



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: Chris Granju		Email Address: chris.granju@knoxcounty.org
Telephone: (865) 215-5840		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 2017 to June 30 2018

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: 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
- 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. 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. 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 is teaching stormwater lessons, including the EnviroScape model, to students and for this fiscal year we reached approximately 1,737 elementary, middle & high schools students. Staff hosted our custom "Your Stream is Tougher with a Buffer" and our new "Water You Doing To Protect Your Streams?" booth displays (including related brochures on buffers, illicit discharges + giveaways) to the public at festivals and events (EarthFest, Rain Garden Workshops, Strong Streams Buffer workshop). With our partners, we've participated in rain barrel workshops & a rain barrel truckload sale. We published quarterly newsletters. Through a grant from the TN Arts Council and local sponsors, we held three workshops to create ceramic tiles for an original mural that was constructed in June. The "Storm Drain Style-Off" design contest was held and 9 local artists were selected to paint storm drains at libraries in August. A celebration for the participants of the Environmental Stewardship Program was held in March and promotion of the green-friendly solutions to erosion and flooding problems that have been installed across the county were presented. Ten stream clean-ups through our Adopt-A-Stream program were conducted. Various brochures were distributed (total = 2,222) at 7 Knox County libraries throughout the reporting period. Knox County invested in radio spots on WUOT in a campaign to educate listeners about importance of vegetated streamside buffers. We purchased 25 spots during the weeks of 9/9, 9/16, 9/30 and 10/7/17 and they aired 2 spots / day, 6 spots / week.
- 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 FY18:

Adopt-a-Stream Cleanup Events: 10
 Trash Removed (pounds): 4,665
 Invasive Species Removed (pounds): 4,400
 Rain Gardens Installed: 2
 Pearmeable Paver Projects completed: 4
 Grass Swales replacing eroding ditches: 17
 Bioswales replacing eroding ditches: 1
 Constructed wetland installed: 1
 Students Educated: 1,737
 Educational brochures distributed: 2,945
 Volunteers Engaged: 121
 SWAT Educational Videos Created: 5
 People educated/Awareness Raised: 4,099

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? 119
- G. How many illicit discharge investigations were performed this reporting period? 119
- H. Of those investigations performed, how many resulted in valid illicit discharges that were addressed and/or eliminated? 114

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

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- 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? 226
- F. How many active priority and non-priority construction sites were inspected this reporting period? 226
- G. How many construction related complaints were received this reporting period? 106

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? 83
- E. How many development and redevelopment project plans were approved? 72
- F. How many permanent stormwater related complaints were received this reporting period? 19
- G. How many enforcement actions were taken to address improper installation or maintenance? 23
- 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

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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. Knox County notified TDEC of the suspension of the Adopt-A-Watershed Program in a memo to Valerie McFall on 11/28/17. The AAW was part of the PIE Plan and BMP 1A. The suspension was due to the retirement of Knox County's only certified AAW program coordinator. Knox County continues to maintain a presence in the schools by responding to requests and actively pursuing partnerships with educators to fulfill our commitment to watershed and nonpoint source education of students in the county.

Changes to the program as required by the division to satisfy permit requirements. As outlined in the Compliance Review Meeting Summary, dated 2/6/18, Knox County is in the process of implementing the Corrective Action Plan, conducting an internal audit for an evaluation of the construction inspections and implementation of the ERP, devising a workable process for lot level inspection and improve communication between the site inspectors and lot inspectors.

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. 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. 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>25</u>	# _____	# <u>0</u>	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Written notices	# <u>24</u>	# <u>2</u>	# <u>29</u>	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Citations with administrative penalties	# <u>40</u>	# _____	# <u>1</u>	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Stop work orders	# <u>1</u>	# _____	# _____	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Withholding of plan approvals or other authorizations	# <u>0</u>	# _____	# _____	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Additional Measures	# _____	# _____	# _____	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?
Construction:

_____ 1. Temporary sediment controls not properly installed, functional and/or maintained, 2. Necessary permits have not been obtained, 3. Sediment controls are failing to retain sediment on site and 4. Failure to control the discharge of muddy water.

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.

