CITY OF St. PETERS
STORM WATER MANAGEMENT PLAN

December 2017

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ABBREVIATIONS

BMPs	Best Management Practices
MDNR	Missouri Department of Natural Resources
EPA	Environmental Protection Agency
MS4	Municipal Separate Storm Sewer System
NPDES	National Pollution Discharge Elimination System
Phase II Permit	NPDES Phase II Municipal Stormwater Permit
SWMP	Stormwater Management Program
SWPPP	Stormwater Pollution Prevention Plan
PPGH	Pollution Prevention, Good Housekeeping
IDDE	Illicit Detection, Discharge Elimination WTP Water Treatment Plant
WWTP	Wastewater Treatment Plant
ESC	Erosion and Sediment Controls
MCMs	Minimum Control Measures

INTRODUCTION

The City of St. Peters (City) is currently subject to the requirements of the National Pollutant Discharge Elimination System, also known as the NPDES. The NPDES requires a regulated Phase II Municipal Storm Sewer System (MS4) municipality, such as St. Peters to obtain an NPDES Permit issued by the Missouri Department of Natural Resources (MDNR), defined in 10 CSR 20-6.200, to discharge stormwater into Waters of the State.

The Phase II NPDES Permit requires the City to develop a Stormwater Management Program (SWMP). The Stormwater Management Program is comprised of six (6) Minimum Control Measures (MCMs) relating to pollution prevention for all municipally managed, owned, and operated locations such as material storage areas, heavy equipment storage areas, and City maintenance locations. The Stormwater Management Program six MCMs are discussed in this SWMP to describe both operational and structural Best Management Practices (BMPs) that are to be implemented across the City and at each facility. This plan and the related MCMs is intended to prevent the discharge of contaminated stormwater to surface or groundwater to the maximum extent practicable. Thus, MCMs are a central focus of stormwater management within the City, and are discussed below.

<u>The City MS4 Permit DOES cover stormwater discharges mixed with non-stormwater:</u>

- That is NOT in compliance with any other permit.
- Stormwater discharges associated with industrial activities requiring a NPDES Permit.
- Discharges likely to jeopardize the continued existence of any threatened or endangered species.
- Discharges that cause or contribute to a violation of instream water quality standards.
- Discharge of any pollutant into any water with an established Total Maximum Daily Load (TMDL) approved by the EPA.

<u>The City MS4 Permit requirements does NOT cover:</u>

- Landscape and lawn irrigation.
- Rising groundwater
- Uncontaminated pumped groundwater
- Discharges from potable water sources
- Foundation drains
- Air conditioning condensate
- Springs
- Water from crawl space pumps
- Footing drains
- Flows from riparian habitats and wetlands
- Street sweeping wash water
- Discharging from emergency firefighting activities
- Individual residential car washing
- Dechlorinated residential swimming pool discharges

STORMWATER MANAGEMENT PLAN PURPOSE

The objective of this SWMP is to implement pollution prevention measures and to manage and prevent discharges of pollutants from the City MS4 entering Waters of the State to the maximum extent practicable, based on local conditions, resources and priorities. This document provides detailed objectives to achieve stormwater management MS4 objectives using the six (6) MCMs that the City has identified in this SWMP. As a result, the City is implementing a range of BMPs intended to manage stormwater flows described below. By doing so, the City hopes to satisfy applicable requirements of the Clean Water Act and achieve water quality beneficial use objectives described by MDNR.

ST. PETERS STORMWATER MANAGEMENT PLAN MANAGEMENT AREA

The City of St. Peters NPDES MS4 stormwater management exists within the City corporate limits, which encompasses approximately 22.4 square miles. The City owns, operates and maintains over 166 miles of storm sewer pipe and associated structures, as well as approximately 8500 stormwater inlets and other drainage structures and four stormwater pump stations. The City contains more than 47 miles of waterway, approximately 55 stream/roadway crossings, more than 43 wet retention basins and 207 dry detention basins.

The majority of the City is situated within 13,575 acres of the lower portion of the Dardenne Creek Watershed, which is roughly 29 miles long and drains to the Mississippi River. The primary sub-watershed in St. Peters is Spencer Creek. Other sub watersheds identified by the Corps of Engineers include East Dardenne, Sandfort Creek, and un-named tributaries No. 1 and No. 2. The remaining 425 acres of the City exist within the Missouri River watershed and drains south to the Missouri River, such as Duckett Creek. However, most of the drainage within the City flows north, exiting the City limits near the northeast corner of the City approximately 2.5 stream miles from the Mississippi River.

