

STORMWATER MANAGEMENT PLAN



NPDES Permit #MOR040016

(April 1, 2017 – September 30, 2021)

Prepared By:

**City of Lee's Summit
Public Works Department
220 SE Green Street
Lee's Summit, MO 64063**

February 1, 2018

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EXECUTIVE SUMMARY

The City of Lee's Summit, Missouri is located within the Lower Missouri-Crooked and South Grand watersheds in the southeast portion of the Kansas City metropolitan area. Within Lee's Summit city limits, 14 sub-watersheds have been identified, 11 of which ultimately flow northwest into the Little Blue River of the Lower Missouri-Crooked watershed. The remaining three sub-watersheds flow to the southeast into the South Grand watershed and toward Truman Lake and Lake of the Ozarks. Because Lee's Summit is, in fact, a summit, runoff from the City primarily flows out, toward adjacent communities, with very little runoff from adjacent communities flowing into city limits. Six lakes are located entirely or partially within city limits. Lee's Summit is unique in that six of the City's 14 sub-watersheds discharge into these lakes prior to leaving city boundaries. These lakes act as water quality filters for potential stormwater pollutants that could otherwise be discharged from city limits.

National Pollutant Discharge Elimination System (NPDES) Phase II permit number MOR040016 has been assigned to the City of Lee's Summit by the Missouri Department of Natural Resources (MDNR) for the City's Municipal Separate Storm Sewer System (MS4). The City has implemented many of the requirements of this NPDES permit, including development of this Stormwater Management Plan (SWMP) and associated ordinances for the control of stormwater discharge, erosion, and sediment. The City continues to refine the SWMP into full compliance with an executable strategy to improve stormwater quality while improving the management of stormwater quantity within city limits. Implementation of this SWMP also includes the use of general obligation bonds to fund improvements to stormwater infrastructure deficiencies within the City.

In accordance with current permit requirements, the City's SWMP is reviewed annually, as are the Stormwater Pollution Prevention Plans (SWPPPs) for City-owned facilities that house construction equipment, store materials outdoors, have fuel storage tanks on-site, or have stormwater outfalls or retention ponds on-site. The Lee's Summit Public Works Department is responsible for SWMP review and development; however, individual municipal departments are responsible for annual SWPPP reviews at such City-owned facilities, with guidance and assistance from the Public Works Department, as needed.

NOTE: For ease of reference, the numbers in parentheses behind the section titles of this document correspond to the section numbers in the City's NPDES permit document.

PERMITTEE GENERAL INFORMATION

Name:	City of Lee’s Summit, Missouri
Type of Entity:	Municipality
Total Area:	65.87 square miles
Mailing Address:	220 SE Green Street, Lee’s Summit, MO 64063
Primary Contact:	Dena E. Mezger, PE, Director of Public Works
Phone Number:	816-969-1800
Secondary Contact:	Kara Taylor, Environmental Specialist
Phone Number:	816-969-1800

MUNICIPAL SEPARATE STORM SEWER SYSTEM

MS4 Location:	Lee’s Summit, Missouri
Name of Organization:	City of Lee’s Summit, Missouri
County(s):	Jackson and Cass

COMPLIANCE WITH SPECIFIC FEDERAL ACTS (1.3.2)

The City’s NPDES permit states that the permit does not affect, remove, or replace any requirement of the Endangered Species Act, the National Historic Preservation Act, the Comprehensive Environmental Response Compensation and Liability Act (CERCLA), or the Resource Conservation and Recovery Act (RCRA).

Endangered Species

According to the US Fish and Wildlife Service on-line searchable database, several threatened and/or endangered species are located in Jackson and Cass Counties. The following species have the potential to be located within the city limits. The City has met eligibility criteria for protection of critical habitats.

County	Species	Status	Habitat
Cass	Mead’s Milkweed (Asclepias meadii)	Threatened	Virgin prairies
Cass & Jackson	Indiana Bat (Myotis sodalis)	Endangered	Hibernacula = Caves & mines, Maternity & foraging habitat = small stream corridors with well-developed riparian woods; upland forests
Cass & Jackson	Northern Long-Eared Bat (Myotis septentrionalis)	Threatened	Hibernates in caves and mines; swarming in surrounding wooded areas in autumn. Roosts/ forages in upland forests in spring/ summer.
Jackson	Western prairie fringed orchid (Plantantera praeclara)	Threatened	Wet prairies & sedge meadows

Historic Properties

According to the Lee’s Summit Historic Preservation Commission website, numerous properties listed on the National Register of Historic Places are located within Lee’s Summit. The City has met eligibility criteria for protection of historic properties.

National Register Landmarks

- St. Paul Episcopal Church, 416 SE Grand Ave.
- Arnold Hall, 123 SE 3rd St.
- House, Todd George, Sr., 408 SE 3rd St.
- Disciples of Christ Bldg., 401 Douglas St.

National Register Districts

- Longview Farm, SW Longview Rd.
- Bailey Family Farm
- NE Douglas Residential Historic District
- Green/1st Residential Historic District
- SE 3rd St. Residential Historic District
- 3rd/Corder Ranch House Historic District
- Bayles Addition Historic District
- SW Market St. Historic District
- Downtown Historic District
- Howard Neighborhood Historic District
- Forest/Green Residential Historic District
- Green St. Historic Cottage District
- Grand/5th Residential Historic District
- Morningside Acres Ranch House District
- 3rd/Madison Historic District

Lee’s Summit Local Register Historic Landmarks

- Lee’s Summit Train Depot Building
- Todd George House
- Howard Cemetery

RCRA Facilities

No designated RCRA facilities are located within Lee’s Summit city limits, according to the EPA’s EnviroFacts on-line search engine.

CERCLA/Superfund Facilities

One designated CERCLA facility, also known as a Superfund facility, is located within Lee’s Summit city limits, according to the MDNR E-START on-line search engine.

Name of Facility	Address	Status
AT&T (aka: Lucent Technologies, Kansas City Works, MidWest Microelectronics)	777 N. Blue Parkway	Completed Consent Agreement

ADJACENT WATERWAYS

Permittee is within 100 feet of classified streams (C & P):

Numerous streams (Little Blue River, May Brook, Mouse Creek, Cedar Creek, Big Creek, etc.), unnamed tributaries

Permittee is within 100 feet of classified major reservoirs (L2):

Longview Lake (owned by the U.S. Army Corps of Engineers (USACE))

Permittee is within 100 feet of classified lakes (L3):

Blue Springs Lake, Lake Jacomo, Lakewood Lakes, Prairie Lee Lake, Raintree Lake

NOTE: Various wetlands are located within city limits and several Clean Water Action (CWA) Section 404 permits from the USACE have been issued for specific projects with jurisdictional wetland impacts. Stormwater from the City of Lee’s Summit does not discharge to sinkholes.

IMPAIRED WATERS (3.0)

As required by the CWA, the Environmental Protection Agency (EPA) and the MDNR have completed an evaluation of Classified Waters within city limits (also known as Waters of the State). The following Classified Waters within Lee’s Summit city limits have been included on the MDNR Impaired Waters 303(d) list. However, to date, a Total Maximum Daily Load (TMDL) has not been established for these impaired waters.

Waterbody	WBID	Pollutant	Source	Impact Miles/Acres	303(d) Listed
Longview Lake	7097	Mercury/Fish Tissue (T)	Atmospheric deposition	953 acres	2002
Little Blue River	422	Escherichia coli (W)	Urban runoff/ Storm sewers	35.1 miles	2012
Knox Village Lake	7657	Mercury/Fish Tissue (T)	Atmospheric deposition	3 acres	2016

The following Classified Water has been removed (delisted) from the MDNR Impaired Waters 303(d) list as a TMDL has been established to address water quality standard exceedances.

Waterbody	WBID	Pollutant	Source	Impact Miles/Acres	TMDL Listed
Big Creek	1250	Sediment	Agricultural non-point sources	49 acres	2006

The City’s NPDES permit requires the City to develop a TMDL Assumptions and Requirement Attainment Plan (ARAP) for this waterbody, which is to be incorporated into the City’s SWMP. However, in accordance with Section 3.1.5 of said permit, the City has the ability to demonstrate that no additional controls are needed beyond the successful implementation of the six Minimum Control Measures (MCMs) identified in this SWMP. The City’s MDNR-approved TMDL ‘No Additional Controls Demonstration’ for Big Creek is included in Appendix A of this SWMP, along with the MDNR approval letter dated September 19, 2017.

SWMP & MCM RESPONSIBILITY (4.1.1.3)

The Director of Public Works is the person primarily responsible for the City's SWMP, including each MCM and measurable goal. The Public Works Department currently has an Environmental Specialist assigned to the development and implementation of the SWMP, including each of the MCMs and measurable goals. The Director may assign other staff to assist with implementation of Best Management Practices (BMPs) as resources and availability allows.

MINIMUM CONTROL MEASURES (4.2)

The City's NPDES permit requires the following six (6) MCMs to be included in the SWMP:

- Public Education and Outreach
- Public Involvement and Participation
- Illicit Discharge Detection and Elimination
- Construction Site Stormwater Runoff Control
- Post-Construction Stormwater Management in New Development and Redevelopment
- Pollution Prevention/Good Housekeeping for Municipal Operations

For each MCM, the NPDES permit requires the SWMP to document BMPs for reducing stormwater pollution, measurable goals for the BMPs, and an iterative BMP evaluation process. The BMP descriptions are required to include the purpose and expected results.

MCM 1: Public Education and Outreach of Stormwater Impacts (4.2.1)

This MCM requires the City of Lee's Summit to implement a public education program to distribute educational materials to the community or conduct equivalent outreach activities about the impact of stormwater discharges on water bodies and steps the public can take to reduce pollutants in stormwater runoff. The NPDES permit requires the following information to be included in the SWMP:

- 4.2.1.1.1 A plan on how target audiences are identified for the public education program who are likely to have significant stormwater impacts (including commercial and industrial entities).
- 4.2.1.1.2 A plan to inform individuals and households about steps they can take to reduce stormwater pollution.
- 4.2.1.1.3 A plan to inform individuals and groups on how to become involved in the SWMP, with activities such as local stream and lake restoration.
- 4.2.1.1.4 The outreach strategy, including the mechanisms (e.g., printed brochures, newspapers, media, workshops, etc.) to reach target audiences.
- 4.2.1.1.5 The pollutant(s) sources that the City's education program is designed to address.

Target Audiences and Pollutants/Sources of Concern (4.2.1.1.1 and 4.2.1.1.5)

The City’s plan to identify target audiences is based on the City’s pollutants of concern and an understanding that all persons within the community have a responsibility for maintaining stormwater quality. Therefore, all Lee’s Summit residents are included in this program as a target audience. Additionally, the City’s youth is identified as a target audience because they are eager to learn, contribute, and earn credit for volunteer hours. Depending on the educational message intended to be delivered for a specific pollutant of concern, the City has identified other target audiences, as follows:

Target Audience	Pollutants of Concern
Residents, Youth, Elected Officials	General awareness of stormwater quality (incl. illicit discharges & erosion/sediment control) Litter/Illegal dumping/Hazardous waste Fertilizers/Pesticides Bacteria from pet waste
City Employees	Illicit Discharges, Erosion/Sediment Control Pollution Prevention/Good Housekeeping Litter/Illegal dumping
Developers, Builders, Contractors	Sediment/Suspended solids Construction debris, Concrete wash out Litter/Illegal dumping/Illicit discharges
Lawn/Landscape Companies	Fertilizer/Pesticides Salt/Sand for snow/Ice removal
Trash/Recycling Disposal Companies	Litter
Gas Stations, Service Stations	Hydrocarbons
Restaurants	Oil and grease
Car Washes, Carpet Cleaning Companies	Detergents from wash water disposal

Resident concerns and City staff field inspections further identify specific target audiences that are suspected of potentially impacting stormwater quality. In such cases, the City investigates to determine the proper course of regulatory and/or remedial action necessary and the City takes the opportunity to educate those involved.

Four Classified Waters within Lee’s Summit city limits have been included on the MDNR Impaired Waters 303(d) list and/or the TMDL list, as previously indicated. While the City is not the direct contributor of the sources of pollution for these bodies of water, the City will continue to make efforts to address the specific pollutants identified for these bodies of water.

Plan to Inform/Educate (4.2.1.1.2 and 4.2.1.1.3)

The City’s plan to inform and educate target audiences about steps they can take to reduce stormwater pollution and become involved in the City’s SWMP is a multi-phased approach.

Phase I involves maintaining a library of local stormwater educational materials and resources in City Hall and on the City's website, with dedicated stormwater educational webpages.

Phase II involves incorporating educational information when responding via email, phone, and/or in person to questions and concerns from target audiences regarding stormwater issues.

Phase III involves providing information to target audiences on how they can become involved in the City's SWMP outreach opportunities to the community. Events such as Stream Team, Adopt-A-Street, Adopt-A-Stream, and Storm Drain Stenciling offer residents and businesses the opportunity to get involved in the community and learn first-hand the importance of reducing stormwater pollution. Facility tours, presentations, and interactive discussions also offer an opportunity for City staff to provide education on stormwater quality issues in the community.

Outreach Strategy (4.2.1.1.4)

The City utilizes partnerships, educational materials, and activities as outreach strategies for this MCM.

Partnerships: The Mid-America Regional Council (MARC) is the non-profit planning organization that serves multiple jurisdictions within the Greater Kansas City metropolitan area. The City actively partners with MARC and participates in the regional stormwater initiatives and educational opportunities provided by and through MARC, including distribution of MARC-prepared stormwater educational materials. The City also partners with the Girl Scouts of America, local Boy Scout and Girl Scout troops, and the Lee's Summit R-7 (LSR7) School District to provide outreach opportunities to the youth in the community.

Educational Materials: The City not only maintains a library of stormwater educational materials in City Hall but also uses various electronic mechanisms to reach target audiences, such as the City's government channel (known as LSTV), the City's website (www.cityofls.net/environment), which has dedicated stormwater educational webpages, and Facebook (<https://www.facebook.com/LSEnvironment>). City staff creates educational stormwater videos and print materials (fact sheets, brochures, activity books, etc.) for target audiences, all of which are available on the City's website. The City's printable educational stormwater materials are available at <http://cityofls.net/Environment/Submenu/Publications-and-Reports> while the City's educational stormwater videos are available at http://lsmo.granicus.com/ViewPublisher.php?view_id=34 under the "Stormwater" heading. The MARC-prepared educational materials that the City utilizes include metal markers for use on storm drains in the downtown district and pamphlets used for the City's Storm Drain Stenciling program that explains impacts on stormwater from every day activities.

In addition, the City has made a concerted effort to reduce public confusion between the sanitary sewer and the storm drainage system. Therefore, the City avoids using the word 'sewer' in educational materials as it relates to the City's storm drainage system.

Outreach Activities: The City offers several outreach opportunities to the community including Stream Team, Adopt-A-Street, Adopt-A-Stream, and Storm Drain Stenciling. The City also offers facility tours, educational presentations, and interactive discussions with residents, businesses, Scouts, and civic groups, as requested.

If investigation of a resident concern or City staff field inspection results in no impact to stormwater quality, the City may provide educational materials, as deemed appropriate, to help ensure no future impact occurs. If a minor issue is identified, the City typically contacts the resident(s) or businesses and provides education to help avoid future impacts. The City may also send a letter to the entity as supporting documentation. If a significant issue is identified, the City contacts the entity, takes appropriate emergency action, as necessary, and sends any appropriate enforcement letters. The City also provides educational materials to the entity regarding mitigation and ways to avoid such issues in the future.

BMPs

The following BMPs have been developed to coincide with the Outreach Strategy for this MCM:

BMP 1-1: Partnerships: Work with at least one regional or local partner per year to provide stormwater educational opportunities and/or materials to residents. The purpose of this BMP is to utilize partnerships to increase efforts in the community for stormwater quality education. The expected result is to maintain existing, or develop new, partnerships for stormwater quality outreach efforts throughout the City.

Measurable Goal: In combination with BMP 1-3, success of BMP 1-1 can be measured by tracking the number of participants in the outreach activities completed with the City's regional and local partners on an annual basis. If the number of participants drop to an unsatisfactory level for a particular event, then the City will re-evaluate the program to determine if advertising/outreach needs to be increased/improved or if the program needs to be replaced with a more suitable program.

From a regional perspective, success can be measured by gauging citizen knowledge and behaviors concerning waste minimization and environmental restoration. MARC periodically prepares a Water Quality Survey of the Kansas City region to gauge the impact that water quality education efforts are having on the overall awareness and behavior in the Kansas City region. The MARC survey can be found at the following website: <http://www.marc.org/Environment/Water-Resources/Reports-and-Publications/Reports>

BMP 1-2: Educational Materials: At the beginning of a calendar year, select a pollutant and/or pollutant source and develop/provide relevant educational stormwater materials to the appropriate target audience, as identified above. The purpose of this BMP is to focus educational materials on a specific pollutant and/or pollutant source for an entire year.
NOTE: Although it is possible to lay out a 5-year schedule for specific pollutants and/or

pollutant sources, the City prefers to select a relevant pollutant and/or pollutant source at the beginning of each calendar year, taking into account any recent, large-scale stormwater issues that may have occurred in the previous year.

At least once a year, educational pieces focusing on the determined pollutant and/or pollutant source will be added to the City's physical and electronic library and/or distributed to the target audience. The educational pieces can include internally-prepared videos or printed materials generated internally or provided by MARC. Each year, the selected pollutant/pollutant source will be different than that of the previous year and can coincide with MARC's regional efforts. The expected result is dedicated production and/or distribution of education materials related to pollutant and/or pollutant sources.

Measurable Goal: Success of BMP 1-2 can be measured by tracking the educational materials prepared or distributed to the target audience. To ensure accuracy, any internally-created documents or videos will be generated using source materials from MARC, the EPA, and/or the MDNR, and other reliable sources, as such materials are available. If such materials are not available, the City will re-evaluate the education options available for the selected pollutant and/or the target audience.

BMP 1-3: Outreach Activities: Organize at least one City-wide outreach activity per year. The City's Adopt-A-Street and Adopt-A-Stream programs allow patrons to schedule cleanup activities at their leisure; however, organizing a large event, such as Stream Team or Storm Drain Stenciling, allows City staff to interact directly with participants. The purpose of this BMP is to educate participants on their impact and contribution to water quality in the community. The expected result is to actively engage residents, particularly youth, in the City's stormwater quality efforts.

Measurable Goal: In combination with BMP 1-1, success of BMP 1-3 can be measured by tracking the number of participants in the outreach activities completed on an annual basis. If the number of participants drop to an unsatisfactory level for a particular event, then the City will re-evaluate the program to determine if advertising/outreach needs to be increased/improved or if the program needs to be replaced with a more suitable program.

MCM 2: Public Involvement and Participation (4.2.2)

This MCM requires the City of Lee's Summit to implement a public involvement/participation program that provides opportunities for public involvement in the development and oversight of the City's SWMP and public involvement of the City's renewal application. The NPDES permit requires the following information to be included in the SWMP:

- 4.2.2.1.1 A public notice period to allow the public to review the SWMP and renewal application prior to the submission of the SWMP and renewal application to the MDNR, at a recommended public review period of at least ten (10) business days.
- 4.2.2.1.2 A notice of public meeting, if needed, regarding the SWMP and renewal application at a recommended time frame of at least 72 hours prior to the meeting.
- 4.2.2.1.3 A plan to target all potentially affected stakeholder groups, including but not limited to, commercial and industrial businesses, trade associations, environmental groups, HOAs, and education organizations.
- 4.2.2.1.4 If the City utilizes a stormwater management panel/committee, then the City will provide opportunities for citizen representatives on the panel/committee.
- 4.2.2.1.5 If appropriate, volunteer monitoring or stream/lake clean-up activities.
- 4.2.2.1.6 Provide opportunities and work with citizen volunteers willing to educate others about the City's SWMP.

Public Notice Period and Notice of Public Meeting (4.2.2.1.1 and 4.2.2.1.2)

The City's public notice period for document review is project specific and may vary from project to project. Therefore, the public notice period for the City's SWMP and renewal application is 10 business days prior to submission to the MDNR, in accordance with the MDNR recommendations for this SWMP. This schedule will be effective with the renewal of the current NPDES permit, which expires on September 30, 2021.

All City public meeting notifications are currently posted on the City's website, on public bulletin boards in City Hall, and in press releases to local media. The City's notice of public meeting is typically 24 hours for City Council meetings but increases to 72 hours for TIF and tax abatement issues. Likewise, the notice of public meeting for the SWMP and renewal application is 72 hours, in accordance with the MDNR recommendations for this SWMP. This schedule will be effective with the renewal of the current NPDES permit, which expires on September 30, 2021.

Plan to Target Stakeholder Groups (4.2.2.1.3)

The City's plan to identify target stakeholder groups is based on the understanding that everyone within the community has a responsibility for maintaining stormwater quality. Therefore, all residents and businesses within the City are included in this program as target stakeholders along with the City Council as they are the body responsible for decisions and guidance for the City.

However, most stormwater issues (i.e., localized flooding, illicit discharges, etc.) typically do not affect the entire community at the same time. Therefore, on an as needed basis, City staff contacts individual stakeholders, homeowners associations, the development community (including builders and contractors), etc. in an impacted area to inform and educate them of the stormwater issues at hand and to receive input for solutions. If stormwater issues are large and impact the entire community (i.e., bond issues, development of a stormwater utility, etc.), City staff discusses the issues with the City Council and develops digital and hard copy

communication pieces to reach residents, businesses, and other stakeholders, utilizing the Outreach Strategy identified in MCM 1.

Stormwater Management Panel/Committee (4.2.2.1.4)

To date, the City Council has not established a dedicated stormwater management panel or committee. However, the Public Works Committee of the City Council hears all manner of stormwater issues within the City and residents have the opportunity to address the Council regarding stormwater issues at Public Works Committee meetings and City Council meetings. Additionally, the City Council periodically offers district meetings to residents to informally discuss issues, such as stormwater, that are impacting their properties.

Stream/Lake Cleanup Activities (4.2.2.1.5)

The City offers several stream cleanup opportunities to the community such as Stream Team and Adopt-A-Stream and assists local, private lake communities who are interested in hosting their own lake cleanup events.

Stream Team: At least once a year, the City hosts a citywide Stream Team event. City staff organizes the event, posting public notices of the event on the website and LSTV, and inviting local high school teachers to participate with their students, who in turn offer community service hours and extra credit for participation. City staff provides gloves, bags, and bottled water for volunteers. Lunch is served after each citywide event and prizes are handed out for the most unique items collected.

The City also organizes smaller Stream Team events throughout the year with organizations such as Boy Scouts and Girl Scouts, who contact the City about completing projects or water quality-related badge work.

Adopt-A-Stream: If groups want to dedicate more time to stream cleanup efforts, the City offers an Adopt-A-Stream program where groups can adopt a designated segment of stream to cleanup twice a year. The Public Works Department picks up the bags of trash collected and provides recognition signs at each end of the adopted segment.

The City offers other water quality programs as well, including a Storm Drain Stenciling Program where volunteers paint a designated, stenciled, clean water message on local storm drains throughout the City, an Adopt-A-Street program where groups can adopt a designated segment of City street to cleanup periodically throughout the year, and a Sweep the Summit event where volunteers can collect litter in local parks, many of which include streams.

Citizen Volunteer Educators (4.2.2.1.6)

The City works with LSR7 teachers to coordinate student volunteer efforts at events such as the City's annual Stream Team and Sweep the Summit events and the City's Storm Drain Stenciling Program. Teachers use such programs and events as a means of water quality education in their classrooms while offering volunteer hours and/or extra credit incentives to encourage

participation. The City typically provides food and/or prizes at events as additional encouragement. Teachers, at their request, also work with the City to coordinate classroom participation in the City's Storm Drain Stenciling Program. When requested, City staff visits local classrooms in advance of field work to assist teachers in educating students about water quality and the purpose of the City's program. Teachers typically then engage their students with assignments about water quality and organize students into groups to complete stenciling of nearby storm drains, with City staff guidance. As part of such assignments, students typically create informational water quality brochures to distribute to residents while completing their storm drain stenciling activities.

In addition, City staff works with local Boy Scout and Girl Scout troops for badge activities and projects that involve water quality activities. When requested, City staff meets with Girl Scouts for completion of various badges, particularly for the Wonders of Water Journey project, which requires the girls to learn about water and water quality and then share what they have learned via a final project. City staff also works with Boy Scouts, when requested, who are completing Eagle Scout projects. Typically, Boy Scouts approach City staff with questions about possible projects and staff provides opportunities for projects such as rain garden installations or Storm Drain Stenciling. The scouts are required, as part of their Eagle Scout projects, to gather volunteers and educate them on the purpose of the project and the benefits to the community.

BMPs

The following BMPs have been developed to meet the requirements of this MCM:

BMP 2-1: Target Stakeholder Groups: Distribute relevant educational materials to target stakeholders, as significant needs are identified in the community. This effort can coincide with BMP 1-2 if no sizable stormwater quality issues (i.e., bond issues, development of a stormwater utility, etc.) arise in the community during the permit reporting period. The educational pieces can include internally-prepared videos or printed materials generated internally or provided by MARC. The purpose of this BMP is to provide education to target stakeholders who may be impacted by substantial stormwater quality issues. The expected result is dedicated distribution of stormwater quality educational materials to target stakeholders, if warranted by significant issues in the community.

Measurable Goal: Success of BMP 2-1 can be measured by tracking the educational materials prepared or distributed to any identified target stakeholders, if warranted by large stormwater issues. This goal can also be achieved through BMP 1-2 if no significant stormwater issues arise during the permit reporting period. Copies of the educational materials will be added to the City's physical and electronic library. To ensure accuracy, any internally-created documents or videos will be generated using source materials from MARC, the EPA, and/or the MDNR, and other reliable sources, as such materials are available. If such materials are not available, the City will re-evaluate the education options available for the selected target stakeholder.

