

City of Winfield, Kansas

Stormwater Management Plan



2015

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City of Winfield Background Information

The National Pollution Discharge Elimination System (NPDES) Phase II Stormwater Regulations dictate that the Kansas Department of Health and Environment (KDHE) develop criteria for designating small Municipal Separate Storm Sewer Systems (MS4s) to be regulated under the NPDES stormwater discharge control program. The City of Winfield has been designated as a regulated small MS4+ by KDHE. The City of Winfield has a population of approximately 12,000 residents and is located approximately 45 miles southeast of Wichita.

The City of Winfield has been an active member of a group of Kansas Phase II communities known as the Clean 20 Consortium (originally the Clean 12) since the fall of 2002. The communities have worked diligently and cooperatively with each other and Wilson & Company to develop the means and methods necessary to accomplish the requirements for all Phase II communities to be in compliance. The Consortium has hired Wilson & Company and others for several different phases of the process.

The purpose of this Stormwater Management Plan document is to describe the City of Winfield's Stormwater Program and address the six minimum control measures fulfilled by the community. This document also includes discussion of best management practices (BMPs) to be implemented and monitored as part of the City's efforts to reduce the discharge of Total Maximum Daily Load (TMDL) regulated parameters identified in the City's permit.

A map showing the Winfield city limits is included on the following page to illustrate the permit area. Additional maps illustrating the existing storm sewer system and potential stream sampling locations are included in the Appendix of this report.

This Stormwater Management Plan shall be updated annually to provide documentation of current programs and BMPs to be implemented by the City.

Municipal Separate Storm Sewer System Permit Information:

Permittee: City of Winfield, Kansas

KS Permit No.: M-WA17-SN01

Mailing Address: 200 East Ninth Ave.
Winfield, KS 67156

Contact Person: Russ Tomevi
Phone Number: (620) 221-5520

Total Area: 12.93 sq. miles

Population: 12,333

County: Cowley

Drainage Basins: Black Creek & Walnut River

City Limits Exhibit

Stream TMDL Regulation and Testing

1. Stream Sampling

1.1 Purpose

The City of Winfield MS4 permit requires that TMDL regulated parameters be tested for the Black Creek watershed. TMDL regulated parameters include bacteria, nutrients and sediment.

1.2 Stream Sampling Locations

Testing for TMDL regulated parameters is required within the Black Creek watershed. Three locations have been identified for sampling of stormwater flows and testing for TMDL regulated parameters. The upstream limits of the Black Creek watershed extend north and east of the Winfield city limits. Therefore, potential sampling locations have been identified at both the upstream city limit boundary and at the downstream city limit boundary on Black Creek. Two box culvert locations at stream crossings of TP Hales Road and JP Brant Road have been identified for collection of samples upstream of the city limits. The crossing location on TP Hales Road with 2-10 ϕ x 5 ϕ box culverts is approximately 0.36 miles west of the intersection of TP Hales Road and JP Brant Road. The crossing location on JP Brant Road with 1-10 ϕ x 4 ϕ box culvert is approximately 0.33 miles south of the intersection of TP Hales Road and JP Brant Road. The bridge across Black Creek on Joel Mack Road has been identified for the collection of samples downstream of the city limits. A map showing these potential sampling locations is included in the Appendix.

1.3 Stream Sampling Procedures

The depth of flow at each of the sampling locations will be required to estimate flow conditions for reporting on the stream sampling forms. A basic stream gage showing depth marks above the invert of the structure should be installed on one of the wingwalls at the upstream side of each of the box culverts and bridge to allow the individual collecting the stream samples to easily determine the depth of flow during sampling. The rating curves and velocity tables included in the Appendix can be utilized to obtain the approximate flow rate and velocity at each location based on the observed flow depth or headwater elevation. This information is to be included on the TMDL Water Monitoring Results form also included in the Appendix. A separate form documenting the conditions during sampling will be completed for each sample location and event.

1.4 Stream Sampling Results

The collection of stormwater at designated locations will allow for the analysis of samples to establish baseline concentrations for TMDL regulated parameters in the Black Creek watershed. This baseline of sampling results can be used to identify when abnormal concentration of TMDL regulated parameters (above the baseline) occurs. The sampling locations at the upstream and downstream boundary of the city limits will serve as a means of identifying whether any abnormal concentration of TMDL regulated parameters is originating from within the city limits.

