

Storm Water Management Plan
City of Raymore – 2008 through 2012

Information on the Permittee:

Name of the Permittee: City of Raymore, Missouri
Type of Entity: City - Municipality
Total Area (acres): 17.51 sq. miles = 11206 acres
Mailing Address: 100 Municipal Circle, Raymore, MO 64083
Primary Contact: Michael Krass
Phone Number: (816) 331-1852
Secondary Contact: Brian Faust
Phone Number: (816) 331-1852

Information on the Municipal Separate Storm Sewer System RECEIVED

Permit Number: MO-R040029
MS4 System Location: Raymore
Name of Organization: City of Raymore
County Permittee Resides: Cass County

WATER PROTECTION PROGRAM

The major receiving waters within the permitted area include:

Lumpkin Fork Creek (flows to Kansas City), Little Big Creek (flows to Lee's Summit),
East Branch of East Creek (flows to Belton), and North Branch of East Creek (flows
to Belton).

The receiving waters are not on the latest CWA's list of impaired waters.

Received certification that their SWMP complies with the requirements of Part 3.1: N/A

Information on Adjacent Waterways:

The Permittee is within 100 feet of: Silver Lake and Creekmoor Lake

The Permittee is not within 100 feet of waters classified as major reservoirs.

The Permittee's has areas defined as wetland

The Permittee has received the appropriate CWA, Section 404 permit from the US Army Corps of Engineers.

Stormwater from Raymore does not discharge to a sinkhole.

Information on Critical Areas:

There are threatened or endangered species in the area: See Below
The Permittee has met eligibility criteria for protection of threatened or endangered species.

There are critical habitats in the area: See Below
The Permittee has met eligibility criteria for protection of critical habitats.

There are no historic properties in the area.

Endangered Species:

County	Species	Status	Habitat
Cass	Mead's Milkweed (Asclepias meadii)	Threatened	Virgin prairies

MCM #1: Public Education and Outreach on Stormwater Impacts

4.2.1.1 Permit Requirements

Raymore implemented a public education program by distributing educational materials to the community and conducting outreach activities. The focus of these efforts has been and will continue to be the education of the public with activities discussing the impact of stormwater discharges on water bodies and the steps the public can take to reduce pollutants in stormwater runoff.

4.2.1.2 Decision Process

Raymore developed their original storm water public education and outreach program in cooperation with other jurisdictions in the region. The target pollutants were identified and prioritized. The actions that impact the target pollutants were identified. The public education program was designed to impact the actions identified.

The following is a prioritized list of the leading pollutants, experienced in the permitted area, that are carried by stormwater runoff into water bodies. (1 = having most impact and 10 = having least impact)

<u>1</u>	Suspended Solids
<u>2</u>	Nutrients
<u>3</u>	Pesticides
<u>10</u>	Metals
<u>6</u>	Bacteria
<u>N/A</u>	Oxygen-Depleting Substances (BOD & other organics)
<u>10</u>	Oil and Grease
<u>10</u>	Salinity (Salt)
<u>1</u>	Priority Toxic Organic Chemicals (Household Hazardous Waste Pesticide/Herbicides)
<u>N/A</u>	Habitat Alterations
<u>N/A</u>	Floatables
<u>N/A</u>	Temperature

4.2.1.2.1 Inform Public on Steps

Raymore informs individuals and households in the community about the steps they can take to reduce stormwater pollution with the programs listed below. These programs have been well received by the public in the past and will continue to be utilized in the future. Raymore meets with interested groups including Home Schooling organizations to help disseminate the information.

	Year 2008	Year 2009	Year 2010	Year 2011	Year 2012
Educational Materials:					
Post Information on Website	X	X	X	X	X
Display Posters on Public Transportation	X	X	X	X	X
Maintain a Library of Stormwater Educational Materials	X	X	X	X	X
Distribute Brochures*					
Lawn and Garden Activities					
Hazardous Waste Disposal					
Pet Waste Management					
Trash Management					
Vehicle Maintenance and Washing					
Illicit Discharges					
Display Educational Materials at Community Events	X	X	X	X	X

*The topics for the brochures will be dependent on the topics in Mid-America Regional Council's (MARC) seasonal campaign for public educational. Additional topics will be included in the program, depending on the immediate needs of the surrounding communities. Detailed information about each seasonal campaign will be included in Raymore's annual report.

