



STATE OF WEST VIRGINIA DEPARTMENT OF  
ENVIRONMENTAL PROTECTION DIVISION OF  
WATER AND WASTE MANAGEMENT

### MS4 ANNUAL REPORT FORM

For Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (MS4s)

*Please see instructions before completing this form. If you need more space than allowed, please attach a document.*

#### Abbreviations

BMP = Best Management Practice

IDDE = Illicit Discharge Detection and Elimination

MCM = Minimum Control Measure

SWMP = Storm Water Management Program

TMDL = Total Maximum Daily Load

WV = West Virginia

#### I. Small MS4 Operator Information

1. Annual report reporting period: April 2017 - April 2018		
2. Name of MS4: City of Charleston	3. Registration number: WVR030006	
4. Primary contact: Stephen Birurakis	5. Title: MS4 General Permit Manager	
6. Mailing address: 114 Dickinson Street		
7. City: Charleston	8. Zip code: 25301	9. County: Kanawha
10. Telephone number: 304-348-8106 Ext 331		
11. Email: stephen.birurakis@cityofcharleston.org		

#### II. Impaired Waters Information

12. Does the MS4 discharge into impaired water bodies?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
13. Please provide a description of specific BMPs that were implemented to reduce pollutants of concern in impaired receiving waters and waters in which a TMDL has been developed. (WV MS4 2014 General Permit-p. 46, #12)		
<ul style="list-style-type: none"><li>- Dry weather outfall inspections (Lower Kanawha and Venable Branch)</li><li>- ID Tagged inspected outfalls (Lower Kanawha and Venable Branch)</li><li>- ID Tagged Inlets (Venable Branch Upper Kanawha / Kanawha Blvd)</li><li>- Drain to River Markers on Inlets Kanawha Blvd</li><li>- Drain to River stenciling on Inlets Kanawha City</li><li>- Construction site inspections</li><li>- Ongoing GIS Mapping</li><li>- Street Sweepers (street cleaning)</li><li>- Vactor Trucks (inlet trash and debris removal)</li><li>- Municipal Training</li></ul>		
14. Has a TMDL been developed since your plan was approved?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>

#### III. Fiscal Reporting

15. Include or attach a fiscal analysis of capital and operating expenditures to implement the MCMs. The fiscal analysis shall include only those expenditures by the locality seeking coverage under the WV MS4 2014 General Permit and not those for MCMs implemented by other entities. (WV MS4 2014 General Permit, p. 46, #13)	
16. Please provide total capital expenditures for this reporting period.	\$ 5932.0
17. Please provide total operating expenditures for this reporting period.	\$ 566244.0

#### IV. Coordination Efforts and Organization

18. Please provide a description of the coordination efforts with other MS4s, county governments, transportation agencies, colleges, universities, correctional facilities, prisons, and any other entities regarding the implementation of the MCMs, including the status of any memoranda of understanding or other agreements executed between the permittee(s) and any other entity. (WV MS4 2014 General Permit, p. 46, #9)

- Keeping in general contact with other MS4s as well as a collaborative meeting.
- Work directly with WVDEP inspectors on tracking and eliminating Illicit discharges.
- Coordinated efforts with the local WVDEP Basin Coordinator for a sixth year rain barrel program.
- Coordination with the Charleston Sanitary Board is ongoing for illicit discharges and the corrective measures taken to resolve the issues.
- Coordination with the Charleston Sanitary Board for CSO removal projects (Kanawha City Area).
- Partnered with the Charleston Sanitary Board on Education of school aged children.
- Coordinated with Kanawha County on partial funding of, and received new topographical aerial mapping.

19. Please provide name and contact information for individual with overall program management and implementation responsibility, and if different, name and contact information of individuals responsible for each minimum control measure. Please attach a table of organization.

MCM 1 & 2- Lee Ann Grogg, 304.348.8106, leeann.grogg@cityofcharleston.org

MCM 3 - 6- Greg Robinson, 304.348.8106, greg.robinson@cityofcharleston.org

Inspection Tech. Tommy Gillespie, 304.348.8106, tom.gillespie@cityofcharleston.org

MCM 1 - 6- Overall Program Management, Stephen Birurakis, 304.348.8106,  
stephen.birurakis@cityofcharleston.org

#### V. Changes to SWMP

20. Did any of your activities, BMPs, or measurable goals as outlined in your SWMP change during the reporting period?

Yes ☐

No ☒

21. Do you anticipate any planned activities, BMPs, or goals as outlined in your SWMP to change in the upcoming reporting period?

Yes ☐

No ☒

22. If anything has changed, please indicate the MCM and performance measure and provide a brief description below, and attach detailed documentation of the changes, schedule of implementation, measurable goals, and overall effect on your program. (WV MS4 2014 General Permit, p. 24, #6 and #7)

23. Is additional documentation attached?

Yes ☒

No ☐

**VI. MCM 1: Public Education and Outreach (WV MS4 2014 General Permit,)**

24. Did you complete all the proposed activities and performance measures for this MCM for this reporting period?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
25. Contact: Stephen Birurakis, Lee Ann Grogg	26. Phone: 304-348-8106	

**Performance Measure 1a: Program implementation**

27. Were the proposed activities for developing a public education and outreach program implemented?	Yes <input checked="" type="checkbox"/>	Partially <input type="checkbox"/>	No <input type="checkbox"/>
28. List and briefly describe each of the public education and outreach program development activities undertaken during this reporting period. (WV MS4 2014 General Permit, p. 46, #1) 1) Brochures - In addition to existing brochures, a Construction site BMP pocket guide brochure was created and a mobile business (food vendor) booklet regarding BMPs for proper disposal of grease and chemicals. Also created a multi-departmental brochure kiosk in the Charleston City Service Center. (Ongoing) 2) Social Media - Websites: (www.charlestonstormwater.org) & (Riverproud.org) are on-line to inform the public of opportunities to participate in programs within the city and stormwater management guidelines. (Ongoing) Facebook: (http://www.facebook.com/charlestonstormwaterprogram) Post information regarding programs available through the stormwater department, stormwater management practices, pet waste pollution, construction site BMPs, and the stormwater IDDE hot-line. (Ongoing) 3) Stormwater marking and stenciling program. (Ongoing) 4) Public/Municipal comments/IDDE reporting boxes placed in various locations around the city. (Ongoing) 5) Community Meetings - (Fort Hill Garden Club & First Presbyterian Senior Group (rain water harvesting practices) , Kanawha City Neighborhood Watch Meeting & Magazine Branch Watershed - (IDDE dumping and litter pick up). 6) Classroom instruction - WV Junior College, cigarette butt litter awareness presentation for all students enrolled at the Junior College. 7) IDDE reporting - In addition to phone number posted on Facebook, created one large sign for Venable Branch Watershed for the reporting of illegal dumping. 8) Public Exhibit - Construction Site BMPs exhibit in the City Service Center addressing proper silt fence installation, drain protection, construction entrances, etc.			
29. Did you achieve all the goals that you identified in your SWMP related to developing the education and outreach program for this reporting period? (WV MS4 2014 General Permit, p. 46, #3)	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
30. If not, please describe the progress you did make towards achieving your goal(s), and any obstacles and possible solutions such as revised implementation schedules or revised measurable goals. If you are proposing any changes to your SWMP goals or schedule, please include them in Section V above. (WV MS4 2014 General Permit, p. 46, #4)			

