

Stormwater Management Plan
City of Hendersonville
NCS000489

October 14, 2024



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PART 1: INTRODUCTION

The purpose of this Stormwater Management Plan (SWMP) is to establish and define the means by which the City of Hendersonville will comply with its National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) Permit and the applicable provisions of the Clean Water Act to meet the federal standard of reducing pollutants in stormwater runoff to the maximum extent practicable.

This SWMP identifies the specific elements and minimum measures that the City of Hendersonville will develop, implement, enforce, evaluate and report to the North Carolina Department of Environmental Quality (NCDEQ) Division of Energy, Minerals and Land Resources (DEMLR) in order to comply with the MS4 Permit number NCS000489, as issued by NCDEQ. This permit covers activities associated with the discharge of stormwater from the MS4 as owned and operated by the City of Hendersonville and located within the corporate limits of the City of Hendersonville.

In preparing this SWMP, the City of Hendersonville has evaluated its MS4 and the permit requirements to develop a comprehensive 5-year SWMP that will meet the community's needs, address local water quality issues and provide the minimum measures necessary to comply with the permit. The SWMP will be evaluated and updated annually to ensure that the elements and minimum measures it contains continue to adequately provide for permit compliance and the community's needs.

Once the SWMP is approved by NCDEQ, all provisions contained and referenced in this SWMP, along with any approved modifications of the SWMP, are incorporated by reference into the permit and become enforceable parts of the permit. Any major changes to the approved SWMP will require resubmittal, review and approval by NCDEQ, and may require a new public comment period depending on the nature of the changes.


PART 2: CERTIFICATION

By my signature below I hereby certify, under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

I am also aware that the contents of this document shall become an enforceable part of the NPDES MS4 Permit, and that both the Division and the Environmental Protection Agency have NPDES MS4 Permit compliance and enforcement authority.

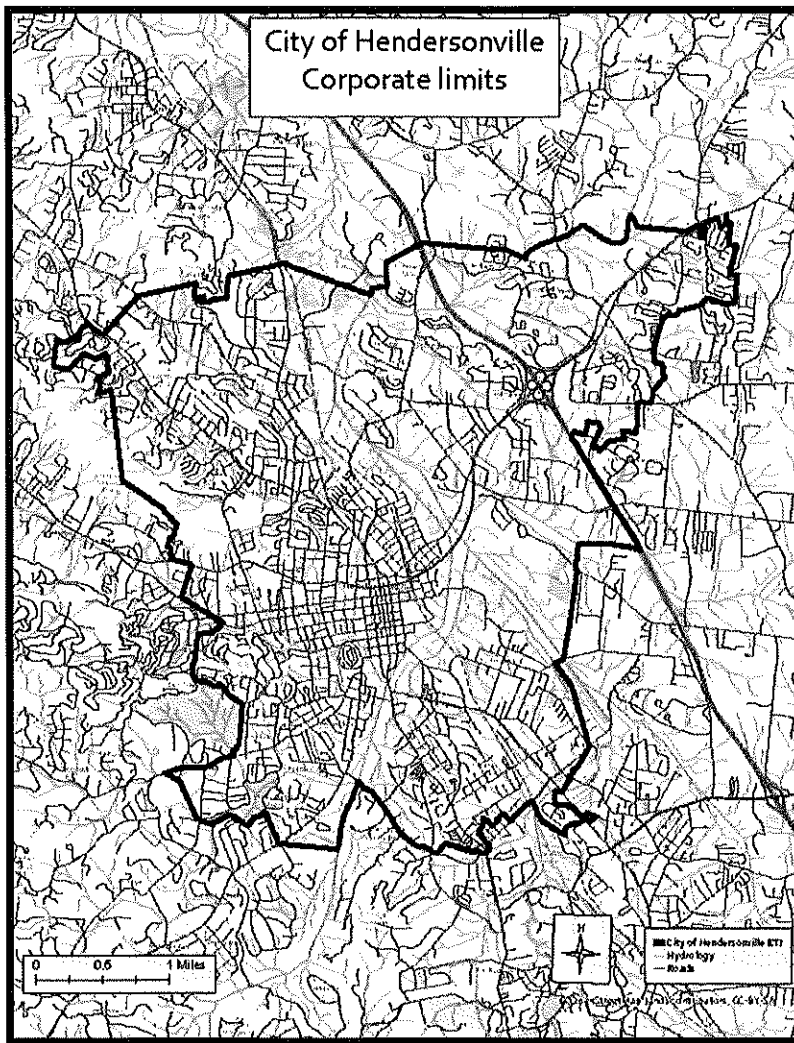
- I am a ranking elected official.
- I am a principal executive officer for the permitted MS4.
- I am a duly authorized representative for the permitted MS4 and have attached the authorization made in writing by a principal executive officer or ranking elected official which specifies me as (*check one*):
 - A specific individual having overall responsibility for stormwater matters.
 - A specific position having overall responsibility for stormwater matters.

<i>Signature:</i>	
<i>Print Name:</i>	Michael S. Huffman
<i>Title:</i>	Stormwater Director
Signed this 18th day of October 2024 .	

PART 3: MS4 INFORMATION

3.1 Permitted MS4 Area

This SWMP applies throughout the corporate limits of the City of Hendersonville, including all regulated activities associated with the discharge of stormwater from the MS4. The map below shows the corporate limits of City of Hendersonville as of the date of this document.



3.2 Existing MS4 Mapping

The current MS4 mapping includes: Inlets, outfalls, pipes, and receiving waters.

Link to MS4 Map:

<https://hendersonville.maps.arcgis.com/apps/webappviewer/index.html?id=cfe752e8f8d54478bf736708f9434ccc>

Table 1: Summary of Current MS4 Mapping

Percent of MS4 Area Mapped	95	%
No. of Major Outfalls* Mapped	28	total

**An outfall is a point where the MS4 discharges from a pipe or other conveyance (e.g. a ditch) directly into surface waters. Major outfalls are required to be mapped to meet permit requirements. A major outfall is a 36-inch diameter pipe or discharge from a drainage area > 50-acres; and for industrial zoned areas a 12-inch diameter pipe or a drainage area \geq 2-acres.*

3.3 Receiving Waters

The City of Hendersonville MS4 is located within the French Broad River Basin and discharges directly into receiving waters as listed in Table 2 below. Applicable water quality standards listed below are compiled from the following NCDEQ sources:

- [Waterbody Classification Map](#)
- [Impaired Waters and TMDL Map](#)
- Most recent NCDEQ Final [303\(d\) List](#)

Table 2: Summary of MS4 Receiving Waters

Receiving Water Name	Stream Index / AU Number	Water Quality Classification	303(d) Listed Parameter(s) of Interest
Mud Creek	6-55b	C	Benthos (Nar, AL, FW) Fish Community (Nar, AL, FW)
Bat Fork	6-55-8-1b	C	Fish Community (Nar, AL, FW)
Devils Fork	6-55-8-2b	C	Benthos (Nar, AL, FW)
Brittain Creek	6-55-9	C	None listed
Johnson Drainage Ditch	6-55-8	C	None listed
King Creek	6-55-8-1-2-(2)	C	None listed
Allen Branch	6-55-11-14	C	None listed
Wolfpen Creek	6-55-11-13	C	None listed
Wash Creek	6-55-7	B	None listed

3.4 MS4 Interconnection

The City of Hendersonville MS4 is interconnected with another regulated MS4 and directly receives stormwater from the NCDOT MS4. The number of interconnections entering the City of Hendersonville MS4 from NCDOT MS4 is currently unknown. The City is currently in the second phase of a comprehensive stormwater asset inventory and assessment project. Once, this project is complete, City GIS and Stormwater staff will document all MS4 interconnections through review of the existing GIS data and field work. Twenty percent (20%) of known assets will be evaluated annually for interconnection to achieve one hundred percent (100%) coverage during the permit term.

The MS4 does interconnect with the statewide NCDOT MS4 and includes:

- a. The interconnection is receiving stormwater from the NCDOT MS4. The number of interconnections is unknown.
- b. The interconnection is discharging stormwater into the NCDOT MS4. The number of interconnections is unknown.
- c. The City of Hendersonville MS4 mapping does identify interconnections with the NCDOT MS4.
- d. The City of Hendersonville MS4 mapping does include NCDOT MS4 outfalls.

3.5 Total Maximum Daily Loads (TMDLs)

The TMDL(s) listed in Table 3 below have been approved within the MS4 area, as determined by the map and list provided on the [NCDEQ Modeling & Assessment Unit web page](#). The table also indicates whether the approved TMDL has a specific stormwater Waste Load Allocation (WLA) for any watershed directly receiving discharges from the permitted MS4, and whether a Water Quality Recovery Program has been implemented to address the WLA.