	Year 2008	Year 2009	Year 2010	Year 2011	Year 2012
Public Awareness:					
Post Storm Water Quality Signs in Public Buildings	X	X	X	X	X
Issue Press Release Regarding Local Storm Water Issues	X	X	X	X	X
Show Storm Water Info on Local TV Station	X	X	X	X	X
Publish Articles in Local Newspaper	X	X	X	X	X
Run Public Service Announcement on Local Radio Stations	X	X	X	X	X
Publish 'Linear Park Living' newsletter that is mailed directly to residents that abut stream-ways. The newsletter is also posted on-line for all or our residents.	X	X	X	X	X

4.2.1.2.2 How to Become Involved

Raymore informs individuals and groups on how to become involved in the stormwater program by providing instructions in all materials distributed to the public. Our brochures, the '*Raymore Review*' (distributed to the entire community), and the '*Linear Parks Living*' newsletter (distributed to residents that live along stream ways in Raymore. This is described in more detail in 4.2.2 Public Involvement/Participation.

4.2.1.2.3 Target Audiences

During the development of the education program, Raymore identified the sources of stormwater pollutants that needed to be reduced to improve overall water quality. The following target audiences were selected because changing their behavior would have a significant stormwater quality impact on the target pollutants. The target audiences for the public education program are:

1. Citizens (Homeowners)
2. Car Wash Owners and Operators
3. Service Station and Oil/Lube Business Owners and Operators
4. Lawn Service Companies
5. Developers and Home Builders
6. Business Owners
7. Children
8. Elected Officials
9. City Staff

4.2.1.2.4 Target Pollutant Sources

The target pollutant sources having a major impact on stormwater quality were identified. The following is a list of these sources:

The following is a list of potential sources of pollutants that are experienced in the permitted area. (1 = Major impact, 2 = Minor impact, 3 = Not an impact)

- | | |
|---|---|
| 1 | Construction activities (sediment, construction chemicals and debris, solid and sanitary wastes) |
| 2 | Over application of fertilizer, herbicides, pesticides |
| 2 | Improper disposal of paint and household hazardous chemicals |
| 3 | Pet waste contamination |
| 2 | Improper disposal of waste oil, grease, and gasoline disposal |
| 2 | Trash, debris, and illegal dumping |
| 3 | Detergents washed into drains |
| 3 | Snow removal (salt, sand and snow disposal) |
| 3 | Sanitary sewer overflows |
| 1 | Infiltration from cracked sanitary sewers |
| 1 | Failing septic systems |
| 2 | Sewer service connections to storm drainage system |
| 2 | Foundation drains connected to storm drainage system |
| 2 | Downspouts connected to storm drainage system |
| 3 | Lake or water body used for motor boating |
| 3 | Spills from roadway accidents or fires |
| 2 | Connected impervious areas covering large acreages (such as malls, institutions with large parking areas) |
| 1 | Stream bank erosion |
| 3 | Waste transfer station |

4.2.1.2.5 Outreach Strategy & Partnerships

Raymore's outreach strategy is to reach a number of different target audiences multiple times by a variety of methods/mechanisms. To change behavior, repetition is important. The mechanisms are described in 4.2.1.2.1 of this permit application.

Raymore has partnered with other governmental and non-governmental entities to execute the public outreach strategy. As we move forward in this process, Raymore will continue to expand our partnerships to help take advantage of new information and new methods of reaching the targeted audiences. The following entities will be assisting with the effort:

1. Other Communities in the Region
2. Schools
3. Regional Planning Organization (MARC)

The number of people targeted to be reached by the public education and outreach strategy is 3200 per year (1/5 of our current population). The city will make every reasonable effort to exceed this number. As concerns over climate change continue to make the headlines on a national level, the interest of the local residents and children will continue to increase.

4.2.1.2.6 Person Responsible

The person responsible for overall management and implementation of the permittee's stormwater public education and outreach program is the **PUBLIC WORKS DIRECTOR**. Others may be involved in the execution of each of the individual activities in the programs.

4.2.1.2.7 Measurable Goals Selection

Raymore selected the measurable goals for each of the BMPs after reviewing EPA & ASCE research on the effectiveness of certain BMPs. The BMPs selected were chosen because of the evidence that they will have a positive impact the target pollutants identified as a concern for Raymore. The public education and outreach BMPs were also selected because many have been effective methods of communicating with the public for our community. The implementation of BMPs selected will determine the success of the measure on water quality.

MCM #2: Public Involvement and Participation

4.2.2.1 Permit Requirements

Raymore will continue to comply with State and Local public notice requirements when implementing the public involvement and participation program.

4.2.2.2 Decision Process

The following sections include the documentation for Raymore's decision process and rationale statement for the development of a stormwater public involvement and participation program. It documents the overall program and the individual BMPs, measurable goals, and responsible party for the program.