**Performance Measure 1b: Evaluation of effectiveness of public education and outreach efforts**

31. Did you evaluate the effectiveness of the public education and outreach program? Yes ☒ Partially ☐ No ☐

32. How did you evaluate the effectiveness of the public education and outreach program in this reporting period?  
(WV MS4 2014 General Permit, p. 46, #2)

We are implementing, this coming permit year, our River Proud program where we ask the public, residential & business, to let us know what they are doing to reduce stormwater pollution and runoff. With at least one BMP, we will present the residence or business with a plaque deeming them a River Proud establishment. We hope this will evaluate the community's interest in water quality, runoff reduction and our effectiveness.

Evaluated effectiveness by the number of likes and hits on Facebook posts.

We also found that Construction Site BMPs could be more accessible to contractors so we created a pocket guide for the correct installation of silt fences, construction entrances, etc.

33. Regardless of your answer to the previous question, have you identified new or better ways to evaluate the public's understanding of your program and water quality issues? Yes ☒ No ☐

34. If yes, please describe any changes you would like to consider to improve your evaluation of effectiveness of outreach.

We are implementing, this coming permit year, our River Proud program where we ask the public, residential & business, to let us know what they are doing to reduce stormwater pollution and runoff. With at least one BMP, we will present the residence or business with a plaque deeming them a River Proud establishment. We hope this will evaluate the community's interest in water quality, runoff reduction and our effectiveness.

<b>Performance Measure 1c: Documentation and tracking of public education and outreach efforts</b>			
35. Did you track and keep records of your outreach activities?	Yes X	Partially	No
36. For print, radio, and television media activities, did you keep records that include i) a description of the content or theme; ii) the date of completion of the materials; iii) the date of release or distribution, and iv) the duration of air time or publication? (WV MS4 2014 General Permit, p. 46, #1)	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>
37. Are your records available upon request?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>
38. For pamphlets, brochures, and other finite printed products, did you keep records that include: i) a description of the content or theme; ii) the date of completion of the materials; iii) the date of release or distribution; iv) the location or placement of the materials; and v) date of follow up visits to replenish or transition to the next outreach product? (WV MS4 2014 General Permit, p. 46, #1)	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>
39. Please describe any additional or alternative documentation and tracking of public education and outreach activities you are implementing.			

**VII. MCM 2: Public Involvement and Participation (WV MS4 2014 General Permit)**

40. Did you complete all the proposed activities and performance measures for this MCM for this reporting period?

Yes



No



41. Contact: Stephen Birurakis, Lee Ann Grogg

42. Phone: 304-348-8106

**Performance Measure 2a: Opportunities for ongoing public involvement and participation in the SWMP**

43. Did you create, or are you in the process of creating, ongoing opportunities for the public to participate in the development, implementation, and updating of your SWMP?

Yes



No



44. Did you achieve all the goals that you identified in your SWMP related to creating and maintaining ongoing opportunities for public involvement and participation for this reporting period? (WV MS4 2014 General Permit, p. 46, #3)

Yes



No



45. If not, please describe the progress you did make towards achieving your goal(s), and any obstacles and possible solutions such as revised implementation schedules or revised measurable goals. If you are proposing any changes to your SWMP goals or schedule, please include them in Section V above.  
(WV MS4 2014 General Permit, p. 46, #4)

46. List and briefly describe each of the activities undertaken during the reporting period to create ongoing opportunities for the public to participate in your SWMP. (WV MS4 2014 General Permit, p. 46, #1)

**1) Social Media:**

Website: Charleston Stormwater Program website was updated with a revised layout.

River Proud website updated to explain homeowner and business recognition and participation program.

Facebook posts: green infrastructure ideas, Construction Site BMPs, Rain Barrel Workshop schedule, and the River Proud Program.

2) Rain Barrel Workshops – Stormwater management for the public. Each participant of the workshop received a rain barrel, diverter kit, and information on the benefits of disconnecting any down spouts from the sewer system and harvesting water. Also, the importance of managing stormwater so that runoff is reduced, and therefore polluted runoff is reduced. The workshops were held May-June, 2017.

In addition to our Charleston workshops, we partnered with the City of St. Albans to host a rain barrel workshop at their city municipal building.

3) FestiVALL – Two day event in which we created a "Wheel of Pollution" for all ages to spin. On the wheel were stormwater pollution subjects such as, Construction Sites, Pet Waste, Oil & Chemicals, CSOs, Dumpster Runoff, Yard Waste, Plastics & Green Infrastructure. When the wheel landed on a topic, we used laminated fact sheets to highlight the positive and negative effects these subjects have on our watershed. It was very successful. In addition, the City of Charleston's IT Department brought their Virtual Reality Sandbox and wowed the crowd by allowing them to build ponds, streams, mountains, etc. and see it immediately in topographic map form. They were able to also make it rain on their respective landscapes and observe the paths of stormwater runoff.

4) MS4 Collaborative – One day meeting with other municipal MS4s from around the state of WV. Our peers presented on the topics of Maintenance Agreements, TMDLs, Beckley's iPond Project, Evaluating Effectiveness for MCMs 1 & 2 and Effective Mapping with GIS.