Table 3: Summary of Approved TMDLs

Water Body Name	TMDL Pollutant(s) of Concern	Stormwater Waste Load Allocation (Y/N)	Water Quality Recovery Program (Y/N)
Statewide	Mercury	N	N

3.6 Endangered and Threatened Species and Critical Habitat

Significant populations of threatened or endangered species and/or critical habitat are not identified within the regulated MS4 urbanized area. Based upon a review of the Endangered and Threatened Species and Species of Concern by County for North Carolina Map and Listed species believe to or known to occur in North Carolina map as provided by the U.S. Fish and Wildlife Service, the species listed in Table 4 have the potential to occur within the regulated MS4 urbanized area. Of those species listed, Table 4 summarizes the species that may be significantly impacted by the quality of surface waters within their habitat.

Table 4: Potential Federally Listed Species/Habitat Impacted by Surface Water Quality

Scientific Name	Common name	Species Group	Federal Listing Status
<i>Cryptobranchus alleganiensis</i>	Eastern Hellbender	<i>C. alleganiensis</i>	ARS
<i>Alasmidonta raveneliana</i>	Appalachian Elktoe	<i>A. raveneliana</i>	E
<i>Cambarus reburus</i>	French Broad crayfish	<i>C. reburus</i>	FSC

3.7 Industrial Facility Discharges

The City of Hendersonville MS4 jurisdictional area includes the following industrial facilities which hold NPDES Industrial Stormwater Permits, as determined from the NCDEQ Maps & Permit Data web page.

Table 5: NPDES Stormwater Permitted Industrial Facilities

Permit Number	Facility Name
NCS080697	CITY OF HENDERSONVILLE GARAGE
NCG070156	SELEE CORPORATION
NCG140155	SOUTHERN CONCRETE MATERIALS
NCG080182	UNITED PARCEL SERVICE
NCG170423	KIMBERLY-CLARK CORPORATION
NCG011163	HENDERSONVILLE WWTP

3.8 Non-Stormwater Discharges

The water quality impacts of non-stormwater discharges have been evaluated by the City of Hendersonville as summarized in Table 6 below. The unpermitted non-stormwater flows listed as incidental do not significantly impact water quality. The City of Hendersonville has evaluated residential and charity car washing and street washing for possible significant water quality impacts.

Street washing discharges are addressed under the Pavement Management Program in Part 10 of this SWMP. The Division has not required that other non-stormwater flows be specifically controlled by the City of Hendersonville.

Wash water associated with car washing that does not contain detergents or does not discharge directly into the MS4 is considered incidental. However, these types of non-stormwater discharges that do contain detergents have been evaluated by the City of Hendersonville to determine whether they may significantly impact water quality. If determined to be a possible cause of water quality impacts they will be addressed through public education efforts.

Table 6: Non-Stormwater Discharges

Non-Stormwater Discharge	Water Quality Impacts
Water line and fire hydrant flushing	Incidental
Landscape irrigation	Incidental
Diverted stream flows	Incidental
Rising groundwater	Incidental
Uncontaminated groundwater infiltration	Incidental
Uncontaminated pumped groundwater	Incidental
Uncontaminated potable water sources	Incidental
Foundation drains	Incidental
Air conditioning condensate	Incidental
Irrigation waters	Incidental
Springs	Incidental
Water from crawl space pumps	Incidental
Footing drains	Incidental
Lawn watering	Incidental
Residential and charity car washing	Possible
Flows from riparian habitats and wetlands	Incidental
Dechlorinated swimming pool discharges	Incidental
Street wash water	Possible
Flows from firefighting activities	Incidental

3.9 Target Pollutants and Sources

In addition to those target pollutants identified above, the City of Hendersonville is not aware of other significant water quality issues within the permitted MS4 area.

Pet waste, failing septic systems, and Sanitary Sewer Overflows in the community continue to contribute to bacterial pollution in the Mud Creek watershed. The City of Hendersonville is actively working to reduce the number of SSO's through sewer system upgrades and master planning efforts. The City of Hendersonville will continue to notify the public of SSO's and develop programs to better educate the public and enforce, as needed, for these illicit violations.

Litter and gross solids are a general issue associated with commercial, agricultural, and residential areas.

Sediment is attributed to increased development and ongoing agricultural operations in the Mud Creek watershed.

Table 7 below summarizes the water quality pollutants identified throughout Part 3 of this SWMP, the likely activities/sources/targeted audiences attributed to each pollutant, and identifies the associated SWMP program(s) that address each. In addition, the City of Hendersonville has evaluated schools, homeowners and businesses as target audiences that are likely to have significant stormwater impacts.

Schools were selected as a target audience due to the opportunity to affect positive change through education and involvement opportunities. Homeowners and business were identified as target audiences because they are likely sources of non-point source pollution through uninformed management practice and accidental releases.

Table 7: Summary of Target Pollutants and Sources

Target Pollutant(s)	Likely Source(s)/Target Audience(s)	SWMP Program Addressing Target Pollutant(s)/Audience(s)
Gross Waste (Litter/Trash)	Residents, Commercial, Schools	Public Education & Outreach, Public Involvement
Nutrients	Residential, Commercial, Agriculture	Public Education & Outreach, Pollution Prevention & Good Housekeeping
Biological Contaminants	Sewer overflows, failing septic systems, illicit discharges	Illicit Discharge Detection & Elimination, Public Education & Outreach, Pollution Prevention & Good Housekeeping
Illicit Discharges	Residential, Commercial, Industrial, Municipal	Illicit Discharge Detection & Elimination, Public Education & Outreach, Pollution Prevention & Good Housekeeping
Illegal Dumping	Residential, Commercial, Industrial, Municipal	Illicit Discharge Detection & Elimination, Public Education & Outreach
Sediment	Construction/Agriculture	Public Education and Outreach, Construction Site Runoff Control

PART 4: STORMWATER MANAGEMENT PROGRAM ADMINISTRATION

4.1 Organizational Structure

The City of Hendersonville's Stormwater Division is responsible for overall program management, including Illicit Discharge Detection & Elimination, Public Education & Outreach, Pollution Prevention & Good Housekeeping for Municipal Operations, and Post Construction Stormwater Management. Construction Site Runoff Control is delegated to Henderson County. The Public Works Department is responsible for the operation and maintenance of the City's stormwater conveyance system. Public Works and Water/Sewer Departments assist in identifying and reporting IDDE to Stormwater Staff and Pollution Prevention and Good Housekeeping for municipal operations and facilities. The City Engineering Department reviews Post-Construction Stormwater Management plans for public and private developments.