4.2.2.2.1 Involving the Public in Developing the Submittal

Raymore involved the public in the development and submittal of the original application and Storm Water Management Program (SWMP). We continue holding public meetings on topics that include, but are not limited to: stream setbacks and BMPs for Detention Basins. Input from the public is taken into account as new policies and procedures are written and adopted. The SWMP will evolve during this ongoing process.

4.2.2.2.2 Involving the Public in Program Implementation

Raymore feels that a proper plan must have ownership by the public and that if the public takes an active role in the plan's implementation, the storm water program will be successful. The public is involved with the plan's implementation through a number of different methods selected because they are effective methods used by Raymore or because of EPA guidance documents that list these BMPs as effective public involvement methods.

4.2.2.2.3 Target Audiences to Involve in Program

The target audiences for the permittee's public involvement program are:

1. Citizens (Homeowners)
2. Mass Media
3. Local Elected Officials
4. Teachers
5. Homeowners Associations
6. Developers and Home Builders

4.2.2.2.4 Public Involvement Activities

Raymore involves the public through the activities described below:

	Year 2008	Year 2009	Year 2010	Year 2011	Year 2012
Conduct Attitude Survey		X			X
Establish Community Hotline	X	X	X	X	X
Hold Public Meetings	X	X	X	X	X
Continue the Storm Drain Stenciling Program	X	X	X	X	X

The city will be working with Operations and Maintenance staff on the storm drain stenciling program. In addition, we will be working with local groups (Boy Scouts/Girl Scouts/etc) to help these organizations participate in the stenciling program (possible Eagle Scout Project). It is critically important to work with younger residents on the importance of protecting our environment.

4.2.2.2.5 Person Responsible

The person responsible for the overall management and implementation of the permittee's stormwater public involvement and participation program is the **PUBLIC WORKS DIRECTOR**. Others will be involved in the execution of each of the individual activities in the programs.

4.2.2.2.6 Goal Selected

Raymore selected the measurable goals for each of the BMPs after reviewing EPA & ASCE research on the effectiveness of certain BMPs. The BMPs selected were chosen because of the evidence that they will have a positive impact the target pollutants identified as a concern for Raymore. Some of the public involvement methods selected were also chosen because they have been used effectively by Raymore in the past. The implementation of BMPs selected will determine the success of the measure on water quality.

MCM #3: Illicit Discharge Detection and Elimination

4.2.3.1 Permit Requirement

4.2.3.1.1 Overview

Raymore will develop, implement and enforce a program to detect and eliminate illicit discharges (as defined in 10 CSR 20-6.200) into their small MS4. We anticipate this being adopted by March 2008.

4.2.3.1.2 Map

Raymore will develop a storm sewer system map, showing the location of all outfalls and the names and location of all waters of the State that receive discharges from those outfalls. The city previously mapped all the storm sewers located in Raymore and the surrounding properties that could be annexed into the community. With the recent growth experience in Raymore, the city required all developers to submit 'as-built' plans – including storm water plans. Over time, these plans will be incorporated into our overall storm water map.

4.2.3.1.3 Enforcement

Raymore will effectively prohibit non-stormwater discharges into the stormwater system of Raymore's stormwater system by implementing and enforcing an Illicit Discharge Ordinance. Operations and Maintenance staff will respond to public complaints as well as develop a schedule of dry weather outlet inspections. Wet conditions encountered will be evaluated to determine the source/cause and whether enforcement action is required. Each ordinance/regulation is enforceable by Raymore with appropriate procedures and consequential actions.

4.2.3.1.4 Methods to Detect

Raymore will implement and maintain a plan using the following methods to detect and address non-stormwater discharges, including illegal dumping to the stormwater system:

	Year 2008	Year 2009	Year 2010	Year 2011	Year 2012
Visual Inspection upon Complaint	X	X	X	X	X
Public Complaints	X	X	X	X	X
Dry Weather Outlet Inspection Program	X	X	X	X	X

4.2.3.1.5 Informing the Public

Raymore will inform public employees, businesses and the general public of hazards associated with illegal discharges and improper disposal of waste using the following methods:

	Year 2008	Year 2009	Year 2010	Year 2011	Year 2012
Educational Programs:					
Distribute Literature		X	X	X	X
Recycling Program for Household Hazardous Waste	X	X	X	X	X

	Year 2008	Year 2009	Year 2010	Year 2011	Year 2012
Volunteer Programs:					
Storm Drain Stenciling	X	X	X	X	X
Household Hazardous Waste Collection	X	X	X	X	X
Illegal Dumping Hotline	X	X	X	X	X

4.2.3.1.6 Not Significant Contributors

Raymore has identified the following categories of non-stormwater discharges or flows (i.e. illicit discharges) as 'not' significant contributors of pollutants to their small MS4: water line flushing, landscape irrigation, diverted stream flows, rising ground waters, uncontaminated ground water infiltration (as defined in 10 CSR 20-6.200), uncontaminated pumped ground water, discharges from potable water sources, foundation drains, air conditioning condensation, springs, water from crawl space pumps, footing drains, lawn watering, flows from riparian habitats and wetlands, and street wash water (discharges or flows from fire fighting activities are excluded from the effective prohibition against non-stormwater and will only be addressed where they are identified as significant sources of pollutants to waters of the State.)