5) Outdoor Classroom – Herbert Hoover High School junior and seniors came for a one day classroom titled Urban Stormwater, Balancing a Clean City and a Clean River. Students walked through town observing good and bad practices of grease storage, dumpster storage, urban litter and road grime. The City's Street Department met the group at the Levee on the Kanawha River and ran the vac truck and street sweeper demonstrating how these vehicles keep storm drains clean and trash picked up. They observed a CSO, where sewer and storm is discharged during large rain events and finally did three breakout sessions covering Construction Site BMPs, the Virtual Reality Sandbox, & a litter pick up. The Charleston Sanitary Board loaned their two man camera crew to demonstrate the robot they use in sewer and combined pipe systems.

47. Describe how you evaluated the effectiveness of your public participation efforts (citizen attendance at public hearings, requests for information on your SWMP, hotline activity, etc.).  
(WV MS4 2014 General Permit, p. 46, #2)

1) Social Media: The city has used comments received on the website, Facebook comment sections, number of IDDE complaints received and general phone calls to evaluate the effectiveness of the city's efforts.

Website - The number of document downloads.

Facebook - The number reached, which appears on every post. Some posts receive a higher number of reaches than others.

2) Rain Barrel Workshops – The number of citizens that register for participate in workshops is used to evaluate the effectiveness. This number has grown to the point where we have waiting lists, and increased the number of workshops this year. We also have calls from citizens looking for rain barrels and receive referrals to our department for information on rain barrels and their usage. We now have a local business carrying rain barrel kits for public purchase due to demand.

3) FestiVALL – From the people that attended our exhibit. After the wheel of pollution and then the AR Sandbox, participants answered the question: 'Do people have an impact on their watershed? Yes or No'. We looked at the number of correct answers (yes) as opposed to incorrect answers (no), hoping for a high percentage of correct responses to determine if the message was received. We also counted the total number of responses to determine if participation was high or low.

4) MS4 Collaborative - Feedback from attendees and the attendance rate of municipalities. Many cities that were there have come consistently now for many years and all benefit from and enjoy the sharing of ideas.

5) Outdoor Classroom - Students and teachers were asked to fill out an evaluation of our Outdoor Classroom. Many forms of feedback were asked such as, improvement ideas, favorite activity, and a few questions to gauge the level of understanding of the information presented to them.

48. Describe the steps taken to ensure that public participation opportunities are ongoing and, if necessary, additional program maintenance activities in future reporting periods to ensure continued participation opportunities. (WV MS4 2014 General Permit, p. 46, #4)

1) Running forum on Facebook page with updates of programs and opportunities, trends in water management, and solicitation for public participation are researched on a regular basis.

2) Rain Barrel Workshops – Workshops have been very successful so we increased the number of workshops and the City purchased additional barrels to have for inquiries and education. As long as these continue to be sold out, and the DEP continues to be a part, this workshop partnership will continue.

3) In General – We keep relationships with civic, public and municipal organizations in good standing so we can be involved in participation opportunities. This includes watershed groups.

4) Employee/Citizen comment boxes were installed permanently and are maintained on a regular basis.

5) This permit year we are adding a round table discussion, inviting the public to come to discuss concerns they have regarding our Stormwater Management Program. This will be advertised on social media, an ad in the newspaper & a press release sent to news and radio stations.

Performance Measure 2b: Communications with community, watershed, and environmental organizations			
49. Did you establish a program for routine communications with community based watershed groups or other organizations?	Yes <input checked="" type="checkbox"/>	Partially <input type="checkbox"/>	No <input type="checkbox"/>
50. Describe the steps taken to ensure that your programs for routine communications with community-based watershed groups or other organizations are ongoing, or any additional program activities that you believe may be required to ensure continued communications. (WV MS4 2014 General Permit, p. 46, #4) 1) Social Media serves as a way to see, communicate, share ideas, and accomplishments or events presented by organizations locally and nationally. 2) Our Rain Barrel Workshops Program is an annual program and brings a lot of attention to rain water harvesting. Organizations around the area contact us or the DEP to learn about the benefits of rain barrels and how to use one. In addition to outside groups contacting us on a regular basis, communications between the WV Basin Coordinator, Tomi Bergstrom, and the City of Charleston is constant via e-mail, phone & cell phones. We work closely with the WV DEP Basin Coordinator and continue to keep a positive relationship. 3) The MS4 Collaborative operates as a small e-mail forum on which we can share ideas, find answers, ask questions and communicate with other state MS4s. We plan on having semi-annual meetings on a regular basis. 4) The Charleston Sanitary Board (CSB) and the Charleston Stormwater Department are sharing GIS data as well as assisting in education during our outdoor classrooms.			
51. Did you achieve all the goals that you identified in your SWMP related to creating and maintaining ongoing communications with community based watershed groups or other organizations for this reporting period? (WV MS4 2014 General Permit, p. 46, #3)	Yes <input checked="" type="checkbox"/>	Partially <input type="checkbox"/>	No <input type="checkbox"/>
52. If not, please describe the progress you did make towards achieving your goal(s), and any obstacles and possible solutions such as revised implementation schedules or revised measurable goals. If you are proposing any changes to your SWMP goals or schedule, please include them in Section V above. (WV MS4 2014 General Permit, p. 46, #4)			

Performance Measure 2c: Public availability of SWMP and annual report	
53. Did you make your SWMP and annual report available to the public?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
54. If yes, please indicate the web address, or if a physical location, please indicate where it is and the process, if any, required for the public to access it. <a href="http://www.charlestonstormwater.org">www.charlestonstormwater.org</a>  Engineering/Stormwater Department, 114 Dickinson Street, Charleston, WV 25301	

**VIII. MCM 3: Illicit Discharge Detection and Elimination (WV MS4 2014 General Permit)**

55. Did you complete all the proposed activities and performance measures for this MCM for this reporting period?

Yes



No



56. Contact: Steve Birurakis, Greg Robinson, Lee Ann Grogg

57. Phone: 304-348-8106

**Performance Measure 3a: MS4 map**

58. Were your proposed activities for creating and annually updating your MS4 map for the reporting period implemented?

Yes



Partially



No



59. List and briefly describe the activities undertaken to either develop or update your MS4 map.  
(WV MS4 2014 General Permit, p. 46, #1)

- 1) Mapping of Storm sewers- June 2011– ongoing.
- 2) Utilized Iphones and Ipads to input surface and subsurface network data in the field that is continuously updated to the GIS database.
- 3) Created new feature classes within the GIS Database.
- 4) Subsurface camera data collection ongoing.
- 5) Utilize high accuracy GPS hardware and software for mapping.
- 6) MS4 aerial mapping hard copy on file.
- 7) MS4 digital copies available upon request.
- 8) On a joint venture with Kanawha County, the City has recently obtained updated aerial mapping.



