MS4 Annual Report
Permit Year IV

Reporting Period: July 1, 2011 – June 30, 2012

VSMP Number: VAR040112

In Compliance with the Virginia Stormwater Management Program General Permit for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems

September 18, 2012

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Table of Contents

1.0 Background Information
   1.1 Program History
   1.2 Purpose
   1.3 Description of Drainage Areas
   1.4 Modification to Operator’s Department’s Roles & Responsibilities
   1.5 New MS4 Outfalls
   1.6 Signed Certification

2.0 Special Projects

3.0 Illicit Discharge Detection and Elimination

4.0 Regulated Land-Disturbing Activities

5.0 Permanent Stormwater Management Facility Data

6.0 Other Information Pursuant to Section II E 3

Appendix A: MS4 Program Plan Assessment, Updates, and Future Activities

Appendix B: Permanent Stormwater Management Facility Data Email

Appendix C: JMU ESC Annual Standards and Specifications

Appendix D: NFWF Grant Project Fact Sheet

Appendix E: “Upper Shenandoah MS4 Partnership Retrofit Assessment Project” Proposal
1.0 Background Information

1.1 Program History

The 1972 amendments to the Federal Water Pollution Control Act, also known as the Clean Water Act or CWA; provide the statutory basis for the National Pollution Discharge Elimination System (NPDES) permit program and the basic structure for regulating the discharge of pollutants from point sources to waters of the United States. Under Section 402 of the CWA the Environmental Protection Agency is the authorized agency to develop and implement the NPDES program. Therefore, Congress amended the Federal Water Pollution Control Act (CWA) to prohibit the discharge of any pollutant to waters of the United States from a point source unless the discharge is authorized by an NPDES permit. The NPDES program is designed to track point sources and require the implementation of the best management practices or controls necessary to minimize the discharge of pollutants. Initial efforts to improve water quality under the NPDES program primarily focused on reducing pollutants in industrial process wastewater and municipal sewage. These discharge sources were easily identified as responsible for poor water quality.

As pollution control measures for industrial process wastewater and municipal sewage were implemented and refined, it became increasingly evident that stormwater runoff was found to be a major cause of water quality impairment. In response to the 1987 Amendments to the Clean Water Act (CWA), the U.S. Environmental Protection Agency (EPA) developed Phase I of the NPDES Stormwater Program in 1990. The Phase I program addressed sources of stormwater runoff that had the greatest potential to impact water quality. Under Phase I, EPA required NPDES permit coverage for stormwater discharges from Medium and Large Municipal Separate Storm Sewer Systems with populations of 100,000 or more people, industrial activities, and construction activities that disturbed 5 or more acres.

In 1999, the EPA developed the Stormwater Phase II Final Rule which tightened the regulations that requires operators of regulated small municipal separate storm sewer systems (MS4s) to obtain a NPDES permit and develop a stormwater management program designed to prevent
pollutants from being washed into the MS4 system during a storm even (or from being discharged directly into the MS4) and then discharged from the MS4 into local waterbodies. James Madison University falls under the Phase II regulations as a small municipal storm sewer system operator. Based on 40 CFR 122.26(b)(8), the definition of a “municipal separate storm sewer” means a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains):

(i) Owned or operated by a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law)...including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the Clean Water Act that discharges into waters of the United States. (ii) Designed or used for collecting or conveying stormwater; (iii) Which is not a combined sewer; and (iv) Which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2.”

Also what defines James Madison University under the MS4 program is that the university is considered to be within an urbanized area. By definition, an urbanized area (UA) is a land area comprising one or more places – central place(s) – and the adjacent densely settled surrounding area – urban fringe – that together have a residential population of at least 50,000 and an overall population density of at least 1,000 people per square mile. It is a calculation used by the Bureau of the Census to determine the geographic boundaries of the most heavily developed and dense urban areas.

1.2  Purpose

The 2004 Virginia legislature unanimously passed House Bill 1177 transferring regulatory authority of the National Pollutant Discharge Elimination System (NPDES) programs related to municipal separate storm sewer systems (MS4s) and construction activities from the State Water Control Board to the Soil and Water Conservation Board and transferred oversight of
these programs from the Department of Environmental Quality to the Department of Conservation and Recreation. This transfer became effective January 29, 2005. As a result, DCR is responsible for the issuance, denial, revocation, termination and enforcement of NPDES permits for the control of stormwater discharges from MS4s and land disturbing activities under the Virginia Stormwater Management Program. The Department of Environmental Quality continues to manage the remaining NPDES program.

Under the state governing agency, the Department of Conservation and Recreation (DCR), has developed and coordinated the MS4 program as regulated under sections 4VAC50-60-380 and 390. As a condition of the permit program, it is required that the permitted facility develops and implements their own stormwater management program. Therefore, the intent of this document is to support the stormwater management program to ensure compliance under the EPA’s Phase II regulations.

1.3 Description of Drainage Areas
James Madison University is located within the City of Harrisonburg and has approximately 20,000 students and 3,000 faculty and staff. The campus consists of nearly 686 acres of developed and undeveloped land comprising of academic buildings, student housing, recreation buildings, conference halls, parking areas, maintenance yards, athletic fields, a power plant and an arboretum.

Approximately 117 acres of the campus drain directly to Blacks Run while an additional 539 acres drain to either Sibert Creek or Newman Lake. Sibert Creek then flows into Blacks Run directly adjacent to the campus. The hydrologic unit code (HUC) from Virginia’s 6th Order National Watershed Boundary Dataset (NWBD) for this drainage area is PS-22. Blacks Run, which has an E. coli, fecal coliform and aquatic life use (benthic) impairment, is listed in the 2006 Virginia 305(b)/303(d) Water Quality Assessment Integrated Report.
The University also owns a 30 acre tract of land located outside of the urbanized area, approximately 9 miles southeast of the main campus. This property consists primarily of wooded land and does not contain a storm sewer system.

1.4  Modification to Operator’s Department’s Roles & Responsibilities

There were no modifications to the operator’s department’s roles and responsibilities in the third permit year. JMU is continuing to operate their own erosion and sediment control (E&S) program under a set of annual specifications. Refer to Appendix D for a complete copy of the JMU ESC Annual Specifications for the 2012 operating year.

1.5  New MS4 Outfalls

No new outfalls were added to the storm sewer system operated by James Madison University.

1.6  Signed Certification

"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."

Print Name: ___________________________________________ Title: _________________

Signature: ____________________________________________ Date: _________________
2.0 Special Projects

During the fourth permit year JMU continued to perform stormwater improvement projects with grant funds received from the National Fish and Wildlife Foundation and administered by DCR. JMU along with partners from Eastern Mennonite University, Shenandoah Valley Soil and Water Conservation District, City of Harrisonburg, Boxerwood Gardens, Harrisonburg Redevelopment and Housing Authority and the Virginia Department of Environmental Quality received a total of $325,000 in grant funds to implement “Community Solutions to Stormwater Pollution in the Blacks Run Watershed”. Refer to Appendix D for an updated fact sheet of the complete grant project.

JMU was awarded a total of $122,000 in grant funds to construct a bioretention filter and perform two stream restoration projects on campus. The bioretention filter was constructed in the fall 2010 by JMU Facilities Management Grounds staff and treats approximately 2.5 acres of parking lot runoff before discharging into Sibert Creek, a tributary of Blacks Run. Native plantings were used in the bioretention filter and educational signage is currently was installed at this project to increase public awareness.

During the summer of 2011, approximately 1900 linear feet of Sibert Creek was restored with oversight from Louise Finger, a stream restoration specialist with the Virginia Department of Game and Inland Fisheries. Sibert Creek was a heavily degraded urban stream channel with severe erosion problems. A riparian buffer consisting of native grasses, shrubs and trees was also created for the stream channel in conjunction with the restoration activities. In November 2011 a workshop hosted at JMU by grant partners provided training to a total of 89 people including JMU staff and other community members on the maintenance of riparian buffers and urban nutrient management.

In April 2012 a second stream restoration project was completed on East Campus Creek, another small tributary to Newman Lake, and eventually Blacks Run. Approximately 100 linear feet of stream channel was restored with assistance from the Virginia Department of Game and Inland Fisheries in conjunction with this project. Facilities Management also provided support with the design and planting of the riparian buffer for the associated project.
Additionally, JMU partnered with the Central Shenandoah Planning District Commission and the City of Harrisonburg and the Town of Bridgewater in the spring of 2012 to submit a proposal to the National Fish and Wildlife Commission to obtain funding to perform an “Upper Shenandoah MS4 Partnership Retrofit Assessment Project”. Refer to Appendix E for the proposal that was submitted. The grant partners were then notified on July 2, 2012 that the proposal was selected by NFWF to receive funding.

3.0 Illicit Discharge Detection and Elimination

During the MS4 Permit Year IV, there was one illicit discharge detected and eliminated from the storm sewer system. On May 8, 2012 an email was received from an employee with the City of Harrisonburg reporting a “chalky” appearance to the water in Sibert Creek on the JMU campus. The stormwater coordinator immediately visited the area and traced the discharge up the storm sewer system to the Cantrell Avenue Parking Deck where a contractor working on campus was observed using a power washer technique to mill the roof level of the parking deck. The contractor was told to immediately halt the activity until proper control measures could be put in place. JMU staff then worked with the contractor to develop a plan to block the inlets and properly filter the water before being discharged to a grassy area adjacent to the site.
4.0 Regulated Land-Disturbing Activities

<table>
<thead>
<tr>
<th>Project</th>
<th>Disturbed Acreage</th>
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<tbody>
<tr>
<td>Sibert Creek Restoration Project</td>
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<tr>
<td>Wayland Hall Renovations</td>
<td>1.2</td>
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<tr>
<td>Campus Closure Improvements</td>
<td>0.3</td>
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<tr>
<td>Bridgeforth Stadium Expansion</td>
<td>4.9</td>
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<tr>
<td>Chandler Plaza</td>
<td>1.4</td>
</tr>
<tr>
<td>Steam Plant Expansion</td>
<td>0.7</td>
</tr>
<tr>
<td>South Tower Demolition</td>
<td>0.9</td>
</tr>
<tr>
<td>A2 Wind Training &amp; Testing Facility</td>
<td>0.9</td>
</tr>
<tr>
<td>A3B Academic Building</td>
<td>4.7</td>
</tr>
<tr>
<td>Health Center Demolition</td>
<td>0.6</td>
</tr>
<tr>
<td>South Main Spoils Site</td>
<td>6.2</td>
</tr>
<tr>
<td>Port Republic Road Sports Complex</td>
<td>60.0</td>
</tr>
<tr>
<td>Wilson-Maury Walkway Project</td>
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</tr>
<tr>
<td>Student Success Center</td>
<td>2.7</td>
</tr>
<tr>
<td>Duke Hall Renovations</td>
<td>1.8</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>87.2</strong></td>
</tr>
</tbody>
</table>

5.0 Permanent Stormwater Management Facility Data

<table>
<thead>
<tr>
<th>MS4 Permit Year IV</th>
<th>Permit No.</th>
<th>James Madison University</th>
<th>BMP Type</th>
<th>HUC</th>
<th>Impaired Water</th>
<th>No. of Acres Treated</th>
</tr>
</thead>
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<tr>
<td></td>
<td>VAR040112</td>
<td></td>
<td>Manufactured BMP</td>
<td>PS22</td>
<td>Blacks Run</td>
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</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Manufactured BMP</td>
<td>PS22</td>
<td>Blacks Run</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Bioretention</td>
<td>PS22</td>
<td>Blacks Run</td>
<td>0.6</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Bioretention</td>
<td>PS22</td>
<td>Blacks Run</td>
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<td></td>
<td></td>
<td></td>
<td>Green Roof</td>
<td>PS22</td>
<td>Blacks Run</td>
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</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Manufactured BMP</td>
<td>PS22</td>
<td>Blacks Run</td>
<td>0.1</td>
</tr>
</tbody>
</table>

NOTE: Refer to Attachment B for a copy of the email submission of permanent stormwater management facility data
6.0 Other Information Pursuant to Section II E 3

Section II E 3 b – Status of compliance with permit conditions, an assessment of the appropriateness of the identified best management practices and progress towards achieving the identified measurable goals for each of the minimum control measures;

A review of the MS4 Program Plan currently implemented at JMU has found that we are in compliance with all conditions of the permit. An assessment of the identified BMPs has determined that they are appropriately addressing the minimum control measures outlined in the MS4 General Permit. The progress towards achieving the identified measurable goals for each of the minimum control measures is included in Appendix A of this report.

Section II E 3 c – Results of information collected and analyzed, including monitoring data, if any, during the reporting period;

The results of information collected by the students in the Environmental Instrumentation course (BMP 2.1.4) is used for reference purposes only and is not included in this report.

Section II E 3 e – A change in any identified best management practices or measurable goals for any of the minimum control measures including steps to be taken to address any deficiencies;

There were no changes in any of the identified best management practices or measurable goals for any of the minimum control measures during this reporting year.

Section II E 3 f – Notice that the operator is relying on another government entity to satisfy some of the permit obligations;

JMU is not currently relying on another government entity to satisfy any of the permit obligations.

Section II E 3 g – The approval status of any programs pursuant to Section II C or the progress towards achieving full approval of these programs;

No existing program has required the implementation of any minimum control measures of Section II B.

Section II E 3 h – Information pursuant to Section I B 9;

There are currently no wasteload allocations assigned the University.

Section II E 3 l – A list of any new or terminated signed agreements between the operator and any applicable third parties where the operator has entered into an agreement in order to implement minimum control measures or portions of minimum control measures;

The University does not have any signed agreements with a third party to implement any of the minimum control measures.