4.2.3.1.7 Occasional Incidental Non-Stormwater Discharges

Raymore's illicit discharge ordinance will not include a list of other similar occasional incidental non-stormwater discharges (e.g. non-commercial or charity car washes, etc.) because they are not reasonably significant sources of pollutants to the MS4. Should these occasional or incidental non-stormwater discharges be identified in the future, those entities responsible for discharging will be prohibited or conditions placed on them so as to minimize their discharge of pollutants.

4.2.3.2 Decision Process

Raymore will document their decision process for the development of a stormwater illicit discharge detection and elimination program. Raymore's rationale statement will address both their overall illicit discharge detection and elimination program and the individual BMPs, measurable goals, and responsible persons for their program.

4.2.3.2.1 Sources for Mapping

Raymore has a base storm sewer map showing the location of outfalls. As stated in Section 4.2.3.1.2, Raymore will be using 'as-built' construction plans to update the storm sewer map:

Raymore will continue to maintain and update the map as development occurs.

4.2.3.2.2 Regulatory Mechanism

Raymore will use the following mechanisms to effectively prohibit illicit discharges to the MS4:

1. City Ordinance
2. Inspection upon Complaint
3. Dry Weather Outlet Inspection Program

These mechanisms were selected because ordinances are commonly used by Raymore to establish laws and set forth the enforcement mechanisms. The ordinance establishes legal authority: to regulate the contribution of pollutants to the municipal separate storm sewer system (MS4) of stormwater discharges by any use; to prohibit illicit connections and discharges to the MS4; and to establish legal authority to carry out all inspections, surveillance and monitoring procedures necessary to ensure compliance.

Raymore will implement and maintain the following mechanisms to effectively prohibit illicit discharges to the MS4 on the respective schedule:

	Year 2008	Year 2009	Year 2010	Year 2011	Year 2012
City Ordinance	X				
Inspection upon Complaint	X	X	X	X	X
Dry Weather Outlet Inspection Program	X	X	X	X	X

4.2.3.2.3 Enforcement

Raymore will set forth in the ordinance enforcement procedures intended to remove the source of the illicit discharge detected.

Raymore will implement and maintain the mechanisms described in 4.2.3.2.2 above with the following enforcement actions:

	Year 2008	Year 2009	Year 2010	Year 2011	Year 2012
Civil Penalties	X	X	X	X	X

4.2.3.2.4 Detection

Raymore will detect and address illicit discharges to the MS4, including discharges from illegal dumping and spills. Raymore's program will address on-site sewage disposal systems that flow into the MS4.

4.2.3.2.4.1 Identify Priority Areas

Raymore will use the system maps identified in 4.2.3.1.2 above and other data to identify priority areas with likelihood of illicit connections.

4.2.3.2.4.2 Trace the Source

Raymore will use the system maps to trace flows back to the source.

4.2.3.2.4.3 Removal

Raymore will follow the ordinance adopted and the enforcement mechanisms detailed in the ordinance including those legal actions described in 4.2.3.1.3 above to enforce the removal of an identified illicit connection.

4.2.3.2.4.4 Program Evaluation

The success of the described program will be evaluated annually by analyzing the number of illicit connections discovered and eliminated.

4.2.3.2.5 Public Information

Raymore will inform public employees, business and the general public of hazards associated with illegal discharges and improper disposal of waste through the following methods:

	Year 2008	Year 2009	Year 2010	Year 2011	Year 2012
Educational Programs:					
Distribute Literature		X	X	X	X
Recycling Program for Household Hazardous Waste	X	X	X	X	X

	Year 2008	Year 2009	Year 2010	Year 2011	Year 2012
Volunteer Programs:					
Storm Drain Stenciling	X	X	X	X	X
Household Hazardous Waste Collection	X	X	X	X	X
Illegal Dumping Hotline	X	X	X	X	X

Where applicable the information distributed through these means will coordinate with the information distributed in the Public Education minimum control measure (e.g., consistent/coordinated messages in literature).

4.2.3.2.6 Responsible Party

The **PUBLIC WORKS DIRECTOR** will be responsible for overall management and implementation of Raymore's stormwater illicit discharge detection and elimination program. Others will be involved in the execution of each of the individual activities in the programs.

