Storm Water Management Plan

Cole County Public Works

Working together to serve

Cole County, Missouri

Unincorporated Urbanized Area

June 2013-2018

MCM #1 Public Education and Outreach on Stormwater Impacts

Cole County has a goal of increasing awareness among its citizens of stormwater pollution. The strategy for accomplishing the goal will include several measurable efforts to raise public awareness how stormwater is contaminated and ways each individual can help minimize the problem.

Program Implementation

4.2.1.1.1 Public education and outreach will seek to inform people of the following target pollutants:

- 1. The proper way of handling and disposing of solid waste.
- 2. The proper way of handling and disposing of hazardous waste.
- 3. The proper handling and application of fertilizers and pesticides on lawns.
- 4. The harmful effects of illegal dumping of oil and other chemicals into storm drains.
- 5. The importance of erosion control structures on constructions sites to prevent sediment from washing into local waterways.
- 6. The importance of post construction erosion control structures.

4.2.1.1.2 The county will create an informational series of brochures specifically for contractors/developers and residents informing them of the impacts target pollutants have on stormwater. Brochures will be made available on the Cole County website and at the Cole County Public Works office.

4.2.1.1.3-4.2.1.1.4 The County will submit two press releases annually through local media outlets aimed at informing individuals and households about steps they can take to reduce stormwater pollution. Cole County will make at least one presentation each year at local events to inform citizens of the impacts of stormwater pollution. Storm drain markers will continue to be place on all inlets within the MS4 as a reminder not to dump litter and other pollutants into the storm drain. Cole County, through partnerships with other entities, will conduct a waste tire and e-waste recycling day. Citizens can drop off waste to be recycled for a small fee. The county, along with its partners, will continue to operate a hazardous waste drop off site. All announcements of local stream clean ups, hazardous waste drop offs, e-waste and tire recycling, ect will be made on the Cole County website.
4.2.1.1.5 The Cole County outreach strategy will rely heavily on the internet and press releases to local media to reach local residents. Information will be made available to contractors/developers through brochures and the Cole County planning and permitting process.

4.2.1.1.6 MCM #1 Public Education and Outreach on Stormwater Impacts

Measurable Goal: To educate the public about the impacts of stormwater discharges on water bodies and steps the public can take to reduce pollutants in stormwater runoff.

Best Management Practice	Completion Date	Measurement
BMP 1- Create a section dedicated to stormwater information on the Cole County website.	June 1, 2014	Number of website visits
BMP 2- Submit two press releases annually through local media outlets.	Annually	Number completed
BMP 3- Make one presentation annually at local events. These events may include: workshops, festivals, public hearings, and meetings.	Annually	Number completed
BMP 4- Complete informative brochures targeting residents, contractors, and developers regarding six target pollutants identified in stormwater plan.	June 1, 2014	Number distributed
BMP 5- Cole County will participate in recycling day per year.	Annually	Amount of waste collected
BMP 6- Cole County will continue to operate the hazardous waste drop off site.	Annually	Amount of waste collected
BMP 7- Storm drain markers will be placed on all inlets within the unincorporated urbanized area of Cole County.	Annually	Percent of inlets marked

MCM #2- Public Involvement/Participation

Public involvement and participation is crucial for running a successful stormwater management program. It is the belief of Cole County that the more that the public is involved in creating the policies and procedures of a stormwater management plan the more likely they will comply with the plan. Compliance is key for improving water quality leaving the MS4.

Program Implementation

4.2.2.1.1-4.2.2.1.4 Cole County will continue to develop a program to involve the general public, including residents, stakeholder groups, and local businesses, in the development and oversight of the stormwater management plan. This plan will include several ways to allow for the public to participate in creating stormwater policy.

- The first is to allow time at Cole County Commission meetings for the public to specifically discuss to stormwater issues. Stormwater discussion will be put on the Commission agenda biannually and by request. Meetings will be announced on Cole County Public Works website.
- The Cole County Stormwater Hotline can be used by the public to express thoughts and concerns about stormwater issues.
- Written feedback on stormwater issues will be gathered after presentations at local events.

4.2.2.1.5 MCM #2 Public Involvment/Participation

Measurable Goal: To develop a program that allows for public involvement and active participation in creating policies and procedures affecting stormwater issues.