BMP 2-2: Stream/Lake Cleanup Activities: In conjunction with BMP 1-3, organize at least one City-wide stream cleanup activity per year. The City's Adopt-A-Street and Adopt-A-Stream programs allow patrons to schedule cleanup activities at their leisure; however, organizing a large event, such as Stream Team or Storm Drain Stenciling, allows City staff to interact directly with participants. The purpose of this BMP is to educate participants on their impact and contribution to water quality in the community. The expected result is to actively engage residents, particularly youth, in the City's stormwater quality efforts.

Measurable Goal: In combination with BMP 1-1 and BMP 1-3, success of BMP 2-2 can be measured by tracking the number of participants in the outreach activities completed on an annual basis. If the number of participants drop to an unsatisfactory level for a particular event, then the City will re-evaluate the program to determine if advertising/outreach needs to be increased/improved or if the program needs to be replaced with a more suitable program.

BMP 2-3: Storm Drain Stenciling Program: In coordination with BMP 1-3, organize at least one Storm Drain Stenciling event per year, which allows City staff to interact directly with participants. The purpose of this BMP is to educate participants on their impact and contribution to water quality in the community. The expected result is to actively engage residents, particularly youth, in the City's stormwater quality efforts.

Measurable Goal: In combination with BMP 1-1 and BMP 1-3, success of BMP 2-2 can be measured by tracking the number of participants in the outreach activities completed on an annual basis. If the number of participants drop to an unsatisfactory level for a particular event, then the City will re-evaluate the program to determine if advertising/outreach needs to be increased/improved or if the program needs to be replaced with a more suitable program.

MCM 3: Illicit Discharge Detection and Elimination (4.2.4.2.3, should be 4.2.3)

This MCM requires the City of Lee's Summit to develop, implement, and enforce a program to detect and eliminate illicit discharges to the City's regulated small MS4. The NPDES permit requires the following information to be included in the SWMP:

- 4.2.3.1.1 A storm sewer map showing the location of all constructed outfalls and the names and locations of all receiving Waters of the State that receive discharges from those outfalls. The sources of information used for the map(s) will be described and how the City plans to verify the outfall locations with field surveys. If already complete, the City will describe how the map was developed and how the map is regularly updated. The City will make the map information available to the MDNR upon request.

- 4.2.3.1.2 To the extent allowable under state or local law, an effective prohibition, through ordinance or other regulatory mechanism, of non-stormwater discharges into the City's storm sewer system and implementation of appropriate enforcement procedures and actions. The mechanism (ordinance or other regulatory mechanism) for effectively prohibiting illicit discharges into the small MS4 will be identified. If the City needs to develop this mechanism, the City will describe the plan and implementation schedule. If the City's ordinance or regulatory mechanism is already developed, the City will include a copy of the relevant sections with the City's SWMP.
- 4.2.3.1.3 A plan and implementation schedule to detect and address non-stormwater discharges, including discharges from illegal dumping and spills, to the City's system.
- 4.2.3.1.4 A dry weather field screening plan for non-stormwater flows and field tests of selected chemical parameters as indicators of discharge sources. The plan will also address on-site sewage disposal systems that flow into the City's MS4.
- 4.2.3.1.5 Procedures for locating priority areas which include areas with higher likelihood of illicit connections (e.g., areas with older sanitary sewer lines) or ambient sampling to locate impacted reaches.
- 4.2.3.1.6 Procedures for tracing the source of an illicit discharge, including the specific techniques the City will use to detect the location of the source.
- 4.2.3.1.7 Procedures for eliminating the illicit discharge.
- 4.2.3.1.8 A plan to ensure through appropriate enforcement procedures, including fines, and actions that the City's illicit discharge ordinance (or other regulatory mechanism) is implemented.
- 4.2.3.1.9 A plan to inform public employees, businesses, and the general public of hazards associated with illegal discharges and improper disposal of waste. The City will describe how this plan will coordinate with all other MCMs, monitoring, and TMDL implementation (if applicable).
- 4.2.3.1.10 A plan to address non-stormwater discharges or flows (i.e., illicit discharges) the City identified as significant contributors of pollutants to the City's small MS4, including authorized non-stormwater discharges.

Storm System Map (4.2.3.1.1)

Using Geographic Information Systems (GIS), the City has developed a Watershed and Outfall Map showing the locations of watersheds and known outfalls within the City limits, in accordance with the definition of "outfall" included in the City's current NPDES permit. Using

additional electronic data from the MDNR for Classified Streams within City limits, the map also identifies the names and locations of Waters of the State that receive discharges from the City's outfalls. The City's storm drainage system is a layer in the City's GIS database that can be turned on or off, as needed, on the Watershed and Outfall Map. The City's Public Works and Information Technology departments use as-built drawings, piping schematic reviews, aerial photography, storm system maintenance records, and survey records to compile information and update the GIS system. For the purposes of permit and MDNR compliance, the City's current policy for identifying a constructed outfall is included below.

CITY OF LEE'S SUMMIT CONSTRUCTED OUTFALL IDENTIFICATION POLICY (12/17)

The City of Lee's Summit has developed the following policy for identifying a constructed stormwater outfall, as currently defined by the EPA and MDNR:

Purpose:

To provide consistent a procedure for City staff to identify and/or field verify constructed stormwater outfalls within City limits, as defined by the Environmental Protection Agency (EPA) and the Missouri Department of Natural Resources (MDNR) and in accordance with the City's National Pollutant Discharge Elimination System (NPDES) Permit MOR040016 issued by the MDNR.

Policy:

The Lee's Summit Public Works Department is only responsible for operation and maintenance of public infrastructure, such as storm pipes, inlets, culverts, channels, etc. There are many locations within city limits where the City's storm system infrastructure ends, allowing discharge to enter privately-owned channels, lakes, or streams before emptying to a Classified Stream, as defined by the MDNR. The City, in most cases, does not have easements or legal access to private property beyond the end of the public storm infrastructure.

Therefore, the City's constructed stormwater outfalls, as they pertain to the City's current NPDES permit, are identified as the end of the public storm system infrastructure (typically a storm pipe) that ultimately discharges to an MDNR Classified Stream, even though such discharge may travel through private property after leaving the public infrastructure before emptying into said Classified Stream.

The City updates the Watershed and Outfall Map at least once a year or when new data comes available from the MDNR and/or field identification. The City continues efforts to allocate staff and resources for field-verification of outfalls to ensure the map is as accurate as possible. It is the intent of the City to field-verify outfalls using electronic tablets, laptops, or other similar equipment, in at least 5% of the City on an annual basis, if and when resources can be identified. A copy of the City's Watershed and Outfall Map is included in Appendix B and an electronic .pdf version of the map titled StormWater Watershed with Outfalls 8.5x11 is

available on the City's website in the Public Works content of the City's Map Gallery, which is available at:

<http://cityofls.net/map-gallery/index.html?group=98ce512922a144cdbad6a03516df5897>.

Ordinance and Compliance Plan (4.2.3.1.2 and 4.2.3.1.8)

Chapter 34 of the Lee's Summit Code of Ordinances is the mechanism with which the City prohibits illicit discharges into the City's MS4. Compliance, including fines, is also identified in the ordinance and enforced through the City's Development Services and Public Works departments. A copy of this Ordinance is included in Appendix B.

Plan and Implementation Schedule to Detect/Address Non-Stormwater Discharges (4.2.3.1.3)

Both residents and City staff contact the Lee's Summit Public Works Department regarding potential illicit discharges within City limits, to which the incident is investigated by City staff. If an illicit discharge is identified and can be traced to a property owner, City staff will contact the property owner for mitigation. If the source of the illicit discharge cannot be determined, City staff will send notices to surrounding property owners to advise them of the incident and ask for their cooperation in keeping the storm drainage system free of illicit discharges. This procedure is normally all that is required for remedial action to occur. If an identified property owner does not mitigate voluntarily, the City has developed measures, by Ordinance, to mitigate and back charge the property owner for expenses incurred. The City continues efforts to allocate staff and resources for detecting and addressing illicit discharges.

In addition to resident concerns of illicit discharge, the Lee's Summit Public Works Department sets a goal of inspecting 10% of the City's storm drainage system on an annual basis. These visual inspections typically generate approximately five (5) work orders per day, which are completed by available staff in the Public Works Department.

Dry Weather Field Screening Plan (4.2.3.1.4)

The City has no known sewage disposal systems that flow into the City's MS4. The Public Works Department has a storm discharge system inspection program along with investigations of illicit discharges in response to citizen concerns. As indicated below in the City's 'Significant Illicit Discharge Spill/Response Procedures,' field screening is performed on significant spills of unknown materials, as necessary. The City continues efforts to identify staff and resources to fully address dry weather field screening. The City intends to perform dry-weather field screening during field-verification of outfalls, if and when resources can be identified.

Procedures for Locating Priority Areas (4.2.3.1.5)

The City's Watershed and Outfall Map is used in conjunction with the City's storm system GIS layer to identify, and potentially trace, pollutant sources. As previously indicated, the map identifies the locations of constructed outfalls, including the names and locations of Classified Streams that receive discharges from those outfalls. The City's Public Works and Information Technology departments use as-built drawings, piping schematic reviews, aerial photography, storm system maintenance records, and survey records to compile and update the GIS system.

Resident concerns and City staff field inspections further identify priority areas that are suspected or known for impacting stormwater quality, including illicit connections. In such cases, the City investigates to determine the proper course of regulatory and/or remedial action necessary and the City takes the opportunity to educate the resident(s) or businesses involved. City staff may collect ambient samples in an effort to trace pollutant sources or locate impacted reaches, if necessary; however, the City continues efforts to identify staff and resources to locate priority areas.

Procedures for Tracing & Eliminating the Source of an Illicit Discharge, including Significant Contributors of Pollutants (4.2.3.1.6, 4.2.3.1.7, and 4.2.3.1.10)

Procedures for tracing and eliminating the source of an illicit discharge are included below in the 'City of Lee's Summit Illicit Discharge/Spill Response Procedures.' The source identification and elimination procedures are the same regardless of the size of the source or spill.

CITY OF LEE'S SUMMIT ILLICIT DISCHARGE/SPILL RESPONSE PROCEDURES

The City of Lee's Summit has developed the following procedures for responding to illicit discharges or releases to the City's storm drainage system:

Purpose:

To provide consistent practices and procedures for City staff response in detecting, tracing, addressing, and eliminating illicit discharges, spills, or releases to the City's storm drainage system.

Procedures:

The Lee's Summit Public Works Department (LSPW) has a customer service phone number (816-969-1800) and a website (www.LSPW.net) for the public to report known or suspected illicit discharges. When notification of a known or suspected illicit discharge is received, the notification is to be directed to a LSPW stormwater staff member to determine the appropriate level of response.

LEVEL OF RESPONSE

*If the spill or release is known or suspected to be **hazardous** in nature or **greater than 50 gallons** in volume, contact the Lee's Summit Fire Department (LSFD). At that point, LSFD becomes the lead agency for investigation and containment until further notice. LSFD is responsible for contacting the Missouri Department of Natural Resources (MDNR) in such a case. LSPW stormwater staff will arrive on-site to document activities related to the incident and take over the investigation after LSFD has completed their response.*

If the spill or release is not known, not suspected to be hazardous in nature, or not greater than 50 gallons in volume, LSPW stormwater staff will initiate a field investigation.

INVESTIGATION

Regardless of lead agency, LSPW stormwater staff will arrive on-site to document and photograph all activities throughout the investigation; perform field screening and/or sample collection, as necessary; trace and determine the source of the spill or release, if possible; and take steps to eliminate the source.

Documentation

- Date(s)/time of incident, if known, and arrival on-site.
- How the incident was reported to the City and who reported it, if known.
- Status of site upon arrival, including weather conditions.
- Times and names of any persons related to the investigation arriving on/off site, including reporters.
- Times of significant events (water line flushing, drums arriving on-site, absorbent pads placed, berms or dams constructed, etc.).
- Photographs of the incident, particularly upon initial arrival to the site, any impacted areas, upgradient and downgradient areas, known or suspected source areas, containment or corrective action activities, and condition of the site prior to departure each day.
- Field screening parameters and results, if performed.
- Sample times, sample media, and parameters for lab analysis, if collected.
- Known or suspected source(s) and steps taken to trace, identify, and eliminate source(s).

Source Identification and Elimination

LSPW stormwater staff will investigate the source of spill or release to the extent reasonably possible. If the source can be identified and is on public property, then LSPW staff will take action to remediate the spill and eliminate the source. If the source is known or suspected to be from a private entity, LSPW staff will cautiously investigate, initially by talking with the owner(s) and neighbors in an attempt to identify the source. While other City department resources can be requested for emergencies, LSPW staff will not provide aid or resources to remediate the source on private property, including requests from property owners for involvement of other City departments. LSPW staff will only make efforts to stop the discharge of the spill or release into the City's storm drainage system. In accordance with Chapter 34 of the Lee's Summit Code of Ordinances, LSPW staff will prepare and mail Notices of Violation to the property owner(s) that identify any City code violations and the timeframe within which the City expects to receive a response from the property owner(s). The property owner(s) will be required to determine how best to remediate the situation and eliminate the illicit discharge within a designated time frame, which may include hiring a contractor or consultant. The City has an on-call environmental consulting firm to provide advice in matters of regulatory compliance

and remediation of spills and/or pollutant sources discovered. LSPW staff will contact the MDNR, if necessary.

Field Screening

If the material spilled or discharged is unknown, field screening will likely be helpful to aid in determining the substance. If a field screening meter is available at the time of the incident, determine, based on the site-specific circumstances, what parameters should be field screen for. Likely parameters include pH, dissolved oxygen, temperature, and total suspended solids. Other parameters could include conductivity, turbidity, total dissolved solids, salinity, or others depending on site characteristics and meter capabilities. If field screening is performed, document what parameters were screened, the time of screening, and the results.

Sampling

If samples need to be collected:

- *Determine what parameters the samples will be analyzed for based on conditions observed and suspected sources, if any exist.*
- *Determine the proper sample containers needed for those analyses and if any preservatives are needed (the sample containers should come from a lab with preservative provided).*
- *Obtain a sample cooler and put ice in the cooler prior to collecting samples.*
- *Obtain disposable, single use latex or nitrile gloves prior to sampling.*
- *Put clean disposable gloves on before obtaining a sample.*
- *Collect sample using proper sampling protocol for the type of sample being collected.*
- *Tighten lid on sample container.*
- *Document sample name and collection time on sample container.*
- *Place sample container in ice-chilled sample cooler.*
- *Remove disposable gloves and discard.*
- *Document sample on a lab-provided chain-of-custody, including sample name, sample time, media, analyses requested, and name of person who collected the sample.*

Repeat process for every sample required to be collected.

Transport sample cooler to lab for analysis within the required hold time.

Illicit Discharge Outreach Plan (4.2.3.1.9)

As previously mentioned, the City has made a concerted effort to reduce public confusion between the sanitary sewer and the storm discharge system. Therefore, the City avoids using the word 'sewer' in educational materials as it relates to the City's storm drainage system.

The City uses various mechanisms to educate public employees, businesses, and the general public regarding IDDE, including the City's website, Facebook page, government channel, printed fact sheets, brochures, and outreach activities. The City's website, Facebook page, and government channel provide general information for all residents and businesses regarding stormwater quality and proper disposal of Household Hazardous Waste (HHW) and signs posted at the ends of adopted streets and streams provide awareness of the Adopt-A-Street and Adopt-A-Stream programs. Additionally, the Storm Drain Stenciling Program actively provides a clean water message on the storm boxes throughout the City. Printed fact sheets and brochures specifically address focused stormwater quality issues and are distributed by City staff to the public, as needed. Printed fact sheets and brochures are also available within City Hall and in a library of publications and reports on the City's website. These publications include information on illicit discharges, erosion control, flooding, good housekeeping and other NPDES related topics.

In addition, the City has implemented a periodic government employee training program to educate field and custodial staff on BMPs for reducing and preventing stormwater pollution during daily work activities. The training not only includes procedures for IDDE, but also Good Housekeeping/Pollution Prevention efforts and erosion control for construction and post-construction.

BMPs

The following BMPs have been developed to meet the requirements of this MCM:

BMP 3-1: Watershed & Outfall Map Update: Using the City's GIS, MDNR data, and field identification, update the City's Watershed and Outfall Map on an annual basis to show all of the known outfalls. With more than 65 square miles within City limits and limited resources, it is a significant undertaking to identify all of the City's outfalls to Classified Streams, as currently defined by the EPA. However, it is the intent of the City to field-verify outfalls in at least 5% of the City on an annual basis. The purpose of this BMP is to ensure timely updating of the Watershed and Outfall Map with an expected result of an increasingly more accurate map from year to year.

Measurable Goal: Success of BMP 3-1 can be measured by tracking the percentage of the City in which outfalls have been field-verified and the frequency with which the Watershed and Outfall Map is updated to incorporate field data. If the percentage drops below 5% annually, then the City will re-evaluate the process to determine a better approach to completion.

BMP 3-2: Plan and Implementation Schedule to Detect/Address Non-Stormwater Discharges: On an annual basis, inspect 10% of the City's storm drainage system for illicit discharges. With more than 12,000 stormwater structures within City limits and limited resources, it is a significant undertaking to visually inspect all of the City's stormwater structures. Staff visual inspections typically generate approximately five (5) work orders per

day, which are completed by available staff in the Public Works Department. However, resident and staff concerns aid in identifying potential illicit discharges. The purpose of this BMP is to identify illicit discharges to the City's MS4 with an expected result of continued elimination of such discharges throughout the City.

Measurable Goal: Success of BMP 3-2 can be measured by tracking the number of stormwater infrastructure inspections and illicit discharge notifications the City receives on an annual basis. If the numbers reported of illicit discharges appear to increase from year to year, City staff will attempt to evaluate whether this is due to increased awareness as a result of education efforts or the need for increased education efforts to minimize such discharges.

BMP 3-3: Illicit Discharge Detection/Tracing/Screening/Elimination: Use the City of Lee's Summit Illicit Discharge Spill/Response Procedures to detect, trace the source of, field screen/sample (if necessary), and eliminate illicit discharges throughout the year. Not every notification from a resident or City staff member results in the discovery of an illicit discharge. However, using the procedures outlined, the purpose of this BMP is to ensure that concerns of reported discharges are consistently addressed. The expected result is to use established procedures to ultimately eliminate illicit discharges.

Measurable Goal: Success of BMP 3-3 can be measured by tracking the number of reported illicit discharges received on an annual basis and the City's response efforts. If the numbers of reported illicit discharges appear to increase from year to year, City staff will evaluate whether this is due to increased awareness as a result of education efforts or the need for increased education efforts to minimize such discharges.

BMP 3-4: Outreach Efforts: In coordination with BMP 1-1, 1-2, and 2-1, develop or provide educational materials and/or outreach activities to at least one regional or local partner per year that focuses on illicit discharges. The purpose of this BMP is to provide stormwater quality education and activities to residents with an expected result of actively engaging residents, particularly youth, in illicit discharge elimination.

Measurable Goal: In combination with BMPs 1-1, 1-2, and 2-2, success of BMP 3-4 can be measured by tracking the number of educational materials distributed and/or the number of participants in outreach activities completed with the City's regional and local partners on an annual basis. If the number of participants drop to an unsatisfactory level for a particular event, then the City will re-evaluate the program to determine if advertising/outreach needs to be increased/improved or if the program needs to be replaced with a more suitable program.

MCM 4: Construction Site Stormwater Runoff Control (4.2.4)

This MCM requires the City of Lee's Summit to develop, implement, and enforce a program to reduce pollutants in any stormwater runoff to the City's regulated MS4 from construction activities that result in land disturbance of greater than or equal to one acre. Reduction of stormwater discharges from construction activity disturbing less than one acre are included in the program if that construction activity is part of a larger plan of development or sale that would disturb one acre or more. The NPDES permit requires the following information to be included in the SWMP:

- 4.2.4.1.1 An ordinance or other regulatory mechanism to require operators to implement erosion and sediment control BMPs at construction sites; to include sanctions designed to ensure compliance, to the extent allowable under state or local law.
- 4.2.4.1.1.1 If the City needs to develop this mechanism, the City will describe the plan and schedule implementation. If the City's ordinance or regulatory mechanism is already developed, the City will include a copy of the relevant sections with the City's SWMP.
- 4.2.4.1.2 Requirements for construction site operators to control construction-site waste that may cause adverse impacts to water quality, such as discarded building materials, concrete truck washout, chemicals, litter and sanitary waste.
- 4.2.4.1.3 Procedures for the City to consider and review all pre-construction site plans for potential water quality impacts.
- 4.2.4.1.4 Procedures for the City to receive and consider information submitted by the public, including coordination with the City's public education and involvement programs.
- 4.2.4.1.5 Procedures for the City to inspect sites and enforce control measures, including prioritization of site inspection.
- 4.2.4.1.5.1 The City will inspect (or require inspection of) any structure that functions to prevent pollution of stormwater to remove pollutants from stormwater and ensure that all BMPs are implemented and effective; and a monitoring plan with implementation schedules will be referenced in the SWMP document.
- 4.2.4.1.6 A plan designed to ensure compliance with the City's erosion and sediment control regulatory mechanism, including the sanctions and enforcement mechanisms the City will use to ensure compliance and procedures for when certain sanctions will be used. Possible sanctions include non-monetary penalties (such as stop-work orders), fines, bonding requirements, and/or permit denials for non-compliance.

Ordinances and Compliance Plan (4.2.4.1.1, 4.2.4.1.1.1, and 4.2.4.1.6)

Chapters 7 and 22.5 of the Lee's Summit Code of Ordinances authorize actions to enforce compliance with sediment pollution and stormwater runoff from construction sites greater than 2,000 square feet. These ordinances require construction site operators to implement and maintain effective Erosion and Sediment Control (ESC) measures. Section 5100 of the City's Design and Construction Manual (DCM), which is adopted by ordinance, references design options available for ESC and Section 2150 outlines allowable construction methodologies for ESC. Compliance and enforcement includes non-monetary penalties such as notices of violation

and stop work orders, permit revocation with fines, and jail time as options in the most serious situations. Typically, issues are corrected before enforcement actions become necessary. Copies of these ordinances are included in Appendices C and D.

Waste Control (4.2.4.1.2)

Section 1022 of the City's DCM requires contractors and developers to properly dispose of all construction waste materials. In addition to adhering to building codes, construction requirements, and ESC, City inspectors monitor construction operators to ensure they control wastes (including discarded building materials, sediment runoff, and litter or trash) that may cause adverse impacts to water quality. A copy of Section 1022 is included in Appendix D.

Pre-construction Plan Review (4.2.4.1.3)

City staff reviews construction site plans, including ESC plans, prior to issuance of any construction or land disturbance permits. Plans are reviewed by staff in appropriate City departments, which incorporate consideration of potential water quality impacts. In addition, the City receives a copy of the site-specific SWPPP.

Information from the Public (4.2.4.1.4)

As documented in MCM 2, the public has the opportunity to provide feedback concerning water quality issues and proposed projects in public meetings or hearings (City Council, Public Works Committee, Planning Commission, Council District, etc.). The public also has the opportunity to interact with staff in person or through various media and outreach events.

Inspection Monitoring Plan and Implementation Schedule (4.2.4.1.5 and 4.2.4.1.5.1)

All projects greater than 2,000 square feet are required to have a land disturbance permit and a site-specific SWPPP on-site that is expected to be followed. The City employs inspectors to oversee capital improvement projects (CIP) and private development projects. The City's inspectors monitor projects on a regular basis for compliance with the City's ordinances. City staff performs erosion control inspections before work begins and requires developers, builders, and/or contractors to maintain site-specific ESC BMPs in accordance with the site-specific SWPPP.

BMPs

The following BMPs have been developed to meet the requirements of this MCM:

BMP 4-1: Pre-construction Plan Review: In accordance with City guidelines and procedures, perform pre-construction plan review, to include potential water quality impacts, prior to issuance of land disturbance or construction permits. The purpose of this BMP is to include stormwater quality discussions in pre-construction plan reviews with an expected result of ensuring that water quality impacts are considered and understood prior to construction.

Measurable Goal: Success of BMP 4-1 can be measured by documenting the pre-construction meetings and/or plan reviews completed for each private development

and CIP project. If, over the course of the permit reporting period, it is determined that water quality impacts have not been adequately addressed prior to and during construction, the City will re-evaluate the pre-construction review process to determine a more effective solution.

BMP 4-2: Information from the Public: Public input is received by way of phone calls, emails, service requests, public meetings, website 'Contact Us' form, etc. This input provides feedback to improve efforts for public involvement and education, as described in BMP 1-2 and 2-1. The City works with target audiences, such as developers, contractors, and builders, to provide water quality educational opportunities during construction. The purpose of this BMP is to work with the local community to learn about water quality concerns during construction and provide education to minimize impacts. The expected result is to actively engage the local community in stormwater quality awareness.

Measurable Goal: In combination with BMPs 1-2 and 2-1, success of BMP 4-2 can be measured by tracking service requests, CityView inspection reports, CIP inspection diaries, etc. The amount of public input can be used to evaluate the effectiveness of outreach efforts. If necessary, communication efforts will be adjusted.

BMP 4-3: Inspections: Inspect the City's CIP and development projects for ESC BMPs, in accordance with the City's inspection monitoring plan and implementation schedule. The purpose of this BMP is to ensure inspections for ESC BMPs are completed with an expected result of ESC BMPs that are installed, maintained, and effective.

Measurable Goal: Success of BMP 4-3 can be measured by tracking the number of stormwater BMP inspections performed within the reporting period. If the number of failed inspections increases to an unsatisfactory level, the City will re-evaluate the education efforts and pre-construction meetings discussions to emphasize the importance of correct ESC BMP installation and maintenance.

