

**Storm Water Management Plan**  
City of Raymore – 2013 through 2017

JUL 12 2013

**Information on the Permittee:**

Name of the Permittee:	<u>City of Raymore, Missouri</u>
Type of Entity:	<u>City - Municipality</u>
Total Area (acres):	<u>17.6 sq. miles = 11264 acres</u>
Mailing Address:	<u>100 Municipal Circle, Raymore, MO 64083</u>
Primary Contact:	<u>Michael Krass, P.E.</u>
Phone Number:	<u>(816) 331-1852</u>
Secondary Contact:	<u>Paschal Smith</u>
Phone Number:	<u>(816) 331-1852</u>

**Information on the Municipal Separate Storm Sewer System:**

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

The major receiving waters within the permitted area include:

Lumpkins 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**

### **Permit Requirements**

The City of Raymore previously 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.

Raymore developed their original storm water public education and outreach program in cooperation with other jurisdictions in the region – mainly MARC (Mid America Regional Council). The target pollutants for the area were identified and prioritized. Raymore then worked with the other jurisdictions to identify the actions that would impact the target pollutants.

### **Target Pollutants and Sources**

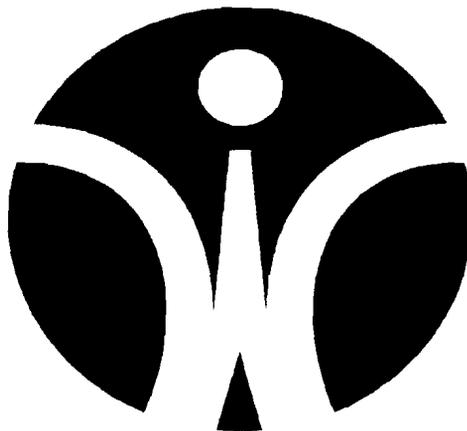
The target pollutants along with sources having a major impact on storm water quality in the City of Raymore are identified as follows:

- 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 (including grass clippings), 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

The potential pollutants/sources listed above, that may be seen in Raymore, are prioritized as: 1 = Major impact, 2 = Minor impact, and 3 = minimal to no impact

### Inform Public on Steps

The City of Raymore utilizes the Environmental Programs from the Mid-America Regional Council (MARC) for much of our public information and outreach. MARC is a regional planning organization for the Greater Kansas City Region and has programs for local governments dedicated to Water Quality. The MARC logo is:



## **Clean Water. Healthy Life.**

Programs are located at – [www.marc.org/Environment/Water/local\\_gov.htm](http://www.marc.org/Environment/Water/local_gov.htm) and the information provided to the public includes the steps they can take to reduce the pollutants in storm water runoff. MARC uses a number of methods to inform the public including public service announcements, brochures, posters, etc. In addition, city staff meets with interested groups including Home Schooling organizations to help disseminate the information. The city will continue to use MARC through the permit period.

### How to Become Involved

The City of Raymore encourages individuals and groups to become involved in the storm water programs by providing instructions in the materials distributed to the public. More information regarding involvement in our community is found in the city's quarterly newsletter (magazine), the 'Raymore Review' (distributed to the entire community). This is described in more detail under MCM #2 - Public Involvement/Participation.

### Target Audiences

During the development of the education program, the City of Raymore identified the sources of storm water pollutants that need to be reduced to improve overall water quality. The following target audiences were selected because changing their

behavior would have a significant 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

### Outreach Strategy & Partnerships

The City of 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 City of Raymore has partnered with MARC 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 4000 per year (approximately 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.

### Person Responsible

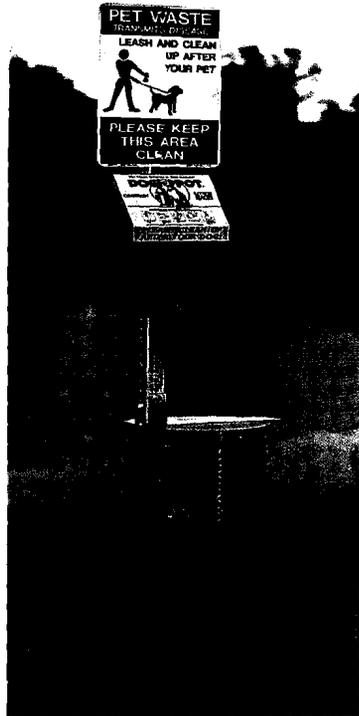
The person responsible for overall management and implementation of the permittee's storm water public education and outreach program is the **PUBLIC WORKS DIRECTOR**. Others may be involved in the execution of each of the individual activities in the programs.

### **Measurable Goals**

The public education and outreach BMPs were 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

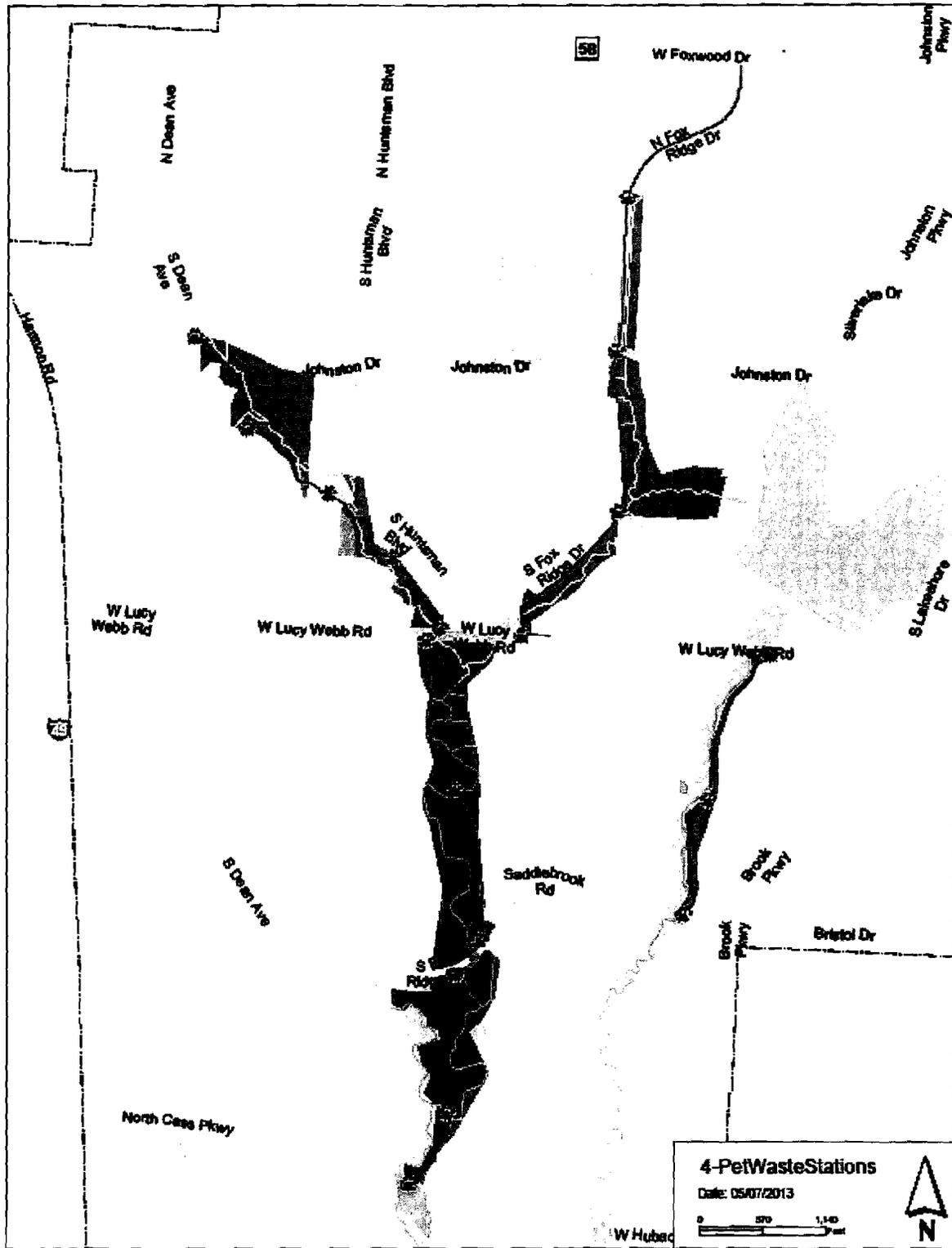
quality. In addition to the educational materials distributed through MARC, the following goals are included:

- **Pet Waste Station and Signage:** The City of Raymore will be installing a combination of waste stations and signage similar to that shown. Stations and signage will be installed along our current trail system as shown on the map.



The locations identified on the map below are for a combination of the waste stations and signage. Exact locations will be determined in the field. There are **18 locations** shown on the map. It is likely that additional trails will be added in the future and the city anticipates requests for additional signage once the program begins.

The measurable goal is to install six (6) waste stations (either signage or the actual waste station) each year, starting in 2013 until all the current sign locations have been completed. This program will continue as additional trails are added and requests are received.

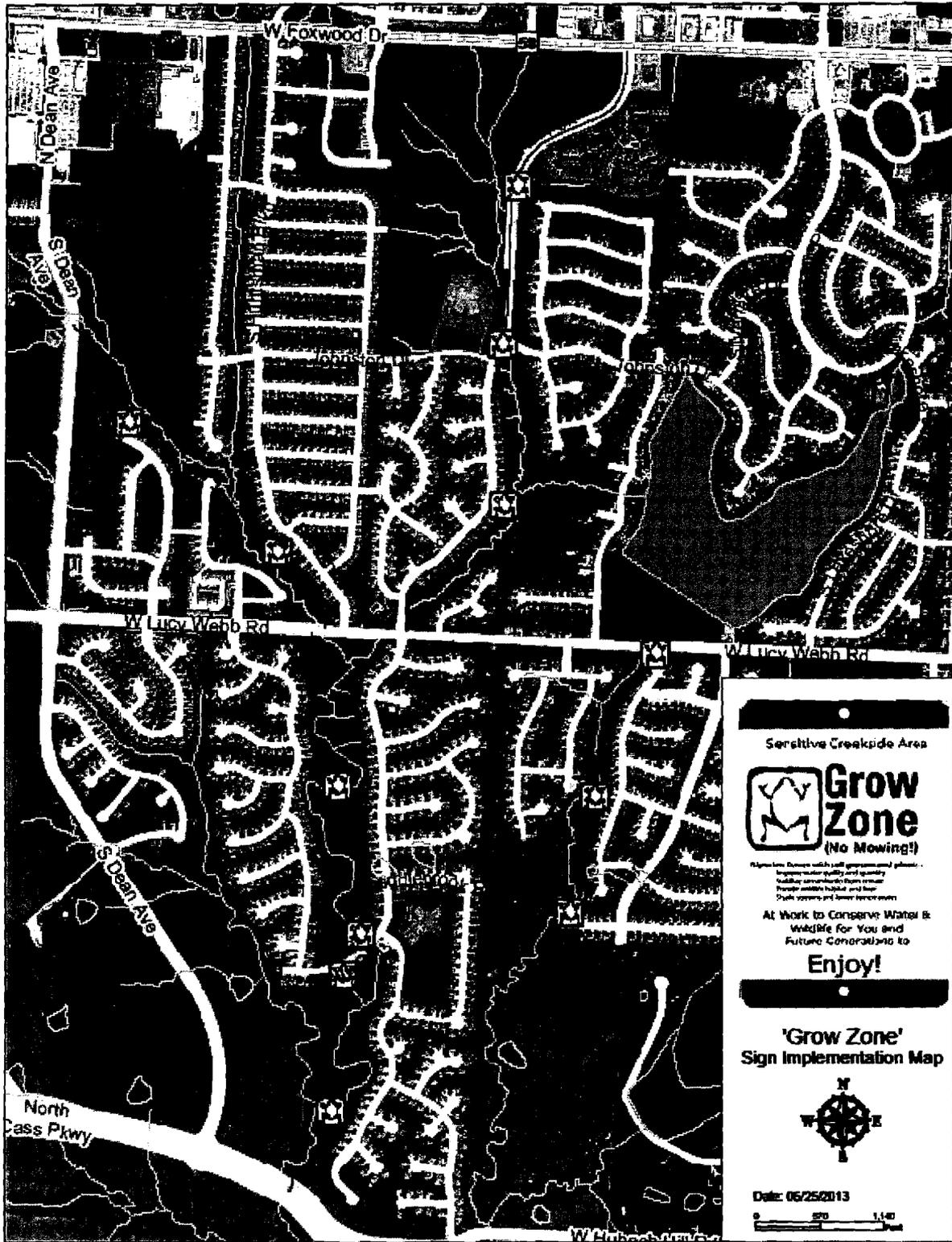


(Dog paws on the map indicate approximate locations of stations/signs)

- Stream Buffer Signage: The City of Raymore is reviewing the signage currently available and will be posting signage similar to that shown. Signs will be posted along our linear park system to educate adjacent property owners and residents about our riparian zones. Approximately locations are shown on the map below.

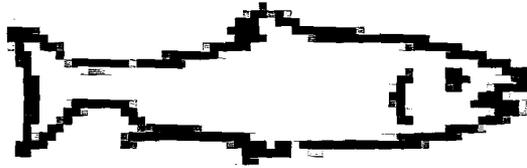


The measurable goal is to install a minimum of four (4) Stream Buffer/Riparian Zone signs each year, starting in 2014 until all the current sign locations have been completed. This program will continue as requests are received.



- Inlet Labeling: The City of Raymore requires all new projects to include a label, similar to that shown, on the top of all storm water inlets. For older inlets, the city will continue to stencil the tops of inlets until all inlets within the city are labeled.

**DRAINS TO STREAM**



**KEEP IT CLEAN**

The measurable goal is to stencil/label a minimum of ten (10) inlet tops each year, starting in 2013 until all the unlabeled inlets have been marked. This will extend into the next permit cycle. This program will continue annually as previously stenciled inlet tops will need to be re-stenciled as needed.

## **MCM #2: Public Involvement and Participation**

### **Permit Requirements**

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

### **Involving the Public**

The City of Raymore involved the public in the development and submittal of the original application and Storm Water Management Program (SWMP) in 2003 and will continue to involve the public in all items that impact storm water. This includes but is not limited to: stream setbacks, pre/post construction BMPs, preliminary and final plats, site plans, and park master plans. Input from the public is taken into account as new policies and procedures are written and adopted. The SWMP will continue to evolve during this ongoing process.

