



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: Brentwood		MS4 Permit Number: TNS075175	
Contact Person: Mike Harris, P.E.		Email Address: mike.harris@brentwoodtn.gov	
Telephone: (615) 371-0080		MS4 Program Web Address: http://www.brentwoodtn.gov/departments/engineering/stormwater-quality-management-program	
Mailing Address: P.O. Box 788			
City: Brentwood	State: TN	ZIP code: 37024	

What is the current population of your MS4? 40,401

What is the reporting period for this annual report? July 1 2016 to June 30 2017

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 City of Brentwood is providing training and education at the annual Environmental Education Day for 250 students; they are increasing public awareness through the City Newsletter, website, and PSAs; they have partnered with the Harpeth River Watershed Association to fund bank stabilization projects; they also partner with Brentwood Rotary Club and Keep Williamson Beautiful to organize an annual stream clean-up. 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: Residential impacts, including car washing and maintenance, yard fertilizers, animal and yard waste, and erosion prevention and sediment control. Yes No

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- C. Do you have a webpage dedicated to your stormwater program? If yes, provide a link/URL: <http://www.brentwoodtn.gov/departments/engineering/stormwater-quality-management-program> Yes No
- D. Summarize how you advertise and publicize your public education, outreach, involvement and participation opportunities: The City of Brentwood advertises through a newsletter, the TAB program, and a press release for Environmental Education Day.
- E. Summarize the public education, outreach, involvement and participation activities you completed during this reporting period: The City of Brentwood hosted Hazardous Waste Day, Environmental Education Day (October 2016), and has participated in Tennessee Stormwater Association (TNSA) meetings and their annual conference (October 2016).
- 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: Neighborhood Associations participate in stream clean ups and neighborhood clean ups that are not administered by the City of Brentwood. Brentwood and Ravenwood Highschool have environmental science programs, in which part of the curriculum covers storm water quality topics and includes the Environmental Education Day held at Deerwood Arboritum through which the Little Harpeth flows.

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? 327
- 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: Once per permit cycle the outfalls are screened for illicit discharges in combination with visual stream assessments of impaired streams. Yes No
- F. How many illicit discharge related complaints were received this reporting period? 1
- G. How many illicit discharge investigations were performed this reporting period? 1
- H. Of those investigations performed, how many resulted in valid illicit discharges that were addressed and/or eliminated? 1

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

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- 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? 29
- F. How many active priority and non-priority construction sites were inspected this reporting period? 29
- G. How many construction related complaints were received this reporting period? 18
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: Waterway natural area (WNA) on each side of waterway is to be 60 feet when the upstream watershed area is at least one square mile, and 30 feet when the upstream watershed area is less than one square mile, unless federal or state regulations require a wider WNA. 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 new or redevelopment projects, regardless of disturbance.
- D. How many development and redevelopment project plans were reviewed for this reporting period? 12
- E. How many development and redevelopment project plans were approved? 10
- F. How many permanent stormwater related complaints were received this reporting period? 2
- 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:

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- 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

Changes to the program as required by the division to satisfy permit requirements. The City of Brentwood plans to implement the 100% pollutant removal requirement for new and re-development to improve the quality of water. These changes will be implemented after a ruling is made regarding the pending MS4 permit appeals (a hearing is scheduled for November 2017) and further clarification or direction is provided by TDEC.

Information (e.g. additional acreage, outfalls, BMPs) on newly annexed areas and any resulting updates to your program. None

- 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. Minor stormwater management program modifications to be implemented in Jan through March of 2018 assuming the pending appeals to the permit have been dealt with and clarification or direction from TDEC is provided. 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>12</u>	# _____	# _____	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Written notices	# <u>1</u>	# _____	# _____	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Citations with administrative penalties	# _____	# _____	# _____	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Stop work orders	# <u>4</u>	# _____	# _____	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Withholding of plan approvals or other authorizations	# _____	# _____	# _____	<input type="checkbox"/> Yes	<input checked="" 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?
Lack of ESPC measures.