MCM 5: Post-Construction Stormwater Management in New & Re- Development (4.2.5)

This MCM requires the City of Lee's Summit to develop, implement, and enforce a program to address the quality of long-term stormwater runoff from new development and redevelopment projects that disturb equal to and greater than one acre, including projects less than one acre that are part of a larger common plan of development or sale, that discharge into the City's regulated MS4. The City's program is designed to ensure controls are in place that have been designed and implemented to prevent or minimize water quality impacts. The NPDES permit requires the following information to be included in the SWMP:

- 4.2.5.1.1 An ordinance or other regulatory mechanism to address post-construction runoff from new development and redevelopment projects to the extent allowable under state or local law. If the City needs to develop this mechanism, the City will describe

the plan and schedule implementation. If the City's ordinance or regulatory mechanism is already developed, the City will include a copy of the relevant sections with the City's SWMP.

- 4.2.5.1.2 A plan to ensure adequate long-term operation and maintenance (O&M) of selected BMPs, including, as appropriate, types of agreements between the City and other parties such as post-development landowners or regional authorities.
- 4.2.5.1.3 Strategies to minimize water quality impacts, which include a combination of structural and/or non-structural BMPs appropriate for the community, including but not limited to the assessment of site characteristics at the beginning of the construction site design phase to ensure adequate planning for stormwater program compliance. The goal of this approach is to arrive at designs that effectively remove stormwater pollution. This can be achieved by reasonably mimicking pre-construction runoff conditions on all affected new development projects, or the City may achieve this goal through a method more appropriate for the community.
- 4.2.5.1.4 An inspection plan with implementation schedules for post-construction BMPs.
- 4.2.5.1.5 The City will inspect or require inspection of post-construction stormwater BMPs to ensure that all BMPs are implemented and effective.

Ordinances (4.2.5.1.1)

Chapter 16 of the Lee's Summit Code of Ordinances requires regular maintenance of approved landscaping within and around private detention/retention ponds and permanent BMPs. Section 5600 of the DCM requires private property owners to inspect private detention/retention ponds on an annual basis and includes provisions for stream buffers along streams with a drainage area greater than 40 acres. Article 14 of the City's Unified Development Ordinance (UDO) provides the City's definition of landscaping and expectations for landscaping buffers. Copies of these ordinances are included in Appendices C and D.

Long-Term O&M (4.2.5.1.2)

Through local codes and ordinances, the City requires private owners to properly maintain private property and infrastructure (detention/retention ponds, stream buffers, vegetative cover, etc.), which includes addressing stormwater quality and management issues as they occur. The City requires a notation on the plat for long term maintenance of private BMPs.

The City takes responsibility for O&M of public infrastructure (detention/retention ponds, rain gardens, etc.) and performs street sweeping on a documented schedule. Any new public infrastructure within City limits becomes included in the City's routine O&M schedule at construction completion. The City develops Memorandums of Understanding (MOUs) with other regulatory agencies, and municipalities, as needed, to develop, construct, and maintain projects that extend beyond City limits.

Strategies to Minimize Water Quality Impacts with Structural and Non-Structural BMPs

(4.2.5.1.3) As previously documented, the City's strategy to minimize water quality impacts includes adoption of regional standards and BMPs through codes and ordinances. The goal is to effectively remove stormwater pollution by reasonably mimicking pre-construction runoff conditions.

In accordance with MDNR, the City has developed, implemented, and enforced a program to address stormwater runoff from new development and redevelopment projects that disturb greater than or equal to one acre, including projects less than one acre that are part of a larger common plan of development or sale. The City has implemented other measures, such as requiring detention and/or retention ponds and minimizing the percentage of impervious area after development. Additionally, stream buffers are required for any new development along a tributary with 40 acres or more of contributing watershed.

Inspection Plan and Implementation Schedule (4.2.5.1.4 and 4.2.5.1.5)

Section 5600 of the City's DCM requires private owners to inspect private stormwater BMPs on an annual basis. The City inspects public infrastructure (detention/retention ponds, rain gardens, etc.) within City limits and develops MOUs with other regulatory agencies, and municipalities, as needed, to inspect projects that extend beyond City limits.

BMPs

The following BMPs have been developed to meet the requirements of this MCM:

BMP 5-1: Long-term O&M Inspection Plan and Implementation Schedule: In order to achieve project closeout and acceptance, the City requires establishment of post-construction BMPs and final inspections on both capital and private development projects. Through local codes and ordinances, the City requires private owners to inspect private stormwater BMPs on an annual basis and the City takes responsibility for O&M of public infrastructure. The purpose of this BMP is to ensure that both private and public infrastructure is properly maintained. The expected result is reduced impact to water quality.

Measurable Goal: Success of BMP 5-1 can be partially measured by tracking the City's O&M for public infrastructure. While City ordinance requires annual inspection of private BMPs, the City continues efforts to identify staff and resources to track these private inspections. Until such resources can be identified, the City will continue to track private inspections on a resident-concern basis.

BMP 5-2: Strategies to Minimize Water Quality Impacts: In conjunction with BMP 4-1 and City ordinances, perform pre-application meetings, plan review, pre-construction meetings, and post-construction closeout, to include an evaluation of potential water quality impacts. The goal of this BMP is to include stormwater quality discussions in all aspects of a project

with an expected result of ensuring that water quality impacts are considered and understood prior to the start and following completion of a project.

Measurable Goal: Success of BMP 5-2 can be measured by tracking the pre-application meetings, pre-construction meetings, and/or plan reviews completed for each private development and CIP project. If, over the course of the permit reporting period, it is determined that water quality impacts have not been adequately addressed prior to and during construction, the City will re-evaluate the pre-construction review and/or post-construction closeout process to determine a more effective solution.

MCM 6: Pollution Prevention/Good Housekeeping for Municipal Operations (4.2.6)

This MCM requires the City of Lee's Summit to develop and implement an O&M program that includes a training component and has the ultimate goal of preventing or reducing pollutant runoff from municipal operations. The NPDES permit requires the following information to be included in the SWMP:

- 4.2.6.1.1 A government employee training program to prevent and reduce stormwater pollution from activities such as park and open space maintenance, fleet and building maintenance, new construction and land disturbances, and stormwater system maintenance. The training program must describe any existing available materials the City plans to use such as those available from the EPA, state, or other organizations. The training program must coordinate with all other MCMs, monitoring, or TMDL implementations, where applicable.
- 4.2.6.1.2 A list of all municipal operations that are impacted by this O&M program, including a list of industrial facilities that the City owns or operates that are subject to NPDES permits for discharges of stormwater associated with industrial activity that ultimately discharge to the City's MS4. The permit number or copy of any No Exposure Exemption Certifications (if applicable) will be included for each industrial facility.
- 4.2.6.1.3 Maintenance BMPs, maintenance schedules, and long-term inspection procedures for controls to reduce floatables and other pollutants to the City's MS4.
- 4.2.6.1.4 Controls for reducing or eliminating the discharge of pollutants from street, roads, highways, municipal parking lots, maintenance and storage yards, waste transfer station, fleet or maintenance shops with outdoor storage areas, and salt/sand storage locations and snow disposal areas the City operates.
- 4.2.6.1.5 Procedures for the proper disposal of waste removed from the City's small MS4 and areas of jurisdiction, including dredged material, accumulated sediments, floatables, and other debris.
- 4.2.6.1.6 Procedures to assess impacts of water quality for new flood management project, if applicable. Flood management projects are those projects developed or designed to reduce flooding.

- 4.2.6.2 All paints, solvents, petroleum products and petroleum waste products (except fuels) under the control of the City are to be stored so that these materials are not exposed to stormwater. Sufficient practices of spill prevention, control, and/or management are to be provided to prevent any spill of these pollutants from entering Waters of the State. Any containment system used to implement this requirement is to be constructed of materials compatible with the substances contained and will prevent the contamination of groundwater.

Government Employee Training Program (4.2.6.1.1)

The City has implemented a periodic government employee training program to educate field staff on BMPs for reducing and preventing stormwater pollution during daily work activities. The training consists of PowerPoint presentations that not only include procedures for Good Housekeeping/Pollution Prevention efforts, but also Illicit Discharge Detection and Elimination (IDDE) and erosion control for construction and post-construction. Copies of the City's training documents are included in Appendix E.

An internal City staff stormwater committee has been developed to ensure the training is appropriate for municipal activities and to ensure that appropriate field staff go through the training. In developing the training materials, City staff utilized the RainCheck program, along with fact sheets and information available from the EPA for Good Housekeeping/Pollution Prevention, Illicit Discharge Detection and Elimination, and Erosion Control.

List of Municipal Operations (4.2.6.1.2)

The following municipal operations are impacted by this program and have facility SWPPPs:

- Police/Court facility
- Animal Control facility
- Fire Stations 1, 2, 3, 5, 7
- Parks & Recreation Construction & Operations Facility
- Water Utilities Operations facility
- Maintenance Facility

The following municipal operations are impacted by this program; however, they have either Standard Operating Procedures (SOPs) or Spill Prevention Control and Countermeasures (SPCC) plans in place as opposed to SWPPPs:

- Fire Stations 4 & 6
- Community Centers (Harris Park, Legacy Park, Gamber Center, Summit Waves)
- Historic Cemetery
- All individual City parks
- All Water Utility operation structures (water towers, pump stations, etc.)
- Municipal parking lots throughout the City

- *Municipal Airport – has a General State Operating Permit (MOR80F018)
- *Resource Recovery Park – has an individual State Operating Permit (MO0110876)

Maintenance BMPs, Schedules, and Long Term Inspection Procedures (4.2.6.1.3)

City-owned facilities have a SWPPP, SPCC plan, or set of SOPs that outlines maintenance BMPs, schedules, and long term inspection procedures. Each SWPPP is required to be reviewed annually. Any spills, discharges, or other environmentally impactful incidents are required to be documented in each facility’s SWPPP or SPCC plan, along with the corrective measures taken to address the incident. Individual departments are responsible for annual reviews of SWPPPs, SPCC plans, and SOPs, along with documentation for each.

Controls for Reducing Municipal Pollutant Discharges (4.2.6.1.4)

The City uses the following controls for reducing municipal pollutant discharges, all of which are documented in facility SWPPPs, as appropriate:

Control	Description
Street Sweeping	All city streets are scheduled to be swept twice a year with specific streets scheduled for weekly sweeping.
Catch Basin Cleaning	As needed, to reduce flooding and illicit discharges
Downtown Parking Garage	Provided for City Hall staff and downtown patrons, which reduces oil and grease runoff.
Proper Material Storage	All materials are stored indoors or under acceptable cover using secondary containment. Road salt is stored within two covered domes.
Fleet Maintenance	Performed, as needed, indoors with appropriate spill containment.
Employee Training	City field and facility staff is trained, on a schedule, in proper Pollution Prevention/Good Housekeeping BMPs.
Pesticide Usage	As needed, according to instructions on containers to minimize adverse impacts

Procedures for Proper Waste Disposal (4.2.6.1.5)

In accordance with Section 25-118 of the Lee’s Summit Code of Ordinances, all waste generated from municipal operations is properly disposed of using a contracted waste disposal company who collects trash and recyclables at least weekly from all municipal facilities. Any additional waste generated as a result of field projects or emergency responses, including dredged soil, accumulated sediments, floatables and other debris from the storm drainage system is collected by City staff and transported to the City’s landfill for proper disposal. A copy of Section 25-118 is included in Appendix C.

Procedures for Water Quality Assessment for New Flood Management Projects (4.2.6.1.6)
Section 5600 of the DCM includes water quality requirements on all projects and practices, including new flood management projects.

Procedures for Proper Materials Storage (4.2.6.2)

Procedures for proper materials storage (including all paints, solvents, petroleum products, and petroleum waste products, except fuels), are included below in the City's 'Good Housekeeping Guidelines for Material Storage and Spill Prevention' for municipal facilities.

GOOD HOUSEKEEPING GUIDELINES FOR MATERIAL STORAGE AND SPILL PREVENTION

The City of Lee's Summit has developed the following guidelines for proper material storage and spill prevention within municipal facilities:

Purpose:

To provide consistent, good housekeeping material storage practices throughout all divisions, departments, and facilities within City of Lee's Summit government responsibility.

Definitions:

Materials shall be defined as any chemicals, solvents, paints, fluids, hazardous and/or flammable substances, etc. in solid, liquid, or gas phase that are used in the routine maintenance, operation, or completion of required work in the field or within a facility.

Sealable Container shall be defined as an object that adequately stores a material without spillage; can include buckets, drums, bags, or other similar suitable object.

Bulk material shall be defined as:

- *Liquids in volumes of 55-gallons or more*
- *Solids in quantity or volume of 1 cubic yard or more*
- *1 or more cases of a common material*

GENERAL MATERIAL STORAGE

- *No materials shall be stored outside.**
- *All materials shall be stored in original, properly labeled containers to the extent possible. If not possible, all materials shall be stored in properly labeled, sealable containers that fully hold the material.*
- *Any containers that are leaking shall be replaced immediately with properly labeled, non-leaking containers.*
- *All containers shall be kept closed when not in use.*
- *No materials shall be stored directly on the floor or ground surface; pallets or other such devices shall be used to keep materials off the floor.*
- *No materials shall be stored in areas where equipment impact could cause a spill or leak.*

** If material cannot be stored indoors, prior Supervisor approval must be obtained and the material must be stored under cover/shelter on appropriately-sized secondary containment pallets, at least 50 feet from storm drains, grates, or inlets.*

Flammable Cabinet Storage REQUIRED for:

- *All fuel containers, empty or full.*
- *All explosive materials, such as flares (stored in a separate cabinet from other flammable/explosive materials).*
- *All opened, partially full, hazardous liquid containers (at the end of use or work shift).*
NOTE: Pesticides shall NOT be stored adjacent to or within the same cabinet(s) as fuels.

Pallet Storage REQUIRED for:

- *All dry materials (pesticides, fertilizer, ice melt, etc.).*
- *Any materials not stored on shelves or in cabinets.*
NOTE: Pesticides shall NOT be stored adjacent to or within the same cabinet(s) as fuels.

Shelf Storage REQUIRED for:

- *All unopened liquid and aerosol containers.*
- *All opened, partially full, non-hazardous liquid and aerosol containers (at the end of use or work shift).*

Secondary Containment Storage REQUIRED for Bulk Materials, as follows:

- *All 55-gallon drums, opened or unopened, shall be stored on appropriately-sized secondary containment pallets.*
- *If the total volume of a material meets or exceeds 55-gallons (ex., 11 or more 5-gallon buckets of the same material), all such buckets shall be stored on appropriately-sized secondary containment pallets.*
- *If the total volume of a material meets or exceeds a case, all such materials shall be stored on appropriately-sized secondary containment pallets or shelving having secondary containment capabilities.*

SPILL PREVENTION

- *Keep work areas neat and orderly.*
- *Drip pans and/or secondary containment shall be used to catch leaks or drips.*
- *Ensure all minor spills are cleaned up immediately in a proper manner:*
 - *Use dry cleaning methods (washing away material spills with water is NOT an acceptable method).*
 - *Use rags and/or absorbent material (other than kitty litter) to contain and stop the spread of spills.*
 - *Properly dispose of all used rags and absorbent material in designated trash receptacles, once spills have been contained and fully cleaned up.*
- *Significant spills shall be reported immediately to the Lee's Summit Fire Department.*

BMPs

The following BMPs have been developed to meet the requirements of this MCM:

BMP 6-1: Government Employee Training Program: Using custom training materials, train field staff on BMPs for reducing and preventing stormwater pollution during daily work activities. The training will not only include procedures for Good Housekeeping/Pollution Prevention efforts, but also IDDE and erosion control for construction and post-construction. The purpose of this BMP is to provide training to field staff every 3 years with efforts to provide training to new field staff within their first year of employment. The expected result is educating field staff on the measures required by the City's NPDES permit followed by staff compliance.

Measurable Goal: Success of BMP 6-1 can be measured by tracking the number of staff that has been trained. If staff compliance is not observed after training and continuing education, the City will re-evaluate the training materials, methods, and frequency of training.

BMP 6-2: Controls/Procedures for Reduce & Eliminating Floatable/Pollutant Discharges and Properly Storing Materials: Develop and/or implement SWPPPs for the municipal operations identified in Section 4.2.6.1.2 of this document, with SWPPP review completed on an annual basis. The City's Good Housekeeping Guidelines for Material Storage and Spill Prevention are included as an Appendix in each identified facility's SWPPP. The purpose of this BMP is to establish a working stormwater quality document for each designated City facility. The expected result is utilization of and reference to the SWPPP as a part of facility operations, with processes or procedures reviewed and improved, as needed.

Measurable Goal: Success of BMP 6-2 can be measured by documenting annual SWPPP reviews. The City will re-evaluate procedures if one of the following conditions occurs:
A) SWPPP documentation has not been properly maintained for a facility, or
B) Significant stormwater impacts have occurred at a facility, regardless of proper documentation.

ANNUAL REVIEW (4.4.1 and 5.3.2)

As required by the City's NPDES permit, the City's SWMP is reviewed annually in conjunction with preparation of the annual MS4 SWMP Report. Because the City of Lee's Summit has a TMDL Special Condition for Big Creek, the City is required to submit SWMP reports on an annual basis that contain all required permit information from January 1st to December 31st each year. Annual reports are due to the MDNR by February 28th following the required permit reporting period.

RECORD KEEPING (5.2)

In accordance with the City's NPDES permit, the City retains copies of all activities requiring recordkeeping by this SWMP for a period of at least three (3) years from the date of the report or application. Both paper and electronic copies of the City's current NPDES permit are on file in the Public Works Department. The City's ordinances pertaining to the NPDES permit and this SWMP, specifically ordinances for erosion control and IDDE, are available electronically on the City's website at www.cityofLS.net. All policies and procedures not specifically included in this SWMP are maintained, either electronically or in paper format, in the Public Works Department, as are any field screening results or stormwater monitoring documents.

APPENDIX A – TMDL ‘NO ADDITIONAL CONTROLS’ DEMONSTRATION

- MDNR approval letter, September 19, 2017
- Lee’s Summit TMDL ‘No Additional Controls’ Demonstration, August 7, 2017



Missouri Department of dnr.mo.gov

NATURAL RESOURCES

Eric R. Greitens, Governor

Carol S. Comer, Director

SEP 19 2017

COPY

Ms. Kara Taylor
City of Lee's Summit
220 SE Green Street
Lee's Summit, MO 64063

RE: City of Lee's Summit No Additional Controls Demonstration for Total Maximum Daily Load Attainment

Big Creek

Dear Ms. Taylor:

This letter is to inform you the Missouri Department of Natural Resources' Water Protection Program received the city of Lee's Summit Total Maximum Daily Load (TMDL) – No Additional Controls Demonstration on August 14, 2017, in accordance with the permittee's Phase II Municipal Separate Storm Sewer System Permit MOR040016. A review of the TMDL Demonstration has been conducted and has been determined appropriate. Therefore, the permittee's TMDL Demonstration is approved.

If you have any questions regarding this correspondence or if additional time is needed for your response, please feel free to contact me by email at michael.abbott@dnr.mo.gov, by phone at 573-526-1139, or by mail at the Department of Natural Resources, Water Protection Program, P.O. Box 176, Jefferson City, MO 65102-0176.

Sincerely,

WATER PROTECTION PROGRAM

Michael Abbott, MS4 Program Coordinator
Operating Permits Section

MA/pc

RECEIVED

SEP 25 2017

CITY OF LEE'S SUMMIT
ENGINEERING DEPT.



**TOTAL MAXIMUM DAILY LOAD
'NO ADDITIONAL CONTROLS' DEMONSTRATION**



NPDES Permit #MOR040016

Prepared By:

**City of Lee's Summit
Public Works Department
220 SE Green Street
Lee's Summit, MO 64063**

August 7, 2017

BACKGROUND

National Pollutant Discharge Elimination System (NPDES) Phase II permit number MOR040016 has been assigned to the City of Lee's Summit by the Missouri Department of Natural Resources (MDNR) for the City's Municipal Separate Storm Sewer System (MS4).

As required by the Clean Water Act (CWA), the United States Environmental Protection Agency (EPA) and the MDNR have completed an evaluation of Classified Waters within city limits (also known as Waters of the State). The following bodies of water within Lee's Summit city limits have been included on the MDNR Impaired Waters 303(d) list. However, to date, a Total Maximum Daily Load (TMDL) has not been assigned to these water bodies.

Waterbody	WBID	Pollutant	Source	Impact Miles/Acres	303(d) Listed
Longview Lake	7097	Mercury/Fish Tissue (T)	Atmospheric deposition	953 acres	2002
Little Blue River	422	Escherichia coli (W)	Urban runoff/ Storm sewers	35.1 miles	2012
Knox Village Lake	7657	Mercury/Fish Tissue (T)	Atmospheric deposition	3 acres	2016

The following water body has been removed (delisted) from the MDNR Impaired Waters 303(d) list as it has been assigned a TMDL.

Waterbody	WBID	Pollutant	Source	Impact Miles/Acres	TMDL Listed
Big Creek	1250	Sediment	Agricultural non-point sources	49 acres	2006

'NO ADDITIONAL CONTROLS' DEMONSTRATION

The City's NPDES permit requires the City to develop a TMDL Assumptions and Requirement Attainment Plan (ARAP) for any Waters of the State that have a TMDL designation and to incorporate the TMDL ARAP into the City's Stormwater Management Program (SWMP). However, in accordance with Section 3.1.5 of said permit, the City has the ability to demonstrate that no additional controls are needed beyond the successful implementation of the six Minimum Control Measures (MCMs) identified in the City's SWMP. A letter from the MDNR dated April 26, 2017, approved the City's request to provide a 'No Additional Controls Demonstration' for the above-referenced TMDL. A copy of the MDNR letter is attached. The MDNR letter posed five questions, asking the City to demonstrate that no action is needed beyond the successful implementation of the Minimum Control Measures (MCMs) included in the City's SWMP. The following are the questions posed and the City's responses to each:

1. How are existing Best Management Practices (BMPs) & measurable goals currently being implemented for each MCM to reduce the pollutant(s) of concern listed in the TMDL?

The City's current SWMP (dated May 2013) documents on-going BMPs, ordinances, initiatives, and events that are designed to minimize sediment releases. Below is an explanation of the City's BMPs and established programs for each MCM that address sediment releases. However, the City's SWMP is currently being updated in response to the renewed NPDES permit (MOR040016) that was issued to the City by the MDNR on April 1, 2017 and will include the new programs, outreach materials, training, and efforts the City has implemented in recent years.

Public Education and Outreach on Stormwater Impacts MCM

Public education and outreach for the City includes regional partnering with Mid America Regional Council (MARC) and working internally to develop, produce, and distribute educational materials through multiple media formats (flyers, City government access channel (LSTV) ads, website and Facebook posts, etc.) for identified target audiences concerning preserving and protecting stormwater quality. Sediment is one of the target pollutants included in the City's educational materials. The City also hosts a number of stormwater quality events, such as Stream Team and Adopt-A-Street, throughout the year as a means of public education and outreach. In 2016 alone, City staff created six new fact sheets, four new videos, developed and mailed a new educational flyer to all local restaurants, and re-vamped an old outreach program (Storm Drain Stenciling), all of which address stormwater quality. The goals for this MCM are measured by continued contacts with the public at events, on the phone, and in the field regarding stormwater quality issues, partnerships with local civic groups, and public participation in outreach programs, which continue to be successful with hundreds of residents participating in events and activities each year including High School students and Boy/Girl Scout troops.

Public Involvement and Participation MCM

Public involvement and participation includes a plan to target stakeholder groups and providing volunteer opportunities for outreach activities, as well as complying with legal requirements for posting of public meeting notices and public review periods. Target stakeholders continue to have the opportunity to provide input into stormwater quality issues and the SWMP via regularly-scheduled City Council meetings, meetings with City staff regarding stormwater issues, and participating in outreach events such as Stream Team and Adopt-A-Street. Residents of local lakes frequently contact City staff regarding stormwater quality; asking what steps can be taken to ensure water quality and reduced sediment. The goals for this MCM are measured by continued contacts with the public at events, on the phone, and in the field regarding stormwater quality issues and public participation in volunteer stream cleanup activities, and partnerships with location volunteer groups.

Illicit Discharge Detection and Elimination MCM

Illicit discharge detection and elimination is enforced through of Chapter 34 of the Lee's Summit Code of Ordinances; development, regular updating, and use of a Watershed and Outfall Map for the storm discharge system; utilization of procedures for tracing, identifying, investigating, and removing sources of identified illicit discharges; distribution of stormwater quality educational materials to target audiences; staff training that emphasizes the detection and elimination of illicit discharges; and inspection of 10% of all storm discharge system boxes and discharge points annually. In 2016, the City re-vamped a Storm Drain Stenciling program that focuses on painting a clean water message on all of the storm inlets throughout the City. This program specifically addresses sediment as a target pollutant and approximately 2,000 storm drains have been stenciled in the first year of the program. Additionally, in 2016, the City's stormwater training presentation documents were revised and, in 2017, all field staff went through dedicated training for illicit discharge detection and elimination. Both residents and City staff contact the Public Works Department routinely to report illicit discharges that have been observed throughout the year. City staff then investigates the report and, at the very least, sends a violation letter to the responsible party, if one can be identified, explaining the issue and requesting their cooperation in discontinuing such activity. If no direct responsible party can be identified, City staff sends letters to all of the neighbors surrounding the identified illicit discharge to inform them of the activity and request cooperation in discontinuing any such activity, watching for future illicit discharges, and reporting them to the City. The goals for this MCM are measured by annual update of the City's Watershed and Outfall Map, tracking the illicit discharges/connections detected, traced, screened, and/or eliminated; and tracking outreach efforts for illicit discharge education.

Construction Site Stormwater Runoff Control MCM

Construction site stormwater runoff control, which directly focuses on sediment as a target pollutant, is achieved through enforcement of City ordinances and land disturbances permits, with regular inspections for all on-going projects in the City that disturb more than 2,000 square feet of land. These inspections require erosion control BMPs to be in place and functional in accordance with the City's Design and Construction Manual minimum development standards. Additionally, the City implements pre-construction plan reviews and requires site operators to properly dispose of construction site waste. Over the past year in particular, staff from both the Public Works and Development Center departments have worked diligently together on training and understanding the importance of erosion control inspections on active construction sites. In 2016, the City's stormwater training presentation documents were revised and, in 2017, all field staff went through erosion control training. The goals for this MCM are measured by tracking pre-construction plan reviews and the number of construction site inspections completed and/or corrective actions implemented.

