



Tennessee Department of Environment and Conservation
 Division of Water Pollution Control
 Enforcement and Compliance Section
 L&C Annex, 6th Floor, 401 Church Street
 Nashville, TN 37243
 (615) 532-0625

Small Municipal Separate Storm Sewer System (MS4) Annual Report

1. MS4 INFORMATION

Knox County, Tennessee (unincorporated)

Name of MS4

Chris Granju, P.E.

Name of Contact Person

865-215-5840

Telephone (including area code)

205 West Baxter Avenue

Mailing Address

Knoxville

TN

37917

City

State

ZIP code

What is the current population of your MS4? 232,676

What is the reporting period for this annual report? From July 1, 2010 to June 30, 2011

2. PROTECTION OF STATE OR FEDERALLY LISTED SPECIES

A. Are any of the MS4 discharges or discharge-related activities likely to jeopardize any state or federally listed species (**Part 3, Special Conditions, General Permit for Phase II MS4s**) Yes No

B. Please attach the determination of the effect of the MS4 discharges on state or federally listed species per sub-part 3.2.1

Knox County has not made an evaluation of the effects of its stormwater discharges, allowable non-stormwater discharges, and discharge related activities on state and federally listed species and critical habitat as outlined in section 3.2.1 of the current MS4 permit.

During the previous permit cycle, Knox County required that any proposed development located within, or discharging storm water to, a buffer area for threatened species, endangered species, or critical habitat (as defined by the ESA) be reviewed by the United States Fish and Wildlife Service prior to Knox County's review of a storm water management plan.

3. WATER QUALITY PRIORITIES

A. Does your MS4 discharge to waters listed as impaired on the state 303(d) list? Yes No

B. If yes, identify each impaired water, the impairment cause(s), whether a TMDL has been approved by EPA for each, and whether the TMDL identifies your MS4 as a source of the impairment.

Waterbody I.D. #	Cause/TMDL Priority	Approved TMDL	MS4 Assigned to WLA
TN06010104001-0100 Love Creek (Located within the City of Knoxville)(Holston River Watershed)	Loss of biological integrity due to siltation Other Anthropogenic Habitat Alterations	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

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TN06010104001-0500 ROSEBERRY CREEK (Holston River Watershed)	Escherichia coli	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
TN06010104001-1400 SWANPOND CREEK (Holston River Watershed)	Loss of biological integrity due to siltation Alteration in stream-side or littoral vegetative cover Escherichia coli	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
TN06010104019-0100 LITTLE FLAT CREEK (Holston River Watershed)	Escherichia coli	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
TN06010104019-2000 FLAT CREEK (Holston River Watershed)	Escherichia coli	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
TN06010201020 - 1000 FORT LOUDOUN RESERVOIR (Upper Tennessee River Watershed)	PCBs	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
TN06010201020 - 2000 FORT LOUDOUN RESERVOIR (Upper Tennessee River Watershed)	Mercury PCBs	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
TN06010201026 – 0100 RODDY BRANCH (Upper Tennessee River Watershed)	Alteration in stream-side or littoral vegetative cover, Physical Substrate Habitat Alteration, Loss of biological integrity due to siltation, Escherichia coli	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
TN06010201037 – 1000 LITTLE TURKEY CREEK (Upper Tennessee River Watershed)	Loss of biological integrity due to siltation	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
TN06010201066 – 0100 CASTEEL BRANCH (Upper Tennessee River Watershed)	Loss of biological integrity due to siltation	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
TN06010201066 – 0200 TWIN BRANCH (Upper Tennessee River Watershed)	Habitat loss due to alteration in stream-side or littoral vegetative cover Loss of biological integrity due to siltation	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
TN06010201066 – 0400 Grandview Branch (Upper Tennessee River Watershed)	Escherichia coli	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
TN06010201066 – 0500 McCALL BRANCH (Upper Tennessee River Watershed)	Loss of biological integrity due to siltation	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
TN06010201066 – 0600 HIGH BLUFF BRANCH (Upper Tennessee River Watershed)	Escherichia coli	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
TN06010201066 – 1000 STOCK CREEK (Upper Tennessee River Watershed)	Escherichia coli	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
TN06010201066 – 1200 GUN HOLLOW BRANCH (Upper Tennessee River Watershed)	Escherichia coli	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
TN06010201066 – 2000 STOCK CREEK (Upper Tennessee River Watershed)	Escherichia coli	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No