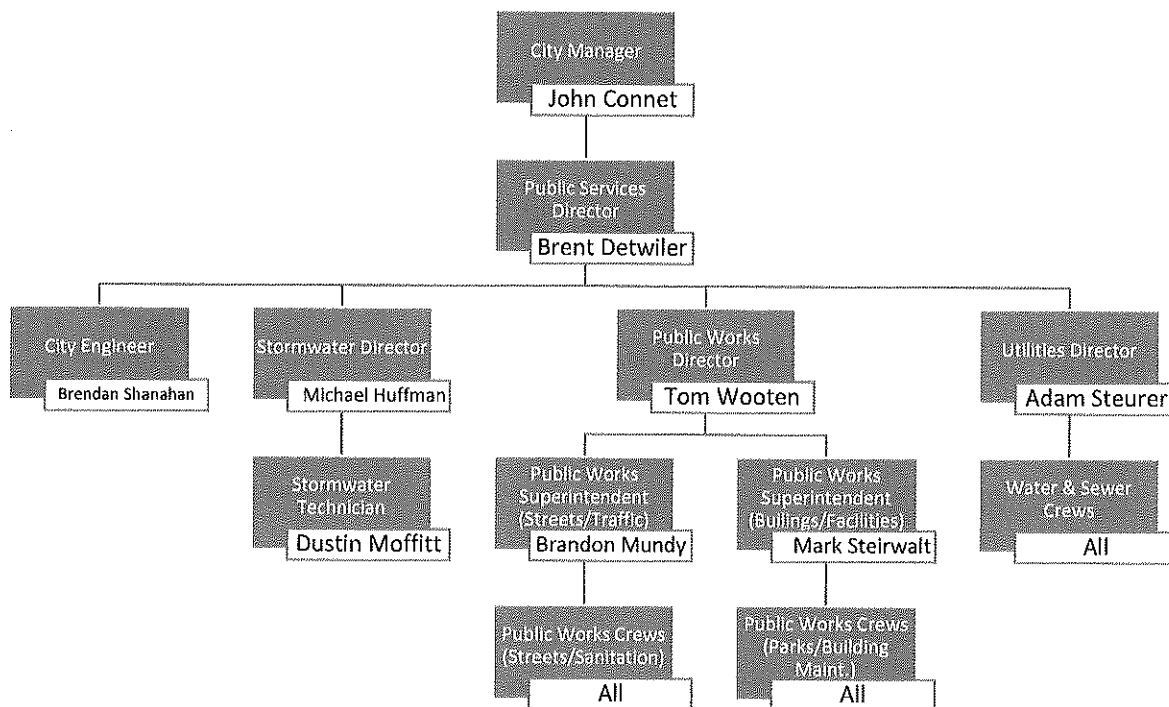


Table 8: Summary of Responsible Parties

SWMP Component	Responsible Position	Staff Name	Department
Stormwater Program Administration	Stormwater Division Manager/Tech.	Michael Huffman Dustin Moffitt	Stormwater
SWMP Management	Stormwater Division Manager/Tech.	Michael Huffman Dustin Moffitt	Stormwater
Public Education & Outreach	Stormwater Division Manager/Tech.	Michael Huffman Dustin Moffitt	Stormwater
Public Involvement & Participation	Stormwater Division Manager/Tech.	Michael Huffman Dustin Moffitt	Stormwater
Illicit Discharge Detection & Elimination	Stormwater Division Manager/Tech., Public Works Admin, Water/Sewer crews	Michael Huffman, Tom Wooten, All PW and W/S Field Crews	Stormwater, Water Sewer, Public Works
Construction Site Runoff Control	Henderson County	Deb Johnston	Engineering
Post-Construction Stormwater Management	Stormwater Division Manager, City Engineer	Michael Huffman, Brendan Shanahan	Stormwater, Engineering
Pollution Prevention/Good Housekeeping for Municipal Operations	Stormwater Division Manager/Tech., Public Works Admin, Utilities Director, W/S Crews	Michael Huffman, Tom Wooten, Dustin Moffitt, Adam Steurer, All PW and W/S Field Crews	Stormwater, Public Works, Water and Sewer
Municipal Facilities Operation & Maintenance Program	Stormwater Administrator/Tech. Public Works Admin,	Michael Huffman, Dustin Moffitt, Tom Wooten, Adam Steurer	Stormwater, Public Works, Water & Sewer
Spill Response Program	Stormwater Administrator/Tech, Public Works Admin, Utilities Director, W/S Crews	Michael Huffman, Dustin Moffitt, All Public Works and Water Sewer Staff	All Public Works and Water Sewer Staff
MS4 Operation & Maintenance Program	Stormwater Administrator/Tech, Public Works Dept., W/S Dept.	Michael Huffman, Dustin Moffitt, Tom Wooten, Adam Steurer	Stormwater, Public Works
Municipal SCM Operation & Maintenance Program	Stormwater Administrator/Tech., Public Works Dept.	Michael Huffman, Dustin Moffitt, Tom Wooten	Stormwater, Public Works

Pesticide, Herbicide & Fertilizer Management Program	Public Works Admin	Tom Wooten	Public Works
Vehicle & Equipment Cleaning Program	Public Works Crews, W/S Crews	All PW and W/S Staff	Public Works, W/S
Pavement Management Program	Public Works Admin, Street sweeper	Tom Wooten, Brandon Mundy	Public Works/ Stormwater
Total Maximum Daily Load (TMDL) Requirements	N/A	N/A	N/A

4.2 Program Funding and Budget

In accordance with the issued permit, the City of Hendersonville shall maintain adequate funding and staffing to implement and manage the provisions of the SWMP and comply with the requirements of the NPDES MS4 Permit. The budget includes the permit administering and compliance fee, which is billed by the Division annually.

Funding for the Stormwater Management Program is generated primarily from the Stormwater Utility Fee. Currently, The City of Hendersonville charges all residential customers a flat fee of \$6.00 per month. Non-commercial customers are charged a fee based of \$7 per ERU per month (Equivalent Residential Unit = 3000 SF Impervious area) and that includes for-profit and not-for-profit property owners. These fees are billed on the monthly combined utility bills. You can view Frequently Asked Questions for more answers about the Stormwater Fee FAQ located at:

<https://www.hendersonvillenc.gov/engineering/stormwater-management/stormwater-projects/stormwater-utility>

The program is currently funded to conduct all proactive elements of the permit and meet necessary capital improvement demands.

Fiscal Year 24-25 City of Hendersonville, NC Budget

4.3 Shared Responsibility

The City of Hendersonville will share the responsibility to implement the following minimum control measures, which are at least as stringent as the corresponding NPDES MS4 Permit requirement. The City of Hendersonville remains responsible for compliance if the other entity fails to perform the permit obligation, and may be subject to enforcement action if neither the City of Hendersonville nor the other entity fully performs the permit obligation. Table 9 below summarizes who will be implementing the component, what the component program is called, the specific SWMP BMP or permit requirement that

is being met by the shared responsibility, and whether or not a legal agreement to share responsibility is in place.

Table 9: Shared Responsibilities

SWMP BMP or Permit Requirement	Implementing Entity & Program Name	Legal Agreement (Y/N)
Permit Section E.1	Henderson County Sediment and Erosion Control Program	Y

4.4 Co-Permittees

There are no other entities applying for co-permittee status under the NPDES MS4 permit number NCS000489 for the City of Hendersonville. Table 10 summarizes contact information for each co-permittee.

Table 10: Co-Permittee Contact Information

Co-Permittee MS4 Name	Contact Person	Phone & E-Mail	Interlocal Agreement (Y/N)
N/A	N/A	N/A	N/A

4.5 Measurable Goals for Program Administration

The City of Hendersonville will manage and report the following Best Management Practices (BMPs) for the administration of the Stormwater Management Program.

Table 11: Program Administration BMPs				
Permit Ref.	2.1.2 Program Implementation			
	Measures to evaluate the performance and effectiveness of the SWMP program components at least annually. Results shall be used by the permittee to modify the program components as necessary to accomplish the intent of the Stormwater Program.			
BMP No.	A	B	C	D
	Description of BMP	Measurable Goal(s)	Schedule for Implementation	Annual Reporting Metric
1.	Annual Self-Assessment			
	Evaluate the performance and effectiveness of the program components at least annually. Results shall be used to modify the program components as necessary to accomplish the intent of the Stormwater Program.	1. Prepare, conduct and document an annual evaluation of the program components.	1. Annually Permit Years 1 – 5	1. Yes/No

Table 11: Program Administration BMPs

2.	Shared Responsibility (Permit Ref. 1.4)			
	Agreements with entities operating on behalf of the town/city of City of Hendersonville will be reviewed to confirm that the entity has agreed to implement part of the program on the municipalities behalf and that all required documentation will be submitted to the municipality for documentation and reporting purposes.	1. Review all agreements and confirm that they meet all requirements outlined in 1.4 of the MS4 permit.	1. Permit Year 1	1. Yes/No
3.	Minimum Control Measures (Permit Ref. 2.2.2)			
	Written programs will be created to assure compliance with part 2.2.2 of the MS4 Permit. Written programs shall be reviewed on an annual basis and modified if needed to best outline the program and needs of the municipality.	1. Develop and maintain written programs for all minimum control measures.	1. Permit Year 1	1. Yes/No
		2. Review written programs and modify/update.	2. Annually	2. Yes/No
4.	Funding and Staffing (Permit Ref. 2.1.1)			
	The funding and staffing status of the program will be evaluated by appropriate City/Town staff to confirm that the program is meeting permit requirements.	1. Review and analyze the current funding and staffing of the program.	1. Annually	1. Adequate/inadequate
Permit Ref.	1.6: Permit Renewal Application Measures to submit a permit renewal application no later than 180 days prior to the expiration date of the NPDES MS4 permit.			
BMP No.	A	B	C	D
	Description of BMP	Measurable Goal(s)	Schedule for Implementation	Annual Reporting Metric
5.	Permit Renewal Application			
	Submit a permit renewal application and Draft SWMP no later than 180 prior to permit expiration.	1. Draft SWMP applicable to the proceeding 5 years following permit re-issuance.	1. Permit Year 5	1. Yes/No
2. Certify the stormwater permit renewal application (Permit renewal application form and Draft SWMP for the next 5-year permit cycle) and submit to NCDEQ at least 180 days prior to permit expiration.			2. Permit Year 5	2. Date of permit renewal application submittal

PART 5: PUBLIC EDUCATION AND OUTREACH PROGRAM

The City of Hendersonville will implement a Public Education and Outreach Program to distribute educational materials to the community or conduct equivalent outreach activities about the impacts of storm water discharges on water bodies and steps the public can take to reduce pollutants in storm water runoff.