<b>Performance Measure 3b: Illicit Discharge Detection and Elimination (IDDE) ordinance development</b>		
60. Has your municipality adopted an IDDE ordinance in accordance with the requirements of the WV MS4 2014 General Permit (Part II Section C.7.c.10 &11)?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
61. If not, please describe the activities or progress made in adopting or updating an existing ordinance and provide an estimated date for adoption. (WV MS4 2014 General Permit, p. 46, #1)		

<b>Performance Measures 3c and 3e: IDDE program implementation and assessment, and program tracking</b>		
62. Is your IDDE program fully implemented, including visual inspections based on a system of prioritizing outfalls and procedures for characterizing discharges?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
63. If no, please describe obstacles, if any, to implementation, and an estimate of when your program will be fully implemented.		
64. Were all your measurable goals met for implementing and evaluating an IDDE program during this reporting period? (WV MS4 2014 General Permit, p. 46, #3)	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
65. How many field assessments were conducted during the reporting period?	127 (includes Dry Weather Screenings)	
66. How many illicit discharges were identified during the reporting period?	8	
67. How would you characterize the type of illicit discharges found (sewer cross connections, spills, illegal dumping, unaware residents, etc.)? Note: The number listed on question 65 represents both dry weather screenings (119) and Reported Illicit Discharges (8) totaling 127 Also Note: 32 of the 119 dry weather screenings had some flow (minor to moderate) but general location / appearance / smell etc. appeared to be general stream / ground water runoff. Will continue to monitor. The City had various types of illicit discharges from sanitary sewer pipe leaks, spills, illegal dumping. The CSB reports illicit discharges solely to the DEP hot-line when they detect a spill or cross connection from their sanitary sewer system.		
68. How would you characterize the type of pollutants discovered in illicit discharges (oil and grease, fecal coliform, chlorine, paints, etc.)? Name the top five pollutants discovered or uncovered by your IDDE program. 1) Fecal Coliform 2) Silt 3) Petroleum 4) Concrete / Grout Washout 5) Waste Water 6) Trash / Debris		
69. How many corrective actions were taken to remove illicit discharges?	8	
70. How many enforcement actions were initiated to eliminate illicit discharges into the storm sewer system?	0	
71. Have you attached additional documentation to better identify the nature and extent of the program activities and accomplishments?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

<b>Performance Measure 3d: Public education on hazards of illegal discharges and improper disposal of waste</b>		
72. Did you conduct any activities for educating the public on hazards of illegal discharges for this reporting period? (WV MS4 2014 General Permit, p. 46, #3)	Yes <input checked="" type="checkbox"/>	Partially <input type="checkbox"/> No <input type="checkbox"/>
<p>73. List and briefly describe each of the education and outreach activities undertaken during this reporting period. (WV MS4 2014 General Permit, p. 46, #1)</p> <p>1) Brochures were distributed covering IDDE, oil recycling, composting, etc. (Ongoing)</p> <p>2) Cigarette butt litter: Placed butt containers in Brawley Walkway, educational presentation to WV Junior College students &amp; Municipal training with cigarette butt pollution video.</p> <p>3) Social Media - Website: updated downloads of brochures, articles and documents. (www.charlestonstormwater.org) and Facebook: current events, videos, links to stormwater related information (Ongoing)</p> <p>4) Stormwater marking program implemented. (Ongoing)</p> <p>5) Public/Municipal comments/IDDE reporting boxes place in various locations around the city. (Ongoing)</p> <p>6) Construction Site BMP exhibit: Educating contractors, etc. and general public on responsible construction practices.</p>		
74. Were any of these activities included in the public education and outreach efforts described in MCM 1?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
<p>75. How did you evaluate the effectiveness of the activities described in the list above? (WV MS4 2014 General Permit, p. 46, #2)</p> <p>1) Brochures were distributed covering IDDE, oil recycling, composting, etc. Number of brochures taken were used to evaluate effectiveness. (Ongoing)</p> <p>2) Cigarette butt pollution: How much were the new cigarette butt containers utilized &amp; was butt litter reduced in those areas? Was the butt litter at the Junior College reduced? Why or why not?</p> <p>3) Social Media - Website: updated downloads of brochures, articles and documents. (www.charlestonstormwater.org) and Facebook: current events, videos, links to stormwater related information (Ongoing) The number of 'likes' and 'reached' was used as a measure of effectiveness.</p> <p>4) Stormwater marking program: Does dumping continue to be apparent or has it stopped after marking?</p> <p>5) Public/Municipal comments/IDDE reporting boxes: Measured by number of comments &amp; participation from public.</p>		
76. Did you achieve all the goals that you identified in your SWMP related to educating the public on hazards of illegal discharges for this reporting period? (WV MS4 2014 General Permit, p. 46, #3)	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
<p>77. If not, please describe the progress you did make towards achieving your goal(s), and any obstacles and possible solutions such as revised implementation schedules or revised measurable goals. If you are proposing any changes to your SWMP goals or schedule, please include them in Section V above. (WV MS4 2014 General Permit, p. 46, #4)</p>		

84. If not, please describe the progress you did make towards achieving your goal(s), and any obstacles and possible solutions such as revised implementation schedules or revised measurable goals. If you are proposing any changes to your SWMP goals or schedule, please include them in Section V above.  
(WV MS4 2014 General Permit, p. 46 #4)

**IX. MCM 4: Construction Site Runoff Control (WV MS4 2014 General Permit , p. 19-22)**

85. Did you complete all proposed activities and performance measures for this MCM for this reporting period?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
86. Contact: Steve Birurakis, Greg Robinson	87. Phone: 304-348-8106	

**Performance Measures 4a and 4b: Develop and implement an ordinance to address stormwater runoff from construction sites one acre or greater**