Best Management Practice	Completion Date	Measurement
BMP 1- Stormwater discussion will be added to Cole County Commission meeting agenda biannually and by request.	Biannually	Number of people attending
BMP 2- Hotline number will be placed on Cole County Public Works website.	June 2014	Number of calls pertaining to Stormwater
BMP 3- Gather feedback at local events and workshops.	Annually	Amount of feedback

MCM #3 Illicit Discharge Detection and Elimination

An illicit discharge to a stormwater system can be any discharge not composed entirely of stormwater or permitted under the authority of Missouri Department of Natural Resources Water Protection Program. The most significant sources of illicit discharges identified in Cole County are:

- Cross-connections with a wastewater system.
- Infiltration of wastewater to the stormwater sewer system from cracked sanitary sewer system or malfunctioning septic systems.
- Unpermitted discharges from industrial and commercial sources.
- Paint, used oil, or other pollutants dumped directly into storm drains.

Illicit discharges can result in untreated discharges that contribute high levels of pollutants, including heavy metals, toxins, oil and grease, solvents, nutrients, viruses , and bacteria to receiving water bodies. Pollutant levels from these illicit discharges have been shown in EPA studies to be high enough to significantly degrade receiving water quality and threaten aquatic life, wildlife, and human health.

Program Implementation

4.2.3.1.1 A map of the Cole County MS4 was completed during the 2008-2013 permit cycle. Existing mapping information includes 2011 aerial photography, hydrology, outfalls, Jefferson City sanitary sewer system, storm drain systems, street centerline, and contours. The map is maintained in a GIS format. It is updated as new information becomes available, or least quarterly to ensure information is accurate.

4.2.3.1.2 Cole County has developed a draft ordinance. Ordinance will be adopted by county during next permit cycle.

4.2.3.1.3.1-4.2.3.1.3.2 Cole County will conduct dry weather inspections of proposed outfalls annually. Inspections shall be done during dry weather periods. Dry weather periods are defined as a period in which there has been no more than one tenth of an inch of precipitation within a seventy two hour period. A minimum of twenty five percent of all outfalls shall be inspected annually.

Field inspectors will observe and document conditions at each stormwater outfall. In the event that an outfall is discharging during a dry weather period, the inspector will note the visual and olfactory characteristics of the discharge. Then try to determine the source of the discharge visually. If unsuccessful, a grab sample will be collected for analysis to help determine a possible source. Observations at outfall will be recorded on an approved field form and will include: color, odor, presence of solids, evidence of sheen, turbidity, or any other pertinent information. Field measurements will also be recorded and include: Estimate of flow rate, temperature, conductivity and pH. If these parameter show readings higher or lower than pre- determined limits, it may be an indication of an illicit discharge. All grab samples will be analyzed in house by staff. Samples will be tested for phenols, ammonia, chlorine, and detergents. Other methods including, but not limited to, smoke and dye testing may be used if necessary to determine source of illicit discharge.

4.2.3.1.3.3 Procedures for removing illicit discharges will be decided on a case by case basis. Cole County will work with current ordinances to ensure cleanup and eliminate the discharge. Missouri Department of Natural Resources and Cole County Health Department will be notified and consulted about any illicit discharge found.

4.2.3.1.3.4 Enforcement procedures will be outlined in the Cole County illicit discharge ordinance.

4.2.3.1.3.5 Web pages and informative brochures, developed under MCM 1, will address hazards associated with illegal discharges and improper disposal of waste. A hotline number, developed under MCM 2, will be posted online for citizens to call in and report potential or active illicit discharges. Storm drain markers have been placed on all inlets and other areas water from the street may enter creeks and streams, as part of MCM 6, to inform, and discourage citizens from dumping material.

4.2.3.1.3.6 MCM #3 Illicit Discharge Detection and Elimination

Measurable Goal: Cole County has a goal of reducing or eliminating non-stormwater discharges into its MS4.

Best Management Practice	Completion Date	Measurement
BMP 1- Update features on map of Cole County MS4.	As new information becomes available.	N/A
BMP 2- Adopt an illicit discharge ordinance	January 2014	N/A
BMP 3- Conduct dry weather inspections of at least 25% of all outfalls annually.	Annually	Inspections Completed
BMP 4- Find and remove source of any illicit discharges reported or found during inspection.	As needed	Discharges found and removed

MCM #4 Construction Site Stormwater Runoff Control

Cole County shall develop, implement, and enforce a program to reduce pollutants in any stormwater runoff to their regulated MS4 from construction activities that result in a land disturbance of greater than or equal to one acre in size. Reduction of stormwater discharges from construction activity disturbing less than one acre shall be included in the program if that construction activity is part of a larger common plan of development or sale that would disturb one acre or more.