4.2.3.2.7 Measurable Goals

Raymore will evaluate the success of the program based on:

The number of illicit connections found and eliminated.

Raymore selected the measurable goals for each of the BMPs after reviewing EPA & ASCE research on the effectiveness of certain BMPs. The BMPs selected were chosen because of the evidence that they will have a positive impact the target pollutants identified as a concern for Raymore. Some of the methods to detect and eliminate illicit discharges were also chosen because they have been used effectively by Raymore in the past. The implementation of BMPs selected will determine the success of the measure on water quality.

MCM #4: Construction Site Stormwater Runoff Control

4.2.4.1 Permit Requirements

Raymore developed and implemented a program to reduce pollutants in any stormwater runoff from construction activities that result in disturbance of greater than or equal to one acre. This program can and is being enforced.

Raymore also requires individual properties with a disturbed area of less than one acre to reduce pollutants in stormwater runoff from construction activities if the site is part of a larger common plan of development or sale.

4.2.4.1.1 Regulatory Mechanism

Raymore adopted ordinance that requires erosion and sediment controls, as well as sanctions to ensure compliance.

4.2.4.1.2 Best Management Practices (BMPs)

Raymore requires construction site operators to implement the appropriate erosion and sediment control Best Management Practices (BMPs).

4.2.4.1.3 Wastes to Be Controlled

Raymore requires construction site operators to control wastes that may cause adverse impacts to water quality such as:

1. Discarded Building Materials
2. Concrete Truck Washout
3. Sediment
4. Litter or Trash
5. Sanitary Waste

4.2.4.1.4 Site Plan Review

Raymore maintains procedures in their ordinance for site plan review, which incorporates consideration of potential water quality impacts.

4.2.4.1.5 Receipt & Consideration of Public Comment

Raymore permits public input/comments associated with any preliminary plat and site plan. This process has not changed.

4.2.4.1.6 Site Inspection

In addition to the Land Disturbance Permit (LDP) issued by the Department of Natural Resources, Raymore requires a separate LDP that deals with the installation and maintenance of erosion and sediment control measures.

4.2.4.2 Decision process

The following sections include the rationale statement for the development of Raymore's overall construction site stormwater runoff control program. It documents the individual BMPs, measurable goals, and responsible party for their program.

4.2.4.2.1 Regulatory Mechanism

Raymore adopted an ordinance that requires the use of erosion and sediment controls on construction sites. The ordinance outlines the requirements for designers and contractors before, during and after the construction activities. The ordinance provides enforcement measures for those designers and contractors who do not follow the ordinance.

Other resources are available to anyone involved in design and construction of erosion and sediment control activities. The resources include:

	Year 2008	Year 2009	Year 2010	Year 2011	Year 2012
Design Methodologies	X	X	X	X	X
BMP Fact Sheets	X	X	X	X	X
Sample Plans	X	X	X	X	X
Construction Specifications	X	X	X	X	X
Standard Details	X	X	X	X	X
Ordinance	X	X	X	X	X
Staff Training	X	X	X	X	X

4.2.4.2.2 Enforcement

Raymore requires compliance with the developed ordinance by including an enforcement section in the ordinance detailing the sanctions and enforcement mechanisms. Raymore uses the following sanctions:

1. Non-Monetary Penalties (such as Stop Work Orders)
2. Fines
3. Bonding Requirements
4. Permit Denial for Non-Compliance
5. Ordinance

4.2.4.2.3 Implementation of Proper Controls

Raymore requires construction site operators to control wastes that may have adverse impacts on water quality with the following method:

	Year 2008	Year 2009	Year 2010	Year 2011	Year 2012
Update to the Proper Erosion and Sediment Controls	X	X	X	X	X

4.2.4.2.4 Pre-Construction Site Plan Review

Raymore implemented and maintains procedures for site plan review, including the review of pre-construction plans, which look at the potential water quality impacts. Raymore will implement and maintain procedures and rationale for those sites that do not require site plan review. The estimated percentage of sites that will have a plan review is 100%.

	Year 2008	Year 2009	Year 2010	Year 2011	Year 2012
Review of Construction Plans	X	X	X	X	X

4.2.4.2.5 Public Input on Submittals

Raymore will continue to allow ample time for public comment on city projects and public input during the preliminary plat and site plan reviews. All plans shall be submitted by a licensed design professional.

4.2.4.2.6 Site Inspection & Enforcement

Raymore maintains procedures for site inspection and enforcement of control measures. The sites are inspected using a priority rating system. The site with the most potential risk to the community will be top on the priority list.

