



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: Murfreesboro-MTSU   |           | MS4 Permit Number: TNS075469   |
| Contact Person: Robert Haley (Murfreesboro)  |           | Email Address: rhaley@murfreesborotn.gov                                     |
| Telephone: (615) 848-3200/642-0783 cell  |           | MS4 Program Web Address:<br>http://www.murfreesborotn.gov/index.aspx?NID=288 |
| Mailing Address: Water Resources Department/Engineering, 220 NW Broad Street, Murfreesboro, TN 37130 |           |  |
| City: Murfreesboro   | State: TN | ZIP code: 37130  |
| Contact Person: Katherine Green, P.E.  |           | Email Address: katherine.d.green@mtsu.edu                                    |
| Telephone: (615) 494-8708  |           | MS4 Program Web Address:<br>http://www.mtsu.edu/stormwater/index.php         |
| Mailing Address: MTSU Box 32, Murfreesboro, TN 37132   |           |  |

What is the current population of your MS4? 122,904 (latest certified figure, 2018)

What is the reporting period for this annual report? July 1 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/](http://tdeconline.tn.gov/dwr/))? If yes, attach a list. See attachment 1.  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. See attachment 1.  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](http://environment-online.tn.gov:8080/pls/enf_reports/f?p=9034:34304:4880790061142))? If yes, attach a list. See attachment 2.  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: We consider the construction and post-construction minimum measures to be practices that target causes of impairment, especially sediment and habitat alterations, and to nutrients and bacteria to a lesser extent. And each year as a part of the city's PIE plan, city and MTSU stormwater staff consider and plan education and/or public participation that targets pollutants or causes of impairment in one or more watersheds. See Attachment 3 for example pollutant reduction plans.  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: Annually City and MTSU plan general education (e.g., basics of water resources, water quality, and urban runoff), and plan education targeted to specific pollutants such as nutrients, sediment, trash; absence of streamside vegetation; and illicit discharges. For 2019-20, we note the following. Via the UT Ag Extension Office, we reached out to chemical applicators; 30 educational brochures distributed re: fertilizers, herbicides, etc. and water quality. Neighborhood outreach: 212 doorhangers placed at homes re: riparian vegetation and nutrients. 12th<sup>th</sup> annual Tree Day: 166 letters and 166 of the yard waste doorhanger sent to targeted residents; and 172 seedlings given to 14 property owners, mostly in West Fork Stones River and Spence Creek watersheds, and 98 to Parks Department nursery project. Automotive outreach: by letter and brochure to 183 automotive related businesses targeting trash, oil and illicit discharges associated with vehicles and vehicle maintenance.
- Yes       No

During FY 2019-2020, MTSU targeted several pollutants such as illicit discharges, hydrocarbon pollutants, trash and riparian areas. Employees were targeted with online training on general stormwater education. Prior to the Covid-19 pandemic, events such as campus cleanups were coordinated to help remove trash from ending up in the streams. Students also volunteered for riparian tree plantings and invasive species removal throughout the City and learned about streamside buffers and their benefits. MTSU staff assisted with Stormwater Control Measure (SCM) maintenance and targeted pollutants such as hydrocarbons, fertilizers, and other runoff pollutants.

Find additional information in Attachment 4.

- C. Do you have a webpage dedicated to your stormwater program? If yes, provide a link/URL: <http://www.murfreesborotn.gov/288/Stormwater>  
[www.mtsu.edu/stormwater](http://www.mtsu.edu/stormwater)
- Yes       No
- D. Summarize how you advertise and publicize your public education, outreach, involvement and participation opportunities: Web site and Facebook postings. City and MTSU keep calendars on websites. Direct mail to target audiences. Communication (e-mail, meetings, web posts) with interested groups (such as Friends of the Greenway, Stones River Watershed Association), city and county staff, educators/school teachers, and e-mails to MTSU subscriber list (staff, faculty & temp employees) and volunteers (over 2800); promotion through MTSU News and Media, Master Calendar, MyMT Portal, and posting of flyers on campus). Outreach events (Earth Day, etc.) Occasional press releases. Occasional spots on City TV: PSAs and short (<10 minutes) stories about stream restoration, etc. Stories by MTSU TV. Legal notices for changes in ordinances.
- E. Summarize the public education, outreach, involvement and participation activities you completed during this reporting period: See Attachment 4.
- 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: Through various campus and City outreach activities, there were a total of 61 (stormwater ed pgm + Parks Dept) events held. Approximately 2786 participants, volunteers, and general public were reached. We had 396 sign-ups for volunteers for various events, collected 6750 pounds of trash, planted 15 trees, distributed 172 seedlings, mailed 376 letters to targeted home and business owners, hung 212 educational doorhangers in targeted neighborhoods, and gave away over 400 handouts and 300 promotional items to make the public aware of the program's presence and its goals. See Attachment 4 for more detail.

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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? 682 (City) and 12 (MTSU)
- 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: (City) Annually we screen outfalls on at least one of the major stream segments that passes through Murfreesboro; and we perform screening within the system (junction boxes) in a commercial or industrial area where we think illicit are more likely to exist. Most of the illicit we find are identified by call-in complaints.  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. (MTSU)  Yes  No
- F. How many illicit discharge related complaints were received this reporting period? 3 (City) and 3 (MTSU)
- G. How many illicit discharge investigations were performed this reporting period? 3 (City) + 3 (MTSU)
- H. Of those investigations performed, how many resulted in valid illicit discharges that were addressed and/or eliminated? 2 valid, 1 eliminated (City) (Auto Collection, Antebellum Dr., Regal) and 3 valid, 3 eliminated (MTSU)

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? (n.b. expressed in context of EPSC Plan requirements)  Yes  No
- Construction site operators to control wastes such as discarded building materials, concrete truck washout, chemicals, litter, and sanitary waste? [27 ½ (E) (21) ]  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)? *(consistent, not exactly same; need updating)*  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? 70 issued FY 19-20; 194 active

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- F. How many active priority and non-priority construction sites were inspected this reporting period? 194
- G. How many construction related complaints were received this reporting period? 21 (BH, 7; JH, 2, ET, 12)

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: 50 feet on larger streams; 35 feet on smaller streams; a two-zone buffer in which the outer/upland 15 feet may be managed (cutting, mowing) but no grading or construction  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.)? a lot of one acre or more (or smaller lots that are a part of a larger common plan of development) and an increase in impervious area of 10,000 square feet or more
- D. How many development and redevelopment project plans were reviewed for this reporting period? 209 (43 preliminary plats/subdivisions + 166 site plans) of which 108 are regulated for permanent s/w mgt per thresholds noted in C. above
- E. How many development and redevelopment project plans were approved? 59  
59 permitted for construction (ref. PRC/building permits and pre-construction mtgs.). 21 subdivision developments; 38 site developments.
- F. How many permanent stormwater related complaints were received this reporting period? 2 (Kingdom Ridge, Chaney Apts.)
- G. How many enforcement actions were taken to address improper installation or maintenance? Installation: Approvals (C/Os and approvals of final plats) are withheld if construction/installation is deficient; these number in the dozens for the year. Maintenance: none.
- 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)

MTSU

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?                              | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            |
| Municipal parking lots?                                | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            |
| Maintenance and storage yards?                         | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            |
| Fleet or maintenance shops with outdoor storage areas? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            |
| Salt and storage locations?                            | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            |
| Snow disposal areas?                                   | <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No |
| Waste disposal, storage, and transfer stations?        | <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> 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