Post-Construction Stormwater Management in New Development & Redevelopment MCM

Post-construction stormwater management in new development and redevelopment also directly focuses on sediment as a target pollutant. This MCM is achieved primarily through requirements imposed for building permit procedures and enforcement of the City's Code of Ordinances, including stream buffer setbacks, peak reduction basin requirements, and land disturbance permit requirements for any activity that disturbs more than 2,000 square feet of land. As mentioned above, staff from both the Public Works and Development Center departments have worked diligently together over the past year in particular on training and understanding the importance of erosion control inspections on active and post-construction sites. In 2016, the City's stormwater training presentation documents were revised and, in 2017, all field inspectors went through erosion control training. The goals for this MCM are measured by include tracking inspections of long-term O&M and post-construction BMPs and tracking pre-application meetings, pre-construction meetings, and/or plan reviews.

Pollution Prevention/Good Housekeeping for Municipal Operations MCM

Pollution prevention and good housekeeping for municipal operations is achieved primarily through staff education, and subsequent action, concerning the City's permit requirements. In 2016, a City staff committee was created to develop "Good Housekeeping Guidelines for Material Storage and Spill Prevention" for municipal operations. These guidelines were approved by the City's Management Team and included in the City's internal stormwater training program. In 2016, the City's stormwater training presentation documents were revised and in 2017, all field and facilities staff went through dedicated training for good housekeeping and pollution prevention. The "Good Housekeeping Guidelines for Material Storage and Spill Prevention" document is included in the Stormwater Pollution Prevention Plans (SWPPPs) for specific City-owned facilities. In 2014, City staff developed SWPPPs for nearly all of the City-owned facilities in response to an inspection letter from the MDNR dated November 1, 2013. However, many of the facilities for which SWPPPs were prepared did not require SWPPPs and many of the SWPPPs that were developed have needed to be updated. Therefore, in 2017, staff evaluated which facilities needed SWPPPs and revised or prepared SWPPPs for those facilities. Quarterly visual monitoring is required for each of the facility SWPPPs, along with annual inspections, both of which will be documented in the SWPPP. In addition to training and SWPPPs, the City has an established operation and maintenance (O&M) program to reduce sediment runoff from municipal operations that includes catch basin cleaning, street sweeping, routine scheduled maintenance activities, waste disposal, and minimizing the amounts of pesticides and fertilizers used. The goal for this MCM is measured by the number of staff that attends training and staff compliance with training including regular SWPPP review and documentation.

2. What data or other information does the City of Lee's Summit have in support that existing BMPs for any of the MCMs are reducing, either directly or indirectly, the pollutants of concern?

General Information

The City of Lee's Summit is, in fact, a summit with six large recreational lakes located within City limits or along the corporate boundaries. These lakes act as water quality filters for stormwater pollutants, including sediment, which could otherwise be discharged from city limits. Several lake homeowner associations (HOAs) within the City make water quality a priority by monitoring lake water quality and sharing the data with appropriate regulatory agencies if the water quality has been adversely impacted by upstream concerns so corrective measures can be implemented.

The City has designed and constructed numerous Capital Improvement Projects over the past several years that have had specific stormwater components, such as installing stormwater retention ponds and rain gardens. These projects have intentionally been designed to address both stormwater quantity and quality, utilize the City's ordinances and standard specifications as BMPs to meet the City's NPDES permit requirements.

Big Creek Information

The portion of the Big Creek watershed that is located within Lee's Summit City limits is primarily undeveloped due to lack of sanitary sewer infrastructure and large-tract ownership. The owner has indicated no interest in developing these large tracts for the foreseeable future. Much of this land is used for agricultural purposes; however, some tracts are uncultivated with native vegetation and/or wooded cover. Agricultural properties are exempt from NPDES stormwater management regulations; however, small stream buffers are typically provided on agricultural land because wetland soils are not compatible with typical agricultural crops. Big Creek stream buffers are present both on the large tracts and along the majority of the creek located within Lee's Summit City limits. In accordance with the City's stream buffer ordinance, which is one of the City's regulatory efforts for sediment control, stream buffers will remain in place as the area along Big Creek develops.

According to the September 2006 Big Creek TMDL prepared by the EPA, Big Creek is located in Henry, Johnson, Cass, and Jackson Counties of Missouri. Big Creek is 76 stream miles long with the lower 49 stream miles of Big Creek listed in the TMDL as impaired by sediment. The headwaters of Big Creek are located within the Lee's Summit city limits, which are a significant distance upstream of the EPA-identified impaired segment. The TMDL indicates that the headwaters of Big Creek are located 2 miles north of the Jackson/Cass County line within the Lee's Summit City limit. However, according to the City's Geographic Information System (GIS), the Big Creek headwaters are more accurately located approximately 6 stream miles north of the Jackson/Cass County line and approximately 3 stream miles inside the Lee's Summit City limit, making the Lee's Summit City limit approximately 24 stream miles upgradient of the EPA-identified impaired segment of the stream. Many cycles of sediment

degradation and deposition occur in the creek between Lee's Summit City limits and the impaired segment of stream. An aerial photograph of the headwaters area in Lee's Summit is attached.

Big Creek Sample Results

Page 9 of the Big Creek TMDL states that "the small MS4 permit for the City of Lee's Summit (NPDES permit #MOR040016) has only one outlet that discharges to Big Creek. The permit conditions of the MS4 contain BMPs that are designed to reduce pollutant loads to the maximum extent practicable. The WLA (waste load allocation) for the MS4 is therefore set at current conditions plus inclusion of the BMPs."

However, in an effort to quantify potential sediment impacts in Big Creek from activities within Lee's Summit City limits, City staff collected a grab water sample from Big Creek at the Lee's Summit/Greenwood city limit. The sample was collected on May 17, 2017 and transported to Blue Valley Laboratories for Total Suspended Solids (TSS) analyses. According to the analytical results, a TSS concentration of 7.0 milligrams per liter (mg/l) was detected in the grab water sample with a laboratory reporting limit of 5.0 mg/l. A copy of the analytical report and chain of custody are attached.

The sediment impairment of Big Creek, according to the TMDL, is based on exceedances of the general, or narrative, criteria contained in Missouri's Water Quality Standard (WQS) and the CSR 20-7.031(3)(A),(C),and (G), which are as follows:

- (A) Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly, or harmful bottom deposits or prevent full maintenance of beneficial uses.
- (C) Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor or prevent full maintenance of beneficial uses.
- (G) Waters shall be free from physical, chemical, or hydrological changes that would impair the natural biological community.

The TMDL indicates that "TSS was selected as the numeric target for this TMDL because it enables the use of the highest quality data available"; however, the TMDL does not provide or specify a quantifiable exceedance limit for TSS in Big Creek. Therefore, the City used limits specified in the TMDL for various industrial facilities as comparators, as follows:

According to the TMDL, "mechanical wastewater treatment facility (WWTF) permit limits are a weekly average TSS concentration of 45 mg/l and a monthly average TSS concentration of 30 mg/l....Wastewater treatment lagoon facilities permit limits are up to a weekly average TSS concentration of 120 mg/l and a monthly average TSS concentration of 80 mg/l." Additionally, according to the TMDL, the permit limits for the Lee's Summit Yard Waste facility (MOG760038) are a daily average TSS concentration of 110 mg/l and a monthly average TSS concentration of 70 mg/l. The Lee's Summit Yard Waste facility is

located within Lee's Summit City limits directly upgradient of the grab water sample collection point in Big Creek at the Lee's Summit/Greenwood city limit.

At 7.0 mg/l, the analytical result of the grab water sample collected from Big Creek on May 17, 2017 is significantly below the allowed permit conditions for the aforementioned types of facilities included in the Big Creek TMDL.

3. *What considerations will the City of Lee's Summit take with new or modified BMPs and measurable goals per the iterative process with respect to reducing pollutants of concern?*

The pollutant of concern listed in the Big Creek TMDL is sediment, which is one of the primary target pollutants that the City's SWMP is designed to control. The City's SWMP is currently being revised to incorporate the City's renewed NPDES permit. Below is a list of some of the modified BMPs and/or measurable goals that are being included in the City's revised SWMP:

Public Education and Outreach: In 2016, the City revamped the former Storm Drain Stenciling outreach program to address sediment as one of the pollutants of concern. Additionally, the measurable goals for this MCM have been improved to provide better data, such as tracking the number of patrons/teams that participate in outreach events and activities and identifying at least one target audience per reporting period to develop and distribute educational materials to.

Public Involvement and Participation: In accordance with State and local public notice requirements, the City already has procedures in place for public notices. However, as documented in the revised SWMP, the City has established a notice of public meeting for the SWMP and renewal application at 72 hours and a public notice period allowing the public to review the SWMP and renewal application at 10 business days in accordance with the MDNR recommendations for the City's SWMP. The public notice and review periods allow residents to get involved in sediment control. Additionally, the measurable goals for this MCM have been improved to provide better data, such as tracking the number of: stormwater-related volunteer activities and cleanup events offered to residents, amount of education materials distributed to target stakeholders and audiences, and participants and volunteers for these activities and events, all of which provides information on the residential level of involvement as it relates to stormwater and sediment control.

Illicit Discharge Detection and Elimination: The advent of the MDNR's new definition of an outfall greatly multiplies the number of outfalls within Lee's Summit. City staff is making a concerted effort to identify the outfalls within City limits, initially by incorporating the MDNR's Classified Stream data into the City's GIS. Upon completion, staff will be using GIS to locate as many outfalls electronically as possible, to be followed up by field verification. Considering the significant increase in the number of outfalls that the City will now have to identify, City staff anticipates this process to be completed over several years. Knowing the

outfalls throughout the City will help identify illicit discharges and sediment loads. In 2017, City staff also developed an Illicit Discharge Spill/Response Procedures document that includes dry weather field screenings on significant spills of unknown materials, as necessary, and procedures for tracing and eliminating the source of an illicit discharge.

Construction Site Stormwater Runoff Control: The City has implemented a dedicated periodic government employee training program to educate field staff on BMPs for reducing and preventing sediment pollution during daily work activities. The training not only includes procedures on erosion control for construction and post-construction, but also illicit discharge and pollution prevention/good housekeeping. The measurable goals for this MCM have been improved to include tracking the number of pre-construction site plan reviews and inspections that are completed in a reporting period.

Post-Construction Stormwater Management in New Development & Redevelopment: As described above, the City has implemented a dedicated periodic government employee training program to educate field staff on BMPs for reducing and preventing sediment pollution during daily work activities. The training not only includes procedures on erosion control for construction and post-construction, but also illicit discharge and pollution prevention/good housekeeping. The measurable goals for this MCM have been improved to include tracking the number of inspections completed for O&M and post-construction BMPs, along with tracking pre-application meetings, pre-construction meetings, and/or site plan reviews. Additionally, measures in the City's DCM and Unified Development Ordinances (UDO) mitigate stormwater impacts through planning and design.

Pollution Prevention/Good Housekeeping for Municipal Operations: As described above, the City has implemented a dedicated periodic government employee training program to educate field staff on BMPs for reducing and preventing sediment pollution during daily work activities. The training not only includes procedures on erosion control for construction and post-construction, but also illicit discharge and pollution prevention/good housekeeping. In addition, an internal City staff committee developed a "Good Housekeeping Guidelines for Material Storage and Spill Prevention" for internal use within City government facilities. The measurable goals for this MCM include tracking staff training and annual facility SWPPP reviews.

- 4. When will the City's SWMP be revised to include how existing BMPs and measurable goals are reducing pollutants of concern? If the revision of the SWMP is scheduled to take over one year, then the City is required to submit a progress report with the next scheduled annual report.**

The City's NPDES permit (MOR040016) was renewed on April 1, 2017. The City is currently updating the SWMP document and intends to submit the revised SWMP within one year of the effective date of the permit, as allowed in Section 4.1.3 of said permit. However, the City has submitted this 'No Additional Controls Demonstration' to the MDNR for review well in advance of submitting the revised SWMP to the MDNR. The City would like to receive approval of the 'No Additional Controls Demonstration' from the MDNR to incorporate into the revised SWMP, prior to the required SWMP submittal deadline.

- 5. How are current practices, structural and non-structural BMPs, and other activities consistent with the implementation actions described in the TMDL, or expected to meet the applicable WLA?**

No implementation actions are described in the Big Creek TMDL. The Waste Load Allocation (Point Source Loads) section of the Big Creek TMDL states that "the small MS4 permit for the City of Lee's Summit (NPDES permit #MOR040016) has only one outlet that discharges to Big Creek. The permit conditions of the MS4 contain BMPs that are designed to reduce pollutant loads to the maximum extent practicable. The WLA for the MS4 is therefore set at current conditions plus inclusion of the BMPs."

As indicated in the TMDL, the City's SWMP, and the responses to the questions above, the BMPs documented in the City's SWMP are consistent with and meet the expectations of the Big Creek TMDL.

CONCLUSION

According to the TMDL, the EPA established the Big Creek TMDL to meet the requirements of the 2001 Consent Decree (American Canoe Assoc., et al. v. EPA, No. 98-1195-CV-W) as opposed to issuance of the TMDL based on scientific data. A total of 38 TMDLs were issued in a short time period after that consent decree was issued; however, 12 of those 38 were withdrawn after scientific evidence indicated no impacts were present. Considering the lack of scientific data supporting excessive sedimentation in Big Creek, it appears this TMDL is a candidate for withdrawal. However, if withdrawal is determined not to be an option, the City of Lee's Summit requests revision of the Big Creek TMDL to exclude the approximately 3 stream miles of headwaters located within Lee's Summit City limits, based on the information and sample data provided herein.

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Missouri Department of dnr.mo.gov

NATURAL RESOURCES

Eric R. Greitens, Governor

Carol S. Comer, Director

APR 26 2017

RECEIVED

MAY 1 2017

Ms. Kara Taylor
City of Lee's Summit
220 SE Green St.
Lee's Summit, MO 64063

**CITY OF LEE'S SUMMIT
ENGINEERING DEPT.**

RE: City of Lee's Summit No Additional Controls Demonstration for Total Maximum Daily Load Attainment

Dear Ms. Taylor:

This letter is to inform you the Missouri Department of Natural Resources' Water Protection Program has received your request to provide information in support for a Total Maximum Daily Load (TMDL) No Additional Controls Demonstration per the Municipal Separate Storm Sewer System (MS4) General Permit, MOR040016, Section 3.1.5. In order to receive an approved No Additional Controls Demonstration, please answer the five items below to the best of your ability to demonstrate that no action is needed beyond the successful implementation of the MS4 general permit's six Minimum Control Measures (MCMs) for the city of Lee's Summit.

1. How are existing Best Management Practices (BMPs) and measurable goals currently being implemented for each MCM to reduce the pollutant(s) of concern listed in the TMDL?
2. What data or other information does the city of Lee's Summit have in support that existing BMPs for any of the MCMs are reducing either directly or indirectly the pollutants of concern?
3. What considerations will the city of Lee's Summit take with new or modified BMPs and measurable goals per the iterative process with respect to the reduction of the pollutions of concern?
4. When will the city of Lee's Summit's Stormwater Management Plan (SWMP) be revised to include how the existing BMPs and measurable goals are reducing the pollutants of concern? If the revision of the SWMP is scheduled to take over one year, then you are required to submit a progress report with your next annual report.
5. How are current practices, structural and non-structural BMPs, and other activities consistent with the implementation actions describe in the TMDL, or expected to meet the applicable Wasteload Allocation?



COPY

Ms. Kara Taylor
Page Two

In accordance with Section 3.1.7 of the MS4 general permit, the city of Lee's Summit has until February 28, 2018, to provide the requested information to the department. Please complete and submit the above information to the department to:

Mr. Michael Abbott
Missouri Department of Natural Resources
Water Protection Program
P.O. Box 176
Jefferson City, MO 65102-0176

If you have any questions regarding this correspondence or MS4 permitting, please feel free to contact me at (573) 526-1139, or by email at michael.abbott@dnr.mo.gov.

Sincerely,

WATER PROTECTION PROGRAM



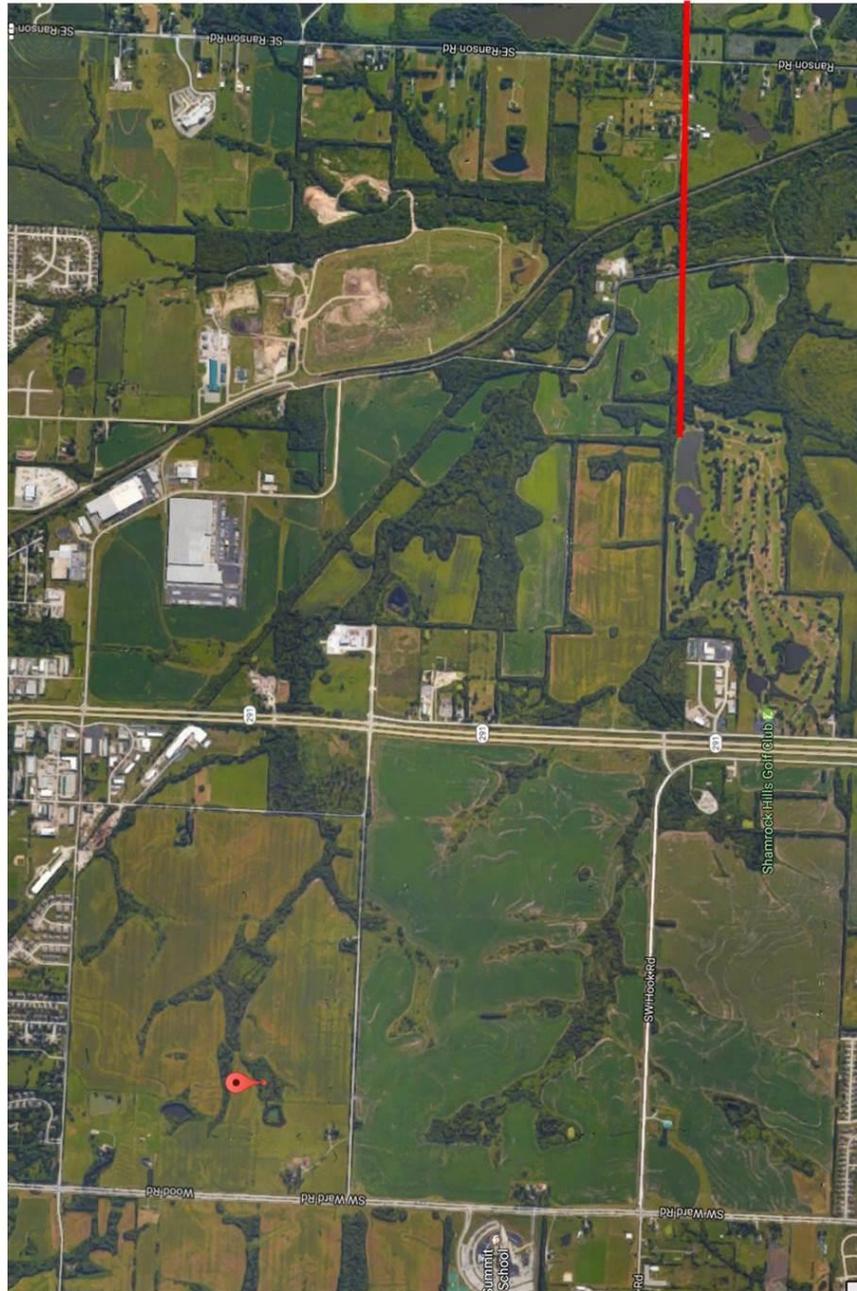
Michael Abbott, MS4 Program Coordinator
Operating Permits Section

MA/pc

c: Ms. Corinne Rosania, Kansas City Regional Office
Ms. Terrie Williams, Kansas City Regional Office

Headwaters of Big Creek (38°52'55"N 94°23'29"W)

~3 stream miles within City limits, ~6 stream miles north of the Jackson/Cass County line



Accounts Payable
 City of Lee's Summit
 Water Utilities Department
 P.O. Box 1600
 Lees Summit, MO 64063

Report Email:
 Copy Email:
 Lab Report Fax No: (816) 969-1975
 Lab Report Contact 1: (816) 969-1940
 Lab Report Contact 2: (816) 969-1970
 Customer ID No: 6657
 Customer PO No:
 Collected By: Client
 Invoice No: 37660

Report of Analysis

Laboratory Report ID No:

16495

Project Name: BIG CREEK

Item No.	Cat NO	ANALYSIS	COLLECTED	ANALYZED	REPORTING LIMIT	RESULTS
	Line NO	SAMPLE TYPE	SAMPLE SITE NOTES		TEST METHOD	
1	6005	Solids, Total Suspended	5/17/17	5/18/17	5 mg/L	7.0
	95076		BIG CREEK 1		SM2540 D-1997	mg/L

Comments, if present, concern this Lab Work Order:

The reported analytical results relate only to the sample submitted.

This report shall not be reproduced, except in full, without written approval by Blue Valley Laboratories, Inc.
 Customer ID: 6657 Report ID: 16495 Date Printed or Reprinted 6/7/17 Item Count = 1 Page 1

APPENDIX B – STORM SYSTEM MAP

- Lee's Summit Watershed and Outfall Map

NOTE: A higher quality, electronic version of the map titled StormWater Watershed with Outfalls 8.5x11 is available on the City's website in the Public Works content of the City's Map Gallery:

<http://cityofls.net/map-gallery/index.html?group=98ce512922a144cbbad6a03516df5897>

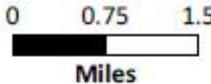
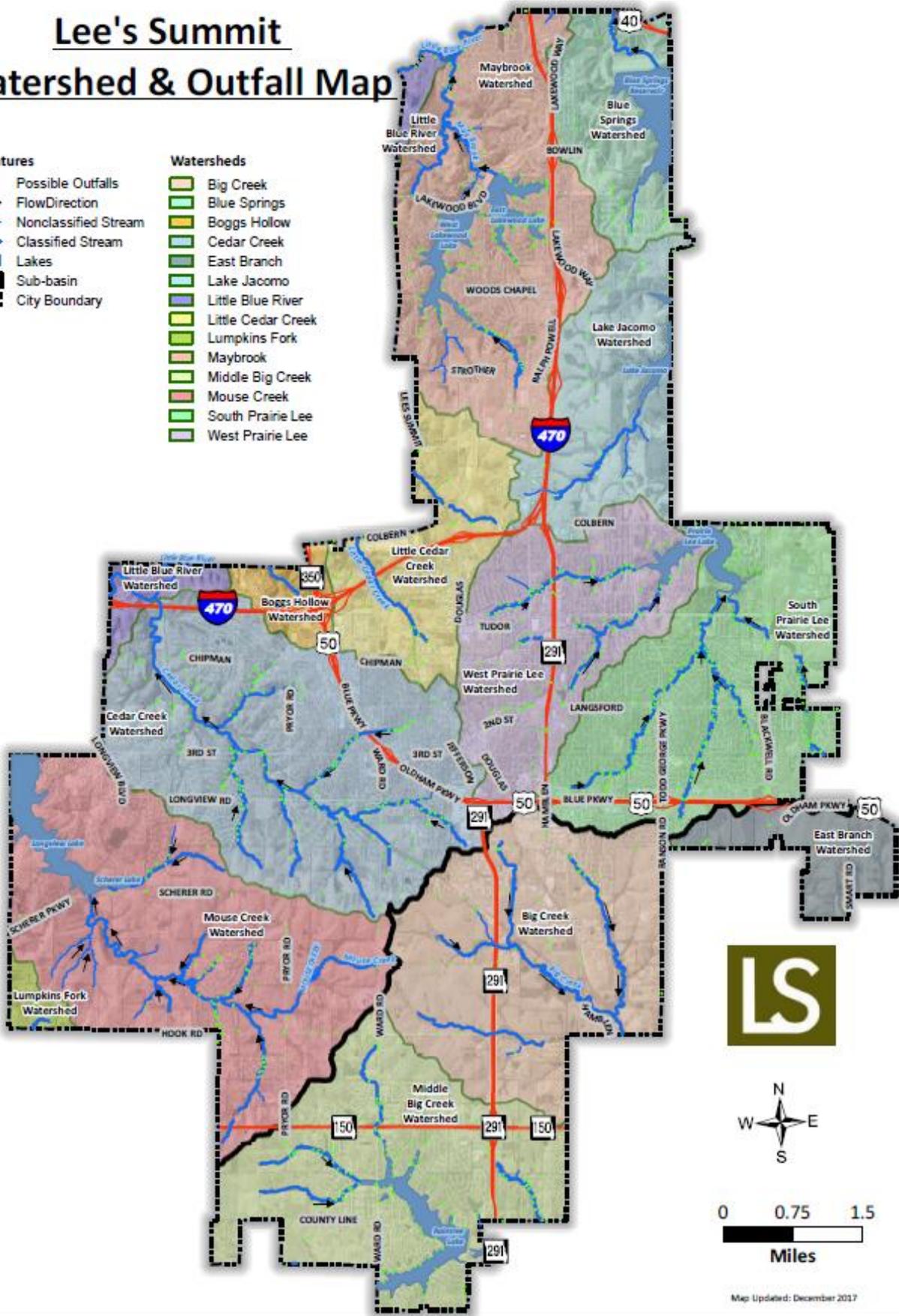
Lee's Summit Watershed & Outfall Map

Features

- Possible Outfalls
- FlowDirection
- Nonclassified Stream
- Classified Stream
- Lakes
- Sub-basin
- City Boundary

Watersheds

- Big Creek
- Blue Springs
- Boggs Hollow
- Cedar Creek
- East Branch
- Lake Jacomo
- Little Blue River
- Little Cedar Creek
- Lumpkins Fork
- Maybrook
- Middle Big Creek
- Mouse Creek
- South Prairie Lee
- West Prairie Lee



Map Updated: December 2017

INSERT OUTFALL IDENTIFICATION PAGES

APPENDIX C – RELEVANT CODES OF ORDINANCE

- Lee’s Summit Code of Ordinances, Chapter 7-230 (International Building Code)
- Lees’ Summit Code of Ordinances, Chapter 7-293 (International Residential Code)
- Lee’s Summit Code of Ordinances, Chapter 16 (Property Maintenance Code) – *relevant sections only*
- Lee’s Summit Code of Ordinances, Chapter 22.5 (Public Improvement Design and Construction)
- Lee’s Summit Code of Ordinances, Chapter 25 (Solid Waste) – *relevant sections only*
- Lee’s Summit Code of Ordinances, Chapter 34 (Stormwater Discharge Control Regulations) – *revised and certified in Dec. 2017*

Chapter 7-230 – INTERNATIONAL BUILDING CODE AMENDED

- A. *Minimum standards:* All drainage facilities shall be designed to carry waters to the nearest drainage way, storm sewer conveyance, or other approved point of collection and conveyance. Erosion of ground in the area of discharge shall be prevented by installation of erosive control devices. Unless specified drainage ways and swales are specifically approved by the Building Official, abutting property lines between structures shall be designed to function as drainage ways. The toe of slopes shall be set back from the property line a minimum of one foot. The area surrounding the building foundation shall have a drainage gradient as provided for in the International Building Code, as amended from time to time with draining gradient thereafter of not less than two (2) percent toward approved drainage facilities unless waived by the Building Official.
- B. *Prohibited conduct:* No person shall allow or cause any:
 - 1. Obstruction to be created, installed or maintained within any drainage way, detention facility, or engineered swale which will create ponding on adjacent property, divert water onto adjacent property, or impede drainage. Fences may be erected in such areas provided they do not unnecessarily restrict the flow of water.
 - 2. Water from intermittent sources such as discharges from sump pumps, downspouts, foundation drains, swimming pools, swimming pool backwashes, or other similar sources excluding lawn sprinklers to be discharged closer than five (5) feet to any adjoining property line.
- C. *Enforcement:* Where such conditions exist and the Code Official has given written notice of the violation, the owner of the property shall take appropriate measures to eliminate the problems caused on the adjacent property within the time period stated on the notice, and failure to do so shall be a violation of this chapter.