Figure 1. Greater Watershed and Sub-Watershed Map

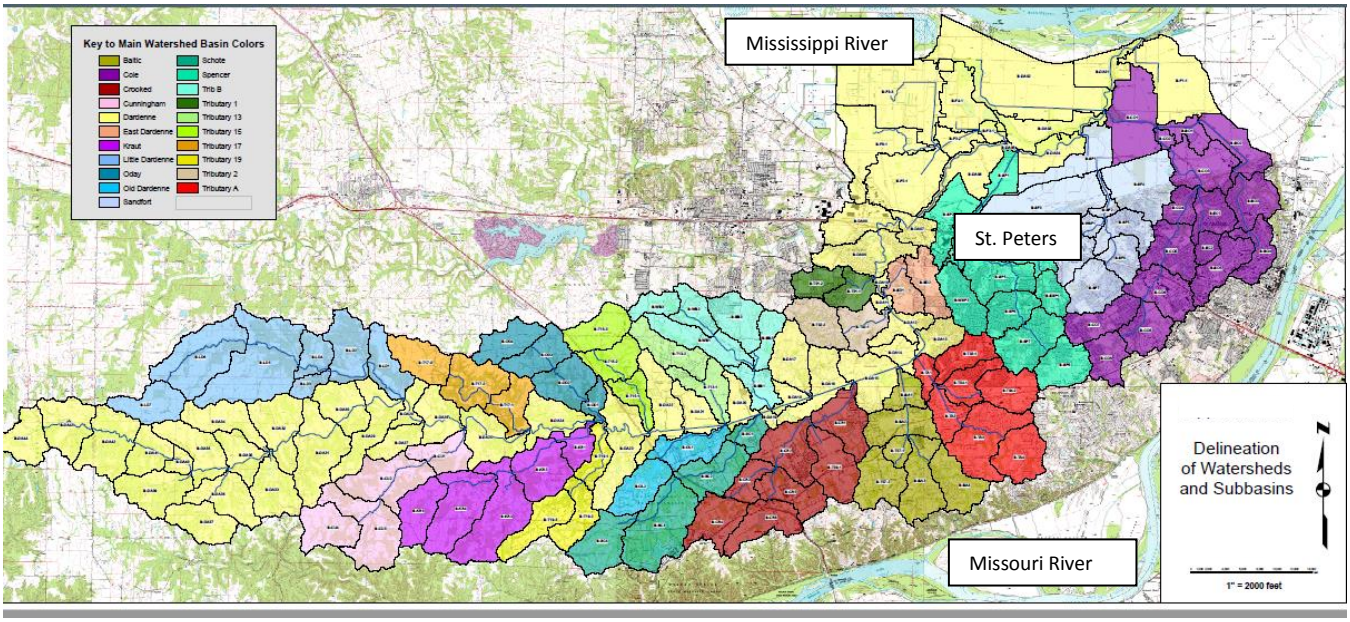
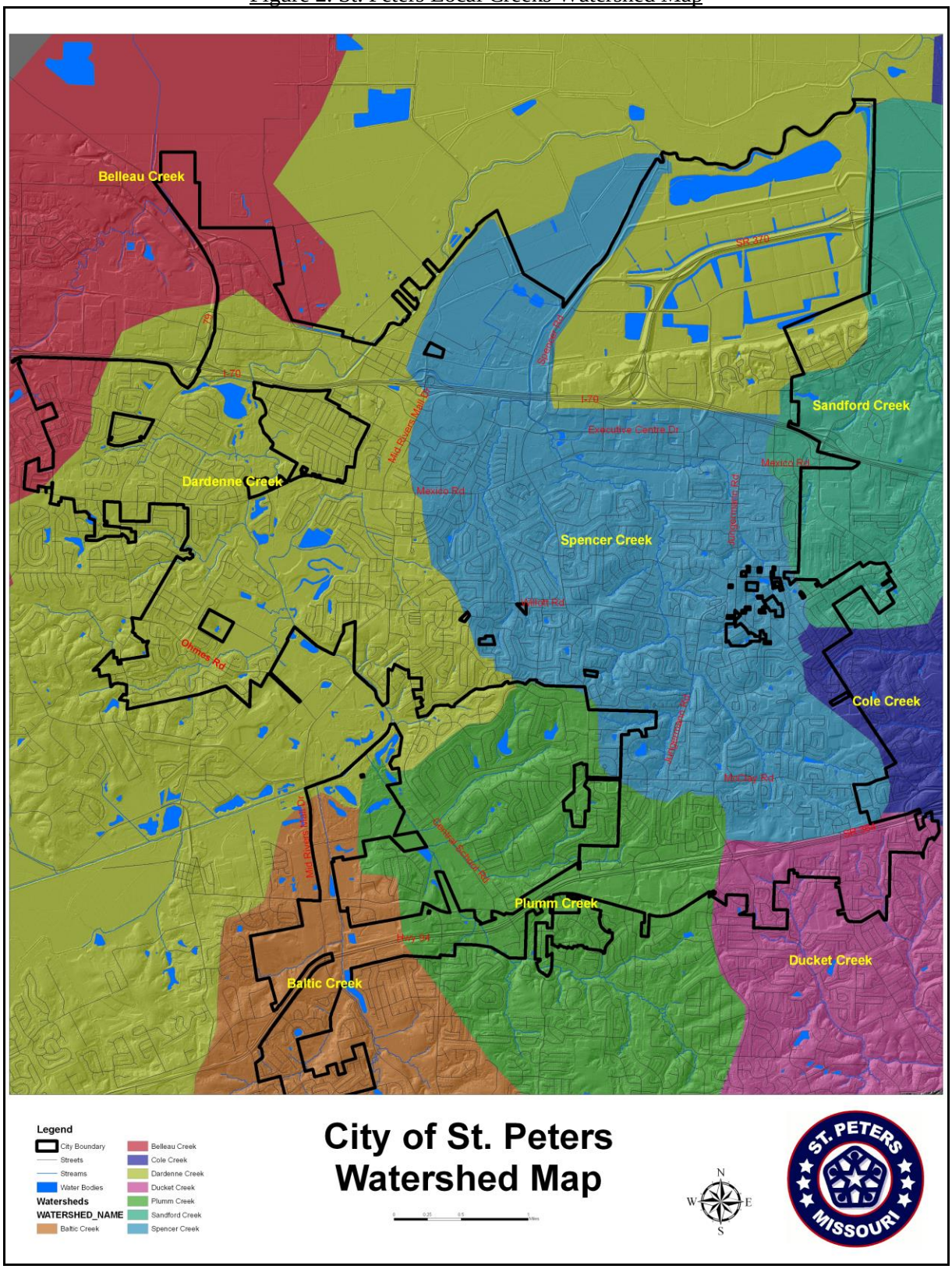
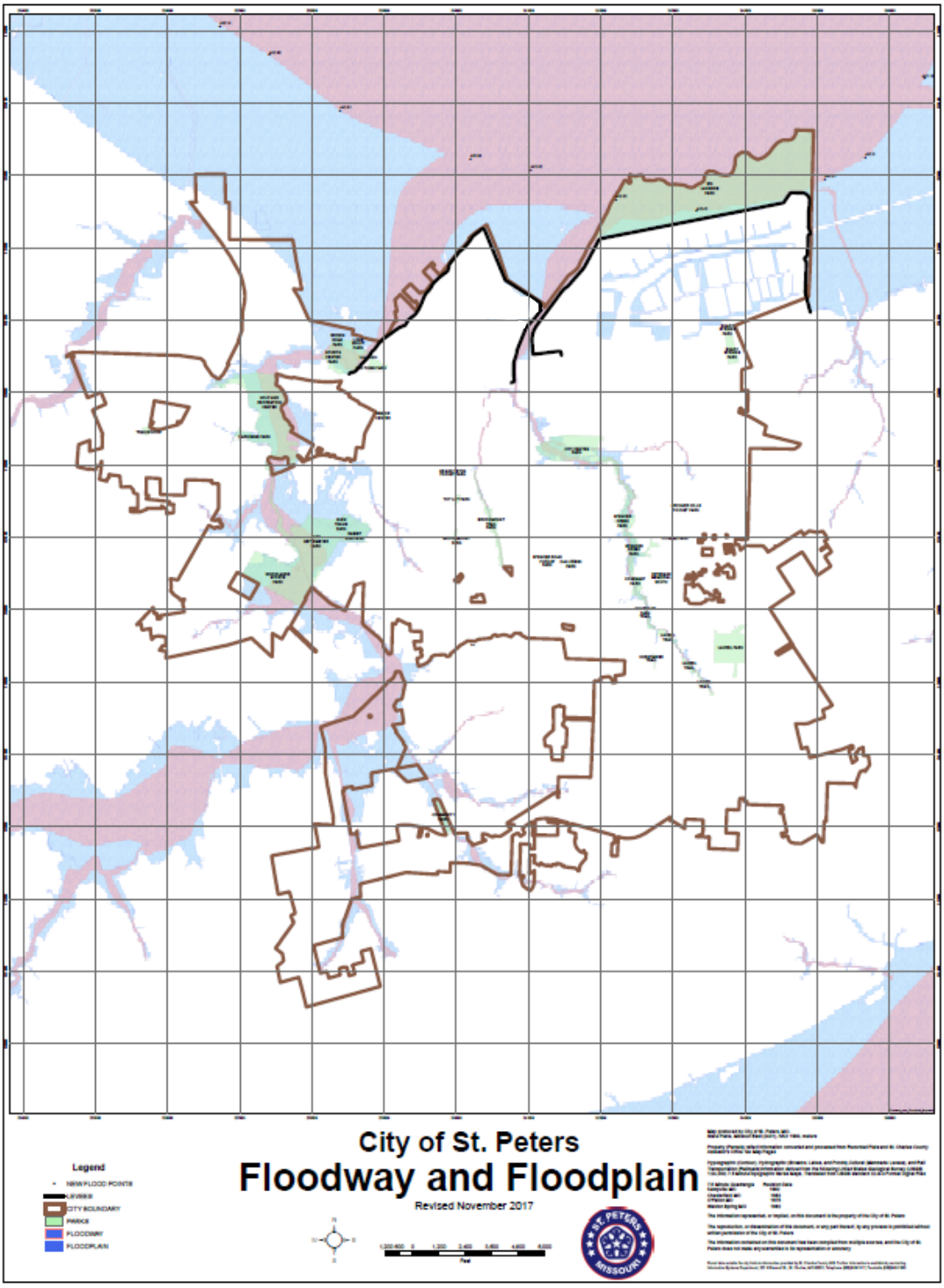


Figure 2. St. Peters Local Creeks Watershed Map



The City's four (4) pump stations pump from a 640 acre flood protection system with associated levees for protecting Old Town St. Peters and Interstate 70 from flood hazards. The City also possesses Lakeside 370 Park, a 300 Acre park with preexisting agriculture levees that have the capacity to relieve regional flooding if demanded. There are a further 249 privately maintained stormwater detention basins within the City limits. The City manages surplus stormwater in the City via an arrangement of stormwater basins, floodway parks, bio-engineered creek systems and levees.

Figure 3. St. Peters Flood Control Map



The Storm Water Outfall Locations Map can be found in the City Illicit Discharge, Detection and Elimination Plan and can be viewed in Appendix A; this map shows the corporate limits of St. Peters on a USGS map and the locations of the municipal discharge points. There are 154 locations where the MS4 discharges to receiving streams within the municipal corporate limits with pipes that are 36 inches or greater.