City of Murfreesboro

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?                              | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            |
| Municipal parking lots?                                | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            |
| Maintenance and storage yards?                         | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            |
| Fleet or maintenance shops with outdoor storage areas? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            |
| Salt and storage locations?                            | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            |
| Snow disposal areas?                                   | <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No |
| Waste disposal, storage, and transfer stations?        | <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> 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. ---  
 Changes to the program as required by the division to satisfy permit requirements. ---  
 Information (e.g. additional acreage, outfalls, BMPs) on newly annexed areas and any resulting updates to your program. Additional outfalls, +18; 654 acres annexed; see Attachment 5.
- 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. Overall effectiveness (City), 2.89 of 4.0. Improvements needed most in procedures for construction-phase inspections and enforcement of standards; updates to ordinance needed re: CSR and PSM programs; and enforcement procedures for SCM operation and maintenance.  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. Ordinance and ERP in place. ERP not completely implemented; needs improvement.  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>#21 (cf. complaints)</u> | <u>#--</u>                  | <u>#1</u>                | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| Written notices                                       | <u>#0</u>                   | <u>#0</u>                   | <u>#1</u>                | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| Citations with administrative penalties               | <u>#0</u>                   | <u>#0</u>                   | <u>#--</u>               | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| Stop work orders                                      | <u>#0</u>                   | <u>#0</u>                   | <u>#--</u>               | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| Withholding of plan approvals or other authorizations | <u>#yes</u>                 | <u>#yes</u>                 | <u>#--</u>               | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| Additional Measures                                   | <u>#numerous</u>            | <u>#--</u>                  | <u>#--</u>               | Describe: oral <u>advisories</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? City: construction site track-out, illicit discharges; poor operation of existing SCMs; MTSU: cars leaking fluids

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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. See attachment 5.
- B. Summarize any non-analytical monitoring activities (e.g., planning, collection, evaluation of results) performed during this reporting period. See attachment 5.
- 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."*

Craig Tindall, City Manager  
City of Murfreesboro

Printed Name and Title

Signature

Date

Alan Thomas, Vice President  
MTSU

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 |

Small MS4 Annual Report (2020), Question no. 2., Waterbodies with Unavailable Parameters and TMDLs

A. If MS4 discharges into waters listed with unavailable parameters on most current 303(d) list and/or according to on-line GIS mapping tool, attach a list of those waters within your jurisdiction. B. If there are approved TMDLs with waste load allocations for MS4 discharges, attach a list. Water quality status from TDEC’s [approved final 2020 303\(d\) list](#) posted on w.w.web.

| Waterbody I.D. #     | Impaired waters acc. to 2018 Final 303(d) list                  | Cause/TMDL Priority   | Is MS4 a source per 303(d) list? | Approved TMDL Yes/No | MS4 Assigned to WLA Yes/No |                                |
|----------------------|---|---|----------------------------------|----------------------|----------------------------|--------------------------------|
|                      |   |   |                                  |                      | Yes/No                     | Amount (reductions)            |
| TN05130203015_0100   | Puckett Creek, 6.7 miles  | Alteration in stream-side or littoral vegetative cover/L (Land devlpmnt.)             | No                               | No                   | --                         | --                             |
| TN05130203018_0100   | Sinking Creek, 5.5 miles  | Nitrate+Nitrite/L (Municipal: urbanized area)   | Yes                              | No                   | No                         | --                             |
| “                    | “   | Alteration in stream-side or littoral vegetative cover/L (Site clearing/land dev.)    | No                               | No                   | No                         | --                             |
| “                    | “   | Escherichia coli/na (Municipal: urbanized area; SSOs)                                 | Yes                              | Yes                  | Yes                        | 75%                            |
| TN05130203018_0600   | Unnamed tributary to WF Stones River, 5.87 miles (Spence Cr)    | Alteration in stream-side or littoral vegetative cover/L (Land devlpmnt.)             | No                               | No                   | No                         | --                             |
| “                    | “   | Sedimentation/siltation/L (Land development.)   | No                               | No                   | No                         | --                             |
| TN05130203018_1000   | WF Stones River, 6.3 miles (from u/s of I-840 downstream)       | Escherichia coli/L (Municipal: urbanized area)  | Yes                              | No                   | No                         | --                             |
| TN05130203018_2000   | WF Stones River, 1.3 miles (u/s of I-840 to Sinking Creek)      | Nitrate+Nitrite/L (Municipal: point source)   | No                               | No                   | No                         | --                             |
| TN05130203018_2000   | WF Stones River, 1.3 miles (u/s of I-840 to Sinking Creek)      | Total phosphorus/L (Municipal: point source)  | No                               | No                   | No                         | --                             |
| “                    | “   | Sedimentation/siltation/L (Site clearance/land dvlpmnt)                               | No                               | No                   | No                         | --                             |
| TN05130203022_1000   | Lytle Creek, 8.9 miles (mouth to Lees Spring Branch)            | Alteration in stream-side or littoral vegetative cover/na (Municipal: urbanized area) | Yes                              | Yes                  | No                         | --                             |
| “                    | “   | Sedimentation/siltation/na (Municipal: urbanized area)                                | Yes                              | Yes                  | Yes                        | 38%                            |
| “                    | “   | Escherichia coli/na (Municipal: urbanized area)                                       | Yes                              | Yes                  | Yes                        | 23%, lower 49%, mid 10%, upper |
| TN05130203022 – 0200 | Lees Spring Branch, 1.1 miles (mouth to headwaters)             | Alteration in stream-side or littoral vegetative cover/L (Land dvlp.)                 | No                               | Yes                  | No                         | --                             |
| “                    | (A short section of stream is within Murfreesboro city limits.) | Sedimentation/siltation/L (Land dvlp.)  | No                               | Yes                  | No                         | --                             |
| TN05130203022 – 0100 | Town Creek, 0.13 miles (unnamed trib to Lytle Creek)            | Low dissolved oxygen/na   | Undetermined source              | Yes                  | --                         | --                             |
| “                    | “   | CBOD5   | --                               | Yes                  | Yes                        | 1061 lbs/yr                    |
| “                    | “   | Nitrogen  | --                               | Yes                  | Yes                        | 534 lbs/yr                     |
| “                    | “   | Total Phosphorous   | --                               | Yes                  | Yes                        | 113 lbs/yr                     |
| “                    | “   | Escherichia coli/na   | Undetermined source              | Yes                  | Yes                        | 81.8%                          |
| TN05130203023_0310   | Bear Branch, 3.5 miles (Dry Branch to headwaters)               | Alteration in stream-side or littoral vegetative cover/na (Grazing)                   | No                               | Yes                  | No                         | --                             |
| “                    | “   | Loss of biological integrity due to siltation/na (Site clearing/land dvlp.)           | No                               | Yes                  | Yes                        | 58%                            |
| “                    | “   | Nutrients/na (Grazing)  | No                               | Yes                  | --                         | --                             |
| “                    | “   | Nitrogen/na   | No                               | Yes                  | Yes                        | 8019 lb/yr                     |
| “                    | “   | Total Phosphorous/na  | No                               | Yes                  | Yes                        | 1699 lb/yr                     |
| TN05130203023 – 0210 | Garrison Creek, 0.37 miles (mouth to Lascassas Hwy bridge)      | Alteration in stream-side or littoral vegetative cover/L (Municipal: urbanized area)  | Yes                              | Yes                  | No                         | --                             |
| “                    | (also referred to as unnamed trib to Bushman Creek)             | Physical Substrate Habitat Alteration/L (Channelization)                              | Yes                              | Yes                  | No                         | --                             |
| “                    | “   | Sedimentation/siltation/L (Municipal: urbanized area)                                 | Yes                              | Yes                  | Yes                        | 57%                            |

Final TMDLs for Stones River Watershed include: a.) siltation and habitat alteration, 10/31/2002; b.) low dissolved oxygen and nutrients, 5/16/2008; and c.) E-coli, 6/19/2012.