Program Implementation

4.2.4.1.1.1- As outlined in the Cole County Rules for Land Subdivision for Development and Construction (September 1999), the construction site operator is required to acquire and implement an erosion and sediment control plan. This plan, also known as a stormwater pollution prevention plan, or SWPPP, shall be in accordance with the Land Disturbance Permit (MO-RA) requirements of the Missouri Department of Natural Resources. The MO-RA permit, along with the required SWPPP, must be presented to the Director of Planning for approval. Cole County plans to evaluate and update stormwater regulations to include a sediment and erosion control ordinance during the next permit cycle.

4.2.4.1.1.2- Control measures are in written into Cole County Rules for Land Subdivision for Development and Construction (September 1999) to ensure compliance. Land disturbance permit and SWPPP must be approved prior to preliminary plat approval. Cole County will develop an erosion and sediment control ordinance to require appropriate BMP's on construction sites smaller than one acre that are located within the unincorporated urbanized area of Cole County. Sanctions will be outlined in ordinance.

4.2.4.1.1.3- The Cole County Rules for Land Subdivision for Development and Construction is currently being used to regulate sediment and erosion control on construction sites. Cole County plans to evaluate and update stormwater regulations to include a sediment and erosion control ordinance during next permit cycle.

4.2.4.1.2- Construction site operators are required to control construction site waste, such as discarded building materials, concrete truck washout, chemicals, litter, and sanitary waste according to the Land Disturbance Permit (MO-RA). Any such pollutants must be adequately treated and addressed in the SWPPP.

4.2.4.1.3- Procedures for reviewing all pre-construction site plans for potential water quality impacts are outlined in The Cole County Rules for Land Subdivision for Development and Construction.

4.2.4.1.4- Brochures will be handed out with building permits outlining rules and regulations for construction sites. Information will be made available on website.

4.2.4.1.5- Inspections for construction sites larger than one acre will be done after approval of street plan. On site Cole County inspectors will monitor site BMP's daily until construction is complete. Inspections for construction sites smaller than one acre and located within the urbanized area of unincorporated Cole County will be done periodically during specific phases of construction.

4.2.4.1.6- Inspections will be done to ensure construction site operators have BMP's, in place and being maintained, to control site runoff. Sanctions for failing to comply include, but are not limited to:

- Issue stop work order
- Denial of building permit
- Not approving street plans for construction
- Not accepting street into county highway system
- Denial of address for residence

Cole County will develop an erosion and sediment control ordinance to require appropriate BMP's on construction sites smaller than one acre that are located within the unincorporated urbanized area of Cole County. Sanctions will be outlined in ordinance.

4.2.4.1.7 MCM #4 Construction Site Stormwater Runoff Control

Measureable Goal: Cole County has a goal to reduce sediment and other pollutants that are picked up by stormwater on construction sites from entering water bodies.

Best Management Practice	Completion Date	Measurement
BMP 1- Evaluate and Update Rules for Land Subdivision for Construction and Development as it pertains to stormwater.	June 2014	N/A
BMP 2- Adopt an Erosion and Sediment Control ordinance.	January 2015	N/A
BMP 3- Review number of sites inspected and corrective actions issued to construction sites	Annually	Number of sites inspected. Number of corrective actions.

MCM #5 Post-Construction Stormwater Management in New Development and Redevelopment

The goal of this minimum control measure is to maintain post-construction stormwater runoff quantity and quality at pre-construction levels on proposed and existing commercial, industrial, and residential developments. This is done by using structural or non-structural best management practices (BMP). The Cole County plan to address post construction runoff will consist of three parts:

- Developing regulatory mechanisms to address post-construction runoff.
- Adopting a post-construction manual to educate and provide guidance to developers, contractors, and engineers.
- Develop a plan to ensure long term operation and maintenance of BMP's.

We will be using "Managing Stormwater in Your Community: A Guide for Building an Effective Post-Construction Program" as a blue print for creating a successful program.

Program Implementation

4.2.5.1.2 Cole County will develop ordinances to address post-construction run-off from new development and redevelopment projects. One ordinance will provide legal foundation for implementing design standards, review procedures, inspections, and maintenance of post-construction BMP's. The second will be a natural stream buffer protection ordinance for the purpose of filtering pollutants and controlling stream bank erosion. Ordinance will include an enforcement mechanism to ensure compliance.

