Tennessee Department of Environment and Conservation
Division of Water Resources
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Municipal Separate Storm Sewer System (MS4) Annual Report

1. MS4 INFORMATION

Knox County	TNS075582
Name of MS4	MS4 Permit Number
Chris Granju	Chris.granju@knoxcounty.org
Name of Contact Person	Email Address
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? 256,168

What is the reporting period for this annual report? From July 1, 2013 to June 30, 2014

2. WATER QUALITY PRIORITIES (SECTION 3.1)

A. Does your MS4 discharge into waters listed as impaired on TN's most current 303(d) list and/or according to the on-line GIS mapping tool? ☒ Yes ☐ No

B. If yes, please attach a list all impaired waters within your jurisdictional area. *Attached*

C. Does your MS4's jurisdictional area contain any waterbodies where a TMDL has been approved for parameters other than pathogens, siltation and habitat alterations? *NO* If yes, please attach a list.

D. Does your MS4 discharge to any Exceptional TN Waters (ETWs) or Outstanding National Resource Waters (ONRWs)? If yes, please attach a list ☒ Yes ☐ No

Waterbody	Description	Basis_for_Inclusion
Flat Creek Unnamed Tributary	Portion in House Mountain State Natural Area. Tributary flows into river mile 7.9 of Flat Creek.	House Mountain State Natural Area
Brice Branch Unnamed Tributary	Portion in House Mountain State Natural Area. Tributary flows into Brice Branch at river mile 1.6.	House Mountain State Natural Area
Brice Branch Unnamed Tributary	Portion in House Mountain State Natural Area. Tributary flows into Brice Branch at river mile 1.8.	House Mountain State Natural Area
Hogskin Branch	Portion in House Mountain SNA.	House Mountain State Natural Area.
Holston River	From confluence with French Broad River to McBee Island.	Federal endangered Pink Mucket, federal threatened Snail Darter.
French Broad River	From Holston River to Douglas Dam.	Federally endangered Pink Mucket, federal threatened Snail Darter, state endangered Lake Sturgeon (includes frequent reported sightings from fisherman below dam) and state threatened Blue Sucker (includes TTU report at mile 22).
Tuckahoe Creek	In its entirety.	State Scenic River (Class III Developed River Area).
Clinch River	From Melton Hill Dam (river mile 23.1) to Pellissippi Parkway (river mile 43.7).	State Scenic River (Class III Developed River Area)
Clinch River - Melton Hill Reservoir	Clinch River from Melton Hill Dam to Pellissippi Parkway.	State Scenic River (Class III - Developed River Area).
Turkey Creek	From Fort Loudon Lake to Hwy 11.	State endangered Sweetscent Ladies'-Tresses

E. Are you implementing additional specific provisions to ensure the continued integrity of ETWs or ONRWS located within your jurisdiction? ☒ Yes ☐ No

The County considers work within the watershed of ETWs or ONRWs (if any) to be priority construction activities. The additional requirements outlined in section 5.4.1 of the TNCGP are applied within the entire watershed.

3. PROTECTION OF STATE OR FEDERALLY LISTED SPECIES (SECTION 3.2.1 General Permit for Phase II MS4s)

A. Are there any state or federally listed species within the MS4's jurisdiction? ☒ Yes ☐ No

B. Are any of the MS4 discharges or discharge-related activities likely to jeopardize any state or federally listed species? ☐ Yes ☒ No

C. Please attach any authorizations or determinations by U.S. Fish & Wildlife Service on the effect of the MS4 discharges on state or federally listed species. *Attached*

4. PUBLIC EDUCATION AND PUBLIC PARTICIPATION (SECTION 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 of those pollutants, such as Hot Spots? ☒ Yes ☐ No

C. If yes, what are the specific causes, sources and/or pollutants addressed by your public education program? See *Tables below: Table 1 shows the pollutants and sources. Table 2 provides details on the specifics of the education program.*

Table 1. Water Body Impairment Pollutants and Sources

Waterbody Name	Cause of Impairment	Source of Impairment
TIER 1 STREAMS		
Little Turkey Creek	Loss of biological integrity due to siltation	Discharges from MS4 area
Grandview Branch	Escherichia coli	Discharges from MS4 area
High Bluff Branch	Escherichia coli	Discharges from MS4 area
Sinking Creek	Escherichia coli	Discharges from MS4 area
Ten Mile Creek (formerly called Sinking Creek)	Habitat loss due to alteration in streamside or littoral vegetative cover Loss of biological integrity due to siltation Escherichia coli	Discharges from MS4 area
Willow Fork	Alteration in stream-side or littoral vegetative cover Loss of biological integrity due to siltation Escherichia coli	Discharges from MS4 area
Cox Creek	Escherichia coli	Discharges from MS4 area
Hines Branch	Habitat loss due to other anthropogenic substrate alterations Escherichia coli	Discharges from MS4 area

Knob Fork	Loss of biological integrity due to siltation Habitat loss due to other anthropogenic substrate alterations Alteration in stream-side or littoral vegetative cover Escherichia coli	Discharges from MS4 area
Grassy Creek	Loss of biological integrity due to siltation Escherichia coli	Discharges from MS4 area
Meadow Creek	Escherichia coli	Discharges from MS4 area
Plum Creek	Escherichia coli	Discharges from MS4 area
TIER 2 STREAMS		
Grable Branch	Oil & Grease Loss of biological integrity due to siltation Physical Substrate Habitat Alterations	Minor Industrial Point Source Channelization Industrial Permitted Runoff Discharges from MS4 area
Swanpond Creek	Loss of biological integrity due to siltation Alteration in stream-side or littoral vegetative cover Escherichia coli	Channelization Discharges from MS4 Area
Casteel Branch	Loss of biological integrity due to siltation	Pasture Grazing Discharges from MS4 area
Twin Branch	Habitat loss due to alteration in streamside or littoral vegetative cover Loss of biological integrity due to siltation	Pasture Grazing Discharges from MS4 area
McCall Branch	Loss of biological integrity due to siltation	Discharges from MS4 area Streambank Modification
Whites Creek	Other Anthropogenic Habitat Alterations Escherichia coli	Discharges from MS4 area Streambank Modification
Beaver Creek (segment 1000)	Phosphate Nitrates Escherichia coli Low Dissolved Oxygen Loss of biological integrity due to siltation Physical Substrate Habitat Alterations	<u>Section 1000</u> Major Municipal Point Source Pasture Grazing Discharges from MS4 Area
Beaver Creek (segments 2000 and 3000)	Escherichia coli Loss of biological integrity due to siltation Physical Substrate Habitat Alterations	<u>Section 2000 and 3000</u> Pasture Grazing Discharges from MS4 Area
Bullrun Creek	Escherichia coli Loss of biological integrity due to siltation Physical Substrate Habitat Alterations	Discharges from MS4 Area Pasture Grazing Channelization
Love Creek	Loss of biological integrity due to siltation Other Anthropogenic Habitat Alterations	Discharges from MS4 area (multiple MS4s)
TIER 3 STREAMS		
Roseberry Creek	Escherichia coli	Pasture Grazing Septic Tanks
Little Flat Creek	Escherichia coli	Animal Feeding Operations (NPS)

Flat Creek	Escherichia coli	Pasture Grazing Collection System Failure
Fort Loudon Reservoir (segment 1000)	PCBs	Contaminated Sediment
Fort Loudon Reservoir (segment 2000)	Mercury, PCBs	Atmospheric Deposition Contaminated Sediment
Roddy Branch	Alteration in stream-side or littoral vegetative cover Physical Substrate Habitat Alteration, Loss of biological integrity due to siltation Escherichia coli	Pasture Grazing Channelization
Stock Creek (Segments 1000 and 2000)	Escherichia coli	Pasture Grazing
Gun Hollow Branch	Escherichia coli	Pasture Grazing
East Fork Third Creek (Located within the City of Knoxville)	Loss of biological integrity due to siltation Other Anthropogenic Habitat Alterations Escherichia coli	Discharges from MS4 area Urbanized High Density Area Land Development Collection System Failure
Third Creek (Located within the City of Knoxville)	Nitrates Loss of biological integrity due to siltation Other Anthropogenic Habitat Alterations Escherichia coli	Discharges from MS4 area Urbanized High Density Area Land Development Collection System Failure
First Creek (Located within the City of Knoxville)	Nitrate + Nitrite Loss of biological integrity due to siltation Other Anthropogenic Habitat Alterations Escherichia coli	Discharges from MS4 area Urbanized High Density Area Collection System Failure
Second Creek (Located within the City of Knoxville)	Nitrate + Nitrite Loss of biological integrity due to siltation Other Anthropogenic Habitat Alterations Escherichia coli	Discharges from MS4 area Urbanized High Density Area Collection System Failure
Williams Creek (Located within the City of Knoxville)	Other Habitat Alterations Escherichia coli	Discharges from MS4 area Collection System Failure
Baker Creek (Located within the City of Knoxville)	Nitrate + Nitrite Other Habitat Alterations Escherichia coli	Discharges from MS4 area Collection System Failure
Goose Creek (Located within the City of Knoxville)	Loss of biological integrity due to siltation Other Anthropogenic Habitat Alterations PCBs Escherichia coli	Collection System Failure Discharges from MS4 area RCRA Hazardous Waste
Fourth Creek (Located within the City of Knoxville)	Physical Substrate Habitat Alterations Escherichia coli	Discharges from MS4 area Channelization
Melton Hill Reservoir	PCBs Chlordane	Contaminated Sediment
Williams Branch	Loss of biological integrity due to siltation	Industrial Permitted Runoff