## Known Exceptional Tennessee Waters and Outstanding National Resource Waters Streams within/near Murfreesboro

<http://www.tn.gov/environment/article/wr-water-resources-data-viewer>

TDEC/Water Resource has compiled the list of waters that follows based on the characteristics of Exceptional Tennessee Waters and Outstanding National Resource Waters set forth in the regulation by the Tennessee Water Quality Control Board. In general, these are waterbodies with good water quality, important ecological values, valuable recreational uses, and outstanding scenery. Wherever possible, the Division has utilized objective measures to apply these characteristics and the basis for each listing is provided.

The following factors should be considered:

1. The list will be updated regularly and does not include waterbodies that the division has not evaluated. The fact that a waterbody does not appear on this list by name does not preclude the possibility that it may be high quality.
2. In some cases, only a portion of a waterbody is considered high quality. The extent of each listing is provided.
3. This compilation of waterbodies is based on the most recent information obtained by the division and may be reconsidered upon submittal of further information.

| Receives M'boro MS4 Disch. | Watershed Name | Waterbody                      | County     | Description   | Basis for Inclusion  | From Lat   | To Lat     | From Long  | To Long     | Inclusion Date | Revision Date |
|----------------------------|----------------|--------------------------------|------------|---|--|------------|------------|------------|-------------|----------------|---------------|
| Yes                        | Stones         | Hoover Swamp Black Fox Wetland | Rutherford | Hoover Swamp area of Black Fox Wetland.   | Scored 80 (exceptional category) on TN Rapid Assessment for Wetlands.              | 35.8139    |            | -86.3603   |             |                |               |
| Yes                        | Stones         | Bear Branch                    | Rutherford | From Dry Branch to origin.  | State endangered Blackfoot Quillwort.  | 35.9153    | 35.8735    | -86.3671   | -86.3667    | NOV-01-2007    |               |
| Yes                        | Stones         | Sinking Creek                  | Rutherford | From unnamed tributary at Sulphur Sprigs Road to origin.  | State endangered Sessile Water-Speedwell.  | 35.883     | 35.846     | -86.3989   | -86.372     | NOV-07-2007    |               |
| Yes                        | Stones         | West Fork Stones River         | Rutherford | From Stones River National Battlefield property line upstream to Hwy 41. Only includes tribs inside the battlefield property.   | State threatened Water Stitchwort. Partially in Stones River National Battlefield. | 35.8887    | 35.855     | -86.43248  | -86.4139    | NOV-09-2007    | SEP-11-2020   |
| Yes                        | Stones         | Puckett Creek                  | Rutherford | Puckett Creek from confluence with Overall Creek to headwaters.   | State endangered streamside salamander <i>Ambystoma barbouri</i> .                 | 35.867736  | 35.808105  | -86.471543 | -86.471886  | JAN-31-2019    |               |
| Yes                        | Stones         | Lytle Creek Unnamed Tributary  | Rutherford | Unnamed tributary to Lytle Creek - range may extend the entire tributary.   | State endangered streamside salamander <i>Ambystoma barbouri</i> .                 | 35.7845305 | 35.7858452 | -86.356802 | -86.3565169 | JAN-01-2019    |               |
| Yes                        | Stones         | Lytle Creek Unnamed Tributary  | Rutherford | Unnamed Tributary from confluence with Lytle Creek to origin. Not a blue line stream on topo. Lat and longs are observed locations by Division of Natural Areas on 12-16-15. Salamander is likely to occur in the entire tributary. | State endangered streamside salamander <i>Ambystoma barbouri</i> .                 | 35.7845305 | 35.7858452 | -86.356802 | -86.3565169 | FEB-13-2019    |               |
| Yes                        | Stones         | Overall Creek                  | Rutherford | Overall Creek including unnamed tributary from Windrow Road to origin.  | State endangered streamside salamander <i>Ambystoma barbouri</i> .                 | 35.811568  | 35.789501  | -86.509768 | -86.55058   | FEB-13-2019    |               |

Z:\engineering\Project Files\Stormwater\2020\20025 - Stormwater Annual Report 2019-20\Pieces, final docs, individual apps\sw2, Attachment 2, Exceptional Waters and Outstanding National Resource Waters (2020).docx

# Lytle Creek (within Murfreesboro UGB)

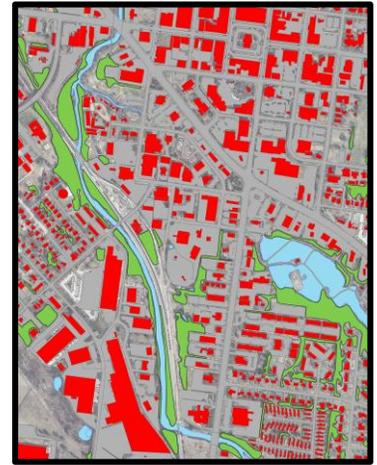
TN05130203022\_1000

## Pollutant Reduction Summary, 2020

### Watershed Characteristics

| 303(d)                    | TMDL                      |
|---------------------------|---------------------------|
| Littoral vegetative cover | No                        |
| Siltation                 | Yes/ 38% reduction needed |
| E.coli                    | Yes                       |

**20.6%** Imperviousness  
**25%** Tree Canopy



| Year | TMI |
|------|-----|
| 2014 | 16  |
| 2016 | 22  |
| 2018 | 26  |
| 2020 | 26  |

TMI Scores - SQSH biological sampling. Lytle Creek.



### Green Infrastructure and SCM's



**29.7** acres of detention  
**101.7** acres of estimated land treated with SCM's



Trash rack in the Murfree Springs Wetland

**17** Sites with SCM's:  
Highlighted: new



The City of Murfreesboro, Natural Resource Division is restoring the Murfree Springs Wetland which provides treatment to the highly impervious Town Creek watershed.

#### Retrofits:

- **Spring Branch/Old Fort Park** – bioretention areas, pervious parking, enhanced swale
- **Murfree Springs Wetland** – trash racks, wetland tree planting – Murfreesboro Urban Environmental
- **Maney Ave** – Pavers: 12,209 square feet
- **Swanson Park Avenue Redevelopment** – pavers: 41,320 square feet
- **Hobgood School Pavers** – Pavers: 95,674 square feet

# Garrison Creek

TN051302023\_0210

## Pollutant Reduction Summary, 2020

| 303(d)   | TMDL              |
|--|-------------------|
| Sedimentation/siltation                                | Yes/58%           |
| Alteration in stream-side or littoral vegetative cover | Yes               |
| Physical Substrate Habitat Alteration (channelization) | Yes/75% reduction |

| Year | TMI |
|------|-----|
| 2016 | 18  |
| 2018 | 22  |
| 2020 | 24  |

32 needed  
↑

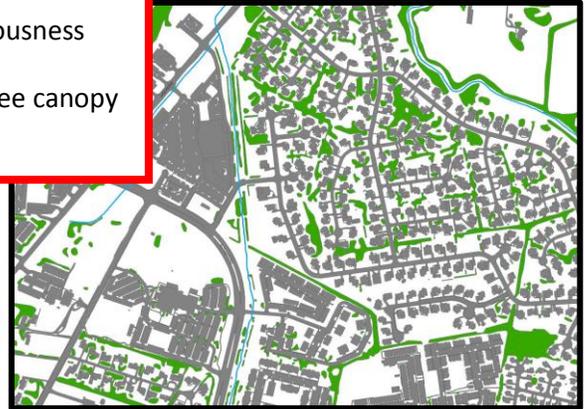
TMI Scores - SQSH biological sampling. Garrison Creek TMI scores are improving in habitat restoration area.

