III.E

DATE: August 1, 2016

TO: Michael O. Geisel, P.E.
Director of Public Services

FROM: James A. Eckrich, P.E.
Public Works Director / City Engineer

RE: Operation and Maintenance Program

Forward to PPW for consideration mer 8/1/2016

The regulation of water quality in the United States dates back to the adoption of the Federal Water Pollution Control Act of 1972, and its subsequent amendments, including the Clean Water Act of 1977 and the Water Quality Act of 1987. However, clean water requirements began to dramatically impact municipal operations in 1990 when the Environmental Protection Agency (EPA) enacted Phase I Stormwater regulations – which impacted cities in excess of 100,000; and later Phase II Stormwater regulations – which affected cities with populations under 100,000. With the implementation of Phase II, cities in St .Louis County were required to obtain a permit to discharge storm water. The City of Chesterfield satisfied this requirement by partnering with St. Louis County and 59 other municipalities within one general Stormwater Permit (Permit) coordinated by the Metropolitan St. Louis Sewer District (MSD). Since the implementation of the initial Permit in 2003, regulations have grown and the City of Chesterfield has had to increase its efforts to ensure water quality. These efforts include, but are not limited to, adding water quality features to road projects, closely tracking and reporting salt usage, implementing a stream buffer requirement for development near water courses, and ensuring that all municipal operations, including the washing of vehicles and equipment, are conducted in such a manner that any water used is contained or properly directed to a sanitary drain.

When the original Phase II Permit was issued in 2003, one of the requirements was that each co-permittee adopt and implement an Operation and Maintenance Program (O&M Program). At that time a sample O&M Program was created by MSD, acting in its coordinating authority under the above-described Permit. The City of Chesterfield utilized this sample O&M Program to create its own specific O&M Program, which was adopted by City Council, via Resolution, in 2006. The City's O&M Program has served the City well, in that it has improved operations by successfully reducing storm water pollutants and ensured our compliance with the Permit.

On September 30, 2015 the City of Chesterfield was audited by the Missouri Department of Natural Resources (MDNR) to verify compliance with the Missouri Clean Water Law and our Permit. Over a two day period MDNR reviewed City records, regulations, inspection practices, construction sites, and operation facilities. During its audit, MDNR found that the City was operating in compliance with its Permit, and that there were no deficiencies. However, in reviewing our documents during this audit, I did discover that there were items contained within the O&M Program which were out of date. For example, the O&M Program did not contain information on recent improvements made to the City's parks system (Eberwein Park, the CVAC, and the Rivers Edge Park) or the implementation of single stream recycling.

Given the importance of the O&M Program, I asked the Street Division, Fleet Division, Facility Division, and Parks Division to perform a thorough review of the O&M Program. Each Division recommended a number of changes and updates, which have been incorporated in the attached document. The result is a current O&M Program which is fully compliant with all permit standards. Accordingly, it is my recommendation that the revised O&M Program be adopted by City Council.

Action Recommended

This matter should be forwarded to the Planning and Public Works Committee for its consideration of adoption of the revised O&M Program. If recommended for approval by the Planning and Public Works Committee, the matter should then be forwarded to the full City Council for consideration of the attached resolution.

Resolution Number _____

A RESOLUTION ADOPTING A REVISED OPERATION AND MAINTENANCE PROGRAM FOR THE PREVENTION AND REDUCTION OF POLLUTION IN STORMWATER RUNOFF FROM MUNICIPAL OPERATIONS

WHEREAS, the City of Chesterfield is a co-permittee with the Metropolitan St. Louis Sewer District, St. Louis County and other area municipalities in a joint state operating permit for the Municipal Separate Storm Sewer System (MS4) program issued by the Missouri Department of Natural Resources; and

WHEREAS, said permit, which was originally approved and issued on May 23, 2003, and subsequently re-issued on June 12, 2008, requires that each co-permittee adopt and implement an Operation and Maintenance (O & M) Program for the Prevention and Reduction of Pollution in Stormwater Runoff from Municipal Operations; and

WHEREAS, an O & M Program was adopted by the City Council of the City of Chesterfield on December 4, 2006, in compliance with the terms of the original MS4 permit; and

WHEREAS, said O & M Program must be occasionally updated to ensure compliance with current standards and Best Management Practices (BMPs).

NOW, THEREFORE BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF CHESTERFIELD, AS FOLLOWS:

Section 1. The City Council hereby approves and adopts an Operation and Maintenance Program for the Prevention and Reduction of Pollution in Stormwater Runoff from Municipal Operations, dated June 14, 2016.

Section 2. The City Council authorizes the City Administrator to delegate the authority to revise this document as necessary to comply with updated standards and Best Management Practices.

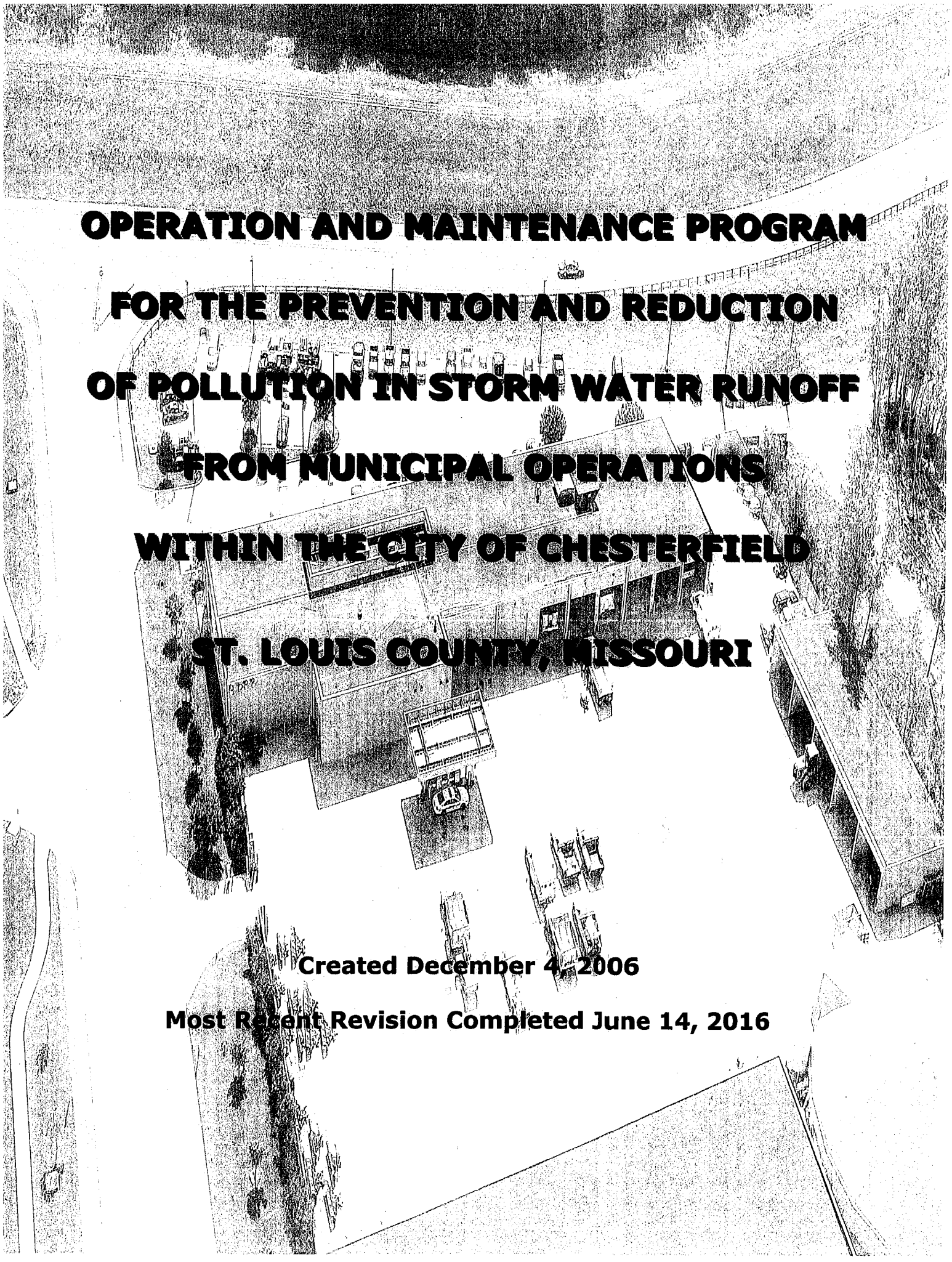
Section 3. This resolution shall be in full force and effect from and after its passage and approval.

PASSED AND APPROVED this __ day of _____, 2016.

_____
Mayor

ATTEST:

_____
City Clerk



OPERATION AND MAINTENANCE PROGRAM

FOR THE PREVENTION AND REDUCTION OF POLLUTION IN STORM WATER RUNOFF FROM MUNICIPAL OPERATIONS WITHIN THE CITY OF CHESTERFIELD ST. LOUIS COUNTY, MISSOURI

Created December 4, 2006

Most Recent Revision Completed June 14, 2016

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Chapter 1 - Program Administration

A. Introduction:

The Missouri Department of Natural Resources (MDNR) issued Phase II Storm Water Permit MO-R040005 to the City of Chesterfield and 60 other co-permittees in St. Louis County, effective March 10, 2003. The area served by the 61 co-permittees is collectively known as the St. Louis Metropolitan Small MS4. One of the minimum control measures in the permit that must be addressed by the co-permittees includes pollution prevention and good housekeeping for municipal operations. Specifically, section 4.2.6.1.1 of the permit (Appendix 1-A2) requires each co-permittee 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."

A Storm Water Management Plan (SWMP) for the St. Louis Metropolitan Small MS4 was developed by the St. Louis Municipalities Phase II Storm Water Planning Committee in the Fall of 2002 and submitted to MDNR as part of the application for the Phase II permit. As a co-permittee under the state permit the City of Chesterfield is bound by the commitments contained in the Plan. Chapter 14 of that Plan provided for organization of a municipal work group to develop a model operation and maintenance program to be adopted by each of the 61 co-permittees.

This document represents the City of Chesterfield's adoption of the work group's model program as applicable and tailored to specifically meet Chesterfield's needs and goals. This program impacts all facets of municipal operations. It is the City of Chesterfield's intent to adhere to the policies and procedures stated herein in order to prevent pollution, to safeguard the environment for the health and benefit of all Chesterfield employees, residents and visitors and to serve as a model for the entire regulated area. Where the municipal operations described in this manual are contracted, rather than performed by municipal employees, the best management practices (BMPs) will be imposed to the maximum extent practicable on the contractor through purchasing or contract mechanisms by including BMPs in the scope of work or job/service specifications. Contractors will be required to obtain all applicable local/state/federal environmental permits. This program has been adopted by Resolution #334 on December 4, 2006, (See appendix 1-A4). The program was first updated on May 11, 2010. The most recent revision was completed on January 4, 2016.

B. Organization of Manual:

The SWMP prepared for St. Louis County by the Planning Committee contains a detailed listing of BMP elements that were to be considered when developing a model operation and maintenance program for the 61 co-permittees. The Planning Committee placed these elements into nine major categories of municipal operations/activities. Based on its size and the nature of its municipal services each co-permittee may have activities in only some or in all nine categories. For consistency within the Plan area, each of the nine categories is addressed in the following Chapters 2 through 10. A statement of non-applicability is

contained in those chapters where the City of Chesterfield is not engaged in the subject activity.

C. Administration:

The responsible party for administration of the operation and maintenance (O&M) program is the Public Works Director. This person is responsible for ensuring the program is kept up to date, and that employees are trained on the procedures implementing the program.

The City of Chesterfield will train all staff associated with activities that can impact pollution in storm water runoff. Each chapter will identify employees who should be subject to training on that particular chapter. Employees will receive general storm water pollution prevention training provided by the Missouri Department of Natural Resources, Environmental Assistance Office or others. Upon implementation of specific procedures, management will review the new procedures that incorporate storm water BMPs, proper waste management and applicable NPDES permit requirements with all employees affected. New employees will be trained on applicable procedures within the first year of employment. To maintain proficiency, a schedule of periodic retraining will be implemented, or provisions made for an employee awareness campaign to ensure employees remain aware of the BMPs and proper waste management.