Chapter 7-293 – INTERNATIONAL RESIDENTIAL CODE AMENDED

- A. *Minimum standards:* All drainage facilities shall be designed to carry waters to the nearest drainage way, storm sewer conveyance, or other approved point of collection and conveyance. Erosion of ground in the area of discharge shall be prevented by installation of erosive control devices. Unless specified drainage ways and swales are specifically approved by the Building Official, abutting property lines between structures shall be designed to function as drainage ways. The toe of slopes shall be set back from the property line a minimum of one foot. The area surrounding the building foundation shall have a drainage gradient as provided for in the International Residential Code, as amended from time to time with draining gradient thereafter of not less than two percent toward approved drainage facilities unless waived by the Building Official.
- B. *Prohibited conduct:* No person shall allow or cause any:
 - 1. Obstruction to be created, installed or maintained within any drainage way, detention facility, or engineered swale which will create ponding on adjacent property, divert water onto adjacent property, or impede drainage. Fences may be erected in such areas provided they do not unnecessarily restrict the flow of water.
 - 2. Water from intermittent sources such as discharges from sump pumps, downspouts, foundation drains, swimming pools, swimming pool backwashes, or other similar sources excluding lawn sprinklers to be discharged closer than: five (5) feet to any adjoining property line.
- C. *Enforcement:* Where such conditions exist and the Code Official has given written notice of the violation, the owner of the property shall take appropriate measures to eliminate the problems caused on the adjacent property within the time period stated on the notice, and failure to do so shall be a violation of this chapter.

Chapter 16 – PROPERTY MAINTENANCE CODE (*relevant sections only*)

Sec. 16-303. - Sanitation.

All exterior property and premises shall be maintained in a clean, safe and sanitary condition. The occupant shall keep that part of the exterior property which such occupant occupies or controls in a clean and sanitary condition.

(Ord. No. 4934, § 3, 3-2-2000)

Sec. 16-305. - Weeds.

- A. All premises and exterior property shall be maintained free from weeds or plant growth in excess of ten (10) inches. All noxious weeds shall be prohibited. Weeds shall be defined as all grasses, annual plants and vegetation, other than trees or shrubs provided; however, this term shall not include cultivated flowers and gardens.
- B. It shall be the duty of an owner, lessee, occupant or any agent, representative or employee of any such owner, lessee, occupant or any agent, representative or employee of any such owner, lessee or occupant of any lot, tract, or parcel of land to cut any and all such weeds and to destroy or remove all noxious plants on such premises.
- C. This section shall not apply to:
 1. Vegetation cultivated for agricultural purposes which is more than ten (10) feet distant from a non-agriculturally zoned district; or
 2. Undeveloped tracts of land zoned other than for agricultural uses if such tract is one (1) contiguous tract, not intersected by any public roadway and is greater than ten (10) acres, provided that all areas within fifty (50) feet from the edge of pavement of a public roadway(s), or within fifty (50) feet of the property line(s) adjacent to any property being used for residential or commercial purposes shall be maintained free from weeds or plant growth in excess of ten (10) inches.

(Ord. No. 4934, § 3, 3-2-2000; Ord. No. 5820, § 1, 10-7-2004; Ord. No. 5937, § 1, 4-21-2005; Ord. No. 6661, § 2, 8-7-2008)

Sec. 16-312. - Tree maintenance.

Dead, dying or diseased trees, or portions thereof, shall be treated, pruned or removed so as not to pose a threat to adjoining private or public property.

(Ord. No. 4934, § 3, 3-2-2000)

Sec. 16-413. – Drainage regulations.

- A. *Minimum standards:* All drainage facilities shall be designed to carry waters to the nearest drainage way, storm sewer conveyance, or other approved point of collection and conveyance. Erosion of ground in the area of discharge shall be prevented by installation of erosive control devices. Unless specified drainage ways and swales are specifically approved by the Code Official, abutting property lines between dwellings shall be designed to function as drainage ways. The toe of slopes shall set back from the property line a minimum of one-foot. The area surrounding the building foundation shall have a drainage gradient as provided for in the International Residential Code or International Building Code, as amended from time to time.

- B. *Prohibited conduct:* No person shall allow or cause any:
1. Obstruction to be created, installed or maintained within any drainage way, detention facility, or engineered swale which will create ponding on adjacent property, divert water onto the adjoining property, or impede drainage. Fences may be erected in such areas provided they do not unnecessarily restrict the flow of water.
 2. Water from intermittent sources such as discharges from sump pumps, downspouts, foundation drains, swimming pools, swimming pool backwashes, or other similar sources excluding lawn sprinklers to be discharged closer than: Five (5) feet to any adjoining property line.
 - a. Five (5) feet to any adjoining side or rear property line(s).
 - b. The platted right-of-way line where no public sidewalk or paved pedestrian walkway exists unless specifically approved by the City Engineer.
 - c. Five (5) feet to any edge of a public sidewalk or paved public pedestrian walkway unless specifically approved by the City Engineer.
- C. *Enforcement:* Where such conditions exist and the Code Official has given written notice of the violation, the owner of the property shall take appropriate measures to eliminate the problems caused on the adjacent property, within the time period stated in the notice, and failure to do so shall be a violation of this chapter.

(Ord. No. 6124, § 3, 1-19-2006; Ord. No. 6902, § 3, 3-18-2010)

Chapter 22.5 - PUBLIC IMPROVEMENTS DESIGN AND CONSTRUCTION

Sec. 22.5-1. - Design and construction manual—Adoption.

- A. The Design and Construction Manual, as published by the City of Lee's Summit and amendments thereto approved pursuant to the procedure therein, is hereby adopted to regulate the construction of public infrastructure improvements within the City, including the regulation of blasting, excavation, trenching and backfilling and the design and construction of water lines, sanitary sewers, storm sewers and streets.
- B. Each and all the regulations, provisions, standard details, figures, tables, penalties, conditions and terms of the manual are hereby adopted by reference and made a part of this chapter, as if fully set out in this chapter, with the insertions, deletions and charges, if any, made in accordance with Section 22.5-2.
- C. Three (3) copies of the Design and Construction Manual and any amendments thereto are on file in the office of the City Clerk.
- D. The City of Lee's Summit, Missouri hereby adopts Section 5100 of the Kansas City Metropolitan Chapter of APWA Design Criteria, current edition.

(Code 1988, § 22.5-1; Ord. No. 5813, § 1, 9-16-2004; Ord. No. 5996, § 1, 7-14-2005; Ord. No. 6050, § 1, 9-1-2005; Ord. No. 6051, § 1, 9-15-2005; Ord. No. 6125, § 1, 1-19-2006; Ord. No. 6856, § 1, 11-19-2009; Ord. No. 6893, §§ 1—12, 2-18-2010; Ord. No. 7054, §§ 1, 2, 5-19-2011; Ord. No. 7064, § 1, 6-16-2011; Ord. No. 7088, § 1, 8-11-2011; Ord. No. 7980, § 1, 10-6-2016)

Sec. 22.5-2. - Same—Amendments to Article III, Standard Specifications.

The City Manager can authorize amendments to the Design and Construction Manual to allow for the use of alternate materials, methods, and details other than those specified in the manual, as adopted, by adhering to the following procedure:

- A. The City Manager shall notify the Mayor and Council of the proposed amendments fourteen (14) days prior to the proposed effective date of the amendments.
- B. The Mayor and Council may request a review of the proposed amendments prior to the proposed effective date of the amendments.
- C. If no such review is requested by the Mayor or any member of the Council, such proposed amendments shall go into full force and effect from and after the proposed effective date.

(Code 1988, § 22.5-2; Ord. No. 5813, § 2, 9-16-2004)

Sec. 22.5-3. - Enforcement of chapter—City Engineer.

A. *General provisions.*

- 1. The City Engineer shall have the power and duty to enforce the provisions of the manual and all related ordinances of the City and shall have the power to issue a citation and summons to Municipal Court for any violations thereof.
- 2. Contractors/developers who fail to comply with, or violate these standards may be required to stop work, be refused final acceptance, building permits, and future extensions within the development area until corrections are made to the satisfaction of the City Engineer.

3. Violations of this manual are further subject to punishment in Municipal Court in accordance with Section 1-13 of the Code of Ordinances.
- B. *Enforcement of erosion and sediment control.*
1. The Department of Public Works and the Department of Codes Administration shall handle erosion control enforcement through the normal routine activities that include inspecting the site, communicating with the contractor, developer, or owner, and issuing written warnings to the contractor, developer, or owner to resolve issues of non-compliance. If erosion control measures are determined to be deficient, Director of the Department of Public Works or the Director of Codes Administration (hereafter "Director") or his designee may immediately discontinue all inspections for the site.
 2. In addition to immediately discontinuing all inspections for the site, upon the Director's or his designee's determination that erosion control measures are deficient, but not hazardous, the Director shall notify the contractor, developer, or owner to take remedial action to correct the deficiencies within two (2) regular business days. If the deficiencies have not been corrected within two (2) regular business days, the Director or his designee may:
 - a. Issue a stop work order for the site;
 - b. Suspend the land disturbance permit(s);
 - c. Remedy the deficiencies and bill the contractor, developer, or owner for the actual and administrative costs. If the contractor, developer, or owner fails to reimburse the City for correcting the deficiencies, the Director or his designee may withhold certificate(s) of occupancy, including temporary certificate(s) of occupancy, for all contractor, developer, or owner's properties; and/or
 - d. Refer the case to the law department for prosecution.
 3. If erosion attributable to deficient erosion control measures poses an immediate danger to life or property, or substantial flood or fire hazards, the Director or his designee shall cause the City to immediately abate the hazardous condition. The contractor, developer, or owner shall pay all actual and administrative costs incurred by the City in correcting the hazardous condition within ten (10) days. If the contractor, developer, or owner fails to pay the City for correcting the hazardous condition, the Director may take any or all of the actions listed above.
 4. Conviction of any violation enumerated in this section shall be punished by a fine as set forth in the following minimum punishment schedule, but not more than five hundred dollars (\$500.00), or by imprisonment of not more than ninety (90) days, or by both such fine and imprisonment:
 - a. First conviction: A fine of not less than one hundred dollars (\$100.00) and not more than five hundred dollars (\$500.00); imprisonment for not more than ninety (90) days may also be adjudged.
 - b. Second conviction: A fine of not less than two hundred fifty dollars (\$250.00) and not more than five hundred dollars (\$500.00); imprisonment for not more than ninety (90) days may also be adjudged.
 - c. Third conviction: A fine of five hundred dollars (\$500.00); imprisonment for not more than ninety (90) days may also be adjudged;

- d. Fourth and subsequent convictions: A fine of five hundred dollars (\$500.00) and imprisonment for not less than ten (10) days and not more than ninety (90) days.
- e. For purposes of this section, only convictions within the prior three (3) years before the date of the offense shall be considered.

C. *Enforcement of tracking mud, debris, etc.*

- 1. Any contractor, developer, or owner and/or his employees and/or subcontractors who deposit, spill, drop or track any dirt, earth, mud, rock, sand, shale, debris, rubbish or other material on any right of way shall immediately remove the material from the right of way. If the contractor, developer, or owner and/or his employees and/or subcontractors fail to immediately remove the dirt, earth, mud, rock, sand, shale, debris, rubbish or other material from the right-of-way, the Director or his designee may take any or all of the following actions:
 - a. Issue a stop work order;
 - b. Discontinue all inspections for any site contributing to the violation;
 - c. Withhold certificate(s) of occupancy, including temporary certificates of occupancy(s), for any site contributing to the violation.
- 2. Additionally, failure to immediately remove said material from the right-of-way is a violation of Section 26-4 of the Lee's Summit Code of Ordinances and is punishable under Section 1-13 of the Lee's Summit Code of Ordinances. At the Director's discretion, a report of a violation of this section shall be forwarded to the Law Department for prosecution. Each day's violation shall be considered a separate offense.

(Code 1988, § 22.5-3; Ord. No. 5813, § 3, 9-16-2004)

Sec. 22.5-4. - Completion of development projects.

All developments with respect to which an application for a preliminary development plan (PDP) or preliminary plat was filed prior to the effective date of this chapter may be completed in accordance with the terms of the Design and Construction Manual which was in effect prior to the effective date of this chapter, so long as construction begins within twelve (12) months of the approval of the application. If such a development is approved for completion in stages, this subsection shall apply only to the phase for which engineering plan approval is granted.

(Code 1988, § 22.5-4; Ord. No. 5813, § 4, 9-16-2004)

Chapter 25 – SOLID WASTE

Sec. 25-118. - Frequency.

The following collection frequencies shall apply to collections of solid waste within the City:

- A. All residential solid waste, other than bulky rubbish, shall be collected at least once weekly.
- B. All commercial solid waste shall be collected at least once weekly, and shall be collected at such lesser intervals as may be fixed by the Director upon a determination that such lesser intervals are necessary for the preservation of the health and/or safety of the public.

(Code 1988, § 22-117; Ord. No. 6953, § 1, 7-8-2010)

Chapter 34 - STORMWATER DISCHARGE CONTROL REGULATIONS

Sec. 34-1. - Title and authority.

This chapter shall be known as the Lee's Summit, Missouri Stormwater Discharge Control Regulations and may be cited as "Stormwater Regulations" or "Stormwater Discharge Control Regulations". The Director of Public Works and the Director of Development Services shall be responsible for the administration and enforcement of this chapter, with the Director of Public Works administering violations occurring on City owned Right-of-Way and the Director of Development Services administering violations occurring on private property. The term "Director", as used in this chapter, refers to both the Director of Public Works and/or the Director of Development Services.

(Ord. No. 7032, § 1, 5-5-2011)

Sec. 34-2. - Purpose.

A. The purpose of this chapter is to provide for the health, safety, and general welfare of the citizens of Lee's Summit, Missouri through the regulation of stormwater and non-stormwater discharges to the City's storm drainage system, also known as the municipal separate storm sewer system (MS4), to the maximum extent practicable as required by federal and state law. This Chapter establishes methods for controlling the introduction of pollutants into the MS4 in order to comply with the requirements of the federal National Pollutant Discharge Elimination System (NPDES) permit process.

B. The objectives of this chapter are:

1. To regulate the contribution of pollutants to the MS4 from stormwater discharges by any user;
2. To prohibit illicit connections and pollutant discharges to the MS4;
3. To establish legal authority to carry out all inspection, surveillance, monitoring, and enforcement procedures necessary to ensure compliance with this chapter.
4. To limit discharges into the MS4 to ensure that:
 - a. Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits, or prevent full maintenance of beneficial uses;
 - b. Waters shall be free from oil, scum and floating debris in sufficient amounts to be unsightly or prevent full maintenance of beneficial uses;
 - c. Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor or prevent full maintenance of beneficial uses;
 - d. Waters shall be free from substances or conditions in sufficient amounts to result in toxicity to human, animal or aquatic life;
 - e. There shall be no significant human health hazard from incidental contact with the water;
 - f. There shall be no acute toxicity to livestock or wildlife watering;
 - g. Waters shall be free from physical and chemical changes (including intentional color alterations) or hydrologic changes that would impair the natural biological community;

- h. Waters shall be free from used tires, car bodies, appliances, demolition debris, used vehicles or equipment and solid waste as defined in Missouri's Solid Waste Law, RSMo 260.200, except as the use of such materials is specifically permitted pursuant to RSMo 260.200—260.247;
5. Other specific discharge objectives applicable to this chapter are as specified in MO 10 CSR 20.7 and 40 CFR 405-471, as applicable, incorporated by reference herein.
6. If receiving waters are listed on the Section 303(d) list of impaired water bodies, discharge limitations may be subject to specific Total Maximum Daily Load (TMDL) studies discharge criteria.

(Ord. No. 7032, § 1, 5-5-2011)

Sec. 34-3. - Abbreviations.

For the purposes of this chapter, the following abbreviations shall have the designated meanings:

BMP — Best Management Practice

CFR — Code of Federal Regulations

CWA — Clean Water Act

EPCRA — Emergency Planning and Community Right-to-Know Act

ELG — Effluent Limitation Guidelines

EPA — United States Environmental Protection Agency

MDNR — Missouri Department of Natural Resources

MS4 — Municipal Separate Storm Sewer System (also referred to as the City's storm drainage system)

NOI — Notice of Intent

NPDES — National Pollutant Discharge Elimination System

NPS — Non-Point Source

SARA — Superfund Amendments and Reauthorization Act of 1986

SWPPP — Stormwater Pollution Prevention Plan

TMDL — Total Maximum Daily Load

TSS — Total Suspended Solids

USC — United States Code

(Ord. No. 7032, § 1, 5-5-2011)

Sec. 34-4. - Definitions and rules of construction.

A. *Definitions.* Unless the context specifically indicates otherwise, the meaning of terms used in this chapter shall be as follows:

Agricultural stormwater runoff means any stormwater runoff from orchards, cultivated crops, pastures, range lands, and other non-point source agricultural activities, but not discharges from concentrated animal feeding operations as defined in 40 CFR Section

122.23 or discharges from concentrated aquatic animal production facilities as defined in 40 CFR Section 122.24.

Aquifer means a subsurface water-bearing bed or stratum, which stores or transmits water in recoverable quantities that is currently being used or could be used as a water source for private or public use. It does not include water in the Vadose Zone.

Best management practices (BMPs) means schedules of activities, prohibitions of practices, general good housekeeping practices, pollution prevention and educational practices, maintenance procedures, and other management practices to prevent or reduce the discharge of pollutants directly or indirectly to stormwater, receiving waters, or stormwater conveyance systems. BMPs also include treatment practices, operating procedures, and practices to control site runoff, spillage or leaks, sludge or water disposal, or drainage from raw materials storage.

City means the City of Lee's Summit, Missouri.

Clean Water Act means the federal Water Pollution Control Act (33 U.S.C. 1251 et seq.), and any subsequent amendments thereto.

Contaminated means containing a harmful quantity of any substance.

Contamination means the presence of or entry into the City's water supply system, the MS4, waters of the state, or waters of the United States of any substance, which may be deleterious to the public health and/or the quality of the water.

Construction activity means activities subject to NPDES Construction Permits, MDNR Land Disturbance Permits, or City Land Disturbance Permits. Such activities include but are not limited to clearing and grubbing, grading, excavating, and demolition.

Dechlorinated water means water containing not more than two micrograms per liter of chlorine.

Director means the Director of Public Works and/or Director of Development Services for the City of Lee's Summit, Missouri or designated agents thereof.

Discharge means material directly or indirectly released to the MS4 or the act of releasing material directly or indirectly to the MS4 or to a watercourse within the boundaries of the City.

Discharger means any person that discharges to the MS4.

Facility means any building, property, parcel, or activity, including all construction sites, required by the federal Clean Water Act to have a permit for the discharge of stormwater.

Fecal coliform bacteria means a group of bacteria originating in intestines of warm blooded animals which indicates the possible presence of pathogenic organisms in water.

Fire Code means Chapter 13 of the Lee's Summit Code of Ordinances, and as amended from time to time.

Fire Department means the Lee's Summit Fire Department.

Fire protection water means any water, and any substances or materials contained therein, used by the Lee's Summit Fire Department to control or extinguish a fire.

Harmful quantity means the amount of any substance that will cause pollution of the MS4, waters of the state, waters of the United States, or that will cause lethal or sub-lethal adverse effects on representative, sensitive aquatic monitoring organisms within the City, upon their exposure to samples of any discharge into waters of the state, waters of the United States, or the MS4.

Hazardous materials means any material, including any substance, waste, or combination thereof, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may cause, or significantly contribute to, a substantial present or potential hazard to human health, safety, property, or the environment when improperly treated, stored, transported, disposed of, or otherwise managed.

Illicit discharge means any prohibited direct or indirect non-stormwater discharge to the MS4, except as exempted in Section 34.7-B of this Chapter.

Illicit connection means any of the following:

1. Any drain or conveyance, whether on the surface or subsurface, which allows an illicit discharge to enter the MS4 including, but not limited to, any conveyances which allow any non-stormwater discharge including wastewater, process wastewater, and wash water to enter the MS4 and any connections to the MS4 from indoor drains and sinks, regardless of whether said drain or connection had been previously allowed, permitted, or approved.
2. Any drain or conveyance connected from a commercial or industrial land use to the MS4 which has not been documented in plans, maps, or equivalent records and approved by the director;
3. Any drain or conveyance, whether surface or subsurface that delivers stormwater to the MS4.
4. Any connection from a roof drain, sump pump, area drain, stairwell drain, or yard drain that delivers stormwater to the City's sanitary sewer system unless specifically authorized by the director.

Industrial activity means activities subject to NPDES Industrial Permits as defined in 40 CFR, Section 122.26 (b) (14).

Industrial user means any source of discharge into the MS4 from hazardous waste treatment, disposal, and recovery facilities; industrial facilities subject to SARA Title III Section 313; and other industrial or commercial facilities that the director determines is contributing or has the potential to contribute a substantial pollutant loading to the MS4.

Missouri Clean Water Law means Chapter 644 of the Revised Statutes of Missouri (RSMo) and any subsequent amendments thereto.

Municipal separate storm sewer system (MS4) means City-owned infrastructure by which stormwater is collected and/or conveyed, including but not limited to any roads with drainage systems, municipal streets, gutters, curbs, inlets, piped storm drains, pumping facilities, retention and detention basins, natural and human-made or altered drainage channels, reservoirs, and other drainage structures.

National Pollutant Discharge Elimination System (NPDES) Stormwater Discharge Permit means a permit issued by EPA (or by MDNR under authority delegated pursuant to 33 USC 1342(b)) that authorizes the discharge of pollutants to waters of the United States, whether the permit is applicable on an individual, group, or general area-wide basis.

Nonpoint source (NPS) pollution means any source of pollution that enters the environment through some means other than a discrete conveyance, such as a pipe from a sewage treatment plant. The primary form of nonpoint source pollution is adversely-impacted stormwater runoff that collects substances such as fertilizers, sediment, animal waste, motor oil, pesticides, herbicides, trash, etc. as it flows overland to streams, rivers, and lakes.

Non-stormwater discharge means any release or discharge to the MS4 that is not composed entirely of stormwater.

Occupant means any individual living or sleeping in a building; or having possession of a space within a building.

Operator means the person or persons that either individually or together have operational control over a site or facility and any activities necessary to ensure compliance with a SWPPP and/or any mandatory permit conditions.

Owner means the person possessing exclusive rights and control over a property, which may be an object, land/real estate, or other kind of property. It is embodied in an ownership right also referred to as title.

Person means any individual, association, organization, partnership, co-partnership, firm, company, corporation, association, joint stock company, trust, estate, governmental entity or any other legal entity acting as either the owner or the owner's agent.

pH means the logarithm to the base ten (10) of the reciprocal of the concentration in grams per liter of hydrogen ions; a measure of the acidity or alkalinity of a solution, expressed in standard units. With seven (7) being neutral, the range of six (6) to nine (9) standard units will be maintained for stormwater runoff.

Point source means any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural stormwater runoff.

Pollutant means any substance introduced into the environment that causes or contributes to pollution, adversely affects the usefulness of a resource or the health of humans, animals, or ecosystems, or that has the potential to violate water quality standards. Pollutants may include, but are not limited to: paints, varnishes, and solvents; oil and other automotive fluids; non-hazardous liquid and solid wastes and yard wastes; refuse, rubbish, garbage, litter, or other discarded or abandoned objects, ordnances, and accumulations, so that same may cause or contribute to pollution; floatables; pesticides, herbicides, and fertilizers; hazardous substances and wastes; sewage, fecal coliform and pathogens; dissolved and particulate metals; biological materials, radioactive materials, animal wastes; wastes and residues that result from constructing a building or structure; and noxious or offensive matter of any kind.