Table 2. Education Program Target Groups and Target Pollutants

Description	Goal	Type	Target Groups	Target Pollutants	2010 Permit Citation(s)
Brochure(s) Distribution	To broaden public understanding of the storm drainage system and how behaviors contribute to water quality	Publications	Homeowners, Engineers, Developers, Construction Workers, Public	All	4.2.1a,b.c,f,g &h
Website	▪ To provide manuals, policies and information regarding construction-phase and long term stormwater management. ▪ To educate the public on how to prevent stormwater pollution and become involved with County programs ▪ To educate the public on illicit discharge detection and reporting	Internet	Engineers, Developers, Construction Workers, Public	All	4.2.1a-h
Social Media	To engage the public in a discussion of water pollution prevention and raise awareness on how the public can get more involved in County programs	Internet	Homeowners, Engineers, Developers, Construction Workers, Public	All	4.2.1a,b.c,f,g &h
Interactive BMP Tour	To provide education and demonstrate green infrastructure practices	Internet/ Educational Sites	Engineers, Developers, Construction Workers, Public	All	4.2.1 and 4.2.2
Signage at select Knox County Parks	To provide education and demonstrate green infrastructure practices	Educational Site	Engineers, Developers, Construction Workers, Public	All	4.2.1 and 4.2.2
Adopt A Stream	▪ To provide an opportunity for citizen involvement in visual stream assessments, cleaning streams and reporting illicit discharges. ▪ To educate the public on how to prevent stormwater pollution and become involved with County programs	Training/ Educational Event	Public	All	4.2.1 and 4.2.2
Adopt A Watershed	To educate middle and high school students about watershed concepts and stormwater pollution prevention through service based learning projects	Training/ Educational Event	Public	All	4.2.1 and 4.2.2
Waterfest	To engage elementary students in learning about water pollution and watershed concepts	Training/ Educational Event	Public	All	4.2.1

Description	Goal	Type	Target Group	Target Pollutants	2010 Permit Citation(s)
Festivals/Exhibitions/ Speaking Engagements	To provide requested stormwater pollution prevention awareness to public and private groups	Training/ Educational Event	Public	All	4.2.1
Watershed Initiatives	▪ To encourage citizens to take ownership of their water resources ▪ To provide education and demonstrate stormwater pollution prevention techniques	Training, Events, Projects	Homeowners, Engineers, Developers, Construction Workers, Public	All	4.2.1
Tennessee Yards and Neighborhoods	To assist residents and neighborhood associations on tactics that can be employed in yards to encourage water infiltration and prevent stormwater pollution	Training/ Educational Event	Homeowners, Public	All	4.2.1a
Homeowner BMP Manual and Workshops	To broaden public understanding of stormwater best management practices and maintenance activities needed to ensure functionality of the BMP	Publication	Homeowners	Siltation	4.2.1b
Contractor Education	To make construction workers and sub-contractors aware of water quality impacts from daily operations	Training Event	Construction Workers	Siltation	4.2.1c & g
Development Workshops	To make development community aware of regulations, guidance materials and long-term water quality impacts from development activities	Training Event	Engineers, Developers, Construction Workers	All	4.2.1c & g
Pre-Construction Meetings	To make development community aware of regulations, guidance materials and long-term water quality impacts from development activities	Event	Engineers, Developers, Construction Workers	All	4.2.1c & g
Outreach to Professional Chemical Applicators	To limit the improper storage, use and disposal of items in areas which are exposed to stormwater runoff	Training Event/ Internet	Chemical applicators	Phosphate, Nitrate	4.2.1d &e
Public Notices	To comply with applicable state and local laws governing this activity	Publications, Internet	Public	All	4.2.2
Municipal Employee Training	To make municipal employees aware of water quality impacts from daily operations, and to educate staff on how to identify and report illicit discharges	Training Event/Publication	Municipal Staff	All	4.2h

D. Note specific successful outcome(s) (NOT tasks, events, publications) fully or partially attributable to your public education program during this reporting period. Please see chart below:

Outcomes from Education/Participation Programs

Description	Adopt A Watershed Program	Environmental Stewardship Program	Grant Funded Projects	Other Knox Co. Programs
Rain gardens installed	1 rain garden installed at South Doyle High School	2		
Storm drain inserts	**TOTAL= 905 pounds** of sediment kept from entering Beaver Creek (75 lbs. from Grace Christian Academy; 25 lbs. from Halls High, 135 lbs. from Karns High), Connor Creek (110 lbs. from Hardin Valley High), and Third Creek (600 lbs. from Central High)			**TOTAL = 1720 pounds** of sediment kept from entering other Knox County waterways; **removed** by the 2013-2014 Knox County CAC AmeriCorps Water Quality Team
Upland stabilization projects	**TOTAL=57,700 square feet of erosion control matting installed** 1600 sq. ft. in Baker Creek (South Doyle Middle); 50,700 sq. ft. in Beaver Creek (Harrell Rd. Park); 800 sq. ft. in Beaver Creek (at Karns High); 3,800 sq. ft. in Beaver Creek (at Powell Middle); and 800 sq. ft. in Conner Creek (Hardin Valley High)			
No mow and buffer agreements established				
Water catchment systems installed	Assisted in coordinating Halls High dedication of cistern that can hold 1,500 gal. of water and can collect and reuse 36,000 gal. annually			
Water catchment systems sold	3 rain barrels sold at Powell Middle (through their Rain Garden Club)			215 rain barrels sold during 4 "Make It, Take It" workshops and one truckload sale
Grassed swales installed		18		
Stream bank restoration				
Septic repairs			26 septic repairs, 23 septic pump-outs in the Stock Creek Watershed (319 grant)	
Citizens reached through workshops and classroom outreach	1622 middle and high school students participated in AAW water quality educational activities. 84% of middle			905 citizens were exposed to stormwater pollution prevention ideas by Knox County Stormwater education

	and high school students showed improvement in learning over the course of the program. 1373 students participated in a service project to benefit their local watershed.			initiatives.
Stream clean ups conducted				5 stream clean ups were completed removing 1220 pounds of trash in and along local streams through the Adopt A Stream program.
Invasive species removal	**TOTAL=6674 pounds of invasive species removed.** 3,834 lbs. removed from Halls High Outdoor Classroom (Beaver Creek); 500 lbs. removed from Powell High Outdoor Classroom (Beaver Creek); 540 lbs. removed from Hardin Valley High (Conner Creek); 200 lbs. removed from Marble Springs Site (Stock Creek); 1600 lbs. removed from Hardin Valley Academy (Conner Creek)			**TOTAL = 5144 pounds of invasive species removed** by the 2013-2014 Knox County CAC AmeriCorps Water Quality Team
Social Media	207 Facebook Fans of Water Quality Team, 673 Facebook Fans of Knox County Stormwater			17,398 page views at Knox County Stormwater website. 56 page views at Knox County Stormwater Management Facebook
Tree / Riparian Buffer Plantings	**TOTAL = 343 native trees / shrubs planted**: 11 trees along Baker Creek (South Doyle Middle); 200 seedlings and 27 shrubs in Beaver Creek at Powell High; 72 native shrubs and 3 native tree species along Conner Creek at Hardin Valley Academy; 30 native plants installed at Harrell Rd. Stormwater park			
Stream Removed from 303d list	Cox Creek has been removed from the Draft 303d list for 2014			
Wetlands Installed		**1 pocket wetland** installed on Franklin Lane		
Streambank Restoration Projects		**2 Streambank restoration projects**: 1 on Imperial Dr. and 1 on Gose Cove Lane		

E. 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

F. How do you facilitate, advertise, and publicize public involvement and participation opportunities? *Knox County posts information on the website (www.knoxcounty.org/stormwater), Facebook, Newspaper articles and advertisements, emails to list serves and reaching out to specific organizations to post pertinent information on their social media and web pages.*

G. Do you have a webpage dedicated to your stormwater program? ☒ Yes ☐ No

If so, what is the link/URL*: www.knoxcounty.org/stormwater*

H. Are you tracking and maintaining records of public education, outreach, involvement and participation activities? Please attach a summary of these activities. 2 documents attached. ☒ Yes ☐ No

5. ILLICIT DISCHARGE DETECTION AND ELIMINATION (SECTION 4.2.3)

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

C. How many outfalls have you identified in your system? *3985 outfalls: 1534 pipes, 2266 ditches,185 springs*

D. Have any of these outfalls been screened for dry weather discharges? ☒Yes ☐ No

E. What is your frequency for screening outfalls for illicit discharges? *Weekly, if weather permits and when an illicit discharge is reported to us.*

F. Do you have an ordinance that effectively prohibits illicit discharges? ☒ Yes ☐ No

G. During this reporting period, how many illicit discharges/illegal connections have you discovered (or been reported to you)? *95 total – Health Department – 67; Stormwater – 28*

H. Of those illicit discharges/illegal connections that have been discovered or reported, how many have been eliminated? *45 of 95 total have been eliminated. Out of the 95 total complaints or illicit discharges discovered:*

- *Many were not found to be legitimate complaints.*
- *Many were dumping complaints where we could see staining or it was brush or trash being dumped in or near a drainageway/stream, so we are monitoring and educating the surrounding businesses or residents on the issue.*
- *And a couple were Ag related, so we have been talking to the Soil Conservation District, when appropriate, and monitoring.*

Also, we have performed 23 septic pump-outs and 26 septic repairs in Knox County.