The City of 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 which are used by Raymore or because of EPA guidance documents that list these BMPs as effective public involvement methods.

### **Target Audiences**

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

### **Outreach Strategy**

The City of Raymore will involve the public through the activities described below:

	Year 2013	Year 2014	Year 2015	Year 2016	Year 2017
Conduct Attitude Survey		X			X
Raymore Request Tracker - for residents	X	X	X	X	X
Hold Public Meetings	X	X	X	X	X
Continue the Storm Drain Stenciling Program	X	X	X	X	X
Installation of Pet Waste Stations & Stream Buffer Zones	X	X	X	X	X
Articles in the Raymore Review	X	X	X	X	X
Good Neighbor Meetings on Proposed Development	X	X	X	X	X

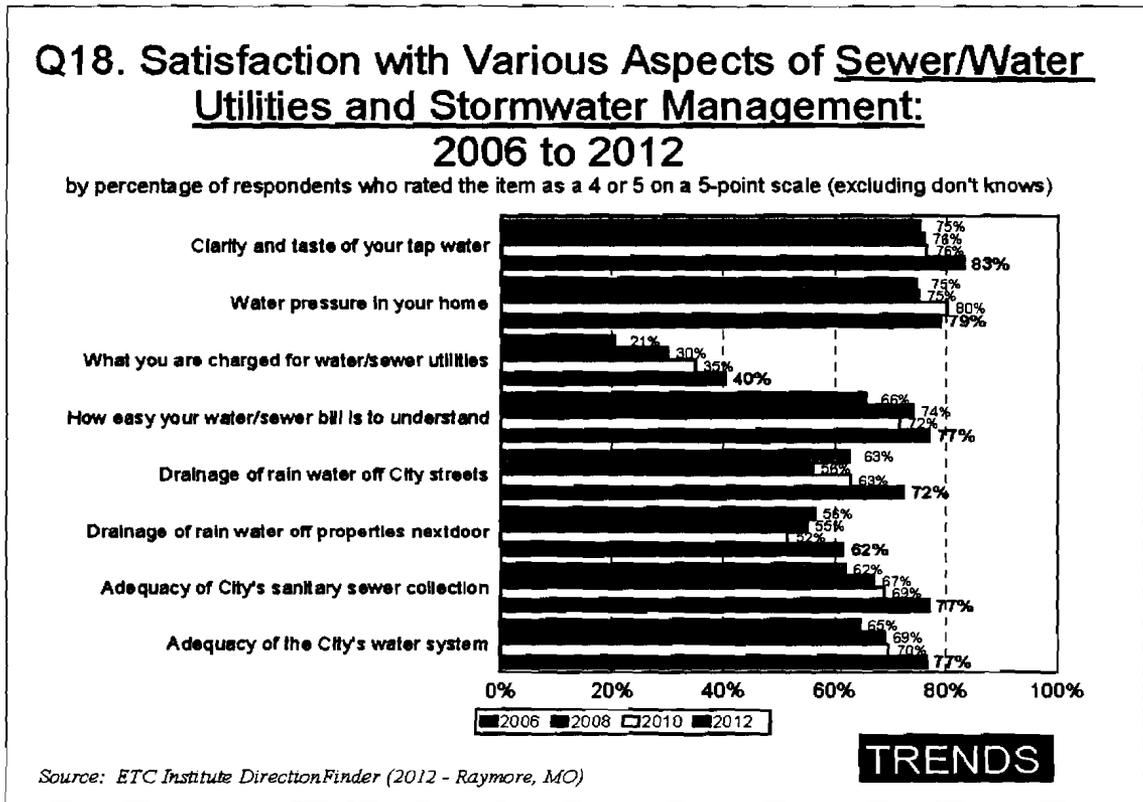
Person Responsible

The person responsible for the overall management and implementation of the permittee's storm water 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.

**Measurable Goals**

The public involvement and participation methods selected were 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. As identified under our outreach strategy, several of our measurable goals are:

- Attitude Survey: The results from the citizen's survey (regarding storm water) for years 2006, 2008, 2010, and 2012 are show here. The survey shows that residents are more and more satisfied with storm water issues.



The measurable goal is to continue to conduct the attitude survey approximately every two-years and monitor the percentage of residents that respond both positively and negatively to the storm water questions.

- Pet Waste Stations and Signage:

The measurable goal is to install six (6) waste stations (either signage or the actual waste station) each year, starting in 2013 until all the current sign locations have been completed. This program will continue as additional trails are added and requests are received.

- Stream Buffer Signage:

The measurable goal is to install five (5) Stream Buffer/Riparian Zone signs each year, starting in 2014 until all the current sign locations have been completed. This program will continue as requests are received.

- Inlet Labeling:

The measurable goal is to stencil/label a minimum of ten (10) inlet tops each year, starting in 2013 until all the unlabeled inlets have been marked. This will extend into the next permit cycle. This program will continue annually as previously stenciled inlet tops will need to be re-stenciled as needed.

- Raymore Review:

The measurable goal is to publish, at a minimum, two (2) informative storm water articles each year in the Raymore Review. This will extend through the permit cycle.

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

#### **Permit Requirement**

The City of Raymore has a process in place to help detect and eliminate illicit discharges.

#### **Mapping**

The City of Raymore developed several maps to aid in the detection and elimination of illicit discharges. These maps are included with this SWMP and are identified below:

- An Outfall Map that showing the location of all outfalls and the names of the waters that receive discharges from those outfalls.
- A detailed Storm Sewer Map that shows the existing storm sewerage system in the City of Raymore. This map will be updated annually with 'as-builts' for any new development.
- A detailed map showing the name and location of businesses that have the possibility of illicit discharges. This map will be updated annually to add or delete businesses as needed.

#### **Methods to Detect**

The City of Raymore using the following methods to detect and address non-storm water discharges, including illegal dumping to the stormwater system:

	Year 2013	Year 2014	Year 2015	Year 2016	Year 2017
Visual Inspection upon Complaint	X	X	X	X	X
Dry Weather Outlet Inspection Program		X	X	X	X
Inlet Inspection and Cleaning Program	X	X	X	X	X
Visual Inspection of Businesses		X	X	X	X

#### **Informing the Public**

The City of Raymore will continue to work with other public employees, businesses and the general public to discuss the hazards associated with illegal discharges and improper disposal of waste. The city attaches the following condition on all commercial site plans and conditional use permit applications: 'Owner must immediately notify city staff of any illicit discharge that enters or has the potential to enter the storm sewer system'.

Other methods used for informing the public include:

	Year 2013	Year 2014	Year 2015	Year 2016	Year 2017
<b>Educational Programs:</b>					
Distribute Literature	X	X	X	X	X
Recycling Program for Household Hazardous Waste	X	X	X	X	X
Quarterly articles in the Raymore Review	X	X	X	X	X
Signage Located on Trails and Along Stream Buffers		X	X	X	X

	Year 2013	Year 2014	Year 2015	Year 2016	Year 2017
<b>Volunteer Programs:</b>					
Storm Drain Stenciling	X	X	X	X	X
Household Hazardous Waste Collection	X	X	X	X	X
Outfall Inspection		X	X	X	X

**Not Significant Contributors**

The City of Raymore previously identified the following categories of non-storm water discharges or flows (i.e. illicit discharges) as ‘not’ significant contributors of pollutants:

- water line flushing, and landscape irrigation/lawn watering
- diverted stream flows and rising ground waters,
- uncontaminated ground water infiltration and uncontaminated pumped ground water,
- discharges from potable water sources,
- foundation drains, air conditioning condensation, and water from crawl space pumps
- springs, 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-storm water and will only be addressed where they are identified as significant sources of pollutants to waters of the State.)