Pollution means the alteration of the physical, thermal, chemical, or biological quality of, or the contamination of, any MS4, waters of the state, or water of the United States, that renders the water harmful, detrimental, or injurious to humans, animal life, vegetation, or property, or to the public health, safety, or welfare, or impairs the usefulness or the public enjoyment of the water for any lawful or reasonable purpose.

Premises mean any building, lot, parcel of land, or portion of land whether improved or unimproved, including adjacent sidewalks and parking strips.

Property means any land located within the City limits, including parks, but not including public right-of-way such as streets and highways.

Release means any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into ground-water, subsurface soils, surface soils, the MS4, waters of the state, or waters of the United States.

SARA: Superfund Amendments and Reauthorization Act of 1986. The Emergency Planning and Community Right-to-Know Act (also known as EPCRA or SARA Title III) provisions has four major sections: emergency planning (Sections 301—303), emergency release notification (Section 304), community right-to-know reporting requirements (Sections 311—312), and toxic chemical release inventory (Section 313).

Section 303(d) list means a state developed list of specific impaired waters, required by the Federal Clean Water Act (40 CFR 130.7, Section 303(d)), and issued by the State of Missouri.

State means the State of Missouri.

Storm drainage system, also known as MS4, means a combined network of City infrastructure, and in some cases portions of private infrastructure, by which stormwater is collected and/or conveyed, including but not limited to any roads with drainage systems, municipal streets, gutters, curbs, inlets, piped storm drains, pumping facilities, retention and detention basins, natural and man-made or altered drainage channels, reservoirs, and other drainage structures.

Stormwater means any flow occurring during or following any form of natural precipitation, and resulting from such precipitation, including snow melt.

Stormwater Pollution Prevention Plan (SWPPP) means a document which describes best management practices (BMPs) and activities to be implemented by a person or business to identify sources of pollution or contamination at a site or facility and the actions to eliminate or reduce pollutant discharges to stormwater, MS4, or receiving waters to the maximum extent practicable.

Total maximum daily load (TMDL) studies determine the allowable amounts of a Section 303(d) listed pollutant that can be discharged to a Section 303(d) listed body of water and still be protective of all applicable water quality standards.

Wastewater means any water or other liquid, other than uncontaminated stormwater, discharged from a facility or premises.

Watercourse means any surface drainage way, natural or manmade, including any creek, culvert, ditch, stream or river which carries stormwater.

Waters of the state means all rivers, streams, lakes and other bodies of surface and subsurface water lying within or forming a part of the boundaries of the state of Missouri which are not entirely confined and located completely upon lands owned, leased or otherwise controlled by a single person or by two (2) or more persons jointly or as tenants in common. These waters also include waters of the United States lying within or adjacent to the state of Missouri.

Waters of the United States means all waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce; all interstate waters, including interstate wetlands; all other waters the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce; all impoundments of waters otherwise defined as waters of the United States under this definition; all tributaries of waters identified in this definition; all wetlands adjacent to waters identified in this definition; and any waters within the federal definition of "waters of the United States" at 40 CFR Section 122.2; but not including any waste treatment systems, treatment ponds, or lagoons designed to meet the requirements of the federal Clean Water Act.

Wetlands means an area that is inundated or saturated by surface water or ground water at a frequency and duration sufficient to support, and under normal circumstances does support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, and bogs. This definition is intended to be consistent with 33 CFR 328.3(b) and 40 CFR 232.2(r).

- B. *Rules of construction.* Unless the context specifically indicates otherwise, the construction of terms used in this chapter shall be as follows:
1. "Shall" is mandatory; "may" is permissive or discretionary.
 2. The singular shall be construed to include the plural, and the plural shall include the singular as indicated by the context.
 3. The masculine shall be construed to include the feminine.

Words stated in the present tense include the future; words stated in the masculine gender include the feminine and neuter; the singular number includes the plural and the plural the singular.

(Ord. No. 7032, § 1, 5-5-2011)

Sec. 34-5. - Applicability and administration.

- A. This chapter shall apply to all water entering the MS4 generated on any developed and undeveloped lands unless explicitly exempted by the director.
- B. The director shall administer, implement, and enforce the provisions of this chapter. Any powers granted to the director or any duties of the director may be delegated by the director to agents or employees of the City of Lee's Summit, Missouri.
- C. The director may require by written notice that a person responsible for an illicit connection to the storm sewer system comply with the requirements of this article to eliminate or secure approval for the connection by a specified date, regardless of whether the connection or discharges to it had been established or approved prior to the effective date of this chapter. If subsequent to eliminating a connection found to be in violation of this chapter, the responsible person can demonstrate that an illegal discharge will no longer occur, said person may request City approval to reconnect. The reconnection or reinstallation of the connection shall be at the responsible person's expense.

(Ord. No. 7032, § 1, 5-5-2011)

Sec. 34-6. - Minimum standards.

- A. The standards set forth herein and promulgated pursuant to this chapter are minimum standards. Compliance with this chapter does not ensure that there will be no contamination, pollution, or unauthorized discharge of pollutants.
- B. This chapter or any administrative decision made under it does not exempt any person from any other requirements of this code, state or federal laws, or from procuring any required permits, or limit the right of any person to maintain, at any time, any appropriate action, at law or in equity, for relief or for damages against any person arising from the activity regulated under this chapter.

(Ord. No. 7032, § 1, 5-5-2011)

Sec. 34-7. - Prohibitions.

A. Prohibited and Illicit Discharges.

1. No person shall discharge or cause to be discharged into the MS4 or watercourses any materials, including but not limited to, pollutants or waters containing any pollutants that cause or contribute to a violation of applicable water quality standards, other than stormwater. No person shall throw, deposit, leave, maintain, keep, or permit to be thrown, deposited, left, or maintained, in or upon any public or private property, driveway, parking area, street, alley, sidewalk, component of the MS4, or waters of the U.S., any refuse, rubbish, garbage, litter, yard wastes, or other discarded or abandoned objects, fluids, articles, and accumulations, so that the same may cause or contribute to pollution. Residential trash placed at curb lines in proper waste receptacles for the purpose of regular weekly collection permitted operations at the City of Lee's Summit Resource Recovery Park are exempted from this prohibition.
2. No person shall commence, conduct or continue any illicit discharge to the MS4 except as described in Section 34-7.B.

B. The following discharges are exempt from the prohibitions established in this Chapter:

1. Landscape irrigation and lawn watering,
2. Rising groundwater,
3. Uncontaminated groundwater infiltration,
4. Uncontaminated pumped groundwater, e.g. basement sump pumps that discharge uncontaminated groundwater,
5. Periodic water line flushing or other potable water sources,
6. Foundation or footing drainage (not including discharges from active groundwater dewatering systems),
7. Air conditioning condensation,
8. Springs,
9. Uncontaminated water from crawl space pumps,
10. Natural riparian habitat or wet-land flows,
11. Street washing activities using clean, cold water (or hot water with prior permission of the director) that contains no soap, detergent, degreaser, solvent, emulsifier, dispersant, or any other substances,
12. Emergency fire fighting activity flows,
13. Individual residential car washing,

14. Dechlorinated residential swimming pool flows (excludes filter backwash, in compliance with MDNR NPDES general permit MO-G76000 for swimming pools),
 15. Discharges specified in writing by the director as being necessary to protect public health and safety, and
- C. Dye testing is an allowable discharge if written notification is provided to the director prior to the time of the test.
- D. Any non-stormwater discharge permitted under an NPDES permit, waiver, or waste discharge order issued to a discharger and administered under the authority of EPA is exempt from discharge prohibitions established in this chapter, provided that such discharger is in full compliance with all requirements of the permit, waiver, or order and other applicable laws and regulations, and provided that written approval has been granted for any discharge to the MS4.
- E. *Illicit Connections.*
1. The construction, use, maintenance or continued existence of illicit connections to the MS4 is prohibited.
 2. This prohibition expressly includes, without limitation, illicit connections made in the past, regardless of whether the connection was permissible under law or practices applicable or prevailing at the time of connection.
 3. A person is in violation of this chapter if the person connects a line conveying wastewater to the MS4, or allows such a connection to continue.

(Ord. No. 7032, § 1, 5-5-2011)

Sec. 34-8. - Monitoring of discharges.

- A. *Applicability.* This section applies to all discharges to the MS4, including construction activity and industrial activity not covered by an individual NPDES industrial permit.
- B. *Access to premises and facilities.*
1. The director or any designated City staff shall be permitted to enter and inspect facilities subject to regulation under this Chapter as often as may be necessary to determine compliance with this Chapter. If a facility has security measures in force with require proper identification and clearance before entering into its premises, the facility shall make the necessary arrangements to allow access to City staff.
 2. Unreasonable delays in allowing the director or designated City staff access to a facility is a violation of this Chapter.
 3. All persons shall the director, or any designated City staff, ready access to all parts of any facility, premises or property for the purposes of inspection, sampling, examination, and copying of any records that are maintained as a condition of an NPDES permit or SWPPP as the result of any legal requirement related thereto, as well as for the performance of any additional duties related to storm water drainage discharge as defined or required by local, state, and federal laws.
- C. *Monitoring and Sampling.*
1. The director or any designated City staff shall have the right to conduct, or require a facility to conduct, monitoring or sampling of a facility of premises stormwater discharge before the discharge enters the MS4.

2. If the director is not allowed to conduct monitoring or sampling of stormwater discharge from a facility or premises, or has been refused access to any part of the facility from which stormwater discharges and a complaint in writing is filed by the director, any police officer, city attorney or prosecuting attorney of the City, with the Municipal Court of the City, stating that he/she has probable cause to believe there exists in a structure or premises, more particularly described therein, a violation or violations of provisions of this Code and is within the territorial jurisdiction of the City, and if such complaint is verified by the oath or affirmation stating evidential facts from which such judge determines the existence of probable cause, then such judge shall issue a search warrant directed to the authorized person to search the structure or premises therein described for the purposes requested. Such search warrant may be executed and returned only within ten (10) days after the date of its issuance. The person authorized to search shall make a return promptly after concluding the search, and such return shall contain an itemization of all violations of this Code discovered pursuant to such search. Refusal to allow entry upon presentation of a search warrant shall be an ordinance violation. Execution of a search warrant issued under this section shall not be by forcible entry.
3. The director may require a facility to install monitoring equipment and conduct sampling of its discharges to the MS4 as necessary and in a manner acceptable to the director. Sampling and monitoring equipment installed pursuant to this section shall be maintained at all times in a safe and proper operating condition by the facility at his/her own expense. All devices used to measure stormwater flow and quality shall be calibrated annually or as recommended by equipment manufacturer to ensure their accuracy.
4. If the director requires a facility to conduct sampling under this Section, all stormwater discharge samples shall be collected in accordance with 40 CFR 122.21(g) (7), as may be amended from time to time, and pollutant analyses shall be performed in accordance with 40 CFR Part 136, as may be amended from time to time. If 40 CFR Part 136 does not specify analytical techniques for the pollutant in question, analyses must be performed in accordance with procedures approved in writing by the director.
5. Any facility required to collect samples and/or perform analyses pursuant to this section shall maintain the following records and information for all such samples and/or analyses:
 - a. The date, exact place, method and time of sampling;
 - b. The name(s) of the person(s) collecting the samples;
 - c. The date the analyses were performed;
 - d. The company and person who performed the analyses;
 - e. The analytical protocols, techniques, and methods used; and
 - f. The results of such analyses.
6. The records of any sampling, analyses or monitoring conducted pursuant to this section shall be maintained by the facility for a period of at least three (3) years, unless the facility has been specifically notified of a longer retention period by the director.

The three (3) year retention period shall be extended automatically for the duration of any litigation concerning compliance with this chapter.

(Ord. No. 7032, § 1, 5-5-2011)

Sec. 34-9. - Requirement to prevent, control, and reduce stormwater pollutants.

All facilities shall provide, at their own expense, reasonable protection from accidental illicit discharges into the MS4 through use of structural and non-structural best management practices (BMPs). Any person responsible for a facility, which is, or may be, the source of an illicit discharge or which has an illicit connection, may be required to implement, at said person's expense, additional BMPs to prevent the further discharge of pollutants to the MS4. For those facilities required by state or federal law to have an NPDES stormwater discharge permit, compliance with all terms and conditions of a valid NPDES permit authorizing the discharge of stormwater associated with industrial activity, to the extent practicable, shall be deemed in compliance with the provisions of this section.

(Ord. No. 7032, § 1, 5-5-2011)

Sec. 34-10. - Watercourse protection.

Every person owning property through which a watercourse passes, or such person's agent, shall keep and maintain that part of the watercourse within the property reasonably free of trash, debris, yard wastes, fluids, and other articles that would pollute, contaminate, or impede the flow of water. In addition, the owner or agent shall maintain privately owned structures within or adjacent to the watercourse so that such structures will not become a hazard to the use, function, or physical integrity of the watercourse.

(Ord. No. 7032, § 1, 5-5-2011)

Sec. 34-11. - Industrial users without NPDES stormwater discharge permit.

- A. *Applicability.* The following additional requirements as outlined in Subsections 34-11.B and C shall apply to all industrial users that do not have an facility-specific NPDES stormwater discharge permit.
- B. *Self-monitoring and self-inspections.* The director may require industrial users to conduct self-inspections and self-monitoring of stormwater discharges, and provide reports of such activities to the director in a manner deemed appropriate by the director.
- C. *Records maintenance and retention.* Industrial users shall maintain the following records and shall retain such records for a period of at least three years, unless the facility has been specifically notified of a longer retention period by the director. The three-year retention period shall be extended automatically for the duration of any litigation concerning compliance with this chapter. The following information shall be required:
 1. Date and time, volume and methods of removal and disposal and location of disposal site(s) for solids, sludge, grease, filter backwash, or other pollutants removed in the course of treatment or control of wastewater. Records of receipt by the disposal facility of all such wastes removed from the industrial users premises shall also be maintained and retained;
 2. Safety data sheets, incoming hazardous waste manifests, outgoing hazardous waste manifests, records of sludge and other residual waste disposal, sampling records,

analytical reports, production records, purchase records, reports submitted to regulatory agencies and other related records;

3. Any permit applications, reports, and other records concerning industrial user discharges.
- D. *Stormwater Pollution Prevention Plans, SWPPPs.* The director may require industrial users to prepare, submit for review and comment, and implement SWPPPs as set forth in this section. The submitted SWPPP shall be modified in accordance with the director's comments. Review of such plans shall not relieve the industrial user from responsibility for modifying its facility as necessary to meet the requirement of this chapter. Such SWPPP shall address the following items:
1. Description and location of stored chemicals, raw materials and other significant materials;
 2. Prevention of exposure of significant materials to precipitation;
 3. On-site stormwater treatment;
 4. Release prevention, including BMPs for:
 - a. Selection and construction of equipment;
 - b. Equipment operation, maintenance, and inspection procedures;
 - c. Personnel training and supervision; and
 - d. Security measures to prevent vandalism;
 5. Spill containment;
 6. Procedures for immediate notification as outlined in Section 34-14 to the director of any spill or accidental discharge of significant materials to the MS4, and procedures for follow-up written notification;
 7. BMPs or procedures to prevent adverse impacts of any spill. Such procedures include, but are not limited to: Inspection and maintenance of storage areas, handling and transfer of materials, loading and unloading operations, control of facility runoff, employee training, measures for containing materials, and emergency response procedures and equipment;
 8. Such other practices, facilities, or methods as required by the director.

The director may require any owner of a facility to modify the facility's SWPPP if in the best professional judgment of the director, the SWPPP does not comply with the requirements of the facility's NPDES permit to discharge stormwater associated with industrial activity.

Notification of deficiencies in a facility's SWPPP will be in writing and submitted to the facility owner. The director will give the facility operator a reasonable amount of time, not to exceed fifteen calendar days, to make the necessary changes in the SWPPP.

- E. *Monitoring and control of discharges.* The director may require industrial users to implement BMPs where deemed necessary by the director to achieve the objectives of the City's current NPDES requirements. The director may establish monitoring requirements, pollutant limitations and other restrictions on industrial user discharges to the MS4. Such monitoring requirements, pollutant limitations, or other restrictions may be as stringent as or more stringent than requirements set forth in an NPDES permit issued by the State of

Missouri or EPA to the industrial user for such discharge, if deemed necessary by the director to achieve the objectives of the City's stormwater management program.

- F. The City may enter into agreements with other jurisdictions to require an industrial user to sample, obtain information, and monitor and control the quality of indirect discharges to the MS4 from industrial users located outside the City. These agreements may also be negotiated with neighboring jurisdictions for industrial users located within the City.

(Ord. No. 7032, § 1, 5-5-2011)

Sec. 34-12. - Industrial or construction activity discharge.

- A. Any person subject to an industrial or construction activity NPDES stormwater discharge permit shall comply with all provisions of such permit. Proof of compliance with said permit may be required in a form acceptable to the director prior to the allowing of discharges to the MS4.
- B. Stormwater management for construction activity shall comply with the City Design and Construction manual, as well as applicable state and federal laws, codes, and ordinances.

(Ord. No. 7032, § 1, 5-5-2011)

Sec. 34-13. - Reserved.

Sec. 34-14. - Notification of spills.

- A. Notwithstanding other requirements of law, notification must be made as soon as any person responsible for a facility or operation, or responsible for emergency response for a facility or operation has information of any known or suspected release of materials which are resulting or may result in prohibited or illicit discharges into stormwater, the MS4, or waters of the United States. Said person shall take all necessary steps to ensure the discovery, containment, and cleanup of such release.

In the event of such a release of hazardous materials said person shall immediately, but no later than two (2) hours after discovery of the release, notify emergency response agencies of the occurrence via emergency dispatch services. In the event of a release of non-hazardous materials, said person shall notify the director in person or by phone no later than the next business day. Notifications in person or by phone shall be confirmed by written notice addressed to the director within three (3) business days of the initial notice.

- C. If an illicit discharge emanates from a commercial or industrial establishment, the owner or operator of such establishment shall also retain an on-site written record of the discharge and the actions taken during cleanup operations and measures to prevent its recurrence. Such records shall be retained for at least three (3) years.
- D. The director shall make all of the required inspections, or shall accept reports of inspection by approved agencies or individuals. All reports of such inspections shall be in writing and be certified by a responsible officer of such approved agency. The director is authorized to request such reports as deemed necessary to report upon unusual technical issues that arise.

(Ord. No. 7032, § 1, 5-5-2011)

Sec. 34-15. - Notice of violation.

Whenever the director has determined that a violation of this chapter has occurred on any premises or facility within the City's corporate limits, the director shall serve a written notice of violation upon the owner or occupant having control thereof, or their agent, to abate such violation. The notice of violation shall:

- A. Be in writing.
- B. State the nature of such violation and that such condition constitutes a violation.
- C. Describe the premises or facility where the violation is alleged to exist or to have been committed.
- D. Specify a period for the abatement of the violation and that owner, person, or occupant shall submit documentation of the abatement to the director within that period.
- E. State that, unless such violation is abated without unnecessary delay, it may be abated by the City and the costs of such abatement may be specially assessed and shall be deemed a personal debt against the owner and constitute, to the extent permitted by law, a lien against the premises from which abated.
- F. State that failure, neglect or refusal to abate such violation with the actions necessary for compliance, renders the owner or occupant prosecutable in municipal court the manner set forth in Section 34-18.

Sec. 34-16. - Abatement by City.

For the purposes of this chapter, the director may employ the necessary labor and materials to perform the required work as expeditiously as possible if the owner, person, or occupant fails to abate the contaminant as required.

(Ord. No. 7032, § 1, 5-5-2011)

Sec. 34-17. - Costs of abatement.

Costs incurred in the performance of emergency work shall be paid by the City. The City may institute appropriate action against the person responsible or owner of the premises where the illicit discharge is or was located for the recovery of such costs.

(Ord. No. 7032, § 1, 5-5-2011)

Sec. 34-18. - Prosecution of violation.

If the notice of violation is not complied with, the director may institute the appropriate proceeding at law or in equity to restrain, correct or abate such violation, or to require the removal or termination of the unlawful discharge. Violations of this chapter shall also be punishable in the manner set forth in Section 1-13 of the Code of Ordinances.

(Ord. No. 7032, § 1, 5-5-2011)

Sec. 34-19. - Transfer of ownership.

It shall be unlawful for any person or owner who has received a compliance order or upon whom a notice of violation has been served to sell, transfer, mortgage, lease or otherwise dispose of to another, or interest in the subject property, until the provisions of the compliance order or notice of violation have been complied with, or until such owner shall first furnish the grantee, transferee, mortgagee or lessee a true copy of any compliance order or notice of violation issued by the director. The person or owner shall furnish to the director a signed and notarized statement from the grantee, transferee, mortgagee or lessee, acknowledging the receipt of such compliance order or notice of violation and fully accepting the responsibility without condition for eliminating the discharge and abatement(s) which may be required by such compliance order or notice of violation.

(Ord. No. 7032, § 1, 5-5-2011)

Sec. 34-20. - Violations deemed a public nuisance.

Any condition caused or allowed to exist in violation of any of the provisions of this chapter is a threat to public health, safety, and welfare, and is hereby declared to constitute a nuisance.

(Ord. No. 7032, § 1, 5-5-2011)

Sec. 34-21. - Remedies not exclusive.

The remedies listed in this chapter are not exclusive of any other remedies available under any applicable federal, state or local law and it is within the discretion of the director to seek any available remedy.

(Ord. No. 7032, § 1, 5-5-2011)

Sec. 34-22. - Severability.

If the provisions of any article, section, subsection, paragraph, subdivision or clause of this chapter shall be judged invalid by a court of competent jurisdiction, such order of judgment shall not affect or invalidate the remainder of any article, section, and subsection.

(Ord. No. 7032, § 1, 5-5-2011)

APPENDIX D – DESIGN & DEVELOPMENT ORDINANCES

- Design & Construction Manual, Section 1022 – Site Clean Up, *revised 10/10/16*
- Design & Construction Manual, Section 2150 – Erosion and Sediment Control, Standard Specifications, *revised 6/5/17*
- Design & Construction Manual, Section 5100 – Erosion and Sediment Control, Design Criteria, *revised 6/16/11*
- Design & Construction Manual, Section 5600 – Storm Drainage Systems and Facilities, Design Criteria, *revised 8/11/11*
- Unified Development Ordinance, Article 14 – Landscaping, Buffers, and Tree Protection, *revised 9/3/09*

**CITY OF LEE'S SUMMIT, MISSOURI
DESIGN AND CONSTRUCTION MANUAL**

SECTION 1000 – GENERAL PROVISIONS

1022 SITE CLEAN UP

The Contractor/Developer shall frequently clean up all refuse, rubbish, scrap materials, and debris created as a result of his operations, so that at all times the work site and adjacent disturbed areas shall present a neat, orderly, and workmanlike appearance in accordance with Chapter 16 of the Code of Ordinances. Upon completion of the work, the Contractor/Developer shall remove from the site and any occupied adjoining property, all plants, building, rubbish, unused materials, form lumber, and other materials belonging to him or his subcontractor. Burning of waste material is prohibited. The Contractor/Developer will restore the work site and adjacent disturbed areas to the condition existing before work began as a minimum. Any costs incurred by the City due to failure by the Contractor/Developer to clean up to the City's satisfaction will be charged to the account of the Contractor/Developer or his surety.

(Rev 10/10/16)

SECTION 2150 – EROSION AND SEDIMENT CONTROL

CITY OF LEE'S SUMMIT, MISSOURI STANDARD SPECIFICATIONS

The City of Lee's Summit hereby adopts Section 2150 of the Kansas City Metropolitan Chapter of APWA Construction and Materials Specifications, current edition. The following additions, deletions and/or revisions are adopted as a part of Section 2150 for use within Lee's Summit. Text in bold italics indicates revisions or additions to the APWA standard.

2154.5.A (Silt Fence) Materials, Construction Requirements, and Maintenance:

ADD the following:

- 1. Silt fence shall not be used in swales, drainage-ways, channels, and other conduits of concentrated stormwater flow.*
- 2. Silt fence shall not be used to direct or divert water.*

(Rev 2017-04-xx)

NOTE: APWA Section 2150, dated 2/15/17, (30 pages long) is available on the City's website: <http://cityofls.net/Development/Development-Regulations/Design-and-Construction-Manual>

SECTION 5100 – EROSION AND SEDIMENT CONTROL

**CITY OF LEE’S SUMMIT, MISSOURI
DESIGN CRITERIA**

The City of Lee’s Summit, Missouri’s hereby adopts Section 5100 of the Kansas City Metropolitan Chapter of APWA Design Criteria, current edition.

(Rev 061611)

*NOTE: APWA Section 5100, dated 9/15/10, (36 pages long) is available on the City’s website:
<http://cityofls.net/Development/Development-Regulations/Design-and-Construction-Manual>*

SECTION 5600 – STORM DRAINAGE SYSTEMS & FACILITIES

CITY OF LEE’S SUMMIT, MISSOURI DESIGN CRITERIA

This is Lee’s Summit, Missouri’s supplement to Section 5600 of the Kansas City Metropolitan Chapter of APWA Design Criteria, current edition. The following additions, deletions and/or revisions are adopted as part of Section 5600 for use within Lee’s Summit, Missouri.

5601.5 System Types and Applications

Under A. General Guidelines, delete the fourth paragraph and replace it with the following:

The engineered drainage system shall begin where the tributary area reaches 2 acres.

5601.8.A Protection of Property

Add the following subparagraphs 3 and 4.

3. Master Drainage Plans

To address level of service issues on an individual building lot basis, the Developer shall submit a Master Drainage Plan with the engineering plans for each development. The plan shall cover all portions of the development whether it is to be developed as single or multiple final plats, and shall cover all areas outside of the existing or proposed public rights-of-way. All lots must be graded in accordance with the approved Master Drainage Plan. Information on the plan shall include, but not be limited to, the following.