6. CONSTRUCTION SITE STORMWATER RUNOFF (SECTION 4.2.4)

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?*132 Residential and 36 Commercial*

C. How many of these active sites did you inspect this reporting period? *168*

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

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. 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. PERMANENT STORMWATER CONTROLS (SECTION 4.2.5)

A. Do you have an ordinance or other mechanism to require:

Site plan reviews of all new and re-development projects? ☒ Yes ☐ No

Maintenance of stormwater management controls? ☒ Yes ☐ No

Retrofitting of existing BMPs with green infrastructure BMPs? ☐ Yes ☒ No

B What is the threshold for new/redevelopment stormwater plan review? (e.g., all projects, projects disturbing greater than one acre, etc.) *One acre of disturbance or 10,000 square feet of imperviousness added*

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 Section 4.2.5.2 and require that pre-development hydrology be met for:

Flow volumes ☐ Yes ☒ No

Peak discharge rates ☒ Yes ☐ No

Discharge frequency ☒ Yes ☐ No

Flow duration ☐ Yes ☒ 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? 38

G. How many development and redevelopment project plans were approved? 36

H. How many permanent stormwater management practices/facilities were inspected? 41

I. How many were found to have inadequate maintenance? 5

J. Of those, how many were notified and remedied within 30 days? (If window is different than 30 days, please specify) 0 within 30 days,, 2 within 60 days, 1 within 150 days

K. How many enforcement actions were taken that address inadequate maintenance?4

L. Do you use an electronic tool (e.g., GIS, database, spreadsheet) to track post-construction BMPs, inspections and maintenance? ☒ Yes ☐ No

M. Do all municipal departments and/or staff (as relevant) have access to this tracking system? ☐ Yes ☒ 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? 21

8. CODES AND ORDINANCES REVIEW AND UPDATE (SECTION 4.2.5.3)

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

This report was required with submission of the 2011-2012 Annual Report and is on file

B. Include status of implementation of code, ordinance and/or policy revisions associated with permanent stormwater management.

Knox County Staff is currently developing revisions of the Stormwater Management Ordinance as well as the referenced technical design manual for land development.

9. STORMWATER MANAGEMENT FOR MUNICIPAL OPERATIONS (SECTION 4.2.6)

A. Have stormwater pollution prevention plans (or an equivalent plan) been developed for:

All parks, ball fields and other recreational facilities ☐ Yes ☒ No

All municipal turf grass/landscape management activities ☐ Yes ☒ No

All municipal vehicle fueling, operation and maintenance activities ☐ Yes ☒ No

All municipal maintenance yards ☐ Yes ☒ No

All municipal waste handling and disposal areas ☐ Yes ☒ No

B. Are stormwater inspections conducted at these facilities? ☒ Yes ☐ No

1. If Yes, at what frequency are inspections conducted? *Once every two weeks for the Engineering and Public Works facility located at 205 W Baxter Avenue.*

C. Have standard operating procedures or BMPs been developed for all MS4 field activities? (e.g., road repairs, catch basin cleaning, landscape management, etc.) –They have been for Engineering and Public Works only. ☒ Yes ☐ No

D. Do you have a prioritization system for storm sewer system and permanent BMP inspections? ☐ 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? *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. A required on-line Stormwater Pollution Prevention test is taken with other required safety test, but it is very general and not job specific.*

10. STORMWATER MANAGEMENT PROGRAM UPDATE (SECTION 4.4)

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 (Section 4.4.2.a). *N/A*

Changes to replace an ineffective or unfeasible BMP (Section 4.4.2.b).

- *No updates since the last submitted Annual Report*

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

Changes to the program as required by the division (Section 4.4.3). N.A.

11. 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.

Indicator	Began Tracking (year)	Frequency	Number of Locations
Example: E. coli	*2003*	*Weekly April–September*	*20*
E. Coli	2003	Varies	30
Benthics	1998	Varies	14
Tree Cover	2001	10 Years	All of Knox County
Stream Inventory	2008	5 Years	Listed Streams

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.

Knox County has taken a watershed approach to improve water quality. Knox County has created several watershed initiatives which encompass the Lower Clinch and Fort Loudon watersheds. Within these watersheds stormwater staff has developed the Beaver Creek, Bullrun Creek, and Stock Creek watershed initiatives. The task forces meet regularly to discuss ways to target problems based upon existing data and to target data collection based upon strategies implemented. Knox County coordinates monitoring efforts based upon our partners required monitoring and what stormwater staff believes are useful data sets. Some data is generated based upon grants received from partnership efforts.

Knox County used Integrated Pollution Source Index (IPSI) data from TVA to help guide efforts in Stock Creek and Bullrun Creek which primarily focused on bacteria sources. Knox County continues monitoring both streams for bacteria with the help of partners Knox Chapman Utility, Halls-Dale Powell Utility, First Utility District, UT, and TVA. Knox County plans to continue monitoring these streams to evaluate any improvements that may result from Ag improvements and sewer and septic rehabilitations. Knox County plans to determine bacteroides when it will help guide strategy.

There have been numerous studies done on Beaver Creek over the last Ten years. Knox County has used these studies to help develop watershed management plans. The watershed plan is the guiding document for grants

received to improve Beaver Creek. Knox County is focusing on retrofits in Beaver Creek to improve water quality in different land uses such as Ag, parks, and residential areas.

The Stormwater department collected benthic samples in Upper Beaver Creek, to more closely look at problems in the upper section of the main stem this summer. A benthic sample was collected in the Halls Community Park restoration project to see if the restoration is improving habitat. Stormwater staff is waiting on the results. Several samplers have been installed in Cedar Crossing subdivision to monitor storm water runoff in anticipation of installing bioinfiltration systems to determine its effectiveness in reducing pollutants as well as volume reduction. Stormwater staff collected bacteria samples this summer for our 303d listed stream segments in the Ft. Loudon watershed. The data is currently being reviewed.

The Stock Creek initiative is currently implementing a watershed improvement plan with the help of a 319 grant. The focus is on septic rehabilitation, Ag BMP installations, and green infrastructure opportunities such as bioinfiltration. We collected samples this June for bacteria and they have been analyzed by UT for bacteriodes and they have created a report analyzing all the data we have collected over the past 11 years.

Prior to 2005, when most of the built environment occurred, Knox County stormwater requirements focused on peak flow mitigation. Knox County updated its stormwater ordinance to include a "first flush" requirement and buffer regulation in 2005. In 2008 Knox County updated its ordinance to include water quality volume requirements that include an 80% TSS removal component and a buffer requirement. Since 2008 Knox County has created 139 maintenance agreements for permanent stormwater controls related to new developments. We have cost shared through our Environmental Stewardship Program to install 10 Green Infrastructure type BMP's with landowners this past year which will reduce sediment, flow, and increase habitat.

12. ENFORCEMENT (SECTION 4.5)

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	#45	#4	#20	☒ Yes	☐ No
Administrative fines	#N/A	#N/A	#0	☒ Yes	☐ No
Stop Work Orders	#4	#N/A	#0	☒ Yes	☐ No
Civil penalties	#17	#N/A	#0	☒ Yes	☐ No
Criminal actions	#0	#N/A	#0	☒ Yes	☐ No
Administrative orders	#0	#N/A	#N/A	☒ Yes	☐ No
Other Holds placed on building lots	#1	#N/A	#N/A		

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?

Construction:

1. *Temporary erosion prevention/sediment controls are not properly installed, functional and/or maintained. Sediment has the potential to leave the site.*
2. *Failure to temporarily stabilize non-vegetated areas within 15 days since location was actively worked. This includes individual building lots*
3. *Failure to obtain necessary permits.*

Illicit Discharges:

1. *Failing or leaking sewer and septic systems and grey water discharges.*
2. *Dumping of other materials in storm sewer system or stream - Residential*
3. *Dumping of yard waste in drainageway or storm sewer system.*

13. PROGRAM RESOURCES (OPTIONAL)

A. What was your annual expenditure to implement the requirements of your MS4 NPDES permit and SWMP this past reporting period? $1,510,603

B. What is next year's budget for implementing the requirements of your MS4 NPDES permit and SWMP? $1,906,270

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: N.A. Amount $N.A.

Source: N.A. Amount $N.A.

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)? 20

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

Entity	Activity/Task/Responsibility	Your Oversight/Accountability Mechanism

G. Please attach a copy of your Organizational Chart: Attached

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 by me, or under my direction or supervision. The submitted information 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. As specified in Tennessee Code Annotated Section 39-16-702(a)(4), this declaration is made under penalty of perjury."

Printed Name and Title	Signature	Date

Annual reports must be submitted in accordance with the requirements of Section 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

List of Attachments

Impaired Waters

1.1.1. 3.2.1 Discharges to Water Quality Impaired Waters

Under section 303(d) of the Clean Water Act, states are required to develop lists of impaired waters. A waterbody (i.e., stream reaches, lakes, waterbody segments) is considered "impaired" when the results of monitoring by TDEC indicate chronic or recurring violations of the applicable numeric and/or narrative water quality criteria. The list, commonly called "the 303(d) list" also provides information on the pollutant(s) for which the stream is not meeting criteria and the source(s) of those pollutants. The 303(d) list is typically updated every other year.