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TN06010201067 – 0100 EAST FORK THIRD CREEK (Upper Tennessee River Watershed) <i>Located within the City of Knoxville</i>	Loss of biological integrity due to siltation Other Anthropogenic Habitat Alterations Escherichia coli	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
TN06010201067 – 1000 THIRD CREEK (Upper Tennessee River Watershed) <i>Located within the City of Knoxville</i>	Nitrates Loss of biological integrity due to siltation Other Anthropogenic Habitat Alterations Escherichia coli	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
TN06010201080 – 0100 WHITES CREEK (Upper Tennessee River Watershed)	Other Anthropogenic Habitat Alterations Escherichia coli	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
TN06010201080 – 1000 FIRST CREEK (Upper Tennessee River Watershed) <i>Located within the City of Knoxville</i>	Nitrate+Nitrite Loss of biological integrity due to siltation Other Anthropogenic Habitat Alterations Escherichia coli	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
TN06010201097- 1000 SECOND CREEK (Upper Tennessee River Watershed) <i>Located within the City of Knoxville</i>	Nitrate+Nitrite Loss of biological integrity due to siltation Other Anthropogenic Habitat Alterations Escherichia coli	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
TN060102011330 – 1000 SINKING CREEK (Upper Tennessee River Watershed)	Escherichia coli	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
TN060102011334 – 0100 TEN MILE CREEK (formerly called Sinking Creek) (Upper Tennessee River Watershed)	Habitat loss due to alteration in stream-side or littoral vegetative cover Loss of biological integrity due to siltation Escherichia coli	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
TN06010201340 – 1000 TURKEY CREEK (Upper Tennessee River Watershed)	Loss of biological integrity due to siltation Escherichia coli	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
TN06010201697 – 1000 FOURTH CREEK (Upper Tennessee River Watershed) <i>Located within the City of Knoxville</i>	Physical Substrate Habitat Alterations Escherichia coli	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
TN06010201719 – 1000 WILLIAMS CREEK (Upper Tennessee River Watershed) <i>Located within the City of Knoxville</i>	Other Anthropogenic Habitat Alterations Escherichia coli	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
TN06010201721 – 1000 BAKER CREEK (Upper Tennessee River Watershed) <i>Located within the City of Knoxville</i>	Nitrate+Nitrite Other Anthropogenic Habitat Alterations Escherichia coli	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
TN06010201723 – 1000 GOOSE CREEK (Upper Tennessee River Watershed) <i>Located within the City of Knoxville</i>	Loss of biological integrity due to siltation Other Anthropogenic Habitat Alterations PCBs Escherichia coli	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
TN06010207004 – 0100 GRABLE BRANCH (Lower Clinch River Watershed)	Oil & Grease Loss of biological integrity due to siltation Physical Substrate Habitat Alterations	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
TN06010207006 - 1000 MELTON HILL RESERVOIR (Lower Clinch River Watershed)	PCBs Chlordane	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No

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TN06010207011 – 0300 WILLOW FORK (Lower Clinch River Watershed)	Alteration in stream-side or littoral vegetative cover Loss of biological integrity due to siltation Escherichia coli	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
TN06010207011 – 0400 COX CREEK (Lower Clinch River Watershed)	Escherichia coli	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
TN06010207011 – 0500 HINES BRANCH (Lower Clinch River Watershed)	Habitat loss due to other anthropogenic substrate alterations Escherichia coli	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
TN06010207011 – 0600 KNOB FORK (Lower Clinch River Watershed)	Loss of biological integrity due to siltation Habitat loss due to other anthropogenic substrate Alteration in stream-side or littoral vegetative cover Escherichia coli	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
TN06010207011 – 0700 GRASSY CREEK (Lower Clinch River Watershed)	Loss of biological integrity due to siltation Escherichia coli	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
TN06010207011 – 0800 MEADOW CREEK (Lower Clinch River Watershed)	Escherichia coli	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
TN06010207011 – 0900 PLUM CREEK (Lower Clinch River Watershed)	Escherichia coli	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
TN06010207011 – 1000 BEAVER CREEK (Lower Clinch River Watershed)	Phosphate Nitrates Escherichia coli Low Dissolved Oxygen Loss of biological integrity due to siltation Physical Substrate Habitat Alterations	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
TN06010207011 – 2000 BEAVER CREEK (Lower Clinch River Watershed)	Escherichia coli Loss of biological integrity due to siltation Physical Substrate Habitat Alterations	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
TN06010207011 – 3000 BEAVER CREEK (Lower Clinch River Watershed)	Escherichia coli Loss of biological integrity due to siltation Physical Substrate Habitat Alterations	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
TN06010207014 – 0100 WILLIAMS BRANCH (Lower Clinch River Watershed)	Loss of biological integrity due to siltation	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
TN06010207014 – 1000 BULLRUN CREEK (Lower Clinch River Watershed)	Escherichia coli Loss of biological integrity due to siltation Physical Substrate Habitat Alterations	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No