- a. Overall drainage map, including off-site tributary areas contributing to the runoff in the development.***
- b. Existing and proposed contours at two-foot or smaller contour intervals.***
- c. Property boundary, lot lines and numbers, and streets.***
- d. Location(s) of all existing and proposed swales and channels, either natural or improved, along with design flows, typical sections, details, upstream and downstream elevations, and approximate slope.***
- e. Limits of regulatory floodplain, where applicable.***
- f. Limits of 1% stormwater surface elevation for all swales and channels not within regulatory floodplain.***
- g. Required buffer zones for natural streams***
- h. The elevation of the minimum, or lowest, building opening elevation (MBOE) for each lot. If a lot is adjacent to or contains a designated swale or channel, the MBOE must be set at the 1% water surface elevation plus two feet. If there is significant change in elevation along a swale or channel, as determined by the City Engineer, multiple MBOEs may be required for different sides of the building.***
- i. Lots where walkout basements and daylight basement plans will be allowed.***

Unified Development Ordinance
Article 14. Landscaping, Buffers and Tree Protection

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Section 14.010. Purpose and definitions

A. Purpose.

The purpose of this Article is to improve the aesthetic qualities of the City and to protect and preserve the appearance, character and value of its neighborhoods and business areas by:

1. providing for quality and consistency in the design of landscaping and screening;
2. providing for the separation of incompatible types of land use; and
3. providing for the conservation of existing trees and the planting of new trees in conjunction with the development of land.

B. Definitions. Unless specifically defined below, words or phrases used in this Article shall be interpreted so as to give them the same meaning as they have in common usage and so as to give this ordinance its most reasonable application.

1. *Berm*. A mound or embankment of earth, usually two to six feet in height, used to shield or buffer properties from adjoining uses, highways or noise.
2. *Buffer*. An area of natural vegetation or man-made construction that is intended to provide a visual and dimensional separation between dissimilar land uses.
 1. *Natural Buffer*. A visual screen created by vegetation of such density so as to present an opaque visual separation when viewed from one side to the other throughout the year.
 2. *Structural Buffer*. A visual screen created through construction of a solid wooden fence, decorative masonry wall, earthen berm, or combination of fence or wall with an earthen berm, which may be supplemented with vegetation, to present an opaque visual separation when viewed from one side to the other throughout the year.
3. *Caliper*. The diameter of a tree (usually nursery stock) measured at a point six (6) inches above the ground or top of the root ball for up to and including four-inch (4") caliper trees, and at a point twelve (12) inches above the ground or top of root ball for larger sizes.
4. *Critical Root Zone*. The land area circular in shape and centered on the trunk of a tree, the radius of which circle is determined by the farthest extent of the drip line from the trunk.
5. *Development site*. That portion of a tract of land that will be dedicated to a proposed development.
6. *Drip Line*. A perimeter formed by the points farthest away from the trunk of a tree where precipitation falling from the branches of that tree lands on the ground.
7. *Ground cover*. A low-growing plant other than turf grass that forms a continuous cover over the ground surface.
8. *Landscape materials*. Any combination of living plant materials and nonliving materials, such as rock, pebbles, sand, mulch, pavers, berms, fencing, walls, fountains and other decorative materials.

9. *Landscaping*. The planting of shrubs, vines, turf, ground cover and the use of other landscape materials such as mulch, bark, decorative rock and other similar materials that are utilized to enhance the aesthetic and functional qualities of a site.
10. *Opaque*: Impenetrable to view, or so obscuring to view that features, buildings, structures, and uses become visually indistinguishable.
11. *Plant materials*. Living plants that include trees, shrubs, ground cover, grasses and perennial flowering plants, turf and vines that are suitable for ornamental or functional use.
12. *Screen*. Natural vegetation or a decorative structure that creates an opaque visual block or obscures an unattractive view. Screening may consist of any combination of the following, as approved by the Director:
 1. Fencing. (Amend. #3).
 2. Masonry walls.
 3. Plant materials or natural vegetation.
 4. Earthen berms.For the purpose of this Article, a screen is opaque to a height of six (6) feet, 2.5 feet for parking lots, above the ground surface or, for a screen of plant materials, has the maximum opacity obtainable with the approved arrangement and species of plant materials, to a height of six (6) feet or 2.5 feet for parking lots. (Amend. #3).
13. *Shade Tree*. A broadleaf tree having an average height at maturity of a least twenty (20) feet and having a broad spread relative to its height (excluding trees with pyramidal, conical, or columnar crowns) and a dense canopy, so as to provide shade in the summer months.
14. *Significant tree*. A tree in fair or better condition that has been determined to be of a high value by a knowledgeable person because of its species, size, age or other professional criteria.
 1. A tree is considered in fair or better condition if
 - (1) its life expectancy is greater than fifteen (15) years;
 - (2) it has a relatively sound and solid trunk with no extensive decay or insect infestation.
 2. Hardwood trees such as oaks and hickories that are of a 12 inch caliper or more and soft-wood trees such as pines and cedars, which are 16 feet in height or more, and small hardwoods such as dogwoods, redbuds or sourwoods with calipers of 6 inches or more shall be considered significant trees due to size.
15. *Shrub*. A self-supporting woody plant that normally reaches a height of less than fifteen (15) feet.
16. *Tree*. A self-supporting woody plant that normally reaches a height of at least fifteen (15) feet.
17. *Turf*. Ground cover composed of one or more species of perennial grass that is grown as a permanent lawn. Article 14. Landscaping, Buffers and Tree Protection
18. *Vine*. A plant that is typically woody and climbs by supporting itself on some other plant or structure.

Division I. Landscaping, buffers and tree protection plans, installation and maintenance

Section 14.020. Landscaping and buffer plans; when required

- A. Landscaping and buffer plans, as provided for in this section, shall accompany all preliminary and final development plan applications and be provided upon application for building permits for those developments not required to proceed through the Planning Commission or City Council development process.
- B. In cases where landscaping and buffer plan approval would cause harmful delay to the start of construction, the Director of Codes Administration may issue footing and foundation building permits for the project so that construction may proceed.
- C. Permits for construction beyond the footing and foundation shall not be issued until the landscaping and buffer plan has been submitted and approved.
- D. The provisions of this section shall not apply to structures for which landscaping and buffer plans have previously been submitted and approved.
- E. Except as noted herein, landscaping and buffer plans shall be approved prior to the issuance of a building permit.
- F. A landscaping and buffer plan shall only be required for that phase of development being considered for construction or for which a building permit is being acquired.
- G. Single family and two-family (duplex) developments are exempt from landscaping requirements. (Amend. #3)

Section 14.030. Landscaping and buffer plans; requirements

Landscaping and buffer plans shall include the following information:

- 1. north point and scale not to exceed 1 inch = 50 feet;
- 2. the location and size of all utilities on the site;
- 3. the location of all existing and proposed parking areas, and sidewalks and other paved surfaces;(Amend.#3)
- 4. the location of all existing and proposed buildings and structures;
- 5. the boundary of any required tree conservation area;
- 6. the boundaries of each required buffer or landscape strip;
- 7. the location and mature size of all landscape materials proposed to meet the requirements of this Article, drawn to scale; and a planting schedule indicating plant names (scientific and common), quantities and size at planting;(Amend.#3)
- 8. a separate planting schedule for each buffer, landscape strip, tree conservation area, parking lot, or other identifiable area where plant materials are to be installed;
- 9. the location, size and common name of all existing plant materials to be retained; and
- 10. 10. the location and construction details, including a profile section, of each structure proposed to meet buffering requirements;

Section 14.040. Tree conservation plan.

- A. A tree conservation plan shall be submitted to the Department prior to any grading, bulldozing, or other removal of existing vegetation that may affect existing tree coverage. A preliminary plan may be submitted in certain circumstances, as provided below.
1. The full tree conservation plan shall show the following:
 - a. the extent of the development site;
 - b. all significant trees to be removed and all other trees of 10 inch caliper or larger to be removed;
 - c. all significant trees and all other trees ten (10) inch caliper or larger that will remain on the development site and be protected during construction; and trees less than ten (10) inch caliper that are submitted for credit as part of the requirement of this Article;
 - d. in heavily wooded areas that will not be disturbed, the plan may show only the boundaries of each stand of trees and a list of the number, size, and type (e.g., hardwood, softwood; deciduous, evergreen) of trees in each stand that are submitted for credit;
 - e. locations of proposed on-site underground utility lines;
 - f. locations of other on- and off-site utility lines, indicating areas where trees cannot be planted because of interference with (1) existing or proposed utilities on public rights-of-way or on utility rights-of-way or easements and (2) existing utilities on adjoining properties;
 - g. limits of land disturbance, clearing, grading, and trenching;
 - h. limits of tree conservation areas, showing trees to be maintained and planted, specifying type and size;
 - i. grade changes or other work adjacent to a significant tree or any other tree ten (10) inch caliper or larger that would affect it adversely, with drawings or descriptions as to how the grade, drainage, and aeration will be maintained around the tree; and
 - j. planting schedule, if applicable.
 2. A preliminary tree conservation plan may be submitted for development of an industrial park where multiple sites will be cleared and graded for purposes of marketing vacant sites to prospects. Planting of new trees will not be required on a lot until a use is developed on that lot, and locations of new trees need not be shown on the preliminary plan. The preliminary tree protection plan shall show the following:
 - a. the extent of the development site;
 - b. limits of land disturbance, clearing, grading, and trenching;
 - c. all significant trees to be removed and all other trees ten (10) inch caliper or larger to be removed;
 - d. grade changes or other work adjacent to a significant tree or any other tree 10 inch caliper or larger that would affect it adversely, with drawings or descriptions as to how the grade, drainage, and aeration will be maintained around the tree;

- e. trees that will be required on the lot when it is developed, calculated by subtracting one-third of the lot area as assumed building area; and
- f. removal of significant trees and other trees ten (10) inch caliper or larger shall be permitted only in conjunction with an approved preliminary tree conservation plan, an approved grading plan, and actual grading of building pads (i.e., not simply to clear the lot).

Section 14.050. Acceptable plant materials

- A. The following are the minimum plant sizes and conditions to be used in satisfying the requirements of this Article. Acceptable plant materials for landscaping, buffers and tree replacement shall be as approved by the Director.
 - A. Medium shrubs, 18 to 24 inch balled and burlapped or 2-gallon container.
 - B. Large shrubs, 24 to 30 inch balled and burlapped or 5-gallon container.
 - C. Ground cover, 2½-inch peat pot.
 - D. Deciduous trees shall be a minimum of 3 inch caliper, measured at a point 6 inches above the ground or top of the root ball, at planting.
 - E. Evergreen trees shall be a minimum height of 8 feet at planting.
- B. The American Standard for Nursery Stock, published by the American Association for Nurserymen, shall be the standard reference for the determination of plant standards. Publications of the University Extension, University of Missouri System, the Missouri Department of Conservation, and other authorities acceptable to the Director also may be used.
- C. Existing trees and/or shrubs (Amend.#2) that are to be retained to satisfy the requirements of this Article shall meet the following standards.
 - 1. Evergreen trees shall be at least six (6) feet in height.
 - 2. Deciduous trees shall be a minimum of a 2 inch caliper.
 - 3. Trees shall be free from mechanical injuries, insect infestations and disease.
 - 4. Trees shall be protected from injury to roots, trunks and branches during grading and construction. Protective fencing, tree wells, or retaining walls shall be utilized where necessary to insure tree vigor upon completion of construction.
 - 5. Shrubs that meet acceptable sizes per Section 14.050.A and that are free from injury and disease may be counted toward the requirements of this Article. (Amend. #2)

Section 14.060. Approval of plant materials

Approval of a proposal to use a specific landscaping or buffer material shall be subject to a determination by the Director that the proposed material is appropriate for:

- A. the specific location, given surrounding land uses and the type of screening used on nearby properties, and
- B. the specific topography, soil, existing vegetation, and other factors that may influence the effectiveness of a plant material.

Section 14.070. Installation of plant materials

Plant materials, as required by the provisions of this Article, shall be installed by the date specified on the approved landscaping and buffer plan. The Director may allow one (1) planting season in a twelve (12)-month period in which the installation of plant materials shall be completed.

Buffers, if required, shall be installed before a certificate of occupancy permit is granted; except where the weather is not suitable for planting and escrow provisions are made in accordance with guidelines of the Department.

Section 14.080. Maintenance of required plant materials

- A. The owner, tenant and their agent, if any, shall be jointly responsible for the maintenance in good condition of the plant materials used to meet the minimum requirements of this Article for landscaping, buffer or tree replanting. The plant materials shall be kept free from refuse and debris.
- B. Plants that are not in sound growing condition or are dead shall be removed and replaced with a plant of a species or variety as determined by the Director.
- C. Other landscape materials shall be maintained in proper repair and shall be kept clear of refuse and debris.

Division II. Landscaping requirements

Section 14.090. Landscaping – minimum requirements

- A. Street frontage
 - 1. One (1) tree shall be planted for each thirty (30) feet of street frontage, public or private, within the landscaped setback abutting said street frontage. Such trees may be clustered or arranged within the setback if approved as part of the landscape plan. A minimum twenty-foot-wide (20') landscape strip shall be provided along the full length of any street frontage, except where the building setback is less than twenty (20) feet. (Amend. #3)
 - 2. In commercial and industrial districts, any parking or loading area visible from a street shall be separated from the street right-of way with a landscape strip at least twenty (20) feet wide.
 - 3. One (1) shrub shall be provided for each twenty (20) feet of street frontage, or portion thereof, within the landscaped setback abutting such frontage. Such shrubs may be clustered or arranged within the setback.
- B. Open yard areas.
 - 1. The minimum open yard area landscaping requirements (Amend. #3) shall be two (2) shrubs per 5,000 square feet of total lot area (except for tracts of land for which this Chapter imposes no yard requirements and permits 100% coverage of the lot by buildings), excluding building footprint area. For schools and churches/places of worship (Amend. #2) large sports/play fields and other areas specifically open to the public for use, i.e., tennis courts, paved play areas, paved parking lots etc. shall be excluded in the calculation of this requirement.

2. All portions of the site not covered with paving or buildings shall be landscaped. Open areas not covered with other materials shall be covered with sod. Ground cover shall be utilized on all slopes in excess of 3:1 slope.
 3. In addition to the trees required based upon street frontage, additional trees shall be required at a ratio of 1 tree for every 5,000 square feet of lot area not covered by buildings/structures. (Amend. #1) For schools and churches/places of worship (Amend. #2) large open sports/play fields may be excluded in the calculation of lot area. (Amend. #3) The remaining open space shall be applied to the ratio for tree planting as stated herein.
- C. Trash storage containers.
A detailed drawing of enclosure and screening methods to be used in connection with trash storage containers on the property shall be included with the landscaping plan. (See Section 7.290.G.)

Section 14.100. Landscape strips along street frontage

- A. Frontage landscape strips shall contain no structures, parking areas, patios, storm water detention facilities unless included in the landscape plan as an amenity or any other accessory uses except for the following:
 1. retaining walls or earthen berms constructed as part of an overall landscape design;
 2. pedestrian-oriented facilities such as sidewalks and bus stops;
 3. underground utilities
 4. driveways required for access to the property; or
 5. signs otherwise permitted by this Chapter.
- B. All portions of a frontage landscape strip shall be planted in trees, shrubs, grass or ground cover, except for those ground areas that are mulched or covered by permitted structures.
- C. Plant materials in the frontage landscape strip are not to extend into the street right-of-way unless specifically allowed by the Public Works Department.

Division III. Parking lot and loading area landscaping

Section 14.110. Parking lot landscaping and trees

Deciduous shade trees shall be provided within any parking lot designed or intended to accommodate ten (10) cars or more, in accordance with the requirements of this Section.

- A. Landscape islands, strips or other planting areas shall be located within the parking lot and shall constitute at least five percent (5%) of the entire area devoted to parking spaces, aisles and driveways. Every four rows of parking shall include a landscape island of at least ten feet in width. (Amend. #1) Industrial zoned properties, PI-1, PI-2 and BP, shall be exempt from this requirement (Amend. #3)
- B. As a minimum, a landscaping island shall be located at the end of every parking bay between the last parking space and an adjacent travel aisle or driveway. The island shall be no less than nine (9) feet wide for at least one-half the length of the adjacent parking

space. The island shall be planted in trees, shrubs, grass, or ground cover, except for those areas that are mulched.

- C. Tree planting areas shall be no less than ten (10) feet in width. No tree shall be located less than four (4) feet from the back of curb. All parking lot landscape islands, strips or other planting areas shall be curbed with minimum six (6)-inch high curbs of the type required by this Chapter or other regulations for parking areas.
- D. Planting requirements: See Section 14.090 of this Article.

Section 14.120. Screening, Parking Lot (Amend. #3)

For any parking lot designed or intended to accommodate five (5) cars or more and any area set aside for loading or unloading of trucks or vans, if such parking lot or loading area is visible from a street right-of-way, a visual screen shall be provided as required below.

- A. Screening to a height of two-and-one-half (2.5) feet must be provided along the edge of the parking lot or loading area closest to and parallel to the street. A driveway to the parking lot or loading area may interrupt the screening.
- B. Screening shall be decorative and 100% opaque to a height of two-and-one-half (2.5) feet above the elevation of the parking/loading area or the street, whichever is highest.
- C. Screening may be provided in any of the following ways:
 - 1. *Planted only.* A hedge consisting of at least twelve (12) shrubs per forty (40) linear feet that will spread into a continuous visual screen within two (2) growing seasons. Shrubs must be at least eighteen (18) inches tall at the time of planting and be of a species that will normally grow to at least two-and-one-half (2.5) feet in height at maturity and be suitable for the parking lot application.
 - 2. *Earthen berm.* An earthen berm constructed to a height of two-and-one-half (2.5) feet above the adjacent elevation of the street or parking/loading area, whichever is highest, shall not exceed a slope of 3:1 and shall have a crown of at least two (2) feet. The berm shall be planted in ground covers and other plant materials to achieve a decorative effect to the satisfaction of the Director.
 - 3. *Wall.* A wall of brick, stone, PVC plastic fencing or finished and textured concrete may be constructed to a height of two-and-one-half (2.5) feet and 100% opacity and landscaped with plant material to achieve a decorative effect to the satisfaction of the Director. (Amend. #3)
 - 4. *Combination.* Any combination of hedge, berm or wall that effectively provides a visual screen of the parking lot or loading area to a height of two-and-one-half (2.5) feet and achieves a decorative effect through appropriate use of landscaping and plant material.
- D. The street-side screening treatment may be located within the landscape strip required under this Article along the front yard of the property.
- E. Berming and/or screening shall not encroach into the required sight triangle of streets or access drives. (Amend. #1)

Section 14.130. Parking lot permit – when required (Amend. #6)

No person shall initiate construction of a new parking lot or expansion of an existing parking lot without first obtaining a permit from the Director. A parking lot permit shall not be

required for the resurfacing or re-striping (painting) of an existing parking lot consistent with the current striping. (Amend. #1)

Section 14.140. Parking lot permit – application, content and submission requirements (Amend. #6)

Application for a parking lot permit shall be made on a form provided by the Director and shall be accompanied by a site plan depicting:

- A. the parking lot layout; including proposed striping,
- B. number and location of parking spaces, including handicapped spaces;
- C. structures on the same property;
- D. structures and parking areas on adjacent property;
- E. ingress and egress for the property; and
- F. all other information required by the Director.

Section 14.150. Parking lot permit – consideration (Amend. #6)

The parking lot permit application shall be considered by the Director. The permit may be issued if the Director determines that all requirements of this Chapter have been satisfied and that criteria for parking lot construction pursuant to the Design and Construction Manual have been satisfied.

Section 14.160. Parking lot permit – appeals (Amend. #6)

The applicant may appeal the non-issuance of a parking lot permit, and a permit holder may appeal the revocation of a parking lot permit, to the Board pursuant to Section 4.660.

Division IV. Buffer/screen required between land uses

Section 14.170. Buffer/screen; where required

- A. Buffer/screen between developments of differing land uses adjoining one another or separated from one another by only a street or alley shall comply with Table 14.1 Typical buffers. The intensity of the required buffer/screen is established according to the intensity of the abutting uses, i.e., retail development adjacent to or across the street from a residential use or development requires a more intense buffer/screen than would retail adjacent to or across from office use, etc.
- B. If a single-family subdivision is approved or built adjacent to a previously approved or built but separate single-family subdivision, and the difference in the average minimum lot size between the two subdivisions is 120% or more, the subsequently approved or built subdivision shall contain a buffer/screen along the periphery adjacent to the previously approved or built subdivision.

Section 14.180. Buffer design standards

- A. General.

Buffer areas shall contain no driveways, parking areas, patios, storm water detention facilities, or any other structures or accessory uses except for a fence, wall, or earthen berm constructed to provide the visual screening required to meet the standards of this Chapter.

Underground utilities may be permitted to cross a buffer if the screening standards of this Article will be subsequently achieved. Required vehicular access through a buffer may be allowed as a condition of preliminary development plan approval.

B. Natural Buffers.

Natural buffers may contain deciduous or perennial vegetation but shall contain evergreen shrubs and trees suitable to local growing conditions that will provide an opaque visual screen during all seasons of the year.

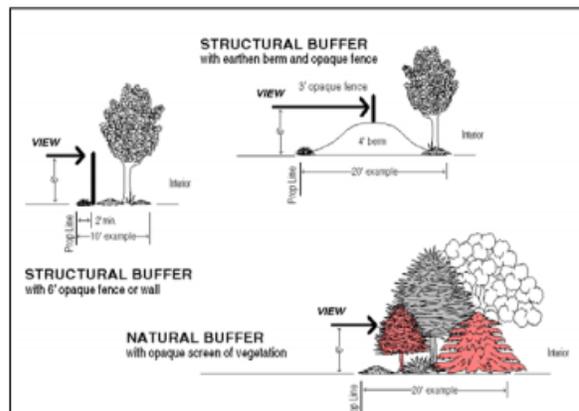
C. Structural Buffers.

Structural buffers shall meet the following criteria:

1. Structural buffers shall be vegetated throughout the minimum area required for the buffer around any fences or walls and upon any earthen berms, which may include grass, ground covers, shrubs, and trees.
2. All earthen berms shall have a maximum side slope of three (3) horizontal to one (1) vertical (3:1). Earthen berms shall not be constructed within the drip line of any existing trees that will remain on the property.
3. Trees shall be located or planted within any structural buffer at a density of no less than one (1) tree for each thirty (30) feet of buffer length or portion thereof. New trees shall have a caliper of no less than three (3) inches upon planting and may be clustered for decorative effect, following professional landscaping standards for spacing, location, and design.
4. Fences and freestanding walls shall present a finished and decorative appearance to the abutting property. Where a fence or wall is set back from the property line, shrubs, ground covers, or other vegetation shall be provided between the fence or wall and the property line so as to provide a decorative effect, following professional landscaping standards for spacing, location and design. (Amend. #3)

D. Examples of Buffers.

The accompanying illustration above provides examples of natural and structural buffers. Typical buffer/screens are provided in the examples following Table 14.1 for low, medium and high impact screening.



Section 14.190. Minimum buffer/screen requirements

A buffer/screen required by this Chapter shall meet the following criteria:

A. Width of Buffer.

1. Side Lot Line. Buffers required along any side lot line shall be no less than twenty (20') feet or as approved by the Governing Body (Amend. #3)

2. Rear Lot Line. Buffers required along any rear lot line shall be no less than twenty (20') feet or as approved by the Governing Body. (Amend. #3)
- B. Minimum Required Screening.
Minimum required screening shall conform to Table 14.1 depending on the impact identified. Structural buffers (high impact screening) shall meet the height required when installed. Planted materials (trees and shrubs) shall meet the expected opacity within two (2) growing seasons.
- C. Maintenance.
Every buffer required by this Chapter shall be maintained by the owner of the property where the buffer is located, in order to provide the visual screen at the opacity identified, on a year-round basis.
- D. D. Buffer Modifications
1. If a structural buffer with landscaping is provided that creates an opaque screen to a height of no less than eight (8) feet instead of six (6) feet, the buffer may be reduced to a width of no less than ten (10) feet. (Amend. #3)
 2. The Director may waive a buffer requirement or reduce its extent to a temporarily appropriate level of screening if the Comprehensive Plan anticipates future development on the adjoining property in a land use category such that a buffer would not be required by this Chapter once the adjoining property is rezoned or developed.

Table 14.1. Buffer/Screen Impact (Amend.#34)

Proposed Use	Adjoining Use															
	AG	RDR	R-1	RP-1	RP-2	RP-3	RP-4	PRO	PO	CP-1	CP-2	CBD	CS	PI		PMIX
AG					L	M	M	M	M	M	H		H	H		**
RDR					L	M	M	M	M	M	H		H	H		**
R-1			*	*	L	M	M	M	M	M	H	H	H	H		**
RP-1			*	*	L	M	M	M	M	M	H	H	H	H		**
RP-2	L	L	L	L		M	M	M	M	M	H	H	H	H		**
RP-3	M	M	L	L	L		M	M	M	M	H	H	H	H		**
RP-4	M	M	H	H	M	M		M	M	M	H	H	H	H		**
PRO	M	M	M	M	M	M	M		M	M	H	L	H	H		**
PO	M	M	M	M	M	M	M			L	L	L	M	M		**
CP-1	M	M	M	M	M	M	M	M	L		L		M	M		**
CP-2	H	H	H	H	H	H	H	H	L	L			M	M		**
CBD			H	H	H	H	H	L	L							**
CS	H	H	H	H	H	H	H	H	M	M	M			L		**
PI	H	H	H	H	H	H	H	H	M	M	M		L			
PMIX	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**

*If lot size differs by 120% or more, a low impact screen shall be provided

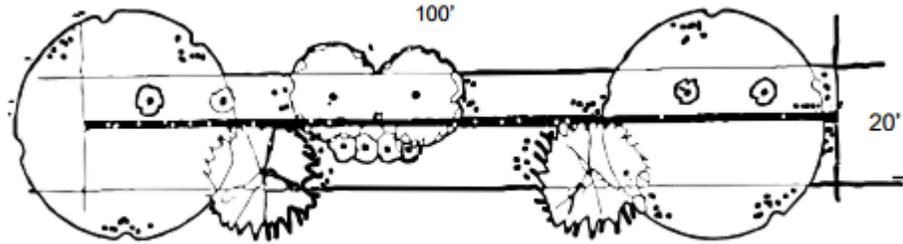
**Per approved plan

- Screening Options:**
- 1) Six foot (6') masonry wall
 - 2) Six foot (6') opaque vinyl fence with masonry pillars
 - 3) Earth berms
 - 4) Plant material

Section 14.200. Required typical impact screens

The following impact screens shall be required between any district as identified in Table 14.1 in which the perspective development is located and adjacent to or across from.