Records documenting the training of employees must be maintained in file.

Chapter 2 - General Housekeeping, Operation and Maintenance

A. Description of Activities:

Municipal operations include a variety of activities conducted to maintain City owned property and facilities. This chapter will cover those activities that are not specifically covered in the other chapters of this document. This chapter covers custodial and building maintenance activities, materials management and storage, safe material substitutions, spill plans, establishment of general O&M procedures, scheduling, record keeping and housekeeping practices in general.

This chapter also covers general municipal housekeeping issues, which include illegal dumping, littering, pet wastes, trash storage, and recycling.

B. Locations:

1. City Hall – 690 Chesterfield Parkway West. This facility is situated on seven (7) acres, with a building size of approximately 60,000 square feet. City Hall houses the Finance and Administration Department, the Police Department, the City Clerks office, and the Public Services Department, which includes the Building Maintenance, Engineering, and Planning Divisions. A paved parking lot is provided for visitors/employees, and all City vehicles, including police cars, are parked inside an enclosed parking structure. Materials and supplies utilized in performing all building maintenance, including custodial work, are stored within the building. A total of 150 employees report to this facility.

2. Public Works Facility – 165 Public Works Drive. This facility houses the Street Maintenance Division and the Fleet Maintenance Division of the Public Services Department. The facility is situated on approximately three (3) acres. It contains a main building, a covered equipment storage building, and a covered bulk storage bin, with a combined area of approximately 35,000 square feet. The main building has six (6) vehicle work bays, an enclosed vehicle wash bay, a sign shop, shower/locker facilities, lunchroom, administrative offices, and a conference room. A 100-foot diameter salt dome, with a capacity of 6,000 tons, is also located on the site. A paved parking lot is provided for visitors/employees. All equipment associated with street maintenance activities are either stored within the covered equipment storage building, or on the paved yard storage area. Most materials utilized in performing street maintenance activities are either stored within the main building or within the covered bulk storage bins. Material which cannot be stored in the main building or bins is temporarily stored on the paved storage yard area, within devices (BMPs) used to contain sediment. All fleet maintenance activity is done inside the main building, within the vehicle work bays. The Fleet Maintenance Division maintains the entire City fleet, including police cars. The Public Works Facility typically operates from 7 a.m. to 3:30 p.m. The hours vary during emergency operations such as snow removal. A total of 35 employees report to this facility.

3. Chesterfield Valley Athletic Complex – 17925 North Outer 40 Road. This 247-acre facility consists of 18 baseball/softball fields, 9 soccer fields, 4 football fields, 2 multi purpose fields, 9 practice fields, 2 playgrounds, 4 concession buildings, and 6 parking lots. The complex also contains a 2200 square foot building used for storage, and a 12,300 square foot building which houses the Parks, Recreation and Arts Division (referred to throughout the rest of the document as the Parks and Recreation Division). The Parks and Recreation Division is responsible for the maintenance of the athletic complex, the maintenance of all other City parks, and all grounds maintenance activities associated with City Hall and the City's various beautifications areas. Both paved and gravel parking lots are provided for employees and patrons. Equipment is either stored within the building, or on a paved storage area adjacent to the building. All material used in park maintenance activities is stored inside, outside under cover, or on the paved storage area adjacent to the building, within devices (BMPs) used to contain sediment. All stormwater from the paved storage area drains to a concrete flume where sediment is trapped using a BMP. Water leaving the BMP then travels to another BMP, a pretreatment basin and infiltration basin to the west of the building. With the exception of the winter months, this facility operates seven (7) days a week from 7 a.m. to 11 p.m. During the winter the facility operates form 7 a.m. to 3:30 p.m. A total of 40 full time employees report to this facility.

4. Central Park – 16365 Lydia Hill. This 38-acre facility is home to the City's Family Aquatic Park. The park also includes a playground, a lake, hiking trails, pavilion and a paved parking lot.

5. W.F. Dierberg Meditation Park – 13701 Olive Boulevard. This 2-acre facility consists of open space, walking trails, benches, a fountain and a paved parking lot.

6. Railroad Park – 17410 Edison Avenue. This 34-acre facility is currently undeveloped.

7. Eberwein Park – 1627 Old Baxter Road. This 18-acre facility contains a paved parking lot, walking trail, dog park, sculptures, shuffle board courts, a 53 plot community garden, and a historic barn.

8. Rockwood Park – 1410 Wilson Avenue. This 10-acre facility is currently undeveloped.

9. Rivers Edge Park – 17057 North Outer 40, north of the Monarch Chesterfield Levee. This 188 acre facility consists of two miles of trails, a pavilion, a lake, and a dock.

C. Responsible Parties:

1. City Hall - The Public Works Director has authority over City Hall. The building is actively managed by the Building Maintenance Supervisor.

   Public Works Director: (636) 537-4764
   Building Maintenance Supervisor: (636) 537-4780

2. Public Works Facility – The Public Works Director has authority over the Public Works Facility. The facility is actively managed by the Superintendent of Maintenance Operations, with all building maintenance activities managed by the Building Maintenance Supervisor.

   Public Works Director: (636) 537-4764
   Superintendent of Maintenance Operations: (636) 812-9602
   Building Maintenance Supervisor: (636) 537-4780

3. Chesterfield Valley Athletic Complex - The Parks & Recreation Director has authority over the athletic complex. All building maintenance activities are managed by the Building Maintenance Supervisor.

   Parks & Recreation Director: (636) 812-9503

   Building Maintenance Supervisor: (636) 537-4780

4. Various City Parks - The Parks & Recreation Director has authority over all city parks.

   Parks & Recreation Director: (636) 812-9503

D. Materials/Supplies acquisition, storage and usage:

1. City Hall: Material/supply needs are determined by the Building Maintenance Supervisor .

Material	Maximum Quantity Kept On Hand	For Use Within	Storage Location
Various Cleaning Supplies	Varies	Three Months	Warehouse (located in basement) and various custodial closets.
Latex Paint	25 Gallons	Six Months	Paint room located in basement.
Various Chemicals for fountain and water feature	10 Gallons	Three Months	Warehouse
Fluorescent Lamps	60 each	Six Months	Warehouse

2. Public Works Facility: Material/supply needs are determined by the Superintendent of Maintenance Operations, and the Building Maintenance Supervisor. Material/supplies used in vehicle/equipment maintenance and repair operations are listed in Chapter 3. Materials/supplies used in roadway/bridge maintenance are listed in Chapter 6.

Material	Maximum Quantity Kept On Hand	For Use Within	Storage Location
Various Cleaning Supplies	Varies	Three Months	Custodial Closets

3. Athletic Complex: Material/supply needs are determined by the Parks & Recreation Director and the Building Maintenance Supervisor. Materials/supplies used in field maintenance are listed in Chapter 7.

Material	Maximum Quantity Kept On Hand	For Use Within	Storage Location
Various Cleaning Supplies	Varies	Three Months	Maintenance Building

4. Central Park: Material/supply needs are determined by the Parks & Recreation Director and the Superintendent of Park Maintenance. Materials/supplies used in parks maintenance operations are listed in Chapter 7.

Material	Maximum Quantity Kept On Hand	For Use Within	Storage Location
Various Cleaning Supplies	Varies	Three Months	Custodial Closet
Swimming Pool Chemicals	Varies	One Month	Filter Room
Fertlizers and Pesticides	Varies	3 Months	Parks Storage at Pool Building

E. Waste generation, storage, disposal, recycling:

1. City Hall: Standard office waste is generated, along with waste from custodial operations. A fountain located in the rear of the building is backwashed on a regular basis. Wastes from building and office maintenance activities are also included in this list.

Waste	Maximum Storage Capacity	Storage Location	Method Of Disposal	Contractor	Frequency
Standard Office Waste	1 – 15 yd^3 Dumpsters	Fenced Area Outside of Loading Dock	Landfill	Waste Hauler	Daily
White Paper & Cardboard	1 – 15 yd^3 Dumpsters	Fenced Area Outside of Loading Dock	Recycle	Waste Hauler	Weekly
Aluminum Cans & Plastic Bottles	1 – 15 yd^3 Dumpsters	Fenced Area Outside of Loading Dock	Recycle	Waste Hauler	Weekly
Custodial Waste (mop buckets, auto scrubber, water based cleaners)	N/A	N/A	Dump in Drain to Sanitary Sewer.	N/A	Daily

Emergency Lighting Batteries (lead acid, NiCd)	Various Containers	Maintenance Shop	Recycle	Hazardous Material Recycler	Quarterly
Lamp Ballasts	Various Containers	Maintenance Shop	Recycle	Recycle Vendor	Quarterly
Lamps (fluorescent, mercury vapor, sodium vapor	Various Containers	Maintenance Shop	Recycle	Hazardous Material Recycler	Annually
Lamp (green tip fluorescent)	Various Containers	Loading Dock	Recycle	Waste Hauler	Annually
Computer Monitors, CPUs	Various Containers	Archive Storage Area	Recycle	Reuse or Hazardous Material Recycler	As Needed as determined by IT Director
Oil Based Paints and Thinners	Gallon Container	Maintenance Shop	Energy Recovery	Hazardous Waste Vendor	Quarterly or As Needed
Organic Solvents	Gallon Container	Maintenance Shop	Energy Recovery	Hazardous Waste Vendor	Quarterly or As Needed
Backwash Water from Fountain	N/A	N/A	Discharged to Sanitary Sewer.	City Personnel	Weekly

2. Public Works Facility: Standard office waste is generated, along with waste from custodial operations. Additional waste generated from vehicle maintenance activities and street maintenance activities is included in Chapters 3 and 6 of this document.

Waste	**Maximum Storage Capacity**	**Storage Location**	**Method Of Disposal**	**Contractor**	**Frequency**
Standard Office Waste	15 yd^3 Dumpsters	Parking Lot	Picked up by Waste Hauler.	Waste Hauler	Twice a Week.
White Paper & Cardboard	15 yd^3 recycle dumpster	Parking Lot	Picked up for Recycling.	Waste Hauler	Weekly
Aluminum Cans & Plastic Bottles	15 yd^3 recycle dumpster	Parking Lot	Picked up for Recycling.	Waste Hauler	Weekly
Custodial Waste (mop buckets, auto scrubber)	N/A	N/A	Dump in Drain to Sanitary Sewer.	N/A	Daily

3. Athletic Complex: Standard office waste is generated from the maintenance building. Additional waste generated from parks maintenance activities is included in Chapter 7 of this document.

Waste	**Maximum Storage Capacity**	**Storage Location**	**Method of Disposal**	**Contractor**	**Frequency**
Standard Office Waste	6– 15 yd^3 Dumpsters	Maintenance Facility &Parking Lot	Picked up by Waste Hauler.	Waste Hauler	Twice a Week.

4. Central Park: Standard office waste is generated, along with waste from custodial operations. Additional waste generated from parks maintenance activities is included in Chapter 7 of this document.

Waste	Maximum Storage Capacity	Storage Location	Method Of Disposal	Contractor	Frequency
Standard Office Waste	2 – 15 yd^3 Dumpsters	Fenced Area Outside of Loading Dock	Picked up by Waste Hauler.	Waste Hauler	Twice a Week.
Custodial Waste (mop buckets, auto scrubber)	N/A	N/A	Dump in Drain to Sanitary Sewer.	N/A	Daily
Backwash Water from Swimming Pool	N/A	N/A	Discharged to Sanitary Sewer.	Pool Company	Varies

F. Best Management Practices (BMP):

FACILITIES

- Pool drainage and filter backwash water from chlorinated swimming pools, fountains and lined ponds must be discharged into the sanitary sewer system. Other chlorinated water from water line or tank disinfection must also be directed to the sanitary sewer.
- Any discharge to surface water of pool or backwash water from pools and ponds must be dechlorinated prior to discharging into storm sewer system under the conditions of an NPDES permit obtained by the facility. The NPDES permit requires ceasing chlorination 7 days prior to discharge or using chemical dechlorination. These discharges to surface water must be approved under local building code, and not create a nuisance to adjoining property.
- Avoid using copper or silver-containing algaecides in pools, fountains and ponds.
- Ensure grease traps and oil/water separators in kitchens and food service areas are maintained. Avoid sanitary sewer grease-blockage by regularly pumping out traps and separators.
- Maintain site plumbing plans showing sanitary and storm sewer connections. Ensure wastewater is discharged only to the sanitary sewer, and storm water to the storm sewer. Label storm drain inlets to ensure they are used only for storm water drainage.
- Minimize the use of pesticides through an Integrated Pest Management (IPM) Program. An IPM Program uses monitoring of pest populations compared to an action threshold, and then choosing the proper tactics, using nonchemical pest control practices, such as mechanical and biological controls, when possible, or less toxic products when needed. IPM does not rely on routine applications of pesticide based on a calendar date.
  Reduce the risk of West Nile Virus by reducing stagnant water (mosquito breeding grounds) caused by cans, containers and tires present in litter and junk piles. Keeping storm water drainage gutters and drains clean will also reduce conditions suitable for

mosquito breeding. Refer to MU Extension IPM Guides at: http://ipm.missouri.edu/ipmresources.htm (See Chapter 7 for additional BMPs.)

