of your MS4? 266,033 (MPC, 2015)

What is the reporting period for this annual report? July 1 2018 to June 30 2019

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-wws-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: The County considers work within the watershed of ETWs to be priority construction activities. The additional requirements outlined in section 5.4.1 of the TNCGP are applied within the entire watershed. 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

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- 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: The Storm Drain Style-Off initiated a second art competition in 2018. This initiative educates the public about stormwater infrastructure & keeping green waste, oils / auto fluids & trash out of the storm drain system. The Strong Streams promotional materials and programs encouraged & promoted planting & preserving residential streamside buffers to address excess nutrient / fertilizer (nitrogen / phosphorous) inputs into local waterways from private land uses. The Environmental Stewardship Program targets sediment and nutrients. The children's books target sediment, pathogens, and microplastics. Yes No
- C. Do you have a webpage dedicated to your stormwater program? If yes, provide a link/URL: www.knoxcounty.org/Stormwater Yes No
- D. Summarize how you advertise and publicize your public education, outreach, involvement and participation opportunities: We have a website that is routinely updated, including an "Upcoming Events" page. The social media accounts, branded as Strong Streams, include Facebook, Twitter, Instagram and YouTube, are scheduled weekly based on events, success stories, green-friendly practices installed through the Environmental Stewardship Program and education campaigns. A quarterly newsletter promoting upcoming workshops & educational opportunities and other stormwater news is sent via email to 500+ people and posted on the website and Facebook page. Flyers are posted at local coffee shops, grocery stores and libraries. Free and paid listings for events and campaigns are put in local newspapers and in Facebook ads. Staff seek out local journalists to promote events and issues important to residents.
- E. Summarize the public education, outreach, involvement and participation activities you completed during this reporting period: Knox County Stormwater has conducted water quality lessons for children in several schools and afterschool programs throughout the county through the use of the Enviroscape model and an augmented reality sandbox that shows how water reacts to topographic changes. Staff hosted both the 2nd annual Cheers to Clean Water: Tennessee River Runoff 5k and the 3rd annual Cheers to Clean Water: Tennessee River Paddle-Off. Both of these events are in partnership with UTK, City of Knoxville Solide Waste, the Water Quality Forum, and the Tennessee Stormwater Association. We published quarterly newsletters throughout this fiscal year. We have participated in both WaterFest and EarthFest, doing water quality lessons and activities at each. We celebrated the winners of the 2018 Storm Drain Style-Off during this permit cycle which was a partnership with Knox County Libraries, educating the public through artwork on 9 storm drains throughout the county. Knox County Stormwater was a key partner in the coordination of the 2019 East Tennessee Development Symposium, geared towards land developmers, engineers, landscape architects and consultants, real estate professionals, land use planners, policy-makers, and local and state government. Staff cosponsored the Beaver Creek Flotilla with community partners. It was an event to get the community on the water using canoes, kayaks and paddleboards for a 2.2 miles stretch of the creek. Over 100 people enjoyed the paddle and Knox County stormwater had a display to spread awareness of water quality issues. Staff coordinated 2 screenings of the new film "Hidden Rivers", that focuses on biodiversity in regional streams. AmeriCorps members for Knox Co Stormwater wrote 3 educational children's books that focus on the three main pollutants in the TN River; Sediment, Pathogens, and Microplastics.

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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: Citizen involvement in our programs, events & activities has resulted in the following reportable metrics in Knox County in FY19:

- Adopt-a-Stream Cleanup Events: 9
- Trash Removed (pounds): 1,155
- Invasive Species Removed (pounds): 2,700
- Rain Gardens Installed: 1
- Pearmeable Paver Projects completed: 2
- Grass Swales replacing eroding ditches: 19
- Bioswales replacing eroding ditches: 2
- Students Educated: 1,508 (education lessons 808, Waterfest 700)
- Children's Books Written (AmeriCorps): 3
- People educated/Awareness Raised: 700