ST. PETERS STORMWATER MANAGEMENT PLAN BACKGROUND

There are six (6) City departments primarily responsible for supporting implementation of the SWMP and its components. The Water Environment Services Group (WES) manages most Stormwater infrastructure, water and sewer utilities, organic resources recycling, and the sewer lateral water line repair program. The WES department is designated with the lead role for managing water quality, and alongside the Transportation and Development Services Department (TDS) for approveing, managing and maintaining drainage related capital projects.

As the City proceeds with implementation of this Storm Water Management Plan, it is important to recognize the work that has already been accomplished that will serve as the foundation for further improvements.

Most development of the City of St. Peters has occurred within the 1980s and early 1990s, and therefore precedes the MS4 regulations, with a goal to move stormwater flow downstream as quickly as possible.

In 2000, the City, in cooperation with Burns and McDonnell, completed a Stormwater Master Plan to guide stormwater related challenges plaguing the City and identify problems associated with flooding and stream bank erosion. More than 21 projects were identified for stream bank stabilization and storm water facility improvements, with an estimated cost of $6 million.

In 2006, St. Peters through a partnership with the US Army Corps of Engineers (USACE), Great Rivers Greenway, and the Cities of O'Fallon, St. Charles and Cottleville, were instrumental in the completion of a hydraulic study of the entire 29-mile long Dardenne Creek watershed.

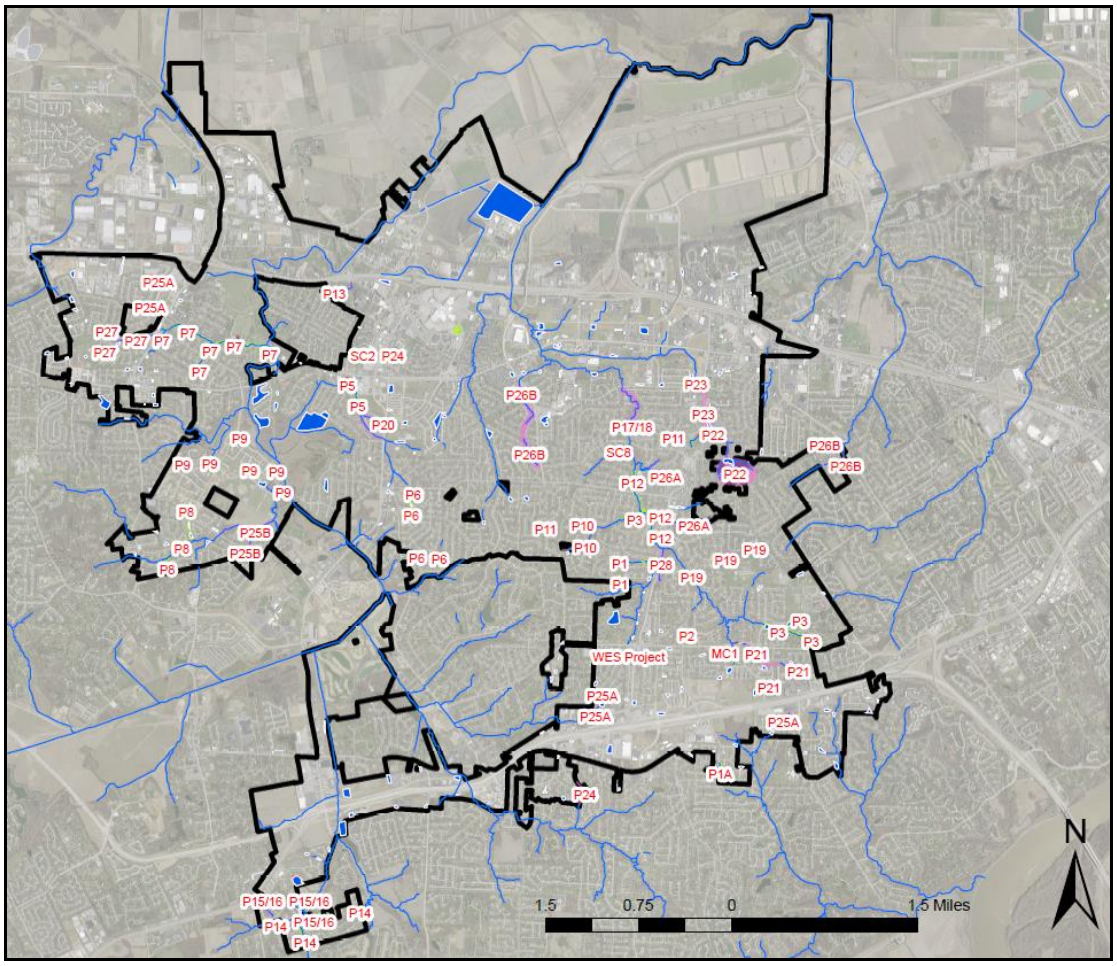
In 2011, St. Peters finalized a citywide Stormwater Master Plan, building upon the 2006 USACE hydraulic study of the Dardenne watershed completing a comprehensive field survey of 47 miles of streams, and evaluating 75 detention basins. From the study, over 100 projects were identified that will address flooding, stream restoration, stream preservation, and detention basin retrofits that will implement BMPs to improve water quality. The estimated cost of this long-term plan is over $120 million. To secure funding for implementation of the Stormwater Master Plan, the City went to the voters in August 2012 after an extensive public outreach and education program with a request to increase the local parks and stromwater sales tax by an additional 4/10 of one percent. The voters passed Proposition P with a 68% majority with the new sales tax beginning in January of 2013. The P Project funds are used for capital projects, and operation and maintenance of the storm water system.

Recent City stormwater activities and retrofits to achieve compliance with the NPDES and to mitigate minor flood events have resulted in implementation of the Stormwater Master Plan. To date, this has resulted in several stream bank projects, stormwater facility retrofits and Low-Impact-Development projects to remain compliant with the City's NPDES Permit to reduce potential flooding, and improve water quality within the City limits to the maximum extent practicable. The Stormwater Master Plan is another integral component of this SWMP and is available on the City Stormwater Management website link at: http://www.stpetersmo.net/storm-water-management.aspx.

RECENT STRUCTURAL STORMWATER IMPROVEMENT ACHIEVEMENTS

As mentioned above, the City P Project Program has been active since 2012 constructing structural in stream and out of stream stormwater BMPs all over the City. While the P Project Programs primary aim is to eliminate or reduce stormwater runoff quantity within the City, the P Project Program principally applies green stormwater practices to improve stormwater runoff water quality. As such, there are numerous P Project BMPs within the City with site-specific designs and features such as, bio-retention, filtration, or a combination of the two. The map below shows P Project locations. Additionally, the City is also commencing a Stormwater Basin Improvement Program for existing stormwater basins throughout the City. The City also possesses preceding stormwater improvement trial projects. Table 1.0 Appendix B provides a catalogue of P Projects. The P project program and Bain Improvements Program is a continually growing list of projects, therefore, updates to the P Project BMPs are maintained in the City's databases. Updates to the SWMPs P Project list will be revised annually or can also be requested from the City at any time.

Figure 4. P PROJECT LOCATIONS MAP



CITY STORMWATER MANAGEMENT APPROACH AND GOAL

The management of stormwater requires a systems-based approach toward municipal watershed and stormwater policies and programs. These policies must also find their basis in the values the community places on itself and its concept for quality of life. The City employs policies that address environmental concerns and needs with the ability to sustain economic vitality.

Stormwater policies and programs in the City are dependent on the support and participation of the community-at-large. Water quality protection starts literally in everyone's back yard. An individual's actions can have either a beneficial or an adverse effect on stormwater flowing to the municipal drainage system and our nation's waterways. Additionally, our City municipal programs and projects represent the desires of the community for sustained success. Therefore, City of St. Peters programs strive to achieve public education and involvement in all segments of the community.

In developed areas of the community, stormwater management must fit within the framework of the developed environment. St. Peters is currently more than 87% developed based on current land use zoning with limited redevelopment occurring in mostly commercial areas. Many of the storm water management tools used in the developing areas may not be feasible in a fully developed area. Previous stormwater, management practices in developed areas may have eliminated the natural creek system. Therefore, the focus of stormwater management alterations in developed areas are viewed in relation to the overall Stormwater Master Plan.