A stream sampling program will be implemented by the City of Winfield in 2015. Future updates of the Stormwater Management Plan should utilize the Stream Sampling Results section of the SMP to discuss any potential TMDL regulated parameter issues identified through sampling and testing of stormwater flows. Discussion of any abnormal sample results should be discussed and summarized in the SMP.

Minimum Control Measures

1. Public Education and Outreach

1.1 Purpose

The education of the public is key to the success of the Stormwater Management Plan. The City must effectively educate the residents of the community to establish a common goal of improved water quality for all members of the community. It is imperative that residents understand how their actions can affect stormwater quality and how the City continually works to improve the stormwater quality for the community. Residents will use this better understanding of the community stormwater program to be proactive in limiting the pollutant sources within the community.

1.2 Current Programs

The City of Winfield maintains a webpage with a link to the Kansas Stormwater Consortium providing recommendations for improving stormwater quality in the community. This webpage was developed and is being maintained for the Consortium by Wilson & Company.

The City also distributes a flyer on Tips to Protect Water Quality with citizen utility bills. This information has been distributed whenever possible.

A video demonstrating proper stormwater practices was prepared by the Consortium and has been shown periodically on the City's public information cable channel.

1.3 Selected BMPs and Goals

- Maintain link to Kansas Stormwater Consortium on City's webpage.
- Provide informational flyer with utility bill at least one time per year.
- Show video of proper stormwater practices on City cable channel. Document dates that the video airs.
- Post informational materials at City Public Works office for public access to the information.
- Provide City press release at least two times per year noting the importance of stormwater quality and reference to the City webpage for additional information.
- Provide update and discuss status of City stormwater program with City Commission one time per year.

2. Public Involvement and Participation

2.1 Purpose

The involvement and participation of the public in the stormwater activities promoted by the City is critical to the success of a stormwater program. The public must embrace the concept of water quality and be united in an effort to promote and improve water quality for the City. The involvement of the public promotes ownership of the community's water quality and will lead to a proactive involvement by citizens and ultimately better water quality for the community.

2.2 Current Programs

City has worked with local NRCS personnel to organize groups to stencil unmarked storm drains identifying them as draining to the river.

The Public Works Department has a 24-hour number published on the City webpage for the public to report stormwater pollution activities as well as any other utility related issues.

Service groups work with the Parks Department to assist in cleaning up of the cutoff oxbow lake in one of the parks.

2.3 Selected BMPs and Goals

- Continue program to stencil all existing and new storm sewer inlets. Document the number of facilities that are stenciled each year.
- Maintain City contact number on webpage for 24-hour reporting of stormwater pollution activities.
- Promote service activities for community groups associated with park cleanup and water quality enhancement at least 2 times per year.

3. Illicit Discharge Detection and Elimination

3.1 Purpose

The elimination of illicit discharges into the public storm sewer system and waterways improves the overall water quality of the community. An illicit discharge is any discharge that is not composed entirely of clean water or stormwater runoff.

3.2 Current Programs

A City ordinance is in place and includes language for enforcement of illicit discharge violations.

The City Street Department conducts visual inspections of all stormwater outfalls that discharge flow during dry weather. The Streets Department is responsible for all stormwater work and is familiar with the existing storm sewer and outfall system.

Cowley County operates the area household hazardous waste collection site and the City has annually advertised the site as a way to inform citizens.

The City has compiled a geodatabase of all existing stormwater infrastructure based on GPS data collection and maintains that database as part of the City GIS program. The City has map layers that include storm sewer pipes, drainage channels, inlets, manholes, outfalls, etc.

The Department of Wildlife and Parks has relocated over one hundred Canadian Geese from Island Park. However, it has become extremely difficult to find locations for geese relocation.

3.3 Selected BMPs and Goals

- Provide routine inspections of existing outfall facilities to detect potential illicit discharges that are occurring during periods of dry weather. Document dates and facilities inspected along with a summary of inspection findings.
- Continue program to advertise and promote the use of the county hazardous waste disposal facility. Document number of advertisements each year.
- Update and maintain GIS database of stormwater facilities for any new construction or modifications to the existing storm sewer system.
- Utilize stream sampling from locations within the Black Creek watershed to identify any potential illicit discharges originating either within or outside city limits.
- Establish a water quality baseline and track sampling results for Black Creek to aid in the detection and evaluation of illicit discharges from within the watershed.
- Continue to pursue opportunities to have geese relocated from Island Park.

4. Construction Site Stormwater Runoff Control

4.1 Purpose

The activities associated with construction typically impact vegetation and topsoil and make the area vulnerable to erosion. Construction site runoff has the potential to contribute a significant amount of sediment and other wastes to the storm sewer and streams in the area. Proper management of construction activities to minimize the runoff and illicit discharge potential is critical to the success of the stormwater program.