9 Sites with SCM's

## Watershed Characteristics

(1,302 Acres)

**37.9%**  
Imperviousness  
**14%** Tree canopy



## Green Infrastructure and SCM's



**6.87** acres of detention

**44.6** acres estimated land treated with SCM's

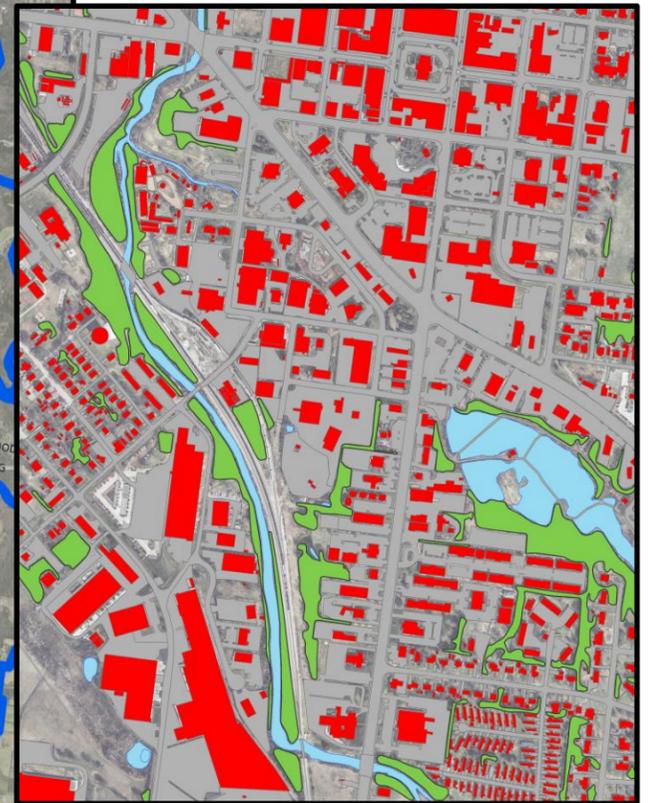
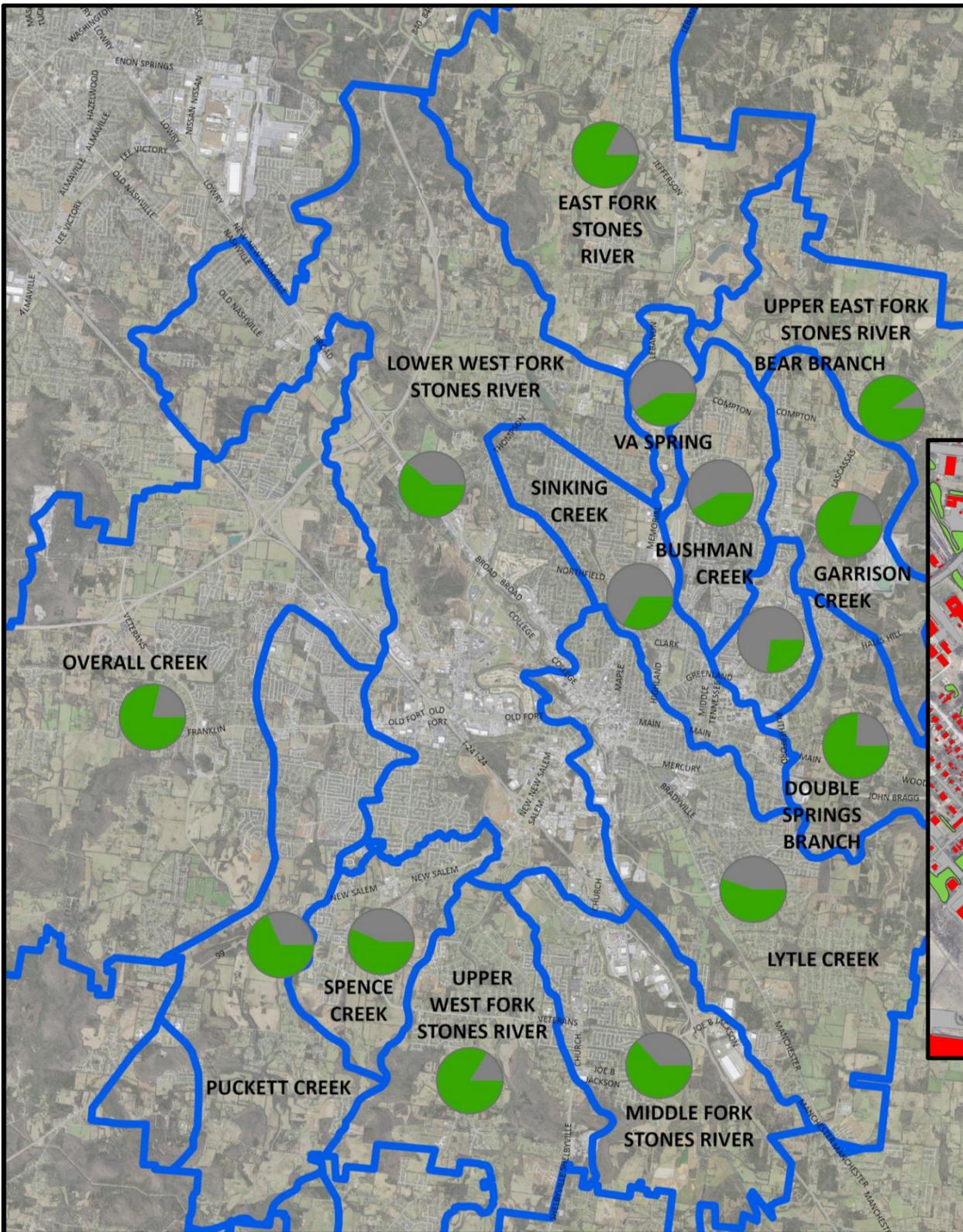