- Minimize the use of herbicides for weed control. With turf grass, prevention of weed infestation begins with practices to promote healthy grass through proper planting, watering, fertilizing, mowing, aerification, and thatch control. Refer to MU Extension Publication IPM1009: http://muextension.missouri.edu/xplor/agguides/pests/ipm1009.htm (See Chapter 7 for additional BMPs.)

MATERIAL MANAGEMENT

- Collect and recycle, to the maximum extent practicable, wastes generated by municipal operations.
- Purchase environmentally preferred products whenever practical. For a "Database of Environmental Information for Products and Services," see EPA website: http://yosemite1.epa.gov/oppt/eppstand2.nsf/
- Provide for the proper disposal of all wastes generated or collected in the course of municipal operations, in accordance with all applicable local, state and federal laws.
- Inspect facilities for litter on a regular basis, and clean up as needed.
- Keep trash container lids closed to keep rain out. Do not dispose of liquid waste in the trash container.
- Ensure that the collection frequency of trash containers is appropriate to avoid overflows.
- Outdoor material stockpiles at both permanent locations and at job sites should be covered to protect from rainfall and prevent contamination of storm water runoff.
- Material stockpiles which can not feasibly be covered should be surrounded by a berm, BMP, or otherwise contained so that storm water runoff can be captured prior to entering streams or collection facilities.
- Petroleum products, fuels, chemicals, hazardous and toxic materials, and all wastes should be properly labeled to ensure appropriate handling and disposal.
- Petroleum products, fuels, chemicals, hazardous and toxic materials, and all wastes should be stored and handled with appropriate safeguards to prevent contamination of storm water from drips and spillage from the transfer of materials (for example, cover storage containers, use collection trays for drips, maintain spill kits and floor drain plugs to contain spills, etc.). Liquid containers should be stored under roof; or if outdoors, containers should be kept clean and sealed water-tight.
- Prevent spills of hazardous materials by selecting storage areas that avoid traffic to minimize accidental contact, and select areas that are away from storm drain inlets and streams to minimize the impact of a spill. Storage areas should be kept clean and organized.
- Contain and clean up all spills immediately. Ensure employees are familiar with spill response procedures and the location of spill kits to enable them to stop the spills at the source and contain the spilled material. With training on hazards from a material safety data sheet, minor spills can be addressed by employees, however, significant spills will require evacuation and contacting emergency responders.
- Keep material safety data sheets (MSDS) for chemicals onsite for information on reportable spill quantities, proper handling, and health and safety issues. At the Public Works Facility these are kept near the timeclocks, at City Hall these are kept in the

Building Maintenance Office. At the Park Maintenance Facility they are located in the shop. At the Aquatic Center they are located in the pool chemical room.

- Maintain and post a list of emergency contact numbers for spill reporting and spill clean-up contractor response, including: Missouri Department of Natural Resources (MDNR) – 573-634-2436, National Response Center – 800-424-8802, and for releases to the sewer, MSD – 314-768-6260. Reportable quantities (RQ) for chemicals are listed on the MSDS, and petroleum RQs include: any amount released to a storm sewer or waterway causing a sheen, 25 gallons from an underground tank, and 50 gallons from all other sources.
- Prepare for appropriately handling the clean up of the spilled material and disposal of waste. Do not hose down spills to the storm sewer system. Clean up spills with dry methods, using absorbent to pickup fluids.
- Spill response plans are recommended for all areas of municipal operations. Spill Prevention Control and Countermeasure (SPCC) plans are required to meet regulatory criteria in 40 CFR 112 for sites with a storage capacity over 660 gallons oil in one container or 1,320 gallons on site.
- Establish at all municipal facilities materials management and inventory controls to include the proper identification of hazardous and non-hazardous substances, and proper labeling of all containers.
- Regular inspections and inventory of material storage and use areas should be performed to ensure BMPs are being used.

COMMUNITY

- Develop/enforce ordinances for waste containers which regulate size, type, covers and water-tightness for residential,
  commercial and industrial areas.
- Develop/enforce ordinances against illegal dumping, littering and improper yard waste disposal, providing for corrective action, enforcement and penalties.
- Develop/enforce ordinances requiring pet owners, property owners to clean up wastes from their pets and other animals.
- Provide pet waste scoop dispensers and signage in parks and other public areas frequented by pet walkers to promote the proper disposal of pet waste and notify the public of ordinance requirements.
- Provide recycling and yard waste services for residential waste.
- Provide sufficient numbers of appropriately-sized waste receptacles at municipal facilities and in public areas with regularly scheduled servicing, collection and disposal.
- Educate citizens on trash and pet waste issues to promote compliance with ordinances using available methods such as resident newsletters, brochures, internet sites, storm drain marking projects, etc.
- Promote and assist in neighborhood and stream clean-up activities.
- Develop/enforce municipal ordinances against illegal discharges to storm water from sources such as failing septic tanks, septic tanks discharging to storm water, etc. Ordinances to address illegal connections of sanitary sewers should be at least as stringent as the Missouri Department of Health regulations in 19 CSR 20-3 and County requirements, such as St. Louis County Plumbing Code Section 1103.

O&M PROGRAM

- Establish standard operation and maintenance procedures, maintenance schedules and long term inspection procedures in accordance with this program manual with emphasis on safety, efficiency, and compliance with applicable laws and good environmental stewardship.
- General housekeeping inspections of facilities and storage areas should be performed annually and records kept of the inspections.
- Develop record keeping procedures that effectively track implementation of program elements and that provide the information necessary to meet the reporting requirements of the MS4 permit.

G. NPDES Permit status:

Applicable MDNR general storm water permits must be obtained if the city engages in the following activities described by the following categories:

Swimming pools & fountains (G76) – Discharges of filter backwash and pool drainage from swimming pools and lined ponds.

Vehicle Maintenance (R80C, See also Chapter 3) - Motor freight transportation and warehousing.

If the above categories describe city operations, but the activities and materials stored or handled are not exposed to storm water, a "No Exposure Certification" must be submitted in lieu of obtaining a permit. Further descriptions and a copy of the general permits are available at: www.dnr.mo.gov/wpscd/wpcp/permits/wpcpermits-general.htm

The discharge of process waste water to a storm water inlet from any city facility requires an NPDES Operating Permit from MDNR's Water Pollution Control Program. All permit conditions and limitations must be complied with.

H. Training:

All Public Services Department employees involved in maintenance operations, construction, facility or site design, or building or facility management will be trained on this chapter.

In addition to training on the housekeeping BMPs and proper waste management, employees will be provided general awareness of NPDES discharge requirements.

Chapter 3 - Vehicle/Equipment Repair and Maintenance Operations

A. Description of Activities:

The Fleet Maintenance Division of the Planning & Public Works Department is responsible for the maintenance and repair of equipment and vehicles ranging from chain saws and light vehicles, including Police Department vehicles, to loaders and tandem dump trucks. Preventative maintenance or PM's include oil and filter changes, tune ups and tire rotations. Repairs include brake, suspension, axle repair; and welding work. A fueling station is located at the Public Works Facility. Outside contractors perform services such as glass repair or replacement and all bodywork.

B. Locations:

This Public Works Facility is located at 165 Public Works Drive. The Public Works Facility has six working bays, two of which have vehicle lifts. All floor drains are connected to sediment/ oil traps. The bulk oils and fluids, bottled oils and spray chemicals are stored inside the facility. The majority of repair and maintenance work is done inside. However, due to the difficulty in moving certain pieces of equipment, some work is done at the job site.

C. Responsible Parties:

The Superintendent of Maintenance Operations oversees all aspects of fleet administration and operations. The Fleet Maintenance Supervisor is responsible for the day-to-day operations of the Fleet Maintenance Division. The Division has five mechanics.

D. Materials/Supplies acquisition, storage and usage:

Materials /supplies are stored within the Public Work Facility. The following materials and quantities are typically kept on hand:

Material	Maximum Quantity Kept On Hand	For Use Within	Storage Method
Various Motor Oils	250 Gallons	As needed	Tank
Various Engine Fluids	250 Gallons	As needed	Tank
Anti-Freeze	220 Gallons	As needed	55 Gallon Drums
Gasoline	10,000 Gallons	As needed	Underground Tank+
Diesel	10,000 Gallons	As needed	Underground Tank +
Brake Solvent	110 Gallons	As needed	55 Gallon Drums
Penetrating Oil	96 18oz. Aerosol Can	As needed	Fire Proof Cabinet
Brake Clean	96 18oz. Aerosol Can	As needed	Fire Proof Cabinet

Carb Cleaner	96 18oz. Aerosol Can	As needed	Fire Proof Cabinet

++ Underground fuel tanks meet all 1998 UST standards and are insured by UST Insurance Fund

E. Waste generation, storage, disposal, recycling:

Waste generated at the Public Works Facility are as follows:

Waste	Maximum Storage Capacity	Storage Location	Method Of Disposal	Contractor	Frequency
Used Motor Oil, Hydraulic and Transmission Fluid	1300 Gallons	Tanks	Recycled & used to heat work bays	N/A	As Generated
Used Oil Filters	N/A	Drain 24 Hours/Crush	Dumpster	Waste Hauler	As Generated
Used Antifreeze	N/A	Labeled Container	Recycle or Sewer if Approved by MSD	N/A	As Generated
Worn Brake Pads/Shoes	N/A	Shop	Returned For Recycling	Parts Vendor	As Needed
Equipment Batteries (Lead-acid and NiCd)	20	Shop	Returned For Recycling	Battery Vendor	As Needed
Tires	<25, Unless Meeting Rules in 10 CSR 80	Shop	Tires are cut so they cannot be reused and stored until removal.	Tire Vendor, Permitted Waste Tire Hauler	As Needed
Scrap Metal	N/A	Shop	Recycled	Metal Recycler	As Needed
Shop Towels	N/A	N/A	Trash Can	Trash Hauler	As Generated
Organic Solvent for Parts Cleaning	1300 Gallons	Tanks	Recycled & used to heat work bays	N/A	As Generated
Refrigerant	Tested Container Capacity	Shop	Recover for Reuse	Onsite or EPA Registered Co.	As Needed

F. Best Management Practices (BMP):

OPERATIONS

- Institute a preventive maintenance program to minimize fluid leaks and equipment failures. Inspect vehicles and equipment frequently for leaks, collecting leaks with pans or absorbent, and repairing leaks.

