

NPDES

# Stormwater Management Plan

June 2015



City of Charleston, WV



**National Pollutant Discharge Elimination System (NPDES)**

**Stormwater Management Program**

**Site Registration Form**

**for**

**West Virginia**

**Municipal Separate Storm Sewer Systems (MS4s)**

**General Permit WV0116025**

The site registration application (SRA) is for local governments or other regulated entities to submit the required information necessary for their Stormwater Management Program (SWMP) for compliance under the National Pollutant Discharge Elimination System (NPDES) MS4 General Permit to discharge stormwater runoff from a small municipal separate storm sewer system (MS4).

An authorized signature as required by 47CSR10 is needed to complete the application. All information should be included on this form or if needed, additional information can be attached at the end of the SRA.

**Two (2) copies** of the site registration application form shall be mailed to the address below.

**West Virginia Department of Environmental Protection  
Division of Water and Waste Management – MS4 Program  
601 57<sup>th</sup> Street, SE  
Charleston, WV 25304**

## Section I. General Information

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### MS4 Operator

- 1.a. Name of City, County or other public entity that operates a small MS4:  
**City of Charleston**
- 1.b. Mailing Address:  
**P. O. Box 2749, Charleston, WV 25330**

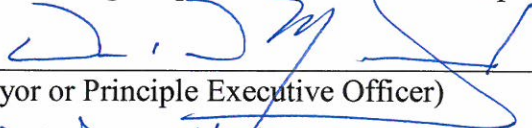
Local staff contact, person responsible for overall program implementation and coordination.  
(This is the person DEP will contact as the need arises for more information and/or details about your stormwater management program or general questions concerning stormwater in your community.)

- 1.c. Name: **Stephen Birurakis**  
1.d. Title: **Stormwater Manager**  
1.e. Phone: **304-348-8106**  
1.f. E-mail address: **stephen.birurakis@cityofcharleston.org**

### Certification

By completing and submitting this application, I have reviewed and understand and agree to the terms and conditions of #WV0116025 small MS4 General Permit issued on July 11, 2014. I understand that provisions of the MS4 general permit are enforceable by law. Violations of any term and condition of the general permit and/or other applicable law or regulations can lead to enforcement action.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

- 2.a. Authorized signature   
(Mayor or Principle Executive Officer)
- 2.b. Print name David D. Molgaard
- 2.c. Title City Manager
- 2.d. Date July 21, 2015

### Co-permittees (Complete this section if co-permitting with another MS4 entity)

- 3.a. Name of MS4 Operator N/A

## Section II. Storm Sewer System

### Description of storm sewer system

- 4.a. Area (in acres) that drain into the MS4 from outside the corporate or jurisdictional boundaries:  
 Approximately 1,451,578 acres of the 3 watersheds that are up stream of the city limits.
- 4.b. Area (in acres) within current corporate or jurisdictional boundaries:  
 20,945 acres based on current city limits annexation mapping.
- 4.c. For all MS4s, population (using the most recent U.S. Census data) for area served:  
 2013 Census lists 50,821  
 (Universities: give current enrollment plus staff and faculty. Transportation agencies: give population of your MS4 in urbanized areas. Prisons; give current inmate plus staff population.)  
 N/A
- 4.d. Latitude and Longitude of representative outfall:  
 Longitude- Degrees: Minutes: Seconds: -8° 39' 50.44655"  
 Latitude- Degrees: Minutes: Seconds: 38° 21' 52.49873"
- 4.e. Describe the physical location of your representative outfall. If a street address is not possible use cross street descriptions.  
 Bream Street and Kanawha Blvd West
- 4.f. Describe your monitoring plan to include the frequency and parameters.  
 The representative outfall sampled for Total Nitrogen, Nitrate Nitrogen, Nitrite Nitrogen and Total Phosphorous will be:
- Collection of grab sample will be from a storm event that is greater than 0.1 inch in magnitude and that occurs at least 72 hours from previous measurable storm event (greater than 0.1 in rainfall).
  - Collection will take place on a 6 month cycle, at least 3 months apart.
  - The grab sample shall be taken during the first thirty minutes of the discharge.
  - If the sample cannot be collected within the first thirty minutes then a note will be attached to report explaining why the grab sample during the first 30 minutes was impractical.

### Storm Sewer Infrastructure

Provide the most accurate number possible.

5.a. Storm sewers, in feet	Estimated at approximately 264,000 feet (50 miles) based on road lengths and combined systems percentage.
5.b. Open ditches, in feet	387,372 feet based on current mapping
5.c. Outfalls	1,194 based on current mapping
5.d. Catch basins	8,030 based on current mapping
5.e. Detention* facilities	13 based on current mapping
5.f. Retention** facilities	7 based on current mapping
5.g. Treatment facilities	0
5.h. Regional stormwater facilities	0

6.a. Does your MS4 receive stormwater discharges from WVDOT storm sewer system, roads or right-of-ways?

Yes

6.b. Does your MS4 discharge into WVDOT storm sewer systems or right-of-ways?

Yes

7. Is your MS4 interconnected with another MS4? (Does stormwater flow into or out of your storm sewer system to or from another MS4?) If yes, describe.

Yes

South Charleston is adjacent to Charleston in that they share Davis Creek Watershed. Portion of Dunbar at the connection with North Charleston.

8. Does your municipality contain combined sewer systems?

Yes

9.a. What percentage is drained by Combined Sewer System?

Estimated 80%

9.b. What percentage is drained by separate storm sewer system?

Estimated 20%

### **Industrial Facilities owned by the MS4 entity**

10.a. Does your MS4 own and/or operate an industrial facility that discharges stormwater into the MS4?

Yes

10.b. If yes, how many?

1 (Public Works area where the salt truck salt dispersal beds are stored in the off season. This is located across the street from the Public Works maintenance garage.)

### **Map Requirements**

Please provide a legible map that identifies the following information:

12.a. City, County or jurisdiction boundaries:

12.b. State or Federal operated vocational/college/university campuses and military institutions

12.c. Urban area as defined by the 2000 Census, use 2010 Census data if available

12.d. Municipal, County, or State wastewater treatment plants and their associated outfalls

12.e. Landfills

12.f. Municipal, County or State operated vehicle or fleet maintenance garages

12.g. Any other Municipal, County or State operated industrial activities, these could include; salt storage areas, parks and recreational areas, chemical storage areas, etc.

12.h. Arterial, Municipal, or State roads

12.i. Stormwater discharge points and receiving streams

12.j. Streams and waterways within the MS4

12.k. Delineation of watershed area that drains into your MS4

12.l. Submit paper maps folded to 8.5" x 11".

12.m. Multiple maps must be of the same scale, 1:1000 or 1:2000

## Receiving Streams and Impaired Waterbodies/TMDLs

List all named receiving waters within your MS4 jurisdiction. Indicate those identified as impaired pursuant to Clean Water Act Section 303(d). For a listing of West Virginia's impaired water bodies and the source of impairment please use WVDEP's most recent 303d list found at this website:

[http://www.dep.wv.gov/WWE/watershed/IR/Pages/303d\\_305b.aspx](http://www.dep.wv.gov/WWE/watershed/IR/Pages/303d_305b.aspx)

### 13. Locations & Pollutants of Concern

<b>Name of receiving stream and WV_NHD_Code</b>	<b>WV Stream Code</b>	<b>2014 Stream Category</b>	<b>Impaired? Yes or No</b>	<b>Impairment Criteria From 303d list</b>	<b>Impairment Criteria with TMDLs Developed</b>
Woodward Branch WV-KL-76-A	WVK-41-A	4a	Yes		Fecal Coliform
UNT/Woodward Branch RM 0.86 WV-KL-76-A-2	WVK-41-A-2	4a	Yes		Fecal/Coliform
Pfiever Branch WV-KL-76-A-1	WVK-41-A-1	4a	Yes		Fecal Coliform
Two Mile Creek WV-KL-76	WVK-41	4a	Yes		Aluminum Iron CNA-Biological Fecal Coliform
Chandler Branch WV-KL-76-B	WVK-41-B	4a	Yes		Fecal Coliform
Sugar Creek WV-KL-76-C	WVK-41-C	4a	Yes		Fecal Coliform
Elk River WV-KE	WVKE	5	Yes	CNA-Biological	Fecal Coliform Iron
Magazine Branch WV-KE-1	WVKE-1	4a	Yes		Fecal Coliform Iron
Elk Twomile Creek WV-KE-3	WVKE-2	4a	Yes		Fecal Coliform Iron
Baker Fork WV-KE-3-B	WVKE-2-A	4a	Yes		Iron
Davis Creek WV-KL-74	WVK-39	4a	Yes		CNA-Biological Fecal Coliform Iron
Trace Fork WV-KL-74-C	WVK-39-B	4a	Yes		CNA-Biological Fecal Coliform Iron
Sugarcamp Creek WV-KL-74-D	WVK-39-C	4a	Yes		Iron
Middle Fork WV-KL-74-F	WVK-39-E	5	Yes	CNA-Biological	Fecal Coliform Iron
Coal Hollow WV-KL-74-L	WVK-39-J	4a	Yes		Fecal Coliform Iron CNA-Biological
Rays Branch WV-KL-74-G	WVK-39-F	4a	Yes		Fecal Coliform Iron CNA-Biological

Joplin Branch WV-KL-77	WVK-42	5	Yes	CNA-Biological	Fecal Coliform
Cane Fork WV-KL-74-N	WVK-39-L	4a	Yes		Fecal Coliform Iron CNA-Biological
Veneble Branch WV-KU-3	WVK-46	5	Yes	CNA-Biological	Fecal Coliform
Chapel Branch WV-KU-3-A	WVK-46-A	5	Yes	CNA-Biological	Fecal Coliform
Lower Donnally Branch WV-KU-5	WVK-48	4a	Yes		CNA-Biological Fecal Coliform Iron
Lower Kanawha WV-KL	WVK-1o	5	Yes	Fecal Coliform	

Please add additional pages if needed to list your Receiving Waterbodies and any impairments.