Problem areas where storm water runoff results in significant property damage or degraded water quality often drive the need for immediate improvements. Improvements may focus on stability of the stream banks in order to improve water quality and protect natural stream systems downstream. Where feasible, City projects are intended to restore degraded stream segments and re-establish natural biological systems.

Being proactive is fundamental to the successful implementation of the City's storm water policies. Applying stormwater practices called for by the Stormwater Master Plan involves time, labor, and financial support. Coordination among all City departments is essential for successful implementation. The City attempts to define instances where stormwater issues are the responsibility of the private property owner and where they are of public concern. The role of the City shall attempt to assume the role of leader in the stewardship of water quality and stormwater management practices to demonstrate best management practice stewardship throughout our community.

For over 20 years, the City has had ordinances and policies in place to address the issues of stormwater management including construction site runoff and erosion control, post-construction runoff, and illicit discharges. The City has acquired and developed over 1000 acres of parks along creeks and in floodplains, which provides a unique opportunity to maintain or restore riparian features. The City has enacted a Tree and Landscape Ordinance and been recognized as a "Tree City USA" and is active in planting and managing trees along City right of ways. The City offers solid waste and curbside collection services for recycled wastes on a twice a week basis. In addition, yard waste is picked up at curbside once a week and recycled into mulch and compost. Bulky trash items are picked up quarterly citywide or as scheduled by an individual resident and appliances are picked up weekly through a new tag program. Used oil, tires, and batteries from the municipal fleet division are recycled by outside contractors. The Fleet Maintenance Department uses all aqueous based solvents, then recovers and recycles all antifreeze. For many years, the City has sponsored events such as Earth Day and Clean Streams Day, where the public can be actively involved in pollution prevention and education.

MINIMUM CONTROL MEASURES

This section below describes the six (6) primary MCMs and associated BMPs that the City will develop to manage stormwater. These MCMs attempt to address pollution reduction largely through preventative measures to eliminate pollution from entering the stormwater drainage system and therefore not cause an exceedance of water quality standards to the MEP. These MCMs are described below with supporting BMPs to address area specific stormwater management. An MCM BMP inventory is provided in Appendix B of this document, which lists and describes each BMP. This BMP inventory table offers a quantifiable measure with justification for its use, and measurement for the City to meet its NPDES Phase II responsibilities for progress and improvement with the overall City's MS4 goals.

As described, the City has identified measurable BMP goals and quantifiable evaluation methods. This MS4 Program Plan has six (6) sections covering Administration and Special Conditions of each of the six (6) MCMs in the MS4 General Permit. Each section details control measurement requirements, an existing program summary, a programmatic BMPs inventory, and a BMP summary table.

Stormwater management in the City is a shared responsibility and as such, coordination among all City departments is essential for successful implementation the SWMP as a system-based-approach. The table below lists the Six (6) Primary MCMs and responsible City departments designated contact for administration each MCM and associated BMPs.

Table 2.0 STORMWATER MANAGEMENT SIX MINIMUM CONTROL MEASURES

MCM #	MCM IDENTIFYER	MINIMUM CONTROL MEASURE	RESPONSIBLE DEPARTMENT	RESPONSIBLE ADMINISTRATOR	ALTERNATE RESPONSIBLE DELEGATE
MCM#1	PEO	Public Education and Outreach	TDS	City Engineer	City Engineer
MCM#2	PPI	Public Participation and Involvement	TDS	City Engineer	City Engineer
MCM#3	IDDE	Illicit Discharge Detection and Elimination	WES	Group Manager	Special Projects Manager
MCM#4	CON	Construction Site Runoff Control	TDS	Director of Engineering	City Engineer
MCM#5	POST	Post Construction Runoff Control	TDS	Director of Engineering	City Engineer
MCM#6	PPGH	Pollution Prevention and Good Housekeeping	WES	Group Manager	Special Projects Manager

MINIMUM CONTROL MEASURE #1
Public Education and Outreach on Storm Water Impacts

PERMIT REQUIREMENT
The City of St. Peters has implemented a public education program to distribute educational materials regarding the impacts of polluted storm water discharges on area streams to our community and perform outreach activities. The education program includes actions the public can take to reduce pollutants in stormwater runoff. The City of St. Peters has determined several BMPs and measurable goals for this minimum control measure in the tables below.

GENERAL APPROACH
The Civil Engineer (assigned to stormwater) is responsible for the development of BMPs to comply with MCM #1 (Public Education and Outreach on Storm Water Impacts) as well as the overall management and implementation of the City of St. Peters current storm water public education and outreach program.

The City of St. Peters education programs are designed to inform residents, business owners, and organizations about the impacts of polluted stormwater on area streams. The program provides guidance on how to reduce pollutants in stormwater runoff as well as information how individuals and groups can become involved in our storm water program.

The City of St. Peters education program includes forming partnerships with residents to educate them about urban stormwater management, the importance of pollution prevention and water quality in stormwater runoff. In addition to general pollution prevention, education activities address targeted pollutants directly impacting area streams, such as trash, yard waste, fertilizer use, and proper disposal of household hazardous waste. The education program is prioritized according to citizen concerns, community benefits, economic importance, and available resources.

The City of St. Peters has a strong public education and outreach program. Residents and businesses are encouraged to participate in annual City-sponsored events such as the Clean Stream Day, special activities such as the Adopt-a-Stream program, or streamside tree planting events. Furthermore, the City has a successful Citizen Action Center, which allows residents to call in concerns, report violations or request additional information about projects or developments.

The City utilizes additional stormwater education materials provided by MDNR, the EPA, and Missouri Department of Conservation, as well as other educational materials proven effective by other municipalities or organization to strengthen our existing education program. The educational materials provide guidelines for proper disposal and management of storm water pollutants. The program reaches out to the City's residents and businesses using a mix of strategies such as direct mailings, newsletters and media. The educational material are tailored to the targeted audiences with specific pollution prevention education for example, letters regarding proper disposal of yard waste are mailed to residents living adjacent to stream channels and where illicit dumping has occurred.

As the City continues to implement its 2011 citywide Stormwater Master Plan with the design and construction of many stream stabilization, stream restoration and detention basin retrofit projects, the City also continues to educate residents within those project areas on urban storm water management and related topics, such as, water quality, use of native plants, and general stormwater pollution.

SPECIFIC BMPs
The table below displays specific BMPs that the City is focusing on to meet the MCM #1 regulatory

requirements to the maximum extent practicable. This table reveals the method of measurement and justification, in addition to affirm which years specific BMPs are expected to be applicable.

MINIMUM CONTROL MEASURE #1: PUBLIC EDUCATION AND OUTREACH OF STORMWATER IMPACTS					IMPLIMENTATION SCHEDULE TIMETABLE ACTIVE PERMIT YEARS BMP WITH BE PERFORMED *(MARK "X" ON APPLICABLE BOXES)*					
BMP ID	**BEST MANAGEMENT PRACTICE**	**APPLICABLE CONTROL MEASURE**	**METHOD OF QUANTIFIABLE MEASURMENT**	**JUSTIFICATION (INTENT)**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**
PEO 1	Resident Education	Training	Track the number of educational opportunities for residents, to include material handouts, presentations, webpage articles, newsletter articles, magazine articles and other educational events or materials.	Report the annual circulation/number of households receiving the City's "My HomeTown" Magazine and number of stormwater related articles	X	X	X	X	X	X
				Report annual number of households receiving mail outs on stormwater improvement projects	X	X	X	X	X	X
				Report annual number of City published articles on stormwater related topics	X	X	X	X	X	X

BMP ID	BEST MANAGEMENT PRACTICE	APPLICABLE CONTROL MEASURE	METHOD OF QUANTIFIABLE MEASURMENT	JUSTIFICATION (INTENT)	2016	2017	2018	2019	2020	2021
PEO 1	Resident Education	Training	Track the number of educational opportunities for residents, to include material handouts, presentations, webpage articles, newsletter articles, magazine articles and other educational events or materials.	Report annual views/hits on City stormwater and pollution prevention related webpages	X	X	X	X	X	X
PEO 2	Employee Training	Training	Track the number of City personnel storm water educational events and trainings, to include material handouts, presentations, and other educational events or materials.	Report annual employee attendance at storm water related seminars, conferences, workshops or other classes	X	X	X	X	X	X
				Report number of City provided stormwater training classes, workshops, seminars, etc.	X	X	X	X	X	X
PEO 3	Resident Outreach	Tracking	Record tonnage of litter collected and number of volunteers in attendance at City's clean stream event	Report the number of volunteers in attendance	X	X	X	X	X	X
				Report tonnage of litter removed from the City's creeks.	X	X	X	X	X	X
				Report miles of streams cleaned	X	X	X	X	X	X
				Report total estimated annual volunteer hours spent on stormwater water quality events	X	X	X	X	X	X

OVERALL MEASUREMENT AIM

These BMPs will be continually implemented, with the ultimate goal to reduce storm water discharge pollution. Each BMP is reviewed annually to evaluate its effectiveness at reaching and informing the target audience and to determine whether it should be continued or modified in the years following.