	Year 2008	Year 2009	Year 2010	Year 2011	Year 2012
Site Inspection and Enforcement	X	X	X	X	X

4.2.4.2.7 Person Responsible

The person responsible for overall management and implementation of the permittee's construction site stormwater runoff control program is the **PUBLIC WORKS DIRECTOR**. Others will be involved in the execution of each of the individual activities in the programs.

4.2.4.2.8 Measurable Goals

Raymore selected the measurable goals for each of the BMPs after reviewing EPA & ASCE research on the effectiveness of certain BMPs. The BMPs selected were chosen because of the evidence that they will have a positive impact on the target pollutants identified for Raymore. The implementation of BMPs selected will determine the success of the measure on water quality.

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

4.2.5.1 Permit Requirement

4.2.5.1.1 Overview

Raymore developed and implemented a program to address stormwater 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.

4.2.5.1.2 Strategies

Raymore developed and implemented strategies, which include a combination of structural and/or non-structural Best Management Practices (BMPs), appropriate for the community.

4.2.5.1.3 Ordinance

Raymore uses an ordinance to address post-construction runoff from new development and redevelopment projects to the extent allowable under State or Local law.

4.2.5.1.4 Long-Term Operation & Maintenance

Raymore ensures adequate long-term operation and maintenance of BMPs by requiring *operations and maintenance* to be included as part of the Development Agreement between Raymore and the Developer.

4.2.5.2 Decision Process

The following sections include the rationale statement for the development of a post-construction stormwater management program. It documents the BMPs, measurable goals, and responsible party for the program.

4.2.5.2.1 Priority Areas

Raymore implemented a procedure to address stormwater runoff from new development and redevelopment projects. There are no areas identified as a priority for regulatory procedures.

4.2.5.2.2 Regulatory Procedures

Raymore implemented regulatory procedures that will be specifically tailored for the community, minimize water quality impacts, and attempt to maintain pre-development runoff conditions.

	Year 2008	Year 2009	Year 2010	Year 2011	Year 2012
Ordinance	X	X	X	X	X
Inspection and Maintenance of Long-Term Controls	X	X	X	X	X
Implement Zoning Ordinance	X	X	X	X	X
Review Stormwater Master Plan	X	X	X	X	X
Adopt Comprehensive Plan (Growth Management Plan)	X	X	X	X	X
Adopt Publication of BMPs	X	X	X	X	X

Raymore will continue to update ordinance and procedures as needed to address changes in the community, the law, and improvements in technology.

4.2.5.2.3 Non-Structural Best Management Practices (BMPs)

4.2.5.2.3.1 Policies & Ordinances

Raymore implemented policies and ordinances that helps minimize water quality impacts.

	Year 2008	Year 2009	Year 2010	Year 2011	Year 2012
Direct Growth to Identified Areas	X	X	X	X	X
Protect Sensitive Areas, such as Wetlands and Riparian Areas	X	X	X	X	X
Maintain and/or Increase Open Space	X	X	X	X	X
Provide Buffers Along Sensitive Water Bodies	X	X	X	X	X
Minimize Impervious Surfaces	X	X	X	X	X
Minimize Disturbance of Soils and Vegetation	X	X	X	X	X

4.2.5.2.3.2 Infill Development

N/A

4.2.5.2.3.3 Education

Raymore will implement education programs (on an 'as-needed basis') for developers and the public about project designs that minimize water quality impacts.

4.2.5.2.3.4 Other Non-Structural Measures

N/A

4.2.5.2.4 Structural BMPs

4.2.5.2.4.1 Structural BMPs

Raymore implemented and maintains the following structural BMPs:

	Year 2008	Year 2009	Year 2010	Year 2011	Year 2012
Detention/Retention	X	X	X	X	X

4.2.5.2.5 Regulatory Mechanism

Raymore implemented an ordinance to address post-construction runoff from new developments and redevelopments. These mechanisms will help to not only recommend proper practices, but will help enforce the proper use of the practices under certain circumstances. They include:

	Year 2008	Year 2009	Year 2010	Year 2011	Year 2012
Ordinance	X	X	X	X	X
Inspection and Maintenance of Long-Term Controls	X	X	X	X	X
Implement Zoning Ordinance	X	X	X	X	X
Review Stormwater Master Plan	X	X	X	X	X
Adopt Comprehensive Plan (Growth Management Plan)	X	X	X	X	X
Adopt Publication of BMPs	X	X	X	X	X

Raymore will continue to update ordinance and procedures as needed to address changes in the community, the law, and improvements in technology.