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. None; the analytical monitoring process was completed during the previous permit cycle and is in the planning stages for the current permit cycle.
- B. Summarize any non-analytical monitoring activities (e.g., planning, collection, evaluation of results) performed during this reporting period. None; the non-analytical monitoring process was completed during the previous permit cycle and is in the planning stages for the current permit cycle
- C. If applicable, are monitoring records for activities performed during this reporting period submitted with this report. Yes No

11. Certification

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Section 2.A. - List of Waters with Unavailable Parameters in Jurisdiction Based on TDEC Viewer as of August 2017

Waterbody Name	Waterbody I.D. #	Cause(s)	Source Name(s)
Little Harpeth River	TN05130204021_2000	Sedimentation/Siltation	Grazing in Riparian or Shoreline Zones
		Sedimentation/Siltation	Discharges from Municipal Separate Storm Sewer Systems (MS4)
		Phosphorus (Total)	Discharges from Municipal Separate Storm Sewer Systems (MS4)
		Nitrate/Nitrite (Nitrite + Nitrate as N)	Discharges from Municipal Separate Storm Sewer Systems (MS4)
Unnamed Trib to the Little Harpeth River	TN05130204021_0200	Sedimentation/Siltation	Discharges from Municipal Separate Storm Sewer Systems (MS4)
		Alteration in stream-side or littoral vegetative covers	Discharges from Municipal Separate Storm Sewer Systems (MS4)
Unnamed Trib to the Little Harpeth River	TN05130204021_0300	Sedimentation/Siltation	Discharges from Municipal Separate Storm Sewer Systems (MS4)
		Alteration in stream-side or littoral vegetative covers	Discharges from Municipal Separate Storm Sewer Systems (MS4)
Holt Creek	TN05130202007_1100	<i>Escherichia coli</i>	Discharges from Municipal Separate Storm Sewer Systems (MS4)
		Phosphorus (Total)	Discharges from Municipal Separate Storm Sewer Systems (MS4)
		Nitrate/Nitrite (Nitrite + Nitrate as N)	Discharges from Municipal Separate Storm Sewer Systems (MS4)
Owl Creek	TN05130202007_0900	Phosphorus (Total)	Discharges from Municipal Separate Storm Sewer Systems (MS4)
		Sedimentation/Siltation	Discharges from Municipal Separate Storm Sewer Systems (MS4)
		Alteration in stream-side or littoral vegetative covers	Discharges from Municipal Separate Storm Sewer Systems (MS4)
Beech Creek	TN05130204021_0400	Sedimentation/Siltation	Site Clearance (Land Development or Redevelopment)
		Alteration in stream-side or littoral vegetative covers	Site Clearance (Land Development or Redevelopment)
Spencer Creek	TN05130204016_0200	<i>Escherichia coli</i>	Discharges from Municipal Separate Storm Sewer Systems (MS4)
		Sedimentation/Siltation	Discharges from Municipal Separate Storm Sewer Systems (MS4)
		Alteration in stream-side or littoral vegetative covers	Discharges from Municipal Separate Storm Sewer Systems (MS4)

Section 2.B. TMDLs with Waste Load Allocations for MS4 Discharges

HARPETH RIVER WATERSHED (05130204)

TMDL for siltation (May 2002)

The implementation plan notes that the wasteload allocation for MS4s will be implemented through MS4 permits and the MS4's stormwater management plan. No additional TMDL monitoring is required.

TMDL for metals (July 2003)

No waste load allocations for MS4 discharges

TMDL for organic enrichment/low dissolved oxygen (September 2004)