**\*\*IMPORTANT\*\***

MS4s that discharge into a receiving water which has been listed on the West Virginia Section 303(d) list of impaired waters, and with discharges that contain the pollutant(s) for which the water body is impaired, **must document in the SWMP how the BMPs will control the discharge of the pollutant(s) of concern.** They must demonstrate that there will be no increase of the pollutants of concern. As you work your way through, describing the various practices, consider how that BMP will address or control the pollutant of concern.

If your MS4 discharges into a water body with an approved TMDL, and that TMDL contains requirements for control of pollutants from the MS4 stormwater discharges, then your SWMP must include BMPs **specifically targeted to achieve the wasteload allocations prescribed by the TMDL.** A monitoring component to assess the effectiveness of the BMPs in achieving the wasteload allocations must also be included in the SWMP. Monitoring shall be specific for the pollutants of concern and be of sufficient frequency to determine if the stormwater BMPs are adequate to meet wasteload allocations. Monitoring can entail a number of activities including but not limited to: outfall monitoring, in-stream monitoring, and/or modeling.

14.a. List and quantify the BMPs you plan to implement to address each impairment. For each BMP describe how it is expected to control the pollutant of concern.

Primary pollutants of concern being Iron and Fecal Coliform.

- The city is continuing a public outreach program called River Proud to educate on the reduction of fecal coliform, iron and CNA biological utilizing Social Media.

Iron:

- Work with Watershed Organization to assist and participate in a stream cleanup campaign at least once during this permit cycle. Removing of debris removes source pollutants.
- Labeling or stenciling inlets that discharge into the watershed. Labeling provides an easy method for the public to report an IDDE to stormwater department.
- Mapping of existing storm sewer systems to expedite the tracking of illicit discharges to their source. Mapping will provide historic data of IDDE locations.
- Training municipal field personnel on good housekeeping practices, identifying and reporting potential pollutions of concerns.

- Enforce Erosion & Sediment Control Ordinance with plan review and construction site inspections.
- Identify green infrastructure opportunities in new and redevelopment projects to reduce stormwater runoff.

Fecal Coliform:

- Work with Watershed Organization to assist and participate in a stream cleanup campaign at least once during this permit cycle. Removing of debris removes source pollutants.
- Labeling or stenciling inlets that discharge into the watershed. Labeling provide an easy method for the public to report an IDDE to stormwater department.
- Mapping of existing storm sewer systems to expedite the tracking of illicit discharges to their source. Mapping will provide historic data of IDDE locations.
- Training municipal field personnel on good housekeeping practices, identifying and reporting potential pollutions of concerns.
- Educate citizens via social media on Pet Waste and Reporting Sewer Leaks.

14.b. Describe your monitoring plan for impaired waterbodies and those with TMDLs. Give locations and frequencies. Pick type – outfall sampling, model, instream.

Plan to locate watersheds that lie completely inside the city boundaries. These receiving stream BMPs will be addressed by location as follows:

Magazine Branch - KE-1 (this watershed is fully within city limits and discharges into Elk River.)

- Conduct a dry weather screening by the end of the first year from the SWMP approval date. Report any identified illicit sewer discharges to CSB for correction, follow-up and document. Identify dry weather flows for illicit discharges and track to source for correction.

Sample in-stream for Fecal Coliform and Iron at 38.372887°,-81.627900°, by the end of the first year from the SWMP approval date.

Sugar Creek - KL-76-C: (this watershed is fully within city limits and discharges into Kanawha Two-mile into Kanawha Lower)

- Conduct a dry weather screening by the end of the first year from the SWMP approval date. Report any identified illicit sewer discharges to CSB for correction, follow-up and document. Identify dry weather flows for illicit discharges and track to source for correction.

Sample in-stream for Fecal Coliform and Iron at 38.385299°,-81.654834°, by the end of the first year from the SWMP approval date.

Venable Branch-KU-3: (this watershed is substantially if not entirely within city limits and discharges into Kanawha Upper)

- Conduct a dry weather screening by the end of the second year from the SWMP approval date. Report any identified illicit sewer discharges to CSB for correction, follow-up and document. Identify dry weather flows for illicit discharges and track to source for correction.

Sample in-stream for Fecal Coliform and Iron at 38.326314°,-81.601811°, by the end of the first year from the SWMP approval date.

Kanawha Lower: KL;

- Conduct visual dry weather screening of the outfalls feeding the Kanawha Lower within or adjoining the city limits by the end of the permit cycle from the SWMP approval date. Report any identified



illicit sewer discharges to CSB for correction, follow-up and document. Identify dry weather flows for illicit discharges and track to source for correction.

Kanawha Two-mile: KL-76;

- Conduct visual dry weather screening of the outfalls feeding the Elk Two-mile within city limits by the end of the permit cycle from the SWMP approval date. Report any identified illicit sewer discharges to CSB for correction, follow-up and document. Identify dry weather flows for illicit discharges and track to source for correction.

Kanawha Elk: KE;

- Conduct visual dry weather screening of the outfalls feeding the Elk River within city limits by the end of the permit cycle from the SWMP approval date. Report any identified illicit sewer discharges to CSB for correction, follow-up and document. Identify dry weather flows for illicit discharges and track to source for correction.

- 14.c. If visual documentation of removal of pollutant sources; is a component of your plan please describe fully. For example, do you plan to use before and after photos?

The city plans to incorporate visual documentation to maintain a record of the removal process. The stormwater department will take before and after pictures of the process, when possible. When a camera truck is used to investigate an IDDE, it is recorded. A geo-reference of discharges, improvements and visual documents will be recorded on GIS mapping.

#### Evaluating the effectiveness of your SWMP for impaired waterbodies/TMDLs

- 14.d. Explain how your approach is expected to achieve wasteload allocations for waterbodies with established TMDLs. Discuss flow monitoring, outfall monitoring, in-stream monitoring, modeling, and/or other methodology to evaluate effectiveness.

The city plans to achieve wasteload allocation goals by:

- Visual inspection of TMDL streams.
- Removal or repair of identified illicit discharges found by visual inspection and/or monitoring.
- Incorporating public education and outreach focused on good stewardship of watersheds.
- Analyzing information to examine the effectiveness of the BMPs.
- Outfall or in stream monitoring will be determined on a stream by stream basis.

- 14.e. Explain how you will determine if your SWMP and mix of BMP's need to be modified to meet wasteload allocations?

- If the city receives an excessive number of IDDE complaints in a specific watershed then we will modify the labeling program to focus on said specific watershed(s).
- The mapping process will be modified if deemed not as effective as projected for tracking and eliminating illicit discharges (point source pollutants). The effectiveness will be measured by means of efficiency and response as well as utilization by other departments.
- River Proud utilizes website and social media hits, brochures taken, citizens using stormwater management techniques, conversations, and surveys which can reflect the public's engagement in education of stormwater pollutants. Low engagement will determine need for modification.
- Watershed participation and clean up interest will determine need for modification.
- Feedback from City Compliance Officers on construction site inspections will determine compliance. Low compliance with Erosion and Sediment Control Ordinances will result in need for modification.

- Lack of implementation on sites that were a potential location for green infrastructure will result in need for project design approach modification.
- Amount of IDDE reporting, SWPPP compliance and municipal training attendance will determine if program needs modified.

## Section III. Minimum Control Measures

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### Instructions:

For each Minimum Control Measure (MCM), state your control objective and describe BMPs selected for implementation in your jurisdiction. For each BMP, include a brief description, measurable goals, and milestones as appropriate towards achieving each goal. Indicate if the BMP is part of an existing program and if another entity will share responsibility for implementing that BMP.

In cases where another entity will perform one or more BMPs or components thereof on behalf of the permittee, specifically describe the activities each entity will conduct and include reference to legal agreement where appropriate.

Describe as many BMPs as necessary to fulfill the requirements of the small MS4 General Permit. If you need more space attach additional pages.

### Measurable Goals

Measurable goals are numeric or narrative standards used to gauge program effectiveness. These are design objectives or goals that quantify the progress of program implementation. For each BMP a measurable goal must be established. Describe what you expect to accomplish or achieve by certain dates or milestones, when you implement that particular BMP. Your expected outcome or accomplishment should be expressed as a measurable goal. You should have a variety of short and long term goals.

Milestones are a quantifiable target to measure progress toward achieving the activity or implementation of that BMP.

