Jackson County, Missouri

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WATER PROTECTION PROGRAM

STORMWATER MANAGEMENT PLAN

NPDES PERMIT: MO-R040011

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Department of Public Works

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Background

On December 15, 1826, the Missouri State Legislature authorized the "County of Jackson," named after the seventh president of the United States of America, Andrew Jackson.

Prior to the adoption of the current County Charter in 1970, the governing body in Jackson County, Missouri, was called the Jackson County Court, our form of County government that dates back to Jackson County's formation.

The County Court consisted of a legislative panel of three individuals popularly elected. Each one's title was "County Judge", which is like a county commissioner common in other areas of the country. Some Missouri counties are still governed by County Courts.

Jackson County was divided into halves for representation purposes with no regard to population. The County Judge for the Western District represented Jackson County interests in the western part of the County, including Kansas City. The County Judge for the Eastern District represented Jackson County citizens in the eastern half of the County.

The third elected position – 'Presiding Judge"-led the legislative body and helped make difficult decisions, especially when the other two judges were divided and split their votes. This position is similar to the County Executive elected today.

In 1970, the voters of Jackson County adopted a Constitutional Home Rule Charter government for the County. The Constitutional Home Rule Charter provides for a separation of the legislative and executive functions. The heart of the Charter is a strong elected executive, accountable to all the voters, who has the power to appoint the administrative officers of his government, the power to veto legislation, and both the responsibility and the means at hand with which to operate an effective, efficient County government. The County Legislature consists of nine elected members. The legislature is given broad legislative power and is so construed as to be truly representative of all of the people of Jackson County.

The 2000 Census shows the County with a population of 674,1580. The 2010 Census population for the unincorporated area is 22,350. The County covers an area of 605 square miles with over one-third of that area still unincorporated.

Introduction

The Missouri Department of Natural Resources issued a general operating permit, MO-R040011 to Jackson County on July 3, 2008. The expiration date of the permit is June 12, 2013. The permit specifically defines three outfall locations. The first outfall located north of the Salem East neighborhood is the Lazy Branch Creek which is a tributary to the Missouri River. The second outfall is the creek that flows through the Carriage Oaks Subdivision water retention area that is a tributary to Lake Lotawana. The third outfall is a tributary to Prairie Lee Lake, originating as a creek that flows east of Lee's Summit across Langsford Road through the City's Legacy Park, across Blackwell Road and Sruggs Road and then finally reaching Prairie Lee Lake. The permit provides the exact legal description for each outfall.

The general operating permit requires the development of a stormwater management plan (SWMP). The requirements for the SWMP are set forth in Part IV of the general permit.

Jackson County has implemented many of the facets associated with the National Pollutant Discharge Elimination System (NPDES) Phase II permit currently in place.

Since 1995, the County has had stormwater management regulations in place within Chapter 240 of the County Code entitled Unified Development Code (UDC). These regulations pertain to new development within the unincorporated area. The purpose of these stormwater management provisions is to protect life and property from reasonably preventable flood hazards, protect the quality of surface waters from contamination, and minimize loss of valuable wildlife by preserving habitat and linkages between wildlife habitat areas.

In 2000, the Jackson County Stormwater Commission was formed with the charge of developing and implementing a countywide plan for dealing with stormwater issues. City and County officials in Jackson County are working together to address problems that cross multiple jurisdictions. The Commission has been proactive in educating stakeholders about good stormwater management and building partnerships with key stakeholders. The Commission has developed relationships and partnerships with key local, state, and federal agencies, elected officials, non-profits and businesses. The Commission continues an aggressive education and outreach program by focusing on preserving and enhancing natural systems and promoting "green" solutions that not only manage stormwater to reduce flooding but improve water quality and quality of life.

In 2005, the County adopted Chapter 241 of the County Code entitled "Erosion and Sediment Control". The purpose is to protect property and prevent damage to the environment by effectively minimizing soil erosion and sedimentation during land development, building or any other type of land disturbance in Jackson County. The code adopted the latest version of the American Public Works Association (APWA) uniform erosion and sediment control standards, sections 2100, 2105, 5100, 5600 and Best Management Practices (BMPs).

In 2008, the County adopted Chapter 242 of the County Code entitled "Illicit Discharges and Illegal Connections". The purpose of this chapter is to regulate Non-Stormwater Discharges to the county's separate storm sewer system or into any waters of the United States. The objectives of this ordinance are to:

1. Regulate the contribution of pollutants to the County's separate storm sewer system or into any waters of the United States by any person;
2. Prohibit illicit discharges and illegal connections to the County's separate storm sewer system or into any waters of the United States;
3. Prevent non-stormwater discharges, generated as a result of spills, inappropriate dumping, or disposal, into the County's separate storm sewer system or into any waters of the United States;
4. To establish legal authority to carry out all inspection, surveillance, monitoring and enforcement procedures necessary to ensure compliance with the ordinance.

Jackson County formed a Stormwater Management Team (SWMT) that will oversee the development and implementation of the Stormwater Management Plan (SWMP). The SWMT will meet on a semi-annual basis to review the status of the SWMP and address issues necessary to properly implement the SWMP. Other meetings with the entire SWMT or groups within the SWMT will be held as necessary for proper implementation of the elements of the SWMP. The SWMT is comprised of the individuals from Public Works administration (engineering, road and bridge maintenance, building and site inspections and communications liaison), Parks and Recreation and GIS.

The Stormwater Coordinator will serve as the head of the SWMT, schedule the meetings, prepare the reports, prepare records of the meetings, provide recommendations for updates to the SWMP or associated county ordinances, and consult the SWMT on stormwater issues and problems. The SWMT will also make recommendations for changes or amendments to existing ordinances.