**Occasional Incidental Non-Stormwater Discharges**

The City of Raymore’s Municipal Code and Unified Development Code does not include a list of other similar occasional incidental non-storm water discharges (e.g. non-commercial or charity car washes, etc.) because they are not considered a significant source of pollutants. Should these occasional or incidental non-storm water 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.

Sources for Mapping

A Geographic Information System (GIS) was used to model features referenced by spatial coordinates in a relational database management system (RDMS). Since in part GIS technology is a RDMS, common database operations such as query and statistical analysis can be integrated with unique visualization and geographic analysis. The City of Raymore has developed storm sewer maps showing (1) the location of outfalls, (2) the existing storm sewers within the city’s boundaries, and (3) the location of businesses that may have illicit discharges.

The city will continue to maintain and update maps using ‘as-built’ construction plans and any new business that has the possibility to create an illicit discharge will be added.

Regulatory Mechanism

The City of Raymore has adopted language within the our Municipal Code and Unified Development Code that establishes legal authority to regulate the contribution of pollutants to the Municipal Separate Storm Sewer System (MS4) of storm water discharges by any use; to prohibit illicit connections and discharges to the MS4; and to establish legal authority to carry out inspections and to ensure compliance.

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

	Year 2013	Year 2014	Year 2015	Year 2016	Year 2017
Visual Inspection upon Complaint	X	X	X	X	X
Dry Weather Outlet Inspection Program		X	X	X	X
Inlet Inspection & Cleaning Program	X	X	X	X	X
Visual Inspection of Businesses		X	X	X	X

Enforcement

The City of Raymore prohibits non-storm water discharges into the storm water system by enforcing the current Municipal Code. Operations and Maintenance and/or Engineering 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 the City of Raymore with appropriate procedures and consequential actions.

The City of Raymore will maintain the mechanisms described above with the following enforcement actions:

	Year 2013	Year 2014	Year 2015	Year 2016	Year 2017
Civil Penalties	X	X	X	X	X

Identify Priority Areas

The City of Raymore uses the system maps identified above (included at the end of MCM #3) to identify priority areas with likelihood of illicit connections and/or discharge points.

Trace the Source

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

Removal

The City of Raymore will use the adopted ordinances contained with our Municipal Code to take the necessary legal action to enforce the removal of an identified illicit connection.

Program Evaluation

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

Public Information

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

	Year 2013	Year 2014	Year 2015	Year 2016	Year 2017
<b>Educational Programs:</b>					
Distribute Literature	X	X	X	X	X
Recycling Program for Household Hazardous Waste	X	X	X	X	X

	Year 2013	Year 2014	Year 2015	Year 2016	Year 2017
<b>Volunteer Programs:</b>					
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).

### Responsible Party

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

### **Measurable Goals**

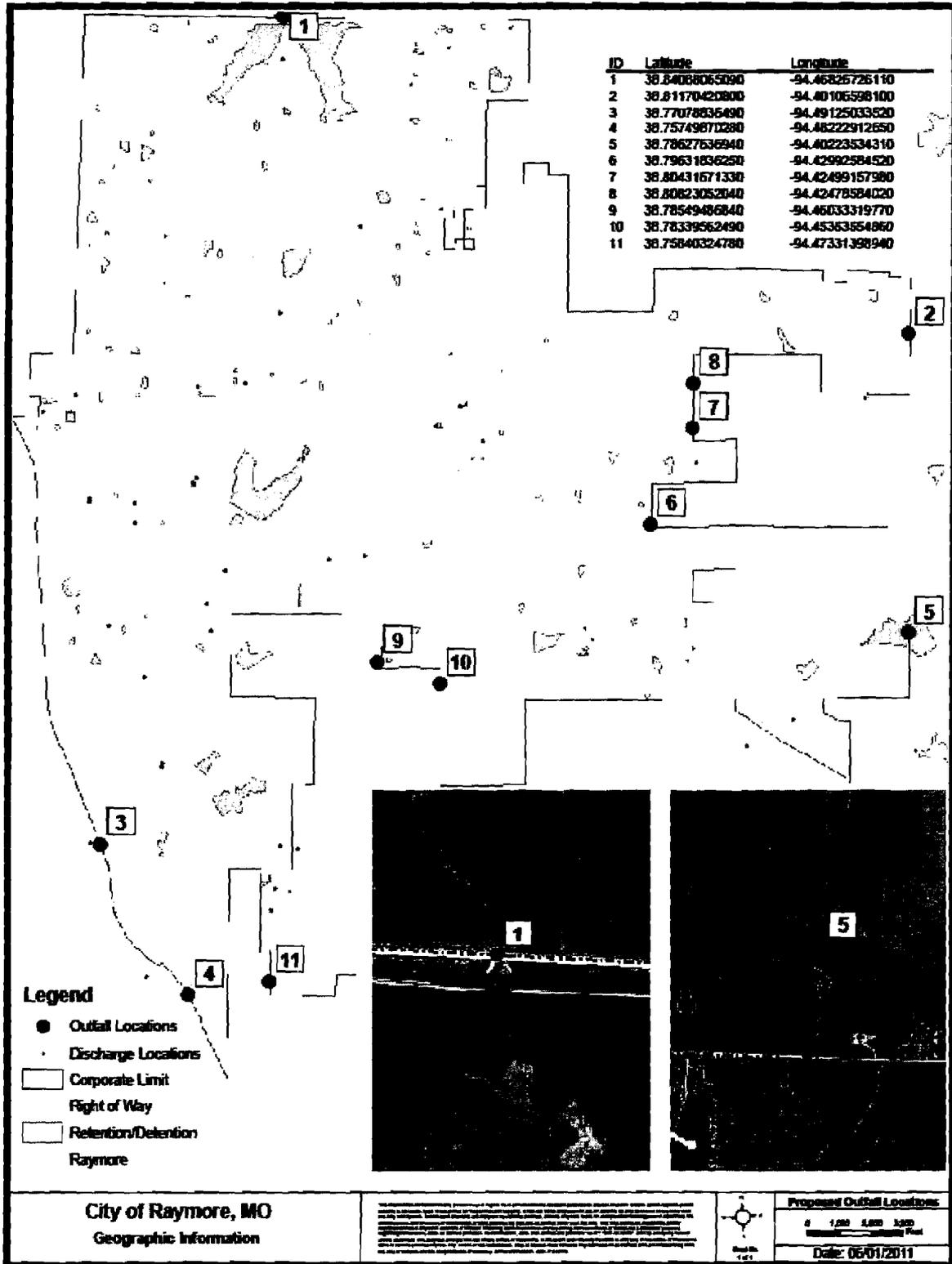
The illicit discharge detection and elimination methods selected were chosen because they have been used effectively by Raymore in the past. The City of Raymore will evaluate the success of the program based on:

- *Record the number of illicit connections/discharges identified and eliminated.*

In addition, the City of Raymore will be using the following measurable goals:

- The number of households that participate in our annual Household Hazardous Waste Collection will be tracked and additional advertisements/notifications will be posted/mailed to increase participation in the program. *The measurable goal is to record the number of households that participate each year and identify methods to increase participation.*
- The city will respond to public complaints regarding possible illicit discharges within 24 hours. Response time will be tracked. *The measurable goal is to identify the number of complaints and the response time.*
- The Public Works Department vehicles will contain spill kits to help in the cleanup of illicit discharges. The number of times spill kits are used will be tracked. *The measurable goal is to record the number of times spill kits are used.*
- The city will begin inspections of the identified outfalls starting in 2014. The number of outfalls inspected and frequency will be tracked. *Our measurable goal is to inspect each outfall twice/year – once in the summer and once in the late fall.*
- The city will begin periodic visual inspection of the areas around the businesses identified on our illicit discharge map starting in 2014. As of 2013 there are 45 businesses that may create an illicit discharge. *The measurable goal is to inspect 25% (12) of the businesses each year.*
- The city will inspect and clean a minimum of 25% of the storm sewer inlets each year. As of 2013 there are approximately 2600 inlets in the city – 25% equals to 650 inlets. *The measurable goal is to inspect 25% (650) inlets each year.*

## Outfall Map – City of Raymore



**City of Raymore – MO**  
**Permit Number: MO-R040029**  
**2013 – 2017 Outfall Location Number and Receiving Stream**

**Outfall Number:** 1  
**Legal Description:** NE1/4, NW1/4, Sec. 4, T46N, R32W  
**Lat. – Long:** 38 50' 27" – 94 28' 06" (385027.2 – 942808.3)  
**Receiving Stream:** Unnamed Tributary to Lumpkin Creek (U)  
**Classified Stream – ID#:** Lumpkins Creek (C) – 425  
**USGS# & Sub Watershed#:** 10300101 – 30001

**Outfall Number:** 2  
**Legal Description:** S/E1/4, S/E1/4, Sec. 12, T46N, R32W  
**Lat. – Long:** 38 48' 42" – 94 24' 02" (384841.7 – 942404.0)  
**Receiving Stream:** Unnamed Tributary to Lake Winnebago (U)  
**Classified Stream – ID#:** Lake Winnebago (L3) 303(D) - 7212  
**USGS# & Sub Watershed#:** 10290108 - 60002

**Outfall Number:** 3  
**Legal Description:** SW1/4, SW1/4, Sec. 29, T46N, R32W  
**Lat. – Long:** 38 46' 15" – 94 29' 29" (384615.3 – 942932.2)  
**Receiving Stream:** Unnamed Tributary to East Creek (U)  
**Classified Stream – ID#:** Tributary to East Creek (C) - 1266  
**USGS# & Sub Watershed#:** 10290108 - 20002

**Outfall Number:** 4  
**Legal Description:** NW1/4, S/E1/4, Sec. 32, T46N, R32W  
**Lat. – Long:** 38 45' 25" – 94 28' 54" (384533.2 – 942912.2)  
**Receiving Stream:** Unnamed Trib. to Tributary to East Creek (U)  
**Classified Stream – ID#:** Tributary to East Creek(C) - 1266  
**USGS# & Sub Watershed#:** 10290108 - 20002

**Outfall Number:** 5 (flow out of Simms Lake)  
**Legal Description:** NE1/4, SW1/4, Sec. 19, T46N, R31W  
**Lat. – Long:** 38 47' 09" – 94 24' 17" (387862.7 – 944022.3)  
**Receiving Stream:** Unnamed Tributary to Harrisonville Lake (C)  
**Classified Stream – ID#:** Harrisonville Lake (L1) - 7214  
**USGS# & Sub Watershed#:** 10290108 - 60001

**Outfall Number:** 6  
Legal Description: NW1/4, NE1/4, Sec. 23, T46N, R32W  
Lat. – Long: 38 47' 46" – 94 25' 43" (387963.2 – 944299.2)  
Receiving Stream: Unnamed Tributary to Lake Winnebago (U)  
Classified Stream – ID#: Lake Winnebago (L3) 303(D) - 7212  
USGS# & Sub Watershed#: 10290108 - 60002

**Outfall Number:** 7  
Legal Description: SW1/4, NE1/4, Sec. 14, T46N, R32W  
Lat. – Long: 38 48' 15" – 94 25' 29" (388043.2 – 944249.9)  
Receiving Stream: Unnamed Tributary to Lake Winnebago (U)  
Classified Stream – ID#: Lake Winnebago (L3) 303(D) - 7212  
USGS# & Sub Watershed#: 10290108 - 60002

**Outfall Number:** 8  
Legal Description: NW1/4, SE1/4, Sec. 14, T46N, R32W  
Lat. – Long: 38 48' 29" – 94 25' 28" (388082.3 – 944247.9)  
Receiving Stream: Unnamed Tributary to Lake Winnebago (U)  
Classified Stream – ID#: Lake Winnebago (L3) 303(D) - 7212  
USGS# & Sub Watershed#: 10290108 - 60002

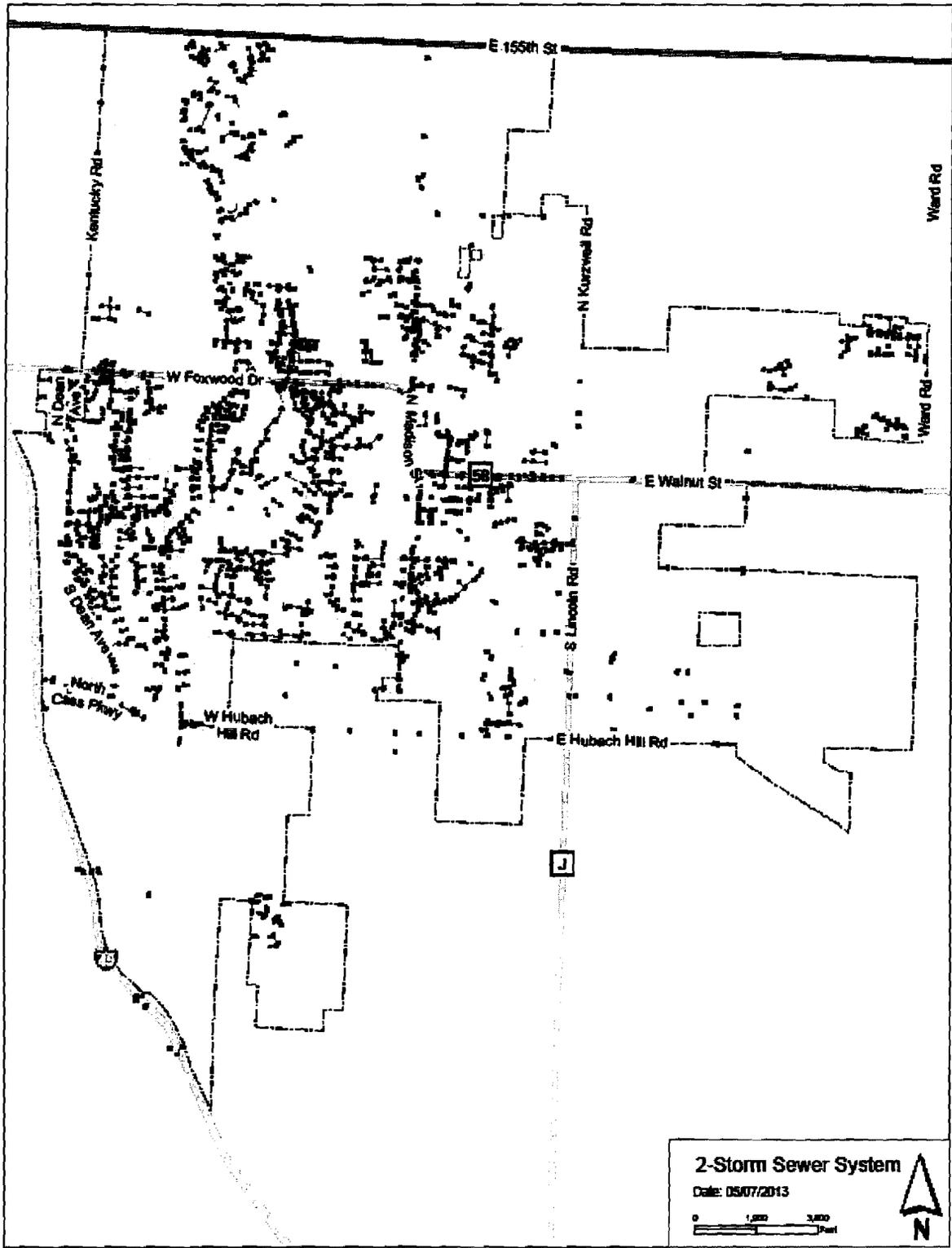
**Outfall Number:** 9  
Legal Description: SE1/4, SE1/4, Sec. 21, T46N, R32W  
Lat. – Long: 38 47' 10" – 94 27' 34" (387854.9 – 944603.3)  
Receiving Stream: Unnamed Tributary to East Creek (U)  
Classified Stream – ID#: Tributary to East Creek (C) - 1266  
USGS# & Sub Watershed#: 10290108 - 20002