The target audiences and identified pollutants listed in Part 3.9 of this SWMP, which will be addressed by the Public Education and Outreach Program, are summarized in Table 12 below. In addition, the City of Hendersonville is required to inform businesses and the general public of the hazards associated with illicit discharges, illegal dumping and improper disposal of waste.

Table 12: Summary of Target Pollutants & Audiences

Target Pollutants/Sources	Target Audience(s)
Bacterial contaminants	All residents. General Public, Students, Businesses, Municipal employees
Sediment & Erosion	General Public, Construction crews, Landscape contractors, Municipal employees
Fats, Oils, Grease	Commercial, Industrial, and Food industries
Litter	General Public
Illicit Discharges	General Public, Businesses, Municipal Employees
Illegal Dumping	General Public, Businesses, Municipal Employees
Improper Disposal of Waste	General Public, Businesses, Municipal Employees

The City of Hendersonville will manage, implement and report the following public education and outreach BMPs.

Table 13: Public Education and Outreach BMPs				
Permit Ref.	3.2.2 and 3.2.4: Outreach to Targeted Audiences Measures to identify the specific elements and implementation of a Public Education and Outreach Program to share educational materials to the community or conduct equivalent outreach activities about the impacts of stormwater discharges on water bodies and how the public can reduce pollutants in stormwater runoff. The permittee shall provide educational information to identified target audiences on pollutants/sources identified in table 12 above, and shall document the extent of exposure of each media, event or activity, including those elements implemented locally or through a cooperative agreement.			
BMP No.	A	B	C	D
	Description of BMP	Measurable Goal(s)	Schedule for Implementation	Annual Reporting Metric
6.	School Education Program			

Table 13: Public Education and Outreach BMPs

	Participate in 1 education program targeted at local schools. Information will include general stormwater awareness and its impacts to water quality, how citizens can improve water quality, general education information to improve public understanding of stormwater management issues.	1. City stormwater staff will continue to participate in education programs targeted at local schools. Audiences will include grade school & high school 2. Participate in annual Kids in the Creek Event	1. Annually, Permit year 1 FY22/23-5. 2. Annually, Permit Year 1-5	1. Contact hours 2. Yes/No Number of participants
7.	Water Protection Guide Brochure/Poster			
	Continue to distribute a brochure and poster targeted to food industries. Posters are published in English and Spanish	1. Distribute Water Protection Guide Brochure	1. Annually, Permit Year 1-5	1. Number of brochures distributed
		2. Distribute Water Protection Poster	2. Annually, Permit Year 1-5	2. Number of posters distributed
8.	Information Kiosks			
	Stormwater education materials will be displayed at locations throughout the City including City Hall and the City Operations Center	1. Display Stormwater brochures at the City Operations Center entrance and Customer Service desk at City Hall	1. Annually, Permit Year 1-5	1. Number of brochures taken from kiosks
9.	Educational Signage			
	Create and display educational signage at various stormwater projects around the City of Hendersonville. Signage will provide educational information about the stormwater treatment practice and general information about stormwater pollution and impacts to water quality.	1. Install signage at stormwater demonstration projects around the City of Hendersonville. Projects include: Rainwater harvesting, bioretention, permeable paving, stormwater wetland and streambank stabilization	1. Permit year 1 FY22/23-5	1. Signage Installed Y/N
10.	Town-Sponsored Presentation			
	Continue to present briefings (in person or virtually) to local civic and business groups at least once a year. Topics will include: examples of good and poor stormwater quality management practices, how citizens and businesses can improve water quality, and general education information to improve public understanding of stormwater management issues	1. Select a local civic group or business group. Develop a presentation to cover target pollutants for the selected audience Present to the audience	1. Annually, for permit years 1 – 5	1. Yes/No

Table 13: Public Education and Outreach BMPs

Permit Ref.	2.1.7, 3.2.3 and 3.6.5(c): Web Site			
	Measures to provide a web site designed to convey the program’s message(s) and provide online materials including ordinances, or other regulatory mechanisms, or a list identifying the ordinances or other regulatory mechanisms, providing the legal authority necessary to implement and enforce the requirements of the permit and SWMP. The web page shall also provide developers with all relevant post-construction requirements, design standards, checklists and/or other materials.			
BMP No.	A	B	C	D
	Description of BMP	Measurable Goal(s)	Schedule for Implementation	Annual Reporting Metric
11.	City Stormwater Web Page			
	The web page will provide information on the city’s stormwater program including the MS4 permit, current SWMP, resources for developers, MS4 map, current projects, and ordinances. The web page will also include education materials links to other informational resources such as the EPA stormwater web page, NCDEQ stormwater web page, and the LOSCOG stormwater education web page.	1. Maintain/update the stormwater web page	1. Continuously from the date of web page going live	1. Number of web page views
Permit Ref.	3.2.5: Stormwater Hotline			
	Measures for a stormwater hotline/helpline for the purpose of public education and outreach.			
BMP No.	A	B	C	D
	Description of BMP	Measurable Goal(s)	Schedule for Implementation	Annual Reporting Metric
12.	Stormwater Hotline			
	A stormwater hotline with a direct telephone number to the City’s Stormwater Administrator has been established where citizens can call to report stormwater related issues. Information on events and services relating to the stormwater management program such as public events and the stormwater hotline, will be promoted via the City of Hendersonville’s social media accounts (Facebook, Instagram), press releases, the website, and local media outlets.	1. The hotline is a direct line to the stormwater administrator and will use an answering device. Calls will be monitored daily by stormwater staff.	1. Continuous	1. Y/N
13.	Citizen Reporting App			

Table 13: Public Education and Outreach BMPs

	Currently citizens can report stormwater issues to the City Clerk, Public Works Dept. or Stormwater Administrator.	1. Calls to the City can be delegated to the appropriate staff and issues will be handled in a timely manner	1. Annually, permit year 1-5	1. Yes/No
	The City has developed an online reporting tool for non-emergency issues that will track the progress of reports as they come in and are addressed by City staff	2. Maintain an online reporting tool that will be hosted on the City's website	2. Permit year 1 FY22/23	2. Yes/No

PART 6: PUBLIC INVOLVEMENT AND PARTICIPATION PROGRAM

This SWMP identifies the minimum elements and implementation of a Public Involvement and Participation Program that complies with applicable State, Tribal and local public notice requirements. The City of Hendersonville will manage, implement and report the following public involvement and participation BMPs.

Table 14: Public Involvement and Participation BMPs				
Permit Ref.	3.3.1: Public Input Mechanisms for public involvement that provide for input on stormwater issues and the stormwater program.			
BMP No.	A	B	C	D
	Description of BMP	Measurable Goal(s)	Schedule for Implementation	Annual Reporting Metric
14.	Advisory Boards			
	The public has been involved through citizen involvement in the Environmental Sustainability Board (ESB)	1. ESB will hold a public meeting monthly and allow for public input on the stormwater program	1. Monthly each permit year 1-5	1. Number of meetings held
Permit Ref.	3.3.2: Volunteer Opportunities Measures to provide volunteer opportunities designed to promote ongoing citizen participation.			
BMP No.	A	B	C	D
	Description of BMP	Measurable Goal(s)	Schedule for Implementation	Annual Reporting Metric
15.	Stream clean-up events			
	Citizen involvement will be enhanced by participating in the stream cleanup events. The events are aimed at the general public with the goal of removing trash and debris from local waterways and educating the public on the impacts of stormwater runoff to local waterways.	1. Identify areas that contribute to trash/litter reaching waterways and waterways that can be cleaned by volunteers	1. Annually, permit year 1-5	1. (Y/N)
		2. Coordinate at least 1 cleanup events in local waterways.	2. Annually, permit year 1-5	2. Number of participants, estimation of waste removed (lbs/bags)
16.	Trash Trout Device			
	The City partnered with a local environmental non-profit to install an in-stream trash capturing device. Two new Trash Trout Jrs were installed FY22-23	1. Maintain the Greenworks Trash Trout	1. As Needed	1. (Y/N)
		2. Engage volunteers in cleaning events	2. Annually, permit year 1-5	2. Number of volunteers that visited the trash trout annually
17.	Storm Drain Marking Program			

Table 14: Public Involvement and Participation BMPs

	Allow volunteers to participate in the stormwater program throughout the community by placing/painting educational messages on storm drains throughout the MS4	1. Maintain stock of drain marking materials	1. Annually, permit year 1-5	1. Drain marking materials purchased (Y/N)
		2. Organize at least one drain stenciling event per permit cycle	2. Once per permit cycle	2. Number of events organized and number of participants
18.	Educational Events			
	The City of Hendersonville partners with various community groups, such as the NC Cooperative Extension Office, to host educational workshops that cover topics including: Streambank stabilization, rain garden design and installation, rainwater harvesting, downspout disconnection and SCM inspection and maintenance.	1. Host at least one stormwater educational workshop annually	1. Annually, permit year 1-5	1. Yes/No/Partial Number of participants

PART 7: ILLICIT DISCHARGE DETECTION AND ELIMINATION PROGRAM

The City of Hendersonville will develop, manage, implement, document, report and enforce an Illicit Discharge Detection and Elimination Program which shall, at a minimum, include the following illicit discharge detection and elimination BMPs.