### Garrison Creek Habitat Restoration:

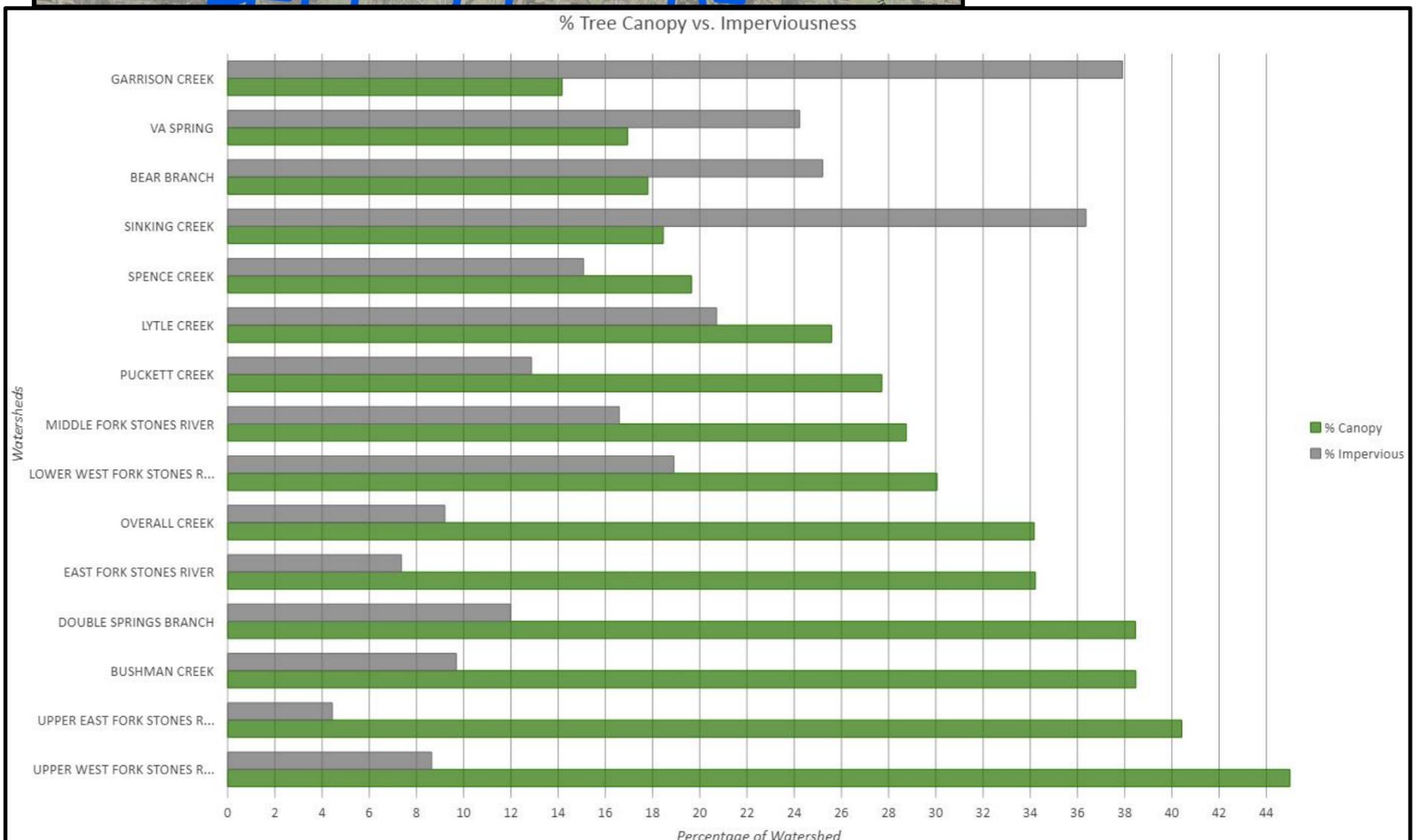
In 2012 the Tennessee Environmental Council (TEC), City of Murfreesboro, and MTSU with many other volunteer organizations planted 4,000 feet of vegetation along both sides of Garrison Creek. Until then Garrison Creek was maintained as a ditch with very little riparian buffer before project.

- Renamed "Big Ditch" to "Garrison Creek"
- Public meetings and nutrient reduction outreach

# Percentage of Impervious Surfaces versus Tree Canopy, 2020



Grey and red represent impervious surfaces. Green represents tree canopy. Downtown Murfreesboro.



### Murfreesboro-MTSU Stormwater General Audience Education Activities FY 2019-20

| Date          | Event   | # Participants   | # Education Materials Distributed                                   | # signed up for mailing list for volunteer opportunities | Trees Given Out or Planted | lbs. of Trash Removed                      | # Promotional Items   |
|---------------|---|--|---|--|----------------------------|--|---|
| 8/23/2019     | Rutherford County Farmers Market Class Program on Water   | 8 Citizen Attendees, 1 MTSU Staff                                    |   | 2  |                            |  |   |
| 9/20/2019     | Stones River Waterfest  | 155 Facilitators/Staff, 76 Teachers, 1163 Students, 92 Parents/Aides |   |  |                            |  |   |
| 10/1/2019     | Rutherford County Farmers Market Class - "Local Stormwater Program & Upcoming Imagine a Day Without Water"  | 5 Citizen Attendees, 1 MTSU Staff                                    | 220 (20 Educational Materials to class & 200 left for the facility) |  |                            |  |   |
| 10/15/2019    | Garden Club Presentation  | 10 Citizen Attendees, 1 MTSU Staff                                   | 30 Educational Materials  |  |                            |  |   |
| 11/25-26/19   | Black Fox Elementary - 6th Grade Classroom Education  | 100 students, 3 MTSU/Partner Staff                                   |   |  |                            |  |   |
| Fall 2019     | Oakland's Outreach - CANCELLED Due to scheduling conflict with Waterfest                                    |  |   |  |                            |  |   |
| 1/16/2020     | Overall Creek Elementary - 4th Grade Classroom Education  | 140 Students, 5 MTSU/Partner Staff                                   |   |  |                            |  |   |
| 2/4/2020      | Overall Creek Elementary - 2nd Grade Classroom Education  | 175 Students, 2 MTSU/Partner Staff                                   |   |  |                            |  |   |
| 2/21/2020     | Discovery School Elementary - 4th Grade Classroom Education   | 66 Students, 2 MTSU/Partner Staff                                    |   |  |                            |  |   |
| 3/16/2020     | John Pittard Elementary - 2nd & 3rd Grade Classroom Education - CANCELLED DUE TO COVID-19                   |  |   |  |                            |  |   |
| 4/27/2020     | Earth Day Celebration - CANCELLED DUE TO COVID-19   |  |   |  |                            |  |   |
| Spring 2020   | Oakland's Outreach - CANCELLED DUE TO COVID-19  |  |   |  |                            |  |   |
| 5/29/2020     | Rutherford County Farmers Market Workshop - Zoom online presentation due to COVID-19 (No in-person classes) | 1 MTSU Staff   |   |  |                            |  | Video uploaded to Rutherford County Farmer's Market's YouTube channel |
| 6/1/2020      | City of Murfreesboro - Boat Day Event - CANCELLED DUE TO COVID-19   |  |   |  |                            |  |   |
| <b>TOTALS</b> |   | <b>2,006 Students/Citizens &amp; Stormwater Staff/Partners</b>       | <b>250 Print Materials distributed</b>                              | <b>2 Signed up for Email List</b>                        |                            | <b>83 lbs of pharmaceuticals collected</b> |   |
|               | <b>Breakdown:</b>   | 1,812 Elementary Students/Teachers/ Parents                          |   |  |                            |  |   |
|               |   | 171 Stormwater Staff/Partner Staff                                   |   |  |                            |  |   |
|               |   | 23 Citizens/Facilitators/Visitors/Volunteers                         |   |  |                            |  |   |