**Outfall Number:** 10  
Legal Description: SW1/4, SW1/4, Sec. 22, T46N, R32W  
Lat. – Long: 38 47' 01" – 94 27' 12" (387833.9 – 944535.3)  
Receiving Stream: Unnamed Tributary to East Creek (U)  
Classified Stream – ID#: Tributary to East Creek (C) - 1266  
USGS# & Sub Watershed#: 10290108 – 20002

**Outfall Number:** 11  
Legal Description: NW1/4, SE1/4, Sec. 33, T46N, R32W  
Lat. – Long: 38 45' 30" – 94 28' 22" (387584.0 – 944733.1)  
Receiving Stream: Unnamed Trib. to Tributary to East Creek (U)  
Classified Stream – ID#: Tributary to East Creek(C) - 1266  
USGS# & Sub Watershed#: 10290108 – 20002

Lat/Long are shown in decimal degrees for projected coordinate system  
NAD 83 Missouri State Plan FIPS 2403 Feet

# Storm Sewage Map – City of Raymore





# 2-Storm Sewer System

Date: 05/07/2013

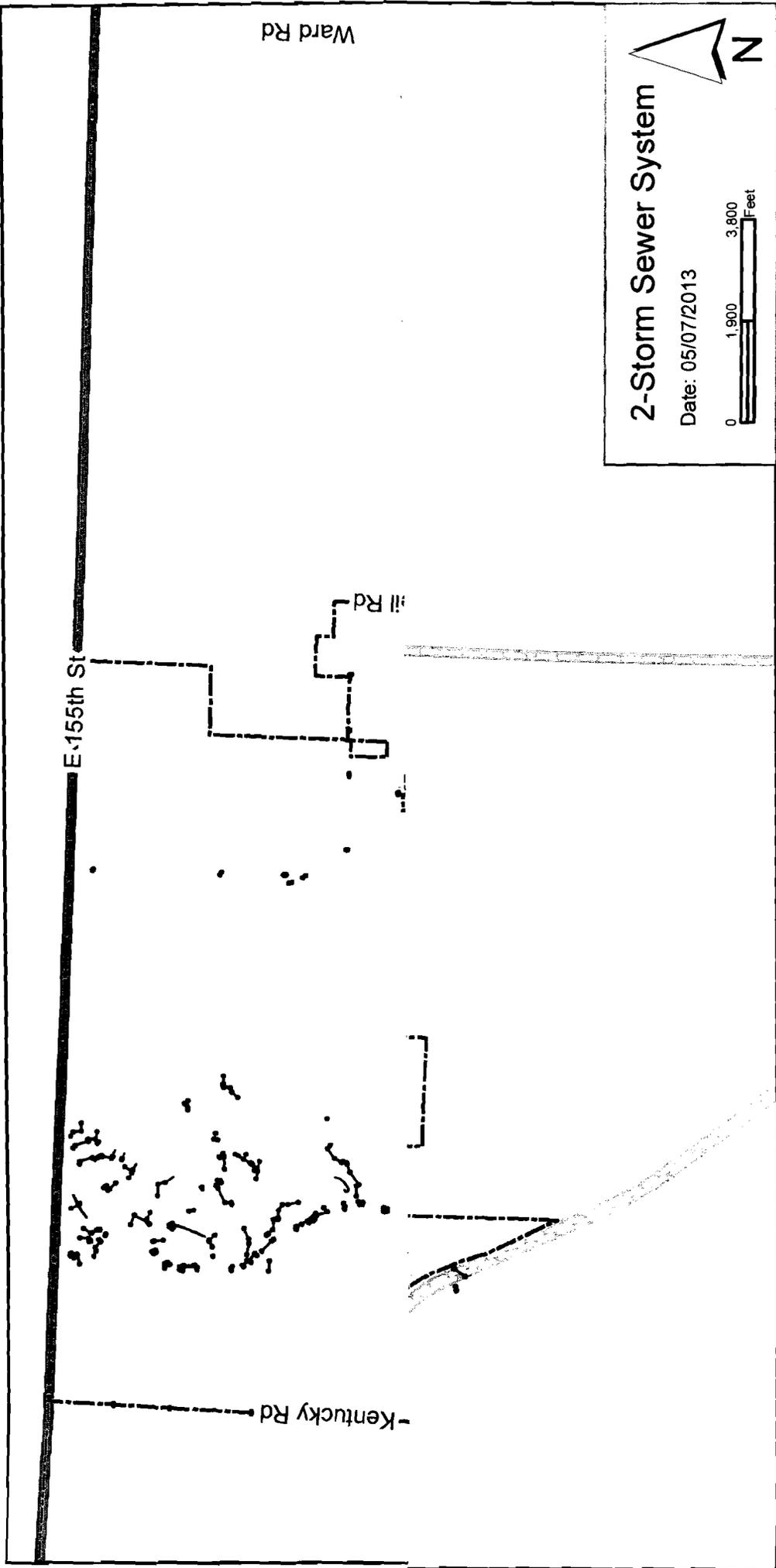


E. 155th St

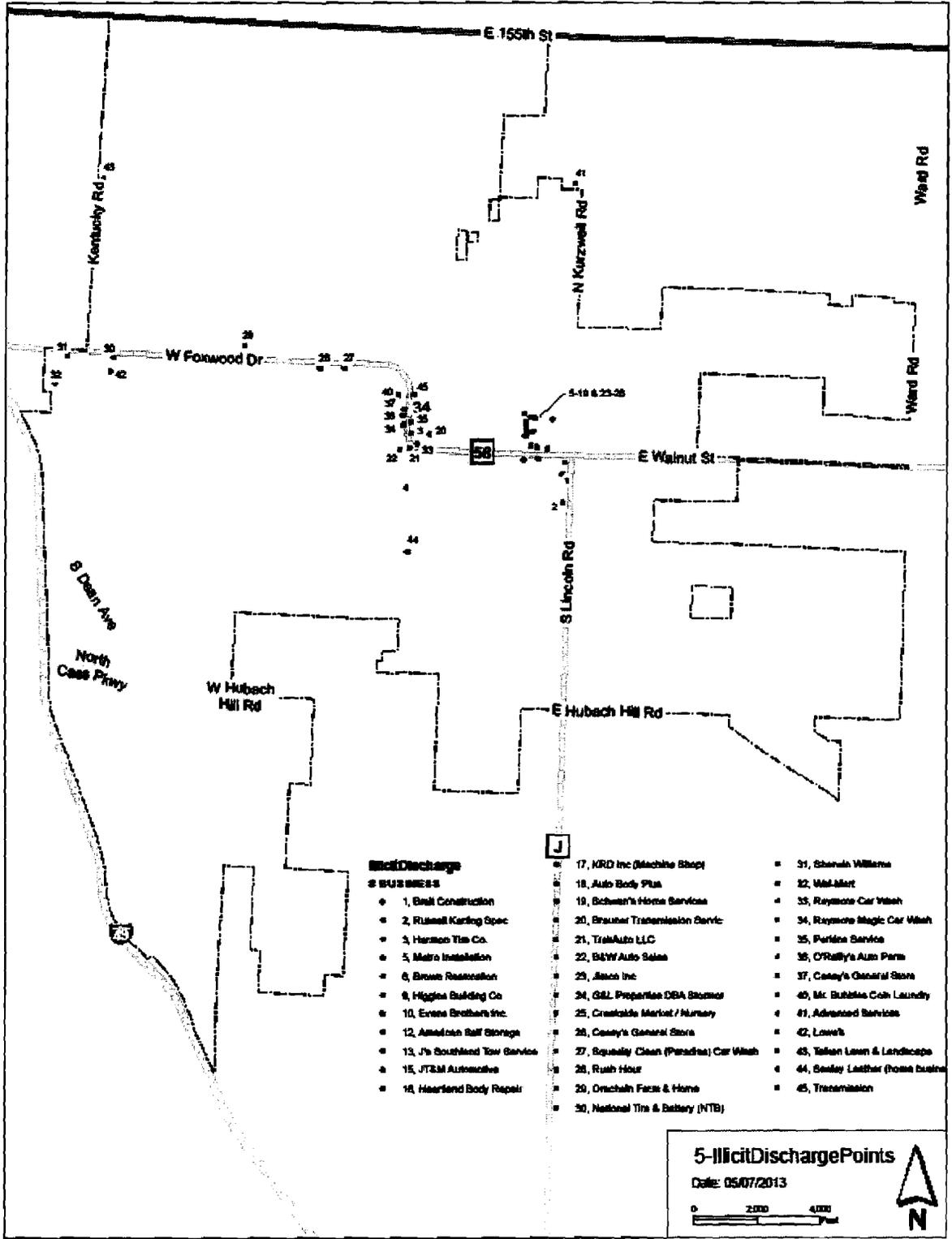
Ward Rd

Mill Rd

Kentucky Rd



# Illicit Discharge – Possible Business Locations – City of Raymore



## **MCM #4: Construction Site Stormwater Runoff Control**

### **Permit Requirements**

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

The city also requires individual properties with a disturbed area of 2000 square feet to obtain a city issued land disturbance permit and to control pollutants in storm water runoff from any construction activities.

### **Regulatory Mechanism**

The City of Raymore adopted an ordinance that requires erosion and sediment controls, as well as sanctions to ensure compliance. This is located in our Unified Development Code - Chapter 455. Natural Resource Protection. The city also requires a developer to provide an upfront financial security for land disturbance to cover all costs the city may have to correct deficient conditions.

### **Best Management Practices (BMPs)**

The City of Raymore requires construction site operators to implement the appropriate erosion and sediment control Best Management Practices (BMPs). All plans are reviewed by engineering staff to help ensure erosion control measures are identified and ultimately installed.

### **Wastes to Be Controlled**

The City of Raymore requires construction site operators to control wastes that may cause adverse impacts to water quality such as, but not limited to:

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

### **Site Plan Review**

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

Receipt & Consideration of Public Comment

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

Site Inspection

In addition to the Land Disturbance Permit (LDP) issued by the Missouri Department of Natural Resources, the City of Raymore requires a separate LDP that deals with the installation and maintenance of erosion and sediment control measures. The city does not issue the LDP until we receive a copy of the state permit, a fee/financial security is received, and the site is inspected by city staff to verify that the perimeter erosion control measures have been properly installed.

Regulatory Mechanism

The City of 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 for enforcement action.

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

	Year 2013	Year 2014	Year 2015	Year 2016	Year 2017