In the State of Tennessee, the NPDES Phase II permit requires that each MS4 maintain awareness of the streams and other waterbodies in their jurisdictions that are on the 303(d) list. More importantly, the permit includes a provision for monitoring the streams on the 303(d) list for which "Discharges from the MS4" is designated as a pollutant source. Additionally, some streams on the 303(d) list have sources that have a direct relation to requirements of the NPDES Phase II permit. For example, a stream that is included on the 303(d) list for the pollutant "sediment" and the source of the sediment is "land development" would be a stream of special interest to a permitted MS4 due to the permit's focus on management of pollutants at land development (i.e. construction) sites. MS4s are required to implement best management practices to control pollutants, including sediment, from land developments.

Table 7 provides a listing of impaired streams in Knox County, as identified in the EPA Approved Final Year *2010 303(d) List* for the State of Tennessee. The table is divided in three priority tiers depending upon the source(s) of the stream's pollutant and the relevance of that source to the requirements of the NPDES Phase II permit, as explained below.

- **Tier 1** includes those streams where discharges from the County's public stormwater conveyance system (i.e., the MS4) are considered as the *sole* source of pollutant(s). *Tier 1 streams are of primary focus in the County's water quality program, therefore permit compliance activities target the impairments in these waterbodies*. The County's stormwater management program includes activities that target the pollutant(s) causing the impairment(s).
- **Tier 2** includes those streams where discharges from the County's public stormwater conveyance system are one of several sources of pollutant(s). *Tier 2 streams are also a strong focus of the County's water quality program; therefore permit compliance activities target the impairments in these waterbodies.* However, water quality improvements in these waterbodies likely cannot be achieved by the County's efforts alone.
- **Tier 3** includes those streams where discharges from Knox County's public stormwater conveyance system are NOT considered a source of pollutant(s). Water quality in these waterbodies are addressed by the County's stormwater management ordinance, general public education/outreach efforts and by other County stormwater program activities (e.g., illicit discharge enforcement), but the County's stormwater management resources are typically not highly focused on these streams.

Table 7. Impaired Waters in Knox County		
Waterbody Name	**Cause of Impairment**	**Source of Impairment**
TIER 1 STREAMS		
Little Turkey Creek	Loss of biological integrity due to siltation	Discharges from MS4 area
Grandview Branch	Escherichia coli	Discharges from MS4 area
High Bluff Branch	Escherichia coli	Discharges from MS4 area
Sinking Creek	Escherichia coli	Discharges from MS4 area
Ten Mile Creek (formerly called Sinking Creek)	Habitat loss due to alteration in streamside or littoral vegetative cover Loss of biological integrity due to siltation Escherichia coli	Discharges from MS4 area
Willow Fork	Alteration in stream-side or littoral vegetative cover Loss of biological integrity due to siltation Escherichia coli	Discharges from MS4 area
Cox Creek	Escherichia coli	Discharges from MS4 area
Hines Branch	Habitat loss due to other anthropogenic substrate alterations Escherichia coli	Discharges from MS4 area
Knob Fork	Loss of biological integrity due to siltation Habitat loss due to other anthropogenic substrate alterations Alteration in stream-side or littoral vegetative cover Escherichia coli	Discharges from MS4 area
Grassy Creek	Loss of biological integrity due to siltation Escherichia coli	Discharges from MS4 area
Meadow Creek	Escherichia coli	Discharges from MS4 area
Plum Creek	Escherichia coli	Discharges from MS4 area
TIER 2 STREAMS		
Grable Branch	Oil & Grease Loss of biological integrity due to siltation Physical Substrate Habitat Alterations	Minor Industrial Point Source Channelization Industrial Permitted Runoff Discharges from MS4 area
Swanpond Creek	Loss of biological integrity due to siltation Alteration in stream-side or littoral vegetative cover Escherichia coli	Channelization Discharges from MS4 Area
Casteel Branch	Loss of biological integrity due to siltation	Pasture Grazing Discharges from MS4 area
Twin Branch	Habitat loss due to alteration in streamside or littoral vegetative cover Loss of biological integrity due to siltation	Pasture Grazing Discharges from MS4 area
McCall Branch	Loss of biological integrity due to siltation	Discharges from MS4 area Streambank Modification
Whites Creek	Other Anthropogenic Habitat Alterations Escherichia coli	Discharges from MS4 area Streambank Modification

Table 7. Impaired Waters in Knox County		
Waterbody Name	**Cause of Impairment**	**Source of Impairment**
Beaver Creek (segment 1000)	Phosphate Nitrates Escherichia coli Low Dissolved Oxygen Loss of biological integrity due to siltation Physical Substrate Habitat Alterations	Section 1000 Major Municipal Point Source Pasture Grazing Discharges from MS4 Area
Beaver Creek (segments 2000 and 3000)	Section 2000 and 3000 Escherichia coli Loss of biological integrity due to siltation Physical Substrate Habitat Alterations	Section 2000 and 3000 Pasture Grazing Discharges from MS4 Area
Bullrun Creek	Escherichia coli Loss of biological integrity due to siltation Physical Substrate Habitat Alterations	Discharges from MS4 Area Pasture Grazing Channelization
Love Creek	Loss of biological integrity due to siltation Other Anthropogenic Habitat Alterations	Discharges from MS4 area (multiple MS4s)
TIER 3 STREAMS		
Roseberry Creek	Escherichia coli	Pasture Grazing Septic Tanks
Little Flat Creek	Escherichia coli	Animal Feeding Operations (NPS)
Flat Creek	Escherichia coli	Pasture Grazing Collection System Failure
Fort Loudon Reservoir (segment 1000)	PCBs	Contaminated Sediment
Fort Loudon Reservoir (segment 2000)	Mercury, PCBs	Atmospheric Deposition Contaminated Sediment
Roddy Branch	Alteration in stream-side or littoral vegetative cover Physical Substrate Habitat Alteration, Loss of biological integrity due to siltation Escherichia coli	Pasture Grazing Channelization
Stock Creek (Segments 1000 and 2000)	Escherichia coli	Pasture Grazing
Gun Hollow Branch	Escherichia coli	Pasture Grazing
East Fork Third Creek (Located within the City of Knoxville)	Loss of biological integrity due to siltation Other Anthropogenic Habitat Alterations Escherichia coli	Discharges from MS4 area Urbanized High Density Area Land Development Collection System Failure
Third Creek (Located within the City of Knoxville)	Nitrates Loss of biological integrity due to siltation Other Anthropogenic Habitat Alterations Escherichia coli	Discharges from MS4 area Urbanized High Density Area Land Development Collection System Failure
First Creek (Located within the City of Knoxville)	Nitrate + Nitrite Loss of biological integrity due to siltation Other Anthropogenic Habitat Alterations Escherichia coli	Discharges from MS4 area Urbanized High Density Area Collection System Failure
Second Creek (Located within the City of Knoxville)	Nitrate + Nitrite Loss of biological integrity due to siltation Other Anthropogenic Habitat Alterations Escherichia coli	Discharges from MS4 area Urbanized High Density Area Collection System Failure

Table 7. Impaired Waters in Knox County		
Waterbody Name	**Cause of Impairment**	**Source of Impairment**
Williams Creek (Located within the City of Knoxville)	Other Habitat Alterations Escherichia coli	Discharges from MS4 area Collection System Failure
Baker Creek (Located within the City of Knoxville)	Nitrate + Nitrite Other Habitat Alterations Escherichia coli	Discharges from MS4 area Collection System Failure
Goose Creek (Located within the City of Knoxville)	Loss of biological integrity due to siltation Other Anthropogenic Habitat Alterations PCBs Escherichia coli	Collection System Failure Discharges from MS4 area RCRA Hazardous Waste
Fourth Creek (Located within the City of Knoxville)	Physical Substrate Habitat Alterations Escherichia coli	Discharges from MS4 area Channelization
Melton Hill Reservoir	PCBs Chlordane	Contaminated Sediment
Williams Branch	Loss of biological integrity due to siltation	Industrial Permitted Runoff

United States Department of the Interior

FISH AND WILDLIFE SERVICE
446 Neal Street
Cookeville, TN 38501

August 19, 2013

Ms. Parci Gibson
Knox County Stormwater Management
205 West Baxter Avenue
Knoxville, Tennessee 37917

Re: FWS #13-CPA-0635

Dear Ms. Gibson:

Thank you for your e-mail received July 8, 2013, regarding compliance with the Tennessee Department of Environment and Conservation (TDEC) Notice of Coverage annual reporting requirements for Knox County's MS4 permit (TNS075582) and stormwater management program in Knox County, Tennessee. U.S. Fish and Wildlife Service (Service) personnel have reviewed the 2012 Knox County Stormwater Management Plan, pertinent stormwater regulations, and the spatial data provided by your office.

Historic records for large-river federally endangered Unionid mussel species exist in Knox County. Most of these species have been extirpated from Knox County; however, the federally endangered pink mucket (*Lampsilis abrupta*), spectaclecase (*Cumberlandia monodonta*), and sheepnose (*Plethobasus cyphus*) may occur in suitable habitats within the jurisdictional boundaries of Knox County's stormwater management program. The federally threatened snail darter (*Percina tanasi*) may also occur in these medium to large river habitats. In 2007, the Service finalized regulations authorizing the establishment of non-essential experimental populations of 15 federally listed mussel, snail, and fish species in suitable habitats in the Douglas Dam tailwaters of the French Broad River (72 FR 52433-52461). The Service and it conservation partners also have an active reintroduction program for the lake sturgeon (*Acipenser fulvescens*) in the Lower French Broad River.

We appreciate the efforts of the Knox County's Stormwater Management Program in helping to ensure that the quantity and quality of stormwater discharges from development activities in upland areas protect water quality in the tributaries to the larger rivers which support these species. In view of this, we believe that adverse effects to federally listed species from activities carried out under that program are not anticipated.