Additional guidance on selecting BMPs and developing measurable goals can be found at the following EPA website: [www.epa.gov/npdes/stormwater/measurablegoals/index.htm](http://www.epa.gov/npdes/stormwater/measurablegoals/index.htm)

USEPA's measureable goal guidance can be found here:  
<http://cfpub.epa.gov/npdes/stormwater/measurablegoals/index.cfm>

### Your stormwater management program should specify:

- *What* needs to happen (Specific stormwater control measure)
- *Who* needs to do it (Which department of the MS4 will be implementing this stormwater control measure?)
- *How much* they need to do (milestones and measurable goals)
- *When* they need to get it done
- *Where* it is to be done

There must be specific performance measures. Without a goal, you will have a difficult time measuring progress.

## **Public Education and Outreach on Stormwater Impacts – MCM #1**

### **Responsible Person**

Identify the responsible person(s) for implementing this MCM. (There may be more than one person or different departments that provide outreach to various targeted groups. If so, discuss.)

- 15.a. Name: Stephen Birurakis, Lee Ann Grogg, Greg Robinson  
15.b. Title: Stormwater Manager, MS4 Coordinator, Stormwater Permit Compliance Specialist  
15.c. Department: Engineering/Stormwater  
15.d. Address: 114 Dickinson Street, Charleston, WV 25301  
15.e. Phone number: 304-348-8106  
15.f. Email address: [stephen.birurakis@cityofcharleston.org](mailto:stephen.birurakis@cityofcharleston.org), [leeann.grogg@cityofcharleston.org](mailto:leeann.grogg@cityofcharleston.org), [greg.robinson@cityofcharleston.org](mailto:greg.robinson@cityofcharleston.org)  
15.g. State your overall objective for this minimum control measure.  
Create awareness of the general public, businesses, homeowners, landscapers and building professionals on stormwater pollution and prevention.  
15.h. State and describe your BMPs. Indicate if BMP are part of your existing program. .  
Brochure and professional literature distribution  
Public Forums and events  
Website and social media  
Classroom education of school aged children  
Yes, these BMPs are a part of our existing MCM 1 program.  
15.i. Is another entity sharing responsibility for the BMP? If so, who?  
No

### **MCM Components**

- 15.j. Describe your education and outreach strategy targeting the general public.
- Create brochures addressing specific stormwater pollution prevention practices such as the cleaning of pet waste, vehicle maintenance, landscaping techniques to manage stormwater, and rainwater reuse.
  - Create a social media survey on stormwater pollution prevention.
  - Facebook posts to educate the public on the impacts of stormwater runoff into rivers and streams, including the impacts impervious surfaces have on stormwater runoff, temperature and pollutants.
  - Classroom instruction of school age children on general impacts of stormwater flows and impacts from impervious surfaces, and common pollutants such as pet waste, oil, chemicals and trash.
  - Spill reporting hotline advertised on social media.
- 15.k. Describe your education and outreach strategy targeting businesses including home-based and mobile businesses.

- Brochures/literature discussing restaurant grease and the proper disposal of, including mobile food vendors.
  - Public displays/kiosks of best management practices for businesses addressing vehicular operation, care and repair including petroleum, cleaning supplies, car wash soaps and other chemicals.
- 15.l. Describe your education and outreach strategy targeting homeowners, landscapers, and property managers.
- Brochures/literature and posts on Social Media discussing proper yard care techniques.
  - Public displays of best management practices for the use and proper storage of pesticides and fertilizers.
  - River Proud Program to recognize and encourage homeowners and businesses to use runoff reduction techniques such as site design, pervious surfaces and the incorporation of plants and trees.
- 15.m. Describe your education and outreach strategy targeting engineers, contractors, developers, review staff, and land use planners.
- To publish the Charleston Stormwater Management Guidance Manual on our website for sediment and erosion control education, runoff reduction techniques, site-design, pervious pavement and alternative green infrastructure designs.
  - Brochures and professional literature that address stormwater flow and its impact on receiving waters.
  - Public displays/kiosks of best management practices for runoff reduction techniques.

### **Schedule**

- 15.n. Provide a schedule for implementing each component, including dates for interim and full implementation.

Annual implementation dates will be beginning with the approval of our Site Registration Application.

- Brochures and Literature:  
Currently implemented with new and/or updated literature added annually.
- Public Forums and Events:  
Currently implemented and will continue annually with one new event added.
- Website and Social Media:  
Currently implemented and will continue social media updates monthly. One survey will be added to social media annually.
- Classroom instruction to school age children:  
Currently implemented and will continue annually.

### **Measurable Goals**

- 15.o. List and fully describe your Measurable goal(s) for this MCM.
- To have participation in public displays/kiosks and/or events measured by small questionnaires.
  - To grow Facebook audience on Social Media by page likes and post shares.
  - To gather feedback through quizzes during classroom instruction time with school aged children
  - To have a number of brochures distributed at kiosk locations.

### **Tracking**

- 15.p. Describe your plan to track the activities associated with this MCM.

- Brochures will be produced and a hard copy filed when each is created. Count of distributed brochures will be filed as well.
- Social Media survey results will be printed and filed.
- Periodic Facebook posts will be printed and a hard copy filed. All Facebook posts remain on the stormwater page so they can be tracked on the page itself.
- Classroom instruction will be documented with photos and filed.
- Public displays will be tracked with photos of the events/kiosks.
- River Proud will be documented with photos and copies of the River Proud Applications.

### **Evaluation**

- 15.q. Explain how you plan to gauge the effectiveness of your public education and outreach efforts.
- Amount of participation in public events measured by small questionnaires and accuracy of answers in questionnaires.
  - Growth of Facebook audience through likes, shares, reach and responses.
  - Accuracy of quizzes from classroom instruction.

## Public Involvement and Participation – MCM #2

### Responsible Person:

Identify the responsible person(s) for implementing this MCM. There may be more than one person or different departments responsible for various projects. If so, discuss.

- 16.a. Name: Stephen Birurakis, Lee Ann Grogg, Greg Robinson  
16.b. Title: Stormwater Manager, MS4 Coordinator, Stormwater Permit Compliance Specialist  
16.c. Department: Engineering/Stormwater  
16.d. Address: 114 Dickinson St., Charleston, WV 25301  
16.e. Phone number: 304-348-8106  
16.f. Email address: [stephen.birurakis@cityofcharleston.org](mailto:stephen.birurakis@cityofcharleston.org), [leeann.grogg@cityofcharleston.org](mailto:leeann.grogg@cityofcharleston.org), [greg.robinson@cityofcharleston.org](mailto:greg.robinson@cityofcharleston.org)
- 16.g. State your overall objective for this minimum control measure.  
Encourage active involvement in stormwater management & pollution prevention.
- 16.h. State and describe your BMPs. Indicate if the BMP is part of the existing program.
- The creation of a participation and recognition program called River Proud.
  - Public workshops for stormwater management practices.
  - Use round table discussions events to gather suggestions and opinions that can be used as input for the City's stormwater management plan.
  - Market Charleston Stormwater Program events on Social Media.
- 16.i. Is another entity sharing responsibility for the BMP? If so, who?  
No

### MCM Components

- 16.j. Describe at least two methods you plan to use to engage the public in your SWMP.
1. River Proud Program
  2. Rain Barrel Workshops
  3. Round Table Discussions
- 16.k. Describe how you will accommodate public participation in the decision making process for your SWMP.
- Our stormwater website will communicate the intentions of our SWMP and encourage feedback from the public.
  - Public round table discussion/meetings.
- 16.l. Describe your communication process for notifying groups of opportunities to become involved in stormwater activities in your watershed(s).
- We will communicate opportunities through Social Media of programs, activities and opportunities for public participation in events.
  - We will publish promotional material on the Charleston Stormwater Program Facebook page and through a press release.
- 16.m. List the URL of your *Stormwater* website.  
<http://charlestonstormwater.org/>  
<http://facebook.com/Charleston Stormwater>

## **Schedule**

16.n. Provide a timeline of implementation of each component of your program for this MCM, including dates for interim and full implementation.

Annual implementation dates will be beginning with the approval of our Site Registration Application.

- The River Proud Program will be rolled out in several stages.
  - The Homeowner Award stage will be implemented by end of first year after SWMP approval date.
  - The Business Award stage will be implemented by end of second year after SWMP approval date.
  - Round table sessions will take place by the end of the third year of the SWMP approval date.
  - The remaining/ final years of permit coverage, if any, will be a review, revision, and implementation of effective components of the River Proud Program.
- The workshop events for stormwater management practices will take place annually until the end of the permit cycle.
- The use of social media starts in the first year after SWMP approval date and continues throughout the permit cycle.

## **Measurable Goals**

16.o. List and fully describe your measurable goal(s) for this MCM.

- To have a homeowner and a business applicant for our River Proud program.
- Feedback and participation in round table discussion events.
- Participation in Workshops.

## **Tracking**

16.p. Describe your plan for tracking activities associated with this MCM.

- Applications and photos from River Proud participants.
- Notes and photos from Roundtable discussions.
- Sign up information and photos from workshops.

## **Evaluation**

16.q. Explain how you plan to gauge the effectiveness of your Public Involvement and Participation program.

- Participation in River Proud Program by a homeowner and business applicants.
- Number of participants at round table discussions.
- Are there participants in the workshops?

