

City of Goodlettsville's Stormwater Management Plan (SWMP)

City of Goodlettsville's Stormwater Program

TNS-075345

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City of Goodlettsville's Stormwater Management Plan (SWMP)

Introduction

This Stormwater Management Plan (SWMP) is required under U.S. Environmental Protection Agency (U.S. EPA) Phase II stormwater regulations, promulgated under the Federal Clean Water Act (CWA). These regulations require the City of Goodlettsville to obtain coverage under a National Pollutant Discharge Elimination System (NPDES) permit. The permit covers stormwater discharges associated with the municipality's separate storm sewer system (MS4) and requires the City to report annually on its progress. The latest stormwater permit issued by TDEC is valid from February 8, 2017 through September 30, 2021.

U.S. EPA's Stormwater Phase II Final Rule establishes that an MS4 stormwater management program is intended to improve the quality of the nation's waterways. Common stormwater pollutants include oil and grease from roadways and parking lots, pesticides, herbicides and fertilizers from lawns, sediment from construction sites and trash. Pollutants are deposited into waterways, impacting beneficial uses of the resources and interfering with the habitat for fish, aquatic organisms and wildlife.

After years of water sampling testing analysis, the State of Tennessee has determined each stream within Goodlettsville's jurisdiction is impaired with either e.Coli, siltation and/or as a result of habitat alterations. Based on these test results and the City's proximity to Nashville, Goodlettsville was charged with implementing a stormwater, or water quality program. In 2003, Goodlettsville implemented its stormwater program. The City of Goodlettsville encompasses approximately 14 square miles with an urban growth boundary of almost 4 miles and a population of approximately 17,000 citizens.

The purpose of the SWMP is to identify pollutant sources potentially affecting the quality and quantity of stormwater discharges, to provide Best Management Practices (BMPs) for municipal and development activities, and to provide measureable goals to assess the effectiveness of implemented BMPs.

Potential Sources of Pollution

Activity/Source	Pollutant(s) of Concern
Animal/pet waste	e. Coli
Construction Activities	Sediment, concrete, paint, chemicals, debris
Erosion	Sediment, organic matter
Food Service Operations	Wash water, oil, grease, food residue

Grounds Maintenance/Irrigation Operation	Herbicides, pesticides, fertilizers, animal waste
Impervious Areas	Increased flows and pollutant loading, oil, grease, litter, heavy metals
Outdoor Storage of Uncovered and Improperly Stored Materials	Litter, debris, sand, asphalt, soil, pesticides, herbicides, fertilizer, paint, solvents, fuel
Sewer Line Blockages	Raw sewage, e.Coli
Vehicle, Equipment and Materials Washing	Cleaning products, oil, grease, vehicle chemicals and fluids

Minimum Control Measures

Minimum Control Measures are aimed at achieving improved water quality. The City implements BMPs for the following six minimum control measures to remain in compliance with stormwater program requirements:

1. Public Education and Outreach
2. Public Involvement and Participation
3. Illicit Discharge Detection and Elimination
4. Construction Site Stormwater Runoff
5. Post-Construction Stormwater Management with New and Re-Development
6. Pollution Prevention/Good Housekeeping for Municipal Operations

1. Public Education and Outreach

Person Responsible: Stormwater Coordinator

The City of Goodlettsville’s public information and education plan is comprised of various components (printed materials distributed at information tables and events; PSAs, City events, and the City’s website; Social Media utilized for Facebook, texting and emails with the goal of educating the citizens on the effects of actions taken on stormwater pollution and water quality.

The City of Goodlettsville targets all age groups at stream clean-ups, at public meetings and workshops on a monthly basis and, as needed, at teacher in-service workshops. Topics covered include stormwater, water quality, environmental education, ordinances, pollution prevention, etc. The general public is notified through local newspapers, email lists, flyer/announcement distribution to public information tables, website postings.

Table 1-1

BMP Implementation: Public Education and Outreach

Year and Timeline	BMP	Implementation Details	Measurable Goal(s)	Person(s)/ Department(s) Responsible
1 through 5, continuously	Educate general public about stormwater	Continue development and distribution of materials through information tables, website, workshops, etc.	Number of items created and distributed...	Stormwater Coordinator
1 through 5, as scheduled	Classroom Education	Provide teacher in-service workshops on environmental education that correlates to the State's current educational standards. Provide information on the City's website. Engagements/ workshops with classrooms/school groups/ homeschool and Scouts. Work alongside other local MS4s, Cumberland River Compact, Project WET, and local schools and universities. Provide teacher access to water quality videos created locally in Goodlettsville by Western Kentucky University. Videos will be accessible on our website for local schools, colleges and universities. We will continue to work alongside other MS4's through monthly Stormwater Meetings.	Continue with teacher in-service workshops and look at possible new workshops to offer, classroom speaking engagements, Scout badge programs, and participation in outreach events. Work alongside schools to offer environmental education opportunities. If school wishes to have the video presented in person, the WKU masters students will provide video and narration.	Cumberland River Compact Stormwater Coordinator
1 through 5, continuously	Hotline	The City has a hotline number available with voicemail ((615) 851-3462). When an incident is received, it is logged into a software database program in order to track and appropriate personnel are notified. Also have reporting capabilities set up on City's website which are emailed to select personnel when submitted.	Provide a phone line with voicemail capabilities and a computerized tracking system to receive stormwater-related inquiries. Continue with existing hotline, website, email, and database reporting capabilities.	Stormwater Coordinator Police Departments

2. Public Involvement and Participation

Person Responsible: Stormwater Coordinator

One of the main goals of the City’s stormwater program is to not only educate the public, but to also get them involved in helping improve local water quality. This can be completed by attending workshops and taking the information and applying it at home or simply participating in stream clean-up.

Participation by citizens ensures the program reflects community values and priorities and thus has the highest potential for success.

Table 2-1

BMP Implementation: Pubic Involvement and Participation

Year and Timeline	BMP	Implementation Details	Measurable Goal(s)	Person(s)/ Department(s) Responsible
1 through 5, as scheduled	Outreach Events	Stream clean-ups, Walk Across Sumner events and monthly Community Advisory Panel with citizen involvement	Number of participants, materials created and distributed, etc.	Stormwater Coordinator non- profits and MS4s.
1 through 5, monthly and as needed	Monthly Stormwater Meetings	Coordinate routine stormwater meetings with other MS4s and the general public.	Number of people in attendance	Stormwater Coordinator

Note, the website is utilized to send emails, texts, and houses static information on public outreach involvement opportunities.

3. Illicit Discharge Detection and Elimination

Persons Responsible: Stormwater Coordinator

The goal of this minimum control measure is to reduce pollutants in stormwater runoff to receiving waters. It requires the development and implementation of a system to identify and eliminate sources of illicit discharge and illegal dumping.

The permit requires the City of Goodlettsville to develop, implement, and enforce a program that detects and eliminates illicit discharges as defined in 40 CFR §122.26(b)(2). The City must develop a storm sewer system map showing the location of all outfalls as well as the names and locations of all waters receiving discharges from the indicated outfalls and develop a program addressing non-stormwater discharges, including illegal dumping, hot spot/priority areas, and illegal discharges into the local water bodies.