The SWMT will review the SWMP annually in conjunction with the Annual Reporting requirements, or as required by the director of the U.S. Environmental Protection Agency and/or the Missouri Department of Natural Resources, in accordance with statutory provisions of section 402(p)(3)(B) of the Clean Water Act.

In the following sections, we will list the SWMP requirements of the general permit, provide a description of Jackson County's current programs and identify additional activities or requirements which will be needed to comply with the terms of the general permit.

Minimum Control Measures & Best Management Practices

MCM I – Public Outreach and Education

Jackson County's public education outreach strategy will employ a multi-faceted approach to inform the public about common storm water pollutants, their effects on receiving waters, the extent and magnitude of the problem, and corrective actions the public can take to prevent non-point source (NPS) pollution.

Programs will be implemented by the County to the maximum extent practicable and will consider the needs of each community within the county. The Best Management Practices (BMPs) listed have been selected with regard to: water quality needs; applicability to Jackson County; reaching a wide range of target audiences including community leaders, educators, businesses, the development community, property owners, and other state and local agencies; taking advantage of related events and interest; and building on existing and developing programs and partnerships.

The public will have opportunities to recommend changes to the program and provide other feedback as to the overall effectiveness of the Public Outreach and Education program via a feedback form on the County's website and monthly meetings of the Jackson County Stormwater Commission.

The County will continue to investigate educational and outreach programs being used or developed by other local, state and federal entities in order to improve upon the current program and/or contribute to regional programs. Potential partners and informational sources include: neighboring MS4 communities such as the Cities of Blue Springs, Grain Valley, Grandview, Greenwood, Lake Lotawana, Lee's Summit, Raytown, Sugar Creek, etc.; local schools; Jackson County Storm Water Commission; Jackson County Soil & Water Conservation District, local non-governmental entities such as environmental and professional

organizations such as Mid-America Regional Council; Upper Blue River Watershed Alliance, Blue River Watershed Association, etc.: Missouri Department of Natural Resources; Missouri Department of Conservation; Missouri River Watershed Festival; and the EPA.

Best Management Practices (BMPs) for MCM I

I.1 Storm Water Management Web Page

BMP Description

The Stormwater Coordinator will create a Stormwater Management section as a part of the Public Works Department page on the County's website. The web page will be maintained and expanded to become the main information source for all aspects of the County's Storm Water Management Program including how to get involved in voluntary activities, information on what citizens can do to address storm water pollution, what an illicit discharge looks like and what to do about it, who to call about storm water and illicit discharge concerns, upcoming seminars, storm water related regulations, design requirements for storm drainage facilities, erosion and sediment control design requirements, etc. A link to the County web page could be placed on a city's home page.

Target Audience and Pollutant Sources

The Storm Water Management page provides information for anyone with access to the Internet. Free access to the internet is available through the Mid-Continent Public Libraries located throughout eastern Jackson County. The target audience includes residents, businesses, developers, engineers, educators and construction companies. Since these entities already use the County's web site to find information about requirements, the Storm Water Management web page is a good method to disseminate information to the target audience.

Measurable Goals

The goal is to enhance and then maintain the Storm Water Management web page. The effectiveness of this BMP will be measured using the following parameters:

- Amount of information available on the Storm Water Management web page.
- Number of "hits" and/or downloads on the web page.
- Online comment form to receive feedback from the users of the web page regarding the information and its usefulness.
- Number of "Report a Problem – Illegal Dumping" requests submitted on the web page.

I.2 School-Aged Educational Programs

BMP Description
The Storm Water Coordinator will continue to implement educational programs for school-aged children for the school districts and private/parochial schools in the eastern Jackson County MS4 area. Other stakeholders, such as the Jackson County Soil and Water Conservation District, Blue River Watershed Association, West Branch Sni-A-Bar Watershed Consortium, Missouri River Watershed Festival, and Missouri Departments of Conservation and Natural Resources, will be invited to participate in the educational programs.

Educational programs will provide information to children in a format they can understand, and will give them a chance to ask questions. This BMP enables the educational institutions in the eastern Jackson County MS4 area to participate in the public education process.

Target Audience and Pollutant Sources
The target audience includes students, educators, and parents.
Target pollutant sources include: household activities such as lawn care and improper disposal of household waste such as yard waste, pet waste, used motor oil, etc.; and illegal dumping and littering.

Measurable Goals
The goal for this permit period is to continue and expand an educational program for the eastern Jackson County MS4 area. The effectiveness of this BMP will be measured using the following parameters:

- Implementation of the school-aged education program
- Number of schools included in the school-aged education program
- Number of school-aged children and educators included in the school-aged educational program
- Surveys to teachers and school administrators to receive feedback for the school-aged educational program.

I.3 Storm Water Related Press Releases and Articles

BMP Description
The Storm Water Coordinator in consultation with the County Public Information Officer and Communications Office will write press releases and articles related to storm water pollution control in the county's employee newsletter and local

newspapers. Information will include how to get involved in voluntary activities, what citizens can do to address storm water pollution and how to report illegal dumping or other storm water concerns. The County will submit a minimum of 4 storm water related articles per year in local newspapers.

Target Audience and Pollutant Sources
The target audience includes employees, residents and businesses.
Target pollutant sources include: household activities such as improper disposal of household waste such as yard waste, pet waste, used motor oil, etc.; industrial and commercial activities such as improper disposal of waste; and illegal dumping and littering.

Measurable Goals
The goal for this permit period is to continue write articles for the local newspapers with a minimum of 4 articles per year, as well as periodic articles in the County's employee newsletter. The effectiveness of this BMP will be measured using the following parameters:

- Number of storm water related articles per year in employee newsletters or local newspapers
- Circulation of the local newspapers in the eastern Jackson County MS4 area, number of employee newsletters distributed.