## **Illicit Discharge Detection and Elimination – MCM #3**

### **Responsible Person**

Identify the responsible person(s) for implementing this MCM. If there is more than one person or department responsible for implementation of this MCM, please discuss.

- 17.a. Name: Stephen Birurakis, Greg Robinson, Lee Ann Grogg, Tom Gillespie
- 17.b. Title: Stormwater Manager, Stormwater Permit Compliance Specialist, MS4 Coordinator, Inspector
- 17.c. Department: Engineering/Stormwater
- 17.d. Address: 114 Dickinson Street, Charleston, WV 25301
- 17.e. Phone number: 304-348-8106
- 17.f. Email address: [stephen.birurakis@cityofcharleston.org](mailto:stephen.birurakis@cityofcharleston.org), [greg.robinson@cityofcharleston.org](mailto:greg.robinson@cityofcharleston.org), [leeann.grogg@cityofcharleston.org](mailto:leeann.grogg@cityofcharleston.org), [tom.gillespie@cityofcharleston.org](mailto:tom.gillespie@cityofcharleston.org)
  
- 17.g. Is another entity sharing responsibility for the MCM? If so, who? Yes, other departments within the City. The Departments and Department Heads are as follows:
  - Building Commission: Tony Harmon 304-348-6833
  - Building Maintenance: Clarence Terry 304-389-2748
  - Civic Center: John Robertson 304-345-1500
  - Engineering: Chris Knox 304-348-8106
  - Construction: George Farley 304-561-5030
  - Fire Department: Chief Scott Shaffer 304-348-8137
  - Homeland Security – Emergency Management: Grant Gunnoe 304-348-8130
  - Human Resources: Charlie Thompson 304-348-8015
  - Parking System: Mary Jarrell 304-348-1090
  - Parks and Recreation: John Charnock 304-348-6860
  - Public Works: Gary Taylor 304-348-6850
  - Equipment Maintenance: Linda Walker 304-348-6456
  - Public Grounds: Mike Davis (interim) 304-348-6458
  - Refuse: John Shannon 304-348-6831
  - Sign Shop: Michael Shrader 304-348-8096
  - Street Department: Bill Tate 304-348-6850
  - Spring Hill Cemetery: Perry Cox 304-348-8010

### **Control Objective & BMPs**

- 17.h. State your overall objective for this MCM.
  - Continue to implement an IDDE program that assess, and enforce the prohibition of improper disposal, detect and remove illicit connections, and eliminate illicit discharges to the MS4.
  
- 17.i. State and describe your BMPs. Indicate if any BMPs are part of your existing program.
  - The following items are part of our existing program and will be annually reviewed for effectiveness and updated if necessary:
    - IDDE Ordinance – to regulate the contribution of pollutants to the MS4 by non-stormwater discharges; to prohibit illicit connections and discharges to the MS4; to establish legal authority to



carry out all inspection, enforcement, surveillance and monitoring procedures necessary to verify compliance; and to comply with applicable federal and state statutory and regulatory requirements and schedules regarding the City's Stormwater management requirements.

- Mapping (continuous updates) – of the MS4, violation locations, riverbank issues/repairs, sanitary sewer issues found effecting the MS4 and repairs.
- Record keeping – Drainage complaint forms, phone call records, social media.
- Public Education on IDDE and Reporting – Phone complaint hotline and social media.

The following program will be implemented within the first year after approval of the SRA and shall be repeated annually.

- IDDE training for contractors – (Iron) sediment and erosion control training.

### **MCM Components**

17.j. Do you have a current map of your municipal storm sewer system?

Yes

Do your map components include/do you plan to include:

17.k. All known storm sewer outfalls?

Yes

17.l. Receiving waters?

Yes

17.m. Structural BMP's owned, operated or maintained by the permittee?

Yes

17.n. The location and type of all other stormwater conveyances located within the boundaries of the permittees MS4 watershed?

Yes

17.o. Updating the known connections to the municipal separate storm sewer authorized after July 22, 2009?

Yes

17.p. Geographic areas that discharge stormwater into the permittees MS4, which may not be located within the municipal boundary?

Yes

17.q. Do you have an IDDE Ordinance?

Yes

17.r. Describe your Ordinance review and update procedure, including milestones of IDDE Ordinance review.

The City Stormwater Department will review the Illicit Discharge Detection & Elimination Ordinance annually for effectiveness. Any deficiencies found during the review will be revised and forwarded to the City of Charleston legal department and presented to City Council for ratification.

Does your IDDE Ordinance prohibit the following:

17.s. Discharges from hyper chlorinated water line flushing? Yes or No. If not, how are these discharges handled when they occur?

Yes

17.t. Lawn watering and other irrigation runoff? Yes or No. If not, have you addressed lawn watering in your public education and outreach activities?

No.

Yes, these are addressed in the public education and outreach activities.

17.u. Street, parking lot, and sidewalk wash water, and external building wash down? Yes or No. If not, have you addressed these types of runoff in your public education and outreach activities?

Yes, to commercial external building wash down.

No, to street, parking lot and sidewalk wash water.

Yes, these are addressed in public education and outreach activities.

17.v. Does your IDDE Ordinance include escalating enforcement procedures and actions?

Yes

17.w. Briefly describe your enforcement strategy.

When a Stormwater Compliance Officer finds that a person has violated a prohibition or failed to meet a requirement of this article, he/she may order compliance by written notice of violation to the responsible person. Such notice may require, without limitation:

- (1) The performance of monitoring, analysis and reporting.
- (2) The elimination of illicit connections or discharges.
- (3) That discharges, practices or operations that are in violation shall cease and desist.
- (4) The abatement or remediation of stormwater pollution or contamination hazards and the restoration of any affected property.
- (5) Payment of a fine.
- (6) The implementation of source control or treatment BMPs

17.x. Describe your field assessment activities, including how many assessments you plan to conduct each year.

Stream assessment locations are to be focused within city limits. Any issues discovered outside city limits will be directed to DEP enforcement.

The following streams will have field assessments that will occur at least once during the permit cycle. Whether they need to be assessed more than once during the permit cycle may be determined by the findings from the initial assessment or by reports of localized issues. Other streams may be added as per time allows or the severity of a pollutant amount arises.

- Semiannual inspections of the “Bream Street” Priority outfall
- Dry weather visual inspections of outfalls entering Magazine Branch (KE-1), Sugar Creek (KL-76-C), Venable Branch (KU-3), Kanawha Lower, and Kanawha Two Mile (KL-76)

As noted in section 14.b Magazine Branch (KE-1), Sugar Creek (KL-76-C), and Venable Branch (KU-3) will be sampled on an annual basis until the end of the permit cycle.

17.y. Describe how you will locate “priority areas”.

Priority areas will be watersheds that have been identified on the 303d list and have TMDLs assigned. The first priority area the stormwater department will undertake is above the primary drinking water source (i.e. WVAWC) on the Elk River.

17.z. Describe your procedures for characterization of illicit discharges.

The procedure for characterizing IDDE is to identify categories using these parameters:

1. Odor
  - Sulfide
  - Sewage
  - Rancid / Sour
  - Petroleum (gas)
  - None
2. Appearance
  - Oil Sheen
  - Cloudy
  - Suds
  - Turbidity
  - None
3. Floatables
  - Sewage (toilet paper etc.)
  - Algae
  - Dead Aquatic Life
  - Vegetative Growth
  - None

17.aa. Describe your procedures for tracing the source of the discharge.

Procedures for tracing the source of IDDE once it has been identified:

- Visually inspect the IDDE.
- Collect samples if necessary.
- Follow source up pipe by pulling manholes to trace discharge.
- If source cannot be ascertained then track using camera equipment and crawler to locate source.
- Once source has been located, take steps to repair, fix, or stop the discharge.
- Investigate within 15 days from the date it was reported.

17.bb. Describe your procedures for removing the source of the discharge.

Procedures for removing the source of IDDE:

- Identify who is responsible for the IDDE and notify them of the discharge.
- Require responsible party to correct IDDE.
- If discharge needs immediate action the City may contain the discharge immediately. Responsible party may be held accountable for cleanup cost.
- Collect samples if necessary.

17.cc. Describe how you will inform public employees, businesses and the general public of hazards associated with illegal discharges and improper disposal of waste.

We will contact the City's Homeland Security Office for emergencies, Facebook for non-emergencies.

17.dd. Describe your plan to train your staff on the identification and reporting of illicit discharges. Include the number of training sessions planned for each year.

- Annual training will be given to staff who are not directly responsible for IDDE but who are likely to come into contact with illicit discharges. New employees that have the potential to come in contact with IDDE will have training within 3 months of hire date.

- Training will include a component for said staff to report such discharges to a City Compliance Officer for follow up.
- Training will include specifics pertaining but not limited to the listed TMDL items affecting our MS4.

### **Schedule**

17.ee. Describe how and when you will implement each component of program, including dates for interim and full implementation.

The following items are part of our existing program and fully implemented

- IDDE Ordinance available via City webpage
- Contractor Education available via Stormwater Guidance Manual, City web page, City Engineering / Stormwater Dept., City Building Dept., City Planning Dept.
- Mapping (continuous updates) available on GIS and Cad databases as well as hard copies.
- Record keeping various types (digital and hard copies) kept by City Engineering / Stormwater Dept., City Building Dept., City Planning Dept.
- Public Education on IDDE and Reporting on social media, and phone.