Table 15: Illicit Discharge Detection and Elimination BMPs				
Permit Ref.	3.4.1: MS4 Map Measures to develop, update and maintain a municipal storm sewer system map including stormwater conveyances, flow direction, major outfalls and waters of the United States receiving stormwater discharges.			
BMP No.	A	B	C	D
	Description of BMP	Measurable Goal(s)	Schedule for Implementation	Annual Reporting Metric
19.	Updates to MS4 Map			
	<p>The MS4 map is continuously updated for completeness. Stormwater asset inventory and assessment projects began in FY 21-22 and will continue until the entire system is assessed.</p> <p>The existing MS4 map was developed by locating stormwater infrastructure with a handheld GPS device and recording information such as size, material, condition, surrounding land use, and photos. The information is managed in a GIS database and mapping system. This information was combined with other currently available GIS data such as City limits, hydrology, land use, zoning, imagery, and additional City infrastructure. Sources of existing information include City of Hendersonville GIS division, Stormwater division, Henderson County GIS division, and ESRI.</p>	1. Add new infrastructure points installed within City ROW from new development	1. As needed	1. Number of new stormwater assets installed in City ROW
		2. Continue the inventory of stormwater system	2. Annually, permit year 1-5	2. Number of new and updated stormwater structures surveyed and located annually
Permit Ref.	3.4.2: Regulatory Mechanism Measures to provide an IDDE ordinance or other regulatory mechanism that provides legal authority to prohibit, detect, and eliminate illicit connections and discharges, illegal dumping and spills into the MS4, including enforcement procedures and actions.			
BMP No.	A	B	C	D
	Description of BMP	Measurable Goal(s)	Schedule for Implementation	Annual Reporting Metric
20.	Maintain Legal Authority			

Table 15: Illicit Discharge Detection and Elimination BMPs

	Maintain an ordinance that provides legal authority to prohibit, detect, and eliminate illicit connections and discharges, illegal dumping, and spills into the MS4, including enforcement procedures and actions.	1. Review ordinance and update as needed	1. Once per permit cycle.	1. Ordinance Reviewed Yes/No
Permit Ref.	<p>3.4.3: IDDE Plan Measures to maintain and implement a written IDDE Plan to detect and address illicit discharges, illegal dumping and any non-stormwater discharges identified as significant contributors of pollutants to the MS4. The plan shall provide standard procedures and documentation to:</p> <ul style="list-style-type: none"> a) Locate priority areas likely to have illicit discharges, b) Conduct routine dry weather outfall inspections, c) Identify illicit discharges and trace sources, d) Eliminate the source(s) of an illicit discharge, and e) Evaluate and assess the IDDE Program. 			
BMP No.	A Description of BMP	B Measurable Goal(s)	C Schedule for Implementation	D Annual Reporting Metric
21.	Illicit Discharge Potential Assessment			
	Conduct GIS desktop assessment of subwatershed to identify priority areas for Illicit Discharge Screening using information such as outfall density, land use, stream miles, industrial permitted facilities, and past IDDE reports.	1. Complete the IDPA using the information provided in Brown 2004 IDDE Manual	1. Once per permit cycle, typically Permit year 1 FY22/23	1. Completed: Yes/No/Partial
22.	Dry Weather Screening			
	Perform regular dry weather (no rain in previous 72 hours) outfall inspections of major outfalls to proactively identify illicit discharges and illicit connections. Conduct sampling of identified dry weather flows using the LaMotte Stormwater Basic Test Kit. Perform all task in accordance with the City of Hendersonville Dry Weather Screening SOP	1. Inspect 28 mapped major outfalls within the MS4 annually.	1. Annually, permit year 1-5. Ideally in leaf off conditions (November-April)	1. Number of major outfalls inspected
		2. Inspect all outfalls once per permit cycle	2. Once per permit cycle	2. Yes/No/Partial
		3. Evaluating dry weather flows with available monitoring equipment	3. Annually, Permit Year 1-5	3. Evaluate dry weather flows (Y/N)
		4. Evaluate dry weather screening SOP and update accordingly	4. Annually, Permit Year 1-5	4. Review and updated SOP (Y/N)
		5. Train new stormwater staff on Dry weather screening SOP	5. Annually, Permit Year 1-5	5. Number of stormwater staff trained

Table 15: Illicit Discharge Detection and Elimination BMPs

23.	Detection and Elimination			
	Hendersonville will use a three-pronged approach to detect and identify illicit discharges. 1. Dry-weather screening program will be conducted on all major outfalls within the City. 2. Stormwater hotline is available for citizens to make illicit discharge reports. 3. City staff will be trained to spot illicit discharges and report incidents for investigation	1. Maintain the Stormwater Hotline	1. Hotline active	1. Y/N
2. Continue to train City Staff in IDDE		2. Annually, Permit Year 1-5	2. Number of employees trained	
24.	Conduct targeted outreach to City facilities with high potential for illicit discharge or generating polluted stormwater runoff.	1. Inspect facilities with high potential for illicit discharge or generating polluted stormwater runoff	1. Monthly beginning in permit year 1 (FY 22-23)	1. Number of inspections conducted.
25.	Conduct targeted outreach to City facilities with high potential for illicit discharge or generating polluted stormwater runoff.	1. Inspect facilities with high potential for illicit discharge or generating polluted stormwater runoff	1. Monthly beginning in permit year 1 (FY 22-23)	1. Number of inspections conducted.
26.	Standard Operating Procedures			
	City Staff will review and update standard operating procedures for IDDE identification, response, and Dry weather screening as needed. These SOP's will be used as a reference for staff when conducting IDDE program tasks. They will include information such as time/date, type of discharge, responsible party, and follow-up procedures.	1. Review IDDE SOPs	1. Annually, Permit Year 1-5	1. Reviewed SOP's (Y/N)
Permit Ref.	3.4.4: IDDE Tracking Measures for tracking and documenting the date(s) an illicit discharge, illicit connection or illegal dumping was observed, the results of the investigation, any follow-up of the investigation, the date the investigation was closed, the issuance of enforcement actions, and the ability to identify chronic violators.			
BMP No.	A	B	C	D
	Description of BMP	Measurable Goal(s)	Schedule for Implementation	Annual Reporting Metric
27.	IDDE Folder/Database			

Table 15: Illicit Discharge Detection and Elimination BMPs

	<p>City Stormwater staff keeps digital records of ID reports, investigations, and responses on standard forms. These forms document the date of report, results of the investigation, any follow-up of the investigation, the date the investigation was closed, and the issuance of enforcement actions</p> <p>A tracking database has been created in Microsoft Excel to track ID reports, investigations, enforcement actions and can identify chronic violators.</p>	<p>1. Keep digital records of NOV's</p> <p>2. Maintain tracking database for ID reports.</p>	<p>1. Annually, Permit Year 1-5</p> <p>2. Annually, Permit Year 1-5</p>	<p>1. Number of NOV's issued</p> <p>2. Number of IDDE's reported, investigations, NOV's issued and closed</p>
<p>Permit Ref.</p>	<p>3.4.5: Staff IDDE Training Measures to provide training for municipal staff and contractors who, as part of their normal job responsibilities, may observe an illicit discharge, illicit connection, illegal dumping or spills. Training shall include how to identify and report illicit discharges, illicit connections, illegal dumping and spills. Each staff training event shall be documented, including the agenda/materials, date, and number of staff participating.</p>			
<p>BMP No.</p>	<p>A Description of BMP</p>	<p>B Measurable Goal(s)</p>	<p>C Schedule for Implementation</p>	<p>D Annual Reporting Metric</p>
<p>28.</p>	<p>Staff Training</p> <p>The City provides a training program to ensure City employees, particularly field staff (Public works, Water/Sewer, Fire, Police, Inspection), are knowledgeable about stormwater quality issues. Training will be done via PowerPoint presentations. Topics to be addressed include vehicle and building maintenance activities, lawn and landscaping activities, parking lot maintenance, drainage system maintenance, pollution prevention and good housekeeping measures. Illicit discharge detection, and spill response. Employees will be informed about outreach activities directed at the public and will be involved from time to time with those activities.</p>	<p>1. Provide training to all field staff. (Public works, Water/Sewer, Fire, Police, Inspection)</p>	<p>1. Annually, permit year 1-5</p>	<p>1. Number of staff trained annually</p>