Permanent Construction:

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

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. Twelve 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-in-30 protocols. A geometric mean was calculated for each location where 5 samples were successfully collected (flowing stream). The results of this monitoring effort is attached.
- B. Summarize any non-analytical monitoring activities (e.g., planning, collection, evaluation of results) performed during this reporting period. Knox County is conducting non-analytical surveys of the Tier 1 Streams. The work includes stream surveys that document impacted buffers, severe erosion and trash & debris using the Center for Watershed Protection Unified Stream Assessment method. During the reporting period, 77 stream miles were walked and surveyed using ESRI Collector. Approximately, 36 miles of Tier 1 streams remain to be surveyed.
- 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."

 _____	 _____	 _____
Printed Name and Title	Signature	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

Knox County
Phase II MS4 Annual Report
List of Attachments

- Attachment 1 Knox County Waterbodies Impairment Status and ETW
- Attachment 2 TMDLS with Waste Load Allocations for Knox County MS4
- Attachment 3 HUC 8 TMDL Boundaries for Knox County
- Attachment 4 Stream Data for 2017

Knox County Waters from 2016 303(d) List that Receive Discharge from MS4
and Exceptional Tennessee Waters List

(Unavailable Parameters for pathogens, nutrients, siltation and other parameters related to stormwater runoff from urbanized areas)

Waterbody Name	Waterbody ID	Cause of Impairment (Unavailable Parameter)	Pollutant Source
TIER 1 STREAMS			
Grassy Creek	TN06010207011-0700	Loss of biological integrity due to siltation Escherichia coli	Discharges from MS4 area
High Bluff Branch	TN06010201066-0600	Escherichia coli	Discharges from MS4 area
Hines Branch	TN60610207011-0500	Habitat loss due to other anthropogenic substrate alterations Escherichia coli	Discharges from MS4 area
Knob Fork	TN06010207011-0600	Nitrate+Nitrite Loss of biological integrity due to siltation Habitat loss due to other anthropogenic substrate alterations Alteration in stream-side or littoral vegetative cover Escherichia coli	Discharges from MS4 area
Little Turkey Creek	TN06010201037-1000	Loss of biological integrity due to siltation	Discharges from MS4 area
Love Creek	TN06010104001_0100	Escherichia coli	Discharges from MS4 area
Meadow Creek	TN06010207011-0800	Escherichia coli	Discharges from MS4 area
Plumb Creek	TN06010207011-0900	Escherichia coli	Discharges from MS4 area
Sinking Creek	TN060102011330_1000	Escherichia coli	Discharges from MS4 area
Ten Mile Creek (formerly called Sinking Creek)	TN060102011334-0100	Habitat loss due to alteration in streamside or littoral vegetative cover Loss of biological integrity due to siltation Escherichia coli	Discharges from MS4 area
Turkey Creek	TN06010201340-1000	Loss of biological integrity due to siltation Escherichia coli	Discharges from MS4 area
Willow Fork	TN06010207011-0300	Alteration in stream-side or littoral vegetative cover Loss of biological integrity due to siltation Escherichia coli	Discharges from MS4 area

Waterbody Name	Start and End points	Designation	Basis for Inclusion
Exceptional Tennessee Waters (ETW)			
Brice Branch Unnamed Tributaries	Portion in House Mountain SNA	Exceptional Tennessee Water	House Mountain State Natural Area

Knox County Waters from 2016 303(d) List that Receive Discharge from MS4
and Exceptional Tennessee Waters List

(Unavailable Parameters for pathogens, nutrients, siltation and other parameters related to stormwater runoff from urbanized areas)

Clinch River	From Melton Hill Dam to Pellissippi Parkway	Exceptional Tennessee Water	State Scenic River (Class III Developed River Area)
Flat Creek Unnamed Tributary	Portion in House Mountain SNA	Exceptional Tennessee Water	House Mountain State Natural Area
French Broad River	From Holston River to Douglas Dam	Exceptional Tennessee Water	Endangered Species
Hogskin Branch	Portion in House Mountain SNA	Exceptional Tennessee Water	House Mountain State Natural Area
Holston River	From confluence with French Broad to McBee Island	Exceptional Tennessee Water	Endangered Species
Tuckahoe Creek	In its entirety	Exceptional Tennessee Water	State Scenic River (Class III Developed River Area)
Turkey Creek	From Fort Loudon Lake to Hwy 11	Exceptional Tennessee Water	Endangered Species