### **Measurable Goals**

17.ff. List and fully describe your Measurable goal(s) for this MCM:

- Goals for the IDDE ordinance are to prevent the need for enforced by legal action against an individual or entity, but if necessary the enforcement will be sufficient for immediate results. If loopholes are discovered that allow enforcement to be hindered in any way then updates will be made.
- Contractor's training based on seminar attendance and compliance by contractors that attended
- Mapping for tracing and logging illicit discharges accurately and efficiently.
- Record keeping to show that drainage complaints and spills are being reported.
- Measurable goals Public Education on IDDE will be for growing attendance to events and reporting of legitimate illicit discharges.

### **Tracking**

17.gg. Describe your procedures for tracking activities related to each component of this MCM.

- IDDE Ordinance tracked via cases that involve enforcement or enforcement warnings in digital and or hard copy format.
- Contractor education by seminar attendance sign in sheet, contractor non-compliance based on construction site inspection forms, or phone call logs pertaining to construction site illicit discharges.
- Mapping utilize GIS, CAD and filed hard copies.
- Recordkeeping by phone, emails, drainage complaint forms, Building Department and/or Compliance Officer Inspection forms.
- Public Education by forum attendance list, social media, public event questionnaires in digital and or hard copy.

## **Evaluation**

17.hh. Fully explain how you plan to gauge the effectiveness of your IDDE program.

- IDDE Ordinance effectiveness will be based on compliance or non-compliance and enforcement having to be utilized. If situations continue to lead to enforcement this may lead to a re-evaluation of IDDE public education strategy.
- Contractor education by contractor compliance or non-compliance.
- Recordkeeping by efficiency, accuracy, and ease of data use and recovery.
- Mapping effectiveness will be determined by its successful or non-successful usage by all pertinent city departments, or outside entities.
- Public Education by social media responses, phone calls received, emailed reports of illicit discharges, and accuracy/reliability of the reports.

## Construction Site Run-off Control – MCM #4

### Responsible Person

Identify the responsible person(s) for implementing this MCM. There may be more than one person or different departments responsible for various projects. If so, discuss.

- 18.a. Name: Stephen Birurakis, Greg Robinson, Lee Ann Grogg, Tom Gillespie  
18.b. Title: Stormwater Manager, Stormwater Permit Compliance Specialist, MS4 Coordinator, Inspector  
18.c. Department: Engineering/Stormwater  
18.d. Address: 114 Dickinson Street, Charleston, WV 25301  
18.e. Phone number: 304-348-8106  
18.f. Email address: [stephen.birurakis@cityofcharleston.org](mailto:stephen.birurakis@cityofcharleston.org), [greg.robinson@cityofcharleston.org](mailto:greg.robinson@cityofcharleston.org), [leeann.grogg@cityofcharleston.org](mailto:leeann.grogg@cityofcharleston.org), [tom.gillespie@cityofcharleston.org](mailto:tom.gillespie@cityofcharleston.org)
- 18.g. Is another entity sharing responsibility for this MCM? If so, who? Yes, other departments within the City. The Departments and Department Heads are as follows:  
Building Commission: Tony Harmon 304-348-6833  
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Human Resources: Charlie Thompson 304-348-8015  
Parks and Recreation: John Charnock 304-348-6860  
Planning: Dan Vriendt 304-348-8105  
Public Works: Gary Taylor 304-348-6850  
Public Grounds: Mike Davis (interim) 304-348-6458  
Street Department: Bill Tate 304-348-6850

### Control Objective & BMPs

- 18.h. State your overall objective for this minimum control measure.  
To improve Erosion and Sediment monitoring, control, and enforcement of construction site run-off.
- 18.i. State and describe your BMPs. Indicate which BMPs are part of your existing program.  
BMPs that are a part of existing program:
- Review building/site plans with land disturbance greater than 5,000 sq. ft. or increase the impervious area by more than 1,000 sq. ft. for adequate Erosion and Sediment (E&S) Controls.
  - Inspect jobsites for effective Erosion and Sediment Control measures.
  - Utilize the enforcement section of the Erosion and Sediment Control Ordinance toward non-compliance jobsites to ensure compliance. Utilize Stop Work Orders when noncompliance is not corrected in a timely manner. Timely manner will be based on severity of the noncompliance.
- BMPs that are not yet part of existing program:
- During the permitting process, identify construction sites that stormwater runoff discharges into a TMDL stream.
  - Obtain stormwater related certification for at least two stormwater personnel.
  - Implement E&S training for municipal inspectors.
  - Design and implement training program for contractors, engineers, landscapers, and architects.

## MCM Components

18.j. Do you have an Ordinance to control construction site run-off?

Yes

18.k. Does your program regulate disturbance of one acre or more and also less than one acre if part of a larger common plan? Does your Ordinance regulate disturbances of less than one acre? If so, what is the size threshold?

Yes

Yes

5,000 square feet of disturbance and/or 1,000 square feet of impervious surface.

18.l. Does your Ordinance contain the nine required components?

Yes

18.m. Describe the plan review process for your construction site run off program.

- Plan review for public, private, and commercial projects will be conducted by the following municipal departments: Zoning, Planning, Engineering/Stormwater, Building, Charleston Sanitary Board and Streets/Traffic.
- Pertaining to stormwater runoff, adequate plans for silt fence locations, and other sediment controls are primarily reviewed by Engineering/Stormwater, Planning and Building Departments.

(As described in Section 2.0, Chapter 2 of the Charleston Stormwater Guidance Manual)

- Permits will be reviewed in the order that they are received. The official date of receipt for technical review is the date the application has been administratively completed.
- Technical review will consist of reviewing site information, drains to TMDL stream, the proposed erosion and sediment control plan and permanent stormwater management plan, all supporting design calculations to the proposed site features, the Storm Water Pollution Prevention Plan (SWPPP) and other supporting documentation as applicable. Technical comments will be prepared in writing and sent to the applicant via e-mail or regular mail (per applicant's request).
- The initial technical review will be completed within the following timeline:
  - Residential and Commercial- Within ten (10) business days of being deemed administratively complete.
  - Subdivision review times vary depending on the size.
- Applicants will be given 30 days to respond in writing to initial technical comments. If the applicant does not respond within that time, the application will be deemed "not approved" and the application and supporting information will be returned to the applicant. This timeline may be extended based upon mutual agreement of the applicant and City.
- The City will review the comment response within ten (10) business days of receipt and notify the applicant of any outstanding issues. The applicant will have up to 30 days to respond to any follow up comments. Once the application is deemed technically complete, the land disturbance activity approval will be forwarded to the Building Department.
- For projects over one (1) acre that also require a NPDES construction stormwater permit, applicants are urged to coordinate and incorporate comment responses from both the WVDEP and the City into a common submittal to avoid the confusion of having multiple versions of plans and permitting documents.

- Projects that discharge construction site runoff into a designated 303d or TMDL stream for iron must have more stringent E&S controls in place to ensure pollutants stay on site.

18.n. Describe the inspection process of your construction site run off program.

(As described in Section 2.2.2, Chapter 2 of the Charleston Stormwater Guidance Manual.)

- Once a permit is issued, the City may inspect any phase of the construction process to determine if the erosion and sediment control plan submitted for the permit is being followed. This will include review of erosion and sediment control practices, uncontrolled runoff, construction methods of permanent stormwater management features and general compliance with the stormwater pollution prevention plan.
- Inspections will be conducted on both a scheduled and complaint response basis.
- All specified permanent controls must be installed and maintained after completion of the project. Temporary erosion and sediment control must be kept operational and maintained until the construction phase of the site is released by the City and by the WVDEP if a construction NPDES permit was required. The City Stormwater Compliance Officer may require the installation of additional temporary or permanent BMPs if the installed BMPs are not functioning at a satisfactory level to protect the environment.

18.o. Describe the enforcement process of your construction site run off program.

The enforcement process is defined in section 102-319 Notice of Noncompliance and Order to Correct the City's Erosion and Sediment Control Ordinance (E&S). The process is as follows:

- When a Compliance Officer determines that a construction site is out of compliance then he may order compliance by written Notice of Noncompliance and Order to Correct.
- If Notice of Noncompliance and Order to Correct is not followed then the Building Department may issues a stop work order until the site is brought back into compliance.

18.p. Discuss how your program will address the regulation of both private and public sector construction site run-off.

- Private sector construction is regulated following the parameters set forth in the Erosion and Sediment Ordinance, including permitting, inspection, training, enforcement, etc.
- Public sector construction (the city) is regulated by Right of Way Permitting, the City Building Department, and the City Engineering Department.

## **Schedule**

18.q. The Ordinance shall be reviewed on an annual basis. Describe your Ordinance review and update procedures.

The Stormwater, Engineering, and Building Departments will review the effectiveness of the E&S Ordinance by reviewing the inspection records, order of corrections, and other issues to determine if the current ordinance is working or needs modification. Review will be completed on an annual basis after the first year of permit approval.



- 18.r. If your Ordinance does not contain the standards required by the permit, provide a schedule for implementation and measurable goals for getting these components into your Ordinance. Include a mid-point and full implementation date.