Table 3-1

BMP Implementation: Illicit Discharge Detection and Elimination

Year and Timeline	BMP	Implementation Details	Measurable Goal(s)	Person(s)/ Department(s) Responsible
1 through 5, as needed	Outfall Inventory, Stream Assessments, and Dry Weather Screenings	Continue with mapping and monitoring plan already in place.	Implement photos into GIS system.	Stormwater Coordinator
1 through 5, continuously	Hotline, Website, Email	The City has a hotline number available with voicemail ((615) 851-3462). When an incident is received, it is logged into a software database program in order to track and appropriate personnel are notified. Also have reporting capabilities set up on City's website which are emailed to select personnel when submitted.	Provide a phone line with voicemail capabilities and a computerized tracking system to receive stormwater-related inquiries. Continue with existing hotline, website, email, and database reporting capabilities.	Stormwater Coordinator and Police Departments
1 through 5, Permit Cycle	Employee Training	Continue with permit cycle employee training or within 6 months of hire	Number of personnel attending meetings	Stormwater Coordinator with assistance from MTAS
2 through 5, e. Coli: June – September	TMDL Monitoring per TDEC's Protocols	Collect and process water samples on 303(d) e.coli impaired streams per the TDEC-approved City's TMDL Monitoring Plan. Streams impaired for siltation and/or habitat alterations biological stream sampling is performed utilizing the SQSH method.	Number and quality of samples collected and processed by State-certified laboratory.	Stormwater Coordinator Western Kentucky University

1 through 5	Ordinance	Review IDDE section within current stormwater ordinance.	Review ERP with Community Advisory Panel and advise on perceived changes.	Stormwater Coordinator
2, as needed	Ordinance	Update stormwater ordinance to enhance IDDE	Continue enforcement of IDDE as outlined within the stormwater ordinance. Number of NOVs issued and number of complaints received and addressed by staff.	Stormwater Coordinator
1 through 5, quarterly and as needed	Hot Spot/Priority Area Identification, Inspection, and Implementation	Utilizing EPA's Hot Spot Inspection Sheet, continue to look for established areas that may fall underneath this category. If a business is deemed a hot spot/priority area, then it will become part of the City's monitoring program. Suggested water-quality BMPs are provided to these areas.	Number of areas identified as Hot Spots or Priority Areas.	Public Works Inspector
1 through 5, monthly and as needed	Routine Stormwater Meetings/Workshops	Coordinate monthly stormwater meetings with other MS4s and the general public and Community Advisory Panel.	Number of people in attendance	Stormwater Coordinator
1 through 5, monthly and as needed	Street Sweeping	The City has incorporated a monthly sweeping schedule for all streets with curbs and gutters	Reports provided from staff on cubic yards of debris collected and streets swept under City's program.	Public Works Department

4. Construction Site Runoff Control

Person Responsible: Inspector

The goal of this is to prevent sediment and waste generated at active construction sites from entering the stormwater conveyance system. The stormwater ordinance requires erosion and sediment control BMPs be in place prior to, during, and following development or re-development. Construction site operators are required to properly manage waste on the site such as discarded building materials, concrete truck washouts, chemicals, litter, sanitary waste, etc. as these items can adversely affect water quality if they come in contact with it.

Construction site operators are required to develop, implement, and maintain a Stormwater Pollution Prevention Plan (SWPPP) which is to be kept on site and accessible. Construction sites are also to have in place an inspector which self-inspects the site and maintains accurate reports. The City also has an inspector which oversees stormwater controls on the site and helps the developer to remain in compliance with Local, State and Federal stormwater regulations. The State's minimum inspection requirements by the City are once a month. However, the City performs priority inspections Bi-weekly. All commercial sites in the corporate city limits are considered priority.

The City has defined priority construction activity to include, at a minimum, those construction activities discharging directly into, or immediately upstream of, water the state recognized as having unavailable parameters (for siltation and habitat alteration) or Exceptional Tennessee Waters (ETW).

Plans review procedures consist of construction site plan review and approval, including EPSCs and specific technical standards found in the current Construction General Permit (CGP).

The City has established procedures for priority construction sites. The procedures to establish priority construction activity shall include at minimum:

- Pre-construction meetings with construction site operators for priority construction activities;
- Inspection by the City of priority construction sites at least once per month; and
- Documentation of procedures, including related meetings and inspections

Table 4-1

BMP Implementation: Construction Site Runoff Control

Year and Timeline	BMP	Implementation Details	Measurable Goal(s)	Person(s)/ Department(s) Responsible
1 through 4, as needed	Ordinance	Review ordinance as required to comply with NPDES	Meeting agenda, sign-in sheet, etc. passage of ordinance	Stormwater Coordinator
1 through 5, updated as needed	Inventory of Active Construction Sites	Creation and maintenance of current permitted construction sites within City	Inspection data sheets, NOVs issued, etc.	Public Works Inspector
1 through 5, continuously	Erosion Prevention and Sediment Control Handbook	TDEC Level 1 and Level 2 training for employees	Attendance at Level 1 or 2 classes	Stormwater Coordinator
1 through 5, continuously	Site Plan Review	Perform site plan reviews as needed	Number of reviews performed.	Engineering, Planning, Public Works, Codes, Sewer Dept
1 through 5	Site Inspection	Continue construction site inspections, preparation of active site inventory list and evaluation plan. Ensure developer is conducting routine inspections, updating the SWPPP they prepared, etc.	Number of inspections performed, NOVs issued, Land Disturbance Permits issues, and meetings held.	Public Works Inspector
1 through 5, monthly	Routine Stormwater Meetings/Workshops	Coordinate monthly stormwater meetings with other MS4s and the general public.	Number of people in attendance	Stormwater Coordinator
1 through 5, as needed	Pre-Construction Meetings	Host pre-construction meetings to review stormwater controls	Number of pre-con meetings held.	Stormwater Coordinator
1 through 5, as needed	SWPPP	Development of SWPPP by developer for review by Engineering staff and Inspector	SWPPP documents reviewed	Stormwater Coordinator

5. Post Construction Stormwater Management for New and Re-Development

Persons Responsible: Inspector, Stormwater Coordinator

The goal is to reduce the generation of non-point source pollution from urban runoff through planning and design prior to development or re-development. Post-construction runoff control focuses on site and design considerations, which are most effective when addressed in the planning and design stages of project development. Effective long-term management and maintenance are critical, so the best design opportunities are those needing the least amount of maintenance. The goal of the program is to integrate basic and practical stormwater management techniques into new development to protect water quality.

Post-construction stormwater management controls include permanent structural and non-structural BMPs (e.g., conservation of natural and permeable areas, permeable pavers, rooftop runoff infiltration, mechanical storm drain filters, rain gardens, green infrastructure, etc.) that remain in place following project completion.