Table 15: Illicit Discharge Detection and Elimination BMPs

BMP No.	A	B	C	D
	Description of BMP	Measurable Goal(s)	Schedule for Implementation	Annual Reporting Metric
29.	SOP Development			
	City Staff will develop standard operating procedures for IDDE identification, response, and Dry weather screening. These SOP's will be used as a reference for staff when conducting IDDE program tasks. They will include information such as time/date, type of discharge, responsible party, and follow-up procedures.	1. Review IDDE SOPs	1. Annually, Permit Year 1-5	1. Reviewed SOP's (Y/N)

PART 8: CONSTRUCTION SITE RUNOFF CONTROL PROGRAM

In accordance with 15A NCAC 02H .0153, the City of Hendersonville relies upon the North Carolina Sedimentation Pollution Control Act (SPCA) of 1973 as a qualifying alternative program to meet a portion of the NPDES MS4 Permit requirements for construction site runoff control measures. The SPCA requirements include reducing pollutants in stormwater runoff from construction activities that result in land disturbance of greater than or equal to one acre, and includes any construction activity that is part of a larger common plan of development that would disturb one acre or more. The state SPCA Program is either delegated to a city/town, delegated to a county, or implemented by NCDEQ in non-delegated areas.

Table 16: Qualifying Alternative Program Components for Construction Site Runoff Control Program

Permit Reference	State or Local Program Name	Legal Authority	Implementing Entity
3.5.1 - 3.5.4	Henderson County, NC Delegated SPCA Program*	15A NCAC Chapter 04, NCDEQ Approved Delegation, Interlocal Agreement/Joint Resolution, Local Ordinance	Henderson County, NC

* The local delegated SPCA Program ordinance(s)/regulatory mechanism(s) can be found at: Henderson County, NC Soil Erosion and Sedimentation Control Ordinance

The City of Hendersonville also implements the following BMPs to meet NPDES MS4 Permit requirements.

Table 17: Construction Site Runoff Control BMPs				
Permit Ref.	3.5.6: Public Input Measures to provide and promote a means for the public to notify the appropriate authorities of observed erosion and sedimentation problems.			
BMP No.	A	B	C	D
	Description of BMP	Measurable Goal(s)	Schedule for Implementation	Annual Reporting Metric
30.	Municipal Staff Training			
	Train municipal staff who receive calls from the public on the protocols for referral and tracking of construction site runoff control complaints.	1. Train municipal staff on proper handling of construction site runoff control and waste management complaints 2. Document the number of violations identified and referred to Henderson County	1. Annually, Permit year 1 FY22/23-5 2. Annually, for permit years 1-5	1. Number of staffed trained 2. Report the number of violations referred
31.	Muddy Waters Watch			

Table 17: Construction Site Runoff Control BMPs				
	Advertise the Muddy Water Watch website on the City's Stormwater Page	1. Track number of reports submitted in the MS4 Jurisdictional area	1. Continuous	1. Number of reports submitted
Permit Ref.	3.5.5: Waste Management Measures to require construction site operators to control waste such as discarded building materials, concrete truck washout, chemicals, litter, and sanitary waste at the construction site that may cause adverse impact to water quality.			
BMP No.	A	B	C	D
	Description of BMP	Measurable Goal(s)	Schedule for Implementation	Annual Reporting Metric
32.	Contractor Education			
	Communicate waste management requirements to construction site operators	1. Develop factsheet to share at preconstruction meetings	1. Permit year 1 FY22/23	1. Yes/No/Status
		2. Add fact sheet to website	2. Permit year 1 FY22/23	2. Yes/No/Status
		3. Distribute fact sheet at preconstruction meetings	3. Permit year 1 FY22/23	3. Number of fact sheets distributed
33.	Maintain Legal Authority			
	The City will continue to enforce construction waste management through the prohibition of illicit discharges/illegal dumping/improper disposal of waste	1. Illicit discharge ordinance in place	1. 2011	1. Yes

PART 9: POST-CONSTRUCTION SITE RUNOFF CONTROL PROGRAM

This SWMP identifies the minimum elements to develop, implement and enforce a program to address stormwater runoff from new development and redevelopment projects that disturb greater than or equal to one acre, including projects less than one acre that are part of a larger common plan of development or sale, that are located within the City of Hendersonville and discharge into the MS4. These elements are designed to minimize water quality impacts utilizing a combination of structural Stormwater Control Measures (SCMs) and/or non-structural BMPs appropriate for the community, and ensure adequate long-term operation and maintenance of SCMs.

In accordance with 15A NCAC 02H .0153 and .1017, the City of Hendersonville implements the following State post-construction program requirements, which satisfy the NPDES Phase II MS4 post-construction site runoff control requirements as Qualifying Alternative Programs (QAPs) in the MS4 area(s) where they are implemented.

Table 18: Qualifying Alternative Program(s) for Post-Construction Site Runoff Control Program

State QAP Name	State Requirements	Local Ordinance / Regulatory Mechanism Reference
None	N/A	N/A

The City of Hendersonville has existing requirements other than Qualifying Alternative Program(s) for implementation of the NPDES Phase II MS4 post-construction program requirements. These existing requirements are codified in local ordinance(s), and implementation is further defined in guidance, manuals and/or standard operating procedure(s) as summarized in Table 19 below.

Table 19: Summary of Existing Post-Construction Program Elements

Permit Requirements for Plan Review and Approval	Municipal Ordinance/Code Reference(s) and/or Document Title(s)	Date Adopted
3.6.2(a) Authority	City of Hendersonville Code of Ordinance Chapter 24 Article III Sec. 24-132 Authority	04/07/11
3.6.3(a) & 15A NCAC 02H.0153(c) Federal, State & Local Projects		
3.6.3(b) Plan Review	City of Hendersonville Code of Ordinance Chapter 24 Article III Sec. 24-143	04/07/11
3.6.3(c) O&M Agreement	City of Hendersonville Code of Ordinance Chapter 24 Article III Sec. 24-154	04/07/11
3.6.3(d) O&M Plan	City of Hendersonville Code of Ordinance Chapter 24 Article III Sec. 24-154 NCDEP O & M Documents	04/07/11
3.6.3(e) Deed Restrictions/Covenants	City of Hendersonville Code of Ordinance Chapter 24 Article III Sec. 24-147	04/07/11
3.6.3(f) Access Easements	City of Hendersonville Code of Ordinance Chapter 24 Article III Sec. 24-149	04/07/11
Permit Requirements for Inspections and Enforcement	Municipal Ordinance/Code Reference(s) and/or Document Title(s)	Date Adopted
3.6.2(b) Documentation	City of Hendersonville Code of Ordinance Chapter 24 Article III Sec. 24-153	04/07/11
3.6.2(c) Right of Entry	City of Hendersonville Code of Ordinance Chapter 24 Article III Sec. 24-154	04/07/11
3.6.4(a) Pre-CO Inspections	City of Hendersonville Code of Ordinance Chapter 24 Article III Sec. 24-144	04/07/11
3.6.4(b) Compliance with Plans	City of Hendersonville Code of Ordinance Chapter 24 Article III Sec. 24-144	04/07/11
3.6.4(c) Annual SCM Inspections	City of Hendersonville Code of Ordinance Chapter 24 Article III Sec. 24-155	04/07/11
3.6.4(d) Low Density Inspections	N/A	
3.6.4(e) Qualified Professional	City of Hendersonville Code of Ordinance Chapter 24 Article III Sec. 24-153	04/07/11
Permit Requirements for Fecal Coliform Reduction	Municipal Ordinance/Code Reference(s) and/or Document Title(s)	Date Adopted
3.6.6(a) Pet Waste	City of Hendersonville Code of Ordinance Chapter 24 Article III Sec. 24-163	04/07/11
3.6.6(b) On-Site Domestic Wastewater Treatment	City of Hendersonville Code of Ordinance Chapter 24 Article III Sec. 24-152	04/07/11

The annual reporting metrics for the post construction program are provided in Table 20: Post Construction Site Runoff Control BMPs below.