MINIMUM CONTROL MEASURE #2
Public Involvement/Participation

PERMIT REQUIREMENT

The City of St. Peters satisfies this minimum control measure by complying with State and local public notice requirements, to determine the appropriate BMP. The City of St. Peters has implemented a public involvement/participation program for stormwater pollution prevention activities.

GENERAL APPROACH

The Civil Engineer assigned to storm water is responsible for developing the BMPs to comply with MCM #2 (Public Involvement/Participation) in coordination with management of the City of St. Peters public involvement/participation program.

The City of St. Peters public involvement/participation program is designed to actively involve the public in the development, implementation, and maintenance of our storm water management program. The program was established in coordination with the existing City's successful Citizen Action Center, which allows residents to call in concerns, report violations, prohibited discharges, or request additional information about projects or developments.

Parallel to the public education program, the City of St. Peters has formed partnerships with civic organizations, educational institutions, businesses, and residents to educate them about the importance of pollution prevention in stormwater runoff and the importance of their active involvement. In addition to general pollution prevention, our activities address targeted pollutants directly impacting our area streams, e.g., trash, yard waste, fertilizer use, and proper disposal of household hazardous waste. The program is prioritized according to community benefits, economic importance, and available resources.

The program reaches out to more than 53,000 residents, numerous schools, and approximately 2,000 businesses. The program is tailored, using a mix of strategies to target these audiences and encourage their involvement with specific pollution prevention activities.

SPECIFIC BMPs

The table below displays specific BMPs that the City is focusing on to meet the MCM #2 regulatory requirements to the maximum extent practicable. This table reveals the method of measurement and justification, in addition to affirm which years specific BMPs are expected to be applicable.

MINIMUM CONTROL MEASURE #2: PUBLIC PARTICIPATION AND INVOLVEMENT

BMP ID	BEST MANAGEMENT PRACTICE	APPLICABLE CONTROL MEASURE	METHOD OF QUANTIFIABLE MEASURMENT	JUSTIFICATION (INTENT)	IMPLIMENTATION SCHEDULE TIMETABLE ACTIVE PERMIT YEARS BMP WITH BE PERFORMED *(MARK "X" ON APPLICABLE BOXES)*					
					2016	2017	2018	2019	2020	2021
PPI 1	Resident Involvement	Tracking	Track the number of resident meetings in conjunction with stormwater improvement projects used to educate residents on improving/managing urban stormwater in their neighborhood	Report annual number of stormwater open house/information meetings	X	X	X	X	X	X
				Report annual attendance at stormwater open houses/public informational meetings	X	X	X	X	X	X
				Report total area of land impacted by stormwater P-Projects			X	X	X	X
PPI 2	Public Involvement	Tracking	Record the number of volunteers participating in City sponsored clean stream event.	Report the tonnage of litter removed, the mileage of creeks cleaned, and attendance.	X	X	X	X	X	X
				Report total annual miles of creeks cleaned	X	X	X	X	X	X
				Report total annual attendance at Clean Stream event	X	X	X	X	X	X

BMP ID	BEST MANAGEMENT PRACTICE	APPLICABLE CONTROL MEASURE	METHOD OF QUANTIFIABLE MEASURMENT	JUSTIFICATION (INTENT)	2016	2017	2018	2019	2020	2021
PPI 3	Other Participation Opportunities	Tracking	Record number of volunteers participating in stormwater outreach activities, such as streamside tree plantings, adopt-a stream, or other projects that promote awareness of storm water throughout the City	Report annual number of community driven stormwater related participation opportunities	X	X	X	X	X	X
				Report estimated annual volunteer hours for these stormwater involvement projects			X	X	X	X
				Report the number of volunteers	X	X	X	X	X	X
				Report total area of land benefitting from these public involvement activities			X	X	X	X

OVERALL MEASUREMENT AIM

Each BMP are evaluated for effectiveness at reaching and involving the target audience to determine whether it should be continued or modified in future years.

MINIMUM CONTROL MEASURE #3
Illicit Discharge Detection and Elimination Program

PERMIT REQUIREMENT

The permit requirements for this section of the general MS4 permit requires the City to develop, implement, and enforce a program to detect and eliminate illicit discharges (as defined in 10 CSR 20-6.200). 10 CSR 20-6.200(1)(C)(7) defines an illicit discharge as "any discharge to a municipal separate storm sewer that is not composed entirely of storm water, except discharges pursuant to a state operating permit, other than storm water discharge permits and discharges from fire fighting activities."

This program includes the following:

- A storm sewer map showing the location of all outlets and the names and location of all waters of the State that receive discharges from those outlets;
- An ordinance and other regulatory mechanisms to effectively prohibit non-stormwater discharges into the City's storm sewer system and implement appropriate enforcement procedures and actions;
- A plan/program to detect and address non-storm water discharges, including illegal dumping, to the City's system;
- Informing municipal employees, businesses, and the general public of hazards associated with illegal discharges and improper disposal of waste;

GENERAL APPROACH

The Water Environment Services Manager is responsible for the overall management and implementation of the City's Illicit Discharge and Elimination Program. The City's current programs are discussed below.

Illicit Discharge, Detection and Elimination (IDDE) Plan.

The City currently has an, IDDE Plan. This Plan provides procedures to detect and diminish illicit discharges and improper disposal into the City of St. Peters stormwater conveyance system to the maximum extent practicable. The Plan identifies discharges based on four categories of spill hazard types and which support to identify further potential priority areas. The IDDE Plan supports the City Storm Sewer Map and provides information regarding routine City outfall reconnaissance of priority areas. The IDDE Plan can be viewed in Appendix A.

Storm Sewer Map

The City has identified all stormwater structures, pipes, and outfalls. The location of outfalls and structures were identified from aerial mapping, GPS coordinates, and field verification. A copy of this map is in the Illicit Discharge, Detection and Elimination Plan in Appendix A. This information is assessable through the City's GIS mapping system in an ongoing basis. The City currently has more than 8,500 storm water structures, which approximately 463 of these structures are identified as end of pipes that discharge within 100-feet of a stream.

The City has identified and mapped Waters of the State that receive discharges from City outfalls. These major waters include Dardenne Creek, Spencer Creek, Belleau Creek, Sandfort Creek, and Cole Creek tributaries to the Mississippi River, and Duckett Creek, as well as an unnamed tributary referred to as Plum Creek to the Missouri River.

Ordinances

The City has the following storm water ordinances in effect. A copy of each of these up-to-date Ordinances can be found on the City's website www.stpetersmo.net.

City Ordinance No. 3369 regulates the amount of runoff that can discharge to an open stream channel. The City's Transportation and Development Services Group enforces this ordinance through plan review of detention and retention facilities, construction inspection, and post-construction inspection. Violations of this ordinance or failure to comply with any of its requirements, constitutes a misdemeanor.