TIER 2 STREAMS

Waterbody Name	Waterbody ID	Cause of Impairment (Unavailable Parameter)	Pollutant Source
Beaver Creek (segment 1000)	TN06010207011-1000	Phosphate Nitrates Escherichia coli Low Dissolved Oxygen Loss of biological integrity due to siltation Physical Substrate Habitat Alterations	<u>Segment 1000</u> Major Municipal Point Source Pasture Grazing Discharges from MS4 Area
Beaver Creek (segments 2000 and 3000)	TN06010207011-2000	Escherichia coli Loss of biological integrity due to siltation Physical Substrate Habitat Alterations	<u>Segments 2000 and 3000</u> Pasture Grazing Discharges from MS4 Area
Bullrun Creek	TN06010207014-1000	Escherichia coli Loss of biological integrity due to siltation Physical Substrate Habitat Alterations	Discharges from MS4 Area Pasture Grazing Channelization
Bullrun Creek	TN06010207014-2000	Escherichia coli	Discharges from MS4 Area Pasture Grazing
Casteel Branch	TN06010201066-0100	Loss of biological integrity due to siltation	Pasture Grazing Discharges from MS4 area
Fourth Creek (in vicinity of Westland Drive)	TN06010201697-1000	Physical Substrate Habitat Alterations Escherichia coli	Discharges from MS4 area (multiple MS4s) Channelization
Goose Creek	TN06010201723_1000	Loss of biological integrity due to siltation Other Anthropogenic Habitat Alterations Escherichia coli PCBs	Discharges from MS4 area (multiple MS4s) Collection System Failure RCRA Hazardous Waste

Knox County Waters from 2016 303(d) List that Receive Discharge from MS4
and Exceptional Tennessee Waters List

(Unavailable Parameters for pathogens, nutrients, siltation and other parameters related to stormwater runoff from urbanized areas)

Grable Branch	TN06010207004-0100	Oil & Grease Loss of biological integrity due to siltation Physical Substrate Habitat Alterations	Minor Industrial Point Source Channelization Industrial Permitted Runoff Discharges from MS4 area
Grandview Branch	TN06010201066-0400	Escherichia coli	Grazing in Riparian or Shoreline Zones
Love Creek	TN06010104001-0100	Nitrate + Nitrite Loss of biological integrity due to siltation Other Anthropogenic Habitat Alterations Escherichia coli	Discharges from MS4 area (multiple MS4s)
Swanpond Creek	TN06010104001-1400	Loss of biological integrity due to siltation Alteration in stream-side or littoral vegetative cover Escherichia coli	Channelization Discharges from MS4 Area
Third Creek	TN06010201067_1000	Nitrate + Nitrite Escherichia coli Loss of biological integrity due to siltation Physical Substrate Habitat Alterations Escherichia coli	Discharges from MS4 area (multiple MS4s)
Whites Creek	TN06010201080-0100	Other Anthropogenic Habitat Alterations Escherichia coli	Discharges from MS4 area Streambank Modification
TIER 3 STREAMS			
Waterbody Name	Waterbody ID	Cause of Impairment (Unavailable Parameter)	Pollutant Source
Flat Creek (segment 1000)	TN06010104019-1000	Phosphorous Escherichia coli	Pasture Grazing Municipal Point Source Collection System Failures
Gun Hollow Branch	TN06010201066-1200	Escherichia coli	Pasture Grazing
Little Flat Creek	TN06010104019-0100	Escherichia coli	Animal Feeding Operations (NPS)
Roddy Branch	TN06010201026-0100	Alteration in stream-side or littoral vegetative cover Physical Substrate Habitat Alteration, Loss of biological integrity due to siltation Escherichia coli	Pasture Grazing Channelization
Roseberry Creek	TN06010104001-0500	Escherichia coli	Pasture Grazing Septic Tanks
Stock Creek (Segments 1000 and 2000)	TN06010201066-1000 TN06010201066-2000	Escherichia coli	Pasture Grazing