Table 5-1

BMP Implementation: Post-Construction Stormwater Management for New and Re-Development

Year and Timeline	BMP	Implementation Details	Measurable Goal(s)	Person(s)/ Department(s) Responsible
1 through 5, as needed and annually	Post-construction runoff controls	Review and approval of post-construction runoff controls as part of site plan review and issuance of permits. Begin tracking of BMPs	post-construction BMP tracking and updates .	Stormwater Coordinator
1 through 5, continuously	Post-Construction for Stormwater Quality Manual (TDEC)	Continue with TDEC's manual of BMPs for post-construction stormwater quality	BMPs are being adhered to upon inspection	Stormwater Coordinator
1 through 5, annually	Reporting	Receipt of annual reports from post-construction sites.	Number of reports received.	Stormwater Coordinator
1 through 5, as needed	Long-term Maintenance Plan (Inspection and	Require submittal of recorded document stating long-term	Number of long-term maintenance	Stormwater Coordinator

	Maintenance Agreement)	maintenance plans for each project requiring a land disturbance permit.	agreements received.	
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6. Pollution Prevention/Good Housekeeping for Municipalities

Person responsible: Inspector

The goal is to assure that facility and maintenance operations City-wide occur in a manner which is protective of stormwater quality. Several employees move throughout the City on a daily basis and are the eyes and ears “on the ground” to observe water quality related issues. Employees are also responsible for the safety of their work place and know their actions can directly affect the quality of our waterways. Employees take pride in their jobs and are trained on a regular basis on water quality related issues.

Table 6-1

BMP Implementation: Pollution Prevention/Good Housekeeping for Municipalities

Year and Timeline	BMP	Implementation Details	Measurable Goal(s)	Person(s)/ Department(s) Responsible
1 through 5, as needed	Employee Training	Continue City-wide departmental good housekeeping training to help improve pollutant control efforts and water quality	Number of people in attendance.	Stormwater Coordinator
1 through 5, annually and as needed	Standard Operating Procedures	Maintain standard operating procedures and review. Contains BMPs for municipal-operated facilities. Review and update as needed.	SOP documentation	Public Works Inspector
1 through 5, monthly	Departmental Inspection	Each department inspects for stormwater quality within their area and reports to Inspector on a monthly basis.	Number of reports received, noted items addressed and reconciled.	All departments.
1 through 5,	Employee Training (Level 1 and 2, TNSA	Employees who are involved with stormwater on a regular basis (more so than departmental inspectors) attend various stormwater meetings on	Number of meetings attended.	Stormwater Coordinator

		monthly/quarterly/regular basis to stay current on stormwater-related events.		
1 through 5, annually	Water Quality Control Device	Inspect and clean water quality control device on regular basis and as needed.	Number of reports on equipment cleaning.	Public Works, Inspector
As needed	EPSC Training	Ensure each employee involved with stormwater has received TDEC's Level 1 (or Level 2 if needed) training and remain current with program.	Number of employees trained.	Stormwater Coordinator
1 through 5, continuously	Storm Drain Cleaning	Prior to or following a storm event, have storm drains cleaned throughout City	Number of storm drains cleaned, quantity of debris removed.	Public Works Department
1 through 5	Hotline	Employees can report illicit discharges and water quality concerns via the City's hotline number ((615) 851-3462), by reporting it to their departmental stormwater contact, or via the City's website.	Number of reports received.	All departments

Inspection and Monitoring Programs

Construction Inspection

Persons Responsible: Inspector

The goal of this is to prevent sediment and waste generated at active construction sites from entering the stormwater conveyance system. The stormwater ordinance requires erosion and sediment control BMPs be in place prior to, during, and following development or re-development. Construction site operators are required to properly manage waste on the site such as discarded building materials, concrete truck washouts, chemicals, litter, sanitary waste, etc. as these items can adversely affect water quality if they come in contact with it.

The City has a technical review process that evaluates new development and redevelopment for construction site runoff. A pre-construction meeting between the City and the site developer occur to discuss details of water quality controls before, during and after construction.

The site plan review process:

1. Receipt by Planning Department of document from specified project engineering company for review and consideration at the published date of the next Planning Commission meeting.
2. A copy of the document/attachment is forwarded to City Engineer, Codes Department and Public Works
3. Upon receipt a staff review meeting is scheduled to discuss outstanding issues of the document relating to all departments.
4. Corrected comments are prepared by the Planning Director and sent to the specified project engineer with a date for resubmittal of the corrected document to the Planning Department for final review.
5. Upon receipt of corrected document, the Planning Director will conduct a final review to determine if all outstanding issues have been addressed in accordance with the Goodlettsville Zoning Ordinance and Subdivision Regulations.
6. Copies of the document, any attachments and a staff review report will be delivered to members of the Planning Commission for review prior to the published date of the Planning Commission meeting.

Prior to commencement, the City's Inspector verifies appropriate stormwater controls are properly installed and functioning. Construction site operators are required to develop, implement, and maintain a Stormwater Pollution Prevention Plan (SWPPP) which is to be kept on site, be updated as needed, and remain accessible to the City's Inspector. Construction sites are also to have in place an inspector which self-inspects the site and maintains accurate reports. The City inspects high-priority sites (sites operating within 1,000 feet of an impaired stream) Twice Monthly, regular sites (sites operating over 1,000 feet from an impaired stream) monthly, and inactive and stable sites once a month. The State's minimum inspection requirements by the City are once a month. The City's Inspector oversees stormwater controls on the site and works to keep the developer in compliance with Local, State and Federal stormwater regulations.

TDEC Inspection Form



TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION (TDEC)

Division of Water Pollution Control (WPC)

6th Floor Annex, L&C Tower, 401 Church Street, Nashville, Tennessee 37243

1-888-891-8332 (TDEC)

General NPDES Permit for Stormwater Discharges from Construction Activities (CGP)

Construction Stormwater Inspection Certification (Twice-Weekly Inspections)

Site or Project Name:		NPDES Tracking	
		Number: TNR	
Primary Permittee Name:		Date of Inspection:	
Current approximate disturbed acreage:		Has rainfall been checked/documentated daily? <input type="checkbox"/> Yes <input type="checkbox"/> No	Name of Inspector:
Current weather conditions:		Inspector's TNEPSC Certification Number:	

Please check the box if the following items are on-site:

- Notice of Coverage (NOC)
 Stormwater Pollution Prevention Plan (SWPPP)
 Twice-weekly inspection documentation
 Site contact information
 Rain Gage
 Off-site Reference Rain Gage Location: _____

Best Management Practices (BMPs):

Are the Erosion Prevention and Sediment Controls (EPSCs) functioning correctly: If “No”, describe below in Comment Section

1. Are all applicable EPSCs installed and maintained per the SWPPP?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
2. Are EPSCs functioning correctly at all disturbed areas/material storage areas per section 4.1.5?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
3. Are EPSCs functioning correctly at outfall/discharge points such that there is no objectionable color contrast in the receiving stream, and no other water quality impacts per section 5.3.2?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
4. Are EPSCs functioning correctly at ingress/egress points such that there is no evidence of track out?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
5. If applicable, have discharges from dewatering activities been managed by appropriate controls per section 4.1.4? If “No”, describe below the measures to be implemented to address deficiencies.	<input type="checkbox"/> Yes	<input type="checkbox"/> No
6. If construction activity at any location on-site has temporarily/permanently ceased, was the area stabilized within 14 days per section 3.5.3.2? If “No”, describe below each location and measures taken to stabilize the area(s).	<input type="checkbox"/> Yes	<input type="checkbox"/> No
7. Have pollution prevention measures been installed, implemented, and maintained to minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other wash waters per section 4.1.5? If “No”, describe below the measures to be implemented to address deficiencies.	<input type="checkbox"/> Yes	<input type="checkbox"/> No
8. If a concrete washout facility is located on site, is it clearly identified on the project and maintained? If “No”, describe below the measures to be implemented to address deficiencies.	<input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No
9. Have all previous deficiencies been addressed? If not, describe the remaining deficiencies in the Comments section. <input type="checkbox"/> Check if deficiencies/corrective measures have been reported on a previous form.	<input type="checkbox"/> Yes	<input type="checkbox"/> No

Comment Section. If the answer is “No” for any of the above, please describe the problem and corrective actions to be taken. Otherwise, describe any pertinent observations:

er Management Plan (SWMP)

Certification and Signature (must be signed by the certified inspector and the permittee per Sections 3.5.8.2 (g) and 7.7.2 of the CGP)

I certify under penalty of law that this report and all attachments are, 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.