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

Enforcement

The City of Raymore requires compliance by including an enforcement section in the ordinance detailing the sanctions and enforcement mechanisms (Unified Development Code – Chapter 455 – Section 455.020. Erosion Control Enforcement). Raymore uses the following sanctions:

- If the deficiencies are determined to not be hazardous, the Contractor/permittee is notified and given two (2) business days to address. If not corrected, the city will may:
  - Issue a stop work order for the site,
  - Suspend the Land Disturbance Permit,
  - Correct the deficiency and bill the owner,
  - Refer case to the City Attorney for prosecution.
  
- If the deficiencies pose an immediate hazard, the city will correct and bill the owner and take any or all the actions listed above.

Pre-Construction Site Plan Review

The City of Raymore implemented and maintains procedures for site plan review, including the review of pre-construction plans, which look at the potential water quality impacts. The city also requires erosion control measures to be identified on the individual plot plans for single-family home construction and to be installed prior to issuance of a building permit.

	Year 2013	Year 2014	Year 2015	Year 2015	Year 2017
Review of Construction Plans and Plot Plans	X	X	X	X	X

Public Input on Submittals

The City of 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.

Site Inspection & Enforcement

The City of Raymore maintains procedures for site inspection and enforcement of control measures. The city requires that each private construction site comply with weekly and post rain event inspections and provide the city will a copy of each inspection report. The city does periodic independent inspections to ensure compliance.

	Year 2013	Year 2014	Year 2015	Year 2016	Year 2017
Site Inspection and Enforcement	X	X	X	X	X

### Person Responsible

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

### **Measurable Goals**

The Construction Site Storm Water Runoff Control methods selected were chosen because they have been used effectively by Raymore in the past. The City of Raymore has set the following measurable goals:

- Review 100% of the plot plans received to verify erosion control measures are included. *The number of plot plans received by the city versus the number reviewed for erosion control measures will be documented.*
- Review 100% of the site plans received to verify erosion control measures are included. *The number of site plans received by the city versus the number reviewed for erosion control measures will be documented.*
- *Maintain a list of all enforcement action taken for failure to comply with the adopted erosion control ordinance.*
- *Conduct one presentation per year, starting in 2014, to inform the licensed home builders in the City of Raymore of the proper installation and maintenance procedures for erosion control measures.*
- *Have all engineering technicians receive training on a yearly basis on erosion control inspection.*

**MCM #5: Post-Construction Storm Water Management in New Development and Redevelopment**

**Permit Requirement**

The City of Raymore developed and implemented a program 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.