C. What specific sources of these pollutants of concern are you targeting? **Construction sites, agricultural activities, sewer and septic failures.**

D. Do you have discharges to any Exceptional TN Waters (ETWs) or Outstanding National Resource Waters (ONRWs)? Yes No

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Yes No

E. Are you implementing additional specific provisions to ensure the continued integrity of ETWs or ONRWS located within your jurisdiction?

Knox County enforces the “Discharges into Impaired or Exceptional Tennessee Waters” standards from the State of Tennessee’s General NPDES Permit for Discharges of Stormwater Associated with Construction Activities in all watersheds in Knox County. (Section 5.4). In addition, Knox County has a Construction Site Runoff Program, Permanent Stormwater Management Program, Illicit Discharge Detection and Elimination Program and an Education/Outreach Program that have measures built in to prevent, detect and eliminate polluted discharges to watersheds in Knox County.

4. PUBLIC EDUCATION AND PUBLIC PARTICIPATION

A. Is your public education program targeting specific pollutants and sources of those pollutants?

Yes No

B. If yes, what are the specific causes, sources and/or pollutants addressed by your public education program?

Knox County has identified the following as pollutants of concern from non-point sources:

1. Fertilizers/Nutrients: from individual household and business landscaping activities, golf courses, food facilities, large parking areas, municipal operations and laundry facilities.
2. Pesticides: from individual household and business landscaping and pest removal activities, farming activities, municipal operations, and golf courses.
3. Hydrocarbons: from individual households, parking lots of businesses, construction activities, municipal operations and automotive facilities.
4. Grease/oil: from restaurants and food facilities.
5. Household Chemicals: from individual households, professional cleaning services and businesses conducting cleaning activities on premises.
6. Heavy Metals: from individual automobile owners, large parking lots, municipal operations and automotive facilities
7. Pathogens: from individual households due in part to pet waste and faulty septic systems, restaurant and food facilities, and large parking lots
8. Sediment: from individual households, construction sites and municipal operations
9. Concrete: from construction activities and municipal operations

C. Note specific successful outcome(s) (NOT tasks, events, publications) fully or partially attributable to your public education program during this reporting period.

- Workshops for Existing Automotive and Related Businesses in Knox County:

- Knox County Stormwater Management in conjunction with the Fort Loudoun Lake Association hosted three automotive and related facilities workshops. The workshops were held on 8/26/2010, 9/2/2010 and 12/10/2010. The workshops emphasized Best Management Practices (BMPs) that are easily implemented and require modest changes to routine operations that have a big impact on reducing stormwater pollution. There are approximately 300 automotive and related businesses in Knox County. As a result of these workshops:
 - 110 business owners or representatives attended. This represents approximately 37% of automotive and related businesses in Knox County.
 - 113 Special Pollution Abatement Permits for existing automotive and related facilities were submitted to Knox County. This represents approximately 38% of automotive and related businesses in Knox County. This number is slightly higher than the number of attendees at the workshops due to the fact that some owners/representatives could not attend training and were given individual information at their business site and a SPAP was completed.
 - 71 Stormwater Pollution Prevention Plans for existing automotive and related facilities were submitted to Knox County. This represents approximately 24% of automotive and related businesses in Knox County.