N/A

### **Measurable Goals**

- 18.s. List and fully describe your measurable goal(s) for this minimum control measure.
- Ensure that erosion and sediment controls are designed into new and reconstruction projects that meet the 5,000/1,000 sq. ft. criteria.
  - Maintain and keep an effective inspection schedule of all qualifying worksites.
  - Implement the enforcement strategy laid out in the E&S Ordinance.
  - Training of municipal inspectors, contractors, engineers, landscapers, and architects.

### **Tracking**

- 18.t. Describe your plan for tracking activities associated with this minimum control measure.
- The Building Department maintains copies of building permits on file including the erosion and sediment components of the application.
  - Compliance Officers inspect sites using site inspection forms. Copies of these forms will be maintained at the Charleston Building and Stormwater Departments.
  - Compliance Officers maintain records of any enforcement actions and give a copy to the Stormwater Department.

### **Evaluation**

- 18.u. Explain how you plan to gauge the effectiveness of your Construction Site Run-off Control program. Effectiveness of the program is gauged by:
- The number of completed Erosion and Sediment sections in the building permits.
  - Tracking the number of site inspections made by Compliance Officers.
  - Review of site inspections for effective identification and correction of related Erosion and Sediment issues.
  - Interviewing Compliance Officers to gauge understanding of Stormwater Program.
  - Review individual components for opportunities for improvement.
  - Track the number of trainings conducted and the amount of attendance.

## Controlling Run-off from New Development and Redevelopment – MCM #5

### Responsible Person(s):

Identify the responsible person(s) for implementing this MCM. There may be more than one person or department responsible for various portions of this control measure, If so, discuss.

- 19.a. Name: Stephen Birurakis, Greg Robinson, Lee Ann Grogg, Tom Gillespie
- 19.b. Title: Stormwater Manager, Stormwater Permit Compliance Specialist, MS4 Coordinator, Inspector
- 19.c. Department: Engineering/Stormwater
- 19.d. Address: 114 Dickinson Street, Charleston, WV 25301
- 19.e. Phone number: 304-348-8106
- 19.f. Email address: [stephen.birurakis@cityofcharleston.org](mailto:stephen.birurakis@cityofcharleston.org), [greg.robinson@cityofcharleston.org](mailto:greg.robinson@cityofcharleston.org), [leeann.grogg@cityofcharleston.org](mailto:leeann.grogg@cityofcharleston.org), [tom.gillespie@cityofcharleston.org](mailto:tom.gillespie@cityofcharleston.org)
- 19.g. Is another entity sharing responsibility for this MCM? If so, who? Yes, other departments within the City. The Departments and Department Heads are as follows:
  - Building Commission: Tony Harmon 304-348-6833
  - Engineering: Chris Knox 304-348-8106
  - Construction: George Farley 304-561-5030
  - Parks and Recreation: John Charnock 304-348-6860
  - Planning: Dan Vriendt 304-348-8105
  - Public Works: Gary Taylor 304-348-6850
  - Public Grounds: Mike Davis (interim) 304-348-6458
  - Street Department: Bill Tate 304-348-6850
  - Spring Hill Cemetery: Perry Cox 304-348-8010

### Control Objectives & BMPs

- 19.h. State your overall objective for this MCM.
  - To improve water quality by instituting watershed protection elements that manage new development and re-development runoff.

### MCM Components

#### *Watershed Protection Elements*

- 19.i. Have you incorporated the six watershed protection elements into your subdivision ordinance or equivalent document? Name the document(s) where each element is found & give the review date for the document. \* If there is no review, describe how you will incorporate the element into your document(s).
  - Yes, the City of Charleston's Subdivision Ordinance references the Stormwater Management Guidance Manual as the living document for watershed protection elements.

Watershed Protection Elements	Name of document that contains the element	*Review Date
1. Minimizing impervious surfaces	Stormwater Management Guidance Manual	Annually
2. Preserving ecologically sensitive areas	Stormwater Management Guidance Manual	Annually
3. Reducing thermal impacts	Stormwater Management Guidance Manual	Annually
4. Reducing or avoiding hydromodification	Stormwater Management Guidance Manual	Annually
5. Tree protection	Stormwater Management Guidance Manual	Annually
6. Protection of native soils, prevention of compaction of soils	Stormwater Management Guidance Manual	Annually

19.j. List your quantifiable objectives for each watershed protection element, including time frames to achieve them.

The Charleston Stormwater guidance manual has guidelines concerning each of the watershed protection elements.

- Through education the city will encourage commercial development to decrease the impervious surface through the use of LID design ideas such as alternative cul-de-sacs, pervious paving for overflow parking, etc.
- Protect natural stream banks and riparian areas by limiting construction to a minimum of 50 feet from stream.
- Reduced thermal impacts by slowing down stormwater runoff by using LID practices.
- Reduce hydromodification by protecting existing trees and minimizing parking lot runoff of untreated stormwater in new and redesigned projects.
- Protect existing trees by identifying them in the design phase in taking protective measures during construction.
- Educating designers and contractors on protection of native soils and prevention.

19.k. State and describe your BMPs. Indicate if any BMPs are part of your existing program.

- Continue to implement measures to encourage and expand the use of Low Impact Development (LID) in new and redevelopment.
- Ensure adequate Operation and Maintenance of all post-construction stormwater management BMPs installed at all qualifying development or redevelopment projects by the end of the permit cycle (including those owned or operated by the City).
- The City shall continue to implement and enforce the Stormwater Management Guidance Manual and provide technical guidance and training seminars on LID to developers, planners, engineers, and/or contractors.
- Continue inspection of construction projects to ensure increased and uncontaminated groundwater recharge.
- The City shall implement a system designed to track stormwater management practices installed at new development and redevelopment projects by the end of the first year of the new permit cycle.
- The City shall use ordinances and maintenance agreements imbedded in the neighborhood association agreements, homeowners' association agreements, or covenants for enforcement and follow up responses for unmaintained stormwater.

### *Site Design Standards*

19.l. Do you have an ordinance or other enforcement mechanism for the required site design standards? If not, what is your schedule of implementation? Include mid-term and full implementation dates for Ordinance review and enactment.

Yes

Subdivision ordinance is in place for enforcement.

The ordinance references the Charleston Stormwater Management Guidance Manual for specific site design requirements.

19.m. Does your Ordinance have provisions for reducing pollutant loadings for stormwater discharges from Hot Spots? If the project is a potential hot spot and cannot meet water quality treatment with on-site controls, are there provisions for proper disposal of stormwater discharges at a treatment/disposal facility? Why

No.

Hotspot sites will not be subject to stormwater runoff by design (fueling stations will be under roof to prevent stormwater contamination). If a situation arises where it may be subject to Stormwater runoff then the Hotspots are required to be treated by an oil water separator before discharge.

19.n. Do you know where drinking water source protection areas are located within your MS4 watershed? Describe how this information will be kept confidential, and made available to WVDEP only when requested.

Yes.

The drinking water source in the City of Charleston is generally public knowledge and is independently owned and operated. Requests to us for information on the drinking water source are directed to West Virginia American Water Company.

19.o. Describe your program for reducing impervious surfaces.

Impervious surface reduction is part of the Low Impact Development section of the Charleston Stormwater Management Guidance Manual. New and redevelopment will be directed to incorporate as many of these practices as feasible:

- Reduction of paved surfaces (cul-de-sac design, narrowing of streets, etc.).
- The use of pervious paving materials (overflow parking and sidewalk design, etc.).
- Consideration of multiple story structure design (smaller footprint).
- Introduction of green roofs.

19.p. If you choose mitigation/payment in lieu for those projects that cannot implement the one inch runoff reduction requirements, please provide a time frame for creating an inventory of appropriate mitigation projects, and your process to develop standards to value, evaluate, and track transactions.

(Note: WVDEP has plans to create standard criteria and guidance material to assist MS4's in developing a mitigation and payment in lieu program. If your MS4 does not already have a mitigation or payment in lieu program – make a statement in the SWMP that you do not have one. If you want to use what WVDEP develops, then make a statement to that effect. If you are planning to develop your own mitigation and payment in lieu program, then your SWMP has to include a time frame for development of this program.)

At this time the city has no option for mitigation in lieu. The City may utilize what the WVDEP develops if applicable.

19.q. Describe the planning process for new development and redevelopment projects in your MS4.

An individual or company looking to develop or redevelop a site one acre or greater is instructed to submit a building site plan along with a building application to the building department. The building department will then forward to planning department, Engineering/Stormwater department, fire department, traffic engineering, and CSB for review and approval. Each department will respond with comments for change or approval. Once all departments approve the application then a building permit is issued. Guidelines from the Charleston Stormwater Guidance Manual may be utilized to draft and review planning options pertaining to stormwater runoff.