Inspector Name and Title:	Signature:	Date:
Permittee Name and Title:	Signature:	Date:

Notice of Violation Letter Example



(Date)

ELECTRONIC MAIL

Notice of Violation

Address

Goodlettsville, TN. 37072

To whom it may concern,

On or about the week of (date), the property construction site did unlawfully remove all vegetative cover from land without possession of a Land Disturbance Permit and associated fees and Notice of Coverage etc. as required through the City of Goodlettsville's Stormwater Ordinance and TDEC. Please refer to the below outlined ordinance for requirements set forthwith. Effective immediately the city is issuing a STOP WORK ORDER until all required paperwork and fees are received by the stormwater department, and all ESPC's are in place and approved. Any illicit discharge from above construction site will be penalized independently. Please refer to 18-510(2) for required response to this Notice of Violation.

Should the requested issues not be addressed as requested, further action will be taken after (date).

Sincerely,

Warren Garrett
Stormwater Coordinator
(615) 851-3462

Hot/Spot Priority Area Inspection

Person responsible: Inspector

Businesses were inspected by the Public Works Inspector utilizing the EPA's Hot Spot Inspection Checklist form. Establishments deemed hot spot/priority areas are sent an introductory letter, self-inspection checklist, and suggested BMPs to help improve water quality runoff from their operation. Correspondence to/from the department is noted within the Excel spreadsheet.

Municipal Inspection

Persons responsible: Inspector and Departmental Contacts in Administration, Fire, Parks, and Public Works

The goal is to assure that facility and maintenance operations City-wide occur in a manner which is protective of stormwater quality. Several employees move throughout the City on a daily basis and are the eyes and ears "on the ground" to observe water quality related issues. Employees are also responsible for the safety of their work place and know their actions can directly affect the quality of our waterways. Employees take pride in their jobs and are trained on a regular basis on water quality related issues. Stormwater Pollution Prevention Plans (SWPPP) for each department has been produced and are updated as needed.

Each department has a stormwater contact that is responsible for conducting monthly departmental stormwater inspections. Reports are due the 28th of each month and are submitted to the Public Works Inspector.

**CITY OF GOODLETTSVILLE
GOOD HOUSEKEEPING INSPECTION SHEET**

DEPARTMENT: _____

WEATHER: _____

DATE: _____

INSPECTOR: _____

GOOD HOUSEKEEPING	N/A	YES	NO	ACTION NEEDED
Are storm drain inlets labeled with "Drains to Stream" disks?				
Are storm drain grates clean or do they need maintenance?				
Are stormwater drainage paths clear of dirt and debris?				
Are outside areas neat, orderly, and free of debris?				
Are waste receptacles properly contained and covered?				
Are vehicles or equipment cleaned at this facility?				
Are the filters installed on drains cleaned and/or maintained on regular basis? Note when cleaned or maintained.				
Are spill response materials readily available and are employees trained on use?				
MATERIALS AND HAZMAT STORAGE	N/A	YES	NO	ACTION NEEDED
Are vehicles fueled at this location?				
Are fuel tanks operating properly? Note any repairs since last inspection.				
Do above-ground storage tanks have secondary containment?				
Do containment structures need repair?				
Are hazardous materials stored on site?				
Are containers weathertight, covered, properly contained and stored?				
Is an updated MSDS folder easily accessible?				
Are products labeled according to MSDS/TOSHA/OSHA specifications?				
How are chemicals and wash water disposed?				
OTHER BEST MANAGEMENT PRACTICES	N/A	YES	NO	ACTION NEEDED
Is leaking equipment equipped with drip pans and proper clean-up supplies?				
Are salvaged materials and recyclables properly contained?				
Has this facility received storm water complaints? If so, attach documentation.				
Have reported issue(s) been addressed and documented?				
Have employees received stormwater good housekeeping training?				
Is a contact list posted so employees can report water-quality threats?				

NOTES:

Revised October 20, 2010.

Illicit Discharge Detection and Elimination Inspection

Persons Responsible: Stormwater Coordinator

The goal of this minimum control measure is to reduce pollutants in stormwater runoff to receiving waters. It requires the development and implementation of a system to identify and eliminate sources of illicit discharge and illegal dumping.

The permit requires the City of Goodlettsville to develop, implement, and enforce a program that detects and eliminates illicit discharges as defined in 40 CFR §122.26(b)(2). The City must develop a storm sewer system map showing the location of all outfalls as well as the names and locations of all waters receiving discharges from the indicated outfalls and develop a program addressing non-stormwater discharges, including illegal dumping, hot spot/priority areas, and illegal discharges into the local water bodies.

The City utilizes its GIS system to document outfalls channeling runoff to the creeks and assess stream conditions at monitoring sites. Outfalls are mapped utilizing GIS mapping. The City has developed, implemented and maintains a hot spot/priority area program (described above).

Illegal dumping is addressed by the City's Public Works and Police Departments and prosecuted when possible.

TMDL

TMDL Overview

The TMDL process establishes the maximum allowable loadings of pollutants for a water body while maintaining quality standards for various uses ranging from aquatic and marine life to recreational usage. The TMDL is used to develop controls for reducing pollution from point and non-point sources in order to restore and maintain water resource quality. Water quality monitoring activities provide the chemical, physical and biological data needed to determine the present quality of the State's waters and identifies the sources of pollutants in those waters.ⁱ

The EPA, with oversight from the local TDEC office in Nashville, requires local MS4 Phase II communities, which the City of Goodlettsville is classified as, to implement a five-year monitoring plan of its impaired stream segments which are listed within the April 17, 2008 EPA, Region 4-approved TMDL report.

The water monitoring program shall include collection and analysis of physical, chemical and biological data as well as quality assurance and control programs to assure scientifically valid data.ⁱⁱ Additional monitoring and assessment activities are recommended to determine whether implementation of TMDLs, WLA, and LAs in tributaries and upstream reaches which will result in achievement of in-stream water quality targets for e.Coli. Long-term monitoring is ideal for determining the sources of pollution.

The purpose of this plan is to comply with TDEC's monitoring requirements associated with the approved TMDL report for e.Coli in the Lower Cumberland Sycamore (Cheatham Lake) Watershed as described within the City of Goodlettsville's NPDES Permit #TNS 075345. The City's stormwater permit outlines the six minimum required BMPs previously described within this SWMP. To evaluate the program's effectiveness and TMDL reporting compliance, appropriate monitoring programs must be established and fulfilled.