## MTSU - Targeted Education and Participation at MTSU -- FY 2019-20

| Date          | Event   | # Participants  | # Brochures & Promo Items                        | # Signed up for mailing list for volunteer opportunities | Trees/Plants Given Out | #s of Trash Removed                                   | Outcome(s)             |
|---------------|---|---|--|--|------------------------|---|------------------------|
| July-19       | MTSU Customs Event  | 64 MTSU Students, 3 MTSU Staff                              | 7 Educational Brochures, 197 Promos              | 64   |                        |   | MTSU Students educated |
| 8/16/2019     | RA Housing Clean-up Event   | 85 MTSU Students, 2 Stormwater staff                        |  |  |                        | 900 lbs trash   | Trash Removed          |
| 9/4/2019      | MTSU Volunteer Fair   | 72 MTSU Students, 2 Stormwater staff                        | 117 Promo Items, 22 Educational Materials        |  |                        |   | MTSU Students educated |
| 10/24/2019    | MTSU Campus Cleanup - Abolins Geol 1030 class                                       | 64 MTSU students, 2 Stormwater staff                        |  |  |                        | 52 lbs. trash   | Trash Removed          |
| 10/24/2019    | MTSU Campus Drug Take Back  |   |  |  |                        | 83 lbs of pharmaceuticals collected                   |                        |
| 2/21/2020     | MTSU Student Led Campus Cleanup   | 26 MTSU Students, 1 Stormwater Staff                        |  |  |                        | 65 lbs. trash   | Trash Removed          |
| 2/29/2020     | MTSU Student Led Greenway Cleanup - MTSU Students for Environmental Action          | 6 MTSU Students, 1 MTSU Staff                               |  |  |                        | 220 lbs trash   | Trash Removed          |
| Spring 2020   | MTSU Destress Fest & Health Fair - <i>CANCELLED DUE TO COVID-19</i>                 |   |  |  |                        |   |                        |
| 3/2/2020      | GeoSciences Class Outreach - Field Trip to Old Fort Park                            | 18 MTSU Students, 2 MTSU Staff/Faculty                      | 43 Educational Materials                         |  |                        |   | MTSU Students educated |
| 4/2/2020      | GeoSciences Class Outreach - <i>CANCELLED DUE TO COVID-19</i>                       |   |  |  |                        |   |                        |
| Spring 2020   | MTSU Prescription Drug Takeback - <i>CANCELLED DUE TO COVID-19</i>                  |   |  |  |                        |   |                        |
| Spring 2020   | MTSU Campus Cleanup - Abolins Geol 1030-07 class - <i>CANCELLED DUE TO COVID-19</i> |   |  |  |                        |   |                        |
| Summer 2020   | MTSU Customs (7 events) - <i>CANCELLED DUE TO COVID-19</i>                          |   |  |  |                        |   |                        |
| <b>TOTALS</b> |   | <b>335 MTSU Students, 13 MTSU Faculty/ Stormwater staff</b> | <b>314 Educational Brochures, 72 Print Media</b> | <b>64 Students Signed up for Email List</b>              |                        | <b>1,237 lbs. of trash, 83 lbs of pharmaceuticals</b> |                        |
|               | <i>Breakdown:</i>   | <i>335 MTSU students</i>                                    |  |  |                        |   |                        |
|               |   | <i>13 MTSU faculty/staff</i>                                |  |  |                        |   |                        |

**Targeted Education and Participation, City of Murfreesboro, FY 2019-20**

| Date                 | Event  | # of Participants   | # of People signed up for mailing list for Volunteer Opportunities | # of Brochures/Print Media, Promo Items  | #s of Trash Removed  | Trees Given Out or Planted   | Pollutants Targeted            |
|----------------------|--|---|--|--|--|--|--------------------------------|
| 9/28/2019            | Public Lands Day   | 88 Volunteers, 14 Staff/Partners                          |  | 100 Stormwater Water Bottles   | plants removed, 900 gallons of trash   |  | Riparian Restoration/Nutrients |
| 11/1/2019            | Oaklands Invasive Plant & Trash Removal - Maney Spring   | 15 MTSU Students, 12 MTSU Staff/Partners                  |  |  | 125 lbs Trash, 5 trailer loads of Invasive plants removed                                    | 15 Trees planted   | Riparian Restoration/Nutrients |
| January-20           | Neighborhood Outreach  | 256 Murfreesboro residents                                |  | 44 Tree Day letters, 212 Doorhangers   |  |  | Riparian Restoration/Nutrients |
| 2/14-15/20           | UT Chemical Applicator   | 215 Citizen Attendees                                     | 10   | 30 Educational Brochures   |  |  | Nutrients                      |
| 3/23/2020            | Annual Tree Day Public Meeting-<br><i>CANCELLED DUE TO COVID-19</i>  |   |  |  |  |  |                                |
| Spring 2020          | Annual Tree Day - <i>CANCELLED DUE TO COVID-19</i>   |   |  | 166 Letters & 166 yard waste doorhanger sent to targeted residents   |  | 172 (distributed to 14 properties), 98 to MPRS for riparian projects | Riparian Restoration           |
| 4/13/2019            | Park Day - <i>CANCELLED DUE TO COVID-19</i>  |   |  |  |  |  |                                |
| 6/23/2020            | Automotive outreach  | 183 Automotive businesses                                 |  | 183 Letters to Automotive Businesses, 183 Automotive brochures   |  |  | Hot Spot Education             |
| 7/1/2019 - 6/30/2020 | 34 Parks Department - Natural Resources Events (w/volunteers): incl. stream clean-ups, invasive plant removal, restoration, conservation and drainage projects | 334 not including National Public Lands Day               |  |  | 4,488  |  |                                |
| 7/1/2019-6/30/2020   | Outdoor Murfreesboro events: placeholder / no data   |   |  |  |  |  |                                |
| <b>TOTALS</b>        |  | <b>783 Volunteers/Citizens/Partners, Local Businesses</b> | <b>10 Citizens signed up for information</b>                       | <b>213 Print Media, 378 Door Hangers, 210 Letters to Residents, 183 Letters to Businesses, 100 Promo Materials</b> | <b>1,024 Invasive Plants Removed plus 5 trailer loads; 5513 lbs trash (1 gallon=1 pound)</b> | <b>270 Tree seedlings given out, 15 Trees planted</b>                |                                |
| <b>Breakdown:</b>    |  | 103 Volunteers/MTSU Students                              | 10 Citizens signed up for information                              | 210 Letters to Citizens for Tree Day   | 1,024 Invasive Plants Removed (plus 5 trailer loads)   | 172 Trees given to Citizens  |                                |
|                      |  | 26 Staff/Partners   |  | 378 Door Hangers   | 5513 lbs trash   | 98 Trees given to MPRD for Riparian Projects                         |                                |
|                      |  | 471 Local Citizens  |  | 183 Letters to Automotive Businesses   |  | 15 Trees planted   |                                |
|                      |  | 183 Automotive Establishments                             |  | 183 "Automotive" brochures   |  |  |                                |
|                      |  |   |  | 100 Stormwater Water bottles   |  |  |                                |
|                      |  |   |  | 30 Educational Brochures   |  |  |                                |