Knox County Waters from 2016 303(d) List that Receive Discharge from MS4
and Exceptional Tennessee Waters List

(Unavailable Parameters for pathogens, nutrients, siltation and other parameters related to stormwater runoff from urbanized areas)

Tier 1 includes those streams where discharges from the County's public stormwater conveyance system (i.e., the MS4) are considered as the sole source of pollutant(s). Tier 1 streams are of primary focus in the County's water quality program, therefore permit compliance activities target the impairments in these waterbodies. The County's stormwater management program includes activities that target the pollutant(s) causing the impairment(s).

Tier 2 includes those streams where discharges from the County's MS4 are one of several sources of pollutant(s). Tier 2 streams are also a strong focus of the County's water quality program; therefore permit compliance activities target the impairments in these waterbodies. However, water quality improvements in these waterbodies likely cannot be achieved by the County's efforts alone.

Tier 3 includes those streams where discharges from Knox County's MS4 are NOT considered a source of pollutant(s). Water quality in these waterbodies are addressed by the County's stormwater management ordinance, general public education/outreach efforts and by other County stormwater program activities (e.g., illicit discharge enforcement), but the County's stormwater management resources are typically not highly focused on these streams.

TMDLs with waste load allocations for MS4 discharges in Knox County

Final/EPA Approval Date	TMDL Type	Watershed	HUC	Waterbody Name	Waterbody ID
8/9/2010	PCB and Chlordane	Lower Clinch	06010207	Melton Hill Res.	TN06010207006_1000
09/21/2017	E coli	Lower Clinch	06010207	Beaver Creek	TN06010207011-1000
09/21/2017	E coli	Lower Clinch	06010207	Beaver Creek	TN06010207011-2000
09/21/2017	E coli	Lower Clinch	06010207	Beaver Creek	TN06010207011-3000
09/21/2017	E coli	Lower Clinch	06010207	Bull Run Creek	TN06010207014-1000
09/21/2017	E coli	Lower Clinch	06010207	Bull Run Creek	TN06010207014-2000
09/21/2017	E coli	Lower Clinch	06010207	Willow Fork	TN06010207011_0200
09/21/2017	E coli	Lower Clinch	06010207	Hines Branch	TN06010207011_0500
09/21/2017	E coli	Lower Clinch	06010207	Knob Fork	TN06010207011_0600
09/21/2017	E coli	Lower Clinch	06010207	Grassy Creek	TN06010207011_0700
09/21/2017	E coli	Lower Clinch	06010207	Meadow Creek	TN06010207011_0800
09/21/2017	E coli	Lower Clinch	06010207	Plumb Creek	TN06010207011_0900
3/15/2006	Siltation Habitat	Lower Clinch	06010207	Grable Branch	TN06010207004-0100
3/15/2006	Siltation Habitat	Lower Clinch	06010207	Williams Branch	TN06010207014-0100
3/15/2006	Siltation Habitat	Lower Clinch	06010207	Foster Branch	TN06010207014-0110
3/15/2006	Siltation Habitat	Lower Clinch	06010207	Bull Run Creek	TN06010207014-1000
3/15/2006	Siltation Habitat	Lower Clinch	06010207	Hines Branch	TN06010207011-0500
3/15/2006	Siltation Habitat	Lower Clinch	06010207	Knob Fork	TN06010207011-0600
3/15/2006	Siltation Habitat	Lower Clinch	06010207	Beaver Creek	TN06010207011-1000
3/15/2006	Siltation Habitat	Lower Clinch	06010207	Beaver Creek	TN06010207011-2000
3/15/2006	Siltation Habitat	Lower Clinch	06010207	Beaver Creek	TN06010207011-3000
3/15/2006	Siltation Habitat	Lower Clinch	06010207	Grassy Creek	TN06010207011-0700
3/15/2006	Siltation Habitat	Lower Clinch	06010207	Meadow Creek	TN06010207011-0800
4/20/2018	E coli	Holston River	06010104	Swanpond Creek	TN06010104001-1400
4/20/2018	E coli	Holston River	06010104	Flat Creek	TN06010104019-1000
4/20/2018	E coli	Holston River	06010104	Little Flat Creek	TN06010104019-0100
4/20/2018	E coli	Holston River	06010104	Roseberry Creek	TN06010104001-0500
4/20/2018	E coli	Holston River	06010104	Love Creek	TN06010104001_0100
1/12/2017	E coli	Fort Loudoun Lake	06010201	Stock Creek	TN06010201066-1000
1/12/2017	E coli	Fort Loudoun Lake	06010201	Stock Creek	TN06010201066-2000
1/12/2017	E coli	Fort Loudoun Lake	06010201	Grandview Branch	TN06010201066-0400
1/12/2017	E coli	Fort Loudoun Lake	06010201	Gun Hollow Branch	TN06010201066-1200
1/12/2017	E coli	Fort Loudoun Lake	06010201	High Bluff Branch	TN06010201066-0600
1/12/2017	E coli	Fort Loudoun Lake	06010201	Roddy Branch	TN06010201026-0100