Raymore will ensure compliance with the developed ordinance by way of sanctions and enforcement mechanisms:

1. Non-Monetary Penalties (such as Stop Work Orders)
2. Fines
3. Bonding Requirements
4. Permit Denial for Non-Compliance

4.2.5.2.6 Long-Term Operation & Maintenance

Raymore implemented procedures that require long-term operation and maintenance of their selected BMPs. These procedures ensure that future O&M responsibilities are clearly identified.

4.2.5.2.7 Responsible Party

The person responsible for overall management and implementation of the permittee's post-construction stormwater management program is the **PUBLIC WORKS DIRECTOR**. Others will be involved in the execution of each of the individual activities in the programs.

4.2.5.2.8 Measurable Goals

Raymore selected the measurable goals for each of the BMPs after reviewing EPA & ASCE research on the effectiveness of certain BMPs. The BMPs selected were chosen because of the evidence that they will have a positive impact on the target pollutants identified as a concern for Raymore. The implementation of BMPs selected will determine the success of the measure on water quality.

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

4.2.6.1 Permit Requirement.

4.2.6.1.1 Overview

Raymore is implementing an operation and maintenance program that includes a training component and has the ultimate goal of preventing or reducing pollutant runoff from municipal operations.

4.2.6.1.2 Training

Using training materials that are available from EPA, State and other organizations, Raymore's program will include employee training to prevent and reduce stormwater pollution from activities.

4.2.6.2 Decision Process

Raymore has documented their decision process for the development of a pollution prevention/good housekeeping program for municipal operations. Raymore's rational statement addresses both their overall pollution prevention/good housekeeping program and the individual BMP's, measurable goals, and responsible persons for the program. The rational statement is outlined in the following sections.

4.2.6.2.1 Pollution Prevention & Good Housekeeping Measures

Raymore is implementing and maintaining pollution prevention and good housekeeping measures in the following City activities:

	Year 2008	Year 2009	Year 2010	Year 2011	Year 2012
Street Sweeping	X	X	X	X	X
Recycling Program	X	X	X	X	X
Maintenance Schedule	X	X	X	X	X
Maintenance Activities	X	X	X	X	X
Employee Training	X	X	X	X	X

4.2.6.2.2 Employee Training

Raymore is implementing and maintaining an employee-training program in the following areas so as to prevent and reduce stormwater pollution from the following activities:

	Year 2008	Year 2009	Year 2010	Year 2011	Year 2012
Fleet and Building Maintenance	X	X	X	X	X
New Construction and Land Disturbances	X	X	X	X	X
Snow Removal Operations	X	X	X	X	X

These activities will be coordinated with the outreach programs developed for the public information and illicit discharge minimum control measures so that a consistent message is presented throughout Raymore's program.

4.2.6.2.3 Activities

Raymore's program will address the following areas:

4.2.6.2.3.1 Clean Up Activities

The following activities will be formalized and implemented to reduce the floatables and other pollutants in the MS4:

	Year 2008	Year 2009	Year 2010	Year 2011	Year 2012
Street Sweeping	X	X	X	X	X
Maintenance Schedule	X	X	X	X	X
Maintenance Activities	X	X	X	X	X

4.2.6.2.3.2 Pollutant Locations

Raymore plans to reduce or eliminate the discharged pollutants from the following locations:

1. Streets
2. Municipal Parking Lots
3. Maintenance and Storage Yards
4. Salt/Sand Storage Locations

The following controls and/or programs are being implemented and maintained to reduce or eliminate the discharge of pollutants from facilities owned by Raymore:

	Year 2008	Year 2009	Year 2010	Year 2011	Year 2012
Recycling Program	X	X	X	X	X
Employee Training	X	X	X	X	X

4.2.6.2.3.3 Pollutant Removal

Raymore will implement training procedures for the removal of dredge spoil, accumulated sediments, floatables, and other debris. Raymore constructed a new salt dome in 2005 and removed all material from the old salt storage area in 2007. This area was then reestablished with topsoil and seed. Raymore also maintains a number of linear parks (stream ways) by establishing proper vegetation and 'not' mowing the vegetation to a manicured appearance. This allows sediment that reaches the stream ways to be captured in the riparian buffer. Raymore purchased a street sweeper in 2006 so we are not dependent upon an outside contractor to clean our streets and municipal parking lots. This allows the city to respond quickly to any sweeping needs.

4.2.6.2.3.4 Flood Management

Raymore reviewed their regulations concerning flood management to ensure they allow for:

1. Assessment and implementation of solutions that address impacts to water quality for new projects and;
2. Review of existing projects for inclusion of water quality aspects.

Raymore no longer permits new platted lots to be in the regulatory flood plain or to be contained within the 100-year flood elevation for non-regulated streams. This helps reduce any damage claims associated with flooding but also creates a stream buffer. In addition, Raymore is working on a Stream Setback Ordinance that will compliment the platting requirements and further enhance the buffer areas.