|    | A  | B  | C  | D  | E   | F                                     | G  | H                                      |
|----|--|--|--|--|---|---------------------------------------|--|--|
| 1  | Murfreesboro City Schools: The first date of school closure was announced on Friday March 13th. It was to go from the 16th to after Spring Break was over on the 3rd of April. School originally was set to resume on the 6th. | Rutherford County received notice March 13                                     | Covid-19 Pandemic shutdown of public schools and public gatherings                         | April 15, all TN schools closed for the remainder of the school year |   |                                       |  |  |
| 2  | <b>Yearly summary 2019-20</b>  | July 1, 2019 - June 30, 2020   |  |  |   |                                       |  |  |
| 3  | <b>4.b.i. Significant contacts with professionals in the teaching communities</b>  |  | <b>Contact Time (hr)</b>   | <b>#Participants LaVergne</b>  | <b># Participants Murfreesboro</b>          | <b># Participants Smyrna</b>          | <b># Participants Rutherford Co</b>          | <b>Other/Unknown</b>                   |
| 4  | 1st Quarter (September 30, 2019)   |  | 2  |  | 3   | 4                                     |  |  |
| 5  | 2nd Quarter (December 31, 2019)  |  | 12.75  |  | 5   |                                       |  | 138                                    |
| 6  | 3rd Quarter (March 31, 2020)   |  | 26   |  | 26  |                                       |  |  |
| 7  | 4th Quarter (June 30, 2020)  |  | 11   |  | 35  |                                       |  | 33                                     |
| 8  | <b>TOTAL</b>   |  | <b>51.75</b>   | <b>0</b>   | <b>69</b>                                   | <b>4</b>                              | <b>0</b>                                     | <b>171</b>                             |
| 9  |  |  |  |  |   |                                       |  |  |
| 10 |  |  |  |  |   |                                       |  |  |
| 11 | <b>4.b.ii. Contact hours with teachers</b>   |  | <b>Contact Time (hr)</b>   | <b>#Participants LaVergne</b>  | <b># Participants Murfreesboro</b>          | <b># Participants Smyrna</b>          | <b># Participants Rutherford Co</b>          | <b>Other/Unknown</b>                   |
| 12 | 1st Quarter (September 30, 2019)   |  | 1  | 0  | 5   | 0                                     | 0  | 0                                      |
| 13 | 2nd Quarter (December 31, 2019)  |  | 7.25   | 0  | 18  | 0                                     | 0  | 0                                      |
| 14 | 3rd Quarter (March 31, 2020)   |  | 6.75   | 0  | 7   | 0                                     | 0  | 37                                     |
| 15 | 4th Quarter (June 30, 2020)  |  | 7  | 0  | 1   | 0                                     | 0  | 25                                     |
| 16 | <b>TOTAL</b>   |  | <b>22.00</b>   | <b>0</b>   | <b>31</b>                                   | <b>0</b>                              | <b>0</b>                                     | <b>62</b>                              |
| 17 |  |  |  |  |   |                                       |  |  |
| 18 |  |  |  |  |   |                                       |  |  |
| 19 | <b>4.b.iii. Class/course registration lists when presentations are conducted</b>   |  | <b>Contact Time (hr)</b>   | <b>#Participants LaVergne</b>  | <b># Participants Murfreesboro</b>          | <b># Participants Smyrna</b>          | <b># Participants Rutherford Co</b>          | <b>Other</b>                           |
| 20 | 1st Quarter (September 30, 2019)   |  |  |  |   |                                       |  |  |
| 21 | 2nd Quarter (December 31, 2019)  |  |  |  |   |                                       |  |  |
| 22 | 3rd Quarter (March 31, 2020)   |  |  |  |   |                                       |  |  |
| 23 | 4th Quarter (June 30, 2020)  |  |  |  |   |                                       |  |  |
| 24 | <b>TOTAL</b>   |  | <b>0.00</b>  | <b>0</b>   | <b>0</b>                                    | <b>0</b>                              | <b>0</b>                                     | <b>0</b>                               |
| 25 |  |  |  |  |   |                                       |  |  |
| 26 |  |  |  |  |   |                                       |  |  |
| 27 | <b>4.b.iv. Number of students and contact hours with students</b>  |  | <b>Contact Time (hr)</b>   | <b>#Participants LaVergne</b>  | <b># Participants Murfreesboro</b>          | <b># Participants Smyrna</b>          | <b># Participants Rutherford Co</b>          | <b>Other/Unknown</b>                   |
| 28 | 1st Quarter (September 30, 2019)   |  | 12   | 4  | 144   | 89                                    | 15   | 151                                    |
| 29 | 2nd Quarter (December 31, 2019)  |  | 44   | 80   | 719   | 76                                    | 432  | 0                                      |
| 30 | 3rd Quarter (March 31, 2020)   |  | 15.25  | 115  | 684   | 0                                     | 0  | 0                                      |
| 31 | 4th Quarter (June 30, 2020)  |  | 0  | 0  | 0   | 0                                     | 0  | 0                                      |
| 32 | <b>TOTAL</b>   |  |  |  |   |                                       |  |  |
| 33 |  |  |  |  |   |                                       |  |  |
| 34 |  |  |  |  |   |                                       |  |  |
| 35 | <b>4.b.v. Number of facilitators in Rutherford County</b>  | Cindi Smith-Walters (MTSU), Kim Sadler (MTSU), Courtney Morgan, Karen Hargrove |  |  |   |                                       |  |  |
| 36 |  |  |  |  |   |                                       |  |  |
| 37 |  |  |  |  |   |                                       |  |  |
| 38 | <b>4.b.vi. Number of Project WET-certified teachers trained</b>  |  | <b>Number</b>  | <b>#Participants LaVergne</b>  | <b># Participants Murfreesboro</b>          | <b># Participants Smyrna</b>          | <b># Participants Rutherford Co</b>          | <b>Other/Unknown</b>                   |
| 39 | 1st Quarter (September 30, 2019)   |  | 12   |  |   |                                       |  | 12                                     |
| 40 | 2nd Quarter (December 31, 2019)  |  | 49   |  |   |                                       |  | 49                                     |
| 41 | 3rd Quarter (March 31, 2020)   |  | 33   |  |   |                                       |  | 33                                     |
| 42 | 4th Quarter (June 30, 2020)  |  | 0  |  |   |                                       |  | 0                                      |
| 43 | <b>TOTAL</b>   |  | <b>94</b>  |  |   |                                       |  | <b>94</b>                              |
| 44 |  |  |  |  |   |                                       |  |  |
| 45 |  |  |  |  |   |                                       |  |  |
| 46 | <b>Existing school gardens/Outdoor Classrooms</b>  | <b>School District</b>   | <b>Schools</b>   |  |   |                                       |  |  |
| 47 |  | County Schools   | McFadden (Outdoor Cason Lane(gardens), Black Fox (gardens), Mitchell-Neilson Primary (OC), | Bradley (gardens, not in use), Northfield (gardens, Luke Dickerson)  |   |                                       |  |  |
| 48 |  | Murfreesboro Schools   |  |  |   |                                       |  |  |
| 49 |  |  |  |  |   |                                       |  |  |
| 50 |  |  |  |  |   |                                       |  |  |
| 51 | <b>Educational Materials</b>   |  |  | <b># Items to Participants LaVergne</b>                              | <b># Items to Participants Murfreesboro</b> | <b># Items to Participants Smyrna</b> | <b># Items to Participants Rutherford Co</b> | <b># Items to participants unknown</b> |
| 52 | 1st Quarter (September 30, 2019)   |  |  |  |   |                                       |  |  |
| 53 | Stones River Watershed Maps  |  |  |  |   | 39                                    |  | 15                                     |
| 54 | TN Watershed Maps  |  |  |  |   | 28                                    |  | 12                                     |
| 55 | Project WET activity booklets  |  |  |  |   |                                       |  | 37                                     |
| 56 | Chip Clips   |  |  |  |   |                                       |  | 75                                     |
| 57 | Pencils  |  |  |  |   | 259                                   |  | 1600                                   |
| 58 | Other printed materials  |  |  |  |   | 142                                   |  | 31                                     |
| 59 | Magnifiers/bandaide boxes/other  |  |  |  |   |                                       | 100  | 235                                    |
| 60 |  |  |  |  |   |                                       |  |  |
| 61 | 2nd Quarter (December 31, 2019)  |  |  |  |   |                                       |  |  |
| 62 | Stones River Watershed Maps  |  |  |  |   |                                       | 10   | 62                                     |
| 63 | TN Watershed Maps  |  |  |  |   |                                       |  |  |
| 64 | Project WET activity booklets  |  |  |  |   | 5                                     |  | 30                                     |
| 65 | Chip Clips   |  |  |  |   | 19                                    |  | 73                                     |
| 66 | Pencils  |  |  |  |   | 70                                    | 205  | 128                                    |
| 67 | Other printed materials  |  |  |  |   |                                       | 430  | 193                                    |
| 68 | Magnifiers/bandaide boxes/other  |  |  |  |   | 198                                   | 240  | 18                                     |
| 69 |  |  |  |  |   |                                       |  |  |
| 70 | 3rd Quarter (March 31, 2020)   |  |  |  |   |                                       |  |  |
| 71 | Stones River Watershed Maps  |  |  |  |   | 50                                    |  | 51                                     |
| 72 | TN Watershed Maps  |  |  |  |   |                                       |  |  |
| 73 | Project WET activity booklets  |  |  |  |   | 6                                     |  | 51                                     |
| 74 | Chip Clips   |  |  | 5  | 23  |                                       | 6  | 33                                     |
| 75 | Pencils  |  |  | 125  | 667   |                                       |  | 18                                     |
| 76 | Other printed materials  |  |  |  |   |                                       |  | 33                                     |
| 77 | Magnifiers/bandaide boxes/other  |  |  | 5  | 30  |                                       |  | 84                                     |
| 78 |  |  |  |  |   |                                       |  |  |
| 79 | 4th Quarter (June 30, 2020)  |  |  |  |   |                                       |  |  |
| 80 | Stones River Watershed Maps  |  |  |  |   |                                       |  |  |
| 81 | TN Watershed Maps  |  |  |  |   |                                       |  |  |
| 82 | Project WET activity booklets  |  |  |  |   |                                       |  |  |
| 83 | Chip Clips   |  |  |  |   |                                       |  |  |
| 84 | Pencils  |  |  |  |   |                                       |  |  |
| 85 | Other printed materials  |  |  |  |   |                                       |  |  |
| 86 | Magnifiers/bandaide boxes/other  |  |  |  |   |                                       |  |  |
| 87 |  |  |  |  |   |                                       |  |  |
| 88 | <b>YEAR'S TOTAL</b>  |  |  | <b>135</b>   | <b>1068</b>                                 | <b>913</b>                            | <b>564</b>                                   | <b>2851</b>                            |
| 89 |  |  |  |  |   |                                       |  |  |
| 90 |  |  |  |  |   |                                       |  |  |
| 91 | <b>Public Festivals/Exhibitions</b>  |  |  | <b># Participants LaVergne</b>                                       | <b># Participants Murfreesboro</b>          | <b># Participants Smyrna</b>          | <b># Participants Rutherford Co</b>          | <b>Other</b>                           |
| 92 | 1st Quarter (September 30, 2019)   |  |  | 0  | 2762  | 310                                   | 0  | 22                                     |
| 93 | 2nd Quarter (December 31, 2019)  |  |  | 3  | 203   | 5                                     | 27   | 5                                      |
| 94 | 3rd Quarter (March 31, 2020)   |  |  | 0  | 0   | 0                                     | 0  | 0                                      |
| 95 | 4th Quarter (June 30, 2020)  |  |  | 0  | 0   | 0                                     | 0  | 0                                      |
| 96 | <b>TOTAL</b>   |  |  | <b>3</b>   | <b>2965</b>                                 | <b>315</b>                            | <b>27</b>                                    | <b>27</b>                              |