88. Has your municipality adopted a construction site runoff control ordinance in accordance with the requirements of the WV MS4 2014 General Permit (Part II Section C.7.d.2 and 4)	Yes <input checked="" type="checkbox"/>	Partially <input type="checkbox"/>	No <input type="checkbox"/>
89. If a program ordinance has not been adopted, have the proposed activities for developing and implementing an ordinance to address stormwater runoff from construction sites been implemented?	Yes <input checked="" type="checkbox"/>	Partially <input type="checkbox"/>	No <input type="checkbox"/>

90. Please indicate the anticipated ordinance adoption schedule. (WV MS4 2014 General Permit, p. 46, 4.a)1)

91. Has your construction site ordinance been reviewed and/or updated to include any new criteria during the reporting period?	Yes <input checked="" type="checkbox"/>	Partially <input type="checkbox"/>	No <input type="checkbox"/>
92. Is your construction site program being fully implemented to include provisions for: i) plan review, ii) routine site inspections, iii) enforcement, and iv) record keeping and reporting?	Yes <input checked="" type="checkbox"/>	Partially <input type="checkbox"/>	No <input type="checkbox"/>

93. Please indicate the number of plan approvals during the reporting period. 26

94. Please indicate the number of construction site inspections during the reporting period. 33

95. Please indicate the number of enforcement actions during the reporting period (can attach document). 15

96. Are enforcement records maintained and available upon request? Yes ☒ Partially ☐ No ☐97. Is there adequate funding to fulfill the program implementation requirements required by the WV MS4 2014 General Permit? Yes ☒ Partially ☐ No ☐

98. Briefly list and describe any activities outlined in your SWMP completed during the past permit year related to construction site operator and/or permittee site inspector training. (WV MS4 2014 General Permit, p. 46, 4.a)1)

Note: The number of enforcements listed in question 95 is based on each inspection that required corrections on site. This number does not represent any legal action enforcements. There were zero legal action enforcements required during this report period.

Each time an inspection was conducted the inspector did a walk through with the site operator/permittee to ensure they understood items that may be out of compliance and how to correct them. They (site operator/permittee) are also recognized for things that are correct and encouraged to continue the same practices.

They are explained relevant parts of and/or given a copy of our Erosion and Sediment Control Ordinance.

They sign and are given a copy of the inspection sheet that was part of the inspection that they were walked through. If desired, we leave them blank inspection sheets they can use to do intermittent inspections themselves. They may also obtain a Stormwater Guidance Manual for examples/solutions.

99. Did you achieve all the goals that you identified in your SWMP related to developing or implementation and assessment of a construction site runoff control program for this reporting period? (WV MS4 2014 General Permit, p. 46, #3) Yes ☒ No ☐100. If not, please describe the progress you did make towards achieving your goal(s), and any obstacles and possible solutions such as revised implementation schedules or revised measurable goals. If you are proposing any changes to your SWMP goals or schedule, please include them in Section V above.  
(WV MS4 2014 General Permit, p. 46, #4)

<b>X. MCM 5: Controlling Runoff from New Development and Redevelopment</b> (WV MS4 2014 General Permit, p. 22-33)			
101. Did you complete all proposed activities and performance measures for this MCM for this reporting period?		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
102. Contact: Steve Birurakis, Greg Robinson		103. Phone: 304-348-8106	
<b>Performance Measure 5a: Develop, implement, and enforce a program to protect water resources by addressing stormwater discharges from regulated new and redevelopment projects</b>			
104. Has your municipality adopted a stormwater management ordinance in accordance with WV MS4 2014 General Permit (Part II Section C.7e.8, 11(a))		Yes <input checked="" type="checkbox"/>	Partially <input type="checkbox"/> No <input type="checkbox"/>
105. If your ordinance has not been adopted, please describe the progress made towards final ordinance adoption during this reporting period, and expected date of final adoption. (WV MS4 2014 General Permit, p. 46, 4.a)1)			
106. Does your (proposed) ordinance include language incorporating the development incentives described in the WV MS4 2014 General Permit (Part II Section C.7.e.13)?		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
107. Does your (proposed) ordinance include language incorporating the off-site mitigation or fee-in lieu alternatives to on-site BMP implementation as described in the WV MS4 2014 General Permit (Part II Section C.7.e.16)		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
108. Have you developed a process for reviewing and updating your ordinance and program implementation to address the adequacy of provisions for: i) requiring runoff volume reduction on new and redevelopment sites, ii) plan review, iii) BMP construction and maintenance inspections, iv) enforcement, v) inventory and tracking, and vi) record keeping and reporting?		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
109. How many projects were reviewed during the reporting period?		26	
110. What types of projects were reviewed (residential, commercial, industrial, etc.)? (WV MS4 2014 General Permit, p. 32, (u)(ii)) Projects reviewed: 20- Residential 6 - Commercial			
111. Provide a summary of the number and types of stormwater BMPs approved in new and redevelopment projects during the reporting period. Please list the BMPs according to the BMP specification number from the WV Stormwater Management Manual (2012). (WV MS4 2014 General Permit, p. 32, (u)(iii)) Bio-retention with underdrains Underground Vault Detention Pond Underground retention/Infiltration Structural BMPs			