- All routine vehicle maintenance and repairs at City facilities are performed indoors. On occasion and when necessary, outside maintenance work will be performed in a paved area with provisions made to contain and clean up all drips and spills.
- Use non-hazardous, environmentally safe products when possible. Avoid use of chlorinated organic solvents.
- Environmentally safe detergents are used instead of caustic cleaning solutions.
- Flammable liquids are kept in a vented fire-rated cabinet.
- All supply material and waste containers are marked clearly and properly to identify the contents.
- Keep material safety data sheets (MSDS) for chemicals onsite for information on reportable spill quantities, proper handling and health and safety.
- All supply material and waste containers are stored under cover to prevent contact with rainfall; or when uncovered, containers are clean and sealed.
- Tops of containers have absorbent mats and are free of standing liquid, and stored containers are kept closed.
- Waste oils are collected and used in waste oil furnaces to heat the work bays.
- Drain pans are labeled for specific types of fluid. Use pans under vehicles and equipment with fluid leaks. Always use drip pans when making and breaking connections.
- Used oil filters should be gravity drained for 24 hrs with the anti-drain back valve or filter dome punctured to facilitate the draining process. Crushing the oil filter and recycling is preferred.
- Batteries, waste oil, etc. having spill/leak potential are stored indoors and are in secondary containment, when possible.
- Neutralizer and absorbent are kept by both new and used batteries.
- All floors are clean of oil and grease.
- Immediately clean up all spills of chemicals or vehicle fluids using dry methods (absorbents), minimizing the use of water whenever possible.
- Vehicle operators should be instructed to remain with the vehicle during fueling, and not to top-off the fuel tank to avoid overflows and spills.
- For painting or sanding activities outdoors, use a tarp enclosure to contain and capture material. Collect and dispose of paint chips and sand blast waste in the trash for non-lead based paint, or evaluate lead based paint for hazardous waste disposal.
- Keep the facility and surrounding area clear of litter.

SPILL PREVENTION

- Spill control plans should be in place with procedures for proper spill response to minimize environmental impacts. SPCC plans must meet regulatory criteria in 40 CFR 112 for sites with a storage capacity over 660 gallons oil in one container or 1,320 gallons on site.
- Procedures for loading, unloading and transfer operations should be developed to prevent overfilling and spills.
- In areas where spills could occur, such as fueling and loading areas, keep spill kits with absorbent materials nearby and display signage indicating the location of those spill kits.
- Regularly inspect all tanks and containers to ensure physical integrity.

- Maintain equipment to ensure the proper operation of automatic shutoff devices on pumps and, overfill protection and spill buckets on tanks.
- Emergency phone numbers are clearly posted in the shop and near material storage areas.

FACILITY

- All floors in work areas are sloped to floor drains that are connected to an MSD-approved sediment /oil trap prior to discharge into the sanitary sewer system. Trap is pumped out as needed.
- A site-plumbing schematic showing all drains, traps, and shut offs for utilities should be posted in shop. Employees should be made aware of sanitary and storm sewers to ensure all wastewater is discharged to the sanitary sewer.
- Storm drains/inlets can be labeled to help protect from improper usage.
- All above ground storage tanks which require secondary containment have secondary containment in accordance with SPCC requirements and are covered with a roof. If containment is not roofed, inspect accumulated rain water for contamination prior to discharge.
- Fueling areas are recommended to be designed with a roof to prevent contact with storm water. The area should be graded and sloped to direct storm water runoff away from the site and to prevent runoff from flowing over the fueling area.
- Storm water treatment devices can be used to treat runoff from fueling areas.
- Verify that fire extinguishers are charged and inspected yearly.

G. NPDES (National Pollutant Discharge Elimination System) Permit status:

Vehicle maintenance facilities of this type are considered "municipal industrial" facilities under the Missouri Storm Water Regulations and are subject to separate NPDES storm water (Phase I) permitting requirements under MDNR general permit R80C. As stated above, all vehicle repairs and maintenance are preformed indoors or are otherwise done without exposure to storm water. Therefore, a NPDES Storm Water permit is not required and a no-exposure certification has been filed with the Missouri Department of Natural Resources.

H. Training:

Training on storm water BMPs pertaining to general housekeeping will be provided to all Public Services Department employees who are involved in maintenance and janitorial activities.

Chapter 4 - Vehicle/Equipment Washing

A. Description of Activities:

The City of Chesterfield will wash vehicles and equipment at wash bay facilities designed according to this chapter, whenever possible.

B. Locations:

A wash bay facility is located at the Public Works Facility – 165 Public Works Drive, and at the Parks Maintenance Facility - 17925 North Outer 40 Road.

C. Responsible Parties:

The Superintendent of Maintenance Operations is responsible for ensuring that whenever possible, all vehicles and equipment are washed in the wash bay located at the Public Works Facility, and the Parks & Recreation Director is responsible for ensuring that whenever possible, all vehicles and equipment are washed in the wash bay located at the Parks Maintenance Facility.

D. Materials/Supplies acquisition, storage and usage:

Non-phosphate, bio-degradeable detergent shall be used in the wash bay whenever possible.

E. Wash bay design and waste disposal:

Wash water from vehicle and equipment washing must be disposed in the MSD sanitary sewer, with pretreatment using a sediment/oil trap. The accumulated solids in the sediment/oil trap must be pumped out and properly disposed of, such as at a wastewater treatment plant by an MSD approved waste hauler. If floating oils and grease accumulate in the sediment/oil trap, the contents must be disposed by a permitted waste hauler at a commercial facility able to handle oily waste.

F. Best Management Practices (BMPs):

- Wash bay facilities are designed to collect wash water, pretreat with a sediment/oil trap (interceptor), and discharge to the sanitary sewer system. The trap must be pumped out as needed as determined by the Building Maintenance Supervisor. Records of pumping are maintained in the work order system.
- Job-site mud removal is performed without detergent in a contained, permeable (gravel) area with wash water infiltrating into soil or gravel.
- It is impractical to wash some equipment in the wash bay at the Park Maintenance Facility. Any equipment washed is in the lot is washed using water only. Dirt and sediment is collected by the BMP prior to the concrete flume. Remaining water drains to a pretreatment basin. No wash water drains to creeks or streams.

G. NPDES Permit status:

Not applicable.

H. Training:

All Public Services Department employees responsible for operating and maintaining fleet vehicles and equipment will be made aware of BMPs regarding washing, and the proper, designated locations for washing.

Chapter 5 - Facility Repair, Remodeling and Construction

A. Description of Activities:

On an as-needed basis, city personnel perform minor renovations/repairs and small capital improvements on city facilities, such as erecting or removing partitions, replacing a door or window, painting, etc. Major projects are typically contracted out to commercial firms specializing in the type of work required.

B. Locations:

City Hall, 690 Chesterfield Parkway West, contains a shop and material storage areas for facility repair, remodeling and construction; and city employees are involved in these activities. Repair, remodeling, construction and capital improvements are periodically performed on all types of municipal facilities.

C. Responsible Parties:

The Building Maintenance Supervisor is the responsible party that will ensure all repairs, remodeling and construction will be preformed without subjecting the storm water system to any new contaminant streams. They are responsible for the construction practices of the contractors that work for them on municipal facilities.

D. Materials/Supplies acquisition, storage and usage:

Varies with nature of job. Materials are purchased on an as-needed basis and in quantities expected to be completely consumed in the process of completing the project. Materials used for every project will vary. The majority of materials are purchased on a project basis and are consumed during that project. Materials should be stored indoors or under cover so they are protected from rainfall and runoff. All unused portions of materials should be properly secured to prevent loss, such as bagged cement. Tarps should be used on the ground to collect fallen debris and other spilled material. Waste should be cleaned up on a daily basis and properly disposed of as noted below in section "E".

E. Waste generation, storage, disposal, recycling:

Waste generation varies with the nature of the job. Typically, wastes consist of small amounts of lumber cut-offs, wallboard scraps, empty paint cans, etc. Order and mix only the amount of materials necessary for the work to be completed. Dispose of all waste properly, recycle whenever possible. Never bury waste material or leave material in the street, gutter, or near a creek or streambed that would allow the material to enter the storm water system. Such materials are disposed in the City Hall dumpster for pick-up by the city contracted waste hauler. Listed below are the disposal methods for various types of materials that are generated from facility repairs and remodeling:

Waste	Storage Requirements	Method Of Disposal	Contractor
Lumber, Drywall, Siding, Roof Shingles, Insulation	Dumpster or Container	Sanitary or Demolition Landfill	Waste Hauler
Fluorescent, Sodium Vapor, Mercury Vapor Lamps	Closed, Labeled Container	Recycling as Universal Waste	Recycling Vendor
Fluorescent Green tip Lamps	Closed, Labeled Container	Recycling as Universal Waste	Recycling Vendor
Fluorescent Light Ballasts	Closed Labeled Container	Recycling or Landfill (if PCBs, with approval)	Recycling Vendor
Latex Paint Waste	Closed Container	Energy Recovery or Sanitary Sewer	Waste Hauler or MSD
Oil-based Paint Waste	Closed Labeled Container	Energy Recovery as Hazardous Waste	Hazardous Material Recycler
General Trash	Dumpster or Container	Sanitary Landfill	Waste Hauler
Carpet	Warehouse	Recycle, or Sanitary Landfill	Green Building Recycling

Leaks, drips, or spills should be cleaned up immediately. Clean up using "dry" methods, absorbent materials or rags, or remove the contaminated soil or material.

Clean up of equipment is to be performed in designated areas. Never clean up concrete equipment or paint brushes and allow the washout into the street, storm drains, drainage ditches, or streams.

F. Best Management Practices (BMP):

FACILITY DESIGN

- Consider designing facilities for "Low Impact Development" to reduce the volume and rate of storm water runoff from impervious areas to improve water quality. Refer to information on Low Impact Development from EPA's web site at: http://www.epa.gov/owowwtr1/NPS/lid/lidlit.html for more information about Low Impact Development methods.
- In designing storm water drainage facilities, use the following BMPs, in accordance with MSD's storm water drainage facility design regulations, to improve the water quality of site drainage: wet detention ponds, wetlands, structural filter systems, grass swales, vegetative filter strips, and riparian buffers along streams. MSD's design regulations are contained in the "Rules and Regulations and Engineering Design Requirements for Sanitary Sewage and Stormwater Drainage Facilities". Fact sheets on storm water management practices are available from the Storm Water Manager's Resource Center at the following web site: http://www.stormwatercenter.net
- Carefully design and install plumbing and storm water systems to code, eliminating cross-connections between sanitary and storm drain systems.
- Design material storage and handling areas to avoid rain and storm water runoff contacting stored material.
- Design landscaping that uses native vegetation to reduce the need for irrigation, fertilizer and pesticide.

LAND DISTURBANCE

- Comply with the City of Chesterfield's Sediment and Erosion Control Manual. For projects less than the land disturbance program thresholds, prevent erosion of soil from bare ground at the site by employing erosion and sediment control BMPs, such as: soil stabilization with mulch or seeding, settling basins, sediment traps, vegetated buffer strips, and silt fencing for perimeter controls. For details concerning these BMPs, see the Sediment and Erosion Control Manual.
- All construction or maintenance activities that excavate in or discharge any dredge or fill material into a "water of the United States" requires a Corps of Engineers 404 permit and a MDNR 401 water quality certification. Waters of the United States include ditches, creeks, rivers, lakes, ponds and wetlands. See Appendix 5-F1 for a summary of permit requirements.

CONSTRUCTION/REMODELING

- In accordance with city purchasing policies, every effort is made to purchase materials that are manufactured with recycled materials.
- Properly store materials as far away from storm inlets and streams as practical, and cover stored materials to avoid storm water impacts.
- Recycle or properly dispose of wastes, as indicated in Section E above.
- Never clean out or wash out paint or concrete mixers in the street or near a gutter, storm drain or stream.
- Small quantities of inert demolition wastes and construction scraps are disposed in the city hall dumpster. If larger quantities are generated, arrangements are made with a city-contracted hauler for a special pick-up.
- Keep work sites clean, pickup trash that can be wind blown daily.
- Utilize certified asbestos inspectors to inspect floor tile, ceiling tile, fire-proof barriers and doors, roofing material and insulating materials for asbestos content prior to demolition. Manage material using certified asbestos personnel.
- Utilize certified inspectors to inspect for lead based paint on structures older than 1978. Use only state certified removal contractors for lead based paint abatement.
- When scraping or washing to remove non-lead based paint, collect paint chips in a tarp for proper disposal. Use water-based paint instead of oil-based paint whenever possible.
- Ensure that facility plumbing connects all sanitary wastewater discharges to the sanitary sewer, and that storm water is sent to the storm sewer system.

G. NPDES Permit status:

Land disturbance projects over 1 acre require a grading permit issued by the Public Services Department. Storm water operating permits will not apply unless process water will be discharged to storm water and not to the sanitary sewers.