See below

Water Quality Limited Segments and Pollutant Causes Addressed by the TMDLs

Waterbody (waterbody ID#)	Impacted Waterbody	CAUSE (Pollutant)
Harpeth River – West Harpeth River to Spencer Creek	TN05130204 016 – 1000	Organic enrichment/low dissolved oxygen
Harpeth River – Spencer Creek to Watson Creek	TN05130204 016 – 2000	Organic enrichment/low dissolved oxygen
Harpeth River – Watson Creek to Mayes Creek	TN05130204 016 – 3000	Low DO
Harpeth River – Mayes Creek to Wilson Branch	TN05130204 016 – 4000	Low DO
HARPETH RIVER TRIBUTARIES Arrington Cr, Spencer Cr, Watson Br, 5-mile Cr, Lynnwood Cr, and Starnes Cr	TN05130204 016	Organic enrichment/low dissolved oxygen
Concord Creek	TN051300204 018 – 0200	Organic enrichment/low dissolved oxygen
Kelley Creek	TN051300204 018 – 0300	Organic enrichment/low dissolved oxygen
Harpeth River – unnamed trib. To headwaters	TN051300204 018 – 3000	Low DO
HARPETH RIVER TRIBUTARIES Newsome Cr, Trace Cr, and Murray Branch are partially supporting	TN05130204 009	Organic enrichment/low dissolved oxygen
Beech Creek	TN05130204 009 – 1100	Organic enrichment/low dissolved oxygen
WEST FORK HARPETH RIVER A portion of West Harpeth, plus Cayce Branch, Polk, and Kennedy Creek are partially supporting	TN05130204 013	Organic enrichment/low dissolved oxygen
Rattlesnake Branch	TN05130204 013 – 0610	Organic enrichment/low dissolved oxygen
HARPETH RIVER From South Harpeth River to the Little Harpeth River	TN05130204009-2000	Organic enrichment/low dissolved oxygen
HARPETH RIVER From Little Harpeth River to the West Harpeth River	TN05130204009-3000	Organic enrichment/low dissolved oxygen
LITTLE HARPETH RIVER From Harpeth River to Otter Cr	TN05130204021-1000	Low DO

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Table 18 Nutrient Waste Load Allocations for MS4s

Subwatershed (05130204)	WLAs for MS4s			
	Total Nitrogen		Total Phosphorus	
	Summer *	Winter *	Summer *	Winter *
	[lbs/ac/month]	[lbs/ac/month]	[lbs/ac/month]	[lbs/ac/month]
0101	0.186	0.521	0.037	0.105
0104	0.173	0.520	0.021	0.063
0105	0.164	0.516	0.012	0.041
0201	0.167	0.521	0.014	0.043
0202	0.152	0.459	0.012	0.037
0301	0.148	0.438	0.012	0.035
0302	0.167	0.521	0.014	0.043

* Summer: 5/1 – 10/31; Winter: 11/1 – 4/30.

Table 26 Wasteload and Load Allocations to Watershed Runoff protect DO levels in the lower Harpeth River

HUC-12 Subwatershed (05130204)	Total Nitrogen * Summer lbs/month	Total Nitrogen * Winter lbs/month	WLA Percent Reduction in MS4 Area	LA Percent Reduction in rural area
0104	7335	21966	20.0	20.0
0105	5864	18260	49.4	49.4
0201	4062	12649	53.1	53.1
0202	3026	9119	53.1	53.1
0301	6253	18537	44.8	44.8
0302	5275	16425	34.3	34.3

* Summer: May 1 – October 31; Winter: November 1 – April 30

TMDL for E. coli (March 2006)

The stream with a waste load allocation for the watershed within the city limits (0302) is not within the City of Brentwood.

CHEATHAM LAKE WATERSHED (05130202)

TMDL for E. coli (April 2008)

The streams with waste load allocations for the watersheds within the city limits (0201 and 0202) are not within the City of Brentwood.

Section 2.C. - List of Exceptional Tennessee Waters (ETWs) to which the MS4 discharges

Waterbody Name	Waterbody Description	HUC	Reason for Inclusion
Sevenmile Creek Unnamed Tributary	From Sevenmile Creek to confluence with unnamed tributary from Apple Lake	05130202	Federal endangered Nashville Crayfish
Holt Creek	From Mill Creek to unnamed tributary	05130202	Federal endangered Nashville Crayfish
Owl Creek Including Tributaries	From Mill Creek to headwaters including tributaries	05130202	Federal endangered Nashville Crayfish has been documented from Mill Creek to Owl Creek Rd crossing. All tributaries to Mill Creek are included in high quality status due to Nashville Crayfish habitat.
Edmonson Branch	From Owl Creek to Sunset Road crossing	05130202	Federal endangered Nashville Crayfish