Section II E 3 m – Copies of any written comments received during a public comment period regarding the MS4 Program Plan or any modifications;

No written comments were received regarding the MS4 Program Plan.
APPENDIX A

MS4 Program Plan Assessment, Updates and Future Activities
### Minimum Control Measure No. 1: Public Education and Outreach on Stormwater Impacts

<table>
<thead>
<tr>
<th>Category</th>
<th>Proposed BMP</th>
<th>Program Description</th>
<th>Measurable Goal / Expected Results</th>
<th>Permit Year 4 Status of Objectives</th>
<th>Future Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1 - Public Outreach / Education for Students and JMU Staff</td>
<td>1.1.1 - Stormwater Management Website</td>
<td>Provide information on the JMU website regarding the impacts of stormwater runoff and steps people can take to reduce stormwater pollution.</td>
<td>Record the number of visits to the Stormwater Management Website. Increase the overall awareness of the impacts of stormwater and the measures that the University is undertaking to improve stormwater quality.</td>
<td>The JMU Stormwater Management website is reviewed / updated on a quarterly basis to ensure accurate and up-to-date information is available to the public. There were 520 visitors to the site during this reporting year.</td>
<td>Evaluate website quarterly, update as necessary.</td>
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<td></td>
<td>1.1.2 - Classroom education on stormwater impacts</td>
<td>A variety of classes offered at the University cover issues related to the impact of urban stormwater runoff on the environment.</td>
<td>Record the number of classes that are offered at the University that cover stormwater impacts. Increase the overall awareness of the impacts of stormwater among the students at the University.</td>
<td>A minimum of 7 courses are offered each year that cover topics related to stormwater runoff or water quality. Students in the Instrumentation and Environmental Measurements courses also performed water quality sampling in Newman Lake in the Fall 2011 and Spring 2012 semesters. Additionally, 5 ISAT students performed their senior capstone projects on issues related to water quality.</td>
<td>Courses will be taught as scheduled by the academic departments.</td>
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<tr>
<td></td>
<td>1.1.3 - Recycling &amp; Trash Management</td>
<td>Provide information on JMU's website regarding recycling &amp; trash management and work with the Earth Club to promote recycling activities. The recycling program at JMU also participates in the annual RecycleMania competition. The mission statement of the Recycling Department is &quot;to reduce the flow of waste and materials into the landfill, educate the JMU community on the proper disposal of waste items as well as the future impact of global waste stream issues&quot;.</td>
<td>Record the participation and amount of material that is recycled annually. JMU currently recycles 33% of its waste materials which exceeds the state guideline of 25%. Continue to meet or exceed the state guideline for recycling and &quot;keep resources out of our waste stream&quot;.</td>
<td>The JMU Recycling website is being maintained and updated on a regular basis. JMU was ranked 157th out of 265 schools in the country for overall recycling in 2012 in the RecycleMania competition. JMU also ranked #2 for food service organic recycling in the state. The Recycling Department has also been continuing their efforts to promote recycling during tailgating to help prevent trash from being left in parking lots.</td>
<td>Continue current program, evaluate annually.</td>
</tr>
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### Minimum Control Measure No. 1: Public Education and Outreach on Stormwater Impacts

<table>
<thead>
<tr>
<th>BMP CATEGORY</th>
<th>PROPOSED BMP</th>
<th>PROGRAM DESCRIPTION</th>
<th>MEASURABLE GOAL / EXPECTED RESULTS</th>
<th>PERMIT YEAR 4 STATUS OF OBJECTIVES</th>
<th>FUTURE ACTIVITIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1 - Public Outreach / Education for Students and JMU Staff (cont.)</td>
<td>1.1.4 - Proper Disposal &amp; Reduction of Hazardous Materials</td>
<td>The University has hired an Environmental Health Coordinator who performs informal &quot;area tours&quot; to check for potential problems and assists in identifying hazardous materials which are no longer necessary and may be properly disposed of.</td>
<td>During area tours, ensure all safety and health issues, including improper storage and/or handling of hazardous materials, are noted and communicated to the responsible parties. Follow-up to verify that issues have been satisfactorily addressed and to facilitate on-going compliance and environmental stewardship. Assist all areas of the University in identifying, and determining proper disposal for unnecessary hazardous materials. <strong>Unnecessary hazardous materials will be identified and properly disposed of reducing their likelihood of polluting the environment.</strong></td>
<td>The Environmental Health Coordinator has been performing regular area tours to ensure hazardous materials are handled properly and not disposed of in a manner which could contribute to pollution.</td>
<td>Continue current program, evaluate annually.</td>
</tr>
<tr>
<td>BMP CATEGORY</td>
<td>PROPOSED BMP</td>
<td>PROGRAM DESCRIPTION</td>
<td>MEASURABLE GOAL / EXPECTED RESULTS</td>
<td>PERMIT YEAR 4 STATUS OF OBJECTIVES</td>
<td>FUTURE ACTIVITIES</td>
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<td>1.1 - Public Outreach / Education for Students and JMU Staff (cont.)</td>
<td>1.1.5 - Institute for the Stewardship of the Natural World</td>
<td>The JMU Institute for Stewardship of the Natural World (ISNW) will facilitate JMU’s pursuit of sustainability, environmental stewardship and a broader sense of citizenship. This includes fostering, informing and documenting sustainability-related education, outreach and scholarship. The ISNW is in the process of developing a strategic plan to guide its actions in partnering with university centers, departments and personnel. Five committees will coordinate the following areas: awareness, education and research, operations, campus accessibility, and policies and practices. The operations committee will review how the university manages such areas as grounds, the physical plant, waste and recycling to incorporate stewardship practices that will improve the environment and our community.</td>
<td>Document the activities that the ISNW is participating in that facilitate environmental stewardship as it relates to stormwater. Improved coordination and communication between various departments within the University regarding their efforts towards environmental sustainability.</td>
<td>JMU hosted an Urban Water Quality Workshop in November 2011 to provide training for community members and university staff on riparian buffer maintenance and urban nutrient management. A total of 89 people attended the event with 25 staff from JMU attending including the crew chiefs from the FM-Grounds Department. The workshop included an afternoon walking tour of JMU stormwater management projects which received positive feedback from attendees.</td>
<td>The ISNW will continue to support the water quality initiatives on campus.</td>
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Minimum Control Measure No. 1: Public Education and Outreach on Stormwater Impacts

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<thead>
<tr>
<th>BMP CATEGORY</th>
<th>PROPOSED BMP</th>
<th>PROGRAM DESCRIPTION</th>
<th>MEASURABLE GOAL / EXPECTED RESULTS</th>
<th>PERMIT YEAR 4 STATUS OF OBJECTIVES</th>
<th>FUTURE ACTIVITIES</th>
</tr>
</thead>
</table>
| 1.1 - Public Outreach / Education for Students and JMU Staff (cont.) | 1.1.6 - Distribute information via innovative methods | Seek innovative methods to distribute information related to stormwater impacts to students and staff. Possible methods of increasing public knowledge include; placing stormwater facts on table tents in dining halls, brief educational messages before campus movies or articles in the campus newspaper related to stormwater issues. | Record the number of methods utilized to distribute information to students and staff. Increase the overall awareness of the impacts of stormwater and the measures that the University is undertaking to improve stormwater quality. | A total of 7 activities offering educational material related to stormwater runoff and water quality were performed during this permit year, they were as follows:  
- October 2011 – Educational signage is installed for the grant-funded rain garden  
- October 2011 – Article placed in the University-wide Human Resources newsletter regarding the grant-funded rain garden  
- November 2011 – JMU hosts "Urban Water Quality Workshop" attended by 89 people from the community  
- March 2012 – Stormwater Coordinator provides lecture on stormwater management at JMU to Environmental Hydrology class  
- March/April 2012 – JMU Stormwater Coordinator provides summary of stream restoration projects to Biology and Geology faculty department meetings intended to solicit classroom interaction with these projects  
- April 2012 – Office of Public Affairs offers coverage of riparian buffer plantings on website and social media  
- May 2012 - Stormwater Coordinator provides informational lecture on JMU stormwater program to faculty members during May Symposium | Utilize a minimum of one method per semester to reach students and staff. |
### Minimum Control Measure No. 1: Public Education and Outreach on Stormwater Impacts

<table>
<thead>
<tr>
<th>BMP CATEGORY</th>
<th>PROPOSED BMP</th>
<th>PROGRAM DESCRIPTION</th>
<th>MEASURABLE GOAL / EXPECTED RESULTS</th>
<th>PERMIT YEAR 4 STATUS OF OBJECTIVES</th>
<th>FUTURE ACTIVITIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.2 - Pollution Prevention / Reporting</td>
<td>1.2.1 - Pollution Reporting Hotline</td>
<td>Create and publicize a Facilities Management phone number that students and staff can call to report illicit discharges or other pollution issues. Use the creation of a pollution hotline to educate staff and students of the hazards of illicit discharges and improper waste disposal.</td>
<td>Track the number of calls received at the hotline number. <strong>Increase the public knowledge of the implications of illicit discharges and improper waste disposal.</strong></td>
<td>The hotline number is published on the JMU Stormwater Management website and no calls have been received as of June 30, 2012. One email was received during Permit Year IV reporting an illicit discharge.</td>
<td>Continue to publicize hotline number.</td>
</tr>
<tr>
<td></td>
<td>1.2.2 - Storm Drain Marking Campaign</td>
<td>The University has purchased stainless steel storm drain markers which state &quot;No Dumping - Drains to Stream&quot;. The markers will be installed on inlets across campus and will be engraved with a unique ID number to aid with maintenance and illicit discharge reporting.</td>
<td>Document the number of inlets that are marked across campus. <strong>Increased public knowledge and awareness of the fact that stormwater drains to waterways and not a public treatment facility.</strong></td>
<td>No inlets were marked during this permit year. Additional storm drain marking is planned for new facilities in the spring 2013.</td>
<td>Continue to mark new inlets as they are installed.</td>
</tr>
<tr>
<td>BMP CATEGORY</td>
<td>PROPOSED BMP</td>
<td>PROGRAM DESCRIPTION</td>
<td>MEASURABLE GOAL / EXPECTED RESULTS</td>
<td>PERMIT YEAR 3 STATUS OF OBJECTIVES</td>
<td>FUTURE ACTIVITIES</td>
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<tr>
<td>2.1 - Public Involvement / Participation</td>
<td>2.1.1 - Encourage student efforts to improve stormwater quality</td>
<td>Continue to support student efforts to improve stormwater quality by providing information and materials whenever possible.</td>
<td>Record the number of student activities that occur each semester which relate to stormwater quality. Increase the effectiveness of student activities by providing assistance whenever possible.</td>
<td>Refer to MCM 1.1.2 for a description of student activities related to water quality. The JMU Stormwater Coordinator also provided technical assistance to a group of senior ISAT students performing a research project on water quality in Sibert Creek and provided a lecture on Campus Stormwater Management to an Environmental Hydrology Course.</td>
<td>Offer assistance to students when requested.</td>
</tr>
<tr>
<td></td>
<td>2.1.2 - Blacks Run / Downtown Clean Up Day</td>
<td>Participate with the City of Harrisonburg in their annual Blacks Run / Downtown Clean Up Day. In past years students from JMU have helped to create promotional materials for the event.</td>
<td>Document the activities that JMU students or staff participate in related to the event. Increase the awareness among students and staff of the opportunity to help improve the local water quality through this event.</td>
<td>20 different groups from the JMU community volunteered for the Blacks Run Cleanup Day. Event occurs annually in April.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2.1.3 - Promote availability of MS4 Program Plan &amp; reports</td>
<td>Publish MS4 Program Plan and annual reports on Facilities Management website. Also provide printed copies of the MS4 Program Plan and annual reports to interested parties.</td>
<td>Record the frequency of updates to the website regarding program plan modifications and annual reports. Increase the accessibility of the information regarding the efforts JMU is taking to improve stormwater quality.</td>
<td>An up-to-date copy of the MS4 Program Plan is provided on the Facilities Management website. A copy of the Annual Report will also be provided once available. No public comments regarding the MS4 Program Plan were received during this reporting period.</td>
<td>Update website as necessary to include program plan modifications and annual reports.</td>
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### Minimum Control Measure No. 2: Public Involvement / Participation

<table>
<thead>
<tr>
<th>BMP CATEGORY</th>
<th>PROPOSED BMP</th>
<th>PROGRAM DESCRIPTION</th>
<th>MEASURABLE GOAL / EXPECTED RESULTS</th>
<th>PERMIT YEAR 3 STATUS OF OBJECTIVES</th>
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<tr>
<td>2.1 - Public Involvement / Participation</td>
<td>2.1.4 - Student Water Quality Testing</td>
<td>Students from the Environmental Instrumentation class perform water quality sampling of Newman Lake and Sibert Creek each semester. Parameters measured include depth, water clarity, specific conductivity, pH, dissolved oxygen and Fecal Coliform / E. Coli counts. Facilities Management provides support for this activity as requested.</td>
<td>Record the number of students and sections of this course that is offered each semester. <em>Increase the awareness of local water quality issues within the student body.</em></td>
<td>62 students participated in performing water quality sampling of Newman Lake in fall 2011 and spring 2012. Results of sampling are compiled and emailed to the Stormwater Coordinator for an annual record of results.</td>
<td>This course is scheduled to be offered in both fall and spring semesters</td>
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<td>2.1.5 - Forming Partnerships</td>
<td>James Madison University seeks to build active partnerships with local groups and government agencies in respect to stormwater concerns to share information and resources whenever possible.</td>
<td>Record the partnership activities that JMU is involved in. <em>The formation of partnerships will help to pool resources to complete shared objectives.</em></td>
<td>JMU is continuing to participate in the NFWF grant with a number of partners from the community. JMU's share of the grant has increased to $122k as the projects on campus have grown in size. JMU has also partnered with CSPDC / Harrisonburg &amp; Bridgewater on another grant proposal - see Section 2.0 of the report narrative for a description of projects.</td>
<td>Continued involvement with partnership efforts as they become available.</td>
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<td>3.1 - Illicit Discharges Prohibition</td>
<td>3.1.1 - Comply with existing regulations</td>
<td>Comply with existing regulations that prohibit illicit discharges to storm sewer systems.</td>
<td>Track notices of violation and seek to reduce this number by the maximum extent practicable. Compliance with existing regulations.</td>
<td>Refer to BMP 3.3.2</td>
<td>Continue current program, evaluate annually.</td>
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<td>3.2 - Illicit Discharge Detection</td>
<td>3.2.1 - Maintain storm sewer system map</td>
<td>The University currently has a storm sewer system GIS map and corresponding database. This map contains locations and attributes of the entire storm sewer system maintained by JMU and includes culverts, pipes, inlets, catch basins, trench drains, and outfalls. This map is used for illicit discharge tracking and recording maintenance activities.</td>
<td>Continue to update and maintain GIS map to ensure all structures are located. An accurate and up-to-date storm sewer system map will aid in illicit discharge detection and elimination.</td>
<td>The GIS map is continually updated as new structures are built or removed. Structures are photographed and undergo a thorough inspection when they are added to the GIS map.</td>
<td>Update map as new structures are built.</td>
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<td>3.2.2 - Inspect stormwater outfalls for illicit discharges</td>
<td>Conduct field investigations and inspections of all stormwater outfalls. Monitor for dry weather discharges using visual observation, odor and other indicators to identify for possible illicit discharges.</td>
<td>Maintain records of outfalls that were inspected and number of illicit discharges detected. Prompt detection and elimination of illicit discharges.</td>
<td>Outfalls across campus continue to be inspected on a semi-annual basis. No illicit discharges were detected in the second permit year.</td>
<td>Continue current program, inspect all outfalls twice per year.</td>
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<td>3.2.3 - Identify possible illicit discharge locations</td>
<td>Create a prioritized list of locations across the University where a higher probability of illicit discharges exists. Perform regular monitoring of these locations to ensure compliance with existing regulations.</td>
<td>Development of a prioritized list showing potential locations where illicit discharges could enter the storm sewer system. Increase the likelihood of prevention and early detection and elimination of illicit discharges.</td>
<td>Identified hot spots are routinely inspected to aid in the early detection of illicit discharges. The list of hot spots is updated as new facilities are constructed or new hot spots identified.</td>
<td>Perform routine monitoring of &quot;hot spots&quot; for early detection of illicit discharges.</td>
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### Minimum Control Measure No. 3: Illicit Discharge Detection and Elimination