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- Adopt A Stream:
 - Knox County Stormwater Management is the Knox County facilitator for the Water Quality Forum's Adopt a Stream Program. This program is a citizen based clean up and monitoring program that allows interested groups/individuals to actively engage in removing litter and visually assessing the quality of the adopted stream. Currently, Knox County has 5 active groups. In this reporting period:
 - 4 stream clean-ups were conducted that resulted in approximately 1,000 pounds of trash being removed from County creeks.
 - 3 visual stream assessments were conducted. The stream assessments look at 10 parameters of stream health and are rated using the USDA Stream Visual Assessment Protocol.
 - 2 training sessions were held by Knox County Stormwater Management. The training sessions teach new groups the basics of watershed science and stream health. They also introduce groups to the concepts of point and non-point source pollution.
 - Approximately 35 citizens were actively engaged in assessing and cleaning of local creeks.
- Rain Barrel Program:
 - Knox County in conjunction with the Fort Loudoun Lake Association hosted three rain barrel workshops in this reporting period. 62 people attended making 90 rain barrels. Attendees receive 45-minutes of stormwater pollution prevention education prior to making the rain barrels. The workshops were held on 8/14/2010, 9/23/2010 and 6/7/2011.
 - Knox County in conjunction with the City of Knoxville and the Town of Farragut held a one day truckload sale of rain barrels and compost bins on 6/11/2011. 546 rain barrels were sold that day.
 - For this reporting period, 654 rain barrels have been sold.
- Website Complaint/Queries:
 - Knox County Stormwater Management implemented a "contact us" button on our website in November of 2010. In this reporting period, 137 inquiries have come in to this office related to stormwater issues.
- Adopt A Watershed:
 - Knox County Stormwater Management sponsors a 7- member AmeriCorps Water Quality Team that is trained to assist teachers in conducting quality watershed place-based learning projects. Knox County is dedicated to inspiring students to become watershed stewards who strive to create a healthy quality of life for current and future generations.
 - *This section will be divided into two parts. The first section relates to the MEASURABLE outcomes (ie..numbers...) associated with this part of Knox County Stormwater Management's public education program. The second section details the learning opportunities for Knox County students associated with the Adopt A Watershed program.*
 - **Section I: Measurable Outcomes:**
 - Middle and high school students were involved in AAW projects that directly improved the health our local watersheds:
 - 6-invasive species removal days were held during this reporting period. 133 community members were engaged in these activities.
 - 4-tree and native grass planting days were held during this reporting period. 62 community members were involved during these activities.
 - 1-stormwater retrofit implemented at West Valley Middle School. Students, staff and other partners were involved in designing and planting of the project. See below for details:
 - Installation of 150 linear ft grassy swale
 - Installation of an upper rain garden designed to have a capacity of about 2000 cubic feet
 - Installation of a lower pond/wetland that will either be wet or hold water most of the year and will have a capacity of about 2500cubic feet.
 - As part of this project, 400 students learned about watershed concepts including stormwater management and protection strategies. Lessons were prepared to focus students on participating in planting days. The topics included soils, infiltration and planning as well as stormwater management strategies like rain gardens. Each student participated in 10 AAW activities equating to eight educational hours.

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- **Section II: Additional Adopt A Watershed Public Education Outcomes:**
 - **1608 middle and high students** in Adopt-A-Watershed (AAW) water quality educational activities with each activity lasting between 60 – 90 minutes.
 - 96% percent of these students were engaged in **five or more educational activities**
 - **1446 middle and high school students** were involved in AAW projects that improved the health of and/or quality-of-living in our local watersheds. Watershed improvement projects included the following:
 - **Beaver Creek Watershed:**
 - Ecology class created flyers for a recycling media campaign that was a component of a newly established recycling plastic and aluminum program. This spring a waste audit was conducted in conjunction with EarthFlag to demonstrate the impacts of recycling.
 - Ecology class created the design for a green roof display which will be installed on the side of a shed near the Gibbs Outdoor Classroom (GOC). The display will demonstrate the various layers of a green roof and their function.
 - Ecology class created native warm season grass (NWSG) posters to promote the installation of these types of grasses in the GOC.
 - Forestry and Greenhouse Management classes helped to market the Halls Outdoor Classroom (HOC) community planting event and also assisted with ongoing HOC maintenance.
 - Greenhouse Management and horticulture classes helped in maintaining the HOC including preparing for the 2011 HOC Spring Celebration. This included mulching trails and removing weeds and trash. Greenhouse students created an informational brochure about arboretums in an effort to promote the HOC arboretum. Horticulture students grew switch grass from seed for the native grass plots in the HOC.
 - Gateway English class participated in the Water Fest Poetry and Arts Competition.
 - Environmental Chemistry class created stormwater outreach posters to demonstrate the best management practices local businesses use for pollution prevention. The posters were displayed at Auto Zone, Castrol Express Lube, and the Halls High library.
 - Ecology class created 3D models of the HOC. The models and a map of the HOC were displayed at the Halls branch of the Knoxville TVA Credit Union.
 - Ecology class created informational rain garden posters that were then displayed at the Halls Branch Public Library.
 - Ecology class learned about the benefit of trees to their local watershed and created multiple displays for Powell High's science classrooms.
 - Ecology class focused on invasive species in the Southeast. They generated a privet removal handout that was used on a privet removal workday to educate volunteers.
 - Ecology class identified trees in the Powell Outdoor classroom and created posters about the benefits of those specific trees for their school.
 - 7th grade Honors Science class generated a rain garden maintenance manual to enable future classes of students to better care for the Powell Middle School rain gardens.
 - 8th grade Science class built rain garden models that were paired with Ms. Erica Johnson's Ecology classes' rain garden posters and are currently displayed in the Halls and Powell branch libraries.
 - AP Environmental Science class organized a Green Week on their campus, during which every morning they made announcements about watershed issues. They also created a Powerpoint and poster which they presented to the PTSA in an effort to solicit funds for arboretum signs.