<p>112. Provide a summary of the number and type of projects that qualified for each of the development incentives described in the WV MS4 2014 General Permit (Part II Section C.7.e.16.(u)(iii)) during the reporting period. Please indicate if you have attached additional documentation.</p> <p>No projects qualified for incentives during this report period.</p>	
<p>113. Provide a summary of the number of projects that qualified for any offsite mitigation or payment in lieu options described in the WV MS4 2014 General Permit (Part II, Section C.7.e.16(u)(iii)) during the reporting period. Please indicate if you attach additional documentation.</p> <p>No projects qualified for any off-site mitigation or payment in lieu options during this report period.</p>	
<p>114. How many maintenance agreements were approved during the reporting period? (WV MS4 2014 General Permit, p. 32, (u)(iv))</p>	<p>1</p>
<p>115. Were any maintenance agreements recorded at the county courthouse?</p>	<p>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>
<p>116. Provide a summary of the number and type of stormwater BMP inspections conducted by MS4 personnel or contracted agents (construction as-built, ongoing operation and maintenance audits, complaint driven, etc.). Include (or attach) a summary of: i) the type and number of BMPs requiring maintenance or repair, ii) the number brought into compliance, and iii) the number of enforcement actions taken. (WV MS4 2014 General Permit, p. 32, (u)(v))</p> <p>47 Existing LID's found and visually inspected. These are mapped / located in our GIS database. Routine Inspection and Maintenance Agreement documents are in the process of creation and implementation. No enforcement actions have been required.</p>	
<p>117. Did you achieve all the goals that you identified in your SWMP related to developing and/or implementing and assessing a stormwater management program for this reporting period? (WV MS4 2014 General Permit, p. 46, #3)</p>	<p>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>
<p>118. If not, please describe the progress you did make towards achieving your goal(s), and any obstacles and possible solutions such as revised implementation schedules or revised measurable goals. If you are proposing any changes to your SWMP goals or schedule, please include them in Section V above. (WV MS4 2014 General Permit, p. 46, #4)</p> <p>Ongoing mapping and tracking of LID's using GIS.</p> <p>Have not found a mitigation program that will seem to work for our situations. Thus just holding sites to the 1" capture.</p> <p>We have various versions of maintenance agreements and intend to start implementing them as a standard. But we have yet to come up with one that covers all situations. Primarily how the agreement follows land owner. This is most difficult in subdivision type settings. Such as the LID being on a residual property within the subdivision. Not all subdivisions have a home owners association, etc. We have looked at multiple cities versions and they do not cover all of this either. The general agreement document is fairly easy to create, but the long term legal enforcement procedures are where they become difficult / inadequate.</p> <p>On 4-12-18, six members of the engineering department attended a webinar from Forest University titled "Building Stormwater Systems with Maintenance in Mind". This was an informative webinar but also did not have all of the answers.</p>	

<b>Performance Measure 5b: Long-term watershed protection elements</b>			
119. Does a local ordinance or equivalent document incorporate the watershed protection elements described in WV MS4 2014 General Permit (Part II Section C.7.e.8))		Yes <input checked="" type="checkbox"/>	Partially <input type="checkbox"/> No <input type="checkbox"/>
120. If yes, please describe how the permittee's legal authority addresses the following watershed protection elements: (WV MS4 2014 General Permit, p. 32,(u)(i))			
121. Minimize impervious cover.	Topic addressed in Stormwater Management Guide Section 3.4.3 Reduction in Impervious Cover/Impervious Cover Management		
122. Preserve, protect, create, and restore ecologically sensitive areas.	Topic addressed in Stormwater Management Guidance Manual section 3.4.1 Conservation of Natural Features and Resources and WVDEP Stormwater Management and Design Guidance Manual.		
123. Implement practices that prevent or reduce thermal impacts to streams.	Topic addressed in the Stormwater Management Guidance Manual section 3.4.3 Reduction in Impervious Cover/Impervious Cover Management		
124. Seek to avoid or prevent hydromodification of water bodies caused by development.	Topic addressed in the Stormwater Management Guidance Manual section 3.4.3 Low Impact Site Design Techniques		
125. Minimize impacts to existing vegetation (especially trees).	Topic addressed in the Stormwater Management Guidance Manual section 3.4.1 Conservation of Natural Features and Resources		
126. Minimize impacts to native undisturbed soils.	Topic addressed in the Stormwater Management Guidance Manual section 3.4.1 Utilization of Natural Features for Stormwater Management		
127. If the watershed protection elements have not yet been incorporated into a planning document or ordinance, please describe the actions to be taken to incorporate these elements. ( WV MS4 2014 General Permit, p. 23, # 10)			

<b>Performance Measure 5c: Street and parking design assessments</b>	
128. Were the proposed activities for assessing the current street design guidelines and parking requirements implemented (WV MS4 2014 General Permit, page 33 (v))?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
129. If this is your third-year report, please attach your report assessing the current street and parking design requirements, and recommendations and proposed schedules for incorporating policies and standards to maximize vegetation and minimize impervious cover where possible. (WV MS4 2014 General Permit, p. 46, #8)	

Reference:

Stormwater Guidance Manual, Chapter 3, "Site Planning and Low Impact Development".

[www.charlestonstormwater.org](http://www.charlestonstormwater.org)

**XI. MCM 6: Pollution Prevention & Good Housekeeping for Municipal Operations** (WV MS4 2014 General Permit, p. 33-38)

130. Did you complete all the required performance measures for this MCM for this reporting period?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
131. Contact: Steve Birurakis, Greg Robinson	132. Phone: 304.348.8106	

**Performance Measures 6a and 6b: Develop and implement an operation and maintenance program for all municipal facilities that includes prevents or reduces the discharge of polluted runoff**

133. Were the proposed activities for developing a pollution prevention and good housekeeping program for municipal operations implemented?	Yes <input checked="" type="checkbox"/>	Partially <input type="checkbox"/>	No <input type="checkbox"/>
134. List and briefly describe the activities outlined in your SWMP for the development of a pollution prevention and good housekeeping program for municipal operations undertaken during this reporting period. 1. The City currently receives monthly tonnage reports from the Charleston Landfill from street sweeper and Vector truck operations. 2. The City has pro-actively cleaned inlets to combat maintenance issues. 3. The City currently uses a professional disposal service for proper disposal of automotive fluids such as oils, transmission fluids, used gasoline, antifreeze, and other hazardous materials. 4. The City currently uses a database system that uses work orders, tracks materials used, manpower, and costs associated with public works. 5. SWPPPs and SOPs have been completed and placed in city facilities. The facilities are on a stormwater inspection schedule.			
135. Do you have a pollution prevention plan for each of your municipal facilities as required by the WV MS4 2014 General Permit (Part II Section C.7.f)1)?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
136. Do you have an inspection schedule for conducting inspections at your municipal facilities as required by the WV MS4 2014 General Permit (Part II Section C.7.f)5)?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
137. Are you tracking and maintaining records of inspection and maintenance activities for each municipal facility as required by the WV MS4 2014 General Permit (Part II Section C.7.f)6)?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
138. If you answered no to any of the previous three questions, please indicate your proposed schedule for implementing the requirements of the WV MS4 2014 General Permit (page 46, 4.a)1).			
139. How many inspections were conducted at each municipal facility during the reporting period?	194		
140. List the top three problems that you have found while conducting inspections at municipal facilities. 1) Trash and floatables, cleaned up after inspection. 2) Oil and fluid leaks in parking areas, cleaned up immediately. 3) Organic debris; leaves blowing clogging DI's.  Solved dumpster cover issue by Constructed Permanent Covers over dumpsters to prevent raining into dumpsters.			
141. Were these problems corrected? (WV MS4 2014 General Permit, p. 46, 4.a)1)?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<input type="checkbox"/>