- 19.r. Describe your plan review and approval process for new development and redevelopment projects.
- Subdivisions are to be submitted and reviewed by the City Planning Department and approved by the Charleston Planning Commission.
  - Commercial and residential construction must be reviewed and approved by multiple City Departments prior to the issuance of a building permit.
  - Chapter 2 of the Charleston Stormwater Guidance Manual provides procedures for the approval process, including:
    - Defining Land Disturbance
    - Regulatory Jurisdiction – Physical Limits
    - Stormwater Review and Permitting Process
    - Technical Review Process
    - Inspections
    - Operations and Maintenance Agreement
    - Record Drawings- “As Built”
    - Developing Stormwater Management Plan
    - Conceptual Review
    - Erosion and Sediment Control
    - Post-Construction Stormwater Management
    - Specific Design Consideration
    - Watershed Specific Requirements
    - Public Health and Safety Consideration
- 19.s. Describe your maintenance procedures for structural stormwater control practices including a detailed discussion about maintenance agreements & your ability to enforce them.
- Chapter 6 of the Charleston Stormwater Guidance Manual has details on maintenance for post construction infrastructure. The guidelines are specific for each type of infrastructure and provide a list of maintenance activities, BMPs, and a schedule for each BMP.
  - Section 2.2.6 – “Operation and Maintenance” of the Charleston Stormwater Guidance Manual states: “Stormwater management features must be properly operated and maintained in perpetuity, unless otherwise agreed to in writing by the City. In the event a property owner fails to operate or maintain these structures after adequate notice, the City may perform this work and invoice the property owner for the cost of these services. Failure to pay these costs will result in liens being attached to the property.”

Maintenance will include, but is not limited to:

    - Cleaning and repair of culverts, storm sewers, pond risers, spillways and inlets.
    - Removal of sediments and trash from ponds, rain gardens, infiltration areas, buffer strips, etc.
    - Reseeding, mulching and replacement of plant and vegetative material.
    - Cleaning of filters, pervious pavements, oil/water separators, etc.
    - Other items as required.

19.t. Describe your method of inventory and tracking of stormwater control practices for this MCM.  
The City will utilize approved project site plans, “as-built mapping,” and GIS to track and inventory stormwater control structures. This is an ongoing process that is updated when a new structure is constructed.

19.u. Describe your inspection protocol for ensuring stormwater control BMPs/practices function as designed and constructed: How many per year? How often?

Inspections of stormwater control BMP’S are performed during construction to ensure compliance with design. Inspections will be performed once during the permit cycle after the installation of the controls. The inspector will complete task using the BMP inspection form which includes:

- Facility type
- Date and Time of inspection
- Name and signature of inspector
- Weather conditions
- Project name and address including GIS location
- Management practice ownership information
- Condition of BMP
- Repair and/or maintenance requirements than owner needs to address (including any violations)
- Photo documented, etc.

19.v. Does your MS4 have requirements for street design, parking, and parking lots? If so, which departments regulate this?

Yes, review by Planning and Engineering Departments.

### **Schedule**

19.w. Describe how and when you will implement each component of this minimum control measure. Include mid-point and full implementation dates for Ordinance revisions, implementation of plan review and approval, inspection and enforcement procedures, and for developing/acquiring and using a tracking system.

- All components of the minimum control measures exist in the Charleston Stormwater Guidance Manual and the city uses these guidelines for implementation.
- The Building Department has received the updated building permit process and is currently implementing it. This includes the review and approval, inspection, enforcement, and documentation.
- Qualifying new and reconstruction sites that are within the City’s requirement of 5,000/1,000 s.f. are reviewed for potential stormwater BMPs.
- New and reconstruction projects over 1 acre are reviewed by the Engineering and Stormwater Departments to ensure that they meet the permit requirements.
- Ordinance has been ratified and is in practice and it will be reviewed by the end of the permit cycle.

### **Measurable Goals**

19.x. List and describe your measurable goals for this MCM.

Encourage the use of green infrastructure and stormwater controls into new & redevelopment sites one acre or greater will be measured by increase of installed LID elements. The goal is at least one new LID control measure per year during the permit cycle.

- Inspect post construction facilities for groundwater recharge and contact responsible parties for correction of potential failures.
- Verify that the Charleston Stormwater Management Guidance Manual is properly implemented and that the guideline and suggestions are being implemented. This is done by making it available to the public, both in hard copy and in printable form located on the Charleston Stormwater website.
- Complete the tracking system to inventory and document post construction locations as they are constructed, track maintenance agreements and schedules to ensure compliance.
- Review of ordinance by end of the permit cycle for adequate maintenance agreement policies and enforcement.

### **Evaluation**

- 19.y. Describe how you plan to gauge the effectiveness of your program for this MCM.
- Effectiveness will be measured by reaching or exceeding the goal of at least one new LID control measure per year on a new and re-development projects one acre or greater.
  - Effectiveness of the inspection of post construction structures will be measured by the prevention and elimination of any issues that may cause groundwater contamination.
  - Effectiveness of the Charleston Stormwater Management Guidance Manual will be measured by the number of copies downloaded from the website and the number of attendees at training programs that include said Guidance Manual.
  - Effectiveness of the LID tracking system is gauged by annually reviewing the cataloging of all existing LID sites.
  - Effectiveness of the ordinance will be gauged by an annual review and updating the policies that are identified as inept or ineffective.

### **Pollution Prevention/Good Housekeeping for Municipal Operations- MCM #6**

#### **Responsible Person(s):**

Identify the responsible person(s) for implementing this MCM. There may be more than one person or different departments responsible for various projects. If so, discuss.

- 20.a. Name: Stephen Birurakis, Greg Robinson, Lee Ann Grogg, Tom Gillespie  
 20.b. Title: Stormwater Manager, Stormwater Permit Compliance Specialist, MS4 Coordinator, Inspector  
 20.c. Department: Engineering/Stormwater  
 20.d. Address: 114 Dickinson Street, Charleston, WV 25301  
 20.e. Phone number: 304-348-8106  
 20.f. Email address: [stephen.birurakis@cityofcharleston.org](mailto:stephen.birurakis@cityofcharleston.org), [greg.robinson@cityofcharleston.org](mailto:greg.robinson@cityofcharleston.org), [leeann.grogg@cityofcharleston.org](mailto:leeann.grogg@cityofcharleston.org), [tom.gillespie@cityofcharleston.org](mailto:tom.gillespie@cityofcharleston.org)
- 20.g. Is another entity sharing responsibility for this MCM? If so, who? Yes, other departments within the City. The Departments and Department Heads are as follows:  
 Building Commission: Tony Harmon 304-348-6833  
 Building Maintenance: Clarence Terry 304-389-2748  
 Civic Center: John Robertson 304-345-1500  
 Engineering: Chris Knox 304-348-8106  
 Construction: George Farley 304-561-5030

Fire Department: Chief Scott Shaffer 304-348-8137  
 Homeland Security – Emergency Management: Grant Gunnoe 304-348-8130  
 Human Resources: Charlie Thompson 304-348-8015  
 Parking System: Mary Jarrell 304-348-1090  
 Parks and Recreation: John Charnock 304-348-6860  
 Planning: Dan Vriendt 304-348-8105  
 Public Works: Gary Taylor 304-348-6850  
 Equipment Maintenance: Linda Walker 304-348-6456  
 Public Grounds: Mike Davis (interim) 304-348-6458  
 Refuse: John Shannon 304-348-6831  
 Sign Shop: Michael Shrader 304-348-8096  
 Street Department: Bill Tate 304-348-6850  
 Spring Hill Cemetery: Perry Cox 304-348-8010

**Control Objectives & BMPs**

20.h. State your overall objective for this MCM.

To improve water quality by training and implementing Best Management Practices at the City’s municipal facilities.

20.i. State and describe your BMPs. Indicate if any BMPs are part of your existing program.

- Continued implementation of the Standard Operation Procedures (SOP) program at municipal facilities to prevent or reduce polluted runoff. Each facility has a binder with SOP’s and inspections forms and is required to perform regular stormwater inspections of their facilities.
- Continue preventing or reducing stormwater pollutants through the implementation of the City’s municipal stormwater training program which teaches; how to identify potential and report stormwater pollutants, how to contain and clean spills, how to foster environmentally friendly work habits. This program targets appropriate municipal employees who have the potential to affect stormwater runoff.
- Continue to train new employees within 3 months of the hire date that have a direct impact on stormwater pollution prevention.
- Continue the monitoring and sampling of municipal industrial sites that are considered potential stormwater pollutant locations. Review sampling and practice good housekeeping to reduce pollutants at these sites.

**MCM Components**

20.j. List the municipal facilities and their locations owned by your MS4.