4.2 Current Programs

A City ordinance is in place requiring Soil Erosion & Sediment Control (SESC) plans for all development disturbing one acre or more of land.

A design manual for erosion and sediment control BMPs was developed by Wilson & Company in consultation with City staff. This manual is available for download from the City webpage. The BMP manual includes SWPPP plan requirements and an inspection checklist for construction site BMPs.

The City periodically holds meetings to ensure that engineers, architects, developers and contractors working in Winfield are aware of the requirements for installation and maintenance of construction site BMPs. In recent years, Winfield has experienced a relatively low amount of development with a rate of 6-10 lots per year.

4.3 Selected BMPs and Goals

- Update ordinance and SESC plan requirements to remain current and consistent with MS4 requirements. Document annual review of the ordinance as part of the preparation of the MS4 permit application.
- Maintain program of coordination and education of local engineers, architects, developers and contractors to ensure that they understand City requirements for construction activities. Maintain list of individuals and organizations that have received instruction regarding the City stormwater requirements.
- Conduct inspections of active construction sites within the City utilizing the checklist for construction BMPs and recommendations from the BMP Manual. Maintain list of sites inspected and summary of findings.

5. Post-Construction Stormwater Management in New Development and Redevelopment Projects

5.1 Purpose

Water quality is impacted by the activities and final landscape associated with development. Natural landscapes are often disturbed by development and replaced with infrastructure, roadways, buildings and other hardscapes that increase the amount of runoff from a site. This increased runoff can contribute to flooding and increased sediment and pollutant loading of streams if not properly managed. An effective post-construction stormwater management plan is essential to minimizing the impacts of development on the existing streams in the area.

5.2 Current Programs

A City ordinance is in place outlining regulations for post-construction BMP design as well as the responsibilities associated with operation and maintenance of post-construction BMPs.

The Kansas Stormwater Consortium has contracted with Wilson & Company and CDM to develop a BMP design manual that can be used to provide post-construction BMPs. Post-construction BMPs provide continued water quality enhancement with proper maintenance to ensure that they are operating correctly.

5.3 Selected BMPs and Goals

- Conduct inspections to ensure that post-construction BMPs are being operated and maintained correctly. Maintain list of sites inspected and summary of findings.
- Provide feedback for designers during the review process for SESC plans and final stabilization for developed areas.

6. Pollution Prevention/Good Housekeeping for Municipal Operations

6.1 Purpose

The City operations should continually keep water quality in the forefront during all activities. Daily procedures associated with maintenance and construction activities should be accomplished while being mindful of any potentially negative impacts to water quality. Altering of activities and procedures that contribute pollutants to the area streams will have a positive impact on water quality.

6.2 Current Programs

The City has a street sweeping program in place to reduce the amount of surface debris and pollutants that are washed from the streets and into the area streams. The street sweeping program provides separate schedules for residential and commercial areas. Residential streets are swept twice per year with additional sweeping during leaf season. Commercial streets are swept at least twice per month. The City also utilizes a hose attachment to allow for convenient cleaning of storm inlets. A software program assists the City with the tracking of street sweeping and cleaning of storm inlets.

City operated facilities have developed spill prevention and cleanup plans that include containment for any potential spills. Absorbent materials are stored at appropriate locations to assist in the event of a spill.

The City has all waste oil picked up by an approved disposal company and advertises locations where citizens can drop off used oil for disposal.

Street material is screened and then stored at a City facility for composting and use to generate ground cover.

The City Sanitation Division operates a free compost site where citizens can take any yard waste and tree limbs up to six inches in diameter for disposal.

Educational material on lawn and gardening practices has been provided with training offered to Parks Department and golf course personnel.

6.3 Selected BMPs and Goals

- Continue street sweeping and inlet cleaning program at previously established schedules to ensure cleaning of residential streets at least two times per year and commercial streets at least two times per month.
- Continue to offer composting and yard waste disposal for citizens to reduce the amount of yard waste and debris in City streets and dumped in area streams.
- Provide annual training and coordinate for all City staff working in facilities that have the potential to experience spills to ensure proper handling of pollutants in the event that a spill occurs. Document number of employees that receive training for spill prevention and proper cleanup procedures.
- Promote and encourage citizens to dispose of used oil properly by dropping it off at appropriate facilities. Advertise this service at least two times per year.

Appendix