Thank you for the opportunity to comment. If you have any questions, please contact Steve Alexander of my staff at 931/528-6481, ext. 210, or via e-mail at *steven_alexander@fws.gov*.

Sincerely,

Brad Bryant

Acting for Mary E. Jennings
Field Supervisor

xc: Robert Karesh, TDEC, Nashville
Karina Bynum, TDEC, Cookeville
Jonathan Burr, TDEC, Knoxville

TENNESSEE WILDLIFE RESOURCES AGENCY

ELLINGTON AGRICULTURAL CENTER
P. O. BOX 40747
NASHVILLE, TENNESSEE 37204

September 23, 2013

Parci Gibson
Knox County Stormwater Management
205 West Baxter Avenue
Knoxville, TN 37917

Re: Knox County MS4 Determination Review

Dear Ms. Gibson:

The Tennessee Wildlife Resources Agency has reviewed the information that you provided regarding your MS4 permit. Data available to us indicates that numerous aquatic state listed species under our authority have been documented in streams within your jurisdictional area. Many of the state listed freshwater mollusks have been extirpated due to the impoundment of the Tennessee River within your jurisdiction but several state listed aquatic species continue to persist within your county's jurisdiction. It is our opinion that current code, city ordinances and policies, and other efforts to protect water quality are sufficient to minimize potential impacts to listed species under our authority in order to not jeopardize the continued existence of these species; and we agree with your determination that the MS4 discharges or discharge-related activities within the Knox County area are not likely to jeopardize any state or federally listed species.

If you have questions regarding this matter or if I may be of further assistance, please contact me at 615-781-6572.

Sincerely,

Robert M. Todd

Robert M. Todd
Fish and Wildlife Environmentalist

cc: Rob Lindbom

STATE OF TENNESSEE

DEPARTMENT OF ENVIRONMENT AND CONSERVATION

Division of Natural Areas
Natural Heritage Program
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 2nd Floor
Nashville, Tennessee 37243
Phone 615/532-0431 Fax 615/532-0046

October 1, 2013

Parci Gibson
Knox County Stormwater Management
205 West Baxter Avenue
Knoxville, TN 37917

Subject: Knox County's Municipal Storm Sewer System – NPDES Stormwater Discharges - Outfalls (3984 locations)
Knox County, Tennessee
Rare Species Database Review

Dear Mr. Gibson:

Thank you for your correspondence requesting a rare species database review for the Knox County's municipal separate storm sewer system - stormwater discharge sites, located in Knox County, Tennessee. This review will evaluate whether the stormwater discharges at the outfall locations are likely to jeopardize the continued existence of state listed species or result in adverse modification or destruction of habitat that is designated as critical habitat.

We have reviewed the state's natural heritage database with regard to the outfall locations, and we find that the following rare species have been observed previously within one mile of the project:

Type	Scientific Name	Common Name	Global Rank	St. Rank	Fed. Prot.	St. Prot.	Habitat
Vertebrate Animal	Accipiter striatus	Sharp-shinned Hawk	G5	S3B,S4 N	No Status	D	Forests and open woodlands.
Vertebrate Animal	Acipenser fulvescens	Lake Sturgeon	G3G4	S1	--	E	Bottoms of large, clean rivers and lakes.
Nonvascular Plant	Archidium alternifolium	A Moss	G4G5	S1	--	T	Limestone Barrens
Vascular Plant	Aureolaria patula	Spreading False-foxglove	G3	S3	--	S	Oak Woods And Edges
Vascular Plant	Boechera patens	Spreading Rockcress	G3	S1	--	E	Moist Rocky Woods
Vascular Plant	Cardamine flagellifera	Running Bittercress	G3	S2	--	T	Mountain Stream Banks

Type	Scientific Name	Common Name	Global Rank	St. Rank	Fed. Prot.	St. Prot.	Habitat
Vascular Plant	Carex alopecoidea	Foxtail Sedge	G5	SH	--	E-P	Wet Meadows And Swamps
Vertebrate Animal	Carpiodes velifer	Highfin Carpsucker	G4G5	S2S3	--	D	Large rivers, mostly in Tennessee River drainage.
Vertebrate Animal	Chrosomus tennesseensis	Tennessee Dace	G3	S3	--	D	First order spring-fed streams of woodlands in Ridge and Valley limestone region; Tennessee River watershed.
Vascular Plant	Cimicifuga rubifolia	Appalachian Bugbane	G3	S3	--	T	Rich Woods
Vertebrate Animal	Cryptobranchus alleganiensis	Hellbender	G3G4	S3	No Status	D	Rocky, clear creeks and rivers with large shelter rocks.
Invertebrate Animal	Cumberlandia monodonta	Spectaclecase	G3	S2S3	LE	Rare, Not State Listed	Medium to large rivers; in substrates from mud and sand to gravel, cobble, and boulders; Cumberland and Tennessee river systems.
Vertebrate Animal	Cycleptus elongatus	Blue Sucker	G3G4	S2	--	T	Swift waters over firm substrates in big rivers.
Invertebrate Animal	Cyprogenia stegaria	Fanshell	G1Q	S1	LE	E	Medium to large streams and rivers with coarse sand and gravel substrates; Cumberland and Tennessee river systems.
Vascular Plant	Delphinium exaltatum	Tall Larkspur	G3	S2	--	E	Glades And Barrens
Vascular Plant	Diervilla lonicera	Northern Bush-honeysuckle	G5	S2	--	T	Rocky Woodlands And Bluffs
Invertebrate Animal	Dromus dromas	Dromedary Pearlymussel	G1	S1	LE	E	Medium-large rivers with riffles and shoals w/ relatively firm rubble, gravel, and stable substrates; Tennessee & Cumberland systems.
Invertebrate Animal	Epioblasma capsaeformis	Oyster Mussel	G1	S1	LE	E	Shallow riffles in mod-swift current of small-medium rivers with coarse sand and gravel; Tennessee & Cumberland river systems.
Vascular Plant	Eurybia schreberi	Schreber's Aster	G4	S1	--	S	Mesic Woods & Seepage Slopes

Type	Scientific Name	Common Name	Global Rank	St. Rank	Fed. Prot.	St. Prot.	Habitat
Vertebrate Animal	Falco peregrinus	Peregrine Falcon	G4	S1B	No Status	E	Varied habitats including farmlands, marshes, river mouths, and cities; often nests on ledges.
Invertebrate Animal	Fusconaia cor	Shiny Pigtoe	G1	S1	LE	E	Shoals and riffles of small-medium sized rivers with mod-fast current over sand-cobble substrates; upper Tennessee River watershed.
Invertebrate Animal	Fusconaia cuneolus	Finerayed Pigtoe	G1	S1	LE	E	Riffles of fords and shoals of mod gradient streams in firm cobble and gravel substrates; middle & upper Tennessee River watershed.
Vertebrate Animal	Gallinula chloropus	Common Moorhen	G5	S1B	No Status	D	Marshes, quiet rivers, lakes and ponds; nests among marsh plants over water; infrequently flies.
Vertebrate Animal	Gyrinophilus gulolineatus	Berry Cave Salamander	G1Q	S1	--	T	Aquatic cave obligate; Ridge & Valley; formerly included with G. palleucus.
Vertebrate Animal	Haliaeetus leucocephalus	Bald Eagle	G5	S3	--	D	Areas close to large bodies of water; roosts in sheltered sites in winter; communal roost sites common.
Vascular Plant	Helianthus occidentalis	Naked-stem Sunflower	G5	S2	--	S	Limestone Glades And Barrens
Vertebrate Animal	Hemidactylium scutatum	Four-toed Salamander	G5	S3	--	D	Woodland swamps, shallow depressions, & sphagnum mats on acidic soils; middle & east Tennessee.
Vertebrate Animal	Hemitremia flammea	Flame Chub	G3	S3	--	D	Springs and spring-fed streams with lush aquatic vegetation; Tennessee & middle Cumberland river watersheds.
Other (Ecological)	Heron rookery	Heron Rookery	GNR	SNR	--	Rare, Not State Listed	

Type	Scientific Name	Common Name	Global Rank	St. Rank	Fed. Prot.	St. Prot.	Habitat
Nonvascular Plant	Homaliadelphus sharpii	Sharp's Homaliadelphus	G3?	S1	--	E	Calcareous Or Dolomite Bluffs
Vascular Plant	Hydrophyllum virginianum	Appalachian Waterleaf	G5	S3	--	T	Alluvial Woods
Invertebrate Animal	Io fluvialis	Spiny Riversnail	G2	S2	--	Rare, Not State Listed	Shallow waters of shoals that are rapid to moderate and well-oxygenated; Tennessee River & main tributaries; E Tennessee.
Vertebrate Animal	Ixobrychus exilis	Least Bittern	G5	S2B	--	D	Marshes with scattered bushes or other woody growth; readily uses artificial wetland habitats.
Vascular Plant	Juglans cinerea	Butternut	G4	S3	--	T	Rich Woods And Hollows
Invertebrate Animal	Lampsilis abrupta	Pink Mucket	G2	S2	LE	E	Generally a large river species, preferring sand-gravel or rocky substrates with mod-strong currents; Tennessee & Cumberland river systems.
Vascular Plant	Lathyrus palustris	Marsh Pea	G5	S1	--	S	Wet Woods & Marshes
Invertebrate Animal	Lemiox rimosus	Birdwing Pearlymussel	G1	S1	LE	E	Small-medium size rivers in riffle areas with sand and gravel substrates in mod-fast currents; Tennessee River system.
Vascular Plant	Lilium canadense	Canada Lily	G5	S3	--	T	Rich Woods And Seeps
Vascular Plant	Lilium michiganense	Michigan Lily	G5	S3	--	T	Swamps And Open Wet Woods
Vascular Plant	Lonicera dioica	Mountain Honeysuckle	G5	S2	--	S	Mountain Woods And Thickets
Vascular Plant	Monotropsis odorata	Sweet Pinesap	G3	S2	--	T	Piney Woods
Vertebrate Animal	Myotis grisescens	Gray Myotis	G3	S2	LE	E	Cave obligate year-round; frequents forested areas; migratory.
Vertebrate Animal	Napaeozapus insignis	Woodland Jumping Mouse	G5	S4	--	D	Deciduous and coniferous forests with herbaceous groundcover; middle and east Tennessee.