H. Training:

All Public Services Department employees involved in facility construction, facility repair and remodeling activities will be trained on the BMPs presented in this chapter. Personnel should be trained in the items noted below:

General housekeeping
Material storage, cleanup, and disposal
Material reuse and recycling
Equipment cleanup
Land disturbance erosion control

Reduction of material for disposal through storage, reuse, or recycling can greatly reduce material and disposal costs, long term liability, preserve environmental quality, improve workplace safety and provide a positive public image.

Chapter 6 - Cleaning and Maintenance of Roadways, Highways, Bridges and Parking Facilities

A. Description of Activities:

The City of Chesterfield is responsible for the cleaning and maintenance of roadways and parking facilities under their maintenance purview. Activities include, but may not be limited to, street sweeping, flushing, applying surface seals, patching, and snow removal.

Street sweeping operations are outsourced, and normally involve self-contained and powered collection devices, utilizing belt conveyors or vacuum systems. This work is performed on a bi-annual basis, or when requested, and is usually conducted on roads with curbs where debris can accumulate in the gutter line.

Flushing operations are performed on sections of pavement where mud or debris accumulates after flooding, creating hazardous conditions.

Parking structures are typically sealed on a five-to-seven year cycle to protect the concrete and steel reinforcement from corrosive elements. Bridges and bridge decks are maintained in accordance with the City's bridge maintenance plan.

Patching operations involve the preparation of potholes and the fill of either hot mix, cold patching material, or concrete.

All roadways under the City's maintenance jurisdiction are plowed and salted during winter snow events. Trucks are calibrated to distribute salt based upon the temperature and type / intensity of the storm. Additional chemicals, such as calcium chloride, are used when prevailing temperatures fall below 20° Fahrenheit.

B. Locations:

The Planning & Public Works Department, Street Maintenance Division, is responsible for the maintenance of all roads and bridges located on public right of way dedicated to the City of Chesterfield. All parking lots located at various City facilities are also maintained by the Street Maintenance Division.

C. Responsible Parties:

The responsible parties involved in the cleaning and maintenance of streets and parking lots include:

Public Works Director – (636) 537-4764
Superintendent of Maintenance Operations– (636) 812-9602

D. Materials/Supplies Acquisition, Storage and Usage:

Large quantities of materials are expended in the performance of work. Some material is purchased and used immediately, while other material is stockpiled. The City of Chesterfield works within the constraints of our budget while weighing fiscal responsibility against the immediate and long-range needs for such materials, and adjust purchasing habits accordingly.

Material	Maximum Quantity Kept On Hand	For Use Within	Storage Location
Salt (Sodium Chloride, Calcium Chloride)	Up to 6,000 tons	As needed	Public Works Facility
Aggregate (various sizes)	Up to 1000 Tons	As needed	Public Works Facility
Cold-Patching Material	Up to 50 Tons	As needed	Public Works Facility
Hot Mix Asphalt	Purchased When Needed.	As needed	N/A
Deck Sealing Materials	Up to 100 Gallons	As needed	Public Works Facility
Topsoil	Up to 5000 Tons	As needed	Public Works Facility
Concrete Ready-Mix	Purchased When Needed.	As needed	N/A
Concrete Bag Mix	Purchased When Needed.	As needed	Public Works Facility

E. Waste Generation, Storage, Disposal, Recycling:

A certain amount of construction spoil and waste is generated during the performance of maintenance operations on our road network. Recycling methods are employed if they are determined to be cost-effective; however, in many instances, waste material must be removed from the work site by various disposal methods.

Waste	Maximum Storage Capacity	Storage Location	Method Of Disposal	Frequency
Asphalt Millings from Co-Planing Operation	Unlimited Storage Options	Landfill or Other Locations	First preference is to recycle the material, using it for road base, parts, earth fill (if laws permit), or in asphaltic concrete, etc. If material can't be economically recycled, it will be disposed of in a landfill.	As Generated
Concrete Rubble	Unlimited Storage Options	Earth Fill or Landfill	First preference is to place concrete waste in earth fill; If this cannot be economically accomplished, the spoil material is taken to a landfill. At times the material is held at the storage yard temporarily until transportation to the landfill can be arranged.	As Generated

Trash, Grit and Debris from Street Sweeping and Road Clean Up	Dumpster	City owned parking lot	Sanitary Landfill	Spring & Fall
Water Based Paint	Various Containers	PW Facility	Sanitary Sewer, as Approved by MSD.	As Generated

F. Best Management Practices (BMP):

MAINTENANCE

- If certain road maintenance activities are prone to produce pollutants that can be carried off with storm water runoff, schedule these maintenance activities during times of dry weather if possible.
- Capture scrapings/rust/dirt/sandblasting grit/over spray/drips, etc., from preparation and painting of bridges/structures/traffic control devices.
- For steel girders on bridges, utilize certified inspectors to inspect for lead based paint on structures older than 1978. Use only state certified removal contractors for lead based paint abatement.
- Used asphalt is recycled when it is cost-beneficial.
- Block scuppers and drains when sealing bridge decks.
- On asphalt overlays, ensure storm water drainage capacity of curbs and inlets is maintained as much as possible.
- Comply with City of Chesterfield Sediment and Erosion Control Manual. For projects less than the land disturbance threshold, employ BMPs for erosion and sediment control.
- All construction or maintenance activities that excavate in or discharge any dredge or fill material into a "water of the United States", which includes ditches, creeks, rivers, lakes, ponds and wetlands, requires a Corps of Engineers 404 permit and a MDNR 401 water quality certification. Examples of construction or repair activities requiring a permit include: bridge work, culverts under road crossings, dredging or placing rip rap in creeks. See Appendix 5-F1 for a summary of permit requirements.

DE-ICING

- Use calibrated chemical applicators for salt and brine applications.
- Minimize the use of salt without compromising public safety.
- Stop salt feed on trucks at stop signs, where equipped.
- Store salt on a covered, impervious surface.
- As available, use road weather information such as weather forecasts, meteorological data, and pavement sensors to maximize the efficiency and effectiveness of resources.

CLEANING

- Remove as much mud, grit, salt and debris as possible (by scraping, brooming, etc.) prior to roadway flushing on bridges.
- Evaluate the need for street sweeping to remove grit and trash at facility parking lots and roadways within jurisdiction. Implement street sweeping, when feasible, focusing on heavy traffic patterns, seasonal variations (spring/fall), and problem areas. Record the volume of trash/debris removed to identify the priority of areas being cleaned and

the effectiveness of resources used. Investigate to determine sources of litter in areas of excessive accumulation.

- The environmentally preferred sweepers are those with an integral collection device and fugitive dust control. Properly dispose of trash/debris as indicated in Section E above.

G. NPDES Permit status:

Not Applicable

H. Training:

All Street Maintenance Division employees, and all Parks & Recreation Division employees involved in street maintenance and repair will be trained on the BMPs in this chapter.

Chapter 7 - Maintenance of Parks, Green Spaces, Trails and Landscaping

A. Description of Activities:

The City of Chesterfield has seven parks totaling 489 acres of land.

The City of Chesterfield has responsibility for the development and maintenance of recreational areas and green space within the city.

The creation and design of parks and open space can assist in management of storm water by providing green infrastructure and a means of absorbing rainwater, slowing its release in to streams, storing, filtering and slowing storm water runoff down and thus preventing or reducing flash flooding downstream. Local governments have an opportunity to use their park lands to benefit the environment and to demonstrate best practices for storm water management.

Maintenance activities include mowing of grassy areas, pruning trees, removing fallen limbs, mulching, emptying trash receptacles, trail maintenance, routine cleaning of park restrooms, and athletic field maintenance.

B. Locations:

- Chesterfield Valley Athletic Complex – 17925 North Outer 40 Road.
- Central Park – 16365 Lydia Hill.
- W.F. Dierberg Meditation Park – 13701 Olive Boulevard.
- Railroad Park – 17410 Edison Avenue.
- Eberwein Park – 1627 Old Baxter Road.
- Rockwood Park – 1410 Wilson Avenue.
- Rivers Edge Park – 17057 North Outer 40

C. Responsible Parties:

The Parks & Recreation Director has authority over all parks.

D. Materials/Supplies acquisition, storage and usage:

The following materials and quantities are typically kept on hand for landscaping and park maintenance operations.

Material	Maximum Quantity Kept On Hand	For Use Within	Storage Location	Comments
Mulch Pile	Varies	As needed	CVAC	Keep Covered
Fertilizer	Varies	As needed	Maintenance Building	Keep Covered
Herbicide	Varies	As needed	Maintenance Building	Keep Covered

Soil	Varies	As needed	CVAC	Keep Covered

E. Waste generation, storage, disposal, recycling:

Wastes generated by landscaping and park maintenance operations are as follows.

Waste	Maximum Storage Capacity	Storage Location	Method Of Disposal	Contractor	Frequency
Wood, brush	Unlimited	Various	Chip into Mulch	City Staff	As needed.

F. Best Management Practices (BMP):

PARK DESIGN AND SITING

- Creating undeveloped, natural open space and preserving established trees and other natural vegetation, particularly around natural drainage areas, such as creeks, is recommended. Tree buffers and tall grass filters around streams improve water quality, slow runoff and prevent erosion. A minimum buffer width of 50 feet is recommended.
- Design park sites to preserve natural resources such as wetlands and existing natural draining areas, minimizing their loss and maintaining existing trees and a riparian corridor next to creeks to the degree possible. Minimize creek crossings, and place them only after consideration of the stream features to enable natural flow.
- Design landscaping that uses native vegetation to reduce the need for irrigation, fertilizer and pesticide. Select plants appropriate for site conditions for sun, moisture, and soil type.
- Utilize low impact development to minimize impervious surfaces, See Chapter 5.
- In designing storm water drainage facilities, use the following BMPs, to the maximum extent possible to improve the water quality of site drainage and slow the release of water to streams: wet detention ponds, micro detention basins, wetlands, rain gardens, vegetative filter strips and riparian buffers along streams, structural filter systems, pervious pavement and green (vegetated) roofs. The use of swales instead of curbs along roads and parking lots is beneficial to filter pollutants and reduce the volume and rate of storm water flow. Fact Sheets on storm water management practices are available from the Stormwater Manager's Resource Center at the following web site: http://www.stormwatercenter.net

COMMUNITY PROGRAMS

- Sponsor activities and annual events that involve the general public, schools, watershed groups, stream teams, etc., providing hands-on activities that promote water quality in their adopted parks and greenways. Typical activities include: field trips, cleanups, educational programs, restoration projects, stream monitoring, storm drain marking, and trail projects.
- Organize or participate in reforestation programs, planting native trees to buffer streams, create shade, and beautify parks. Support community volunteer group efforts in these programs.
- Require pet owners to pickup and properly dispose of pet waste in parks. Provide pet waste scoop dispensers and signage in parks to notify visitors of the requirement.

- Control wild geese populations near lakes with "no feeding the geese" signs and ordinances. Other techniques to control populations include habitat modification by increasing shoreline vegetation height, scare tactics or relocation.

PARK/LANDSCAPE MAINTENANCE

- Remove litter and debris regularly.
- Properly dispose of yard waste, for example, by composting. Do not dump yard waste into creeks.
- Minimize mowing of open space sites, depending on site objectives.
- Mow grass higher and leave grass clippings on the lawn to retain moisture and provide nutrients.
- Remove exotic invasive vegetation and replace with native plantings as resources are available.
- Perform soil tests to determine the optimum fertilizer application rate.
- Apply most fertilizer only in cool weather, preferably fall. Avoid application before a rain, and do not apply fertilizer at rates higher than indicated in on label instructions. Apply slow release fertilizers such as methylene urea, IDBU or resin coated fertilizer.
- When disturbing land, such as clearing vegetation and destroying the root zone, employ BMPs for erosion and sediment control. For details concerning these BMPs, see the Sediment and Erosion Control Manual.
- All construction or maintenance activities that excavate in or discharge any dredge or fill material into a "water of the United States", which includes ditches, creeks, rivers, lakes, ponds and wetlands, requires a Corps of Engineers 404 permit and a MDNR 401 water quality certification. Examples of activities that require a permit include: placing culverts in creeks, constructing outfalls, and stream restoration activities. See Appendix 5-F1 for a summary of permit requirements.