I.4 Targeted Seminars and Training

BMP Description
The Storm Water Coordinator in cooperation with the Public Works Director will determine specific seminars and training needs to be implemented as practicable. The seminars will be in coordination with other MCM's in this SWMP and will take advantage of regional seminars and training opportunities when possible. Potential seminar topics for this permit period include:

- Water quality monitoring for volunteers through the Stream Team program in coordination with MCM II – Public Involvement and Participation.
- Erosion and sediment control design in coordination with MCM IV – Construction Site Storm Water Runoff Control.
- Erosion and sediment control inspection and maintenance in coordination with MCM IV – Construction Site Storm Water Runoff Control.
- Design of Storm Drainage Facilities with new engineering design criteria as described in MCM V – Post Construction Storm Water Management.
- Storm water quality BMP operation and maintenance for neighborhood associations and property owners in

coordination with MCM V – Post Construction Storm Water Management.
- Facility Operations and Maintenance (O&M) training for County employees in coordination with MCM VI – Pollution Prevention and Good Housekeeping.

Target Audience and Pollutant Sources

Target audiences will be determined for each seminar. Potential audiences include volunteers, engineers, surveyors, construction companies, farmers, ranchers, neighborhood associations, property owners, and County employees, among others.

Target pollutant sources include: household activities such as lawn care and improper disposal of household waste such as yard waste, pet waste, used motor oil, etc.; construction activities such as improper erosion and sediment control or improper disposal of construction wastes; mismanagement of horse manure disposal, commercial and industrial activities such as improper disposal of waste; and illegal dumping and littering.

Measurable Goals

The goal is to determine needs and priorities for seminar topics and investigate existing and/or regional seminars and training opportunities for those topics. Additional seminars and training will be developed as needed and as practicable. The effectiveness of this BMP will be measured using the following parameters:

- Number of seminars and training sessions conducted, recommended or advertised by the County.
- Breadth of target audiences for the seminars and training sessions.
- Number of seminars and training sessions attended by County employees.
- Feedback from comment cards filled out after seminars and training sessions.

MCM II – Public Involvement and Participation

The County strives to achieve demographic representation and an increased level of community involvement in the SWMP development and implementation. The BMPs selected will address viewpoints and concerns of a variety of audiences and communities. The Best Management Practices (BMPs) listed have been selected with regard to: water quality needs; applicability to Jackson County; reaching a wide range of target audiences including community leaders, educators, businesses, property owners, the development community and other specific

industries; taking advantage of related events and resident interest; and building on existing and developing programs and partnerships.

Best Management Practices (BMPs) for MCM II

II.1 Jackson County Storm Water Commission

BMP Description

The Jackson County Storm Water Commission was formed in October 2000 with the charge of developing and implementing a countywide plan for dealing with storm water issues. County and City officials in Jackson County are working together to address problems that cross multiple jurisdictions. As a growing county, we are faced with new ecological challenges and responsibilities. Protecting the quality of our water resources and protecting people and property from the dangers of flooding remain top priorities. Educating stakeholders about good storm water management and building partnerships with key stakeholders are essential and directly tied to a program's success or failure.

There are twelve participating members of the Commission, to be appointed by the County Executive. At least one participating member shall reside in each of the following watersheds: Mill Creek, Fire Prairie Creek, Little Blue, Blue River, and Sni-A-Bar Creek. The County Executive designates one member as the Chair. In making appointments, the County Executive seeks out and gives due consideration to nominees suggested by the governing bodies of the cities within the county and strives to ensure that the Commission's membership is representative of Big Creek, West Branch and Sibley West.

In order to ensure coordination of storm water management throughout the county and the metropolitan area, the governing bodies of Wyandotte and Johnson Counties in Kansas, and Cass, Clay, and Lafayette counties in Missouri, the Missouri Department of Natural Resources, the Missouri Department of Conservation, the Missouri Department of Transportation and the Mid America Regional Council can appoint a representative from their jurisdictions to serve as ex officio members of the Commission without vote.

The Commission shall meet as a whole no less often than bi-monthly. The Commission, in addition to their other responsibilities, will discuss the effectiveness of the SWMP, propose changes, review and comment on the Annual Report, and review and comment on the new SWMP at the end of the permit period. The Commission's meetings are open to the public and at least one meeting will include an agenda item to allow public comments on the Storm Water Management Plan.

Meeting agendas, minutes and review comments for the Annual Report and next SWMP will be kept on the Storm Water Management web page until the end of each year and then be archived.

Target Audience

The target audience is stakeholder groups potentially affected by the SWMP. Potential stakeholder groups include, but are not limited to: City government, commercial and industrial businesses, trade associations, local non-profits and environmental activist groups, major landowners and developers, homeowners associations and educational organizations.

Measurable Goals

The goal is to continue the involvement of the Jackson County Storm Water Commission and begin the annual meetings that focus on public comment on the SWMP. The effectiveness of this BMP will be measured using the following parameters:

- Type of stakeholder groups represented.
- Number of meetings.
- Meeting agendas, minutes and review comments.

II.2 Jackson County Storm Water Task Force

BMP Description

The Storm Water Coordinator will organize and implement a Jackson County Storm Water Task Force made up of applicable County Departments and Divisions that may include Parks and Recreation, Public Works, and Facility Management among others. Members of the Storm Water Commission will also be invited. Activities for the group may include organizing stream cleanups, organizing storm drain labeling groups, organizing volunteer water quality monitoring and aiding the Public Works Department in the identification of polluters.