The City of Goodlettsville must prepare and implement stream monitoring plans for both siltation/habitat alterations and for pathogens. The streams within Goodlettsville which have e.Coli impairments are Mansker's Creek, Slater's Creek, and Lumsley Fork and those which have siltation impairments are Mansker's Creek, Slater's Creek, and Madison Creek.

The City is responsible for conducting one geometric mean test for e.coli, a visual assessment, and obtain a flow measurement for each impaired stream segment within its jurisdiction. e. Coli testing must be completed before July 2019 to complete the visual assessments, and a State-certified laboratory will analyze test results.

Since the issuance of the new NPDES permit (effective February 8, 2017 – September 30, 2021), the City is also required to monitor each stream segment that is impaired with siltation. Biological stream sampling will be performed utilizing methods identified within TDEC's standard operating procedures for macro-invertebrate sampling and/or testing approved under 40 CFR §136. Monitoring information shall include the monitoring date, exact location (latitude and longitude), time of sampling, names of individuals conducting sampling, date the analyses were performed, names of individuals who conducted the analyses, analytical techniques or methods used and the results of the analyses.

From this inspection process, the City will be able to determine if changes will need to be made to existing BMPs and/or if new BMPs need to be established. Once the data's in place, it'll be determined if priorities need to be re-established. Monitoring data will be included in future annual stormwater reports submitted to TDEC as required.

TMDL NPDES MS4 Permit Requirements

The approved TMDL considers e.Coli a nonpoint source of pollution which is not regulated by an NPDES permit. However, the Phase II permit includes conditions for stormwater discharges to impaired streams and conditions for impaired water bodies under a TMDL.

Nonpoint sources of both coliform bacteria and siltation are not identified as entering a water body through a specific conveyance at a single location. These sources usually involve accumulation on land surfaces and wash off as a result of storm events, are present due to failing septic system or as a result of stream bank erosion or failing BMPs from construction activities. Nonpoint sources of e.Coli loading are primarily associated with agricultural and urban land uses. The vast majority of water bodies identified on the

EPA's 2010 303(d) list as impaired due to e.Coli or siltation are attributed to nonpoint agricultural or urban sources.

Wildlife and agriculture deposit coliform bacteria with their feces onto land surfaces where it can be transported during storm events to nearby streams. TWRA estimates the deer density to be 23 animals per square mile within the Lower Cumberland watershed. Agricultural livestock and other unconfined animals often have direct access to water bodies and can provide a concentrated source of coliform bacteria loading directly to a stream.

Some coliform loading can also be attributed to the failure of septic systems and illicit discharges of raw sewage. It is estimated there are approximately 2.37 people per household on septic systems within the watershed, some of which can reasonably be assumed as failing and therefore, are more than likely providing a concentrated source of coliform bacteria directly to a water body. (TDEC, TMDL, 2008, pp. 22-26). The county health departments monitor and address any septic-related issues within Goodlettsville's jurisdiction.

Urban land use provides additional opportunities for carrying pollutants to our water bodies such as stormwater runoff, construction activities, sanitary waste, improper disposal of wastes, leaking septic systems, domestic animals, etc.

TMDL Data Review

The TMDL for e.Coli within the Cheatham Lake Watershed, Lower Cumberland Sycamore Sub-watershed was submitted to EPA, Region 4 on April 1, 2008, and approved on April 17, 2008. The TMDL addresses water body segments of the Cheatham Lake Watershed which are listed on EPA's 2016 final 303(d) list as impaired due to e.Coli and the 2016 final 303(d) list as impaired for siltation and habitat alterations. The streams impaired for e.Coli from the 2006 final list remain the same on the EPA's 2016 303(d) list. The following stream segments are within the City of Goodlettsville's jurisdiction:

Stream Name	Stream ID	Cause	Approved TMDL	MS4 Assigned to WLA
Dry Creek	TN05130202027-2000	Habitat Alterations	No	No
Lumsley Fork	TN05130202220-0100	Escherichia coli	Yes	Yes
Madison Creek	TN05130202220-0400	Siltation	No	No
Mansker's Creek	TN05130202220-1000	Escherichia coli	Yes	Yes
Mansker's Creek	TN05130202220-1000	Siltation	No	No
Mansker's Creek	TN05130202220-2000	Siltation	No	No
Mansker's Creek	TN05130202220-2000	Escherichia coli	Yes	Yes
Slater's Creek	TN05130202220-0300	Siltation	No	No
Slater's Creek	TN05130202220-0300	Escherichia coli	Yes	Yes

e.Coli is an indicator of the presence of disease-causing organisms such as bacteria or viruses, which can pose an immediate and serious health threat to humans. The noted

primary source of e.Coli is untreated or inadequately treated human or animal fecal matter. Based on the analysis of data taken in the above-mentioned streams, the TMDL develops load reductions in e.Coli necessary for the impaired streams segments to meet water quality standards. The City of Goodlettsville continues to undergo sewer rehabilitation throughout its jurisdiction to ensure the sewer system is operating at capacity. In 2010, the City began construction of an 8.5 million gallon equalization basin to catch overflow from the Mansker's Creek Pumping Station with the goal of eliminating any sewer overflow from reaching Mansker's Creek.

TMDL TDEC/Metro's Testing Locations and Data Results for e. Coli

This is data from TDEC's water quality monitoring data within the Lower Cumberland subwatershed.ⁱⁱⁱ

MANSK002.8SR – Mansker's Creek @ Caldwell Drive (behind Kroger)

Testing dates: February 22, 2001 through February 7, 2006 (15 samples)

TMDL stream segment identification number: TN05130202220-1000

MANSK002.8SR	Date	e.Coli (cts./100mL)		
	2/22/01	550		
	3/8/01	16		
	4/19/01	84		
	6/26/01	580		
	7/31/01	820		
	8/1/01	650		
	10/1/01	160		
	7/7/05	150	N/A	N/A
8/18/05	2900	8/31/15	201	
9/27/05	98	9/2/15	128	
		9/2/15	115	
		9/8/15	211	
		9/8/15	166	
		9/10/15	326	
		9/14/15	77	
9/14/15	115			
10/5/05	240	N/A	N/A	

	11/29/05	770	N/A	N/A
	12/8/05	100	N/A	N/A
	1/30/06	100	N/A	N/A
	2/7/06	82	N/A	N/A

MANSK004.7SR – Mansker’s Creek @ Old Stone Bridge

Testing dates: March 2, 2001 through September 28, 2004 (12 samples)

TMDL stream segment identification number: TN05130202220-2000

	Date	e.Coli (cts./100mL)
MANSK004.7SR	3/2/01	230
	6/25/01	580
	7/11/01	270
	10/29/01	56
	2/18/02	18
	5/22/02	160
	8/12/02	130
	4/15/03	52
	8/18/03	93
	5/24/04	440
	8/31/04	490
	9/28/04	520

MANSK006.2SR – Mansker’s Creek upstream at Bakers Fork

This testing location is upstream of the City’s boundary.