City Ordinance No. 46 states the following: *"It shall be unlawful to discharge to any natural outlet within the City of St. Peters or any area under the jurisdiction of said City any, sanitary sewage, industrial wastes, or other polluted waters, except where suitable treatment has been provided in accordance with this Chapter."* Any person found to be in violation are served by the City with written notice, stating the nature of the violation and providing a reasonable time limit for the satisfactory correction thereof. The offender shall, within the period of time stated in such notice, permanently cease all violations.

Illicit Discharges

City staff routinely performs preventative maintenance on stormwater structures and open channels within City right-of-way or City easements. When illicit discharges are detected during maintenance activities, or when reported to the City via the Citizen Action Center as discussed above in MCM #2, appropriate action is taken as guided by City Ordinances.

Furthermore, the City inspects all outfalls for illicit discharges at identified Priority Areas on an annual basis. Priority areas include all City facilities as well as industrial areas within the City. All other outfalls are inspected on a 5-yr cycle. Therefore, the City inspects over 20% of its outfalls annually.

The City has worked with other local jurisdictions to reduce the number of failing septic tanks by providing public sanitary sewer and treatment as a cost effective solution for this aging problem.

Educational Outreach

The City performs education outreach associated with illicit discharges. When illicit discharges are discovered or reported all suspected or associated discharges are contacted. Dischargers or suspected dischargers are educated to potential water quality hazards with a dialogue, or provided with education handouts regarding the particular discharge.

Furthermore, the City provides educational cast-in-place stenciled tops, stating: "No Dumping", "Leads to Stream" with a fish logos to concrete stormwater inlet tops as they are replaced.

The City also provides a drop off center for commonly dumped wastes, such as motor oil. This facility is available 24-hours a day, seven days a week. The City also schedules bulky trash pickup for all subdivisions at no additional cost to prevent illegal dumping. This program provides an avenue for residents for proper disposal of large items including white goods that are not accepted during weekly trash collection. In addition, the City also has curbside yard waste collection and a yard waste disposal facility to minimize the amount of yard waste disposal along stream banks.

SPECIFIC BMPs

These BMPs will be continually implemented, with the ultimate goal to reduce stormwater discharge

pollution. Each BMP is reviewed annually to evaluate its effectiveness at reaching and informing the target audience and to determine whether it should be continued or modified in the years following.

MINIMUM CONTROL MEASURE #3: ILLICIT DISCHARGE AND ELIMINATION

BMP ID	BEST MANAGEMENT PRACTICE	APPLICABLE CONTROL MEASURE	METHOD OF QUANTIFIABLE MEASURMENT	JUSTIFICATION (INTENT)	IMPLIMENTATION SCHEDULE TIMETABLE ACTIVE PERMIT YEARS BMP WITH BE PERFORMED *(MARK "X" ON APPLICABLE BOXES)*					
					2016	2017	2018	2019	2020	2021
IDDE 11	Illicit Discharge Detection Program	Tracking Program	Track and Trend annually reported Illicit Discharges and Illegal Dumping	Data will identify potential IDDE hotspots. Data Will also provide information to identify and cease routine pollutant events, or incorporate a BMP.	X	X	X	X	X	X
IDDE 12	City Stormwater Map	GIS Mapping	Annual number of stormwater structures within the City both private and public.	Data will identify increase and decrease of structures and potential transmission of potential pollutants to watercourses. Additional layers and features may allow tracking pollutant events.	X	X	X	X	X	X
IDDE 13	Annual Monitoring of Priority Area Outfalls (EOPs)	Documented Inspections	Documented number of annual Priority EPO inspections performed and number of identified EOPs of concern or other identified issues. Activity includes: Documented inspections of priority areas such as public industrial outfall structure photos	Identification of location to any potential illicit discharges in priority areas and a documented tally record to isolate and terminate illicit discharges or incorporate a BMP.	X	X	X	X	X	X

BMP ID	BEST MANAGEMENT PRACTICE	APPLICABLE CONTROL MEASURE	METHOD OF QUANTIFIABLE MEASURMENT	JUSTIFICATION (INTENT)	2016	2017	2018	2019	2020	2021
IDDE 14	WWTP Pretreatment Industrial Facility Inspections	Inspections	City Annual wastewater pretreatment industrial facility documented visual inspection. Reporting number of facilities inspected annually and the number of facility concerns are anticipated to impact discharges bypasses and stormwater runoff	Data for Identification of any potential illicit discharges at priority areas of the City and a documented record to isolate and terminate illicit discharges or incorporate a BMP if necessary.	X	X	X	X	X	X
IDDE 21	Employee Training	Training	Track the number of City personnel training in IDDE to include, material handouts, videos, presentations, and other educational events or materials.	Data for reporting the number of City employees taking part in training related events, and who have received training related materials.	X	X	X	X	X	X
IDDE 22	Non-Priority Quinquennial Outfall Inspections	Inspections	Documented number of inspections performed and number of identified concern or other identified issues. Activity includes documented inspections with associated photos. Phase of inspections documented as A, B, C, D or E.	Identification of location to any potential illicit discharges in priority areas and a documented tally record to isolate and terminate illicit discharges	X	X	X	X	X	X

BMP ID	BEST MANAGEMENT PRACTICE	APPLICABLE CONTROL MEASURE	METHOD OF QUANTIFIABLE MEASURMENT	JUSTIFICATION (INTENT)	2016	2017	2018	2019	2020	2021
IDDE 23	SSO Reporting	Reporting	Document annual number (and location) of SSOs that occur within the City	Reporting the number of SSOs to provide likelihood of reoccurrence and potential opportunities to correct reoccurring SSOs and SSO locations			X	X	X	X

OVERALL MEASUREMENT AIM

Measurable Goals are required to gauge permit compliance and program effectiveness. The measurable goals, as well as the BMPs, should reflect the needs and characteristics of the community. Multiyear data analysis to determine BMP program measure enhancement, replacement, or elimination.

MINIMUM CONTROL MEASURE #4
Construction Site Storm Water Runoff Control

PERMIT REQUIREMENT

The permit requirements for this section of the general MS4 permit requires the City to develop, implement, and enforce a program to reduce pollutants in any stormwater runoff to their regulated small MS4 from construction activities that result in a land disturbance of greater than or equal to one acre.

The program currently consists of:

- An ordinance that requires erosion and sediment controls, as well as sanctions to ensure compliance.
- Requirements for construction site operators to implement appropriate erosion and sediment control best management practices.
- Requirements for construction site operators to control waste such as discarded building materials, concrete truck washout, chemicals, litter, and sanitary waste at the construction site that may cause adverse impacts to water quality.
- Procedures for site plan review, which incorporate consideration of potential water quality impacts.
- Procedures for receipt and consideration of information submitted by the public.
- Procedures for site inspection and enforcement of control measures.

GENERAL APPROACH

The City Engineer is responsible for developing and managing the best management practices to ensure compliance with the Minimum Control Measure #4 (Construction Site Storm Water Runoff Control).

Ordinances

The City has the following ordinances in effect. A copy of each of these ordinances can be found on the City's website www.stpetersmo.net.

City Ordinance No. 3380 established chapter 530 of the St. Peters City Code that regulates grading activities in the City. The ordinance has adopted the January 2001 version of the Standards For Erosion and Sediment Management Practices for the City. This document includes many aspects of erosion and sediment management control that are necessary to be in compliance with today standards. The City's Engineering Division of the Transportation and Development Services Group enforces this ordinance through plan review of development sites, construction inspection, and post-construction inspection. Violations of this ordinance or failure to comply with any of its requirements, constitutes a misdemeanor.

City Ordinance No. 3369 established chapter 550 of the St. Peters City Code that regulates the amount of runoff that can discharge to an open stream channel. This code was recently updated and adopted as City Ordinance No. 5852 in December of 2012. The City's Engineering Division of the Transportation and Development Services Group enforces this ordinance through plan review of detention and retention facilities, construction inspection, and post-construction inspection. Violations of this ordinance or failure to comply with any of its requirements, constitutes a misdemeanor.

City Ordinance No. 2894 established a municipal tree and landscape ordinance that regulates the installation, removal, and maintenance of trees, shrubs and other plant material in the City of St. Peters.