Table 20: Post Construction Site Runoff Control BMPs				
Permit Ref.	3.6.5(a), 3.6.5(b), and 4.1.3: Minimum Post-Construction Reporting Requirements Measures to document activities over the course of the fiscal year (July 1 – June 30) including appropriate information to accurately describe progress, status, and results.			
BMP No.	A Description of BMP	B Measurable Goal(s)	C Schedule for Implementation	D Annual Reporting Metric
34.	Standard Reporting			
	Implement standardized tracking, documentation, inspections and reporting mechanisms to compile appropriate data for the annual self-assessment process. Data shall be provided for each Post-Construction/Qualifying Alternative Program being implemented as listed in Tables 18 and 19.	1. Track number of low density and high density plan reviews performed.	1. Continuously Permit Years 1-5	1. Number of plan reviews performed for low density and high density.
		2. Track number of low density and high density plans approved.	2. Continuously Permit Years 1-5	2. Number of plan approvals issued for low density and high density.
		3. Maintain a current inventory of low density projects and constructed SCMs including SCM type or low density acreage, location and last inspection date.	3. Continuously Permit Years 1-5	3. Summary of number and type of SCMs added to the inventory; and number and acreage of low density projects constructed.
		4. Track number of SCM inspections performed.	4. Continuously Permit Years 1-5	4. Number of SCM inspections.
		5. Track number of low density inspections performed.	5. Continuously Permit Years 1-5	5. Number of low density projects inspected.
		6. Track number and type of enforcement actions taken.	6. Continuously Permit Years 1-5	6. Number of enforcement actions issued.
Permit Ref.	3.6.2: Legal Authority Measures to maintain adequate legal authorities through ordinance or other regulatory mechanism to: (a) review designs and proposals for new development and redevelopment to determine whether adequate stormwater control measures will be installed, implemented, and maintained, (b) request information such as stormwater plans, inspection reports, monitoring results, and other information deemed necessary to evaluate compliance with the Post-Construction Stormwater Management Program, and (c) enter private property for the purpose of inspecting at reasonable times any facilities, equipment, practices, or operations related to stormwater discharges to determine whether there is compliance with the Post-Construction Stormwater Management Program.			
BMP No.	A Description of BMP	B Measurable Goal(s)	C Schedule for Implementation	D Annual Reporting Metric

Table 20: Post Construction Site Runoff Control BMPs				
35.	This permit requirement is fully met by the existing post-construction program, see references provided in Table 19.			
Permit Ref.	3.6.3: Plan Review and Approval Measures to maintain plan review and approval authority, standards and procedures to: (a) Require Federal, State, and local government projects to comply with Post-Construction Program requirements throughout the entire MS4 permitted area, unless the entity is subject to its own NPDES MS4 permit or a qualifying alternative program, (b) Conduct site plan reviews of all new development and redeveloped sites that disturb greater than or equal to one acre, and sites that disturb less than one acre that are part of a larger common plan of development or sale for compliance with 15A NCAC 02H .1017 and the qualifying alternative programs that apply within your jurisdiction, (c) Ensure that each project has an Operation and Maintenance Agreement that complies with 15A NCAC 02H .1050(12), (d) Ensure that each project has an Operation and Maintenance Plan that complies with 15A NCAC 02H .1050(13), (e) Ensure that each project has recorded deed restrictions and protective covenants, that require the project to be maintained consistent with approved plans, and (f) Ensure that each SCM and associated maintenance accesses be protected in a permanent recorded easement per 15A NCAC 02H 1050 (9) and (10).			
BMP No.	A	B	C	D
	Description of BMP	Measurable Goal(s)	Schedule for Implementation	Annual Reporting Metric
36.	This permit requirement is fully met by the existing post-construction program, see references provided in Table 19.			
Permit Ref.	3.6.4: Inspections and Enforcement Measures to maintain inspection and enforcement authority, standards and procedures to: (a) Conduct post-construction inspections prior to issuing a Certificate of Occupancy or a Temporary Certificate of Occupancy. Alternatively, the project owner may provide a surety bond to guarantee compliance with the approved plan(s), (b) Ensure that the project has been constructed in accordance with the approved plan(s), (c) Ensure annual inspection of each permitted SCM to ensure compliance with the approved Operation and Maintenance Agreement, (d) Ensure inspection of low density projects at least once during the permit term, and (e) Require that inspections be conducted by a qualified professional.			
BMP No.	A	B	C	D
	Description of BMP	Measurable Goal(s)	Schedule for Implementation	Annual Reporting Metric
37.	This permit requirement is fully met by the existing post-construction program, see references provided in Table 19.			
Permit Ref.	3.6.6: Fecal Coliform Reduction Measures to control, to the maximum extent practicable, sources of fecal coliform per 15A NCAC 02H .1017(7). At a minimum, the program shall include: (a) A pet waste management component, which may be achieved by revising an existing litter ordinance, and (b) An on-site domestic wastewater treatment system component, if applicable, which may be coordinated with local county health department, to ensure proper operation and maintenance of such systems.			
BMP No.	A	B	C	D
	Description of BMP	Measurable Goal(s)	Schedule for Implementation	Annual Reporting Metric
38.	Pet Waste Management			

Table 20: Post Construction Site Runoff Control BMPs

	Pet waste signs with free bags are installed at all City owned dog parks and along the City Greenway	Pet waste signs with free bags are installed at all City owned dog parks and along the City Greenway	Pet waste signs with free bags are installed at all City owned dog parks and along the City Greenway	Pet waste signs with free bags are installed at all City owned dog parks and along the City Greenway
39.	On-site domestic wastewater treatment system			
	City of Hendersonville Water/Sewer maintains and repairs the City's water and sewer network. Existing Septic tanks are delegated to the Henderson County Environmental Health Septic Program. The City is actively working to address areas of failing septic systems through sanitary sewer CIP projects	1. Contact the City's Utility Department when any water/sewer issue occurs	1. Continuous	1. Water/Sewer records
2. Contact Henderson County for any septic tank issues/failure		2. Continuous	2. Referrals to Henderson County	
40.	Local Water Quality Monitoring			
	City Staff have partnered with a local environmental non-profit Mountain True to monitor and identify sources of fecal coliform throughout the City's jurisdictional area	1. Number of sites monitored, and sources identified	1. Based on Mountain Trues sampling schedule and available City Staff	1. Number of sites sampled
			2. Number of fecal coliform sources identified	

PART 10: POLLUTION PREVENTION AND GOOD HOUSEKEEPING PROGRAMS

This SWMP provides a comprehensive pollution prevention and good housekeeping strategy for the City of Hendersonville municipal facilities and operations. Pollution prevention and good housekeeping is accomplished through the implementation of seven required programs, which collectively address the ultimate goal of preventing or reducing pollutant runoff from municipal operations such as parks and open space maintenance, fleet and building maintenance, new construction and land disturbances, and municipal storm sewer system maintenance.

Pollution prevention and good housekeeping for municipal operations includes the following programs:

1. Municipal Facilities Operation and Maintenance Program
2. Spill Response Program
3. MS4 Operation and Maintenance Program
4. Municipal SCM Operation and Maintenance Program
5. Pesticide, Herbicide and Fertilizer Management Program
6. Vehicle and Equipment Maintenance Program
7. Pavement Management Program

The City of Hendersonville will manage, implement and report the pollution prevention and good housekeeping BMPs as specified in Table 21 below for each required program.