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AP Env Science class identified and labeled the trees in the Karns Arboretum and created a related promotional brochure.

- Biology 2 Honors class performed a bacterial source tracking experiment that utilized molecular biology techniques to identify animal sources contributing to bacteria loads at a farm located in the Beaver Creek Watershed that had applied Knox County Soil Conservation District (SCD)-recommended BMPs. They then created a poster about these farm BMP's and their experiment results that was used on the Beaver Creek Farm tour.
- Biology class generated posters and brochures about farm BMP's that will be provided to the Knox Co. SCD for future use.
- **Baker Creek Watershed**
 - 7th grade Science classes initiated composting throughout the school in order to have a source of enriched soils to grow native plants in a raised garden bed area.
 - 6th grade Science class studied climatology in relation to the effects on native and exotic plants and developed a display currently located at the Bonny Kate Library.
- **First Creek Watershed**
 - 9th grade Honors Biology classes conducted a Stormwater Awareness Day where they educated their peers about stormwater runoff, water pollutants, impervious and pervious surfaces, and water importance.
 - 11th- and 12th-grade fall Ecology class wrote, filmed, and edited an 8-minute environmental video which focused on the world's most pressing environmental issues and ways in which high school students can help. The video was shown to all Central High students through the school's PA system.
 - 11th- and 12th-grade spring Ecology class participated in a day of invasive species removal and litter pickup in Fountain City Park with the help of Bob Davis from the Fountain City Lions Club and Mark Campen of Izaak Walton League.
- **Love Creek Watershed**
 - 7th grade honors Science classes hosted a Stormwater Awareness Day for approximately 60 6th graders. Students rotated through 6 stations taught by the 7th graders and covered the topics land use pollutants, impervious surfaces, sediment pollution, BMPs, water chemistry, and benthic macroinvertebrates.
- **Lyons Creek Watershed**
 - Ecology classes conducted a watershed investigation including the physical, chemical, and visual assessments of four sites along Lyon Creek.
 - AP Environmental Science classes researched and designed features for the school's future outdoor classroom.
 - Four Ecology classes created 30 education posters on invasive and native plants, removed over 500 lbs of invasive species from the outdoor classroom, and planted six native trees.
- **Stock Creek Watershed**
 - Ecology class conducted a stormwater pollution prevention plan (SWPPP) investigation of their campus and developed educational material based on their findings.
 - Ecology class conducted a stream assessment along the property of a farmer who had participated in the Knox Co. Soil Conservation District program and had fenced out livestock from an adjacent stream. Based on their investigation, the students selected to enhance this property owner's habitat by installing bluebird boxes on their fence posts.

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- **Ten Mile Creek Watershed**

- 8th grade Science classes installed native plants for Phase 1 of West Valley Middle School's outdoor classroom project. Students planted 170 native grasses, perennials and trees along the edge of the upper pool area and swale.

- **Third Creek Watershed**

- 11th- and 12th-grade AP Environmental Science classes led a SWPPP investigation of the West High campus. As part of the investigation, the students identified potential pollutants, considered ways to prevent the pollution, and interviewed site-specific faculty and staff members to learn more.
- 11th- and 12th-grade Environmental Science classes planned and implemented a Stormwater Awareness Day, an event where the students taught freshmen about water quality during their advisory period, chalked the campus' stormwater flow, and hung educational posters around campus.
- 9th-grade Environmental Science classes designed and painted three rain barrels which have been installed near the outdoor classroom.
- 11th- and 12th-grade Ecology classes designed and planted a native garden, participated in invasive species removal along Third Creek, and created a green roof presentation which was presented to West High's PTSO in the hope of eventually installing a green roof on campus.