142. Did you achieve all the goals that you identified in your SWMP related to developing a pollution prevention and good housekeeping program for municipal operations for this reporting period? (WV MS4 2014 General Permit, p. 46, 4.a)3)?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
143. If not, please describe the progress you did make towards achieving your goal(s), and any obstacles and possible solutions such as revised implementation schedules or revised measurable goals. If you are proposing any changes to your SWMP goals or schedule, please include them in Section V above. (WV MS4 2014 General Permit, p. 46, 4.a)4)		

<b>Performance Measure 6c: Municipal employee good housekeeping training</b>			
144. Were the proposed activities for developing a pollution prevention and good housekeeping training program for municipal employees implemented as described in the WV MS4 2014 General Permit (Part II, Section C.7.f.8)10)?	Yes <input checked="" type="checkbox"/>	Partially <input type="checkbox"/>	No <input type="checkbox"/>
145. Were the proposed activities for implementing a pollution prevention and good housekeeping training program for municipal employees implemented as described in the WV MS4 2014 General Permit (Part II, Section C.7.f.8)9)10)?	Yes <input checked="" type="checkbox"/>	Partially <input type="checkbox"/>	No <input type="checkbox"/>
146. Did municipal employees receive training in accordance with the guidelines described in the WV MS4 2014 General Permit (Part II, Section C.7.f)8)?	Yes <input checked="" type="checkbox"/>	Partially <input type="checkbox"/>	No <input type="checkbox"/>
147. How many employees received training during the reporting period? (WV MS4 2014 General Permit, p. 46, 4.a)1)?	164		
148. Are you maintaining records of all municipal training activities (including training agendas, learning objectives, instructor qualifications, sign in sheets, etc.)?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
149. Explain how the effectiveness of the training activities was evaluated (number of employees trained and/or certified in specific good housekeeping skills, measurable improvements in cost or performance of facility maintenance activities, or as outlined in your SWMP). (WV MS4 2014 General Permit, p. 46, 4.a)4) The stormwater department has implemented new hire stormwater training and was held with the safety training bi-annually. A stormwater inspection training was held.			
150. Did you achieve all the goals that you identified in your SWMP related to training municipal employees on pollution prevention and good housekeeping for this reporting period? (WV MS4 2014 General Permit, p. 46, 4.a)3)?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
151. If not, please describe the progress you did make towards achieving your goal(s), and any obstacles and possible solutions such as revised implementation schedules or revised measurable goals. If you are proposing any changes to your SWMP goals or schedule, please include them in Section V above. (WV MS4 2014 General Permit, p. 46, 4.a)4)			

## **City of Charleston WV**

### **Attachment: WVDEP April 2018 Annual Report**

#### **28. List and briefly describe each of the public education and outreach program development activities undertaken during this reporting period. (WV MS4 2014 General Permit, p. 46, #1)**

1) Brochures - In addition to existing brochures, a Construction site BMP pocket guide brochure was created and a mobile business (food vendor) booklet regarding BMPs for proper disposal of grease and chemicals. Also created a multi-departmental brochure kiosk in the Charleston City Service Center. (Ongoing)

2) Social Media -

Websites: ([www.charlestonstormwater.org](http://www.charlestonstormwater.org)) & ([Riverproud.org](http://Riverproud.org)) are on-line to inform the public of opportunities to participate in programs within the city and stormwater management guidelines. (Ongoing)

Facebook: (<http://www.facebook.com/charlestonstormwaterprogram>) Post information regarding programs available through the stormwater department, stormwater management practices, pet waste pollution, construction site BMPs, and the stormwater IDDE hot-line. (Ongoing)

3) Stormwater marking and stenciling program. (Ongoing)

4) Public/Municipal comments/IDDE reporting boxes placed in various locations around the city. (Ongoing)

5) Community Meetings - (Fort Hill Garden Club & First Presbyterian Senior Group (rain water harvesting practices), Kanawha City Neighborhood Watch Meeting & Magazine Branch Watershed - (IDDE dumping and litter pick up).

6) Classroom instruction - WV Junior College, cigarette butt litter awareness presentation for all students enrolled at the Junior College.

7) IDDE reporting - In addition to phone number posted on Facebook, created one large sign for Venable Branch Watershed for the reporting of illegal dumping.

8) Public Exhibit – Construction Site BMPs exhibit in the City Service Center addressing proper silt fence installation, drain protection, construction entrances, etc.

#### **46. List and briefly describe each of the activities undertaken during the reporting period to create ongoing opportunities for the public to participate in your SWMP. (WV MS4 2014 General Permit, p. 46, #1)**

1) Social Media:

Website: Charleston Stormwater Program website was updated with a revised layout.

River Proud website updated to explain homeowner and business recognition and participation program.

Facebook posts: green infrastructure ideas, Construction Site BMPs, Rain Barrel Workshop schedule, and the River Proud Program.

2) Rain Barrel Workshops – Stormwater management for the public. Each participant of the workshop received a rain barrel, diverter kit, and information on the benefits of disconnecting any down spouts from the sewer system and harvesting water. Also, the importance of managing stormwater so that runoff is reduced, and therefore polluted runoff is reduced. The workshops were held May-June, 2017.

In addition to our Charleston workshops, we partnered with the City of St. Albans to host a rain barrel workshop at their city municipal building.

3) FestivALL - Two day event in which we created a "Wheel of Pollution" for all ages to spin. On the wheel were stormwater pollution subjects such as, Construction Sites, Pet Waste, Oil & Chemicals, CSOs, Dumpster Runoff, Yard Waste, Plastics & Green Infrastructure. When the wheel landed on a topic, we used laminated fact sheets to highlight the positive and negative effects these subjects have on our watershed. It was very successful. In addition, the City of Charleston's IT Department brought their Virtual Reality Sandbox and wowed the crowd by allowing them to build ponds, streams, mountains, etc. and see it immediately in topographic map form. They were able to also make it rain on their respective landscapes and observe the paths of stormwater runoff.