TMDLs with waste load allocations for MS4 discharges in Knox County

1/12/2017	E coli	Fort Loudoun Lake	06010201	Whites Creek	TN06010201080-0100
1/12/2017	E coli	Fort Loudoun Lake	06010201	Sinking Creek	TN060102011330-1000
1/12/2017	E coli	Fort Loudoun Lake	06010201	Ten Mile Creek	TN060102011334-0100
1/12/2017	E coli	Fort Loudoun Lake	06010201	Turkey Creek	TN06010201340-1000
1/12/2017	E coli	Fort Loudoun Lake	06010201	Third Creek	TN06010201067_1000
1/12/2017	E coli	Fort Loudoun Lake	06010201	Whites Creek	TN06010201080_0100
1/12/2017	E coli	Fort Loudoun Lake	06010201	Fourth Creek	TN06010201697_1000
1/12/2017	E coli	Fort Loudoun Lake	06010201	Goose Creek	TN06010201723_1000
2/12/2010	PCB	Fort Loudoun Lake	06010201	Fort Loudoun Reservoir	TN06010201020-1000
2/12/2010	PCB	Fort Loudoun Lake	06010201	Fort Loudoun Reservoir	TN06010201020-2000
2/1/2006	Siltation Habitat	Fort Loudoun Lake	06010201	Roddy Branch	TN06010201026_0100
2/1/2006	Siltation Habitat	Fort Loudoun Lake	06010201	Casteel Branch	TN06010201066_0100
2/1/2006	Siltation Habitat	Fort Loudoun Lake	06010201	McCall Branch	TN06010201066_0500
2/1/2006	Siltation Habitat	Fort Loudoun Lake	06010201	Stock Creek	TN06010201066_1000
2/1/2006	Siltation Habitat	Fort Loudoun Lake	06010201	Third Creek	TN06010201067_1000
2/1/2006	Siltation Habitat	Fort Loudoun Lake	06010201	Whites Creek	TN06010201080_0100