4.2.5.1.3-4.2.5.1.4 Cole County will work to develop a plan to identify priority areas and ensure long-term operation and maintenance of selected BMP's.

4.2.5.1.5-4.2.5.1.6 Cole County will adopt all or parts of the APWA-Kansas City Metro Chapter, "Manual of Best Management Practices for Stormwater Quality". This manual provides engineers, developers, and contractors clear guidance for planning and implementing the correct BMP's to comply with future ordinances.

4.2.5.1.7 MCM #5 Post-Construction Stormwater Management in New Development and Redevelopment

Measureable Goal: Cole County has a goal of developing a program that establishes policies and procedures to control post construction site runoff to preconstruction levels.

Best Management Practice	Completion Date	Measurement
BMP 1- Create ordinance to address post construction run-off from new and redevelopment projects	June 2015	N/A
BMP 2- Create a Stream Buffer ordinance.	June2015	N/A
BMP 3- Cole County will adopt all or parts of the APWA-Kansas City Metro Chapter, "Best Management Practices for Stormwater Quality".		N/A
BMP 4- Track number of plans reviewed/approved during reporting period.	Annually	Number of plans reviewed. Number of plans approved.
BMP 5- Inspect permanent stormwater management practices\facilities.	Annually	Number of enforcement actions taken for inadequate maintenance.

MCM #6 Pollution Prevention/ Good Housekeeping for Municipal Operations

Cole County will establish policies and procedures to reduce the potential for pollution of stormwater by county operations and maintenance facilities.

Program Implementation

4.2.6.1.1-4.2.6.1.3 Cole County will develop Stormwater Pollution Prevention Plan for all Cole County maintenance facilities. SWPPP will include a list of all potential pollution producing municipal operations and BMP's designed to reduce pollutants.

4.2.6.1.3 Cole County will continue it street sweeping program. Cole County Public Works conducts street sweeping on a monthly basis. Cole County will also continue to implement its stormwater inlet cleaning program. Cole County Public Works dispatches employees to clean debris and litter from all inlets within MS4 after large storm events.

4.2.6.1.4 Cole County will develop a Spill Prevention, Control, and Countermeasure plan for its maintenance facilities.

4.2.6.1.5 Cole County will dispose of waste removed from MS4 during municipal operations in a sanitary landfill unless it can be reused for other purposes.

4.2.6.1.6 Does not apply to Cole County. Cole County Public Works does not work on flood management projects.

4.2.6.1.7 Cole County will train employees each year on general stormwater pollution prevention with materials developed under MCM #1 aimed at the general public. This will include newly hired employees (average 1 per year) and existing administrative personnel across all departments (approximately 4). The materials, as described in MCM #1, will include topics such as pollution prevention in lawn care, automotive maintenance, household hazardous waste, illicit discharge detection and elimination, etc. These employees will be given this information via handouts and brochures. They will be required to sign a form certifying they've read and understand the materials. The total number of employees trained on each topic will be reported annually.

Cole County Public Works maintenance employees or other County personnel that perform field duties (approximately 40 employees) will receive training once each year on standard operating procedures covering a variety of stormwater pollution prevention issues. These will include erosion and sediment control, fleet maintenance, material storage yards, spill prevention/control/countermeasure, etc. The County will use the Center for Watershed Protection/EPA documents on Good Housekeeping and IDDE as well as MDNR's Protecting Water Quality Field Guide and other available educational materials. They will be required to sign a form certifying they've read and understand the materials. Alternatively, staff may be sent to outside training. The total number of employees trained on each topic will be reported annually.

4.2.5.1.8 MCM #6 Pollution Prevention/ Good Housekeeping for Municipal Operations

Measureable Goal: Cole County has a goal of developing a program to improve operations and maintenance in order to remove pollutants from municipal operations and maintenance activities.

Best Management Practice	Completion Date	Measurement
BMP 1- Develop SWPPP for Cole County maintenance facilities.	September 2013	N/A
BMP 2- Develop SPCC for Cole County maintenance facilities.	September 2013	N/A
BMP 3- Cole County will train employees on SWPPP and SPCC policies and operating procedures.	Annually	Number of employees trained.
BMP 4- Cole County will continue street sweeping program.	Monthly	N/A
BMP 5- Cole County will dispatch employees to clean debris from inlets after large rain events.	Periodically	N/A
BMP6- Storm drain markers will be placed on all inlets within the MS4.	Annually	Percent of inlets marked.