The Storm Water Task Force will organize, recruit and implement volunteer activities. With volunteers, this enables these programs to achieve a higher level of success than possible if solely implemented by the County's staff. Volunteers are needed to provide the manpower to make the SWMP effective. The following methods of soliciting input will be used to generate interest and recruit the public for involvement:

- Advertising on the County website, in newsletter, press releases and at civic meetings
- Postings at county buildings, schools and libraries
- Telephone and e-mail notifications
- Storm Water Commission meetings

- Advertisement in Brochures/Fact Sheets

The Jackson County Storm Water Task Force will meet at least semi-annually to discuss recruitment strategies, organize activities and evaluate the effectiveness of activities.

Target Audience
The target audience is the citizens of Jackson County, including: residents, educators, students, civic leaders, commercial property owners, local non-profits and environmental activist groups and faith based organizations.

Measurable Goals
The goal is to create the Jackson County Storm Water Task Force to provide assistance in organizing and implementing the wide variety of volunteer activities described in the SWMP. The effectiveness of this BMP will be measured using the following parameters:

- Formation of the Task Force.
- Number of volunteer activities implemented.
- Number of volunteers included in the activities implemented.

II.3 Stream Teams

BMP Description
Jackson County currently has citizens and stakeholders groups that have formed Stream Teams. The County has cooperated with stream teams to conduct stream cleanups along Missouri River, Big Blue, Little Blue and Sni-A-Bar. The Storm Water Coordinator, with assistance from the Storm Water Task Force, will organize and implement additional Stream Teams with the public and other interested county departments, such as Parks and Recreation and Public Works Departments through the Missouri Stream Team program. The activities anticipated to be conducted by the Stream Teams include:

- Litter Pickups
- Storm Drain Labeling
- Volunteer Water Quality Monitoring

The Stream Teams will be encouraged to conduct monitoring activities, both the upstream and downstream ends, to help the County evaluate the effectiveness of the overall Storm Water Management Program. The Stream Teams will also be asked to submit to the Storm Water Coordinator an annual report documenting dates and types of Stream Team activity, number of volunteers involved, amount of trash collected, number of inlets painted, results of water quality tests and observations of the overall condition of their reach of stream with such things as vegetative cover and condition, amount of invasive species, amount of yard waste dumping, etc.

Reaches of stream cleaned, the date that each inlet is stenciled, and water quality monitoring data will be recorded by the Storm Water Coordinator, potentially in the County's GIS system as described in MCM III – Illicit Discharge Detection and Elimination. This will allow tracking of the program and enable easy use of the data.

Target Audience

The target audience is groups of individuals interested in the quality of our streams. These may include neighborhood associations, scout troops, youth groups, educational institutions, environmental organizations, local businesses, county departments, etc.

Measurable Goals

The goal is to have a Stream Team adopt each of Jackson County's major streams. The major streams are: Blue River, Little Blue River and Sni-A-Bar Creek. Once the Stream Teams are in place the goal is for each Stream Team to accomplish 2 or more of the following:

- Conduct or participate in at least one litter pickup per year.
- Perform water quality monitoring twice a year.
- Label storm drains leading to their reach of stream.
- Check and maintain storm drain labels every 3 to 5 years.

Additional Stream Teams may be organized solely for the purpose of storm drain labeling in order to achieve additional coverage within the Jackson County MS4 area.

The effectiveness of this BMP will be measured using the following parameters:

- Number of Stream Teams.
- Number of streams with Stream Teams in place.
- Number of stream miles cleaned.
- Number of litter pickups.
- Tons of trash collected.
- Number of volunteers involved in Stream Clean activities.
- Number of storm water inlets stenciled.
- Number of years before storm water inlets are checked for maintenance of labels.
- Frequency of water quality monitoring events.
- Amount of water quality data collected.
- Ability to track and use water quality data.

In addition to meeting the objectives of MCM II, the volunteer water quality monitoring will give the citizens and the County a means of assessing the success of the entire SWMP. Water quality data can be used to track

improvements in water quality due to the SWMP or pinpoint potential illicit discharges or other pollutant sources that require attention.

II.4 "Report A Problem" Web Link

BMP Description
Jackson County will advertise a "report a problem" web link for citizens to use for any concerns that they may have regarding storm water, illicit discharge or illegal dumping. The program will include a tracking component to categorize the concerns and to ensure concerns are addressed in a timely manner. The link will be posted on the County's main web page, in the various storm water related brochures/fact sheets, and in storm water articles.

Target Audience
The target audience is people living, working or driving through unincorporated Jackson County area.

Measurable Goals
The goal is to receive electronic messages for storm water concerns and illegal dumping activities and implement response time for concerns to an initial call back within 24 hours after a problem is received to determine action required and priority. The effectiveness of this BMP will be measured using the following parameters:

- Evaluate the effectiveness of the "Problems" customer service program and update as necessary.
- Number of storm water related concerns.
- Number of illegal dumping problems.
- Response time for initial callback or problem resolved.

II.5 Mid-America Regional Council

BMP Description
The Storm Water Management Coordinator will actively participate in Mid-America Regional Council (MARC) programs that focus on storm water related issues. MARC is a nonprofit association of city and county governments and the metropolitan planning organization for the bi-state Kansas City region. Governed by a board of local elected officials, MARC serves nine counties and 120 cities. MARC provides a forum for the region to work together to advance social, economic and environmental progress.

MARC is partnering with local government, educational institutes, federal government agencies and others on a green infrastructure pilot project aimed at significantly reducing the volume of storm water runoff into the city's combined

sewer system. Located on a 100-acre pilot area in the Marlborough neighborhood, the project involves construction of numerous rain gardens and other green infrastructure practices that not only reduce runoff but also strip pollutants from storm water before the water enters local streams.