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<tr>
<td>3.3 - Illicit Discharge Elimination</td>
<td>3.3.1 - Maintain Spill Prevention Control &amp; Countermeasure (SPCC) Plan</td>
<td>A SPCC Plan was initially prepared for the University in 1975 and last updated in October of 2004. Continue to implement plan to reduce the risk of hazardous substances from entering the storm sewer system.</td>
<td>Maintain and update SPCC plan. <em>Reduce the risk of hazardous substances from entering the storm sewer system.</em></td>
<td>The SPCC plan was updated in late 2009 and is currently being implemented by the JMU Facilities Management Operations staff.</td>
<td>Continue current program, evaluate annually.</td>
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<td>3.3.2 - Trace and remove illicit discharges</td>
<td>Promptly address illicit discharges and utilize storm sewer system map to determine source of discharge. Determine best method of eliminating the discharge in a timely manner.</td>
<td>Track the number of illicit discharges detected and eliminated. <em>Timely removal of illicit discharge from storm sewer system.</em></td>
<td>There was one reported illicit discharge that was detected and eliminated in Permit Year IV. Refer to section 3.0 of the report narrative for a summary of this discharge. The reduction of illicit discharges is partially contributed to the storm drain marking campaign across campus.</td>
<td>Continue current program, evaluate annually.</td>
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<td>3.3.3 - Illicit Discharge Education</td>
<td>Refer to BMP 1.2.1 &amp; 1.2.2. Establish pollution reporting hotline and storm drain marking campaign to increase awareness of what illicit discharges are.</td>
<td>Refer to BMP 1.2.1 &amp; 1.2.2. <em>Increase the awareness among students and staff that storm drains are only intended to receive stormwater.</em></td>
<td>Refer to BMP 1.2.1 &amp; 1.2.2</td>
<td>Refer to BMP 1.2.1 &amp; 1.2.2.</td>
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**Minimum Control Measure No. 3: Illicit Discharge Detection and Elimination**

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<td>3.4 - Notification to Downstream MS4</td>
<td>3.4.1 - Notify Downstream MS4 of Interconnection</td>
<td>Written notification will be sent to the City of Harrisonburg stating that JMU's MS4 is physically interconnected to their system.</td>
<td>Record when notification was given to the City of Harrisonburg. The City of Harrisonburg will be fully aware of JMU's physical interconnection with their system.</td>
<td>The MS4 system GIS map for JMU was updated to show points of interconnection with the City and VDOT MS4 systems.</td>
<td>Continue to work with the City of Harrisonburg on MS4 issues.</td>
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# Minimum Control Measure No. 4: Construction Site Stormwater Runoff Control

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<tr>
<td>4.1 - DCR Regulations</td>
<td>4.1.1 - Contract Language</td>
<td>All contractors performing land disturbing activities on campus property are required through contract documents to follow existing E&amp;S requirements and obtain all applicable permits before construction activity commences. The CO-7 General Conditions of the Construction Contract as issued by DGS and included in every contract, stipulates in Section 31(e) that: &quot;The Contractor shall have, On-Site, an employee certified by the Department of Conservation and Recreation as a Responsible Land Disturber who shall be responsible for the installation, inspection and maintenance of erosion control and stormwater management measures and devices. The Contractor shall prevent Site soil erosion, the runoff of silt and/or debris carrying water from the Site, and the blowing of debris off the Site in accordance with the applicable requirements and standards of the Contract and the Virginia Department of Conservation and Recreation's Erosion and Sediment Control Regulations and the Virginia Stormwater Management Regulations.&quot;</td>
<td>Track the number of regulated land-disturbing activities and report the total disturbed acreage. Ensure contractors comply with the Erosion and Sediment Control Law and attendant regulations and implement applicable E&amp;S controls.</td>
<td>Refer to Annual Report Narrative for list of regulated land-disturbing activities. All projects which disturb over 10,000 square feet are required to prepare a site-specific erosion and sediment control plan.</td>
<td>Continue current program, evaluate annually.</td>
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<td>4.1 - DCR Regulations (cont.)</td>
<td>4.1.2 - Construction and Professional Services Manual</td>
<td>In addition to contract language all work performed on University property is required to comply with the Construction and Professional Services Manual (CPSM) published by the Bureau of Capital Outlay Management which requires that E&amp;S plans (for land disturbances over 10,000 sq ft.) and stormwater management plans (for land disturbances over 1 acre) be submitted to DCR for approval before construction activity is allowed to begin (CPSM 902.2). Furthermore, language is included in construction specifications for each project as required by CPSM 902.2.4 stating that contractors are responsible for satisfying any and all erosion control and stormwater management requirements for any land disturbing activities.</td>
<td>Track the number of regulated land-disturbing activities and report the total disturbed acreage. Ensure contractors obtain the necessary approval and applicable permits from DCR before any land disturbing activities begin.</td>
<td>All projects on campus which disturbed over 10,000 square feet were required to prepare a site-specific erosion and sediment control plan.</td>
<td>Continue current program, evaluate annually.</td>
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<td>4.1.3 - Pre-construction Meeting with Contractors</td>
<td>JMU will notify the local DCR office of construction start dates and invite DCR personnel to the pre-construction meeting to discuss the erosion and sediment control and stormwater management plans with the contractor.</td>
<td>Track the number of regulated land-disturbing activities and report the total disturbed acreage. Ensure contractors fully understand the erosion and sediment control measures shown in plans before construction begins.</td>
<td>Per JMU ESC Annual Specifications DCR is notified of the RLD for each project two weeks before land disturbance commences.</td>
<td>Continue current program, evaluate annually.</td>
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### Minimum Control Measure No. 4: Construction Site Stormwater Runoff Control

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<tr>
<td>4.2 - JMU ESC Plan Review &amp; Inspections</td>
<td>4.2.1 - ESC Plan Review &amp; Site Inspections</td>
<td>Effective July 6, 2009, JMU received approval from DCR to operate our own erosion and sediment control program under a set of annual specifications. As a result of this, the Engineering Department is responsible for reviewing and approving E&amp;S plans as well as performing inspections for all sites that disturb 10,000 sq. ft. or more. Refer to Appendix D for a complete copy of the JMU ESC Annual Specifications.</td>
<td>Track the number of regulated land-disturbing activities and report the total disturbed acreage. <em>Routine site inspections can help to identify problems sooner to reduce E&amp;S control related problems.</em></td>
<td>The JMU ESC Annual Standards and Specifications were renewed for 2012, and JMU is continuing to perform ESC site plan review and routine site inspections. Regular contact is made with the local DCR office for technical assistance. A total of 181 site inspections were completed on 15 regulated land-disturbing projects during Permit Year IV. Copies of the inspection reports are kept on file and are available upon request.</td>
<td>Continue current program, evaluate annually.</td>
</tr>
<tr>
<td>4.3 - Public Comment</td>
<td>4.3.1 - Pollution Reporting Hotline</td>
<td>Refer to BMP 1.2.1. Establish pollution reporting hotline and provide the public a method to share any information regarding stormwater runoff and construction activities. Any information submitted by the public will be reviewed by a JMU project manager.</td>
<td>Track the number of calls received at the hotline number. <em>Increase the public knowledge and awareness of issues regarding stormwater runoff from construction sites.</em></td>
<td>The hotline number is published on the JMU Stormwater Management website and no calls have been received as of June 30, 2012.</td>
<td>Refer to BMP 1.2.1 &amp; 1.2.2.</td>
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## Minimum Control Measure No. 5: Post-Construction Stormwater Management in New Development & Redevelopment

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<tr>
<td><strong>5.1 - DCR Regulations</strong></td>
<td>5.1.1 - Compliance with Existing Regulations</td>
<td>The University relies on existing Virginia Stormwater Management Regulations 4VAC 3-20 implemented by the Department of Conservation and Recreation to address stormwater runoff from new development and redevelopment projects occurring on campus. In choosing appropriate Best Management Practices (BMPs), DCR encourages James Madison University to participate in a combination of structural and non-structural BMPs when developing any site on campus to minimize water quality impacts resulting from post-construction runoff from new development and redevelopment.</td>
<td>Track the number of regulated land-disturbing activities and report the total disturbed acreage. Ensure construction activity operators obtain the necessary approval from DCR for land disturbing activities.</td>
<td>Refer to Annual Report Section 3.0 for list of regulated land-disturbing activities.</td>
<td>Continue current program, evaluate annually.</td>
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<td><strong>5.2 - Stormwater Management Facilities</strong></td>
<td>5.2.1 - Maintenance of Stormwater Management Facilities</td>
<td>Continue to implement the University's stormwater management policy which states that each structural stormwater management facility will be inspected on a semi-annual basis.</td>
<td>Record the number of structural management facilities that are inspected each year. Ensure structural stormwater management facilities are maintained and operating properly.</td>
<td>All SWM facilities were inspected as scheduled. Routine maintenance was completed clearing debris from trash racks in retention, detention and bioretention basins. Maintenance information is tracked in a GIS based BMP database.</td>
<td>Perform semi-annual inspections of facilities.</td>
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<td>5.2.2 - BMP Tracking</td>
<td>Track all known permanent stormwater management facilities that discharge to the regulated small MS4.</td>
<td>Maintain list of facilities and other required information about facility. Comply with conditions of MS4 General Permit.</td>
<td>The list of all known SWM facilities has been updated for the fourth permit year.</td>
<td>Maintain list of SWM facilities, continue to update as new structures are built.</td>
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### Minimum Control Measure No. 6: Pollution Prevention/Good Housekeeping for JMU Facility Operations

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<tr>
<td>6.1 - Pollution Prevention</td>
<td>6.1.1 - Hazardous Materials and Chemical Storage</td>
<td>Inspect and evaluate storage locations and method of storing hazardous materials and chemicals to ensure compliance with State and EPA regulations and ensure proper disposal of these materials. Continue to phase out the use of hazardous materials and chemicals whenever possible.</td>
<td>As part of the project to expand the current chemical inventory system, ensure that the types, quantities, and storage locations of hazardous materials are properly identified. Perform periodic audits to verify accuracy of the records and monitor overall inventory for opportunities to reuse, recycle, or reduce the amount of hazardous materials at JMU. Ensure hazardous materials are properly stored. Reduction in the overall presence of hazardous materials on Campus.</td>
<td>The University's Environmental Health Coordinator has been proceeding with this program as scheduled.</td>
<td>Continue current program, evaluate annually.</td>
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<td>6.1.2 - Spill Prevention, Control, and Countermeasure Plan</td>
<td>A SPCC Plan was initially prepared for the University in 1975 and last updated in October of 2004. Continue to implement plan to reduce the risk of hazardous substances from entering the storm sewer system.</td>
<td>Maintain and update SPCC plan. Reduce the risk of hazardous substances from entering the storm sewer system.</td>
<td>The SPCC plan was updated in late 2009 and is currently being implemented by the JMU Facilities Management Operations staff.</td>
<td>Continue current program, evaluate annually.</td>
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<td>6.1.3 - Oil &amp; Antifreeze Recycling</td>
<td>Continue to collect and recycle used oil and antifreeze.</td>
<td>Monitor the locations where vehicle maintenance operations take place. Document any incidents where waste materials were improperly disposed of. Ensure waste materials are properly disposed of.</td>
<td>Antifreeze and used oil is recycled in the Facilities Management Garage. A total of 1355 gallons of oil and 40 gallons of antifreeze were recycled last year. Vehicle maintenances areas are regularly monitored to ensure no improper disposal of waste materials occurs.</td>
<td>Continue current program, evaluate annually.</td>
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<td>6.1.4 - Storage of Erodible Materials</td>
<td>Evaluate the storage of all soil, sand and other erodible materials on campus to ensure proper techniques are being utilized to minimize stormwater pollution.</td>
<td>Monitor the locations where erodible materials are being stored to check for the possibility of stormwater pollution. Prevent the storage of erodible materials on campus from causing stormwater pollution.</td>
<td>One soil stockpile on campus is operating under an approved E&amp;S plan and is routinely inspected to ensure it is properly managed.</td>
<td>Continue current program, evaluate annually.</td>
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<td>6.1 - Pollution Prevention (cont.)</td>
<td>6.1.5 - Salt Storage, Application and Snow Removal</td>
<td>Salt is currently stored under a cover and on an impervious surface to minimize the amount of infiltration and runoff that leaves the site. All runoff from the salt storage area is directed to a covered holding pond that was constructed per VDOT specifications. The minimum amount of salt necessary is being used for deicing and more environmentally friendly alternatives are currently being evaluated by the Grounds Department. The Grounds Department is also planning to apply pre-treatment products to certain areas of campus which will help reduce the amount of salt needed for those areas. Following a storm event where salt or other materials are applied, regularly scheduled street sweeping will occur to remove the materials from roadways and parking lots to prevent it from entering the storm sewer system. Also, whenever possible, snow stockpiles will be stored in a way that they do not block stormwater inlets and away from environmentally sensitive areas such as streams, lakes and swales.</td>
<td>Document the estimated amount of salt applied each winter and the other types of materials applied to aid in ice and snow removal. <em>Ensure snow and ice removal on campus is done in a manner that minimizes stormwater pollution.</em></td>
<td>Approximately 200 tons of salt and 2 tons of de-icing solution was used on campus last winter. The salt storage area is periodically inspected to ensure that it does not contribute to stormwater pollution. Pre-treatment products were also applied to parking decks and steps to help reduce the amount of salt used and prevent the snow/ice in these areas from becoming compacted.</td>
<td>Continue current program, evaluate annually.</td>
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<td>6.1.6 - Vehicle and Equipment Washing</td>
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<td>All University fleet vehicles are washed inside the Alternative Fuels Building at a special wash bay where the wash water drains to the sanitary sewer system. Continue to work with the Grounds department to determine suitable locations to wash their equipment.</td>
<td>Monitor the locations where vehicles or equipment are washed and seek alternative washing practices to reduce stormwater pollution. <em>Reduction in illicit discharges from vehicle and equipment washing operations.</em></td>
<td>All University vehicles and equipment are washed in areas that drain to the sanitary sewer system. JMU also has a contract with a local car washing business to wash maintenance vehicles.</td>
<td>Continue to monitor locations of vehicle and equipment washing.</td>
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Minimum Control Measure No. 6: Pollution Prevention/Good Housekeeping for JMU Facility Operations