Table 21: Pollution Prevention and Good Housekeeping BMPs				
Permit Ref.	3.7.1: Municipal Facilities Operation and Maintenance Program Measures to manage facilities that are owned and operated by the permittee and have the potential for generating polluted stormwater runoff. The permittee shall maintain a current inventory of municipal facilities; perform facility inspections and routine maintenance; establish specific frequencies, schedules, and standard documentation; provide staff training on general stormwater awareness and implementing pollution prevention and good housekeeping practices.			
BMP No.	A Description of BMP	B Measurable Goal(s)	C Schedule for Implementation	D Annual Reporting Metric
41.	Inventory of Municipal Facilities			
	Maintain an inventory of city facilities and operations that have the potential to contribute to stormwater pollution	1. Maintain an inventory of municipal facilities and operations that have the potential for generating polluted stormwater runoff.	1. Annually	1. Total number of facilities Yes/No
42.	Routine Facility Inspections			
	Establish specific frequencies, schedules, and standard documentation for inspections.	1. Maintain existing inspection SOPs and SPPP	1. Annually, permit year 1-5	1. Yes/No

Table 21: Pollution Prevention and Good Housekeeping BMPs

	Inspect City facilities with the potential to generate polluted stormwater runoff to confirm good housekeeping practices are being followed, including Vehicle and Equipment cleaning, materials storage, and that the City Garage maintains compliance with Industrial Stormwater Permit requirements.	2. Conduct monthly facility inspections following established SOP/SPPP	2. Monthly beginning in permit year 1	2. Number of inspections completed
43.	Staff Training			
	Maintain a training program for municipal staff for general stormwater pollution prevention/spill response/fertilizer training/pavement management and overview of the PPGH plan and provide to public services department employees	1. Train staff with PPGH responsibilities: Street sweeping, facility maintenance, grounds maintenance, industrial facility staff, building maintenance, W/S operations	1. Annually, permit year 1-5	1. Yes/No Number of staff trained in PPGH
Permit Ref.	3.7.2: Spill Response Program Measures for facilities and operations that store and/or use materials that have the potential to contaminate stormwater runoff if spilled. The permittee shall maintain written spill response procedures and train staff on spill response procedures.			
BMP No.	A Description of BMP	B Measurable Goal(s)	C Schedule for Implementation	D Annual Reporting Metric
44.	Inventory of facilities with Spill potential			
	Maintain a list of COH facilities and operations that store and/or use materials that have the potential to contaminate stormwater runoff if spilled.	1. Update list of City facilities and operations with spill potential when facilities or operations are changed	1. Annually, permit year 1-5	1. Y/N
45.	Spill Response Procedures			
	Maintain spill response procedures and continue staff training	1. Maintain spill response procedures and continue staff training	1. Maintain spill response procedures and continue staff training	1. Maintain spill response procedures and continue staff training
Permit Ref.	3.7.3: MS4 Operation and Maintenance Program Measures to minimize pollutants in the stormwater collection system. The permittee shall provide operation and maintenance staff training on stormwater awareness and pollution prevention, perform MS4 inspections, maintain the collection system including catch basins and conveyances; and establish specific frequencies, schedules, and standard documentation.			
BMP No.	A Description of BMP	B Measurable Goal(s)	C Schedule for Implementation	D Annual Reporting Metric
46.	Staff Training			

Table 21: Pollution Prevention and Good Housekeeping BMPs

	Maintain a training program for municipal staff for general stormwater pollution prevention/spill response/fertilizer training/pavement management and overview of the PPGH plan and provide to public services department employees	1. Train staff with PPGH responsibilities: Street sweeping, facility maintenance, grounds maintenance, industrial facility staff, building maintenance, W/S operations	1. Annually, permit year 1-5	1. Yes/No Number of staff trained in PPGH
47.	MS4 inspections and maintenance			
	Maintenance and inspection activities include right-of-way maintenance and repair to include all drainage conveyance structures within the City of Hendersonville's right-of-way and recorded easements.	1. Continue to inspect and maintain the MS4 conveyance system	1. Annually	1. Number of inspections
		2. Update GIS database with inspection results	2. Annually, permit year 1-5	2. GIS Database Updated (Y/N)
		3. Update City wide O&M plan for all municipal facilities and operations	3. Annually, permit year 1-5	3. O&M plan created and updated (Y/N)
Permit Ref.	3.7.4: Municipal SCM Operation and Maintenance Program Measures to manage municipally-owned, operated, and/or maintained structural stormwater control measures (SCMs) that are installed for compliance with the permittee's post-construction program. The permittee shall maintain a current inventory of SCMs, perform SCM inspections and maintenance, and shall establish specific frequencies, schedules, and documentation.			
BMP No.	A Description of BMP	B Measurable Goal(s)	C Schedule for Implementation	D Annual Reporting Metric
48.	SCM Inspection & Maintenance			
	Performance and documentation of regular inspection and maintenance of municipally owned structural SCMs	1. Maintain NC BMP/SCM inspection and maintenance certification for appropriate staff	1. As needed when re-certification is required	1. Number of staff certified
		2. Inspect all SCMs using COH inspection forms	2. Annually, permit year 1-5	2. Number of SCM's inspected.
		3. Updated map/database of all SCM's within COH corporate limits	3. Annually, permit year 1-5	3. Number of SCMs added
		4. Maintain municipally owned SCMs	4. Annually, permit year 1-5	4. Y/N
Permit Ref.	3.7.5: Pesticide, Herbicide and Fertilizer Management Program Measures to minimize water quality impacts from the use of landscape chemicals. The permittee shall provide routine pollution prevention and chemical use, storage and handling training, and shall ensure compliance with permits and applicator certifications.			
BMP No.	A Description of BMP	B Measurable Goal(s)	C Schedule for Implementation	D Annual Reporting Metric

Table 21: Pollution Prevention and Good Housekeeping BMPs

49.	Pesticide, Herbicide, Fertilizer Applicator Training			
	Training of appropriate City Staff who apply landscape chemicals in order to minimize water quality impacts from pesticides, herbicides and fertilizers. Require all contractors to provide proof of proper applicator license	1. Maintain Inventory of Licensed applicators	1. Annually, permit year 1-5	1. Number of licensed applicators
		2. Staff members attend training classes in pollution prevention and chemical use, storage and handling training	2. Annually, permit year 1-5	2. Number of staff trained
		3. Require all contractors to provide proof of proper applicator license	3. Annually, permit year 1-5	3. Yes/No/Status
Permit Ref.	3.7.6: Vehicle and Equipment Maintenance Program Measures to prevent and minimize contamination of stormwater runoff from areas used for municipal vehicle and equipment maintenance and/or cleaning. The permittee shall ensure that municipal industrial facilities subject to NPDES industrial permitting comply with those permit requirements, provide routine pollution prevention training to staff, perform routine inspections, and establish specific frequencies, schedules, and documentation.			
BMP No.	A Description of BMP	B Measurable Goal(s)	C Schedule for Implementation	D Annual Reporting Metric
50.	Vehicle Operations			
	The City Garage/Public Works Facility has an indoor wash bay. Runoff from this bay is directed to the sanitary sewer system. All vehicles and equipment are required to be washed within this area. Pollutants addressed include trash and debris, petroleum products, and vehicular consumable byproducts (anti-freeze, brake linings, tire wear, etc.).	1. All vehicle are required to be washed in the wash bay area	1. Continuous	1. Yes/No
51.	Vehicle Maintenance			
	Routine vehicle maintenance is required on all City owned vehicle and is performed in a closed garage	1. Perform routine inspections and maintenance of City owned vehicles	1. At least annually	1. Y/N
Permit Ref.	3.7.7: Pavement Management Program Measures to reduce pollutants in stormwater runoff from municipally-owned streets, roads, and parking lots within the permittee's corporate limits. The permittee shall implement measures to control litter, leaves, debris, particulate and fluid pollutants associated with vehicles, and establish specific frequencies, schedules, and documentation.			
BMP No.	A Description of BMP	B Measurable Goal(s)	C Schedule for Implementation	D Annual Reporting Metric
52.	Street Sweeping Program			

Table 21: Pollution Prevention and Good Housekeeping BMPs

	<p>City currently operates one vacuum street sweeper on a regular schedule</p> <p>Street sweeping will continue to follow a regular schedule in order to collect accumulated litter and solids/particulates from paved surfaces and dispose of the collected materials appropriately so that wash water and pollutants are not discharged into the storm sewer or local water bodies.</p>	<p>1. Continue current schedule for street sweeping.</p>	<p>1. Annually, permit year 1-5</p>	<p>1. Miles of streets swept</p>
53.	Right-of-way Maintenance			
	<p>In addition to maintenance of City properties, staff inspect rights-of-way drainage systems within the City rights-of-way or dedicated easements (City and State roadways).</p>	<p>1. Continue to maintain City owned drainage infrastructure</p>	<p>1. Annually, permit year 1-5</p>	<p>1. Y/N</p>
54.	Leaf/Grass/Brush Collection			
	<p>City currently operates a vacuum and brush truck on a regular schedule to provide seasonal loose-leaf collection in residential areas and compost the collected material at the city-operated yard mulch center for use by the city and residents.</p> <p>Limb pickup occurs March - November of each calendar year. Leaf/Grass pickup occurs April - March and November/December of each calendar year. Weekly pickup occurs for grass/leaves collection</p>	<p>1. Continue pickup service</p>	<p>1. Semi-annually, permit year 1-5.</p>	<p>1. Leaf pick up conducted (Yes/No)</p>