INTEGRATED PEST MANAGEMENT

- Use Integrated Pest Management (IPM) techniques to minimize the use of pesticides. Pesticide application should be timed carefully and combined with other pest management practices. Pests and their development stage should be identified accurately and pesticide applications made only when necessary, using the least amount needed and the least toxic product for adequate pest control.
- Use mechanical controls to keep pests in check, such as species specific, pheromone based traps. Remove pests by hand. Eliminate conditions favorable to pests and place barriers to control pests and weeds.
- Use natural, biological controls, when feasible, including natural enemies of pests, such as: predators, parasites, pathogens, pheromones, and juvenile hormones.
- Reduce the risk of West Nile Virus by reducing stagnant water (mosquito breeding grounds) caused by cans, containers and tires present in litter and junk piles. Keeping storm water drainage gutters and drains clean will also reduce conditions suitable for mosquito breeding. Refer to MU Extension IPM Guides at: http://ipm.missouri.edu/ipmresources.htm
- Minimize the use of herbicides to the maximum extent possible. This includes practices that keep plants healthy, such as selecting disease and pest resistant varieties and maintaining good growing conditions. For turf grass, prevention of weed infestation begins with practices to promote healthy grass through proper planting, watering, fertilizing,

mowing, aerification, and thatch control. Refer to MU Extension Publication IPM1009: http://muextension.missouri.edu/xplor/agguides/pests/ipm1009.htm

PESTICIDE/HERBICIDE USE

- When pesticide or herbicide use is required, select pesticides carefully, avoiding highly water soluble and very environmentally stable products to minimize potential for leaching from soils into waterways. Environmentally friendly products readily degrade in the environment and/or bind to soil particles.
- Consider the vulnerability of the area in which pesticides are applied, avoiding areas with streams, ponds, sinkholes or wells. Sinkholes are an environmentally sensitive area because they allow surface water to reach groundwater quickly with little natural soil filtering.
- Apply pesticides when the target pest is at its most vulnerable life stage, and use site specific rather than wholesale application.
- Read pesticide labels carefully for information and restrictions about the rate, timing, and placement of the pesticide in that container. Calibrate equipment to apply at the proper rate. Apply when the threat of rain is low to avoid wasting material and washing pesticide into the waterways. Carefully calculate how much pesticide concentrate is needed to treat the specific site with the equipment being used, to eliminate disposal of excess spray mix.
- Store pesticides in their original containers in a cool, well-ventilated building with a concrete floor. Handle pesticides carefully to avoid spills.
- Dispose of pesticide waste properly, following label instructions.

G. NPDES Permit status:

Not applicable

H. Training:

All Parks & Recreation Department employees directly involved in the design, construction and maintenance of landscaping, trails, green spaces and parks will be trained on the BMPs in this chapter.

Chapter 8 - Cleaning and Maintenance of Drainage Channels, Storm Sewers and Inlet Structures

A. Description of Activities:

The storm drainage system functions to collect and convey surface runoff to receiving waters during storms in order to prevent flooding. The system consists of improved and unimproved drainage channels, culverts, bridges, trench drains, gutters, ditches, swales, storm sewers and storm inlet structures. Maintenance of the system is necessary to ensure it functions hydraulically as intended. MSD has the major responsibility for the cleaning and maintenance of improved channels and storm sewers in the Plan Area. Maintenance responsibilities are defined in MSD's "Statement of Policy for Maintenance of Stormwater Sewer Systems and Facilities". Many of the co-permittees are responsible for maintaining the storm sewer systems on their property, and on systems not dedicated to the MSD system. In addition, municipalities are responsible for maintaining bridges, storm culverts, ditches and gutters along the streets in their city. MSD does maintain road inlets and culverts on systems dedicated to MSD. MSD does not maintain detention and retention basins or yard swales. Maintenance of basins and yard swales is the responsibility of property owners, as addressed in MSD's "Rules and Regulations and Engineering Design Requirements for Sanitary Sewage and Stormwater Drainage Facilities".

B. Locations:

The City of Chesterfield maintains all non-MSD storm sewer systems located on City right of way and on City owned property. The storm sewer system is contained in the City's GIS.

C. Responsible Parties:

Metropolitan St. Louis Sewer District
Telephone: (314) 768-6200

City of Chesterfield
Public Services Department, Public Works Director
Telephone: (636) 537-4764

D. Equipment/Materials/Supplies acquisition, storage and usage:

Standard maintenance equipment is utilized for cleaning storm sewers, performing maintenance in channels, and clearing brush blockages.

E. Waste generation, storage, disposal, recycling:

Wastes generated from maintenance of the storm drainage system must be disposed of properly, as indicated in the table. All waste being disposed of in a landfill must not contain free liquid. Water draining from waste destined for a sanitary landfill is considered wastewater and must be disposed of in a sanitary sewer system.

Waste	Storage Requirements	Method Of Disposal	Contractor
Catch Basin Grit & Trash	Dewater and Place in Dumpster with Wastewater to Sanitary Sewer	Sanitary Landfill under Special Waste Permit	Waste Hauler
Sediment from Channel or Basin	Dewater Controlling Soil Released	Demolition/Construction Landfill or Evaluate for Clean Fill Status; or Wet to MSD Hauled Waste Receiving Station	City Staff
Solid Waste from Storm Sewer Flushing	Dewater and Place in Dumpster with Wastewater to Sanitary Sewer	Sanitary Landfill	Waste Hauler
Trash and Debris from Channel Cleaning	Dumpster	Sanitary Landfill	Waste Hauler
Wastewater	N/A	Sanitary Sewer	MSD
Yard Waste and Trees from Channel Cleaning	N/A	Compost Brush; Wood to Demolition Landfill or Firewood to Residences	City Staff/Tree Service

F. Best Management Practices (BMP):

GENERAL

- Within budgetary constraints and responsibilities, perform preventative maintenance of the storm drainage system to remove flow obstructions to reduce flooding and erosion problems and improve water quality.
- Utilize care in cleaning catch basins, storm sewers and drainage channels, to properly collect and dispose of waste as indicated in Section E to minimize contaminants discharged into storm water. Note in the work order the volume of waste collected and disposed of. Investigate the source of increased maintenance needs, if excessive. When possible, focus cleaning efforts before rainy seasons.
- If storm inlets/catch basins, storm sewers and drainage channels are impacted by non-storm water discharges or illegal dumping of waste, contact MSD, Division of Environmental Compliance at 314-436-8710 for investigation and enforcement.
- Implement Phase II public education efforts; public participation efforts to mark inlets with "No Dumping, Drains to Stream"; or organize or participle in public stream clean-up events.
- Identify failing detention or retention basins and report them to MSD Customer Service at 314-768-6260.
- Comply with the City's Sediment and Erosion Control Manual. For projects less than the land disturbance threshold, employ BMPs for erosion and sediment control.

CATCH BASINS

- Prioritize catch basins for routine maintenance on a specified frequency based on need. Identify areas for additional maintenance to coincide with litter from major public

events, and based on work orders generated by customer complaints and/or flooding. Increase maintenance of inlets that are fully blocked or 75% full of trash or debris when maintained. Reduce maintenance of catch basins that do not result in waste generation.

- Consider installation of catch basin inlets in areas where storm sewers will be known to receive excessive amounts of litter or sediment.

STORM SEWERS

- Prioritize storm sewers for routine maintenance on a specified frequency based on flat grades, low flow, or review of work orders. Identify areas for additional maintenance based on work orders generated by customer complaints and/or flooding.
- Utilize care in cleaning storm sewers by flushing, to properly collect waste using debris/sediment traps.
- Seal/repair joints in structures to prevent root intrusion and soil wash-out.
- Minimize or avoid the use of chemical root/vegetation killers, and use the least toxic alternatives when necessary.

DRAINAGE CHANNELS

- All construction or maintenance activities that excavate in or discharge any dredge or fill material into a "water of the United States", which includes ditches, creeks, rivers, lakes, ponds, and wetlands, requires a Corps of Engineers 404 permit and a MDNR 401 water quality certification. Examples of construction or repair activities requiring a permit include: sewer creek crossings, outfall structures, stream bank stabilization, and all channel modifications. See Appendix 5-F1 for a summary of permit requirements.
- Consider downstream conditions prior to spot channel stabilization efforts to avoid simply moving problems downstream. Revegetate stabilized areas with native plants whenever possible, and as soon as possible.
- MSD's Division of Environmental Compliance will inspect all open drainage channels under its Illicit Discharge Detection Program, and will notify MSD's Operations Department, St. Louis County, the municipality or MoDOT, as applicable, regarding maintenance needs concerning damaged structures or blockages requiring removal.

MUNICIPAL DETENTION BASINS

- Existing control structures undergoing renovation are modified to the maximum extent practicable to meet new construction criteria in MSD's "Rules and Regulations and Engineering Design Requirements for Sanitary Sewage and Stormwater Drainage Facilities".
- Inspect facilities to insure proper operation and maintain as needed, including: trash and debris removal, vegetation control, vector control, structural and erosion repair, and sediment removal to restore capacity.

G. NPDES Permit status:

Not applicable

H. Training:

All Street Maintenance Division employees involved in maintenance of drainage systems will be trained on the BMPs in this chapter.

Chapter 9 - Operation and Maintenance of Recycling and Composting Facilities

A. Description of Activities:

The City of Chesterfield does not own, nor operate a recycling/composting facility.

Chapter 10 - Water Quality Impact Assessment of Flood Management Projects

A. Description of Activities:

Storm water management projects in both development and re-development will be assessed for water quality impact, according to MSD's "Rules and Regulations and Engineering Design Requirements for Stormwater Drainage Facilities", which address the Storm Water Management Plan water quality requirements under MCM 5. Projects within the Monarch-Chesterfield Levee District will be based on the Chesterfield Valley Storm Water Master Plan. All flood management projects involving channel modification will also be assessed for aquatic and water quality impacts through the Corps of Engineers 404 permit and MDNR 401 water quality certification process.

B. Locations:

Existing projects located within the Plan Area include:

- Monarch Chesterfield Levee System
- Chesterfield Valley Master Storm Water System
- Storm Water retention lakes located at City Hall.
- Lake 2 located at Central Park
- Water Quality BMPs located at the CVAC

C. Responsible Parties:

MSD has general responsibility for storm water drainage facilities in the Plan Area. St. Louis County, the City of Chesterfield, and property owners have responsibility for the drainage facilities not dedicated to, and maintained by MSD. The City of Chesterfield maintains control over planning and zoning, land use regulations, and flood plain management.

D. Materials/Supplies acquisition, storage and usage:

Not applicable. For construction phase of work, land disturbance requirements will apply. See Chapter 2 and 8 for construction and maintenance.

E. Waste generation, storage, disposal, recycling:

Not applicable. See Chapter 2 and 8 for maintenance.

F. Best Management Practices (BMP):

- Implement and enforce ordinances and/or procedures requiring that water quality factors be incorporated into the design and operation of storm water/flood control structures.
- Inspect existing flood management facilities on a specified frequency to determine water quality impacts and exploit opportunities for improvement.

- Existing control structures undergoing renovation are modified to the maximum extent practicable to meet new construction criteria in MSD's "Rules and Regulations and Engineering Design Requirements for Sanitary Sewage and Stormwater Drainage Facilities".
- Design new flood management projects to prevent or minimize adverse water quality impacts, exploring alternative programs utilizing non-structural flood damage reduction and stream bank stabilization measures to the maximum extent practicable, such as flood proofing houses, and buy outs.
- Use models based on fully developed conditions, and adopt a free board above base flood elevation for development.
- Survey watersheds downstream from proposed projects to determine potential water quality impacts. Design proposed projects to minimize downstream impact.
- Use non-structural flood management practices to the maximum extent practicable, utilizing acquisition of flood-prone property where possible.
- Open storm water conveyance systems are used to the maximum extent practicable.
- Channel improvement projects are to use natural approaches rather than concrete, riprap or other "hard" techniques to the maximum extent practicable.
- Inlets and outlets from closed portions of conveyance systems are designed to minimize scour and erosion.
- Trash racks are provided at outlet structures of detention ponds and other flood control structures to capture trash and floatables.
- Employ natural solutions and use controls that preserve the hydrology of a site as a first line of flood control to the maximum extent practicable.