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<td>6.1 - Pollution Prevention (cont.)</td>
<td>6.1.7 - Employee Training</td>
<td>The development of a training and development class for staff is underway with a professor from the Integrated Science and Technologies department titled “Sustainability Series: Campus Water Stewardship”. This course will cover the basics of the nutrient management plan and the stormwater management plan at the University. It will also cover pollution prevention measures individuals can take and education on the detection of illicit discharges. This course marks the beginning of a larger series of courses regarding sustainability at JMU. Future classes regarding a variety of other topics related to sustainability are in the planning stages.</td>
<td>Document the progress of class development and the number of individuals which attend class when it is offered. Increase the overall awareness of the impacts of stormwater and the measures that the University is undertaking to improve stormwater quality.</td>
<td>Refer to MCM 1.1.5 for a summary of the Urban Water Quality workshop that was hosted on the JMU campus. A total of 25 JMU employees attended the workshop.</td>
<td>Continue current program, evaluate annually.</td>
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<tr>
<td>6.2 - Good Housekeeping Measures</td>
<td>6.2.1 - Parking Lot and Street Sweeping</td>
<td>The University owns and regularly operates a street sweeper to pick up litter and debris from parking lots and streets on campus. All campus parking lots and streets are scheduled to be swept two times each month with additional measures taken to address the cleanup of parking lots that are used during football games.</td>
<td>Record the number of times the street sweeper cleans campus streets and parking lots. Reduce the amount of sediment and debris that enters the storm sewer system from streets and parking lots.</td>
<td>Streets and parking lots are cleaned twice per month. During football season, parking lots are cleaned on Mondays following home games. A total of 6.7 tons of material was collected and disposed of in the landfill during Permit Year IV.</td>
<td>Continue current program, evaluate annually.</td>
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<td>6.2.2 - Storm Structure Maintenance and Cleaning</td>
<td>Storm structures are routinely inspected and cleaned by Facilities Management staff to ensure they remain free of obstructions and to prevent sediment and other pollutants from entering the storm sewer system.</td>
<td>Record the number of structures cleaned and other maintenance completed. Reduce the amount of sediment and debris that enters the storm sewer system.</td>
<td>No internal storm structure cleaning was completed during Permit Year IV. A total of 170 hours of FM-Grounds staff time was used to perform exterior maintenance and debris cleanup to the exterior of storm structures.</td>
<td>Continue current program, evaluate annually.</td>
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<td>6.2 - Good Housekeeping Measures</td>
<td>6.2.3 - Outdoor Trash, Ground Litter and Landscaping Debris Collection</td>
<td>The Recycling Department oversees the collection of outdoor trash and ground litter. There are 8 full-time employees and 10 part-time employees in this department that provide seven day a week coverage for the collection of ground litter. The mission statement of the Recycling Department is &quot;to reduce the flow of waste and materials into the landfill, educate the JMU community on the proper disposal of waste items as well as the future impact of global waste stream issues. The Grounds Department is responsible for the collection of landscaping debris and performs this activity on a daily basis. During the fall there are up to 20 people performing leaf collection daily.</td>
<td>Record the activities that the Recycling and Grounds Department undertakes regarding outdoor trash, litter and landscaping debris collection. <em>Reduce the amount of trash, ground litter, and landscaping debris that enters the storm sewer system.</em></td>
<td>The Recycling Department has continued to devote significant amount of resources to the collection of ground litter and ensures that a minimal amount of trash enters storm sewer systems and surface waters. The Ground Department also performs routine collection of landscaping debris.</td>
<td>Continue current program, evaluate annually.</td>
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<tr>
<td>6.3 - Landscape Management</td>
<td>6.3.1 - Pesticide Application</td>
<td>The application of all pesticides will be conducted in accordance with the Virginia Department of Agriculture and Consumer Services (VDACS) rules and regulations for agricultural chemical operations. The University currently has an Integrated Pest Management (IPM) program which seeks to control pests with a minimum of pesticide use while maximizing effectiveness and cost efficiency. A joint project between Facilities Management staff, academic faculty, and students is underway to develop a document that outlines all pesticides used on campus and identify the most environmentally friendly product that may be used for a particular application.</td>
<td>Record the number of training sessions conducted and the number of personnel with the pesticide applicator certification. <em>Reduce the quantity of pesticides used on University property and ensure proper application when they are used.</em></td>
<td>No new employees attended pesticide applicator training during the second permit year. Two staff members are currently working on obtaining training.</td>
<td>Continue current program, evaluate annually.</td>
</tr>
</tbody>
</table>
Minimum Control Measure No. 6: Pollution Prevention/Good Housekeeping for JMU Facility Operations

<table>
<thead>
<tr>
<th>BMP CATEGORY</th>
<th>PROPOSED BMP</th>
<th>PROGRAM DESCRIPTION</th>
<th>MEASURABLE GOAL / EXPECTED RESULTS</th>
<th>PERMIT YEAR 3 STATUS OF OBJECTIVES</th>
<th>FUTURE ACTIVITIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.3 - Landscape Management</td>
<td>6.3.2 - Nutrient Management Plan</td>
<td>The University is currently implementing a Nutrient Management Plan which was prepared on June 1, 2006. The Nutrient Management Plan covers all lawn and landscaped areas of the University that receive nutrients and outlines the rates and frequencies that nutrients may be applied. The plan also covers best practices to follow regarding the application of these nutrients.</td>
<td>Maintain records of nutrient applications per requirements outlined in Nutrient Management Plan. Ensure nutrients are applied in a manner that minimize their impact on stormwater quality.</td>
<td>The campus-wide nutrient management plan is currently being updated and is anticipated to be completed by mid-August. The updated NMP will incorporate the recommendations outlined in the &quot;Report on the use of slowly available nitrogen in lawn fertilizer and lawn maintenance fertilizer&quot; published in December 2011 by VDACS. These recommendations are intended to have a positive impact on water quality by reducing the amount of nitrogen applied at one time.</td>
<td>Continue to implement Nutrient Management Plan and maintain records of applications.</td>
</tr>
</tbody>
</table>
APPENDIX B

Permanent Stormwater Management Facility Data Email
Mr. Fritz,

Please see the attached file for the list of permanent stormwater management facilities operated by JMU brought online in the fourth permit year.

Regards,

Abe Kaufman
Stormwater Coordinator
Facilities Management - Engineering
James Madison University
540.568.4201 phone
540.568.3547 fax
APPENDIX C

JMU ESC Annual Standards & Specifications
TABLE OF CONTENTS

1.0 ANNUAL STANDARDS AND SPECIFICATIONS ADMINISTRATION .................................................... 2
2.0 ANNUAL STANDARDS AND SPECIFICATIONS PERSONNEL .............................................................. 2
3.0 ANNUAL STANDARDS AND SPECIFICATIONS IMPLEMENTATION ................................................... 3
4.0 CONSTRUCTION PLAN REQUIREMENTS ........................................................................................... 4
5.0 INSPECTIONS .................................................................................................................................... 4
6.0 VARIANCES ....................................................................................................................................... 4
7.0 REGULATED LAND-DISTURBING ACTIVITIES ..................................................................................... 5

APPENDICES

Appendix – A: Plan Preparer’s Minimum Standard Checklist

Appendix – B: ESC Inspection Forms

Appendix – C: Tentative Future Land-disturbing Activities

Appendix – D: Variance Request Form

Appendix – E: Plan Reviewer’s Checklist

CONTACT INFORMATION

Abe Kaufman
Stormwater Coordinator
James Madison University
181 Patterson St, MSC 7004
Harrisonburg, VA 22807
Phone: 540.568.4201
Fax: 540.568.3547
Email: kaufmaat@jmu.edu
1.0 ANNUAL STANDARDS AND SPECIFICATIONS ADMINISTRATION

1.1 All projects involving land-disturbing activity subject to the Virginia Erosion and Sediment Control Law (§10.1-560 et seq. as amended), and the Virginia Erosion and Sediment Control Regulations (4VAC50-30 et seq. as amended) shall be bound by the James Madison University Annual Specifications for Erosion and Sediment Control that are approved by DCR.

1.2 James Madison University Approved ESC Annual Specifications are composed of general specifications. The general specifications for erosion and sediment control (ESC) that apply to the land-disturbing activities, listed in 1.1 above, include by reference the following:

1.2.1 Virginia Erosion and Sediment Control Law (§10.1-560 et seq. as amended);
1.2.2 Virginia Erosion and Sediment Control Regulations (4VAC50-30 et seq. as amended);
1.2.3 Virginia Erosion and Sediment Control Certification Regulations (4VAC50-50 et seq. as amended);
1.2.4 Virginia Erosion and Sediment Control Handbook, 1992, as amended;
1.2.5 Technical Bulletins, as amended, on DCR web site at www.dcr.virginia.gov;

1.3 Any land-disturbing activity carried out in a locality with a local ESC program with more stringent regulations than those of the state program shall be consistent with the requirements of the local program.

1.4 Site-Specific ESC Plans shall be prepared for all projects involving a regulated land-disturbing activity as defined in §10.1-560. Site-specific ESC plans shall be submitted to James Madison University Facilities Management (FM) - Engineering Department for review. Prior to starting a land-disturbing project, as defined in §10.1-560, the project must have an approval issued by James Madison University FM-Engineering for the plan.

1.5 James Madison University FM-Engineering may request DCR to grant a project specific variance or exception to the approved James Madison University ESC Annual Specifications. All requested variances and exceptions are to be considered unapproved until written approval from DCR is received. Refer to Section 6.0 for more information on variances.

2.0 ANNUAL STANDARDS AND SPECIFICATIONS PERSONNEL

James Madison University FM-Engineering shall review James Madison University projects for consistency with James Madison University’s ESC Annual Specifications. The following is a breakdown in responsibilities and titles in terms of James Madison University’s ESC Annual Specifications. Responsibilities may be combined in terms of staffing resources only if the person responsible for the task(s) is qualified per Section 1.2.3. The following titles are designated to ensure compliance with James Madison University’s ESC Annual Specifications on all James Madison University projects.
2.1 ESC Annual Specifications Administrator shall have overall management and coordination responsibilities for James Madison University's ESC Annual Specifications. This person shall be a DCR certified combined administrator.

2.2 ESC Plan Reviewer and Inspector shall be responsible for reviewing plans and inspecting project for compliance with James Madison University's ESC Annual Specifications and applicable laws and regulations. This person shall be a DCR certified combined administrator or a DCR certified plan reviewer & inspector.

2.3 Certifications shall be in accordance with the Virginia Erosion and Sediment Control Certification Regulations (4VAC50-50 et seq. as amended)

3.0 **ANNUAL STANDARDS AND SPECIFICATIONS IMPLEMENTATION**

ESC plans shall comply with James Madison University ESC Annual Specifications, the Virginia Erosion and Sediment Control Law (§10.1-560 et. seq.), and the Virginia Erosion and Sediment Control Regulations (4VAC50-30 et seq. as amended). Refer to Section 1.2 for more information on general specifications.

3.1 **Submittals**
ESC plans and narratives shall be submitted to the James Madison University FM-Engineering Department for review and approval prior to any regulated land-disturbing activities. The James Madison University FM-Engineering Department shall have 30 days to review the plan and provide written comments. Prior to commencement of a land-disturbing project, the project must have received written approval for the plan(s) from James Madison University FM-Engineering.

3.2 **Plan Review**
Plan reviews shall be conducted by qualified personnel. Plan reviews shall ensure compliance with the James Madison University ESC Annual Specifications. Plan reviewers shall use the Plan Review Checklist provided in Appendix E for ESC plans.

3.3 **Pre-Construction Conference**
Prior to commencement of land disturbance the ESC Annual Specifications Administrator will take part in a pre-construction conference in order to clarify ESC roles, responsibilities, and obligations of all parties involved with the land-disturbing activity. At a minimum the pre-construction conference will be attended by the JMU Project Manager, the JMU ESC Annual Specifications Administrator, and the RLD.

3.4 **Inspections**
The ESC Inspector is responsible for ensuring the implementation of the project is in accordance with the project specific erosion and sediment control plans. Refer to Section 5.0 for more information on inspections.

3.5 **Enforcement**
The JMU Project Manager for the regulated land-disturbing activity shall be responsible for ensuring that corrective action is taken in response to violations listed on the inspection report.
3.6 Changes and Amendments to Approved Plans

An approved plan may be changed by the James Madison University FM-Engineering Department in the following cases:

(i) Where inspection has revealed the plan is inadequate to satisfy applicable regulations; or

(ii) Where the person responsible for carrying out the approved plan finds that because of changed circumstances or for other reasons the approved plan cannot be effectively carried out, and proposed amendments to the plan, consistent with the requirements of this article, are agreed to by the plan-approving authority and the person responsible for carrying out the plan.

Revisions to an approved ESC plan must be submitted in writing to the James Madison University FM-Engineering Department. Revisions shall not be considered approved until written notice is provided. Revision must comply with the James Madison University ESC Annual Specifications.

4.0 CONSTRUCTION PLAN REQUIREMENTS

- Complete erosion and sediment control plans shall be provided in the construction plans.
- Minimum standards 1 through 19 (4VAC50-30-40) shall be listed in the construction plans.
- Construction sequence of operations shall be provided on the construction plans with staged implementation of erosion and sediment control measures for each phase. The area which may be disturbed in each phase shall be set forth in the construction plans.
- Construction plans shall provide information on the maintenance of BMPs or reference the narrative section that contains the information.
- Construction plans shall include the amount of disturbed area listed per phase and show the limits of clearing and grading.

5.0 INSPECTIONS

Periodic inspections shall be conducted, at a minimum, every two weeks and within 48 hours of a rainfall event producing runoff. In addition, inspections shall be made during or immediately following initial installation of erosion and sediment controls and at the completion of the project.

The inspection report provided in Appendix B will be used on each site inspection. All measures shown on the plan shall be inspected. All problems and violations shall be documented on the inspection report. Projects failing to complete corrective action with repeated violations shall be referred to DCR for enforcement. Inspection reports shall specify a required corrective action for each problem or violation noted and a date the corrective action must be completed. A copy of the completed inspection report will be given to the RLD and to the JMU Project Manager.

6.0 VARIANCE REQUESTS

Variances to regulations must ensure protection of off-site properties and resources from damage. For a variance to become part of the project specific ESC plans, a written variance request must be submitted by the James Madison University FM-Engineering Department for
review and approval by DCR. This request shall include an explanation of the reasons for requesting the variance and describe the specific site conditions necessitating the request. The request must also include a detailed description of the alternative ESC practice and justification that the practice meets the intent of the Minimum Standard for which the variance is sought. (Ref. 4VAC50-30-50)

6.1 ESC Variance Request Policy and Procedures

- James Madison University FM-Engineering shall coordinate the review and approval of all requested variances with DCR’s ESC Program representative(s).
- All requests for project specific variances to James Madison University ESC Annual Specifications shall be sent by the design professional to James Madison University FM-Engineering and shall be accompanied by complete details and documentation, including justification for the requested variance and impacts associated with the variance request. The design professional shall complete the form included in Appendix E.
- If determined to be appropriate by James Madison University FM-Engineering, then the variance request will be sent to the DCR Staunton Regional Office and the DCR Erosion and Sediment Control Program Manager for review and approval.
- All requested variances shall be considered unapproved until written approval from DCR is received.
- All approved variances shall be listed in the General Notes section of the ESC plans for land disturbing activities and included in the Narrative.

7.0 REGULATED LAND-DISTURBING ACTIVITIES

7.1 A list of regulated land-disturbing activities expected to be under construction during 2012 are included in Appendix C. The list includes:

- Project name
- Project location (including nearest major intersection)
- JMU Project Manager and contact information
- Project description
- Disturbed acreage estimate
- Projected start and finish dates

7.2 James Madison University FM-Engineering will notify the DCR Staunton Regional Office of the RLD name, certification number, and contact information at least 2 weeks prior to construction.