Since 2004, MARC's Regional Water Quality Education Committee has promoted a long-term, comprehensive public education and outreach program, the campaign's theme – "Clean Water, Healthy Life." – focuses on changing behaviors throughout the region in ways that improve water quality, community health and quality of life. The program helps local governments meet federal non-point source pollution regulations and educate the public in a cost-effective manner.

The committee also provided grant funds to local nonprofit and educational organizations to support education and outreach events related to reducing water pollution.

The Water Quality Education Committee administers a biennial public attitude survey to assess residents' knowledge of and attitudes about water quality. The survey questions are designed to measure the impact of water quality public education efforts on overall awareness, as well as measure behaviors that impact water quality in the region. The water quality survey provides a benchmark for evaluating public education initiatives over time and provides guidance for future public policy, planning and education efforts.

MARC organizes and hosts rain garden and native landscaping workshops across the metro. The workshops include a classroom component along with opportunities for participants to plant a rain garden or other native landscaping features. The workshops, in the past, resulted in new rain gardens at parks or community centers.

Target Audience

The target audience is the citizens, local government officials, city staff and other stakeholders that participate in MARC sponsored programs for storm water that also have an interest in the Jackson County SWMP.

Measureable Goals

The goal is to continue participation and endorsement of MARC programs and projects that focus on storm water related issues. The effectiveness of this BMP will be measured using the following parameters:

- Number of MARC sponsored storm water programs.
- Number of attendees at the MARC sponsored storm water programs.

- Promote Water Quality Education Committee biennial public attitude survey.
- Number of respondents in the Jackson County MS4 area to the MARC survey.

MCM III – Illicit Discharge Detection and Elimination

The purpose of this MCM is to develop, implement and enforce a program to detect and eliminate illicit discharges into the Jackson County's municipal separate storm sewer systems (MS4s). An illicit discharge is defined as any discharge that is not composed entirely of storm water, except for discharges permitted under other state operation permits or directly from fire fighting activities.

Best Management Practices (BMPs) for MCM III

III.1 Storm Sewer Mapping

BMP Description

The County began mapping the storm sewer system in 2009 by using as-built construction drawings, collecting GPS point data on stream outfalls, and on storm drain inlets using the County's GIS system and field data collection equipment. The County will continue to incorporate storm sewer data into the County's GIS system for ease of analysis and updating. The County is in the process of planning further data collection for calendar years 2011 and 2012. In addition to verifying outfall locations and data collection for additional storm drain inlets, paper map collections will be reviewed for information on constructed storm sewer infrastructure that can be added to the County's GIS system.

A GIS-based system was selected to make the map interactive for inspectors and other involved parties. Inspectors will verify outlet locations with field surveys and have access to a mapping grade GPS unit to check and document storm water structures.

Measurable Goals

The goal is to continue data collection to verify and update the County's data for creation of a storm sewer GIS map and to complete the GPS survey of all storm outfalls into Jackson County's major streams.

Additional information may be added to track the storm drains that will be labeled as part of the Stream Team BMP described in MCM II – Public

Involvement and Participation. The effectiveness of this BMP will be measured using the following parameters:

- Number of storm structures added to the GIS map.
- Number of storm sewer outfalls identified with GPS survey
- Additional information added as practicable.
- How the storm sewer map is being used.

III.2 Illicit Discharge Ordinance and Inspections

BMP Description

In 2008, the County adopted Chapter 242 of the County Code entitled "Illicit Discharges and Illegal Connections". The purpose of this chapter is to regulate Non-Storm water Discharges to the county's separate storm sewer system or into any waters of the United States. The objectives of this ordinance are to:

1. Regulate the contribution of pollutants to the County's separate storm sewer system or into any waters of the United States by any person;
2. Prohibit illicit discharges and illegal connections to the County's separate storm sewer system or into any waters of the United States;
3. Prevent non-storm water discharges, generated as a result of spills, inappropriate dumping, or disposal, into the County's separate storm sewer system or into any waters of the United States;
4. To establish legal authority to carry out all inspection, surveillance, monitoring and enforcement procedures necessary to ensure compliance with the ordinance.

The Illicit Discharge and Illegal Connections ordinance directly prohibits illicit discharges into the county separate storm sewers and includes powers of entry (search warrant) for identification of illicit discharge sources, enforcement measures, remediation recovery, and response procedures.

The County will conduct periodic visual field screenings of all outfalls. In addition, potential illicit discharges may be reported through: Stream Teams, the volunteer water quality monitoring will include visual field screenings for illicit discharges; the Storm Water Management Web Page, the web page will include information on what an illicit discharge looks like and have an online reporting form.

If the County is alerted to a potential illicit discharge, a Public Works Department representative will investigate, as needed, to verify the existence of the illicit

discharge. Methods available for the inspection program include visual inspection, smoke and dye tests and closed circuit television. Investigations may include documentation of visible evidence and use of physical or chemical tests to document contamination. Once the illicit discharge is located, a detailed field survey with testing may take place, working upstream until the source of origin is located. During the inspection process, the County will seek permission and access private property to the extent allowable by law.

The County will work with the source of the illicit discharge to remedy the situation. The discharge shall be removed by the party responsible for the violation, at no expense to the County. The violator will submit the proposed removal process to the County for approval. The process will then be monitored by the County for proper methodology. Should the party responsible for the illicit discharge refuse to cooperate, the county will proceed with the violation provisions of the ordinance, such as taking measures necessary to abate the violation and/or restore the premises, issuing violator a General Ordinance Summons (G.O.S.) to appear in the County Municipal Court to answer charges for such violation and recover the costs associated with abating the violation, attorney's fees, court costs, and other expenses associated with enforcement of the ordinance, including sampling and monitoring expenses.

Should the source of a violation not be identified, the County will remediate and curtail the violation to the extent practicable, taking into account cost, manpower requirements and the availability of state and federal funding.