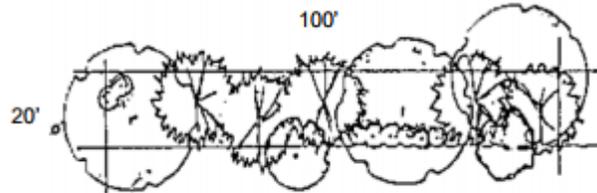
1. **High Impact Screening:** A one hundred percent (100%) opaque screen between land uses, which are dissimilar in character. When the proposed plan is considered to have a high impact on surrounding properties or the adjacent property is considered to have an adverse impact, both of the following shall be installed within the twenty (20) foot buffer yard: (1) a six foot high masonry wall or opaque vinyl fence, (2) and low impact screening shall be planted on both sides of the wall or the fence.



2. **Medium Impact Screening:** A seventy percent (70%) semi-opaque screen between land uses which are dissimilar in character. Semi-opaque screening should partially block views from adjoining land uses and create a separation between the adjoining land uses. For medium impact screening, either a landscape screen or fencing is required. A medium impact landscape screen must meet one of the following screening options:

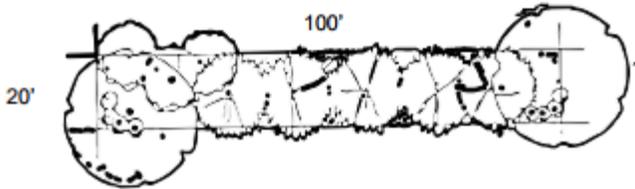
Screen A

Shade Trees	1/500 sf.
Ornamental Trees	1/750 sf.
Evergreen Trees	1/300 sf.
Shrubs	1/200 sf.



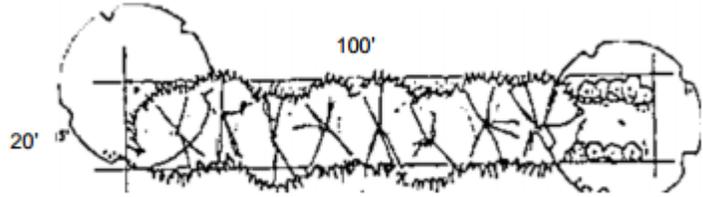
Screen B

Shade Trees	1/1000 sf.
Ornamental Trees	1/500 sf.
Evergreen Trees	1/300 sf.
Shrubs	1/200 sf.



Screen C

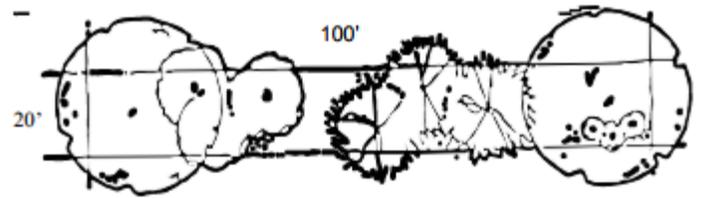
Shade Trees	1/750 sf.
Ornamental Trees	0 sf.
Evergreen Trees	1/200 sf.
Shrubs	1/200 sf.



3. **Low Impact Screening:** An open screen between relatively similar land uses. Open screening shall provide an attractive separation between land uses. A low impact landscape screen must portray one of the following screening options:

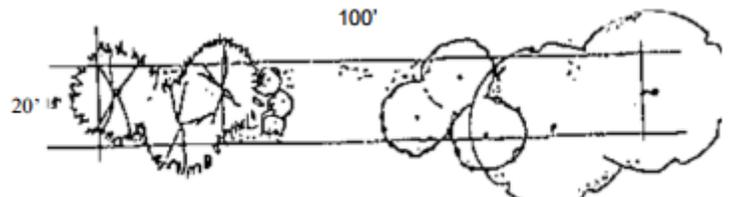
Screen A

Shade Trees	1/500 sf.
Ornamental Trees	1/750 sf.
Evergreen Trees	1/500 sf.
Shrubs	1/500 sf.



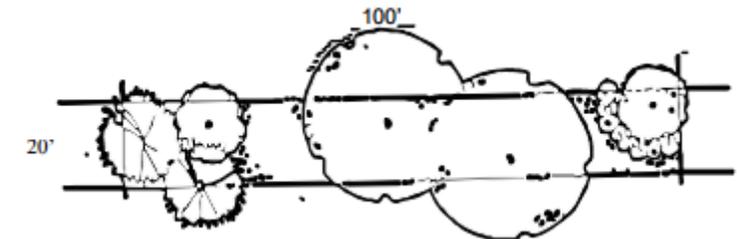
Screen B

Shade Trees	1/1000 sf.
Ornamental Trees	1/500 sf.
Evergreen Trees	1/500 sf.
Shrubs	1/500 sf.



Screen C

Shade Trees	1/750 sf.
Ornamental Trees	1/750 sf.
Evergreen Trees	1/750 sf.
Shrubs	1/200 sf.



Section 14.210. Reserved

APPENDIX E – EMPLOYEE TRAINING PROGRAM

- Illicit Discharge Detection & Elimination staff training, 2017
- Erosion Control (Construction & Post-Construction) staff training, 2017
- Good Housekeeping & Pollution Prevention staff training, 2017

LS
LEE'S SUMMIT
MISSOURI



**ILLCIT DISCHARGE
DETECTION &
ELIMINATION**

2017

STAFF TRAINING PROGRAM

Kara Taylor, Environmental Specialist
Scott Edgar, Stormwater Engineer

NPDES

National Pollutant Discharge Elimination System

- Created in 1972 by the Clean Water Act
- Enforced by EPA through states
 - prohibits pollutant discharges to 'waters of U.S.' & MS4
- Requires permits for industrial, **municipal**, and other facilities that discharge directly to surface waters and waters of the U.S.
- Responsibility of ALL City departments **LS**
- Water Quality




2

MS4

Municipal Separate Storm Sewer System

- 'Sewer' is a bad word in the local stormwater world
- City's Storm Drainage System (MS4) is NOT the same as the City's Sanitary Sewer System. Completely separate.
- Series of large underground pipes and open roadside ditches
- Collects and transports **stormwater ONLY** (rainfall and snowmelt) directly to local streams and lakes with **NO** treatment



3

Minimum Control Measures

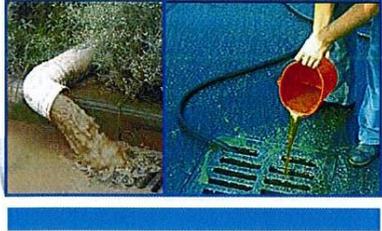
Six MCMs required in City's NPDES permit

- Public Outreach/Education
- Public Participation/Involvement
- Illicit Discharge Detection and Elimination**
- Construction Site Runoff Control
- Post-Construction Runoff Control
- Good Housekeeping/Pollution Prevention



4

Illicit Discharge Detection & Elimination (IDDE)



MCM

City's IDDE Ordinance

- Chapter 34: Stormwater Discharge Control Regulations
- Developed by requirement of the NPDES permit
- Section 34.1: *"The Director of Public Works and the Director of Codes Administration shall be responsible for the administration and enforcement of this chapter, with the Director of Public Works administering violations of this chapter occurring on City owned Right-of-Way and the Director of Codes Administration administering violations of this chapter occurring on private property."*
- However, IDDE applies to all field staff

6

Illicit Discharge

- "any discharge to an MS4 that is not composed entirely of stormwater"
 - Some exceptions
- Illegal dumping or littering that directly affects stormwater
- Pushing, shoving, pouring, placing anything other than stormwater into a City storm drain, creek, stream, or lake.
- Such as...



Illicit Discharge



Illicit Discharge



Illicit Discharge Exceptions

- Groundwater, natural springs
- Landscape irrigation
- Foundation/footing drain water
- Crawl space pump water
- Air conditioning condensate
- Street wash water
- Residential car washing
- Firefighting activities
- Dechlorinated swimming pool discharge



Purpose of IDDE Program

- Detect, repair, and prevent illicit discharges in the City
- Highest priority is to 'detect'
 - 95,000+ residents
 - 244 miles of storm pipe
 - 12,000 storm inlets
 - 57 miles of streams, with floodplains
 - 6 recreational reservoirs
- Minimal stormwater staff
- Field staff play a critical role!



ALL Field Staff Role

- Eyes and Ears (includes field supervisors)
- Observe anyone pushing, shoving, pouring, placing anything other than stormwater:
 - into a City storm drain
 - into the street, into/onto City right-of-way
 - onto City parking lots or City property
 - Into/onto private property, creek, stream, or lake
- Report to Supervisor and:
 - Public Works (969-1800) - public property
 - Development Services (969-1200) - private property

Inspectors, Field Technicians, Field Supervisors Role

- Eyes and Ears, plus
- **Take action in the field to stop illicit discharges**
 - Identify yourself and ask person(s) to stop activity
 - If uncomfortable, contact field Supervisor
- Then report to PW (public) or Development Services (private)
- Field staff (primarily PW) will be taking a more proactive role in stormwater inspections - stormwater boxes and creeks

Development Services & PW Stormwater Staff Role

- Eyes and Ears, plus
- Take action in the field to stop illicit discharges, plus
- Enforcement action
 - Issue notice of violation
 - Follow procedures for failure to comply

CODE COMPLIANCE
NOTICE OF VIOLATION

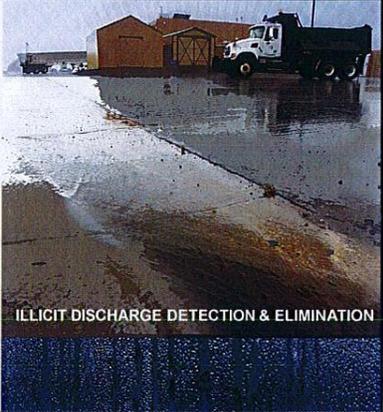
Important

- Required by EPA and MDNR
- PW Stormwater Engineering staff cannot be in the field everywhere
- Eyes and Ears: If you see it, do something about it (stop it or report it)
- Need to be more proactive, according to NPDES permit
 - Organized, systematic look at City's entire system to identify problem areas
- Public Works: 969-1800
- Development Services: 969-1200

15



QUESTIONS?



ILLCIT DISCHARGE DETECTION & ELIMINATION

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EROSION CONTROL
(CONSTRUCTION & POST-CONSTRUCTION)

2017

STAFF TRAINING PROGRAM

Kara Taylor, Environmental Specialist
Scott Edgar, Stormwater Engineer
Bart Reese, Field Engineering Inspector

NPDES

National Pollutant Discharge Elimination System

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- Responsibility of ALL City departments **LS**
- Water Quality




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3

Minimum Control Measures

Six MCMs required in City's NPDES permit

- Public Outreach/Education
- Public Participation/Involvement
- Illicit Discharge Detection and Elimination
- Construction Site Runoff Control
- Post-Construction Runoff Control
- Good Housekeeping/Pollution Prevention



4

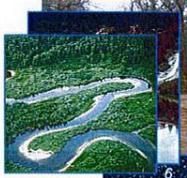
Erosion Control (Construction & Post-Construction)




5

Erosion

- Natural process
- Land surface (soil, rock, etc.) is worn away and transported elsewhere
 - Wind
 - Water (rain, glaciers, waves, etc.)
- Extent of erosion depends on:
 - Soil characteristics (type, permeability, etc.)
 - Vegetative cover (grass, weeds, trees)
 - Topography (hills, prairie, floodplain, etc.)
 - Rainfall amounts and intensity
- Results in sedimentation or deposition
 - settling out of suspended solids (soil, rock, etc.)

6

Erosion Control

Erosion control is a set of measures, a.k.a. Best Management Practices (BMPs), used to reduce and effectively manage erosion.

• Why bother?

- Regulatory requirements
- Development increases runoff, erosion

• Applies to:

- New development
- Re-development
- Disturbed property
- City property
- Private property



7

Try Again



8

Types of Erosion Control

• Possible erosion control BMPs:

- mulch
- silt fence
- vegetative cover
- erosion control blankets
- gutter buddies
- weirs
- check dams
- rip rap
- interlocking walls
- french drains

- Depends on project
- Not all of these will be applicable



9

Erosion Control Regulations

- NPDES Permit
- City's Ordinances (7.230, 7.293, 16.416, & 22.5)
- City's Design & Construction Manual, Sections 2150 & 5100
 - Erosion control requirements for design & construction

- Erosion requirements exist for all land disturbance
 - residential, commercial, industrial, municipal

- If disturbing >1 acre, Stormwater Pollution Prevention Plans (SWPPPs) are also required
 - Must be developed and approved prior to beginning work
 - Must be accurate!

10

City's Erosion Control Ordinances

Sections 7.230, 7.923, & 16.413: "... Erosion of ground in the area of discharge shall be prevented by installation of erosive control devices."

Section 7.230.C, 7.293.C, & 16.413.C: "Where such conditions exist and the Code Official has give written notice of the violation, the owner of the property shall take appropriate measures to eliminate the problems..."

Section 22.5: "The Department of Public Works and the Department of Codes Administration shall handle erosion control enforcement through the normal routine activities..."

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City's Erosion Control Ordinances

Section 22.5 (continued): "If...erosion control measures are deficient, but not hazardous, the Director shall notify...to correct the deficiencies within two (2) regular business days. If the deficiencies have not been corrected...the Director...may:

- Issue a stop work order for the site;
- Suspend the land disturbance permit(s);
- Remedy the deficiencies and bill...for the actual and administrative costs. If...fails to reimburse the City..., the Director...may withhold certificate(s) of occupancy, including temporary certificate(s) of occupancy, for all contractor, developer, or owner's properties; and/or
- Refer the case to the law department for prosecution.

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Inspectors

- Ensure erosion BMPs are in place BEFORE a project begins
- Inspect on regular basis
- Document all inspections
- Address erosion issues on-site as it is observed
 - Ensure the contractor repairs or installs BMPs
- Document all issues and corrective measures

- If a SWPPP is required, make sure contractor follows it
 - If not, adjust the work or adjust the SWPPP

- Send copies of any violation letters to:
Kara Taylor, Public Works

Supervisors

- Hold contractors accountable
 - Ok to question
 - Ok to write letter, document issues
 - Ok to stop work

- Hold staff accountable
 - Follow up

- Send copies of any violation letters to:
Kara Taylor, Public Works

Enforcement

- Development Services
 - Private property
 - Notices of Violation, failure to comply, court, etc.

- Public Works
 - Public property and Notices of Violation
 - failure to comply, court? (joint effort with Development)

- Work together, need to develop procedures
 - Different departments but same goal

- Bottom line... erosion control HAS to be addressed

Important

- Required by EPA and MDNR
 - Not trying to be difficult or slow down the process
 - Can potentially be audited
 - Can and will get fined for non-compliance

- Eyes and Ears: If you see it, do something about it

- Need to be more proactive, according to NPDES permit
 - Organized, systematic look at City's entire system to identify problem areas

- Public Works: 969-1800
- Development Services: 969-1200

16



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GOOD HOUSEKEEPING & POLLUTION PREVENTION

2017

STAFF TRAINING PROGRAM

Kara Taylor, Environmental Specialist
Scott Edgar, Stormwater Engineer

NPDES

National Pollutant Discharge Elimination System

- Created in 1972 by the Clean Water Act
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- Illicit Discharge Detection and Elimination
- Construction Site Runoff Control
- Post-Construction Runoff Control
- Good Housekeeping/Pollution Prevention**

4

MCM

Pollution Prevention & Good Housekeeping

Pollution Prevention & Good Housekeeping

- Government employee training program – REQUIRED
 - To prevent and reduce stormwater pollution from City activities (fleet, building maintenance, parks, streets, utilities, storage yards, etc.)
- Reduce/eliminate discharge of pollutants from streets, highways, municipal parking lots, maintenance and storage yards, shops, salt/sand storage, etc.
- Properly store materials (paints, solvents, chemicals, petroleum products, etc.) such that they are not exposed to stormwater.

6

Pollution Prevention & Good Housekeeping

- Material Management & Spill Control/Prevention
- Vehicle Fueling
- Spill Response & Notification
- Vehicle/Equipment Maintenance
- Vehicle/Equipment Washing
- Waste Management
- Facility Maintenance
- Parking Lots/Street Cleaning
- Landscaping and Grounds Maintenance
- SWPPPs for each facility



Material Mgmt & Spill Control

BMP



Current Material Storage



Current Material Storage



Material Storage Guidelines



Material

- Any chemical, solvent, paint, fluid, hazardous and/or flammable substance
- Solid, liquid, or gas
- Used in routine maintenance, operation, or completion of required work

Bulk Material

- Liquids in volumes of 55-gallons or more
- Solids in quantity or volume of 1 yd³ or more
- 1 or more case of a common material

Material Storage Guidelines (cont.)



- No materials stored outside. If not possible:
 - Supervisor approval needed.
 - Stored under cover/shelter on or within secondary containment.
 - At least 50 feet from storm drain or inlet.
- All materials stored in original labeled containers.
- Leaking containers to be replaced immediately.
- All containers remain closed when not in use.
- No materials stored directly on floor or ground; use pallets or other such devices.
- No materials stored where equipment impact could cause a spill or leak.

Material Storage Guidelines (cont.)



Flammable Cabinet Storage

- Fuel cans (full or empty)
- Explosive materials, such as flares
- Opened, partially full, hazardous liquid containers (at end of use/shift)



Pallet Storage

- Dry materials (pesticides, fertilizers, ice melt)
- Any materials not on shelves or in cabinets

Shelf Storage

- Unopened liquid and aerosol containers
- Opened, partially full, non-hazardous liquid and aerosol containers (at end of use/shift)

Pesticides shall NOT be stored adjacent to or within the same cabinet as fuels

Material Storage Guidelines (cont.)

Secondary Containment (SC) Storage

Bulk materials shall be stored on or within appropriately-sized SC, as follows:



- All 55-gallon drums, open or unopened, shall be stored on SC pallets.
- If the total volume of a material meets or exceeds 55-gallons, all shall be stored on SC pallets.
- All materials purchased in a case or more shall be stored on SC pallets or shelving having SC capabilities.

Spill Control / Prevention



- Keep work areas neat and orderly
 - Use drip pan or secondary containment to catch leaks and drips
 - Ensure all **MINOR** spills are cleaned up immediately in proper manner:
 - Use dry cleaning methods
- Solution → Pollution ⇌ Dilution
- Use rags and/or absorbent material (not kitty litter)
 - Properly dispose of used rags and absorbent material in trash receptacles

Vehicle Fueling

BMP



Vehicle Fueling Practices

- Pull vehicle as close to pump as safely possible
- Shut off vehicle while fueling
- Stay with vehicle while fueling
- Handle fuel nozzle in vertical position
- Do not top off vehicle
- No smoking
- If spills occur, spot clean immediately with absorbent materials
- Properly dispose of waste and absorbent materials
- Know the location of emergency shut off valves



17

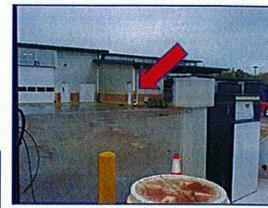
Fuel Spill Response – Maint. Facility

Emergency Shut Off

- Know the location of the emergency shut off valve
- Know how to operate the emergency shut off valve



Diesel fuel



18

Fuel Spill Response – WUO

Diesel fuel

Emergency Shut Off
 Across driveway from pump, in brick column

Absorbents
 In yellow drum, next to fuel pump

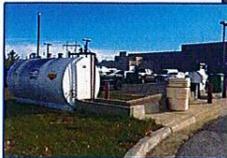



Fuel Spill Response – Police Dept

Unleaded fuel

Emergency Shut Off
 Across driveway from pump, in brick column

Absorbents
 In yellow drum, next to fuel pump

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Fuel Spill Response – Parks Ops

Unleaded fuel

Emergency Shut Off
 Across driveway from pump, in brick column

Absorbents
 In yellow drum, next to fuel pump




Fuel Spill Response – Fire Station #1

Diesel and unleaded fuel

Emergency Shut Off
 Across driveway from pump, in brick column

Absorbents
 In yellow drum, next to fuel pump




22

Spill Notification

LS Fire Dispatch
 Emergency – Big Spills
 Phone: 911

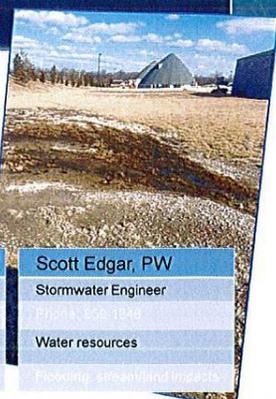
LSFD, lead agency in hazardous spill response, other departments assist
 Hazard: "a source of danger"

Kara Taylor, PW
 Environmental Specialist
 Phone: 556-1804

Scott Edgar, PW
 Stormwater Engineer
 Phone: 556-1836

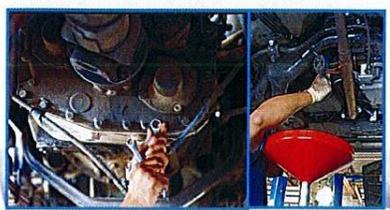
Regulatory compliance
 Spills, fuel discharges, streams

Water resources
 Flooding, streamland impacts



Vehicle & Equipment Maintenance

BMP



Vehicle & Equipment Maintenance Practices

Fleet Division is responsible for maintenance, establishes a schedule for each vehicle

Do not perform maintenance without approval

Do not perform maintenance outdoors, under a tarp, or near a storm drain

Use drip pans and absorbent materials beneath vehicles; clean pans and floors immediately

Fix leaks immediately

Keep floors swept and work areas clean

Do not flush or pour wash water into a storm drain

Use parts washers for oily equipment



25

Vehicle & Equipment Maintenance Practices



26

Vehicle & Equipment Washing

BMP



Vehicle & Equipment Washing

Always use a City-designated wash bay (enclosed with roof) or commercial wash

Use only water and soap provided at the wash

Keep wash water within the wash bay

Do not perform vehicle maintenance in wash bays, including adding fluids

If washing outside is required, do so on gravel or grass surface to reduce runoff

Do not wash a vehicle near a storm drain

Use hoses with nozzles that automatically turn off when left unattended



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Waste Management

BMP



Waste Receptacles, Outdoor

Leak-tight receptacles, with lids

Lids remain closed at all times

Stored away from storm drains and vehicular traffic

No liquids

Under a roof, if possible

Do not wash out receptacle

Sweep around receptacle regularly



Uncontainerized Wastes



Littering on-site is prohibited

Piling waste in an open area (i.e., not in a container) is prohibited

Collect waste, litter and debris

Place in bags or containers for disposal off-site

No liquids

Building Maintenance

BMP



Building Maintenance

- Utilize non-toxic cleaners and chemicals, when possible
- Utilize water-based cleaners for paints, stains, and solvents
- Use drop cloths beneath painting, scraping, sandblasting activities
- Utilize sinks or wash bins connected to the sanitary sewer system
- Do not pour wash water down a storm drain
- Keep work areas clean and orderly
- Use dry cleaning methods (sweeping) for walking areas
- Ensure litter and trash is collected from ground surface daily
- Do not wash trash receptacles outdoors near storm drains

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Parking Lots & Street Cleaning

BMP



Parking Lots

- Provide trash cans & empty regularly
- Routinely sweep lots and pickup litter
- Use dry cleaning methods
- Sweep around trash receptacles regularly
- Sweep all lots at least once before spring rains
- Use absorbent materials on oil spills
- Properly dispose of waste materials used to clean spills



34

Street Sweeping



- Maintain a sweeping schedule
- Sweep more often in areas of high traffic along construction sites*
- Sweep in dry weather when possible
- Adjust brooms as needed to maximize efficiency
- Do not sweep up unknown materials or liquids
- Properly dispose of swept materials

*could be contractor responsibility, too

Landscaping & Grounds Maintenance

BMP



Landscaping & Grounds Maintenance



- Preserve native vegetation, where possible
- Do not blow or sweep leaves into streets, storm drains, ditches, creeks
- Compost grass clippings when possible
- Use erosion control measures on exposed soil
- Irrigate slowly to prevent runoff

Landscaping & Grounds Maintenance

- Do not mix or prepare pesticides near storm drains
- Apply pesticides when wind speeds are low
- Do not use pesticides if rain is expected
- Use less toxic pesticides, if possible
- Follow application instructions for fertilizer and pesticides, use minimum amount needed



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SWPPPs

BMP



Stormwater Pollution Prevention Plans (SWPPPs)

- Each City facility has a SWPPP, which will be updated to include the Material Storage Policy
- Projects disturbing >1 acre have a site-specific SWPPP
- Each SWPPP must be reviewed regularly
- Any changes to procedures must be documented in the SWPPP, with dates
- Any spills must be documented in the SWPPP, along with cleanup dates
- All reviews and inspections must be documented
- Pattern... document, document, document

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Important

- Required by EPA and MDNR
- Eyes and Ears: If you see it, do something about it (pick it up, clean it up, or report it)
- Need to be more proactive, according to NPDES permit
 - Organized, systematic look at City's entire system to identify problem areas
- Some departments may have to budget for improvements (secondary containment, flammable cabinets, shelving, pallets, etc.)
- Need to develop implementation and inspection schedule

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