7.3 James Madison University FM-Engineering will notify the DCR Staunton Regional Office of any additional projects involving regulated land-disturbing activities unknown at time of ESC Annual Specification submission. This notification shall be provided at least two weeks in advance of land-disturbing activities.
APPENDIX A

PLAN PREPARER’S MINIMUM STANDARD CHECKLIST
## PLAN PREPARER’S MINIMUM STANDARD CHECKLIST

### FOR EROSION AND SEDIMENT CONTROL PLANS

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th>MS-1</th>
<th>Have temporary and permanent stabilization been addressed in the narrative?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Are practices shown on the plan?</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Temporary and permanent seed specifications?</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Lime and fertilizer?</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Mulching?</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Blankets/Matting?</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Pavement/Construction Road Stabilization?</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>MS-2</td>
<td>Has stabilization of soil stockpiles, borrow areas, and disposal areas been addressed in the narrative and on the plan?</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Have sediment trapping measures been provided?</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>MS-3</td>
<td>Has the establishment and maintenance of permanent vegetative stabilization been addressed?</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>MS-4</td>
<td>Does the plan specifically state that sediment-trapping facilities shall be constructed as a first step in land-disturbing activities?</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>MS-5</td>
<td>Does the plan specifically state that stabilization of earthen structures is required immediately after installation? Is this noted for each measure on the plan?</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>MS-6</td>
<td>Are sediment traps and sediment basins specified where needed and designed to the standard and specification?</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>MS-7</td>
<td>Have the design and temporary/permanent stabilization of cut and fill slopes been adequately addressed? Is Surface Roughening provided for slopes steeper than 3:1?</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>MS-8</td>
<td>Have adequate temporary or permanent conveyances (paved flumes, channels, slope drains) been provided for concentrated stormwater runoff on cut and fill slopes?</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>MS-9</td>
<td>Has water seeping from a slope face been addressed (e.g., subsurface drains)?</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>MS-10</td>
<td>Is adequate inlet protection provided for all operational storm drain and culvert inlets?</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>MS-11</td>
<td>Are adequate outlet protection and/or channel linings provided for all stormwater conveyance channels and receiving channels? Is there a schedule indicating:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Dimensions of the outlet protection? Lining? Size of riprap?</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Cross section and slope of the channels? Type of lining? Size of riprap, if used?</td>
</tr>
</tbody>
</table>

---

**PROJECT NAME:** ___________________________  **SUBMITTAL #: _________**

**PLANS DATED:** ________  **NARRATIVE DATED:** ________
Yes  No  NA

[ ] [ ] [ ] MS-12 Are in-stream protection measures required so that channel impacts are minimized?

[ ] [ ] [ ] MS-13 Are temporary stream crossings of non-erodible material required where applicable?

[ ] [ ] [ ] MS-14 Are all applicable federal, state and local regulations pertaining to working in or crossing live watercourses being followed?

[ ] [ ] [ ] MS-15 Has immediate restabilization of areas subject to in-stream construction (bed and banks) been adequately addressed?

[ ] [ ] [ ] MS-16 Have disturbances from underground utility line installations been addressed?

[ ] [ ] [ ] No more than 500 linear feet of trench open at one time?

[ ] [ ] [ ] Effluent from dewatering filtered or passed through a sediment-trapping device?

[ ] [ ] [ ] Proper backfill, compaction, and restabilization?

[ ] [ ] [ ] MS-17 Is the transport of soil and mud onto public roadways properly controlled? (i.e., Construction Entrances, wash racks, transport of sediment to a trapping facility, cleaning of roadways at the end of each day, no washing before sweeping and shoveling)

[ ] [ ] [ ] MS-18 Has the removal of temporary practices been addressed?

[ ] [ ] [ ] Have the removal of accumulated sediment and the final stabilization of the resulting disturbed areas been addressed?

[ ] [ ] [ ] MS-19 Are properties and waterways downstream from development adequately protected from sediment deposition, erosion, and damage due to increases in volume, velocity and peak flow rate of stormwater runoff?

[ ] [ ] [ ] Is concentrated stormwater runoff leaving the development site discharged to an adequate natural or man-made receiving channel, pipe or storm sewer system?

[ ] [ ] [ ] Are calculations provided to verify the adequacy of all channels and pipes?

[ ] [ ] [ ] If existing natural receiving channels or previously constructed man-made channels or pipes are not adequate, have provisions been made to prevent downstream erosion?

[ ] [ ] [ ] Have increased volumes of sheet flows that may cause erosion or sedimentation on adjacent property been diverted to a stable outlet, adequate channel, pipe or pipe system, or to a detention facility?

[ ] [ ] [ ] Variances requested at the time of plan submission are governed by Section 4VAC50-30-50 of the Virginia Erosion and Sediment Control Regulations.

[ ] [ ] [ ] All Minimum Standards have been listed on a plan set.
# INSPECTION REPORT

Project Name: ___________________________ Project Manager: ___________________________

RLD Name: ___________________________ RLD No. ___________________________

Project Location: ___________________________ Project No: ___________________________

Inspector Name: ___________________________ Inspection Date: ___________ Time: ___________

Does the project require a VSMP General Construction Permit: Yes ☐ No ☐  |  Permit Number (if applicable): ___________________________

## STAGE OF CONSTRUCTION

<table>
<thead>
<tr>
<th>Item#</th>
<th>State/Local Regulation(1)</th>
<th>Violation</th>
<th>Description and Location of Problem/Violation(2), Required or Recommended Corrective Actions, and Other Comments/Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Initial</td>
<td>Repeat</td>
</tr>
</tbody>
</table>

(1) Refers to applicable regulation found in the most recent publication of the Virginia Erosion and Sediment Control Regulations (4VAC50-30), Virginia Stormwater Management Permit Regulations (4VAC50-60), or local ESC/SWM ordinance.

(2) Note whether or not off-site damage resulting from the problem/violation was evident during the inspection.

### REQUIRED CORRECTIVE ACTION DEADLINE DATE: ___________________________ Re-inspection Date: ___________________________

(DD/MM/YY) (DD/MM/YY)

The required corrective action deadline date applies to all violations noted on this report. If listed violation(s) currently constitute non-compliance and/or required corrective actions are not completed by the deadline, a NOTICE TO COMPLY, STOP WORK ORDER, and/or other enforcement actions may be issued to the entity responsible for ensuring compliance on the above project.

Inspector: ___________________________ Signature: ___________________________ Date: ___________________________

Acknowledgement of on site report receipt:

Print Name: ___________________________ Signature: ___________________________ Date: ___________________________

This report will be provided to the following parties within 24 hours: ___________________________
APPENDIX C

TENTATIVE FUTURE LAND-DISTURBING ACTIVITIES
<table>
<thead>
<tr>
<th>Project Name</th>
<th>Project Location</th>
<th>Project Manager</th>
<th>Contact Information</th>
<th>Project Description</th>
<th>Area (acres)</th>
<th>Submittal Date</th>
<th>Construction Start Date</th>
<th>Construction Finish Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Port Republic Road Recreation Fields</td>
<td>Near Port Republic Rd. &amp; Neff Ave</td>
<td>Glenn Wayland</td>
<td>540-568-6345</td>
<td>Construction of various recreational fields</td>
<td>65.00</td>
<td>Jun-09</td>
<td>Jan-10</td>
<td>Mar-12</td>
</tr>
<tr>
<td>A3B CISAT Biotech Academic Building</td>
<td>Near Carrier Dr. &amp; Alumni Dr.</td>
<td>Scott Wachter</td>
<td>540-568-3006</td>
<td>Construction of 90,000 gsf academic building</td>
<td>3.50</td>
<td>Jun-10</td>
<td>Aug-10</td>
<td>Mar-12</td>
</tr>
<tr>
<td>Duke Hall Renovations</td>
<td>Near E. Grace St. &amp; S. Main St.</td>
<td>Scott Wachter</td>
<td>540-568-3006</td>
<td>Renovate and expand existing building</td>
<td>1.50</td>
<td>Jun-11</td>
<td>Apr-12</td>
<td>Nov-13</td>
</tr>
<tr>
<td>ISAT Retention Pond Relocation</td>
<td>Near Driver Dr. &amp; University Blvd.</td>
<td>Glenn Wayland</td>
<td>540-568-6345</td>
<td>Relocation of existing retention pond</td>
<td>4.00</td>
<td>Feb-10</td>
<td>Unknown</td>
<td>Unknown</td>
</tr>
</tbody>
</table>
APPENDIX D

VARIANCE REQUEST FORM
VARIANCE REQUEST

Requested by: ________________________________ Date: __________________

Street Address: ________________________________________________________

City/Town/Zip: __________________________________________________________

Telephone #: __________________ Fax #: _____________________________

E-mail address: __________________________________________________________

Project Name/Location: __________________________________________________

Project Description: ____________________________________________________

Variance requested for (state appropriate minimum standard & requirement): ____________

Reasons and Justification for Variance Request: ________________________________

________________________________________________________

Signature of applicant: ______________________________ Date: __________________

________________________

________________________

________________________
APPENDIX E

PLAN REVIEWER’S CHECKLIST
PLAN REVIEWER’S CHECKLIST

Minimum Standards - All applicable Minimum Standards must be addressed.
- All minimum Standards must be adhered to during the entire project regardless of the phasing.
- Request for a Variance should be addressed

NARRATIVE

Project description - Briefly describes the nature and purpose of the land-disturbing activity, and the area (acres) to be disturbed.
- What time of year will the project start and finish? (construction sequence)
- How long will it take to complete the project?
- How many acres will be disturbed for completion of this project?
- How much impervious area will the project have in post-developed conditions?
- What will be the ultimate developed conditions of the site?

Existing site conditions - A description of the existing topography, vegetation and drainage.
- Should list percentages of slope on the site.
- Types of existing vegetation that can be used as erosion control, or areas to be left undisturbed.
- Discuss marking of areas where existing vegetation is to be preserved.
- Discuss size of drainage areas in pre-development and post-development conditions.
- Discuss any existing drainage or erosion problems and how they are to be corrected.
- Discuss orientation of slopes (north or south facing).
- Discuss how existing site conditions can be used to reduce the potential for erosion and how proposed E&S controls will be designed to “fit” the site.
- Photographs?

Adjacent areas - A description of neighboring areas such as streams, lakes, residential areas, roads, etc., which might be affected by the land disturbance.
- The potential for off-site damages must be considered and discussed
- ANY environmentally sensitive areas should be mentioned.
- Other private or public lands adjacent to the site should be described and considered for possible problems during and after construction (traffic problems, dust control, increases in runoff etc.)
- Discuss perimeter controls to be used.
Off-site areas - Describe any off-site land-disturbing activities that will occur (including borrow sites, waste or surplus areas, etc.). Will any other areas be disturbed?
- Any off-site borrow or spoil areas should have an approved plan to supplement the overall project plan.
- If off-site areas are under other permits, proof of permits should be provided.
- List specific locations of all off-site areas
- Discuss who will be responsible for final stabilization and maintenance of off-site areas.

Soils - A brief description of the soils on the site giving such information as soil name, mapping unit, erodibility, permeability, depth, texture and soil structure.
- Indicate references for soil information
- Provide a copy of soil survey map
- Indicate what sheet of site plan soils are delineated
- Check for soils with a high K factor, or poor drainage, low pH etc.

Critical areas - A description of areas on the site which have potentially serious erosion problems (e.g., steep slopes, channels, wet areas, streams, underground springs, etc.).
- Discuss any area of the project which may become critical during the project. Some areas of the site may have long or steep slopes during a certain phase of the grading.
- Indicate areas to be left alone until they can be graded and stabilized in favorable conditions.
- Discuss precautions to communicate limits of these areas to contractors and equipment operators.

Erosion and sediment control measures - A description of the methods which will be used to control erosion and sedimentation on the site. (Controls should meet the specifications in Chapter 3.)
- List all controls used, list specification numbers (3.02) location of practice.
- Discuss why it was selected.
- Sequence of installation, maintenance and removal for each control.
- Discuss temporary seeding as a means of erosion control, list the types to be used
______ **Permanent stabilization** - A brief description, including specifications, of how the site will be stabilized after construction is completed.
- Final stabilization needs careful review.
- Is the timing of seeding correct with the construction sequence?
- List soil testing requirements
- Provide seeding specifications (pure live seed minimums), fertilizer and liming specifications. Seeding tables and rates.
- Is the type of permanent vegetation appropriate for the site?
- Discuss all other areas to be stabilized other than vegetation (gravel, paved, etc.)

______ **Stormwater runoff considerations** - Will the developed site cause an increase in peak runoff rates? Will the increase in runoff cause flooding or channel degradation downstream? Describe the strategy to control stormwater runoff.
- Discuss how downstream properties and waterways will be protected (basins, channel improvements, easements)
- Discuss how increased runoff will be managed during construction
- List or discuss all other references for design of permanent facilities.

______ **Calculations** - Detailed calculations for the design of temporary sediment basins, permanent stormwater detention basins, diversions, channels, etc. Include calculations for pre- and post-development runoff.
- All calculations showing pre-development and post-development runoff should be provided. Worksheets, assumptions and engineering decisions should be clearly presented to assist the plan reviewer in his or her duties.
- Calculation methods should be clearly presented and organized.
- Have the calculations shown that adequate protection of down-stream properties and waterways are protected?

______ **Maintenance** - A schedule of maintenance for permanent stormwater management measures (BMPs) should be provided.
- Should list who is responsible during construction and who will be responsible once the project is complete
- Should provide a schedule of inspections to be conducted
- List maintenance items to check and perform as well as precautions for large storm events
SITE PLAN

Vicinity map - A small map locating the site in relation to the surrounding area. Include any landmarks which might assist in locating the site.
- Provide a reproduction of a topographic map, road map etc.

Indicate north - The direction of north in relation to the site.
- Useful tool for determining slope orientation
- Useful for communicating written inspection reports and plan review comments
- Useful in predicting areas off-site that might be effected by dust drift

Limits of clearing and grading – Areas which are to be cleared and graded.
- Show all areas to be disturbed on the site plan
- Provide notes on how areas will be marked
- Provide notes and illustrations to clearly indicate areas NOT to be disturbed

Existing contours - The existing contours of the site.
- Should be shown as dashed light lines in intervals from 1 to 5 feet.
- Represent pre-developed drainage areas (check these areas for accuracy)
- Show potential critical areas (slopes)
- Helps to determine cut or fill areas, low spots
- Helps to determine if E&S controls have been designed properly

Final contours - Changes to the existing contours, including final drainage patterns.
- Should be shown as heavy solid lines
- Determines final drainage areas
- Check to see if pre-developed drainage areas have increased
- Check final grade of slopes to see if they will become critical (may need diversions or flumes)
- Check vegetative specifications for final grade of slopes (low or high maintenance). Are erosion controls blankets needed?