Knox County MS4 Stream Data
2017

Station ID	Date	Time	Project Name	Activity Category (routine/field duplicate)	Field Comments	Spec Cond (fDO (% fDO))	Temp (degrees C)	pH (units)	E. coli MPN/100ml	Exceed Recreation, E. coli (941)?	Bacteria analyzed by
FLAT000.4KN	8/30/2017	9:46	KnoxCoMS4	Routine		355.9	21.22	7.01	118	meets standard	HPUD
HBLUF000.1KN	8/30/2017	10:24	KnoxCoMS4	Routine		334.8	19.71	7.74	285	meets standard	HPUD
STOCK002.0KN	8/30/2017	10:41	KnoxCoMS4	Routine		279.4	23.19	7.84	126	meets standard	HPUD
TMILE000.3KN	8/30/2017	11:11	KnoxCoMS4	Routine		376.8	18.59	8.07	144	meets standard	HPUD
TMILE000.3KN-DU	8/30/2017	11:13	KnoxCoMS4	Field Duplicate		386	17.97	8.07	155	meets standard	HPUD
SINKI000.2KN	8/30/2017	11:30	KnoxCoMS4	Routine		386.5	18.58	7.94	150	meets standard	HPUD
CONNNE000.1KN	8/30/2017	11:54	KnoxCoMS4	Routine		309.9	18.50	8.26	127	meets standard	HPUD
WILLO000.5KN	8/30/2017	9:52	KnoxCoMS4	Routine		367.8	19.57	7.73	214	meets standard	HPUD
HINES000.2KN	8/30/2017	10:21	KnoxCoMS4	Routine		456.5	20.73	7.83	866	meets standard	HPUD
KNOB000.3KN	8/30/2017	10:38	KnoxCoMS4	Routine		467	20.72	7.85	206	meets standard	HPUD
MEADO000.2KN	8/30/2017	11:04	KnoxCoMS4	Routine		428.9	21.04	7.96	155	meets standard	HPUD
PLUMB000.3KN	8/30/2017	11:17	KnoxCoMS4	Routine		418	19.34	8.17	105	meets standard	HPUD
GRASS000.3KN	8/30/2017	11:34	KnoxCoMS4	Routine		384	23.18	7.93	326	meets standard	HPUD
FLAT000.4KN	9/6/2017	9:12	KnoxCoMS4	Routine	Rained day before; more tu	361.4	19.23	7.66	1986	Impaired	HPUD
HBLUF000.1KN	9/6/2017	9:55	KnoxCoMS4	Routine	Rained day before; more tu	376.8	19.02	7.69	2420	Impaired	HPUD
HBLUF000.1KN-DU	9/6/2017	9:56	KnoxCoMS4	Field Duplicate	Rained day before; more tu	379.9	18.65	7.87	1986	Impaired	HPUD
STOCK002.0KN	9/6/2017	10:15	KnoxCoMS4	Routine	Rained day before; more tu	254.7	19.5	7.8	>2420	Impaired	HPUD
TMILE000.3KN	9/6/2017	10:46	KnoxCoMS4	Routine	Rained day before; more tu	367.8	18.4	7.7	>2420	Impaired	HPUD
SINKI000.2KN	9/6/2017	11:02	KnoxCoMS4	Routine	Rained day before; more tu	328.9	18.23	7.3	866	meets standard	HPUD
CONNNE000.1KN	9/6/2017	11:26	KnoxCoMS4	Routine	Rained day before; more tu	315.2	18.05	6.97	1986	Impaired	HPUD
WILLO000.5KN	9/6/2017	9:24	KnoxCoMS4	Routine	Rained day before; more tu	334.2	18.68	6.55	2420	Impaired	HPUD
HINES000.2KN	9/6/2017	9:42	KnoxCoMS4	Routine	Rained day before; more tu	340.8	18.34	6.8	921	meets standard	HPUD
KNOB000.3KN	9/6/2017	10:12	KnoxCoMS4	Routine	Rained day before; more tu	291.5	19.44	6.91	>2420	Impaired	HPUD
MEADO000.2KN	9/6/2017	10:38	KnoxCoMS4	Routine	Rained day before; more tu	334.2	18.28	7.08	980	meets standard	HPUD
PLUMB000.3KN	9/6/2017	10:50	KnoxCoMS4	Routine	Rained day before; more tu	249.5	19.84	7.13	1986	Impaired	HPUD
GRASS000.3KN	9/6/2017	11:13	KnoxCoMS4	Routine	Rained day before; more tu	398.7	17.6	8.24	67	meets standard	HPUD