**Stormwater Performance Metrics  
Annual Report – FY 2019-20**

| <b>Indicator</b>                                | <b>Began Tracking (year)</b> | <b>Frequency (data is tabulated)</b> | <b>Measure, Units Total (T) or Annual (A)</b>  |
|---|------------------------------|--------------------------------------|--|
| Street sweeper debris (Street Dept.)            | 2006                         | Monthly                              | City wide, 1950 tons (A)   |
| Regulatory buffer along streams                 | 2007                         | Annually                             | 12.8 mi (30.2% both sides); 174 parcels; 119.1 acres (T)   |
| Storm sewer clean. (MWRD)                       | 2008                         | Weekly                               | 6 tons, 9,851 feet of pipe (A)   |
| Visual stream assessments                       | 2008                         | Annually                             | 3.08 miles (Sinking Creek)   |
| Project plans reviewed (q.6.D)                  | ~2009                        | Monthly                              | Reviewed/regulated: 209/108<br>Prelim. plats: 43/31 Sites: 166/77  |
| Projects approved (q.6.E.)                      | ~2009                        | Weekly                               | 59 (Pre-con or PRC rev. FY19-20)<br>S/divisions: 21 Sites: 38  |
| Annexation;City Limits                          | ~2009                        | Varies                               | 654 acres (A); 64.0 sq. mi. (T, 6/30/2020)   |
| Operating expenses                              | 2009                         | Daily                                | \$ 2,559,816 (A)   |
| Capital project expenses                        | 2009                         | Monthly                              | \$ 531,589 (A)   |
| DRIP program (drainage improvement/rehab)       | 2012                         | Weekly                               | 169 logged; all resolved (based on Street Div. nos.) (A)   |
| Maint. Agreements                               | ~2012                        | Weekly                               | 90 (A)   |
| E.coli  | 2010                         | Varies                               | 14 samples (A)   |
| Capital projects                                | 2012                         | Annually                             | Spence Creek w/shed study; West Fork S.R. bank repair; stormwater repair and rehab projects; Town Creek daylighting design & land purchase; all in process |
| SCM sites mapped                                | ~2012                        | Monthly                              | 293, GIS; 352, Google (T) (6/30/2020)  |
| Construction-phase SCM sites                    | 2015                         | Weekly (AL)                          | 204 in admin. process; 89 in construction-phase, actively inspected (from June stormwater dashboard) (A)   |
| Macroinvertebrate, sites sampled (cursory/SQSH) | 2015                         | Varies                               | 8 SQSH samples within City (A); 1 MMI  |
| Storm sewer cleaning (Streets)                  | 2016                         | Weekly                               | 100 cubic yds (A)  |
| LID installations                               | 2017                         | Annually                             | 43.25 acres of porous concrete/pavers<br>147 rain gardens, bioretention, infiltration sites (T)  |
| C/Os on LDP sites (Codes Dept.)                 | 2017                         | Annually                             | n/d; previously based on Codes Dept. (S. Qualls) query   |
| Sewerage rehab. various locations               | 2018                         | Annually                             | Est. 16,000 ft. of pipe (A); based on rpt from Mark Crow (S&ME)  |