Type	Scientific Name	Common Name	Global Rank	St. Rank	Fed. Prot.	St. Prot.	Habitat
Invertebrate Animal	Nesticus paynei	A Cave Spider	G3G4	S3	--	Rare, Not State Listed	Terrestrial cave associate; also may be found on surface; northern Ridge & Valley.
Vertebrate Animal	Noturus flavipinnis	Yellowfin Madtom	G1	S1	LT,XN	E	Medium size to large creeks and small rivers that are unpolluted & relatively unsilted; upper Tennessee River watershed.
Invertebrate Animal	Obovaria retusa	Ring Pink	G1	S1	LE	E	Large rivers in gravel and sand bars; Tennessee & Cumberland river watersheds; many historic locations currently inundated.
Invertebrate Animal	Obovaria subrotunda	Round Hickorynut	G4	S2S3	--	Rare, Not State Listed	Medium-large rivers in sand and gravel subst with moderate flow; TN & Cumb rivers; also Red River in Robertson Co., W Highland Rim.
Vascular Plant	Onosmodium hispidissimum	Shaggy False Gromwell	G4	S1	--	E	Dry Woods
Vascular Plant	Onosmodium molle ssp. occidentale	Western False Gromwell	G4G5T4?	S1S2	--	T	Glades
Vertebrate Animal	Ophisaurus attenuatus longicaudus	Eastern Slender Glass Lizard	G5T5	S3	--	D	Dry upland areas including brushy, cut-over woodlands and grassy fields; nearly statewide but obscure; fossorial.
Vascular Plant	Panax quinquefolius	American Ginseng	G3G4	S3S4	--	S-CE	Rich Woods
Vertebrate Animal	Percina tanasi	Snail Darter	G2G3	S2S3	LT	T	Sand and gravel shoals of moderately flowing, vegetated, large creeks; upper Tennessee River watershed.
Vertebrate Animal	Pituophis melanoleucus melanoleucus	Northern Pinesnake	G4T4	S3	--	T	Well-drained sandy soils in pine/pine-oak woods; dry mountain ridges; E portions of west TN, E to lower elev of the Appalachians.

Type	Scientific Name	Common Name	Global Rank	St. Rank	Fed. Prot.	St. Prot.	Habitat
Invertebrate Animal	Plethobasus cooperianus	Orangefoot Pimpleback	G1	S1	LE	E	Large rivers in sand-gravel-cobble substrates in riffles and shoals in deep flowing water; Cumberland & Tennessee river systems.
Invertebrate Animal	Plethobasus cyphyus	Sheepnose	G3	S2S3	LE	Rare, Not State Listed	Large to medium-sized rivers, in riffles and coarse sand/gravel subst; TN & Cumb river systems incl KY Reservoir; W Uplands & Rim.
Invertebrate Animal	Pleurobema plenum	Rough Pigtoe	G1	S1	LE	E	Medium to large rivers in sand, gravel, and cobble substrates of shoals; Tennessee & Cumberland river systems.
Invertebrate Animal	Quadrula cylindrica cylindrica	Rabbitsfoot	G3G4T 3	S3	--	Rare, Not State Listed	Large rivers in sand and gravel; Tennessee & Cumberland systems; big river form of Q. cylindrica.
Invertebrate Animal	Quadrula intermedia	Cumberland Monkeyface	G1	S1	LE	E	Shallow riffle and shoal areas of headwater streams and bigger rivers, in coarse sand/gravel substrates; Tennessee River system.
Nonvascular Plant	Radula voluta	A Liverwort	G3	S2	--	S	Shady Moist Boulders By Waterfalls Or Sreams
Vascular Plant	Ranunculus flabellaris	Yellow Water-crowfoot	G5	S2	--	T	Ponds And Marshes
Vertebrate Animal	Sorex cinereus	Cinereus Shrew	G5	S4	--	D	Rich woodlands of many types; open fields; middle and east Tennessee.
Vertebrate Animal	Sorex longirostris	Southeastern Shrew	G5	S4	--	D	Various habitats including wet meadows, damp woods, and uplands; statewide.
Vertebrate Animal	Tyto alba	Barn Owl	G5	S3	--	D	Open and partly open country, often around human habitation; farms.

Type	Scientific Name	Common Name	Global Rank	St. Rank	Fed. Prot.	St. Prot.	Habitat
Vertebrate Animal	Zapus hudsonius	Meadow Jumping Mouse	G5	S4	No Status	D	Open grassy fields; often abundant in thick vegetation near water bodies; statewide.

Based on the project description and location, our office does not anticipate any impacts to rare, threatened, or endangered plant species. However, should suitable habitat exist on or immediately downstream of the site, we ask that project plans provide for the protection of these species. We ask that you closely coordinate this project with the Tennessee Wildlife Resources Agency (Rob Todd, rob.todd@tn.gov , 615-781-6577) to ensure that legal requirements for protection of state listed rare animals are addressed. Additionally, we ask that you contact the U.S. Fish and Wildlife Service Field Office, Cookeville, Tennessee (931-525-4970) for comments regarding federally listed species.

Please keep in mind that not all of Tennessee has been surveyed and that a lack of records for any particular area should not be construed to mean that rare species necessarily are absent. For information regarding species protection status and ranks, please visit http://www.tn.gov/environment/na/pdf/Status&Ranks.pdf.

To assist in determining whether rare species are located at a given site, the Tennessee Natural Heritage Program has implemented a publicly accessible website where rare species data lists by county, quadrangle, watershed, and MS4 boundaries can be obtained: http://environment-online.state.tn.us:8080/pls/enf_reports/f?p=9014:3:3875605994273657.

Should you have any questions, please do not hesitate to contact Stephanie at (615) 532-4799 or stephanie.whitaker@tn.gov .

Sincerely,

Chelsea L. Broach
Environmental Review Assistant

Stephanie A. Whitaker
Natural Heritage Data Manager

Community Action Committee Water Quality AmeriCorps Team
2013-2014 Year-End Overview (7/1/13 – 6/30/14)
Adopt-A-Watershed Program

Adopt-A-Watershed Hands-on Learning	• **1622 middle and high students** participated in Adopt-A-Watershed (AAW) water quality educational activities, each activity lasting between 60 – 90 minutes.
Adopt-A-Watershed Service Projects	• **84% of middle and high school students** showed improvement in learning over the course of the program. **1373** students participated in a service project to benefit their local watershed. • **Watershed improvement projects** included: **Baker Creek Watershed** **South Doyle Middle** • The new outdoor classroom officially opened Nov., 2013. • Mr. Gorman's 7th grade Science Club installed 11 trees along the Baker Creek, replanted a demonstration native plant butterfly garden located by the outdoor classroom, and installed 1600 sq ft of erosion matting. **Beaver Creek Watershed** **Grace Christian Academy** • Mrs. Blaschke's 3rd and 7th period environmental science classes helped dig out 150 ft of silt fence at Harrell Rd Stormwater Park and removed 75 lbs of debris from storm drain inserts on campus. **Halls High** • Mr. Blankenship's fall Forestry class created a Halls Outdoor Classroom (HOC) Level 1 Arboretum display that provides tree identification, a map, and the benefits of an arboretum to the community. • Mr. Blankenship's fall Landscape and Turf class removed 614 lbs. of invasive species from the HOC, visually connecting the school and HOC. • Mr. Blankenship's Horticulture class designed a rain barrel display for a to-be-built HOC kiosk that shows how to harvest rain water and its benefits. • Mr. Blankenship's spring Greenhouse Management classes compared the difference in treated Hallsdale-Powell Utility District water and colleced rain water by hydroponically growing lettuce in both sources. • Mrs. Johnson's fall Environmental Chemistry Class removed 25 lbs of debris from storm drain inserts on the Halls High campus. **Karns High** • Mrs. Longmire's fall AP Environmental Science class removed 65lbs of sediment from construction sediment inserts placed around their campus and helped oversee the Ecology class service project. • Mrs.Longmire's fall 1st and 3rd Ecology classes along with Mrs Hackworth's fall Ecology class helped install 50,000 sq ft of erosion matting to the two future wetland ponds at Harrell Road stormwater park.. • Mrs.Longmire's spring Marine Ecology class removed 70 lbs of storm drain insert debris and installed 700 sq ft of erosion matting at the Harrell Rd Park. • Mrs. Longmire's spring Ecology class installed 700 sq ft of erosion matting at Harrell Rd Stormwater Park and GPS-ed trees. • Mrs. Hackworth's 1st and 2nd Ecology classes installed and mulched 30 native plants in arain garden at Harrell Rd Stormwater Park and installed 800 sq ft of erosion matting on their campus.