D. Do you have an advisory committee or other body comprised of the public and other stakeholders that provides regular input on your stormwater program? Yes No

E. Provide a summary of all public meetings required by the permit. No public meetings were required during this permitting period.

5. CODES AND ORDINANCES REVIEW AND UPDATE

A. Is a completed copy of the EPA Water Quality Scorecard submitted with this report? Yes No

B. Include status of implementation of code, ordinance and/or policy revisions associated with permanent stormwater management. The EPA Water Quality Scorecard was not required to be completed in the last permit cycle. It will be completed for next year's annual report.

6. CONSTRUCTION

A. Do you have an ordinance or adopted policies stipulating:
Erosion and sediment control requirements? Yes No

Other construction waste control requirements? Yes No

Requirement to submit construction plans for review? Yes No

MS4 enforcement authority? Yes No

B. How many active construction sites disturbing at least one acre were there in your jurisdiction this reporting period? 134

C. How many of these active sites did you inspect this reporting period? 134

D. On average, how many times each, or with what frequency, were these sites inspected monthly (e.g., weekly, monthly, etc.)?

E. Do you prioritize certain construction sites for more frequent inspections? Yes No

If Yes, based on what criteria? All sites are considered priority sites in Knox County and monthly inspections are done for each site. Additional inspections are done for active construction and installation of infrastructure (e.g., road and pipe installation), NOV (notice of violation) follow up and work orders.

7. ILLICIT DISCHARGE ELIMINATION

A. Have you completed a map of all outfalls and receiving waters of your storm sewer system? Yes No

B. Have you completed a map of all storm drain pipes of storm sewer system? Yes No

This is a requirement of the new permit and will be completed by the end of the permit cycle.

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- C. How many outfalls have you identified in your system? 2770; 1047 pipes, 1635 ditches, 88 springs
- D. How many of these outfalls have been screened for dry weather discharges? We have not completed any "planned" dry weather screening, but are walking all streams for stream assessments and we are documenting any discharges that are found.
- E. How many of these have been screened more than once? 0
- F. What is your frequency for screening outfalls for illicit discharges? Currently, Knox County does not have a standard operating procedure (SOP) for this, but we are documenting any illicit discharge as we are walking all of the streams for stream assessments. We will develop a SOP during this permit cycle.
- G. Do you have an ordinance that effectively prohibits illicit discharges? Yes No
- H. During this reporting period, how many illicit discharges/illegal connections have you discovered (or been reported to you)? 30 reported to Stormwater Management and 35 to the Health Department-- 65 total
- I. Of those illicit discharges/illegal connections that have been discovered or reported, how many have been eliminated? 61/65 total have been eliminated. We have also, through the Soil Conservation District's Bull Run Creek watershed initiative, completed 14 septic repairs in the Bull Run Creek Watershed.
- 8. STORMWATER MANAGEMENT FOR MUNICIPAL OPERATIONS**
- A. Have stormwater pollution prevention plans (or an equivalent plan) been developed for:
- | | | |
|---|---|--|
| All parks, ball fields and other recreational facilities | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| All municipal turf grass/landscape management activities | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| All municipal vehicle fueling, operation and maintenance activities | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| All municipal maintenance yards | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| All municipal waste handling and disposal areas | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
- Knox County will be developing stormwater pollution prevention plans for all facilities in accordance with our Notice of Intent (NOI).
- B. Are stormwater inspections conducted at these facilities? Yes No
1. If Yes, at what frequency are inspections conducted? Yes, inspections are conducted but only at the Engineering and Public Works facility every two weeks. Inspections of other facilities will be added in accordance with our Notice of Intent (NOI).
- C. Have standard operating procedures or BMPs been developed for all MS4 field activities? (e.g., road repairs, catch basin cleaning, landscape management, etc.)
- No, Knox County does not have written SOPs for all MS4 field activities. We do, however, follow TDEC's Erosion and Sediment Control Handbook for BMP's and highway crews are required to have Level I training and certifications. And we do obtain necessary permits from TDEC, when warranted. SOPs will be developed in accordance with our NOI. Yes No
- D. Do you have a prioritization system for storm sewer system and permanent BMP inspections?
- Knox County's district supervisors are familiar with roads that typically flood or that are known problem areas. They try to inspect and perform preventative maintenance on those areas prior to any known upcoming weather event. Yes No
- E. On average, how frequently are catch basins and other inline treatment systems inspected? As needed.
- F. On average, how frequently are catch basins and other inline treatment systems cleaned out/maintained? These are cleaned-out on a complaint basis or as needed.
- G. Do municipal employees in all relevant positions and departments receive comprehensive training on stormwater management? Yes No
- H. If yes, do you also provide regular updates and refreshers? Yes No
- If so, how frequently and/or under what circumstances? annually