Strategies

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

Ordinance

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

Long-Term Operation & Maintenance

The City of 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 the City of Raymore and the Developer.

Regulatory Procedures

The City of 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 2013	Year 2014	Year 2015	Year 2016	Year 2017
Inspection and Maintenance of Long-Term Controls		X	X	X	X
Adopt Comprehensive Plan (Growth Management Plan)	X				
Adopt Publication of BMPs		X			

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

*Non-Structural Best Management Practices (BMPs)*

Policies & Ordinances

The City of Raymore has implemented policies and ordinances that helps minimize water quality impacts.

	Year 2013	Year 2014	Year 2015	Year 2016	Year 2017
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

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

In addition, the city's Unified Development Code contains provisions that permit:

- 'cluster' developments,
- flexible design criteria for 'planned' developments, and
- regulatory controls over forest stands.

In 2005, the city amended the Municipal Code 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. Floodplain Management is contained in Section 460 of the Unified Development Code.

In 2008, the city adopted a Stream Buffer Protection Ordinance that complimented the platting requirements and further enhanced the buffer areas. The Stream Buffer Protection is contained in Section 455.040 and 460.120 of the Unified Development Code.

Infill Development

N/A

Education

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

Other Non-Structural Measures

N/A

Structural BMPs

The City of Raymore implemented and maintains the following structural BMPs:

	Year 2013	Year 2014	Year 2015	Year 2016	Year 2017
Detention/Retention	X	X	X	X	X
Wetland Plantings	X	X	X	X	X

Regulatory Mechanism

The City of Raymore addresses post-construction runoff from new developments and redevelopments through a recorded Development Agreement between the City and the Developer. These 'agreements' define maintenance responsibility. The city's Municipal and Unified Development Code contain compliance and enforcement mechanisms.

Long-Term Operation & Maintenance

The City of 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.

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.

## **Measurable Goals**

The Post-Construction Storm Water Management in New Development and Redevelopment methods selected were 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. The City of Raymore has set the following measurable goals:

- *Adopt additional post construction BMPs recommended by the APWA by 2014.*
- *Develop a detailed list of the existing BMPs, identify the responsible party for each BMP, and verify that all existing BMPs are inspected by the appropriate party each year. This will start by 2014.*

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

### **Permit Requirement.**

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

### **Training**

The City of Raymore is using training materials that are available from EPA, State and other organizations. Raymore's program will include employee training to prevent and reduce storm water pollution from activities.

### **Pollution Prevention & Good Housekeeping Measures**

The City of Raymore has implemented and is maintaining pollution prevention and good housekeeping measures in the following City activities:

	Year 2013	Year 2014	Year 2015	Year 2016	Year 2017
Street Sweeping	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

### **Employee Training**

The City of Raymore has implemented and is maintaining an employee-training program in the following areas so as to prevent and reduce storm water pollution from the following activities:

	Year 2013	Year 2014	Year 2015	Year 2016	Year 2017
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 are 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.

Clean Up Activities

The following activities have been implemented to reduce the floatables and other pollutants in the MS4:

	Year 2013	Year 2014	Year 2015	Year 2016	Year 2017
Street Sweeping	X	X	X	X	X
Maintenance Schedule	X	X	X	X	X
Maintenance Activities	X	X	X	X	X

Pollutant Locations

The City of Raymore will continue to work 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 2013	Year 2014	Year 2015	Year 2016	Year 2017
Employee Training	X	X	X	X	X

Pollutant Removal

The City of Raymore implemented training procedures for the removal of dredge spoil, accumulated sediments, floatables, and other debris.

- A new salt dome was constructed in 2005 and removed all material from the old salt storage area in 2007. This area was then reestablished with topsoil and seed.
- A retention basin was constructed at the operations center in 2012. This basin is used to capture materials leaving the site.
- A covered equipment storage facility was construction in 2011 to eliminate storm events from washing away any leaked fluids from equipment.
- The city 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.
- A street sweeper was purchased in 2006 to clean our streets and municipal parking lots. This allows the city to respond quickly to any sweeping needs.

### Flood Management

The City of Raymore will continue to review our regulations concerning flood management to ensure they allow for:

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

### 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.

### **Measurable Goals**

The Pollution Prevention/Good Housekeeping for Municipal Operations measurable goals are:

- *Sweep all paved streets and parking lots within the city at a minimum of twice/year.*
- *Provide annual storm water training for each PW employee.*
- *Prepare a SWMP (Storm Water Management Plan) for the following City owned facilities during the year shown:*
  - *Public Works/Operations Facility – 2014*
  - *City of Raymore Animal Control Facility – 2014*
  - *Raymore Parks Maintenance Facility – 2015*
  - *Raymore City Hall – 2016*

- Clean and inspect a minimum on 25% of the storm sewer inlets each year. This equates to approximately of 650/year. The following form will be used (modified as needed).



## CATCH BASIN INSPECTION FORM

GIS CB ID \_\_\_\_\_

Inspector Name \_\_\_\_\_

Date \_\_\_\_\_ Time \_\_\_\_\_

Street Address \_\_\_\_\_

Weather      \_\_\_ Dry                      \_\_\_ Other

Location      \_\_\_ Road Curbside      \_\_\_ Pkg Lot  
                   \_\_\_ Driveway              \_\_\_ Sidewalk

Inlet Type      \_\_\_ Concrete              \_\_\_ Other \_\_\_\_\_

Cleaned        \_\_\_ Yes                      \_\_\_ No              \_\_\_ Already Clean

Depth of Sediment      \_\_\_ N/A                      \_\_\_ 2" or More

Trash Guard    \_\_\_ Yes                      \_\_\_ No              Size \_\_\_\_\_

Box              \_\_\_ Concrete              \_\_\_ Other \_\_\_\_\_

                    Size: (Width) \_\_\_ X (Length) \_\_\_ X (Depth) \_\_\_

Lid                \_\_\_ Concrete              \_\_\_ Cast Iron              \_\_\_ Grate

                    Size: (Width) \_\_\_ X (Length) \_\_\_ X (Thickness) \_\_\_

Entry Hole      \_\_\_ Concrete      Size: (Width) \_\_\_ X (Length) \_\_\_  
                     \_\_\_ Cast Iron      Size: (Diameter) \_\_\_

Overall Condition      \_\_\_ Bad              \_\_\_ Good

Need Maintenance    \_\_\_ No                      \_\_\_ Yes—If yes, what \_\_\_\_\_

Comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



# City of Raymore

100 Municipal Circle

Raymore, MO 64083

Ph. (816) 331-1852/ Fax (816) 331-8067

June 28, 2013

Ms. Ruth Wallace  
MS4 Program Coordinator  
Missouri Department of Natural Resources  
P.O. Box 176  
Jefferson City, MO 65102-0176

*Reference: Individual Small MS4 General Permit – SWMP Submittal  
Permit No. MO-R040029, City of Raymore, Cass County*

Dear Ms. Wallace:

Please find the attached Storm Water Management Plan (SWMP) for the renewal of Permit No. MO-R040029. The actual application for the new permit was submitted back in May 2013.

If you have any questions during your review or need any additional information, please feel free to call me at 816-331-1852.

Sincerely,

Mr. Michael Krass, P.E.  
Director of Public Works  
City of Raymore  
816-331-1852

*Attachment: SWMP*