4.2.6.2.4 Responsible Party

The **PUBLIC WORKS DIRECTOR** will be responsible for overall management and implementation of the pollution prevention and good housekeeping program for Raymore. Others will be involved in the execution of each of the individual activities in the programs.

4.2.3.2.5 Program Evaluation

Raymore will evaluate the success of the pollution prevention and good housekeeping program by tracking the progress of each measure against the implementation schedule. Each one of the measures described in this permit was chosen based on its implementability by Raymore staff and impact on water quality.



"Mike Krass"
<mkrass@raymore.com>
02/11/2008 10:37 AM

To "Ruth Wallace" <ruth.wallace@dnr.mo.gov>
cc
bcc
Subject RE: MS4 Permit Post-construction requirement

Ruth,

Just wanted to confirm that I received your e-mail.

We are preparing a response and will get it to you later this week.

From: Ruth Wallace [mailto:ruth.wallace@dnr.mo.gov]
Sent: Friday, February 08, 2008 5:28 PM
To: Mike Krass
Cc: Matthews.Mark@epamail.epa.gov
Subject: MS4 Permit Post-construction requirement

RE: Impending renewal of Raymore's Small MS4 general permit #MOR04002 on March 10, 2008.
Concerns over storm water management program plan adequacy regarding the post-construction runoff management requirements.

Mike,

Thank you for returning my call. As we discussed, the department and EPA may have significant concerns about the effectiveness of the city's proposed stream buffer ordinance. The department's concern surrounds the city's MS4 permit requirements for a sound post-construction runoff management program. This is an important time to discuss this matter, given the city's upcoming vote next week on the stream buffer/floodplain ordinances and given the state's needed approval for renewing the city's MS4 permit on March 10, 2008.

Of particular concern regarding the city's impending stream buffer ordinance are the exemptions for those landowners who have Memorandum's of Understanding for future development - appearing to represent significant portions of the watershed. The MS4 permit requires post-construction runoff management of new and redevelopment on one acre or more. It appears that approved plats may not fall into the new or redevelopment categories, however it seems questionable that MOUs alone would. Per our previous discussion, you acknowledged that such agreements would exempt nearly all landowners with development objectives. Such provisions appear to render the city's post-construction management program efforts ineffective.

You indicated the city's interests are:

1. A concern over Takings
2. The city had put a floodplain ordinance in place around 2004 - (Section 425) which disallows any platting in the floodplain.
3. The new stream buffer ordinance will require vegetation in the setbacks.

You stated that both the city's floodplain management ordinance and the stream buffer ordinance provide the same level of water quality protection, yet:

1. one of the sections exempts the most significant landowners (via MOUs); per our previous discussions, I gather these landowners are developers lining up to do major development

- projects. I understand one project may be a major highway interchange. Please note MoDOT is also required to ensure water quality post-construction measures;
2. there appears to be no enforcement in the proposed added Sections 425.145 Buffer Requirements and 425.146 Design Standards for Buffers
 3. there appears to be no apparent protection of first and second order streams;
 4. there appears to be conflicting buffer width requirements between the two ordinances, rendering a less stringent requirement for those with MOUs;
 5. it appears that by exempting the MOU areas which include important headwaters, the city is leaving the downstream areas vulnerable to further degradation, including the receiving waters of East Creek;
 6. The flooding ordinance applies to platting restrictions for all persons. However, any person is allowed to change the elevation through grading in order to change the floodplain and then petition FEMA to change the floodplain definition to accommodate development (Feb 11 epacket page 227 pertaining to Section 425).

Per our conversation, you acknowledged that the local watershed groups are happy the city is doing something, but they have the same concern about the MOU exemptions.

I am not sure how Takings is a real issue given my understanding of previous rulings on the matter. The issues raised above call effectiveness into question on the city's other two points. Likewise, floodplain management is not synonymous with best post-construction runoff management. The department's primary concern is that the city's current efforts to adopt a stream buffer ordinance and amend the floodplain ordinance conflict with recommendations outlined in the city's 2006 watershed plan and appear to be a post-construction runoff management effort that would be rendered significantly ineffective.

We recommend a more effective approach to addressing the post-construction program in order to bring the storm water management program in line with permit intentions. Please advise on how the city can address this issue so we can determine if the renewal permit #MOR04002 can be issued on schedule March 10, 2008.

Sincerely,

Ruth A. Wallace
Municipal Storm Water Program Coordinator
Water Pollution Control Branch
(573) 522-1131

Missouri Storm Water Information Clearinghouse
<http://www.dnr.mo.gov/env/wpp/stormwater>