G. NPDES Permit status:

Not applicable

H. Training:

All Public Services Department employees responsible for the planning and design of the flood management projects identified in Section A will be trained on the BMPs in this chapter. In addition, employees performing this work will be familiar with MSD's rules and regulations and engineering design requirements for storm water drainage facilities.

Appendicies

Appendix 1-A1: Sixty One Co-Permittees, St. Louis Metropolitan Small MS4 Phase II Permit #MO-R040005

Ballwin, City of
Bellefontaine Neighbors, City of
Bel-Nor, Village of
Bel-Ridge, Village of
Berkeley, City of
Black Jack, City of
Breckenridge Hills, City of
Brentwood, City of
Bridgeton, City of
Calverton Park, Village of
Charlack, City of
Chesterfield, City of
Clarkson Valley, City of
Clayton, City of
Cool Valley, City of
Crestwood, City of
Creve Coeur, City of
Dellwood, City of
Des Peres, City of
Ellisville, City of
Fenton, City of
Ferguson, City of
Florissant, City of
Frontenac, City of
Glendale, City of
Green Park, City of
Hanley Hills, Village of
Hazelwood, City of
Jennings, City of
Kirkwood, City of
Ladue, City of
Lakeshire, City of
Manchester, City of
Marlborough, Village of
Maryland Heights, City of
Moline Acres, City of
Normandy, City of
Northwoods, City of
Norwood Court, Town of
Oakland, City of
Olivette, City of
Overland, City of
Pagedale, City of
Richmond Heights, City of
Riverview, Village of
Rock Hill, City of
St. Ann, City of
St. George, City of
St. John, City of
Shrewsbury, City of
Sunset Hills, City of
Town and Country, City of
Valley Park, City of
Vinita Park, City of
Warson Woods, City of
Webster Groves, City of
Wildwood, City of
Winchester, City of
Woodson Terrace, City of
St. Louis County
Metropolitan St. Louis Sewer District

Appendix 1-A2: Excerpts from the St. Louis Metropolitan Small MS4 Phase II Permit MO-R040005 Pertinent to Minimum Control Measure #6 (Pollution Prevention/Good Housekeeping from Municipal Operations)

Permit Section 4.2 lists the six Minimum Control Measures (MCMs) to be addressed by each co-permittee. Section 4.2.6 specifically addresses the requirements for MCM #6. In addition, portions of Section 4.1.1 as well as other permit provisions are applicable in addressing the requirements of MCM #6.

4.2.6 **Pollution Prevention/Good Housekeeping for Municipal Operations**

4.2.6.1 *Permit requirement.* The permittee shall:

4.2.6.1.1 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; and

4.2.6.1.2 Using training materials that are available from EPA, State, or other organizations, the permittee shall develop training to prevent and reduce storm water pollution from activities such as park and open space maintenance, fleet and building maintenance, new construction and land disturbance, and storm water system maintenance.

4.2.6.2 *Decision process.* The permittee shall document the permittee's decision process for the development of a pollution prevention/good housekeeping program for municipal operations. The permittee's rational statement shall address both the permittee's overall pollution prevention/good housekeeping program and the individual BMPs, measurable goals, and responsible persons for the program. The rationale statement shall include the following information, at a minimum:

4.2.6.2.1 The permittee's operation and maintenance program to prevent or reduce pollutant runoff from their municipal operations. The permittee shall specifically list the municipal operations that are impacted by this operation and maintenance program. The permittee shall also include a list of industrial facilities the permittee owns or operates that are subject to EPA's Multi-Sector General permit (MSGP) or individual NPDES permits for discharges of storm water associated with industrial activity that ultimately discharge to the permittee's MS4. The permittee shall include the permit number or a copy of the industrial application form for each facility.

4.2.6.2.2 Any government employee training program the permittee uses to prevent and reduce storm water 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 permittee shall describe how this training program will be coordinated with the outreach programs developed for the public information minimum measure and the illicit discharge minimum measure.

4.2.6.2.3 The permittee's program description shall specifically address the following areas:

4.2.6.2.3.1 Maintenance activities, maintenance schedules, and long term inspection procedures for controls to reduce floatables and other pollutants to the permittee's regulated small MS4.

4.2.6.2.3.2 Controls for reducing or eliminating the discharge of pollutants from streets, roads, highways, municipal parking lots, maintenance and storage yards, waste transfer stations, fleet or maintenance shops with outdoor storage areas, and salt/sand storage locations and snow disposal areas the permittee operates.

4.2.6.2.3.3 Procedures for the proper disposal of waste removed from the permittee's MS4 and area of jurisdiction, including dredged material, accumulated sediments, floatables, and other debris.

4.2.6.2.3.4 Procedures to ensure that new flood management projects are assessed for impacts on water quality and existing projects are assessed for incorporation of additional water quality protection devices or practices.

4.2.6.2.4 Identification of the person(s) responsible for overall management and implementation of their pollution prevention/good housekeeping program and if different, the person responsible for each of the BMPs identified for this program.

4.2.6.2.5 How the permittee will evaluate the success of this minimum measure, including how the permittee selected the measurable goals for each of the BMPs.

<u>Other Permit Sections Pertinent to MCM #6</u>

The following four sections contain pollution control requirements specifically for municipally owned facilities and were, therefore considered when drafting the O&M Program under MCM #6.

4.1.1.2 For facilities under the control of the permittee good housekeeping practices shall be maintained to keep solid waste from entry into waters of the state to the maximum extent practicable.

4.1.1.3 All fueling facilities under the control of the permittee shall adhere to applicable federal and state regulations concerning underground storage, above ground storage, and dispensers, including spill prevention, control and counter measures.

4.1.1.4 Substances regulated by federal law under the Resource Conservation and Recovery Act (RCRA) or the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) that are transported, stored, or used for maintenance, cleaning or repair by the permittee shall be managed according to the provisions of RCRA and CERCLA.

4.1.1.5 All paint, solvents, petroleum products and petroleum waste products (except fuels) under the control of the permittee shall be stored so that these materials are not exposed to storm water. Sufficient practices of spill prevention, control, and/or management shall be provided to prevent any spills of these pollutants from entering a water of the state. Any containment system used to implement this requirement shall be constructed of materials compatible with the substances contained and shall also prevent the contamination of groundwater.

Other provisions of the permit also were considered in developing the municipal O&M program. MCMs #3 (Illicit Discharge Detection and Elimination), #4 (Construction Site Storm Water Runoff Control) and #5 (Post-Construction Storm Water Management in New Development and Redevelopment) all can apply to activities conducted by the municipal co-permittee at municipally owned projects. While the permit requirements for these MCMs are primarily geared toward the municipal co-permittee exerting control over these activities by the people living and working within the municipality, logically similar controls must be applied to municipal activities of the same nature. The municipal co-permittees must ensure that there are no illicit discharges from municipal facilities, that there are runoff controls in place for municipal land disturbance projects and that storm water management provisions have been considered for new or redeveloped municipal properties.

Appendix 1-A3: Model Operation & Maintenance and Training Program Work Group

Brian K. McGownd, P.E.
Deputy Director of Public Works/Assistant City Engineer
City of Chesterfield

Rebecca Edwards
Project Manager
City of Fenton

Mike Moehlenkamp
Fleet Services Supervisor
St. Louis County Department of Highways & Traffic

Steve Nagle
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East-West Gateway Coordinating Council

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Carl Brown
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Nancy Morgan, P.E.
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Mark Koester, P.E.
Principal Engineer
Metropolitan St. Louis Sewer District

Ruth Wallace
Environmental Specialist
Missouri Department of Natural Resources
Environmental Assistance Office

James Gillam
Operations Division Manager
Metropolitan St. Louis Sewer District

Bruce Litzsinger, P.E.
Manager of Environmental Compliance
Metropolitan St. Louis Sewer District

Appendix 1- A4: Resolution Adopting O&M Program

Appendix 5-F1: Corps of Engineers 404 Permit & MDNR 401 Certification

All construction or maintenance activities that excavate in or discharge any dredge or fill material into a "water of the United States" requires a Corps of Engineers 404 permit and a MDNR 401 water quality certification. The permitting and certification process is shared between the Corps and the MDNR.

If you are considering a project that may involve placing materials in a lake, river, stream, ditch or wetland (including dry streams, ditches or wetlands) contact the Corps to find out if the project you are planning is in jurisdictional waters and is a regulated activity. The Corps has the sole authority to determine whether the activity is regulated; whether a site specific, individual 404 permit is required, or whether a Nationwide Permit (NWP) applies for projects with minor impacts. If a NWP does apply, contacting the Corps of Engineers is recommended to determine thresholds for notification under the NWP, and to obtain additional regional requirements imposed by the Corps' St. Louis Office.

The MDNR requires any project that needs a 404 Permit from the Corps (individual or NWP) to also obtain a 401 Water Quality Certification (401 Certification) from MDNR. The 401 Certification is verification by the state that the project will not violate water quality standards. The department may require actions on projects to protect water quality in the form of certification conditions. For some of the NWPs, the MDNR has published their conditions that must be met in addition to the NWP conditions.

After you contact the Corps about your project and, if applicable, submit an application, they will send you a letter authorizing your project under a particular permit. If the Corp's letter to you indicates that you must obtain an individual 401 certification, you must send an application to MDNR also. If they state that MDNR has 'conditionally certified' your activity, and have enclosed certification conditions, then nothing further is needed.

Questions about permit applicability and procedures for obtaining individual permits can be found by calling the Corps of Engineers at 314-331-8575 or 314-331-8186. Permit application forms and procedures for applying to the Corps and the MDNR can be found on the following web pages:
http://www.mvs.usace.army.mil/permits/permitap.htm.
http://www.dnr.mo.gov/wpscd/wpcp/401/wpcp-401.htm#general.

The following is a list of NWPs commonly applicable to municipal operations. For most of these NWPs, the MDNR has conditionally certified these activities. The NWPs will list numerous thresholds for applicability and notification in terms of linear feet and acreage of the project.

- NWP 3 Maintenance – repair or replacement of an existing structure, and removal of accumulated sediment or placement of riprap to protect a structure.
- NWP 7 Outfall Structures – construction of new outfall and intake structures, and removal of accumulated sediment blocking these structures.
- NWP 12 Utility Lines – construction, maintenance, and repair of utility lines (sewer, water, electric or communication), including outfalls and excavations for the utility line.
- NWP 13 Bank Stabilization – stabilization projects for erosion protection.

- NWP 14 Linear Transportation – construction or modification of linear transportation crossings, such as bridges and culverts for roads and trails.
- NWP 27 Stream and Wetland Restoration Activities – activities associated with the restoration of former waters, or the enhancement or creation of wetlands and riparian areas, or the restoration and enhancement of streams, including activities associated with flow modification, habitat and vegetation.
- NWP 31 Maintenance of Existing Flood Control Facilities – dredge or fill activities associated with maintaining existing flood control facilities such as retention/detention basins and channels.
- NWP 41 Reshaping Existing Drainage Ditches – dredge or fill activities to modify the cross-sectional configuration of drainage ditches, not modifying capacity beyond the original design.
- NWP 43 Storm Water Management – construction, maintenance, and dredging of storm water management facilities, such as ponds, detention/retention basins, outfalls, and emergency spillways.

Glossary: Definitions of Terms Used In This Document

The following definitions are specific to the St. Louis Metropolitan Small MS4 and to the (municipality).

Best Management Practice (BMP) means: Schedules of activities, prohibitions of practices, maintenance procedures and other management practices to prevent or reduce the pollution of streams within St. Louis County from urban runoff. BMPs also include treatment requirements, operating procedures and practices to control site runoff, spillage or leaks, sludge or waste disposal or drainage from raw material storage. BMPs may be structural or non-structural. *(This definition adapted from Section (1)(C)1 of Missouri Storm Water Regulation 10 CSR 20-6.200)*

Coordinating Authority means: The municipal entity, which is one of the co-permittees to a state issued Phase II storm water permit, that is recognized by the Missouri Department of Natural Resources (MDNR) as the party which will coordinate the activities of all of the co-permittees in meeting the requirements of the permit. For the St. Louis County Plan Area, the Metropolitan St. Louis Sewer District (MSD) has been identified in the permit as the coordinating authority for the 61 co-permittees. One of the coordinating authority's responsibilities is to prepare and submit an annual report to the MDNR on the status of compliance of all 61 co-permittees with the permit and approved SWMP.