Measurable Goals

The goal is to continue the implementation and enforcement of the County Code 242 – Illicit Discharges and Illegal Connections. The effectiveness of this BMP will be measured using the following parameters:

- How often outfalls are visually inspected.
- Number of illicit discharge alerts.
- Number of investigations performed.
- Number of illicit discharges located.
- Enforcement and remediation actions taken under the ordinance.
- Discharges identified through the "Report A Problem" web link.

III.3 Voluntary Litter Pickup Programs

BMP Description

Stream Teams, as described in MCM II – Public Involvement and Participation are also applicable to MCM III in that they directly remove illicit discharges in the form of floatables and debris from streams and the adjacent floodway. These

activities also provide opportunities for volunteers to be in areas where they may detect and report other illicit discharges.

MCM IV – Construction Site Storm Water Runoff Control

The target audience for MCM IV includes developers, contractors, utility contractors, homebuilders, and Jackson County. Construction site pollutants are a significant contributor to storm water runoff pollution.

The main targeted pollutant is sediment, but construction site waste and debris, construction chemicals and concrete truck washout are targeted as well.

Best Management Practices (BMPs) for MCM IV

IV.1 Grading and Erosion/Sediment Control Ordinance

In 2005, Jackson County adopted an erosion and sediment control ordinance which is now Chapter 241 of the County Code. The ordinance contains new requirements for land disturbance activities and erosion and sediment control for all land disturbance activity that involves more than 100 cubic yards of earth movement. The regulations do not pertain to nursery and agricultural operations, home landscaping or gardening, or reestablishment of lawn areas.

Erosion and sediment control plans and proposed phasing of the site development are required for grading land areas. Provisions are required to accommodate increased runoff caused by changed soil and surface conditions during and after grading activities. Requiring the use of erosion and sediment Best Management Practices (BMPs) will prevent runoff from the site into storm water systems and natural watercourses.

If required to have a Land Disturbance Permit issued by the Missouri Department of Natural Resources, a copy of the permit shall be required prior to issuance of grading permit.

County engineers review all plans to determine the site conditions before, during and after construction. This includes the phasing of construction, the use of BMPs to protect the site, and a listing of the responsible parties involved with the construction site. Responsible parties are required to file with the Public Works Department a faithful performance bond or letter of credit in an amount of 120% of the estimated costs of the improvements, landscaping, and maintenance of improvements. The bond or letter of credit must remain in full force and effect for a period of not less than 3 years. Each year within 30 days of the anniversary date of the issuance of the permit the applicant will submit to the Public Works Department verification of current status of bond or letter of credit.

The bond or letter of credit will cover the cost of repair when a failure of the installed soil erosion and sediment control improvements has occurred on the site.

Grading operations one acre or larger, as described in the land disturbance permit requirements, conducted by Jackson County will also include an storm water pollution prevention plan, will go through the review process and will meet all local, state and federal requirements.

Measurable Goals
The goal is to continue the implementation and enforcement of Jackson County Code – Chapter 241 entitled Erosion and Sediment Control. The effectiveness of this BMP will be measured using the following parameters:

- Average number of plan submittal/review cycles prior to site plan approval.
- Feedback from inspectors as to improvements in erosion and sediment control measures on construction sites.
- Number of sediment related complaints via the "Report a Problem" web link.
- Qualitative observation of water quality during outfall visual field screenings.

IV.2 Erosion and Sediment Control Design Requirements

BMP Description
Requirements and design guidance for erosion and sediment control plans can be found in Section 24106 of the County Code, Chapter 241 entitled Erosion and Sediment Control and.

This section references the APWA/MARC BMP erosion and sediment control design manual. In addition to erosion and sediment control requirements and design guidance for BMPs, this section of the design criteria manual will be updated as practicable.

County construction projects will also be required to follow the requirements in the Erosion and Sediment Control Design Manual.

Measurable Goals
The goal is to continue the implementation and enforcement of Jackson County Code – Chapter 241 entitled Erosion and Sediment Control with requirements tied to land disturbance activities and design guidance for erosion and sediment

control BMPs. The effectiveness of this BMP will be measured using the following parameters:

- Feedback from inspectors as to improvements in erosion and sediment control measures on construction sites.
- Feedback from the development community via meetings with local builders, developers and contractors.
- Qualitative observation of water quality during outfall visual field screenings.
- Number of sediment related complaints via the "Report a Problem" web link.

IV.3 Plan Review Process and Checklist Procedures

BMP Description

The Public Works Planning and Development Division will create and implement a checklist for reviewing site plans and storm water pollution prevention plans for compliance. The checklist tool will provide applicants and staff with a clear and concise list of compliance items that will require attention in order for plans to be approved.

Measurable Goals

- Implementation of the checklist in plan reviews.
- Average number of plan submittal/review cycles prior to site plan approval.
- Feedback from inspectors as to improvements in erosion and sediment control measures on construction sites.
- Feedback from the site developers and designers during the plan review and submittal process.

IV.4 Erosion and Sediment Control Inspection and Training for County Staff

BMP Description

The County will require its building and code enforcement inspectors to be trained in erosion and sediment control inspection. Additional training will be conducted for new inspectors and periodic refresher courses as needed.

Inspections will usually be conducted after major rain events or on a complaint-driven basis. General inspections of sediment/erosion control measures will routinely be performed during site inspections for other infrastructure. Contractors shall be required to keep on-site and make available upon request the following items:

- A copy of the erosion and sediment control permit and the most current plan.

- Inspection and maintenance logs from routine and heavy rain event inspections.
- A copy of the Land Disturbance Permit issued by the Missouri Department of Natural Resources, if required.