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9 PERMANENT STORMWATER CONTROLS

- A. Do you have an ordinance or other mechanism to require:
- | | | |
|---|---|--|
| Site plan reviews of all new and re-development projects? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| Maintenance of stormwater management controls? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| Retrofitting of existing BMPs with green infrastructure BMPs? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
- B. What is the threshold for new/redevelopment stormwater plan review? (e.g., all projects, projects disturbing greater than one acre, etc.) **All projects disturbing greater than 1-acre or adding 10,000 sq ft impervious area.**
- C. Have you implemented and enforced performance standards for permanent stormwater controls? Yes No
- D. Do these performance standards go beyond the requirements found in paragraph 4.2.5.2 and require that pre-development hydrology be met for:
- | | | |
|----------------------|---|--|
| Flow volumes | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| Peak discharge rates | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| Discharge frequency | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| Flow duration | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
- E. Please provide the URL/reference where all permanent stormwater management standards can be found.
www.knoxcounty.org/stormwater
- F. How many development and redevelopment project plans were reviewed for this reporting period? **28**
- G. How many development and redevelopment project plans were approved? **30**
- H. How many permanent stormwater management practices/facilities were inspected?
- **N/A. Permanent stormwater management facility inspections were not required in this permit cycle.**
- I. How many were found to have inadequate maintenance? **N/A. See above.**
- J. Of those, how many were notified and remedied within 30 days? (If window is different than 30 days, please specify) **NA. See above.**
- K. How many enforcement actions were taken that address inadequate maintenance? **N/A. See above.**
- L. Do you use an electronic tool (e.g., GIS, database, spreadsheet) to track post-construction BMPs, inspections and maintenance?
- **This was not a requirement during this reporting period. Knox County has a filing system to track permanent BMPs. We are implementing a comprehensive GIS based data system that will track all permanent stormwater BMPs, inspections and maintenance.**
- | | | |
|--|------------------------------|--|
| | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
|--|------------------------------|--|
- M. Do all municipal departments and/or staff (as relevant) have access to this tracking system? **Please see above.**
- | | | |
|--|------------------------------|--|
| | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
|--|------------------------------|--|
- N. Has the MS4 developed a program to allow for incentive standards for redeveloped sites? Yes No
- O. How many maintenance agreements has the MS4 approved during the reporting period? **24**

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10. ENFORCEMENT

A. Identify which of the following types of enforcement actions you used during the reporting period, indicate the number of actions, the minimum measure (e.g., construction, illicit discharge, permanent stormwater control) or note those for which you do not have authority:

Action	Construction	Permanent Stormwater Controls	Illicit Discharge	Authority?	
Notice of violation	# <u>281</u>	# <u>N/A</u>	# <u>37</u>	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Administrative fines	# <u>N/A</u>	# <u>N/A</u>	# <u>N/A</u>	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No

- Note on "Administrative fines": Knox County Stormwater Management currently includes any administrative fines as a package with incurred civil penalties. We do not submit a separate penalty for this category.

Stop Work Orders	# <u>15</u>	# <u>N/A</u>	# <u>0</u>	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Civil penalties	# <u>51</u>	# <u>N/A</u>	# <u>1</u>	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Criminal actions	# <u>0</u>	# <u>N/A</u>	# <u>0</u>	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Administrative orders	# <u>1</u>	# <u>N/A</u>	# <u>0</u>	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Other Holds placed on building permits	# <u>11</u>	# <u>N/A</u>	# <u>0</u>		

- Note related to "Permanent Stormwater Controls": The last NPDES permit cycle did not require Knox County to conduct regular inspections on permanent stormwater facilities. We are currently working to establish an inventory and tracking system for permanent stormwater BMPs as required in the NPDES permit under which Knox Co. received coverage in May 2010. Knox Co. does respond to citizen complaints of damaged or non-functioning permanent stormwater controls.