4) MS4 Collaborative - One day meeting with other municipal MS4s from around the state of WV. Our peers presented on the topics of Maintenance Agreements, TMDLs, Beckley's iPond Project, Evaluating Effectiveness for MCMs 1 & 2 and Effective Mapping with GIS.

5) Outdoor Classroom - Herbert Hoover High School junior and seniors came for a one day classroom titled Urban Stormwater, Balancing a Clean City and a Clean River. Students walked through town observing good and bad practices of grease storage, dumpster storage, urban litter and road grime. The City's Street Department met the group at the Levee on the Kanawha River and ran the vac truck and street sweeper demonstrating how these vehicles keep storm drains clean and trash picked up. They observed a CSO, where sewer and storm is discharged during large rain events and finally did three breakout sessions covering Construction Site BMPs, the Virtual Reality Sandbox, & a litter pick up. The Charleston Sanitary Board loaned their two man camera crew to demonstrate the robot they use in sewer and combined pipe systems

**47. Describe how you evaluated the effectiveness of your public participation efforts (citizen attendance at public hearings, requests for information on your SWMP, hotline activity, etc.). (WV MS4 2014 General Permit, p. 46, #2)**

1) Social Media: The city has used comments received on the website, Facebook comment sections, number of IDDE complaints received and general phone calls to evaluate the effectiveness of the city's efforts.

Website - The number of document downloads.

Facebook - The number reached, which appears on every post. Some posts receive a higher number of reaches than others.

2) Rain Barrel Workshops – The number of citizens that register for/ participate in workshops is used to evaluate the effectiveness. This number has grown to the point where we have waiting lists, and increased the number of workshops this year. We also have calls from citizens looking for rain barrels and receive referrals to our department for information on rain barrels and their usage. We now have a local business carrying rain barrel kits for public purchase due to demand.

3) FestivALL – From the people that attended our exhibit. After the wheel of pollution and then the AR Sandbox, participants answered the question; 'Do people have an impact on their watershed? Yes or No'. We looked at the

number of correct answers (yes) as opposed to incorrect answers (no), hoping for a high percentage of correct responses to determine if the message was received. We also counted the total number of responses to determine if participation was high or low.

4) MS4 Collaborative - Feedback from attendees and the attendance rate of municipalities. Many cities that were there have come consistently now for many years and all benefit from and enjoy the sharing of ideas.

5) Outdoor Classroom - Students and teachers were asked to fill out an evaluation of our Outdoor Classroom. Many forms of feedback were asked such as, improvement ideas, favorite activity, and a few questions to gauge the level of understanding of the information presented to them.

**48. Describe the steps taken to ensure that public participation opportunities are ongoing and, if necessary, additional program maintenance activities in future reporting periods to ensure continued participation opportunities. (WV MS4 2014 General Permit, p. 46, #4)**

1) Running forum on Facebook page with updates of programs and opportunities, trends in water management, and solicitation for public participation are researched on a regular basis.

2) Rain Barrel Workshops – Workshops have been very successful so we increased the number of workshops and the City purchased additional barrels to have for inquiries and education. As long as these continue to be sold out, and the DEP continues to be a part, this workshop partnership will continue.

3) In General – We keep relationships with civic, public and municipal organizations in good standing so we can be involved in participation opportunities. This includes watershed groups.

4) Employee/Citizen comment boxes were installed permanently and are maintained on a regular basis.

5) This permit year we are adding a round table discussion, inviting the public to come to discuss concerns they have regarding our Stormwater Management Program. This will be advertised on social media, an ad in the newspaper & a press release sent to news and radio stations.

**98. Briefly list and describe any activities outlined in your SWMP completed during the past permit year related to construction site operator and/or permittee site inspector training. (WV MS4 2014 General Permit, p. 46, 4.a)1)**

Note: The number of enforcements listed in question 95 is based on each inspection that required corrections on site. This number does not represent any legal action enforcements. There were zero legal action enforcements required during this report period.

Each time an inspection was conducted the inspector did a walk through with the site operator/permittee to ensure they understood items that may be out of compliance and how to correct them. They (site

operator/permittee) are also recognized for things that are correct and encouraged to continue the same practices.

They are explained relevant parts of and/or given a copy of our Erosion and Sediment Control Ordinance.

They sign and are given a copy of the inspection sheet that was part of the inspection that they where walked through. If desired, we leave them blank inspection sheets they can use to do intermittent inspections themselves. They may also obtain a Stormwater Guidance Manual for examples/solutions.

**118. If not, please describe the progress you did make towards achieving your goal(s), and any obstacles and possible solutions such as revised implementation schedules or revised measurable goals. If you are proposing any changes to your SWMP goals or schedule, please include them in Section V above. (WV MS4 2014 General Permit, p. 46, #4)**

Ongoing mapping and tracking of LID's using GIS.

Have not found a mitigation program that will seem to work for our situations. Thus just holding sites to the 1" capture.

We have various versions of maintenance agreements and intend to start implementing them as a standard. But we have yet to come up with one that covers all situations. Primarily how the agreement follows land owner. This is most difficult in subdivision type settings. Such as the LID being on a residual property within the subdivision. Not all subdivisions have a home owners association, etc. We have looked at multiple cities versions and they do not cover all of this either. The general agreement document is fairly easy to create, but the long term legal enforcement procedures are where they become difficult / inadequate.

On 4-12-18, six members of the engineering department attended a webinar from Forest University titled "Building Stormwater Systems with Maintenance in Mind".

This was an informative webinar but also did not have all of the answers. On 4-12-18, six members of the engineering department attended a webinar from Forest University titled "Building Stormwater Systems with Maintenance in Mind". This was an informative webinar but also did not have all of the answers.

**121. Minimize impervious cover.**

Topic addressed in Stormwater Management Guide Section 3.4.3 Reduction in Impervious Cover/Impervious Cover Management

**125. Minimize impacts to existing vegetation (especially trees).**

Topic addressed in the Stormwater Management Guidance Manual section 3.4.1 Conservation of Natural Features and Resources

**126. Minimize impacts to native undisturbed soils.**

Topic addressed in the Stormwater Management Guidance Manual section 3.4.1 Utilization of Natural Features for Stormwater Management