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? 4595 outfalls
- 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: Knox County is currently using many methods to detect, identify and eliminate illicit discharges. One method is through the dry weather screening program, which identifies hot spot areas in the County by utilizing land use maps, zoning maps, complaint tracking and SPAP and TDEC permits. We also issue Special Pollutant Abatement Permits (SPAPs) to "hot spot" businesses, which include automotive and restaurant related businesses as well as businesses with large parking areas. Complaint and spill tracking is also used to determine where there are issues and helps us determine what kind of education and outreach needs to be implemented and where that would be most effective. All of these tools are administered through our robust GIS Applications and maintained in our E-Codes database. We also apply for and administer watershed grants so we can help citizens repair failing septic systems on their properties. We enforce our illicit discharge ordinance through our enforcement response plan, which allows us to write Notices of Violation and Civil Penalties up to \$5000 per day/per violation. Yes No
- F. How many illicit discharge related complaints were received this reporting period? 118
- G. How many illicit discharge investigations were performed this reporting period? 118

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H. Of those investigations performed, how many resulted in valid illicit discharges that were addressed and/or eliminated? 114 - four were not found and/or valid

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? 255
- F. How many active priority and non-priority construction sites were inspected this reporting period? 255
- G. How many construction related complaints were received this reporting period? 79

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: 25 foot minimum and 50 foot average buffer width required to be shown on a recorded plat. 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 that disturb over an acre or projects that add 10,000 square feet or more of impervious area
- D. How many development and redevelopment project plans were reviewed for this reporting period? 80
- E. How many development and redevelopment project plans were approved? 71
- F. How many permanent stormwater related complaints were received this reporting period? 14
- G. How many enforcement actions were taken to address improper installation or maintenance? 2

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- 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. None for this reporting period.
- Changes to the program as required by the division to satisfy permit requirements. N/A
- Information (e.g. additional acreage, outfalls, BMPs) on newly annexed areas and any resulting updates to your program. N/A
- 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. Yes, an assessment was conducted by the staff. The results showed a need to revise the PIE plan. This finding is based on the reorganization of staff responsibilities and an implementation of the Strong Streams Program as a framework for the education/outreach and public participation minimum control measures. A revised PIE Plan was completed in April 2019. 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:

<u>Action</u>	<u>Construction</u>	<u>Permanent Stormwater</u>	<u>Illicit Discharge</u>	<u>In Your ERP?</u>	
Verbal warnings	# <u>7</u>	# <u> </u>	# <u>6</u>	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Written notices	# <u>44</u>	# <u>2</u>	# <u>22</u>	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Citations with administrative penalties	# <u>41</u>	# <u> </u>	# <u>0</u>	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Stop work orders	# <u>11</u>	# <u> </u>	# <u> </u>	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Withholding of plan approvals or other authorizations	# <u>140</u>	# <u> </u>	# <u> </u>	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Additional Measures	# <u> </u>	# <u> </u>	# <u> </u>	Describe: <u> </u>	

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?
Construction:

1. Failure to temporarily stabilize non-vegetated areas within 14-days and/or steep slopes within 7 days since location was actively worked. 2. Sediment controls are failing to retain sediment on site and sediment is entering waters of the state. 3. Basin controls (inlets, outlets, anti-seep collars, skimmers/standpipes, ripraps apron, diversions, weirs, spillways, and racks) are not in working order.

Illicit Discharges:

1. Failing or leaking sewer and septic systems and grey water discharges 2. Dumping of oils/solvents/chemicals in storm sewer system or stream (Residential), and 3. Dumping of yard waste in drainageway or storm sewer system and Pool Discharge - tied

Permanent Construction:

1. Water Vaults not being inspected and maintained, 2. Catch basin inserts not being inspected and maintained and 3. Headwalls separated from pipes.

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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. Thirteen sampling locations, representing nine different streams, were monitored for physical and chemical parameters during this period. Samples were collected at each location that had flowing water analyzed for E. coli MPN. The samples were collected over a period of 30 days to comply with the "5 samples-in-30 day" protocols. A geometric mean was calculated for each location where 5 samples were successfully collected (flowing stream). The results of this monitoring effort are attached.
- B. Summarize any non-analytical monitoring activities (e.g., planning, collection, evaluation of results) performed during this reporting period. Knox County is conducting surveys of all streams with Unavailable Parameters requiring non-analytical surveys. The work includes stream surveys that document impacted buffers, severe erosion and trash & debris using the Center for Watershed Protection Unified Stream Assessment method. To date, a total of 105 stream miles have been walked and surveyed using ESRI Collector.
- 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."

Glenn Jacobs, Mayor
Printed Name and Title

[Signature]
Signature

9/16/19
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