The building inspections and code enforcement section's measures for compliance will include inspections, notice to correct, stop work orders, court summonses, and use of performance bond or letter of credit. Inspections provide enforcement of the erosion and sediment control BMPs employed on each site. If the BMPs are not being followed or are not working as intended, a stop work order will be issued. If the conditions specified in the stop work order have not been satisfied within 48 hours after posting the order, then the Public Works Director may issue a notice stating that Jackson County will perform the work. The costs incurred by Jackson County to perform work shall be charged against the performance bond or letter of credit.

IV.5 Erosion and Sediment Control Developer/Engineer/Contractor Training

BMP Description

This BMP is in coordination with the Targeted Seminars and Training BMP as described in MCM 1 – Public Outreach and Education. Jackson County will seek to cooperate with other MS4's in the region, Jackson County Soil and Conservation District and MoDNR to conduct at least one meeting annually to be used as a training vehicle on erosion and sediment control topics such as: design, installation, inspection and maintenance.

Measurable Goals

The goal is to conduct or promote at least one erosion and sediment control training session annually for developers, engineers, and contractors. The effectiveness of this BMP will be measured using the following parameters:

- Number of training sessions conducted, recommended, or advertised.
- Number of participants.
- Qualitative feedback from participants.
- Qualitative feedback from inspectors as to improvements in erosion and sediment control measures on construction sites.
- Number of sediment related complaints via the "Report A Problem" web link.

MCM V – Post-Construction Storm Water Management

The County will implement guidelines for Best Management Practices (BMPs) in the APWA/MARC manual to address storm water runoff from new development and redevelopment projects that disturb greater than or equal to one acre, including projects less than one acre that are part of a larger common plan of development or sale, that discharge into the County's regulated small MS4. The BMPs are designed to ensure that controls are in place that would prevent or minimize water quality impacts by requiring water quality treatment and hydrology that mimics pre-developed conditions.

Best Management Practices (BMPs) for MCM V

V.1 Storm Water Design Criteria

BMP Description

The new design criteria shall meet or exceed the requirements of the General State Operating Permit for Small MS4s by including the following measures to minimize or prevent water quality impacts:

- Requires mimicking of predevelopment hydrology, including storm water detention and water quality features, for all new development and redevelopment projects that disturb greater than or equal to one acre, including projects less than 1 acre that are part of a larger common parcel or project that is greater than one acre, or where total impervious area exceeds 15 percent of the total land area of the development.
- Requires water quality structural BMPs to capture and treat the runoff from 90% of the recorded daily rainfall events.
- In addition to flood protection by maintaining the pre-developed 100-year peak flow rate, the new criteria requires extended detention of the water quality capture volume, assumed to be the runoff volume generated by the 1-year, 24-hour storm event.
- Requires grade controls to be built in receiving streams at crossings and pipe outfalls to reduce or eliminate sediment generation and stream degradation as a result of these designs.
- The subdivision homeowners or private property owners must complete any required maintenance or repair. The County may correct violations and costs will be assessed against the property owner or subdivision homeowners if the owners fail to comply.
- County Capital Improvement Projects such as roadway widening, bridge and culvert replacement and facilities improvements that trigger the requirements for storm water

management will also be designed in accordance with the new design requirements.

Measurable Goals

The goal is to continue enforcing Storm water Design Criteria and review new and re-development project plans in the unincorporated Jackson County using these criteria. The effectiveness of this BMP will be measured using the following parameters:

- Update Storm water Design Criteria as practicable.
- Number of new and re-development projects reviewed under the design criteria.
- Feedback from the development community, neighborhood associations and the residents via the Storm Water Commission public meetings and training seminars.
- Qualitative observation of water quality during outfall visual field screenings.

V.2 Riparian Buffer Protection

BMP Description

Requirements and guidance for stream buffers can be found in Section 24106 of the Storm Water Design Criteria in County Code Chapter 241. This section implements a riparian setback requirement for all land and new development not currently covered by a currently approved or permitted plan or plat of development.

This section designates a riparian buffer around USGS designated blue streams in the unincorporated area. Buildings, decks, patios, parking lots and other improvements shall be set back a minimum of one hundred and fifty (150) feet from the center of the stream.

The County's Unified Development Code, Chapter 240, provides regulations for zoning and development in the unincorporated area. Within Chapter 240, there are regulations pertaining to the floodway and floodway fringe. The code states that areas designated in the Floodway Overlay District (FW) consist of land in drainage channels where the construction of buildings is prohibited because they would create obstructions to drainage. The FW District includes land in the floodway as defined by FEMA (Federal Emergency Management Agency).

The areas designated in the Floodway Fringe Overlay District (FF) consist of land outside the floodway but located where there is a one percent or greater chance of inundation in any given year. No development may occur in this zone without a floodplain development permit, which may only be issued for uses and activities permitted in the unified development code. All residential and non-

residential structures must be constructed on fill so that the first floor and basement floor are a minimum of one foot above the regulatory flood protection elevation.

The boundary limits of FW and FF Districts shall be identified and determined by the Flood Insurance Rate Maps for the unincorporated area of Jackson County. These maps are adopted and published by the Federal Emergency Management Agency.

Measurable Goals
The goal is to continue implementation of the stream setback requirement with a map designating the streams for which buffers will be observed. The effectiveness of this BMP will be measured using the following parameters:

- Number of acres of riparian area preserved in development plans implementing the requirements of stream buffer setback.
- Number of floodplain development permits issued within the floodway fringe overlay district.

V.3 Structural BMP Inventory

BMP Description
The Public Works Department will inventory existing structural BMP's with data sufficient to include in the County's GIS when practicable. This information will provide a basis for planning and implementing inspection of structural BMP's.