FLAT000.4KN	9/13/2017	9:00	KnoxCoMS4	Routine		413	16.82	8.12	222	meets standard	HPUD
HBLUF000.1KN	9/13/2017	9:38	KnoxCoMS4	Routine		416.1	16.4	8.16	192	meets standard	HPUD
HBLUF000.1KN-DU	9/13/2017	9:39	KnoxCoMS4	Field Duplicate		381.2	17.85	8.09	291	meets standard	HPUD
STOCK002.0KN	9/13/2017	10:02	KnoxCoMS4	Routine		421.6	16.83	8.02	111	meets standard	HPUD
TMILE000.3KN	9/13/2017	10:32	KnoxCoMS4	Routine		431.1	16.89	7.65	219	meets standard	HPUD
SINKI000.2KN	9/13/2017	10:47	KnoxCoMS4	Routine		347.4	16.23	8.21	127	meets standard	HPUD
CONNNE000.1KN	9/13/2017	11:09	KnoxCoMS4	Routine		342.6	16.66	6.67	613	meets standard	HPUD
WILLO000.5KN	9/13/2017	9:00	KnoxCoMS4	Routine		428.9	16.8	6.83	328	meets standard	HPUD
HINES000.2KN	9/13/2017	9:25	KnoxCoMS4	Routine		429.6	16.75	7.11	140	meets standard	HPUD
KNOB000.3KN	9/13/2017	9:40	KnoxCoMS4	Routine		393.3	17.53	7.16	210	meets standard	HPUD
MEADO000.2KN	9/13/2017	10:08	KnoxCoMS4	Routine		386.2	16.5	7.34	365	meets standard	HPUD
PLUMB000.3KN	9/13/2017	10:22	KnoxCoMS4	Routine		340.7	17.61	7.22	461	meets standard	HPUD
GRASS000.3KN	9/13/2017	10:45	KnoxCoMS4	Routine		358	19.96	7.72	55.6	meets standard	HPUD
FLAT000.4KN	9/20/2017	9:10	KnoxCoMS4	Routine	Rained day before	354.2	18.68	7.83	290.9	meets standard	HPUD
HBLUF000.1KN	9/20/2017	9:43	KnoxCoMS4	Routine	Rained day before	306.1	21.57	7.96	60.2	meets standard	HPUD
STOCK002.0KN	9/20/2017	10:07	KnoxCoMS4	Routine	Rained day before	301.8	21.88	8.03	50.4	meets standard	HPUD
STOCK002.0KN-DU	9/20/2017	10:09	KnoxCoMS4	Field Duplicate	Rained day before	367.4	18.87	7.97	228.2	meets standard	HPUD
TMILE000.3KN	9/20/2017	10:36	KnoxCoMS4	Routine	Rained day before	377.7	18.41	7.8	224.7	meets standard	HPUD
SINKI000.2KN	9/20/2017	10:48	KnoxCoMS4	Routine	Rained day before	307.8	18.09	8.14	156.5	meets standard	HPUD
CONNNE000.1KN	9/20/2017	11:08	KnoxCoMS4	Routine	Rained day before	325.2	19.07	6.63	150	meets standard	HPUD
WILLO000.5KN	9/20/2017	9:10	KnoxCoMS4	Routine	Rained day before	431.4	18.51	6.56	387.3	meets standard	HPUD
HINES000.2KN	9/20/2017	9:30	KnoxCoMS4	Routine	Rained day before	427.3	18.86	6.74	193.5	meets standard	HPUD
KNOB000.3KN	9/20/2017	9:45	KnoxCoMS4	Routine	Rained day before	382	19.31	7.08	131.4	meets standard	HPUD
MEADO000.2KN	9/20/2017	10:15	KnoxCoMS4	Routine	Rained day before	373.1	17.88	7.58	275.5	meets standard	HPUD
PLUMB000.3KN	9/20/2017	10:43	KnoxCoMS4	Routine	Rained day before	337.8	21.36	7.37	131.4	meets standard	HPUD
GRASS000.3KN	9/20/2017	11:05	KnoxCoMS4	Routine	Rained day before	292.3	20.05	6.09	275.5	meets standard	HPUD
WILLO000.5KN	9/27/2017	9:05	KnoxCoMS4	Routine		405.3	19.84	6.27	307.6	meets standard	HPUD
HINES000.2KN	9/27/2017	9:17	KnoxCoMS4	Routine		395.3	20.11	6.81	146.7	meets standard	HPUD
KNOB000.3KN	9/27/2017	9:29	KnoxCoMS4	Routine		366.6	20.55	7.42	67	meets standard	HPUD
MEADO000.2KN	9/27/2017	9:54	KnoxCoMS4	Routine							