Adopt-A-Watershed Service Projects	**Powell High Environment Club** • Planted 200 seedlings and 27 shrubs in the Beaver Creek riparian zone. • Removed 500 lbs of privet from the Outdoor Classroom. • Installed and maintained a butterfly garden in the outdoor classroom. • Joined Adopt-a-Stream. **Powell Middle** • Mr. Davis's 7th grade Science students planted native plants in the school's two rain gardens and conducted an *Erosion Prevention Initiative*, applying 3,800 sq ft of erosion control matting on an eroding hill on campus. • The afterschool *Rain Garden Club* conducting ongoing maintenance of the gardens and assisted with plantings and painted and sold 3 rain barrels to members of the community. **Conner Creek Watershed** **Hardin Valley** • Mr. Paquette's fall Biology class researched, selected and planted 75 native plants along Connor Creek. The project was done with funds from the WQF Environmental Stewardship Grant program. • Mr. Paquette's spring Botany/Zoology class monitored the progress of the newly planted shrubs and installed 800 sqft of erosion matting on campus. • Mr. Knapp's spring AP Env. Science class installed storm drain inserts in the campus parking lots, collecting 110 lbs of sediment over the semester. • Mrs. Hevrdey's fall Ecology class pulled 0.27 tons of privet along Conner Creek behind the school. **First Creek Watershed** **Central High** • Mr. Alexander's fall Wildlife class maintained the *Storm Drain Monitoring Initiative* by debris from 15 storm drain inserts that were installed the previous spring. The class also created a storm water pollution prevention video. **Stock Creek Watershed** **South Doyle High** • Mr. McBride's spring Ecology class removed over 200 lbs of privet and mapped arboretum trees at Marble Springs Historic Site. • Mrs. Darago's spring Botany/Zoology class researched and selected plants for a newly installed rain garden on their campus. They then helped plant, mulch and fundraise for a sign for the new garden. • Coach Lance's biology class helped plant and mulch the new rain garden. **Ten Mile Creek Watershed** **West Valley Middle (WVM)** • Mrs. Hayes, Mr.Alexander and Mrs. Lyttle 8th grade classes removed privet along Ten Mile Creek, where the school has plans to build an outdoor classroom, and maintained the rain garden. • 7th grade science teachers (Mrs. Lewis, Mrs. Crowley, and Ms. Whitmire 7th) collaborated with the other 7th grade subject teachers. Social studies students rated and ranked the extent of soil erosion on campus, math students calculated potential soil loss prevention, and science students stabilized eroding areas. Language art students used a multi-media approach to summarize the project, with their products displayed at the OC fundraiser.

	Third Creek Watershed **West High** • Ms. Nanney's Environmental Science class created educational videos on the importance of scooping pet waste, proper lawn maintenance, and not dumping anything down the storm drain.
Development of School/ Community Outdoor Classrooms	**Hardin Valley Academy Outdoor Classroom** • Seventy two native shrubs and three native tree species were selected and installed along Conner Creek through the support of a WQF ESP grant. • Total of 1600 lbs of privet removed through several volunteer work days. • Began discussion with East TN Design Center to develop an HVA Outdoor Classroom concept plan. **Halls Outdoor Classroom (HOC)** • Chaired the HOC Steering Committee • Removed invasive species with several groups of prospective and current University of Tennessee students. • Helped to prepare the grounds for the 2014 Spring HOC Celebration. • Total of 3220 lbs of invasive Privet, Bush Honeysuckle, and Callery Pears removed from the HOC. • Took the lead on coordinating the **2014 HOC Celebration** involving about 225 community members and students. **West Valley Middle School Outdoor Classroom** • Coordinated a photography contest for the Outdoor Classroom (OC) fundraiser. Twelve 8th grade classes photographically captured an assigned land use and summarized how the image pertained to watershed health. The winning photos were showcased at the OC fundraiser • Helped to raised $630 for the development of the OC Concept Plan created by the East TN Design Center through a school/community charrette.
Rain Barrel Workshops	• Prepared over 100 barrels for the WQF's "Make it, Take it" Rain Barrel Workshops and have assisted with their implementation • Promoted and assisted with the WQF Rain Barrel Truckload Sale
Adopt-A-Stream	• Assisted with four AAS group clean ups/stream assessments • Created a program promotional flyer • Delivered AAS Promotional Trash Displays throughout Knox County
EarthFest	• Attended *Earthfest* Planning Committee meetings and served on the *Earthfest* Education Committee. • Assisted in planning and conducting the *Earthfest* Scavenger Hunt including coordinating this activity with 47 organizations • Assisted with the SH prize acquisition, collecting a total of 30 from local/regional businesses • Assisted with the development of the *EarthFest* Enviro-characters
WaterFest	• Assisted with planning & conducting *WaterFest*, with ~1,100 elementary school students participating • Helped to market, coordinate and judge the Poetry & Art contest • Coordinated volunteers for each event/station

Stock Creek Initiative	• **Bonny Kate Elementary School Fun Night:** Conducted water quality educational activities with ~ 50 children. Adult outreach was conducted in conjunction with these activities including promoting the Stock Creek Septic Initiative. • **Stock Creek Celebration:** Planned and assisted with a close out celebration for the septic repair grant in the Stock Creek Watershed that involved about 50 people
Beaver Creek Initiative	• **Rain Gardens:** Maintained three gardens, one at the Powell Station County Park and two at the Powell Middl School • **Cistern Ribbon Cutting:** Assisted in coordinating an inaugural event where Mayor Burchett and Principal Duff dedicated the newly installed Halls High Greenhouse cistern that can hold 1500 gallons of water and is estimated to annually collect and reuse 36,000 gallons of rainwater.
River Rescue	• Conducted reconnaissance of creek sites and identified ten for River Rescue • Assisted in organizing all River Rescue site supplies • Captained and coordinated volunteers at four creek sites
Stream Monitoring	• Conducted ~120 hours of monitoring • Assessed six watersheds • Assisted TDEC in fish and benthic monitoring
Dry Weather Screening	• Spent ~ 19 hours monitoring Knox Co. culverts, checking for Illicit discharges
Stormwater Pollution Prevention Plan	• Removed by hand .50 tons of sediment from the Engineering and Public Works (EPW) parking lot • Helped create a SWPPP for the EPW site along with departmental representatives.
Summary	• **11818 lbs** invasives removed • **178 lbs** native plants installed • **2625 lbs** sediment removed from storm drains • **19400 lbs** trash removed from streams and rivers • **5.2 acres** of soil stabilized • **5.6 acres** of public lands improved • **106.13 mi** of streams and rivers improved • **150 ft** of old silt fence excavated • **167** tires removed from streams and rivers • **124** citizens surveyed to show changed behaviors • **1135** volunteers at community events, clean ups, etc.

Knox County Stormwater Staff Education/Outreach Activities

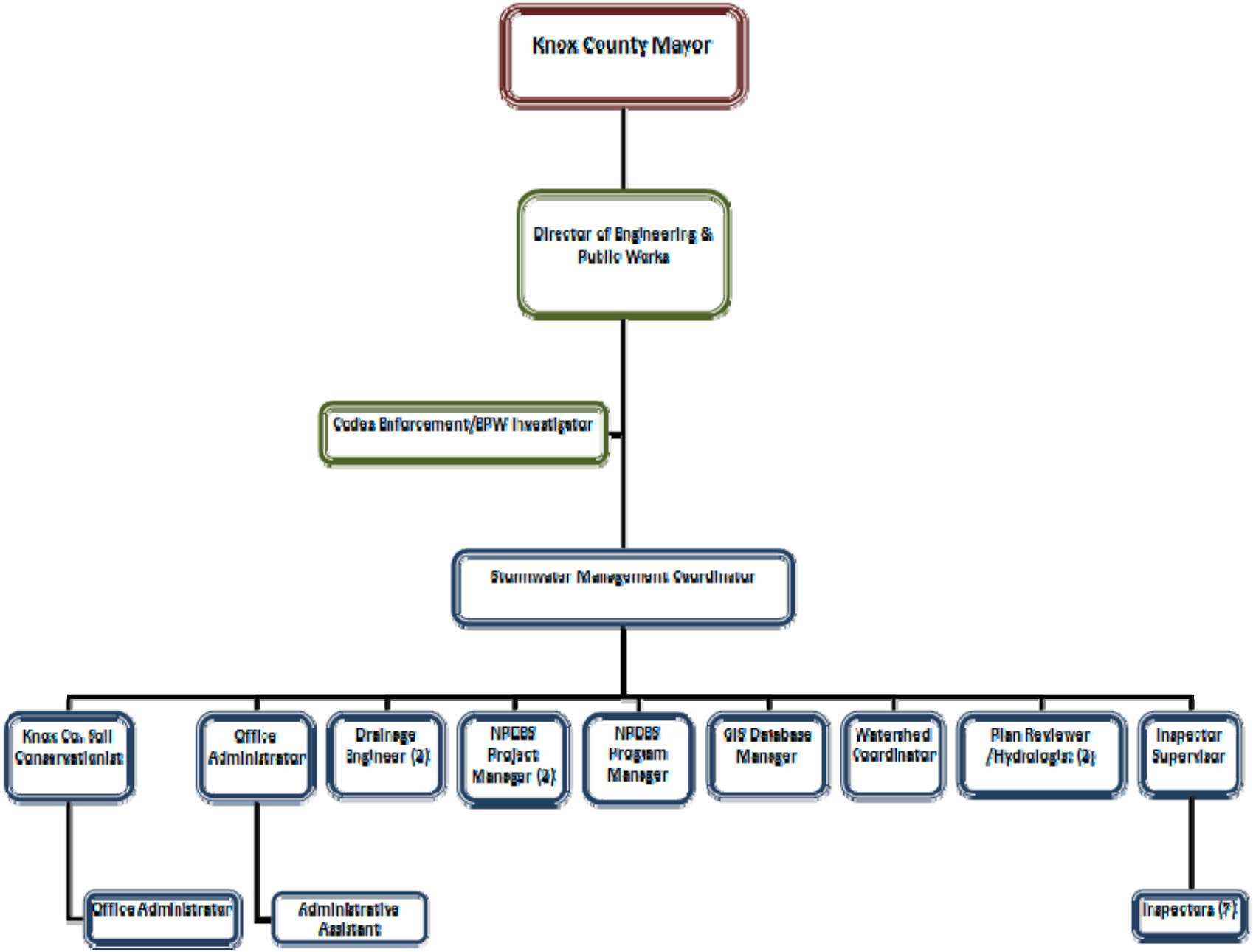
Tracking of Knox County's stormwater education, outreach, involvement and participation activities **July 1, 2012-June 30,2013**