Testing dates: February 22, 2001 through February 7, 2006 (16 samples)

TMDL stream segment identification number: TN05130202220-2000

	Date	e.Coli (cts./100mL)
MANSK006.2SR	2/22/01	460
	3/8/01	24
	4/1/01	220
	5/8/01	>2400
	6/26/01	260

	7/31/01	580		
	8/1/01	490		
	10/1/01	38		
	7/7/05	290	N/A	N/A
	8/18/05	>2400	8/27/15	84
			8/31/15	44
	9/27/05	130	9/2/15	99
			9/10/15	2420
			9/14/15	548
	10/5/05	110	N/A	N/A
	11/29/05	870	11/17/15	101
			11/17/15	1
	12/8/05	80	12/7/15	921
	1/30/06	230	1/5/16	47
	2/7/06	370	2/23/16	687
			3/22/16	210
			4/27/16	727
			4/4/16	1733
			6/21/16	205

MANSK008.5SR –Mansker’s Creek @ Old Shiloh Road

This testing location is upstream of the City’s boundary.

Testing dates: March 2, 2001 through August 31, 2004 (10 samples)

TMDL stream segment identification number: TN05130202220-2000

	Date	e.Coli (cts./100mL)
MANSK008.5SR	3/2/01	980
	6/25/01	83
	10/29/01	150
	2/18/02	52
	5/22/02	120

	4/15/03	14
	8/18/03	580
	8/22/03	140
	5/24/04	90
	8/31/04	130

SLATE000.3SR – Slater’s Creek off of Highway 31W (Goodlettsville/Millersville city limits)

This testing location is on the City limit line for the cities of Goodlettsville and Millersville.

Testing dates: February 22, 2001 through February 7, 2006 (16 samples)

TMDL stream segment identification number: TN05130202220-0300

	Date	e.Coli (cts./100mL)		
SLATE000.3SR	2/22/01	290		
	3/8/01	29		
	4/19/01	240		
	5/8/01	2400		
	6/26/01	1700		
	7/31/01	110		
	8/1/01	610		
	10/1/01	33		
	7/7/05	150	N/A	N/A
	8/18/05	4600	8/27/15	166
			8/31/15	119
	9/27/05	240	9/2/15	461
			9/8/15	55
			9/14/15	687
	10/5/05	84	N/A	N/A
	11/29/05	650	11/17/15	101
11/17/15			1	
12/8/05	650	12/7/15	921	
1/30/06	210	1/5/16	47	

	2/7/06	8	2/23/16	687
			3/22/16	210
			4/27/16	727
			4/4/16	1733
			6/21/16	205

LUMSL000.1DA – Lumsley Fork @ Old Springfield Highway (at corporate boundary)

This testing location is at the City limit line of Goodlettsville and Davidson County.

Testing dates: February 22, 2001 through August 31, 2004 (13 samples)

TMDL stream segment identification number: TN05130202220-0100

	Date	e.Coli (cts./100mL)		
	LUMSL000.1DA	2/22/01	520	
3/8/01		6		
4/19/01		2		
5/8/01		2400		
6/26/01		330		
7/31/01		150		
8/1/01		310		
10/1/01		18		
4/15/03		64		
8/18/03		190		
5/24/04		550		
5/25/04		470		
8/31/04		410	8/27/15	62
		8/31/15	79	
		9/2/15	70	
		9/10/15	488	
		9/14/15	866	

The TMDLs for e.Coli were developed using a load duration curve methodology process. This was to ensure compliance with the geometric mean goal for e.Coli at 941

CFU/100mL. Water quality data was collected and a load duration curve analysis was used to assess the water's standards.

According to the Standard Operating Procedures for Chemical and Bacteriological Sampling of Surface Water implemented by TDEC, five samples must be collected within a 30 day period. Samples should be collected at least 24 hours apart from one another and rain events should be avoided (State of Tennessee Department of Environment and Conservation, 2011). Samples should be collected between the months of March and November.

TMDL Watershed Description

The Lower Cumberland Sycamore Watershed has a varied land-use distribution. According to the EPA's 2010 final 303(d) list, Goodlettsville's streams, including several others that flow into Goodlettsville's jurisdiction from outside areas, are not fully-supporting water bodies due, in part, to e.Coli, siltation and/or habitat alteration contamination. The designated use classifications for Goodlettsville's streams include fish, aquatic life, irrigation, livestock, wildlife, recreation and more.

The sub-watershed's land use, which contains Goodlettsville's impaired stream segments, is made up of 70.7% deciduous, mixed, or evergreen forest, commercial/industrial transportation – 4%, high/low intensity residential – 4.5%, open water 0.1%, recreation/other grasses – 3.6%, pasture – 13.3%, crops – 2.9%, woody wetlands – 0.8% and transitional land use – 0.2%. This area comprises 29,935.4 total acres.^{iv} The Dry Creek sub-watershed's land use is made up of 44.5% deciduous, mixed, or evergreen forest, commercial/industrial transportation – 6.7%, high/low intensity residential – 21.9%, recreation/other grasses – 11.9%, pasture – 11.5%, quarries, strip mines, gravel pits – 3.5%. The drainage area affecting Dry Creek is somewhat different than that which affects the remaining streams within Goodlettsville and is located on the City's south end of town.

TMDL Stream Descriptions

Mansker's Creek

Mansker Creek's headwaters begin in Millersville and flow into and through Goodlettsville before emptying into the Cumberland River. Mansker Creek receives water from many tributaries and creeks within the watershed (including the impaired streams within Goodlettsville – Slater's Creek, Lumsley Fork, and Madison Creek) as well as roadways, forestry, commercial land, pavement, and residential land - mixed urban/agricultural. Mansker Creek empties into the Cumberland River approximately 1 ¼ miles northeast of where Dry Creek empties into the Cumberland.

Mansker Creek has a total of six TDEC/Metro monitoring stations for e.Coli data collection. Three monitoring stations located in segment 220-1000 are at miles 0.8, 2.8, and 4.7 (from Cheatham Reservoir to Slater's Creek). Two monitoring stations located in segment 220-2000 are at miles 6.2 and 8.5 (from Slater's Creek to the headwaters). Metro monitors off of the bridge at on Long Hollow Pike at the county line (Sumner/Davidson). Three macro-invertebrate sampling locations on Mansker's Creek occurred at Caldwell Drive RM 2.8 (behind Kroger/off Long Hollow Pike) Lat. 36.324444 Long. -86.696.94, Cedar Street at water utility pumping station behind Kmart and next to Metro Baptist Church, RM 3.4, – Lat. 36.326945 Long. -86.703611 and at Baker's Fork off of Highway 41 RM 6.2, Lat. 36.360278 Long. -86.72694.

According to TDEC, critical conditions occur for Mansker Creek during moist, mid-range, and dry conditions.

City of Goodlettsville

Slater's Creek

Slater's Creek headwaters begin in Millersville and flow into Goodlettsville before emptying into Mansker Creek (Old Stone Bridge/US Highway 41/US Highway 31). An e. Coli testing station for Slater's Creek was conducted at the City limits line/Long Drive area adjacent to a rock quarry in Millersville. Another e.Coli testing location was near the single arch stone bridge. Macro-invertebrate sampling for Slater's Creek occurred off of Highway 31W/41 @ mouth, RM 0.1, Lat. 36.338889 Long. -86.718611 and off of Highway 31W, RM 0.3, Lat. 36.343056 Long. -86.71667.

According to TDEC, critical conditions occur for Slater's Creek during mid-range conditions (between moist and dry conditions). Slater's Creek is served by runoff many tributaries, roadways, pavement, forestry, commercial, and residential land - mixed urban/agricultural.