Co-permittee means: An individual permittee named in a Phase II permit that is issued to multiple entities within a single urbanized area such as St. Louis County. Within the St. Louis County Plan Area, each of the 61 co-permittees, is responsible only for the permit conditions relating to the discharges for which it is the owner or operator and for carrying out the responsibilities for which it has been designated within the SWMP. The co-permittees share in the financial and administrative responsibilities under the permit and cooperate with each other and with the coordinating authority in complying with the terms of the permit and with meeting the commitments in the SWMP. The co-permittees are listed in Appendix 1-A1.

Green Procurement - the procurement of products and services that have a lesser or reduced effect on human health and the environment when compared with competing products or services that serve the same purpose.

Green Product – a product that is less harmful than the next best alternative, having characteristics such as:

- Being recyclable.
- Being biodegradable.
- Containing recycled material (post-consumer recycled content).
- Having minimal packaging and/or for which there will be take-back by the manufacturer/supplier of packaging.
- Being reusable or contain reusable parts.
- Having minimal content and use of toxic substances in production.
- Producing fewer and/or less polluting by-products during manufacture, distribution, use and/or disposal.

- Producing the minimal amount of toxic substances during use or at disposal.
- Making efficient use of resources - a product that uses energy, fuel or water more efficiently or that uses less paper, ink or other resources.
- Being durable or having a long economically useful life and/or can be economically repaired or upgraded.

Green Space - planned and preserved open land; an interconnected system of open land, determined to have cultural, ecological, developmental, agricultural, and/or recreational value.

Maximum Extent Practicable (MEP) – the technology-based discharge standard for Municipal Separate Storm Sewer Systems to reduce pollutants in storm water discharges that was established by CWA §402 (p). A discussion of MEP as it applies to regulated small MS4s is found at 40 CFR 122.34.

MCMs means: Minimum Control Measures. The six MCMs are: Public education and outreach; Public participation/involvement; Illicit discharge, detection and elimination; Construction site runoff control; Post-construction site runoff control; and Pollution prevention/good housekeeping.

Municipal Industrial Facility means: An industrial facility, as defined in the federal and state storm water regulations, which is owned or operated by a municipality. The regulations define covered industrial facilities by their Standard Industrial Classification (SIC) codes as published by the U.S. Office of Management and Budget. From this extensive list of covered SIC codes, the following operations have been identified as those most likely to be owned or operated by a municipality: Transportation Operations, Landfills, Hazardous Waste Treatment/Storage/Disposal facilities, Vehicle Maintenance or Fueling facilities, Vehicle Washing facilities, Solid Waste Transfer facilities, Wastewater Treatment facilities, Recycling facilities, Yard Waste/Composting facilities and certain types of Warehousing & Storage facilities.

Municipal Separate Storm Sewer System (MS4) means: A conveyance or system of conveyances including roads and highways with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, paved or unpaved channels or storm drains designated and utilized for routing of storm water which is contained within the municipal corporate limits or is owned and operated by the state, city, town, village, county, district, association or other public body created by or pursuant to the laws of Missouri having jurisdiction over disposal of sewage, industrial waste, storm water or other liquid wastes and is not a part or portion of a combined sewer system. *(This definition adapted from Section (1)(C)16 of Missouri Storm Water Regulation 10 CSR 20-6.200).* Each of the 61 co-permittees operates its own MS4. In addition, the term is used to refer to the entire St. Louis County Plan Area which is identified in the Phase II permit as the St. Louis Metropolitan Small MS4.

Municipal Work Group means: A group of municipal representatives organized under the provisions of Chapter 14 of the St. Louis County SWMP to develop a model Operation and Maintenance Program and a Training Program for the 61 co-permittees in order to comply with the provisions of Section 4.2.6.1.1 of the Plan Area Phase II storm water permit. The work group members are listed in Appendix 1-A3.

Municipality means: Any public entity as described in the definition of Municipal Separate Storm Sewer System. St. Louis County and the Metropolitan St. Louis Sewer District are considered "municipalities" for the purposes of the Phase II storm water permit along with the 59 cities, towns and villages who are co-permittees. The Missouri Department of Transportation (MoDOT) is also a "municipality" and operates an MS4 within the Plan Area. However, MoDOT is covered by a separate state permit and is not a co-permittee under the St. Louis Metropolitan Small MS4 permit.

NPDES means: National Pollutant Discharge Elimination System. This term was introduced in Section 402 of the federal Water Pollution Control Act of 1972 (last amended in 1987 and now known as the Clean Water Act). Section 402 provides for the issuance of NPDES permits for the discharge of pollutants to waters of the United States and specifies the conditions under which permits may be issued. The 1987 amendments established the phased permitting requirements for municipal storm water discharges. In Missouri, the Missouri Department of Natural Resources has been delegated the authority to issue NPDES permits.

Phase I means: The first phase of the federal storm water regulations. These took effect December 17, 1990. Phase I regulations provide for storm water permitting for industrial facilities, for land disturbance sites 5 acres or greater in size and for MS4s having populations greater than 100,000 (medium and large MS4s). Industrial facilities operated by municipalities, regardless of size, are included under Phase I. See definition of "Municipal Industrial Facility."

Phase II means: The second phase of the federal storm water regulations. These took effect February 7, 2000. Phase II regulations provide for storm water permitting for MS4s, in urbanized areas as defined by the Bureau of the Census, with populations below 100,000 (Small MS4s) and for land disturbance sites between 1 acre and 5 acres in size. Each of the individual municipal entities within the St. Louis County Plan Area has a population below 100,000 and is, therefore, a Small MS4 subject to Phase II requirements.

Phase II Permit means: Storm water permit # MO-R040005 with effective date of March 10, 2003, issued by the Missouri Department of Natural Resources to the 61 St. Louis County co-permittees. This permit was issued pursuant to the provisions of Missouri Storm Water Regulation 10 CSR 20-6.200.

Plan Area means: The portion of St. Louis County served by separate storm sewers and within the corporate boundaries of the Metropolitan St. Louis Sewer District. The Plan Area includes the 59 cities, towns and villages who are co-permittees as well as unincorporated St. Louis County. While there are a total of 77 municipalities in the Plan Area, 18 have populations of less than 1000 and are therefore, exempt from the Phase II permitting requirements, per Section (1)(C)22 of Missouri storm water regulation 10 CSR 20-6.200. The City of St. Louis and twelve county municipalities adjoining the City of St. Louis are served by combined sewers and are not part of the Plan Area. The Plan Area is identified in the Phase II permit as the St. Louis Metropolitan Small MS4.

Plan Area Training Committee means: The Municipal Work Group defined above.

Recycling Facility means any co-permittee-owned or operated facility which collects, for recycling, common household recyclables such as paper, plastic, glass, cardboard, etc. or which collects and processes yard wastes for use as mulch or compost.

St. Louis Municipalities Phase II Storm Water Planning Committee means: The group of 22 representatives from municipal governments, St. Louis County, MSD and various state and regional agencies which developed the Storm Water Management Plan for St. Louis County.

Separate Storm Sewer means: A pipe, conduit, conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels or storm drains) designed and intended to receive and convey storm water and which discharges to waters of the state and which is not part of a combined sewer system.

Storm Water means: rainfall runoff, snow melt runoff and surface runoff and drainage.

Storm Water Management Plan (SWMP) or Plan means: The Plan developed for the St. Louis County Plan Area by the St. Louis Municipalities Phase II Storm Water Planning Committee and approved by the Missouri Department of Natural Resources through the issuance of NPDES permit MO-R040005.

Sustainable (green) Service - A service acquired from a supplier who has a green operational policy and whose internal practices promote sustainability.

Threshold - the dollar value of contracts, above which a formal record is kept on file showing that environmental criteria were considered when requirements were defined.

Urban Runoff means: Storm water and other runoff from streets, parking lots, rooftops, residential, commercial and industrial areas and any areas that have been rendered impervious through development activities. Such runoff becomes contaminated with fertilizers, pesticides, vehicle drippings and emissions, animal wastes, street litter, yard wastes, silt, chemical spills and other urban wastes. These contaminants are carried through the separate storm sewers and discharged into area streams where they degrade the water quality, harm aquatic life and other wildlife, reduce aesthetic and recreational values and make the waters unsafe for human use.

For More Information...

- **Corps of Engineers-** 404 Permits and MDNR 401 certification.
  http://www.dnr.mo.gov/wpscd/wpcp/401/wpcp-401.htm#general
  http://www.mvs.usace.army.mil/permits/permitap.htm

- **Erosion and Sediment Control BMPs** – St. Louis County BMPs are available under the SWPPP link on the following web site:
  www.stlouisco.com/plan/land_disturbance.html.

- **General Overview** - For a general overview of storm water runoff issues, see EPA's website: http://www.epa.gov/weatherchannel/stormwater.html

- **Green Procurement** – Many resources are available from the EPA *WasteWise Helpline*: 800 EPA-WISE. Website: http://www.epa.gov/epaoswer/non-w/reduce/wstewise/wrr/buyq&a.htm

  "Database of Environmental Information for Products and Services" see EPA website:
  http://yosemite1.epa.gov/oppt/eppstand2.nsf/Pages/PickStore.html?Open

  Sample Green Procurement Policy –
  http://www.pwgsc.gc.ca/sd-env/sds2003/green-procurement-e.html

- **Low Impact Development Methods / Facility Design** - to reduce storm water runoff from impervious areas - see EPA's web site at:
  http://www.epa.gov/owowwtr1/NPS/lid/lidlit.html

- **Model Municipal Ordinances –**
  - Animal Waste - http://www.mrsc.org/Subjects/Legal/nuisances/nu-poop.aspx
  - Debris and Yard Waste Nuisance - http://www.stlmuni.org/scripts/stlmuni/ordinance/index.cfm?ViewMe=1012
  - Container size - http://www.southernshores.org/chap8.htm
  - Litter Control - http://www.northgeorgiawater.com/pdfs/modordfin-task10/tab6.pdf
  - Septic Tank Maintenance: http://www.anjec.org/html/ord-modelseptic.htm
  - Riparian Buffer - http://www.stormwatercenter.net/Model%20Ordinances/buffer_model_ordinance.htm

- **NPDES-** Permits from MDNR-
  www.dnr.mo.gov/wpscd/wpcp/permits/wpcpermits-general.htm

- **Nonpoint Source Control, EPA Grants** – Information on EPA Grants can be found at:
  www.epa.gov/owow/nps/funding.html

- **Pesticide Management** – For more information on Pesticide BMPs, see: http://muextension.missouri.edu/xplor/agguides/pests/g07520.htm

  For a summary of Missouri pesticide regulations, see: http://muextension.missouri.edu/explore/agguides/agecon/g00855.htm

  For more information on Integrated Pest Management Programs, see: http://ipm.missouri.edu/ipmresources.htm http://muextension.missouri.edu/explore/agguides/pests/ipm1004.htm http://muextension.missouri.edu/explore/agguides/pests/ipm1009.htm

- **Pet Waste** – For more information, see: http://www.marc.org/water/summer.htm

- **Spill Response and Reporting** – For EPA contacts and reporting instructions: http://www.epa.gov/superfund/programs/er/triggers/index.htm MDNR contact and reporting instructions: http://www.dnr.state.mo.us/alpd/esp/esp_eer.htm

- **Storm Drain Marking Projects** – For more information, call MSD's Division of Environmental Compliance at 314-436-8710.

- **Storm Water Best Management Practices (BMPs)** - EPA Fact Sheets on the web at: http://cfpub.epa.gov/npdes/stormwater/menuofbmps/poll.cfm.

- **Storm Water Management Practices** – Fact Sheets are available from the Storm water Manager's Resource Center at the following web site: http://www.stormwatercenter.net

- **Storm Water Permits --** Missouri Department of Natural Resources (MDNR) http://www.dnr.state.mo.us/wpscd/wpcp/permits/wpcpermits-stormwater.htm

- **Waste Disposal Guidance** – MDNR Pollution Prevention Guidance publications: http://www.dnr.state.mo.us/oac/pubs.htm#PollutionPrevention

- **Waste Reduction and Recycling Policy** – For the sample policy, see: http://www.legal.uncc.edu/policies/ps-110.html