The following is the Municipal owned “Industrial Facility”

FACILITY LOCATION	FACILITY ADDRESS	LATITUDE/LONGITUDE	FACILITY TYPE
Public Works Dept.	1100 Pennsylvania Ave.	38.3591 / -81.6307	OTHER



The Follow are Municipal Owned Facilities considered “Non-Industrial”

FACILITY LOCATION	FACILITY ADDRESS	LATITUDE/LONGITUDE	FACILITY TYPE
Spring Hill Cemetery	1555 Farnsworth Dr.	38.3514 / -81.6128	CEMETERY
Chandler Neighborhood Center	2000 Arnold Dr.	38.3789 / -81.6464	COMMUNITY CENTER
King Center	314 Donnally St.	38.3563 / -81.6326	COMMUNITY CENTER
Roosevelt Rec Center	502 Ruffner Ave.	38.3446 / -81.6216	COMMUNITY CENTER
Civic Center Building	200 Civic Center Dr.	38.3559 / -81.6400	COMMUNITY CENTER
Vandalia Neighborhood Center	611 Clifton Rd.	38.3608 / -81.6701	COMMUNITY CENTER
Kanawha City Rec Center	3511 Veneble Ave.	38.3265 / -81.5973	COMMUNITY CENTER
North Charleston Rec Center	2009 7th Ave.	38.3735 / -81.6713	COMMUNITY CENTER
Fire Station #1	300 Morris St.	38.3459 / -81.6270	FIRE STATION
Fire Station #2	808 Virginia St. W,	38.3671 / -81.6523	FIRE STATION
Fire Station #3	822 Oakwood Rd.	38.3435 / -81.6594	FIRE STATION
Fire Station #4	1810 Oakridge Dr.	38.3464 / -81.6042	FIRE STATION
Fire Station #5	918 Bridge Rd.	38.3413 / -81.6422	FIRE STATION
Fire Station #6	5008 MacCorkle Ave	38.3190 / -81.5768	FIRE STATION
Fire Station #7	128 Cora St., Charleston	38.3641 / -81.6150	FIRE STATION
Fire Station #8	208 Copenhaver Dr	38.3782 / -81.6631	FIRE STATION
Old Fire Station	2184 Sugar Creek Dr.	38.3846 / -81.6563	FIRE STATION
Old Fire Station	506 26th St.	38.3758 / -81.6769	FIRE STATION
Fire Station Training Facility	115 Lee St.	38.3597 / -81.6423	FIRE STATION
Public Grounds / Sign Shop	2 Twilight Dr.	38.3591 / -81.6307	OTHER
Signal Shop	1 Twilight Dr.	38.3576 / -81.6214	OTHER
Salt Storage Pile	Under Interstate at Donnally	38.3559 / -81.6317	OTHER
City Hall Building	503 Virginia St.	38.3508 / -81.6385	OTHER
Copenhaver Park	819 Hannah Dr.	38.3795 / -81.6696	OTHER
Appalachian Power Park	601 Morris St.	38.3489 / -81.6250	PARK
Oakmont Park	Spruce and Hazel Street	38.3413 / -81.6480	PARK
Cato Park	200 Baker Lane,	38.3761 / -81.6409	PARK
Parking Garage #1 CSC	915 Quarrier St	38.3485 / -81.6342	PARKING GARAGE
Parking Garage #2 Cinema 7	600 Washington St. E,	38.3527 / -81.6328	PARKING GARAGE
Parking Garage #3 Greyhound	Reynolds and Lee St.	38.3571 / -81.6398	PARKING GARAGE
Parking Garage #4 Civic Center	1 Civic Center Dr.	38.3558 / -81.6419	PARKING GARAGE
Parking Garage #5 City Hall	503 Virginia St. E,	38.3504 / -81.6382	PARKING GARAGE
Parking Garage #6	166 Summers St.	38.3507 / -81.6351	PARKING GARAGE

20.k. Briefly describe your operation and maintenance program for each municipal facility.

- Public Works Department comprised of two locations. First, the maintenance garage and public works offices stormwater drains into a combined sewer or sheet flows off property. Equipment that need repair is parked inside if possible and drain pans are used to collect any leaks. Second, the equipment storage area drains to a storm sewer and is sampled twice a year. Good housekeeping practices are in place. Both locations are inspected for potential stormwater contaminates on a monthly basis.

20.l. Does each site have a pollution prevention plan? Is there a spill response plan included in the pollution prevention plan? If not, provide a time frame for developing pollution prevention plans at all MS4 owned municipal facilities, including mid-point and full completion dates.

Yes, each site does have a SWPPP.

The spill response plan will be included and implemented by the end of the first year after SWMP approval.

20.m. Have you identified all the lands owned or operated by your MS4? (Such as parks, road right-of-ways, maintenance yards, and water/sewer/stormwater infrastructure.)

Yes

20.n. Describe your overall pollution control approach policy and procedures for these lands.

There is an SOP for each of the identified City owned parks, fire stations, parking facilities, and maintenance yards. The SOP guidelines that cover items such as:

- Dumpsters/garbage storage/outdoor trash containers.
- Vehicle and equipment storage, and maintenance.
- Vehicle and equipment washing areas.
- Vehicle and equipment fueling areas.
- Materials and salt storage.
- Road, parking lot, right-of-way and grounds maintenance.
- Fertilizer, herbicide & pesticide application.

Each guideline has a training, procedures/practices, inspection and record keeping component.

20.o. Describe your training program including your target employees, and how often training occurs.

- Currently the City's training program incorporates videos and PowerPoint presentations that target specific municipal personnel that have a direct impact on prevent polluted runoff including, street department, parks and recreation, public grounds, engineering, inspectors and trash collection. This training is held annually.
- Our goal is to provide enhanced training through smaller groups. We will implement stormwater training of new hires in the above categories within three months of hire date.

20.p. For any industrial facilities owned or operated by your MS4, list each facilities registration number under the WV NPDES General Permit for Storm Water Discharges Associated with Industrial Activities or the individual WV NPDES permit number. If your industrial facilities are not covered under another NPDES permit, you must will prompted to provide additional information below.

None

The Charleston Sanitary Board, permit number, WV0023205 is legally separated and not owned or operated by the City of Charleston.

## **Schedule**

20.q. Describe how and when you will implement each component of your program for this minimum control measure. Include mid-point and full implementation dates.

- The SOP program is in the process of implemented; each facility will have a binder with Standard Operation Procedures and inspections forms. It is underway with completion by end of first year of permit approval.
- The municipal training program is implemented with plans to introduce training to individual facilities within the first year of permit approval.

- Stormwater training for new hires will also be implemented within the first year of permit approval.
  - The sampling protocol is implemented.
- 20.r. Describe the inspection schedule for ensuring municipal facilities are in compliance with pollution prevention plans.

Each facility has an SOP binder that includes inspection forms and timeframes for inspections. Each facility will be required to inspect monthly or quarterly depending on site assessment. A designated person from each facility will be assigned the duty of inspecting the facility. A representative from the stormwater department will annually inspect the binder to verify that inspections are being performed and to audit the results from each inspection. These audits will be used to make improvements on the program. The stormwater department will annually inspect facilities to verify compliance.

### **Measurable Goals**

- 20.s. List and fully describe your measurable goals for this MCM.
- The goal is the continuation of the stormwater training program designed to educate city employees who can have an impact of stormwater pollution on a yearly basis. Effectiveness will be measured by employee training program attendance.
  - Implement stormwater training for new hires that can have an impact of stormwater pollution within 3 months from hire date.
  - Continue to work with municipal facilities on an ongoing basis to implement standard operating procedures (SOPs), and inspection program designed to increase employee stormwater awareness and prevention of illicit discharges.
  - Continue to monitor and sample municipal industrial site to look for pollution trends and to identify if housekeeping measures are adequate or need improvement.

### **Tracking**

- 20.t. Describe your plan for record keeping and tracking of facilities, employee training, pollution prevention plans, and inspections for this MCM.
- Each facility has a SOP binder that has maintenance inspections and priority actions on site. The inspections and notes will be collected annually and kept at the Stormwater Department.
  - Employee training is facilitated and tracked by employees of in Stormwater Department.

### **Evaluation**

- 20.u. Explain how you plan to gauge the effectiveness of your good housekeeping/ municipal operations program efforts?
- Effectiveness of the program is gauged by:
- Completion of inspections by facilities.
  - Improvements or corrections made on issues identified by inspections.
  - Reviewing training records.
  - Analyze sampling data for signs of stormwater quality improvement.

**Industrial Stormwater Coverage for Municipal Operations**

If your facility/s discharges stormwater from any industrial operation that is not covered under another NPDES permit, you must now obtain coverage for those discharges.

20.v. For each facility, provide the name and contact information of the operator if applicable.

Public Works Director  
 1100A and 1100B Pennsylvania Avenue  
 Charleston, WV 25301  
 304-348-6850  
 publicworks@cityofcharleston.org  
 Fax number: 304-345-7669

20.w. For each outlet, list the latitude and longitude to the nearest second and the River Mile Point (if known).

Outlet Number	Latitude			Longitude			River Mile
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds	
Location where Outfalls to State System	38	21	35.6184	-81	37	52.3128	

20.x. List the Standard Industrial Classification (SIC) Code designated for your facility/s.

SIC Code #5169

20.y. List the nature of activity at the industrial facility.

The public works facility provides vehicle and equipment storage, maintenance and cleaning of City passenger and police vehicles, maintenance equipment and vehicles such as leaf vacuums, garbage trucks, street sweepers, and construction equipment such as backhoes and dump trucks. This site serves as a parking lot for the city's garbage trucks, dump trucks and street sweepers and as a staging area for routine operations involving these vehicles.

20.z. Is there a wet pond at your facility that collects runoff from areas on which industrial activities occur?  
If so, how many acres drain into it?

No

20.aa. Is there a dry pond at your facility that collects runoff from areas on which industrial activities occur?  
If so, how many acres drain into it?

No

20.bb. Do any of your storm water outlets discharge through an oil water separator? If yes, provide the outlet numbers.

No

Based on your responses to this section, a Discharge Monitoring Report may be issued.