Existing vegetation - The existing tree lines, grassed areas, or unique vegetation.
- Clearly indicate existing tree lines, vegetation areas to remain
- Provide notes on the plan for areas to be undisturbed

Soils - The boundaries of different soil types.
- Indicate soil boundaries of all soil types on the site. List K factor and soil survey classifications.
- Provide notes of soil properties (texture, etc.)
Facilities Management – Engineering
181 Patterson Street, Suite 203
Harrisonburg, VA 22807
540.568.4201 phone
540.568.3547 fax

______ Existing drainage patterns - The dividing lines and the direction of flow for the different drainage areas. Include the size (acreage) of each drainage area.
- Should be indicated by acres and show the direction of flow for all existing drainage areas.
- Indicates the need for basins, traps or other structural measures
- Helps to determine if controls are designed correctly
- Helps to determine if off-site drainage needs to be diverted
- Useful in planning to break up drainage areas into smaller more manageable areas during construction

______ Profile of storm drainage systems – Proposed storm drainage components shall be provided in a profile.
- Pipe diameter, material, inverts, etc. should be included on the profile.

______ Critical erosion areas - Areas with potentially serious erosion problems.
- All critical, environmentally sensitive or prohibited areas should be denoted on the plan and notes provided to state reasons for critical nature
- Stream considerations; temporary crossings, other permits, location of stockpiles, trash & debris removal, fuel storage, etc.

______ Site Development - Show all improvements such as buildings, parking lots, access roads, utility construction, etc.
- All improvements such as building, roads, temporary access roads, right-of-ways and temporary easements should be shown on the plan.
- Utility improvements on and off-site should be shown.

______ Location of practices - The locations of erosion and sediment controls and stormwater management practices used on the site. Use the standard symbols and abbreviations in Chapter 3 of the VESC handbook.
- The exact location of all practices including vegetation should be clearly shown on the plan.
- A legend denoting symbols, line uses and other special characters should be provided

______ Off-site areas - Identify any off-site land-disturbing activities (e.g., borrow sites, waste areas, etc.). Show location of erosion controls. (Is there sufficient information to assure adequate protection and stabilization?)
- Are separate plans required for off-site borrow or disposal areas?
- How will off-site areas be stabilized?
- Are there any temporary easements to be disturbed during construction?
- Who has final responsibility for off-site areas?
Detail drawings - Any structural practices used that are not referenced to the E&S handbook or local handbooks should be explained and illustrated with detail drawings.
- Details should be provided which are clearly dimensioned and reflected the ability to be “built” in the field according to the proper design criteria.
- Alternative E&S measures must have proper drawings to indicate how and where they are to be constructed.
- All plan drawings, elevations and cross section drawings should show scales used to prepare the drawings.
- Outlet protection schedules should be provided
- Sizes and materials should be shown for all pipes, flumes and slope drains.
- All details should list the specification number from the VESCH
- If more than one type of specification is being used (inlet protection) details of all practices shall be provided

Maintenance - A schedule of regular inspections and repair of erosion and sediment control structures should be set forth.
- Indicate who is responsible for maintenance and repair of all E&S measures on the project (RLD).
- Indicate who is the primary contact for emergencies, for notification of problems (owner), etc.
- Provide clean-out and maintenance specifications for all major structures such as basins, traps, silt fence etc.
- Require monitoring reports from the RLD if needed
Community Solutions to Stormwater Pollution in Blacks Run

Organization: Virginia Department of Conservation and Recreation, Division of Soil and Water Conservation
Project Partners: Eastern Mennonite University, James Madison University, Shenandoah Valley Soil and Water Conservation District, City of Harrisonburg, Boxerwood Gardens, Harrisonburg Redevelopment and Housing Authority, Virginia Department of Environmental Quality
Grant Award: $ 325,000
Matching Funds: $ 460,339 (Non-Federal Match expended to date = $450,023; Federal Match expended to date = $40,000)

Project Description: This project is designed to reduce stormwater pollution and enhance stormwater management on three scales in the Blacks Run Watershed, which is located in the City of Harrisonburg: 1) neighborhood/individual 2) institutional and 3) community/watershed scale. Project partners were identified based on their capacity to implement management practices at these different scales, and to work with large and small property owners to increase local capacity to continue to address stormwater management in the Blacks Run watershed. This project will result in the installation of over 200 best management practices (BMPs) including a series of residential rain gardens, rain barrels and pet waste digesters, several larger bioretention facilities, a rainwater harvesting cistern, streambank stabilization and riparian buffer planting projects, and a small green roof. In addition, this project will provide training and capacity building for the community and landscaping professionals to use cost-effective methodologies for the design, installation and maintenance of stormwater practices that will continue to benefit the community and watershed after this NFWF project is complete. Collectively these actions will reduce pollution that may result in improved water quality conditions in Blacks Run.

Goals and Outcomes:
Installation of approximately 200 stormwater BMPs treating 124 urban/residential acres in the Blacks Run watershed:
- 170 rain barrels
- 14 rain gardens
- 8 bioretention/infiltration practices
- 7 riparian buffer plantings (> 1acre)
- 2,850 ft of stream bank stabilization
- 65 pet waste digesters
- Additional 8 acres of trees planted (3,250 trees)
- Four cisterns (114,000 gallons of rainwater harvested)
- One green roof
- Estimated reductions of 509 lbs/year of nitrogen, 78 lbs/year of phosphorous, and 19 tons/year of sediment
- Documented improvement in water quality conditions after the project has completed its third year
- Foster a stewardship ethic within a community through neighbor to neighbor communication.
- Increase knowledge of landscapers, municipal employees, and home owners about rain gardens and vegetated buffers
- Lower the cost of rain garden design and installation and buffer maintenance throughout the watershed
- Increase the exposure and understanding of the residents of Blacks Run to stormwater pollution prevention issues.
Status:
As this grant nears it closure, all partners are on track to complete their projects. Due to lower than expected costs for rain gardens, the Shenandoah Valley SWCD found themselves with a $20,000 budget surplus. In partnership with the City of Harrisonburg, a portion of these funds were redirected to purchase 750 trees and tubes for two riparian planting projects completed this spring (over 1,000 linear feet of buffers). The remainder of the surplus will be used to install a 3,000 gallon cistern on one of the city’s public works buildings, which will be used to operate the city’s street sweeper. The Shenandoah Valley SWCD is finishing up a residential rainwater harvesting project with the New Community Project, a local organization that provides housing for the temporarily unemployed in exchange for assistance growing produce in their greenhouse for sale at the farmers market. Two cisterns will be installed on the property this spring, and a training will be held on how to construct ferrocement cisterns. Harvested rainwater will be used to water plants in their greenhouse. Eastern Mennonite University is finishing up installation of their 100,000 gallon cistern, which will be used to irrigate their athletic fields. James Madison University completed their third streambank restoration project this spring, restoring 1,000 linear feet of stream channel and planting just under an acre of riparian buffers. This project will be viewed by thousands of people each day as it is visible from Interstate 81. In addition to numerous implementation projects, considerable outreach has continued throughout the project. Last fall, the City of Harrisonburg completed a Stream Buffer Maintenance Manual and worked with project partners to hold an Urban Water Quality Workshop at James Madison University. Continuing education credits were offered for Nutrient Management Planners and participants received a tour of streambank restoration sites on the JMU campus and learned about urban and residential stormwater management practices. Attendance approached 100 people. In addition, the Shenandoah Valley SWCD held the last of three rain barrel workshops in April, while project partners worked together to plan and host four annual Blacks Run Clean Up Days during the grant agreement period.

Challenges and Lessons Learned:
- Throughout this project, partners have experienced both budget surpluses and shortfalls. While some planned projects have proved unfeasible, several new and promising opportunities for restoration presented themselves. DCR has worked closely with partners to direct funds where they are needed most. This has required considerable time and effort with respect to project management; however, the benefits have been considerable.
- In 2011, Virginia adopted the 2009 Uniform Statewide Building Code (USBC) with Virginia-specific technical amendments, including one that limits reservoir storage of rain water or grey water for subsurface irrigation to 24 hours. Project partners obtained variances on the code from local building code officials; however, it is clear that as this code is currently written, it presents considerable challenges to rainwater harvesting projects in Virginia.
- In Blacks Run, many urban reaches of the stream run parallel to railroad tracks or are buffered by parking lots. It has proved challenging to convince property owners to sacrifice parking spaces for tree plantings, and demolition and disposal of concrete is costly. To date, we have had the greatest success with buffer plantings in public parks.

Readiness for Scale Up:
- The innovative options for rainwater reuse explored through this project offer examples of how private property owners, localities and universities can experience considerable cost savings through rainwater harvesting. Documentation of installation and operational costs of cisterns installed through this project and economic returns on these investments could provide a clear example of the economic benefits of rainwater harvesting.
- The City of Harrisonburg’s Stream Buffer Maintenance Manual has been made available to other localities this year. We anticipate that this will lead to a significant increase in stream buffer installation by localities since maintenance has been identified as one of the primary obstacles to implementation.

For more information, contact:
Nesha McRae, Virginia Department of Conservation and Recreation, Email: nesha.mcrae@dcr.virginia.gov, Phone: (540) 332-9238
APPENDIX E

Upper Shenandoah MS4 Partnership Retrofit Assessment Project Proposal
PROJECT NAME: ___________________________ SUBMITTAL#: _________

PLANS DATED: _________ NARRATIVE DATED: _________
Title of Project
Upper Shenandoah MS4 Partnership Retrofit Assessment Project

Total Amount Requested $150,000.00
Matching Contributions Proposed $22,269.00
Proposed Grant Period 09/10/2012 - 09/06/2013

Project Description
The City of Harrisonburg, Town of Bridgewater, and James Madison University will contract with the Center for Watershed Protection to conduct a Priority Stormwater Retrofits Study for each partner.

Project Abstract

Organization and Primary Contact Information
Organization Central Shenandoah Planning District Commission
Organization Type State or Local Government
Organization Web Address www.cspdc.org
Organization Phone
Street Line 1
City, State, Country Postal Code Staunton, Virginia, North America - United States
Region (if international)
Organization Congressional District
Tax Status Under Review - State/local Government Agency
Tax ID 540857625

Primary Contact
Position/Title Erin Yancey
Street Line 1 112 MacTanly Place
City, State, Country Postal Code Staunton, Virginia, North America - United States 24401
Region (if international)
Phone and E-mail 540-885-5174 x; erin@cspdc.org

Keywords
Sub-keywords

Other Keyword(s)
Title: Upper Shenandoah MS4 Partnership Retrofit Assessment Project
Organization: Central Shenandoah Planning District Commission
Project Location Information

Project Location Description

The project will take place in the City of Harrisonburg, and nearby Town of Bridgewater, which are located in the Shenandoah Valley and North River/South Fork Shenandoah River watershed.
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<tr>
<td>Description:</td>
<td>The CSPDC will participate in limited activities. Actual salary+fringe+indirect rate used. Match for other partners used a volunteer rate for most staff/leadership participation, thus these are very conservative estimates of in-kind match.</td>
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**Total Amount of Matching Contributions**

$22,269.00
National Fish and Wildlife Foundation – Chesapeake Bay Local Government Assistance Program 2012, Pre-proposal
Title: Upper Shenandoah MS4 Partnership Retrofit Assessment Project
Organization: Central Shenandoah Planning District Commission

The following pages contain the uploaded documents, in the order shown below, as provided by the applicant:

CB LGAP Pre-proposal Narrative
Letters of Support
Other Documents (10 page limit)

The following uploads do not have the same headers and footers as the previous sections of this document in order to preserve the integrity of the actual files uploaded.
A. Objectives

The City of Harrisonburg, James Madison University (JMU), and the Town of Bridgewater (hereto forth referred to as “the partners”) are partnering in a request for technical assistance from the Center for Watershed Protection (CWP) that addresses shared challenges associated with each community’s unique circumstances as they relate to Chesapeake Bay Total Maximum Daily Load (TMDL) and Municipal Separate Storm Sewer System (MS4) programs. By participating in this initiative, the partners hope to achieve the following:

1) Establish a partnership between neighboring regulated communities that will allow each to meet its MS4 permit requirements and Bay TMDL requirements more efficiently (outcome). While the partners have collaborated on various regional water resources projects in the past (see section F.), they have only recently begun to communicate on stormwater issues. Each is a MS4 permittee that has something to gain from cooperation with the other partners. For instance, JMU’s pollution reductions assist the City of Harrisonburg in meeting its goals, as defined in Virginia’s Phase II Watershed Implementation Plan (WIP II) because JMU and the City are not separate entities in the Chesapeake Bay watershed model. As a small town of less than 6,000, the Town of Bridgewater will benefit significantly from the partnership. Bridgewater will benefit from knowledge transfer from larger MS4 experiences, reducing the steep learning curve inherent in MS4 program administration. The partnership will also build collective capacity, and build it quicker, by positioning the partners to gain exposure to essentially three times as much stormwater management experience. Finally, the partners benefit from leveraging each other’s participation in the partnership to expand the impact of projects, while increasing competitiveness for scarce resources, while more sustainable funding mechanisms are developed.

The partners expect to be joined by other communities in the Upper Shenandoah watershed in the near future, and plan to expand the scope of the partnership to include a variety of MS4 issues that will result in a comprehensive approach to stormwater management in the watershed (outcome). Areas of future collaboration will likely include public education/outreach, seeking grant funds, stormwater stewardship on private property, LID maintenance and other training, lessons-learned roundtables, Chesapeake Bay Action Plan development, etc.

2) Further develop stormwater retrofitting strategies that resulted from Virginia’s WIP II local engagement process and local implementation plans for Blacks Run, Cooks Creek, and Smith Creek (outcome). This request for technical assistance will remove a major barrier to implementation: the question of where to start. This barrier is supported by the lack of staff time, funding, and expertise to do the relatively extensive planning work that is necessary to comprehensively approach stormwater retrofitting on public lands. The result of this technical assistance request will provide each partner with a starting point from which to address WIP II reduction goals. It will also build staff expertise to allow for successful implementation of recommended projects, as well as increased capacity of local staff to identify and prioritize future pollution reduction opportunities.

The output of the technical assistance request will prepare the partners for new permit requirements expected to appear in the reissuances of Phase II MS4 permits in 2013 (outcome). Virginia’s WIP II establishes the expectation that MS4 permittees develop Chesapeake Bay Action Plans in the next permit cycle that describe how the permittee will meet their WIP II pollution reduction goals over the following two permit cycles. The output of this technical assistance request will be directly applied to the partners’ Action Plans. In addition to making prioritized project recommendations, the output will estimate the numeric pollution...
reductions and fiscal impact associated with the recommendations—these are key elements necessary to the development of the Action Plans. The outputs will assist partners in the first step toward achieving WIP II and local water quality goals, which is to lead by example.