Lumsley Fork

Lumsley Fork flows from Davidson County into Goodlettsville and runs along Brick Church Pike, Hitt Lane, and New Hitt Lane before ending at Mansker Creek at Old Springfield Highway at a city limit boundary. E. Coli testing for Lumsley Fork was conducted near the City limit boundary with Davidson County at mile 0.1. Another e.Coli test location where Metro is sampling is behind the former KOA Kampground off of Hitt Lane/Old Springfield Highway. Macro-invertebrate sampling for Lumsley Fork occurred at the mouth of Mansker Creek at Brick Church Pike and Hitt Lane, RM 0.1, Lat. 36.339444 Long. -86.72.

According to TDEC, critical conditions occur for Lumsley Fork during mid-range conditions (between moist and dry conditions). Lumsley Fork is served by runoff from tributaries, roadways, pavement, commercial and residential land - mixed urban/agricultural.

Madison Creek

Madison Creek enters Goodlettsville on the northeast side and runs adjacent to Madison Creek Road before draining into Mansker's Creek at Moss-Wright Park. Madison Creek's water quality suffers from siltation due to land development issues. Madison Creek is impaired for 14.4 miles. Macroinvertebrate sampling for Madison Creek on Caldwell Drive, RM 0.5, at Moss-Wright Park, Lat. 36.322778 Long. -86.67917.

Madison Creek is served by runoff from tributaries, roadways, pavement, commercial and residential land - a mixed urban/agricultural classification.

Dry Creek

Dry Creek flows from Davidson County into Goodlettsville's southern corner from the west and runs along some of the City's southern limits and continues to flow through Davidson County before entering the Cumberland River.

Sampling for e.Coli occurred at Metro Nashville's wastewater treatment plant, approximately .5 miles downstream of Goodlettsville's jurisdiction.

Macro-invertebrate sampling on Dry Creek occurred downstream of the City's jurisdiction at RM 1.1 at Gallatin Road Lat. 36.284167 Long. -86.706389.

Dry Creek is served by runoff from tributaries, roadways, pavement, commercial and residential land - a mixed urban/agricultural classification and drains into the Cumberland River and is impaired by e. Coli (outside of Goodlettsville's jurisdiction) and habitat alterations (within Goodlettsville's jurisdiction).

TMDL Monitoring Plan for e.Coli and Macro-invertebrate sampling

This monitoring plan gathers various data sets regarding the impairment of streams within the City's jurisdiction to identify sources and levels of e.Coli, siltation and/or habitat alteration contamination. By interpreting and using this data, we can work to identify potential pollutant sources.

TDEC has developed standards for the TMDL monitoring plan such as visual surveys, chemical monitoring, and biological assessments. For e.Coli and siltation detection, TDEC requires visual assessments and surveys as well as chemical or macro-invertebrate sampling and flow measurements within each impaired stream segment. The City of Goodlettsville uses their own Outfall Reconnaissance Inventory (ORI) form for documenting outfalls and a SCORE worksheet to document visual stream assessments and/or forms required by TDEC.

Note: the City of Goodlettsville is not required to monitor Dry Creek for e.Coli as the impaired section noted within the TMDL is downstream of the City's limits. The City of Goodlettsville is also not required to monitor Walker's Creek as this creek borders the City and does not enter its jurisdiction.

Visual Assessment

- (1) Identify possible sources of impairment
 - (a) Stream walk (minimum of 2 people conducting survey)
 - (i) ORI Form
 1. Point source identification and details
 - (ii) SCORE Worksheet
 1. Health
 2. Canopy shading
 3. Land use classification
 4. Site description
 5. Monitoring protocol is based on EPA/Center for Watershed Protection/City of Goodlettsville/City of Chattanooga
 6. Corrective action plan and timeline
 - (iii) TDEC Required Forms
 - (2) Prioritize sources of impairment
 - (a) Analyze data collected
 - (b) Prioritize impairment sources
 - (3) Documentation
 - (a) Photographs
 - (b) Maps
 - (c) ORI/SCORE/TDEC worksheets
 - (d) Chemical and biological analyses

TMDL e.Coli and Siltation Monitoring and Testing Procedures

e. Coli

In-stream sampling for pathogens is performed using TDEC's Standard Operating Procedures (<http://www.state.tn.us/environment/wpc/publications/ChemSOP03QUAP.pdf>) and guidelines laid out in 40 CFR 136.3, table 1A, #5, table 1H, #1, table 2 referring to table 1A http://ecfr.gpoaccess.gov/cgi/t/text/textidx?c=ecfr&tpl=/ecfrbrowse/Title40/40cfr136_main_02.tpl

Results are included in our annual MS4 report, unless otherwise informed by TDEC.

Geometric mean testing, a visual assessment, and flow measurement will be conducted on each impaired stream segment. E.Coli testing completed and reported to TDEC April 2013 (see implementation schedule below).

TMDL e. Coli Testing Locations and Information

MANSKER CREEK – E.COLI (Lumsley Fork to Cumberland River) TN05130202220-1000 Total Miles Impaired: 7.9			
Location	Description	Date(s)/Frequency	Parameters
Behind Kroger	TDEC's monitoring station Latitude 36.324444 Longitude -86.69694	5x for geometric mean sampling. September 2011	Geometric mean for e.Coli, stream flow, and visual assessment.
North of double arch Old Stone bridge.	Goodlettsville's monitoring station. Latitude 36.338249 Longitude -86.719356	5x for geometric mean sampling. September 2011	Geometric mean for e.Coli, stream flow, and visual assessment.
MANSKER CREEK – E.COLI (Headwaters to Lumsley Fork) TN05130202220-2000 Total Miles Impaired: 7.6			
Location	Description	Date(s)/Frequency	Parameters
Williamson Road (turn right off of Dickerson NB at traffic light) at Millersville/ Goodlettsville city limits NE of Highway 41/ Springfield Highway. Test close to 1068 Williamson Road/city	TDEC's monitoring station Latitude 36.361208	5x for geometric mean sampling. September 2011	Geometric mean for e.Coli, stream flow, and visual assessment.

limits, near Springfield Highway bridge.	Longitude -86.725934		
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LUMSLEY FORK – E.COLI			
TN05130202220-0100			
Total Miles Impaired: 4.7			
Location	Description	Date(s)/Frequency	Parameters
Old Springfield Highway and New Hitt Lane, prior to entering Mansker's Creek.	TDEC's monitoring station Latitude 36.339444 Longitude -86.720000	5x for geometric mean sampling. September 2011	Geometric mean for e.Coli, stream flow, and visual assessment.
Intersection of Brick Church Pike and Hitt Lane near city limits line.	Goodlettsville's monitoring station. Latitude 36.332348 Longitude -86730911	5x for geometric mean sampling. September 2011	Geometric mean for e.Coli, stream flow, and visual assessment.

SLATER'S CREEK – E.COLI			
TN05130202220-0300			
Total Miles Impaired: 11.3			
Location	Description	Date(s)/Frequency	Parameters
Creekside Drive at Goodlettsville/Millersville city limits, near bridge, behind Coach Quarters bus rental.	Goodlettsville's monitoring station. Latitude 36.35713 Longitude	5x geometric mean sampling. September 2011	Geometric mean for e.Coli, stream flow, and visual assessment.