Measurable Goals
The goal is to inventory and inspect all known structural BMP's by June 2012. The effectiveness of this BMP will be measured using the following parameters:

- The frequency of inventory and inspection activities.
- The number of structural BMP's identified and inventoried.
- The number of problems identified and remedied.
- Changes in water quality effluent from BMP's, either from visual or chemical analysis.

MCM VI – Pollution Prevention/Good Housekeeping for County Operations

The County will implement new pollution prevention/good housekeeping BMPs to prevent or reduce pollutant runoff from county operations. The program includes training of County employees and will eventually encompass all

departments/divisions of county operations. County Capital Improvement Projects such as roadways, bridges, culverts and new county building renovations and parking lots will be designed in accordance with county design requirements for erosion and sediment control and storm water management. County projects will go through the design review process and receive construction inspections.

The targeted pollutants for this MCM are those generated by county operations including: sediment, sodium chloride, fertilizers, pesticides, petroleum hydrocarbons, solid and hazardous wastes, nutrients, organic materials, litter and debris, and bacteria.

Best Management Practices (BMPs) for MCM VI

VI.1 Operations and Maintenance (O&M) Program and Training

BMP Description
O&M Program:
The County will design and implement O&M Programs for various departments/facilities to prevent or reduce pollutant runoff from county operations. The programs will contain but not necessarily be restricted to the following county operations and categories:

Building Maintenance
- Material storage and control
- Proper use and application of materials

Garden and Landscaping Operations
- Proper operation of irrigation systems
- Material storage and control
- Proper use and applications

Parking Lots and Storm Water System Maintenance
- Inspection and cleaning of storm water systems on a complaint-driven basis

Park/Open Space Maintenance
- Use of native and low-maintenance plant species
- Material storage and control
- Proper use and application of materials

Licensed Vehicle Maintenance

- Maintenance performed within a protected facility
- Routine operation inspections before use
- Vehicle wash-out procedures

Off-Road Equipment Maintenance
- Maintenance performed within a protected facility
- Weekly operator inspections before use
- Remove equipment from service when fluid leaks are significant
- Vehicle was-out procedures

Outdoor Bulk Material Storage
- Covered material storage areas
- Short-term uncovered storage areas

Land Disturbance
- Plan/Design projects for minimum disturbance
- Procedures for self-performed construction activities

Illicit Discharge Detection
- Periodic inspection of county-sites for illicit discharges

Waste Disposal
- All waste disposal per federal, state, and local regulations
- Provide recycling alternatives to reduce conventional waste disposal

Spill Prevention, Control and Countermeasure (SPCC)
- Safe handling procedures
- Spill containment procedures
- All spills handled per federal, state, and local regulations

Maintenance Schedules and Inspection Procedures
- Routine maintenance
- Non-routine maintenance
- Inspection schedule and checklists
- Record-keeping

The following departments will be responsible to evaluate their current O&M programs, or having none, develop a specific O&M Program for that department's operations and facilities such that storm water pollutants are minimized:

- Public Works, including:

- Road and Bridge Division
- Wastewater Treatment Section
- Vehicle Service Center
- Facilities Management

- Parks and Recreation

- Corrections

In the development or evaluation of O&M programs, each applicable department will assess their county operations for associated storm water impacts, including the categories listed above. The assessment will identify existing and potential pollutant sources and methods of reduction or elimination of identified pollutants. The following decision process will be used to change existing county operations to meet this objective:

1. Review current operation methods, associated pollutants, and possible alternatives
2. Determine feasibility of operational changes
3. Estimate probable cost of implementation
4. Departmental review of Cost/Benefit Analysis
5. Implement changes if budget allows
6. Request additional funds if necessary
7. Financial appropriation if necessary

The various O&M Programs will be collected by the Storm Water Coordinator and reviewed by the SWMT for adherence to the details of this BMP and for consistency and overlap.

Training:
Each department will create and implement a training program tailored for their operations. The training program shall consist of new staff orientation and refresher components. The training will include written feedback from employees regarding the applicability and effectiveness of the O&M Program and training.

The SWMT will assist the individual departments by compiling training resources from EPA, Missouri Department of Natural Resources, and other applicable authorities and coordinating inter-departmental training opportunities.

The Storm Water Coordinator will seek opportunities to coordinate the training programs with the outreach programs developed from MCM I – Public Education and Outreach and MCM III – Illicit Discharge Detection and Elimination.

Measurable Goals

The goal of this BMP is to prevent or reduce pollutant runoff from county operations through the use of O&M Programs and training tailored to specific County departments and facilities. The effectiveness of this BMP will be measured using the following parameters:

- Number of departments with new or revised O&M Programs
- Progress/status of O&M operations and categories
- Number of training sessions
- Number of participants in training sessions
- Number of training sessions coordinated with MCM I and MCM II education and outreach programs
- Feedback from County employees regarding the applicability and effectiveness of the O&M Programs and training

VI.2 Flood Management Projects

BMP Description

The Storm Water Coordinator/Floodplain Administrator will review all flood management projects that require a floodplain development permit for water quality impacts and will recommend necessary water quality protection device(s) or practice(s). The Storm Water Coordinator/Floodplain Administrator will also acquire any necessary permits and develop a Storm Water Pollution Prevention Plan (SWPPP) as required by Missouri Department of Natural Resources. The SWPPP will include inspection and maintenance procedures for erosion and sediment control devices.

Measurable Goals

The goal of this BMP is to implement the practice of reviewing flood management projects for water quality impacts and the applicability of NPDES Land Disturbance permits for each project. The effectiveness of this BMP will be measured based on the following parameters:

- Approval of individual NPDES Land Disturbance Permits
- Implementation of SWPPP including inspection and maintenance logs of erosion and sediment control devices

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