7/9/2013	**PPGH:** Sheriff's Office-Detention Facility Personnel training	8 Sheriff's Office Employees trained on illicit discharge detection and stormwater pollution prevention. 22.1 % average knowledge gain.
7/22/2013	**PPGH:** Sheriff's Office-Detention Facility Personnel training	9 Sheriff's Office Employees trained on illicit discharge detection and stormwater pollution prevention. 34.5 % average knowledge gain.
7/24/2013	**Metropulse article**	Dirty Water: Why Are Knoxville Waterways So Filthy This Year? Blame the Heavy Rainfall
08/01/13	**Informational Kiosks installed in three parks**	Powell Station Park, Northwest Sports Park, Halls Community Park
8/6/2013	**PPGH:** Sheriff's Office-Detention Facility Personnel training	13 Sheriff's Office Employees trained on illicit discharge detection and stormwater pollution prevention. 35.5 % average knowledge gain.
8/7/2013	**PPGH:** Sheriff's Office-Detention Facility Personnel training	18 Sheriff's Office Employees trained on illicit discharge detection and stormwater pollution prevention. No pre-test was given on this day.
8/20/2013	**PPGH:** Sheriff's Office-Detention Facility Personnel training	14 Sheriff's Office Employees trained on illicit discharge detection and stormwater pollution prevention. 10.2 % average knowledge gain.
8/22/2013	**ED/Outreach with Tate's School of Discovery**	used the enviroscape to teach 25 students about non-point source pollution and stormwater pollution. In addition, students were asked to take the message home and tell their parents 5 things they learned about stormwater pollution prevention for extra credit points
9/10/2013	**PPGH:** Sheriff's Office-Detention Facility Personnel training	24 Sheriff's Office Employees trained on illicit discharge detection and stormwater pollution prevention. 30.5 % average knowledge gain.
9/12/2013	**PPGH:** Sheriff's Office-Detention Facility Personnel training	6 Sheriff's Office Employees trained on illicit discharge detection and stormwater pollution prevention. 19.7 % average knowledge gain.
9/12/2013	**Exhibit: Scripps Green Days**	
9/17/2013	**Annual Report Hearing**	0 people attended. 1:30pm-4:30pm at 205 Baxter Avenue Knoxville, TN
10/8/2013	**Halls HS 1,500 gallon Cistern Ribbon Cutting**	45 people attended the ribbon cutting and media event. Speakers discussed the stormwater benerfits of installing a cistern

10/25/2013	**AAS Clean up: TCA-4H**	17 people did a stream cleanup and stream assessment on Beaver Creek in the Beaver Creek watershed. 100 pounds of trash was removed. (Halls Community Park at Food City to Clayton Park)
11/1/2013	**AAS Clean up: Asset Planning Corp**	9 people did a stream clean up on Ten Mile Creek in the Ten Mile Creek watershed. 210 pounds of trash was removed. (Ebeneezer rd and Kingston Pike)
11/2/2013	**AAS Clean up: Knoxville Ski and Outdoor Club**	14 people did a stream clean up on Ten Mile Creek in the Ten Mile watershed. 200 pounds of trash was removed. (Walker Springs Park)
11/5-11/7/2013	**Ed/Outreach with West Valley Middle School**	Talked with 400 7th grade students about the environmental impacts globally and locally of erosion as part of a wider interdisciplinary project on soil erosion. Social Studies learned about the impacts of erosion, calculated slope at on site erosion plots and ranked those plots for severity. Math used the Universal Soil Loss Equation to determing soil movement at WVM. Science installed erosion control matting or seed/straw based on the ranking of the plots. Language Arts did a summary wrap up of the entire placed based learning project.
11/8/2013	**Sub-Contractor Education Event**	28 people working with Ball Homes at Falcon Pointe subdivision attended this event to teach subcontractors about the importance of erosion prevention/sediment control.
11/18/2013	**Ed/Outreach with Jewish Day School**	Used the enviroscape to teach eight 4th/5th grade students about stormwater pollution from different land uses.
12/2/2013	**AAS Training: Powell High School Environmental Club**	Trained 9 students and a new teacher.
12/17/2013	**PPGH:** Sheriff's Office-Detention Facility Personnel training	14 Sheriff's Office Employees trained on illicit discharge detection and stormwater pollution prevention. 37.5% average knowledge gain.
2/13/2014	**Speaking Engagement: Chemical Applicators**	**Chemical Applicator Presentation:** Talked with 38 landscapers and chemical applicators about Knox County rules/regulations and stormwater pollution prevention. Hosted by UT Extension at the UT Conference Center
2/14-16/2014	**Exhibit:** Dogwood Arts House and Garden Show	187 people stopped by the booth to learn about homeowner stormwater pollution prevention. Each took a survey.
2/24/2014	**AAS training:** Powell Environmental Club	trained 15 students on how to do a stream assessment

3/4/2014	**Speaking Engagement: CAC Leadership Class**	Talked with 45 people about programs offered by Knox County Stormwater Management to reduce stormwater pollution
3/10/2014	**Speaking Engagement:** Girl Scout Troop 20155 Souther Appalachain	13 students and 5 parents. Globe toss to learn about water pollution. Enviroscape, Sediment Survival and Who Dirtied the TN.
3/11/2014	**Speaking Engagement:** ETN Building Products Show	Hosted by CSI. Spoke to 23 people about the new 1" runoff reduction requirements and BMPs that can be used to meet those requirements.
3/12/2014	**PPGH:** EPW SWPPP Team training	Meeting to introduce new 5 member EPW SWPPP team to requirements
3/27/2014	**PPGH:** KCSWM staff trash cleanup at Melton Hill Park	staff picked up 705 pounds of trash
3/31/2014	**AAS Stream Assessment** : Powell HS	10 students conducted a stream Assessment: Score of 6.3
4/3/2014	**Speaking Engagement:** Master Gardener Training	3 hour presentation to 57 master gardeners about stormwater pollution and stormwater pollution prevention
4/9/2014	**Speaking Engagement: Corryton Elementary School**	33 students and 2 teachers--Enviroscape
4/11/2014	**AAS Cleanup & Assessment**: Asset Planning Corporation	6 APC members and 4 EPW staff. 700 pounds of trash. Stream Assessment score: 6
4/11/2014	**AAS Cleanup:** TCA 4H	9 TCA members. 80 pounds of trash
4/23/2014	**Speaking Engagement:** Enviroscape at Tate's Pre-K	19-kidsAmeriCorps members did a simplified version of Who Dirtied the TN, Sediment Survival and the Enviroscape.
4/26/2014	**Truckload Rain barrel sale at Earthfest**	84 pre-sold, 9 sold from extras brought back and 26 sold as walk-ups that day. Total= 132
4/28/2014	**Speaking Engagment:** Technical Society Presentaiton	20 engineers attended a lunch presenation about new runoff reduction requirements and BMPs that can satisfy it.
4/29/2014	**Rain Barrel Workshop: Girl Scout Troop at Tate's**	12 students and 2 adults made 12 barrels and stormwater presenation.
5/10/2014	**Rain Barrel Workshop:** Bloomsday at UT Gardens	5 people attended and made 3 barrels
5/19/2014	**Exhibit:** Stewards of the Environment for Adult AmeriCorps volunteers	spoke briefly with about 40 people about the stormwater department and stormwater pollution prevention.
6/7/2014	**Stock Creek Celebration**	event to celebrate wrap up of Stock Creek septic program. 60 people attended.
6/14/2014	**Rain Barrel Workshop: Church of the Good Shepherd**	11 people attended the education portion and made 14 barrels.
6/17/2014	**AAS Training: Goodwill Good Guides**	5 people attended the training for a new AAS group.
6/19/2014	**AAW Teacher Training**	9 AAW teachers attended an all day training revolving around water quality and stormwater pollution prevention.

FY14	**Municipal Employee Training**	A total of 299 municipal employees took online Safety Tests on Stormwater Pollution Prevention


Knox County Mayor
Director of Engineering & Public Works
Codes Enforcement/EPW Investigator
Stormwater Management Coordinator
Knox Co. Soil Conservationist
Office Administrator
Drainage Engineer (2)
NPDES Project Manager (2)
NPDES Program Manager
GIS Database Manager
Watershed Coordinator
Plan Reviewer /Hydrologist (2)
Inspector Supervisor
Office Administrator
Administrative Assistant
Inspectors (7)