	-85.28769		
Single arch Old Stone bridge, prior to entering Mansker's Creek.	TDEC's monitoring station Latitude 36.342375 Longitude -86.716144	5x geometric mean sampling. September 2011	Geometric mean for e.Coli, stream flow, and visual assessment.

Siltation

Sampling for siltation and habitat alterations is performed using TDEC's Standard Operating Procedures

<http://www.tn.gov/environment/wpc/publications/pdf/bugsop06.pdf> with results being included within Goodlettsville's annual MS4 report to TDEC within the monitoring year samples were collected and processed, unless otherwise informed by TDEC.

Visual assessments, outfall inventories, macro-invertebrate sampling and flow measurement will be conducted on each impaired stream segment. Samples collected April 16-17, 2013, and analyzed/processed/identified by Dr. Ritchie Taylor, Western Kentucky University.

TMDL Siltation Testing Locations and Information

SLATER'S CREEK - SILTATION			
TN05130202220-0300			
Total Miles Impaired: 11.3			
Location	Description	Date(s)/Frequency	Parameters
Creekside Drive at Goodlettsville/Millersville city limits, near bridge, behind Coach Quarters bus rental.	Goodlettsville's monitoring station. Latitude 36.35713 Longitude -85.28769	April 16, 2013	Biological sampling, stream flow, and visual assessment.
Single arch Old Stone bridge, prior to entering Mansker's Creek.	TDEC's monitoring station Latitude 36.338889 Longitude -86.718611	April 16, 2013	Biological sampling, stream flow, and visual assessment

MANSKER CREEK - SILTATION			
(headwaters to Lumsley Fork)			
TN05130202220-2000			
Total Miles Impaired: 7.6			
Location	Description	Date(s)/Frequency	Parameters

Williamson Road (turn right off of Dickerson NB at traffic light) at Millersville/ Goodlettsville city limits NE of Highway 41/ Springfield Highway. Test close to 1068 Williamson Road/city limits, near Springfield Highway bridge.	Goodlettsville's monitoring station Latitude 36.361208 Longitude -86.725934	April 16, 2013	Biological sampling, stream flow, and visual assessment

DRY CREEK - SILTATION			
TN05130202027-2000			
Total Miles Impaired: 5.9			
Location	Description	Date(s)/Frequency	Parameters
Sample either at Janette or near Ivy Hills.	Goodlettsville's Testing Location. TDEC sampled outside of the City's jurisdiction	April 17, 2013	Biological sampling, stream flow, and visual assessment.

MADISON CREEK - SILTATION			
TN05130202220-0400			
Total Miles Impaired: 14.4			
Location	Description	Date(s)/Frequency	Parameters
Caldwell Drive @ Moss-Wright Park kiddy corner from 12 Stones	TDEC's monitoring station Latitude 36.322500 Longitude -86.678611	April 17, 2013	Biological sampling, stream flow, and visual assessment.

<p style="text-align: center;">MANSKER CREEK - SILTATION (Lumsley Fork to Cumberland River) TN05130202220-1000 Total Miles Impaired: 7.9</p>			
Location	Description	Date(s)/Frequency	Parameters
North of double arch Old Stone bridge.	Goodlettsville's monitoring station. Latitude 36.338249 Longitude -86.719356	April 16, 2013	Biological sampling, stream flow, and visual assessment
East Cedar Street @ Water Utility's Goodlettsville Pump Station, next to Metro Baptist Church and behind KMart	TDEC's monitoring station Latitude 36.326945 Longitude -86.703611	April 16, 2013	Biological sampling, stream flow, and visual assessment

Summary

The main goal of the SWMP is to reduce the discharge of pollutants into local water bodies and to identify activities or structural improvements that help improve the quality and reduce the quantity of stormwater runoff. BMPs have been developed and are in place to help reduce the discharge of pollutants to the storm drain system, and are updated as needed to comply with changes to the NPDES permit requirements.

The City of Goodlettsville will survey the same impaired stream segments which TDEC or Metro have previously tested within the City's corporate boundary. Data will be collected for e.Coli and siltation analyses and submitted to TDEC. This data, as it's collected, will be included with the City's annual MS4 report.

Only until data is collected, analyzed, mapped and documented, will the sources of pollutants be targeted more accurately. Continuing to physically walk the streams and identifying outfalls and condition of the stream's corridors will also aid in this process. In addition, the City will continue to apply the terms of its MS4 permit to the fullest extent, ensuring existing BMPs are implemented to meet the waste load allocations for each water body. This allows the City to determine the need for the possibility of new BMPs to be created and implemented.

At the end of the new Phase II permit, the City hopes to have a level of information needed to determine the point and non-point sources of pollutants along these impaired streams so the City of Goodlettsville and TDEC can further enforce regulatory measures to those

causing pollution to our water bodies. The ultimate goal is to remove each impaired water body within Goodlettsville's jurisdiction from EPA's 303(d) list of impaired streams.

An annual report is submitted by the City of Goodlettsville to TDEC by September 30, and includes the status of compliance with permit conditions, an assessment of the appropriateness and effectiveness of stated BMPs, status of identified measurable goals, results of information collected and analyzed, includes monitoring data collected during the reporting period, proposed changes to the overall stormwater management plan and why they are needed, and any changes in the person(s) implementing and coordinating the stormwater management plan.

TMDL References

- ⁱ Electronic Code of Federal Regulations. "Water Quality Monitoring." Protection of the Environment 40 CFR Part 130.0(b) Program Summary and Purpose. Accessed 24 June 2008.
<http://ecfr.gpoaccess.gov/cgi/t/text/textidx?c=ecfr;sid=250a374010e03f67499efl129b0187d4e&rgn=div8&view=text&node=40:21.0.1.1.17.0.16.1&idno=40>
 - ⁱⁱ Electronic Code of Federal Regulations. "Water Quality Monitoring." Protection of the Environment 40 CFR Part 130.4(b) Water Quality Monitoring. 11 April 1989. Accessed 24 June 2008.
<http://ecfr.gpoaccess.gov/cgi/t/text/textidx?c=ecfr;sid=250a374010e03f67499efl29b0187d4e;rgn=div8;view=text;node=40%3A21.0.1.1.17.0.16.5;idno=40;cc=ecfr>
 - ⁱⁱⁱ Tennessee Department of Environment and Conservation. "TMDL for e. Coli in the Lower Cumberland (Cheatham Lake) Watershed (HUC 05130202) Cheatham, Davidson, Robertson, Sumner, and Williamson Counties, Tennessee" Final Approved TMDL 17 April 2008. Accessed 8 January 2009. Page B-3. <http://www.tdec.net>
 - ^{iv} Tennessee Department of Environment and Conservation. "TMDL for e. Coli in the Lower Cumberland (Cheatham Lake) Watershed (HUC 05130202) Cheatham, Davidson, Robertson, Sumner, and Williamson Counties, Tennessee" Final Approved TMDL 17 April 2008. Accessed 19 December 2008.
<http://www.tdec.net>
- Tennessee Department of Environment and Conservation. (2011, August). Chemical and Bacteriological Sampling of Surface Water. Tennessee. Retrieved from <https://www.tn.gov/assets/entities/environment/attachments/ChemSOP03QUAP.pdf>