3) **Assess local leadership** for their understanding of the nonpoint source pollution regulatory framework and its implications on the partners’ operations, especially as related to the Chesapeake Bay TMDL. Virginia’s WIP II spells out specific pollution reduction targets assigned to MS4 communities, and the timeline by which they will be met. The partners’ understanding is that MS4 communities will be compelled to meet these targets through future permit conditions. Through this technical assistance request, the partners plan to communicate with local decision makers to assess their understanding of these forthcoming regulatory requirements—especially as they relate to budget impacts. These assessments will inform staff on the status of their local leadership’s readiness to meet the forthcoming requirements, while also providing a pathway for more detailed discussion and clarification that may be needed regarding these issues. The result of the assessments will be an increased awareness among local leadership that additional resources will be needed to meet new MS4 obligations (outcome). The dialogue fostered through these assessments will lay the groundwork that compels leaders to engage in policy making that increases local resources necessary to meet stormwater management obligations.

### B. Technical Assistance Needed

The partnership requests technical support in producing specific deliverables that will assist them in demonstrating their commitment to environmental stewardship to the public. This assistance will also determine the progress toward WIP II pollution reduction goals that could be achieved through retrofits/management adjustments on public properties. The partners have communicated with CWP on a scope of work that would produce a **Priority Stormwater Retrofits Study** (outputs: 3 studies total) for each jurisdiction (JMU, Harrisonburg, and Bridgewater). These studies would assist the partners with identification and prioritization of stormwater retrofits to existing infrastructure on public property that would result in significant nutrient and sediment reductions. Based on the dollar amount of technical assistance available, CWP estimated the ability to evaluate 100 sites across the three jurisdictions. To better equip the partners to implement the study results, they request the following tasks also be included in the studies:

1) **Retrofit prioritization criteria:** Each partner will work with CWP to develop prioritization criteria that best suits its jurisdiction. The criteria may include factors such as:
   - overall cost effectiveness
   - pollution reduction efficiency
   - support of MS4 permit and Chesapeake Bay WIP goals
   - support of local TMDL goals
   - extent to which the retrofit assists the jurisdiction in meeting other goals, such as water conservation, creating community amenities, beautification, K-12 education, etc.
   - incorporation of green infrastructure principles into stormwater management planning
   - potential for public education and/or reaching traditionally underserved populations

2) **Pollution load reduction estimates of each retrofit recommended in the studies:** These load reductions will be compared to MS4 permit goals, as well as pollutant reduction goals established in Virginia’s WIP II, and will assist in project prioritization. This forecast will assist the partners in achieving load reductions on public property, while allowing for an estimation of reductions that will be needed from private property to meet WIP II goals.

3) **Cost estimates** for each retrofit identified. This information will assist with prioritization, and inform budget decisions for years to come.

4) **Partner capacity building:** Partner staff will participate in the retrofit assessments to gain an understanding of methods and considerations that guide the identification and specifications of retrofit opportunities. Staff would also receive training in identifying obstacles and challenges to successful stormwater retrofits. This knowledge transfer will improve the partners’ abilities to recognize future opportunities, and advance assessment recommendations into implementation.
Additionally, the partners request assistance in performing a series of stakeholder interviews (outputs: minimum of 4 total interviews) with local decision makers and senior management to assess their understanding of, and provide additional information about the regulatory framework governing nonpoint source pollution. The main focus of these interviews will be the forthcoming regulatory requirements of the Chesapeake Bay TMDL via renewed MS4 permits, particularly as they impact local budgets. The intent of the interviews is to begin to break down the “lack of resources” barrier that currently stands between the jurisdictions and readiness to meet Chesapeake Bay WIP II goals. These interviews will survey at least four local decision makers in the City of Harrisonburg, including a minimum of one elected official, and a combination of senior managers from the city and JMU. Interviews will be forgone by the Town of Bridgewater because the town council has already considered these issues and has taken action to increase local resources for stormwater improvements by passing a stormwater utility fee.

C. Community Context
The Upper Shenandoah MS4 Partnership’s membership is diverse and includes small, medium, and university communities. Harrisonburg, Bridgewater, and JMU (located in Harrisonburg) are located in the heart of the Shenandoah Valley, and are identified as “high development pressure” areas on the Chesapeake Bay Program’s vulnerability map. Harrisonburg, a city of nearly 50,000, includes the JMU community, a state university with enrollment of approximately 19,000. Harrisonburg has experienced a growth rate of greater than 20% over the past decade. Bridgewater, a town of less than 6,000 people and 2.8 square miles, is located just southwest of Harrisonburg. The City of Harrisonburg has a 17.6 square mile footprint, which includes JMU’s approximately one square mile campus. The City’s largest employers are JMU, Rockingham Memorial Hospital, Harrisonburg Public Schools, and Rosetta Stone. Bridgewater’s largest employers are Marshalls, Perdue, Bridgewater Home/Retirement Village, and Bridgewater College.

Local hydrology is characterized by springs, streams, and creeks originating in the Alleghany Mountains to the west, and flow eastward, ultimately feeding the South Fork Shenandoah River. Parts of the Blacks Run, Cooks Creek, Smith Creek, North River, and Dry River watersheds fall within the boundaries of the partners’ jurisdictions. The majority of the Blacks Run watershed falls within Harrisonburg’s city boundaries, while just small portions of the Cooks Creek and Smith Creek watersheds are within the city. Bridgewater is situated on the North River, which is fed by the Dry River along the town’s northwestern boundary. Blacks Run and Cooks Creek flow into the North River, which flows into the South Fork Shenandoah River, and eventually makes its way to the Chesapeake Bay by way of the Potomac River.

The Blacks Run watershed is approximately 12,256 acres and is comprised of urban/residential (65%), pasture/hay land (18%), cropland (6%) and forest (9%) land uses. The watershed is largely urban in northern sections as the stream flows through the City of Harrisonburg and becomes increasingly rural as the stream nears Cooks Creek. The Cooks Creek watershed is approximately 15,919 acres, excluding Blacks Run, and is only about 25% urban/residential, with the majority of the remainder in agricultural land uses in Rockingham County. Smith Creek is 67,900 acres, with less than 4% in urban uses. The North River watershed (188,534 acres upstream of Bridgewater) is composed of several subwatersheds surrounding the Town of Bridgewater, one of which is the Dry River watershed (76,853 acres). These subwatersheds are dominated by agricultural and forest land use/cover until the confluence of the Dry River and the North River at the Town of Bridgewater where urban/residential land uses dominate.

D. Water Quality Context
The partners have several local TMDLs and US Environmental Protection Agency (EPA) approved implementation plans that they and other partners have worked to implement over the past several years. An implementation plan for Blacks Run and Cooks Creek TMDL (bacteria, sediment, and phosphorous impairments) was completed in 2006. There is currently a project underway in these watersheds that is implementing agricultural, residential, and urban BMPs with EPA Section 319 funding, and NFWF funded an implementation project in the Blacks Run watershed that started in 2008 and will end in 2012 that targeted urban stormwater pollution. Smith Creek’s implementation plan was completed in 2009, and the watershed was designated as a “Chesapeake Bay Showcase Watershed” by the US Department of Agriculture. The North River TMDL Implementation Plan, completed in 2001 for bacteria and nitrate impairments, has made considerable progress over the past 10 years. One of three pilot TMDL
implementation projects in Virginia, agriculture BMP implementation has been particularly successful in this watershed. The North River was de-listed for its nitrate impairment in Virginia’s 2010 water quality assessment.

Improving our local headwater streams and rivers will benefit our region, the Chesapeake Bay, and all that lie between the two. Addressing our local phosphorous and sediment impairments will also reduce our WIP II assigned load reduction goals. This technical assistance request includes the development of stormwater retrofit recommendations, as well as estimates of pollutant reduction loads and costs associated with the recommendations. This information will assist in the prioritization of projects to be implemented over the next three permit terms to meet the load reduction goals established in Virginia’s WIP II. Engaging local leadership on budget impacts associated with the WIP II goals/future MS4 program requirements will ensure that urban pollutant reduction goals continue to be met beyond 2025. Section G further details how our objectives meet Virginia’s WIP II goals.

E. Local Leadership
Local leadership will be engaged in multiple project tasks related to this capacity building initiative. First, the partners’ councils and management have already expressed their support for this technical assistance request. Second, local leaders and managers will participate in assessment interviews, which will gauge their level of understanding about future MS4 permit obligations and fiscal impacts associated with the Chesapeake Bay TMDL. This task is also expected to assist staff in sharing knowledge with local leaders and increase their engagement on this topic. Ultimately, this engagement should result in the jurisdictions’ increased preparedness to meet the WIP II goals. Additionally, once the retrofit studies are complete, the results will be presented at the partners’ town/city council meetings, and to JMU’s Facilities Management Administration. Finally, elected officials and senior managers will be invited to attend a stormwater retrofits financing workshop to be held in the region in Fall of 2012. The content of the workshop will be directly related to the intent of the retrofit studies, and will further communicate to local leaders the importance of sustainable funding mechanisms for the implementation of stormwater improvements.

F. Collaboration and Partnership
The members of the Upper Shenandoah MS4 Partnership began to interact more regularly on nonpoint source issues as it became apparent that the Chesapeake Bay TMDL and new state stormwater regulations would introduce new complexities to the state’s MS4 program. The partners assist each other in understanding program requirements as they evolved, and have identified common challenges, and areas of mutual benefit on which to collaborate. The members are currently the only MS4 communities in the Shenandoah Valley, and obtained this status because each is a part of the same “urbanized area”. Together, they share the majority of responsibility for stormwater impacts to the North River, and their cooperation greatly increases the likelihood of successfully mitigating impacts from the stormwater pollution sector.

Within each partner’s jurisdiction, stormwater and stream stewardship duties are shared across multiple departments. As such, each partner will form a multi-departmental team to participate in its retrofit study, so that capacity building will occur across the spectrum of professions that have a hand in managing stormwater. Additionally, the partners will be joining another community in the Valley and the Central Shenandoah Planning District Commission (CSPDC) in a discussion on stormwater retrofit financing at a workshop to be held in the Fall of 2012. This workshop will provide technical expertise and peer perspectives on budget issues related to stormwater management and regulations. Participation in the MS4 partnership will also help JMU implement recommendations from its 2008 Sustainability Report. Improved cooperation with local organizations and innovative stormwater management practices were identified in this report as priorities for the university.

The partners have a long history of regional cooperation on many issues under the leadership of the CSPDC, including water resources. Recent projects and issues of collaboration included the Upper Shenandoah River Basin Water Supply Plan, the Chesapeake Bay WIP II local engagement process, and the current Stormwater Management Assistance Program, in which the CSPDC is assisting localities in developing qualifying local stormwater programs to implement Virginia’s new stormwater management regulations. Additionally, JMU and Harrisonburg recently collaborated on a stormwater implementation project (funded by NFWF) with several other partners. The “Community Solutions to Stormwater Pollution in Blacks Run” project resulted in many successes and valuable
lessons-learned that strengthened partnerships across the Blacks Run watershed.

Virginia’s WIP II describes ways in which the Virginia Department of Conservation and Recreation (DCR) will work with MS4 permittees to achieve the Chesapeake Bay TMDL reductions. These include individual assistance with Action Plans, increasing BMP implementation levels, training to implement the new stormwater regulations, and outreach/educational support to raise public knowledge about the Chesapeake Bay TMDL and regulatory requirements. The partners already have a good working relationship with their regional DCR office, and see this as an expansion of the technical assistance they already receive from the agency. The partners will gladly accept this additional assistance, and are committed to collaboration with the state and the EPA to improve local and Chesapeake Bay water quality.

G. Commitment to Implementation
According to Virginia’s WIP II, the next MS4 permit cycle, to commence in 2013, will require permittees to achieve 5% of pollution reductions that meet Level 2 scoping (reductions of 9% nitrogen load, 16% phosphorus load, and 20% sediment load from impervious land, and reductions of 6% nitrogen load, 7.25% phosphorus load, and 8.75% sediment loads from pervious land beyond 2009 progress). Additionally, in the next permit cycle, MS4s will be required to develop Chesapeake Bay Action Plans that describe how the permittee plans to meet the remainder of the Level 2 reductions over the next two permit terms. Bridgewater, Harrisonburg, and JMU are each committed to meeting their permit requirements, provided that funding and resources are available to do so. The results of the retrofit studies will be directly applicable to meeting the 5% reduction needed over the next six years and beyond. The partners intend to use the results of the studies in their Chesapeake Action Plans, and to use the recommended projects to meet the pollution reductions called for in their renewed MS4 permits and the WIP II over the three permit terms.

The Town of Bridgewater has proactively passed a stormwater utility fee that will be activated by July 2013 to provide dedicated funding for stormwater projects. This will put the town on the path to meeting its anticipated permit requirements. Assessments of local leaders on pending MS4 regulatory requirements will stimulate further discussion by local leaders on how such obligations will be funded in the City of Harrisonburg and at JMU. The City and JMU’s dedication to compliance will ensure that the study recommendations are implemented. Finally, a growing history of partnership on stormwater management demonstrates the strong commitment and ability of the partners to continue implementing projects that improve local and Chesapeake Bay water quality.

H. Dissemination and Transferability
We’ve already seen how transferable and effective the concept of a Priority Stormwater Retrofit Study can be from other studies that CWP has conducted across the Chesapeake Bay watershed. Results of the studies will be shared with local leaders through town/city council and management meetings, and with the public through city, town, and university websites, and press releases. The Upper Shenandoah MS4 Partnership hopes to demonstrate how building local staff capacity through these studies translates to increased implementation of study recommendations. Additionally, any locality or regulated entity would have the ability to survey their leadership with regard to nonpoint source pollution issues. The partnership also hopes to demonstrate that this is an effective way to initiate local decision maker engagement and policy making that prepares jurisdictions for pending regulatory requirements.

The scale and complexity of the Chesapeake Bay restoration necessitates regional partnerships that allow the regulated community to share interpretations and approaches to regulations as they evolve, and as they apply to the character and culture of the region. Partnering jurisdictions may also find more political courage to act on stormwater management issues through solidarity with neighboring localities that are working simultaneously to adopt similar policies, or if other local examples are already in place. The Upper Shenandoah MS4 Partnership could serve as a model for other neighboring MS4 communities in the Bay watershed, and the varied composition of our membership broadens the partnership’s transferability. Additionally, the partnership will be able to share a wealth of guidance as new MS4 communities are designated in the region. This knowledge transfer will reduce the learning curve associated with new regulation, and allow effective programs to be developed much earlier than may otherwise occur. Regional Planning District Commissions are available to coordinate partnerships such as this throughout the Chesapeake Bay watershed.
NFWF 2012 Match Calculations

This is a very conservative estimate of the amount of in-kind match to be provided to the project, as the volunteer rate is individuals participating.

<table>
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<tr>
<th>Activity</th>
<th>Harrisonburg</th>
<th>JMU</th>
<th>BW</th>
<th>CSPDC</th>
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* # of hours as provided by Center for Watershed Protection
* Real hourly rates used for individuals listed below; volunteer rate used for other staff and elected officials
* Federally approved indirect rates. Documentation available upon request

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<td>Abe Kaufman</td>
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<td>David Nichols</td>
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May 14, 2012

Ms. Amanda Bassow, Director
Chesapeake Programs
National Fish and Wildlife Foundation
1133 15th Street NW, Suite 1100
Washington, D.C. 20005

Re: Chesapeake Bay Stewardship Fund - CSPDC proposal

Dear Ms. Bassow:

The City of Harrisonburg is pleased to support to the Central Shenandoah Planning District Commission’s (CSPDC) application on behalf of the Upper Shenandoah MS4 Partnership to the National Fish and Wildlife Foundation’s Chesapeake Bay Stewardship Fund. The City’s participation in this partnership will assist with planning for improvement of the Chesapeake Bay and local watersheds including Blacks Run, Cooks Creek, and Smith Creek, and to meet new regulatory obligations, while achieving efficiencies through partnership with neighboring regulated communities.