B. Do you use an electronic tool (e.g., GIS, data base, spreadsheet) to track the locations, inspection results, and enforcement actions in your jurisdiction? Yes No

C. What are the 3 most common types of violations documented during this reporting period?

1. Three most common Construction Site Runoff Control Program violations:
 - a. Temporary erosion prevention/sediment controls are not properly installed, functional and/or maintained. Sediment has the potential to leave the site.
 - b. Failure to temporarily stabilize non-vegetated areas within 15days since location was actively worked. This includes individual building lots.
 - c. Failure to install erosion prevention and sediment controls before earth-moving operations begin.
2. Three most common Illicit Discharge violations:
 - a. Failing or leaking sewer and septic systems
 - b. Dumping of yard waste in storm sewer system
 - c. Dumping of other materials in storm sewer system

11. PROGRAM RESOURCES

- A. What was your annual expenditure to implement the requirements of your MS4 NPDES permit and SWMP this past reporting period? \$1,392,781.28
- B. What is next year's budget for implementing the requirements of your MS4 NPDES permit and SWMP? \$1,375,000
- C. Do you have an independent financing mechanism for your stormwater program? Yes No
- D. If so, what is it/are they (e.g., stormwater fees), and what is the annual revenue derived from this mechanism?
 Source: _____ Amount \$ _____
 Source: _____ Amount \$ _____
- E. How many full time employees does your municipality devote to the stormwater program (specifically for implementing the stormwater program vs. municipal employees with other primary responsibilities that dovetail with stormwater issues)? 23

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F. Do you share program implementation responsibilities with any other entities? Yes No

Entity	Activity/Task/Responsibility	Your Oversight/Accountability Mechanism
University of Tennessee	Public Outreach and Involvement	Projects are done cooperatively between agencies and summary reporting is provided annually.
Town of Farragut	Illicit Discharge Elimination (hotspot education), Public Outreach and Public Education	Projects are done cooperatively between agencies and summary reporting is provided annually.

12. EVALUATING/MEASURING PROGRESS

A. What indicators do you use to evaluate the overall effectiveness of your Stormwater Management Program, how long have you been tracking them, and at what frequency? Note that these are not measurable goals for individual BMPs or tasks, but large-scale or long-term metrics for the overall program, such as in-stream macroinvertebrate community indices, measures of effective impervious cover in the watershed, indicators of in-stream hydrologic stability, etc.

This was not required in this reporting period.

Indicator	Began Tracking (year)	Frequency	Number of Locations
Example: E. coli	2003	Weekly April–September	20

Not required during this reporting period.

B. Provide a summary of data (e.g., water quality information, performance data, modeling) collected in order to evaluate the performance of permanent stormwater controls installed throughout the system. This evaluation may include a comparison of current and past permanent stormwater control practices. N/A

13. STORMWATER MANAGEMENT PROGRAM UPDATE NO CHANGES DURING THIS REPORTING PERIOD. KNOX COUNTY RECEIVED A NEW NPDES PERMIT DURING THIS REPORTING PERIOD AND IS WORKING TO IMPLEMENT THE NEW PROGRAM.

A. Describe any changes to the MS4 program during the reporting period including but not limited to:

Changes adding (but not subtracting or replacing) components, controls or other requirements per paragraph 4.4.2.a of the permit. _____

Changes to replace an ineffective or unfeasible BMP per paragraph 4.4.2.b of the permit. _____

Information (e.g. additional acreage, outfalls, BMPs) on program area expansion based on annexation or newly urbanized areas. _____

Changes to the program as required by the division. _____

14. 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
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Small Municipal Separate Storm Sewer System (MS4) Annual Report

Annual reports must be submitted in accordance with the requirements of subpart 5.4. (Reporting) of the permit. Annual reports must be submitted to the appropriate Environmental Field Office (EFO) by September 30 of each calendar year, as shown in the table below:

EFO	Street Address	City	Zip Code	Telephone
Chattanooga	540 McCallie Avenue STE 550	Chattanooga	37402	(423) 634-5745
Columbia	1421 Hampshire Pike	Columbia	38401	(931) 380-3371
Cookeville	1221 South Willow Ave.	Cookeville	38506	(931) 432-4015
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