The intent of the ordinance is through the maintenance, placement, preservation, and protection of plant materials that will conserve and enhance the City's physical and aesthetic environment. The City's Parks and Golf Services group enforce this ordinance. Violations of this ordinance or failure to comply with any of its requirements are subject to a fine.

SPECIFIC BMPs

The table below displays specific BMPs that the City is focusing on to meet the MCM #4 regulatory requirements to the maximum extent practicable. This table reveals the method of measurement and justification, in addition to affirm which years specific BMPs are expected to be applicable.

MINIMUM CONTROL MEASURE #4: CONSTRUCTION SITE STORMWATER RUNOFF CONTROL					**IMPLIMENTATION SCHEDULE TIMETABLE** ACTIVE PERMIT YEARS BMP WITH BE PERFORMED *(MARK "X" ON APPLICABLE BOXES)*					
BMP ID	**BEST MANAGEMENT PRACTICE**	**APPLICABLE CONTROL MEASURE**	**METHOD OF QUANTIFIABLE MEASURMENT**	**JUSTIFICATION (INTENT)**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**
CON 3	Ordinances	Annual Review	Record date of annual review of City's existing stormwater ordinance	Annual review of ordinances to ensure they provide for the most effective management of stormwater and pollutant reduction			X	X	X	X
			Record recommended revisions to stormwater ordinance for approval for incorporation within following year.	Annual review provides regular opportunities to recommend revisions and provides a timeframe for approving those revisions			X	X	X	X
			Record date of annual review of City's existing grading ordinance	Annual review of ordinances will ensure they provide for the most effective reduction of construction site pollutants			X	X	X	X

BMP ID	BEST MANAGEMENT PRACTICE	APPLICABLE CONTROL MEASURE	METHOD OF QUANTIFIABLE MEASURMENT	JUSTIFICATION (INTENT)	2016	2017	2018	2019	2020	2021
CON 4	Ordinances	Annual Review	Record recommended revisions to grading ordinance for approval for incorporation within following year.	Annual review provides regular opportunities to recommend revisions and provides a timeframe for approving those revisions			X	X	X	X
			Annual review City's existing Erosion and Sediment Management standards, recommend revisions as needed	Annual review will ensure the standards are adequate and effective, and will include new technology as it becomes a standard in practice			X	X	X	X
			Record recommended revisions for approval for incorporation within following year.	Annual review provides regular opportunities to recommend revisions and provides a timeframe for approving those revisions			X	X	X	X
CON 5	Permit System	Permit System	Track number of permits issued, construction sites and inspections	Report number of permits issued					X	X
CON 6	Site Inspections	Inspections	Document annual number (and location) of construction site inspections	Report number of sites inspected and corrective actions issued	X	X	X	X	X	X

BMP ID	BEST MANAGEMENT PRACTICE	APPLICABLE CONTROL MEASURE	METHOD OF QUANTIFIABLE MEASURMENT	JUSTIFICATION (INTENT)	2016	2017	2018	2019	2020	2021
CON 7	Pre-Construction Meetings	Tracking	Document pre-construction meetings with contractors to discuss proper use and installation of erosion and sediment controls prior to beginning construction on the site.	Report number of pre-construction meetings.			X	X	X	X
CON 8	Training	Tracking	Track employee training for inspectors and engineers related to construction and post-construction standards and practices.	Report number of training events for inspectors and engineers.			X	X	X	X
CON 9	Citizen Concern Reports	Tracking	Record number and type of development/construction related concerns received through City's Concern System (annually)	Report total annual number (and type) of development/construction related concern received and compare to previous year to determine trends	X	X	X	X	X	X

OVERALL MEASUREMENT AIM

The City Construction Stormwater BMPs are monitored for their effectiveness in reducing stormwater discharge pollution. The City focuses on education and data examination to achieve water quality goals. Multiyear data analysis to determine BMP program measure enhancement, replacement, or elimination.

MINIMUM CONTROL MEASURE #5
Post-Construction Site Storm Water Management

PERMIT REQUIREMENT

The permit requirements for this section of the general MS4 permit stipulates the City to enforce a program addressing stormwater runoff from new development and redevelopment projects that disturb greater than or equal to one acre. This permit requirement also include projects less than one acre that are part of a larger common plan of development or sale and discharge into a regulated MS4.

The program currently includes the following:

- Strategies, which include a combination of structural and/or non-structural best management practices (BMPs).
- An ordinance requiring the implementation of post-construction runoff controls.
- Routine inspections to ensure adequate long-term operation and maintenance of controls.

GENERAL APPROACH

The City Engineer is responsible for developing and managing the best management practices to comply with the Minimum Control Measure #5 (Post-Construction Site Storm Water Management).

Ordinances

The City has the following ordinances in effect. A copy of each of these ordinances can be found on the City's website www.stpetersmo.net.

City Ordinance No. 3380 established chapter 530 of the St. Peters City Code that regulates grading activities in the City. The ordinance has adopted the January 2001 version of the Standards For Erosion and Sediment Management Practices for the City. This document includes many aspects of erosion and sediment management control that are necessary to be in compliance with today standards. The City's Engineering Division of the Transportation and Development Services Group enforces this ordinance through plan review of development sites, construction inspection, and post-construction inspection. Violations of this ordinance or failure to comply with any of its requirements, constitutes a misdemeanor

City Ordinance No. 3369 established chapter 550 of the St. Peters City Code that regulate the amount of runoff that can discharge to an open stream channel. This code was recently updated and adopted as City Ordinance No. 5852 in December of 2012. The City's Engineering Division of the Transportation and Development Services Group enforces this ordinance through plan review of detention and retention facilities, construction inspection, and post-construction inspection. Violations of this ordinance or failure to comply with any of its requirements, constitutes a misdemeanor.

City Ordinance No. 2894 established a municipal tree and landscape ordinance that regulates the installation, removal, and maintenance of trees, shrubs and other plant material in the City of St. Peters. The intent of the ordinance is through the maintenance, placement, preservation, and protection of plant materials that will conserve and enhance the City's physical and aesthetic environment. The City's Parks and Recreation Services group enforce this ordinance. Violations of this ordinance or failure to comply with any of its requirements are subject to a fine.

SPECIFIC BMPs

The table below displays specific BMPs that the City is focusing on to meet the MCM #5 regulatory requirements to the maximum extent practicable. This table reveals the method of measurement and justification, in addition to affirm which years specific BMPs are expected to be applicable

BMP ID	BEST MANAGEMENT PRACTICE	APPLICABLE CONTROL MEASURE	METHOD OF QUANTIFIABLE MEASURMENT	JUSTIFICATION (INTENT)	2016	2017	2018	2019	2020	2021
POS T 10	Water Quality BMPs	Tracking	Record number of private BMPs constructed on new and redeveloped sites	Report number of water quality BMPs constructed annually for new development and redevelopment sites	X	X	X	X	X	X
				Report total number of private water quality BMPs within City boundaries	X	X	X	X	X	X

BMP ID	BEST MANAGEMENT PRACTICE	APPLICABLE CONTROL MEASURE	METHOD OF QUANTIFIABLE MEASURMENT	JUSTIFICATION (INTENT)	2016	2017	2018	2019	2020	2021
POST 11	Water Quality BMP Inspection Program	Inspections	Per Code, City has authority to inspect private water quality BMPs annually to ensure adequacy and effectiveness.	Research costs to contract out annual inspections of private BMPs. Annual Inspections ensure adequacy and effectiveness of constructed BMPs. Evaluate against current budget.			X			
				Recommend framework for inspection program within budget constraints				X		
				Begin phasing in of inspection program, if feasible. Report total number of private water quality BMPs inspected					X	X
POST 12	Detention Basin Inspections	Inspections	In accordance with the 3-year inspection cycle, deficiencies document the number of detention basins inspected	Report number of detention basins inspected	X	X	X	X	X	X
				Report number of deficient basins	X	X	X	X	X	X
				Report number of deficient basins corrected	X	X	X	X	X	X

BMP ID	BEST MANAGEMENT PRACTICE	APPLICABLE CONTROL MEASURE	METHOD OF QUANTIFIABLE MEASURMENT	JUSTIFICATION (INTENT)	2016	2017	2018	2019	2020	2021
POS T 13	Site Design	Tracking	Reduce the percent of new impervious surfaces associated with new development projects through predesign meeting with consultants and developers.	Report number of development site plans reviewed and approved			X	X	X	X
POS T 14	Citizen Concern Reports	Tracking	Record number and type of stormwater related concerns received through City's Concern System (annually)	Report total annual number (and type) of stormwater related concerns received and compare to previous year to determine trends			X	X	X	X

OVERALL MEASUREMENT AIM

Our BMPs are continually evaluated for their effectiveness in an effort to reach our ultimate goal of reduced storm water discharge pollution. Together with site-specific water quality data, a multiyear document data analysis will be aimed to determine BMP program measure enhancement, replacement, or elimination.