*The stormwater retrofit assessments* on public land will provide a starting point to build upon as the City advances its Chesapeake Bay Phase II Watershed Implementation Plan pollution reduction strategies. While such an inventory is necessary to allow for further implementation planning, it requires more time and expertise than currently exists on our staff. However, staff involvement in the study will improve our ability to recognize opportunities for moving assessment recommendations into implementation. Harrisonburg’s Departments of Public Works, Planning & Community Development, and Parks & Recreation will be participating in this project. Other departments may be involved depending upon the specific sites to be assessed. *Stakeholder interviews* of elected officials and senior management would assist the City with our conversations on how to meet regulatory requirements, how to improve public understanding of water quality issues, and how our community can work together to address these challenges. We also welcome the opportunity to learn from the success and challenges of our partners through this partnership. Harrisonburg is committed to improving our local waters, and this technical assistance would allow us to continue to make progress.

The City of Harrisonburg has a history of successful collaboration with partners including the CSPDC, James Madison University, the Virginia Department of Conservation & Recreation, the Shenandoah Valley Soil & Water Conservation District, Virginia Department of Environmental Quality, and others, as well as, successful implementation of projects funded by National Fish & Wildlife Foundation grants.

For this proposal, the CSPDC will provide assistance to the Upper Shenandoah MS4 Partnership to cooperate regionally on water resources issues, and we have found this partnership to be effective and efficient. The Commission’s comprehensive approach to these regional issues provides many benefits, such as consistency, perspective, opportunities to communicate with regulators, and competitiveness for resources that would be difficult for any one of us to duplicate on our own.
Regional coordination increases our local capacity to address challenges, and will be of great value in assisting us with our MS4 program requirements, as they continue to grow.

Please do not hesitate to contact Thanh Dang, Public Works Planner, at 540-434-5928/Thanh.Dang@harrisonburgva.gov or myself at 540-432-7701/Kurt.Hodgen@harrisonburgva.gov with any questions.

In closing, we appreciate your favorable consideration of this proposal and look forward to working with you and our partners on a successful project.

Sincerely,

[Signature]

Kurt D. Hodgen
City Manager
May 16, 2012

Ms. Amanda Bassow, Director  
Chesapeake Programs  
National Fish and Wildlife Foundation  
1133 15th Street NW, Suite 1100  
Washington, D.C. 20005

RE: Chesapeake Bay Stewardship Fund, Local Government Capacity Building Initiative  
CSPDC proposal: Upper Shenandoah MS4 Partnership Retrofit Assessments Project

Dear Ms. Bassow:

The reason I am writing to you is to offer my support of the application to the National Fish and Wildlife Foundation’s Chesapeake Bay Stewardship Fund, which is being submitted by the Upper Shenandoah MS4 Partnership. I am the Stormwater Manager for the Town of Bridgewater and one of my main hurdles in implicating the Town’s Stormwater Management Program is the knowledge of where to start. The funds of this initiative applied to the objectives stated in the application will greatly assist the Town in achieving a starting point for our Stormwater Program.

Bridgewater is a small town with a lack of financial and personnel resources. To address this discrepancy the Town has taken steps by passing a stormwater utility and by joining the Upper Shenandoah MS4 Partnership. Awarding the grant to the Partnership will further close the Town’s resource gap.

The bottom line is that the Town is aware of the requirements forthcoming to reduce the pollution levels in our rivers and streams. We cannot meet these requirements without outside help. With this in mind, I would ask that you please approve the Upper Shenandoah MS4 Partnership’s grant application.

Sincerely,  

David E. Nichols  
Stormwater Manager
May 16, 2012

Ms. Amanda Bassow, Director
Chesapeake Programs
National Fish and Wildlife Foundation
1133 15th Street NW, Suite 1100
Washington, D.C. 20005

RE: Chesapeake Bay Stewardship Fund, Local Government Capacity Building Initiative
CSPDC proposal: Upper Shenandoah MS4 Partnership Retrofit Assessments Project

Dear Ms. Bassow:

The purpose of this letter is to offer my endorsement of Bridgewater’s grant proposal to the National Fish and Wildlife Foundation’s Chesapeake Bay Stewardship Fund. As I understand the reason for this grant, it will assist the Town in acquiring the necessary funds to implement a stormwater management program, which is greatly needed in our community.

As the Public Works Director of the Town, I fully support the efforts made by Bridgewater to help improve Dry River, North River, and Cooks Creek. I also understand that, with this proposal, the Town is committing our work force to assist with this implementation. Due to the fact that most of that work force will be Public Work’s personnel, I offer my commitment to using the crews for this purpose.

With this in mind, I hope you will approve this grant.

Sincerely,

Kenneth H. Flick, Jr.
Public Works Director
May 16, 2012

Ms. Amanda Bassow, Director
Chesapeake Programs
National Fish and Wildlife Foundation
1133 15th Street NW, Suite 1100
Washington, D.C. 20005

RE:   Chesapeake Bay Stewardship Fund, Local Government Capacity Building Initiative
      CSPDC proposal: Upper Shenandoah MS4 Partnership Retrofit Assessments Project

Dear Ms. Bassow:

As Mayor of Bridgewater, I want to express my support for the Upper Shenandoah MS4 Partnership application to the National Fish and Wildlife Foundation’s Chesapeake Bay Stewardship Fund for the above referenced initiative. The Town, which is an affiliate of this partnership, is an MS4 permitted community that is responsible for the stormwater discharges into Dry River, North River, and Cooks Creek. The funds of this initiative would assist the Town in our restoration efforts of these receiving waters.

Please keep in mind that due to the impending pollution reduction requirements, the Town is committed to meeting these reductions with whatever means is at our disposal and with as much efficiency as possible.

Because of the small size of the Town we cannot accomplish these requirements alone and, therefore, are committed to joining forces with those that have greater resources. Our involvement with the Upper Shenandoah MS4 Partnership demonstrates our level of dedication to aligning with other local MS4 permitted entities to accomplish the required pollution reductions in our community.

In conclusion, I hope you will grant the Upper Shenandoah MS4 Partnership application request. These funds will go a long way to helping the Town meet our pollution reduction requirements.

Sincerely,

[Signature]
Hallie D. Dinkel
Mayor of Bridgewater
May 16, 2012

Ms. Amanda Bassow, Director
Chesapeake Programs
National Fish and Wildlife Foundation
1133 15th Street NW, Suite 1100
Washington, D.C. 20005

RE: Chesapeake Bay Stewardship Fund, Local Government Capacity Building Initiative
CSPDC proposal: Upper Shenandoah MS4 Partnership Retrofit Assessments Project

Dear Ms. Bassow:

It has been apparent for quite a while now that the Town of Bridgewater needs assistance in establishing a stormwater management program to address the pollutant levels in our receiving waters. It is with this in mind that I offer my support of the Upper Shenandoah MS4 Partnership grant application to the National Fish and Wildlife Foundation’s Chesapeake Bay Stewardship Fund.

Approving this grant for the partnership will assist the Town in recognizing our current troubled areas, training our staff and crews to address these areas, and hopefully provide us with a workable representative project moving forward. All of these things will be beneficial to the Town in gaining a foothold in the stormwater management world.

The Town of Bridgewater is a small community of about 5,644 citizens and, as a result, our resources are very limited. We have already shown our commitment to receiving assistance from outside help by joining the Upper Shenandoah MS4 Partnership but even this partnership has limitations. Receiving the funds and the technical assistance from this grant will be a vital resource to the Town.

In closing, I hope you will favorably consider our grant application.

Sincerely,

Bob F. Holton
Town Superintendent

(540) 828-2479 • (540) 828-3705 • FAX (540) 828-2141
Ms. Amanda Bassow, Director
Chesapeake Programs
National Fish and Wildlife Foundation
1133 15th Street NW, Suite 1100
Washington, D.C. 20005

Dear Ms. Bassow:

I have reviewed and approved Mr. Abram T. Kaufman’s involvement concerning the proposal entitled "Upper Shenandoah MS4 Partnership Retrofit Assessments Project" which has been submitted to the National Fish and Wildlife Foundation’s Chesapeake Bay Stewardship Fund by the Central Shenandoah Planning District Commission.

James Madison University strives for excellence in undergraduate education. The University encourages and supports faculty activities, which strengthen this commitment. Therefore, as the official authorized to commit James Madison University, I approve of the goals of this proposal and pledge the support of the University to this project.

Sincerely,

John D. Hulvey, CRA
Director

cc: Dr. Abraham Kaufman
May 3, 2012

Ms. Amanda Bassow, Director
Chesapeake Programs
National Fish and Wildlife Foundation
1133 15th Street NW, Suite 1100
Washington, D.C. 20005

Re: Chesapeake Bay Stewardship Fund, Local Government Capacity Building Initiative
CSPDC proposal: *Upper Shenandoah MS4 Partnership Retrofit Assessments Project*

Dear Ms. Bassow:

James Madison University is pleased to support the Central Shenandoah Planning District Commission’s (CSPDC) application on behalf of the Upper Shenandoah MS4 Partnership to the National Fish and Wildlife Foundation’s Chesapeake Bay Stewardship Fund. JMU’s participation in this partnership will assist us with planning for the improvement of Sibert Creek, a tributary of Blacks Run, and to meet new regulatory obligations, while achieving efficiencies through partnership with neighboring regulated communities. The stormwater retrofit assessments on public land will provide a starting point to build upon as JMU further develops strategies for meeting its Chesapeake Bay Phase II Watershed Implementation Plan pollution reduction goals. While such an inventory is necessary to allow for further implementation planning, it requires more time and expertise than currently exists on our staff. However, staff involvement in the study will improve our ability to recognize opportunities and move assessment recommendations into implementation. We also welcome the opportunity to learn from the success and challenges of our partners. JMU is committed to improving our local waters, and this technical assistance would allow us to continue to make progress.

As you will find in the attached proposal, the CSPDC has historically organized our group of localities to cooperate regionally on water resources issues, and we have found this partnership to be effective and efficient. The Commission’s comprehensive approach to these regional issues provides many benefits, such as consistency, perspective, opportunities to communicate with regulators, and competitiveness for resources that would be difficult for any one of us to duplicate on our own. Regional coordination increases our local capacity to address challenges, and will be of great value in assisting us with our MS4 program requirements, as they continue to grow.

For these reasons, we hope you will favor the CSPDC’s request for technical assistance to support the Upper Shenandoah MS4 Partnership.

Sincerely,

Jowana H. Moore
Associate Vice President
Business Services
James Madison University
May 11, 2012

Amanda Bassow
National Fish and Wildlife Foundation
1133 Fifteenth Street, N. W.
Washington, DC 20005

Re: Chesapeake Bay Stewardship Fund 2012 Small Watershed Grant: Central Shenandoah Planning District Commission proposal: Upper Shenandoah MS4 Partnership Retrofit

Dear Ms. Bassow,

I am writing to express support for the Central Shenandoah Planning District Commission’s (CSPDC) grant application Upper Shenandoah MS4 Partnership Retrofit. This effort is critical to help address local water quality problems.

Urbanization of the Shenandoah Valley has been significant over the last few years. As the Valley becomes a more urbanized area, traditionally rural localities have been faced with significant challenges in effectively addressing the water quality problems that come about with urbanization. The MS4 partnership proposed by the CSPDC will serve as a highly effective way of maximizing tools available to small to moderate size Phase II MS4 communities to address Chesapeake Bay TMDL goals established in Virginia’s Phase II Watershed Implementation Plan (WIP). The proposed retrofit assessment and prioritization will provide the Valley’s MS4 communities with a clear path forward in meeting Phase II WIP goals using targeted, highly cost effective implementation strategies. The CSPDC proposal has four objectives that, if implemented, will be critical for successfully addressing our problem of urbanization in the Valley. These four objectives are:

- Establish a partnership between neighboring regulated communities that will allow each to meet its MS4 permit requirements more efficiently
- Leverage partner participation to expand impact of project, while increasing competitiveness for resources
- Take proactive steps that will assist with meeting MS4 permit requirements, as permits are renewed in 2013
- Further develop stormwater retrofitting strategies that were a component of a partner localities’ WIP II submittals to DCR in February, 2012
The Virginia Department of Conservation and Recreation (DCR) has worked with the Central Shenandoah Planning District Commission on numerous projects. We have been pleased with the work they have done to encourage local governments and partners to work together and to improve water quality. We fully support this application.

Sincerely,

Jim Echols
Staunton Regional Manager
Virginia Department of Conservation and Recreation
May 14, 2012

Ms. Amanda Bassow, Director
Chesapeake Programs
National Fish and Wildlife Foundation
1133 15th Street NW, Suite 1100
Washington, D.C. 20005

Re: Chesapeake Bay Stewardship Fund, Local Government Capacity Building Initiative
CSPDC proposal: Upper Shenandoah MS4 Partnership Retrofit Assessments Project

Dear Ms. Bassow:

On behalf of the Central Shenandoah Planning District Commission (CSPDC), I am writing to enthusiastically support this application for technical assistance for the Upper Shenandoah MS4 Partnership to the National Fish and Wildlife Foundation’s Chesapeake Bay Stewardship Fund. This assistance will allow the planning district’s MS4 communities to take the first steps in meeting their Chesapeake Bay Phase II Watershed Implementation Plan (WIP II) targets. The CSPDC provided assistance to the region’s localities during the WIP II local engagement process, and found the MS4 communities to be very committed to improving local water quality.

The CSPDC’s regional organizing and assistance role in the WIP II, and Virginia’s new stormwater regulatory processes have given the partners new opportunities to interact on nonpoint source pollution issues, which all have found to be beneficial. This partnership promises a holistic approach to stormwater management in the region, providing a support network that will help each community overcome common challenges. The partnership will be of particular value to three other communities in the region that were recently designated an “urbanized area,” qualifying them for MS4 status. These localities will benefit from the experiences of more established MS4 communities when they begin to address these pending regulations and associated requirements. Participation in the Upper Shenandoah MS4 Partnership should allow these communities to more quickly develop effective MS4 programs.

The CSPDC is a regional council of governments that has worked with Harrisonburg, Bridgewater, and James Madison University on many projects over the past 40 years. As a planning district, we organize our communities around issues of common interest, and are pleased to add stormwater management to that list. We hope you will favor the CSPDC’s request for technical assistance to support the Upper Shenandoah MS4 Partnership in its efforts to plan for stormwater improvements for our local waters and the Chesapeake Bay.

Sincerely,

Bonnie Riedesel
Executive Director