MINIMUM CONTROL MEASURE #6
Pollution Prevention/Good Housekeeping for Municipal Operations

PERMIT REQUIREMENT

The permit requirements for this section of the general MS4 permit requires the City to develop and implement an operation and maintenance program that includes a training component and has the ultimate goal of preventing or reducing pollutant runoff from municipal operations.

The permit also requires the City to use training materials that are available from EPA, MDNR, or other organizations. The City shall perform employee training to prevent and reduce stormwater pollution from activities such as park and open space maintenance, fleet and building maintenance, new construction and land disturbances, and storm water system maintenance.

The program includes the following:

- Maintenance activities, maintenance schedules, and long-term inspection procedures for structural and non-structural controls to reduce floatables and other pollutants discharged from the separate storm sewers.

- Controls for reducing or eliminating the discharge of pollutants from areas such as parking lots, maintenance and storage yards (including salt/sand storage areas), and waste transfer stations. These controls include programs that promote recycling, minimize pesticide use, and ensure the proper disposal of animal waste.

GENERAL APPROACH

The Water Environment Services Manager is responsible for the overall management and implementation of the City's Pollution Prevention/Good Housekeeping Program. The City's has taken the initiative in recent years to improve operations and maintenance in order to remove pollutants from municipal operations and maintenance activities.

Pollution Prevention, Good Housekeeping Plan (PPGH Plan)

The PPGH Plan is a major component of the City SWMP. This plan outlines site specific BMPs to be used at each municipal facility based on site characteristics and municipal operations being performed. This plan is further discussed in the attached PPGH Plan found below in Appendix A.

SPECIFIC BMPs

Together with the PPGH Plan, the table below displays specific BMPs that the City is focusing on to meet the MCM #6 regulatory requirements to the maximum extent practicable. This table reveals the method of measurement and justification, in addition to affirm which years specific BMPs are expected to be applicable

MINIMUM CONTROL MEASURE #6: POLUTION PREVENTION, GOOD HOUSKEEPING					IMPLIMENTATION SCHEDULE TIMETABLE ACTIVE PERMIT YEARS BMP WITH BE PERFORMED *(MARK "X" ON APPLICABLE BOXES)*					
BMP ID	**BEST MANAGEMENT PRACTICE**	**APPLICABLE CONTROL MEASURE**	**METHOD OF QUANTIFIABLE MEASURMENT**	**JUSTIFICATION (INTENT)**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**
PPGH 6	Facility Inspections	Inspections	Report number of Annual PPGH facility inspections performed. Report average facility PPGH score based on inspection forms. Report number of annual corrective actions necessary following PPGH inspections.	Data will illustrate how many inspections are performed annually and a related inspection evaluation score to track progress of facility PPGH maintenance. Together with the total number of identified corrective actions, data will demonstrate program progress.	X	X	X	X	X	X
PPGH 7	Employee Training	Training	Report the number of City personnel training in IDDE to include, material handouts, videos, presentations, and other educational events or materials.	Report the number of City employees taking part in training related events, and who have received training related materials.		X	X	X	X	X
PPGH 8	Facility Biological Structural PPGH	Inspections	Report number of native biological BMPs such as raingardens at facilities	Data to demonstrate ecological robust pollution prevention techniques for facility site PPGH improvement.		X	X	X	X	X

BMP ID	BEST MANAGEMENT PRACTICE	APPLICABLE CONTROL MEASURE	METHOD OF QUANTIFIABLE MEASURMENT	JUSTIFICATION (INTENT)	2016	2017	2018	2019	2020	2021
PPGH 9	Native Stormwater Site Stewardship	Inspections	Report annual average site conditions based on numbers representing qualitative conditions (i.e. Declining, No change, Improving, Objective reached)	Data is to demonstrate the Cities goal of incorporating natural ecological filtration practices to treat and reduce potential pollutants from entering watercourses and limiting potential flooding concerns.		X	X	X	X	X
PPGH 10	Ecological Retrofits Program	Ecological Modifications	Report the annual number of ecological retrofits that the City performs to increase stomwater Bioretention, detention and filtration throughout the City including at City facilities. Additionally report the maintenance quality of ecological retrofits with quantities relating to annual condition.	Data is to demonstrate the Cities goal of incorporating natural ecological filtration practices to treat and reduce potential pollutants from entering watercourses and migrating from City facilities.			X	X	X	X

BMP ID	BEST MANAGEMENT PRACTICE	APPLICABLE CONTROL MEASURE	METHOD OF QUANTIFIABLE MEASURMENT	JUSTIFICATION (INTENT)	2016	2017	2018	2019	2020	2021
PPGH 11	Ecological Retrofits Sampling program (Phase 1)	Roving Stormwater Sampling	Report stormwater sampling results at select ecological retrofit BMPs across the City for a maximum four quarters at most BMPs, with a goal to report parameter removal efficiency of the selected BMPs.	Data will provide detailed examination of City water quality, including an in creek baseline for sampling event comparisons		X	X	X	X	X
PPGH 12	Ecological Retrofits Sampling program (Phase 2)	Stormwater Sampling	Report the efficiency of retrofitted BMPs using stormwater sampling data collected at selected ecological retrofits or constructed stormwater facilities.	Data will be used to examine if constructed ecological BMPs are performing as desired, and will provide evidence as to which BMP designs perform more efficiently in the local area.					X	X

OVERALL MEASUREMENT AIM

Measurable Goals are required to gauge permit compliance and program effectiveness. The measurable goals of MCM #6 will analyze the increase or decrease in hotspot activity across the City and jointly analyze the annual increase or decrease of condition to native stormwater habitat improvements. After which, a multiyear document data analysis will be aimed to determine BMP program measure enhancement, replacement, or elimination.

MS4 REPORTING

The City is required to update and report biennially to MDNR City BMP activities to meet the minimal MCM obligations. To do this, the City will report and update BMP activities into a template that describes the BMP designation, control measure, quantifiable method used, justification, for reporting, and an implementation-reporting timetable.

STORMWATER MANAGEMENT PLAN UPDATES AND CHANGES

From time to time, the SWMP may need updating or changes as the City Programs further develop. Changes will be documented in a SWMP REVISIONS LOG that can be found in Appendix C. If major changes occur the SWMP that significantly affect the management of stormwater or pollution entering the City via stormwater flows and the administration of managing such potential pollutants, then the City will contact MDNR Stormwater Division to inform MDNR of these changes to the SWMP. However, all minor changes will merely be documented within the logs.

APPENDIX A

REFERENCED PLANS

- ATTACHED PLANS DISCHARGE DETECTION PLAN
- POLLUTION PREVENTION, GOOD HOUSKEEPING PLAN

APPENDIX B

TABLES

- P-PROJECT BMP TABLE
- ORDINANCE BMP TABLE
- BMP IDENTIFYER INDEX

APPENDIX C

SWMP DOCUMENTATION

- SWPPP REVISION LOG

SWMP REVISIONS LOG

DATE	DESCRIPTION OF REVISION	NAME

SWMP REVISIONS LOG

DATE	DESCRIPTION OF REVISION	NAME

SWMP REVISIONS LOG

DATE	DESCRIPTION OF REVISION	NAME