



STORM WATER
MANAGEMENT PLAN
2016

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Executive Summary

The following document is the City of Gahanna's Storm Water Management Program Plan. The purpose of this program and plan is to comply with Ohio Environmental Protection Agency's (Ohio EPA) Municipal Storm Water Program administered through a National Pollution Discharge and Elimination System (NPDES) general permit.

This plan provides communications and guidance to City staff and elected officials, community partners, businesses and residents involved in implementing the storm water program. The plan also provides information to Ohio EPA on how Gahanna intends to comply with the Municipal Separate Storm Sewer System (MS4) NPDES Storm Water General Permit. Implementation is the responsibility of the City of Gahanna. Franklin Soil and Water Conservation District and local consulting firms are providing assistance as outlined through contracts and an intergovernmental working agreement. This document will be updated periodically to reflect new opportunities, challenges, and comments and as part of completing the annual report due to the Ohio EPA on April 1st of each year. Public input, comment and support are welcome and necessary. Awareness, protection and improvement of our water and related natural resources are not only about complying with state regulations, but it is also about community pride and sustainability.

As directed by Ohio EPA, the Storm Water Management Program (SWMP) is tailored to individual community needs as an understanding of the community's resources, character, and natural resources is the starting point for activities listed in this plan. The plan is organized by the six minimum control measures (MCMs) that are set forth in the NPDES Phase II permit language. These MCMs are Public Education and Outreach, Public Participation/ Involvement, Illicit Discharge Detection and Elimination, Construction Site Storm Water Runoff Control, Post Construction Storm Water Management in New Development and Redevelopment, and Pollution Prevention/Good Housekeeping for Municipal Operations. The MCMs provide a comprehensive storm water management approach from educating and involving the users of the storm sewer system; mapping the storm water system including outfalls into the system; identifying and resolving pollution discharges into the system; managing and improving storm water quantity and quality entering into the system on new and redeveloping construction sites; ensuring ongoing maintenance of all storm water management systems after construction and implementation; and setting the community example with good storm water management at municipal facilities and with municipal operations.

While implementing this plan the City of Gahanna plans to communicate with businesses and households and reach out to targeted populations that include: students, developers, commercial sites, stream side landowners and watershed groups. To comply with minimum requirements of the permit, the City of Gahanna will continue to review and update regulations as needed. The City will also continue to develop programs to identify potential pollution sources and eliminate those sources. As a result of its vigilance and proactive thinking, the City has implemented multiple, significant storm water projects that will improve water quality in area streams. Established practices such as rain barrel/rain garden workshops, rain garden subsidies, creek clean-ups and storm drain labeling projects remain relevant to the pollution problems in the creeks and will continue. The additions of a pet waste management program and a stream buffer planting project are anticipated under the new program. Every effort will be made to use existing resources, identify grant opportunities, and meet multiple community needs.

Introduction and Background

1. Requirements

The City of Gahanna is required to develop, implement and support a Storm Water Management Program (SWMP) to the maximum extent practicable (MEP), to protect water quality, and to satisfy the appropriate water quality requirements of Ohio Revised Code (ORC) 6111 and the Clean Water Act. The SWMP should include management practices, control techniques, and system, design, and engineering methods. The plan should be reviewed, modified and updated to include provisions as Ohio EPA and/or City of Gahanna staff determines appropriate after program reviews for effective storm water quality management.

Requirements for the SWMP are regulated by the Ohio EPA through the National Pollutant Discharge Elimination System (NPDES) general permit for Small Municipal Separate Storm Sewer Systems (MS4). The permit requirements address six minimum measures: Public Education and Outreach, Public Participation/ Involvement, Illicit Discharge Detection and Elimination, Construction Site Storm Water Runoff Control, Post Construction Storm Water Management in New Development and Redevelopment, and Pollution Prevention/Good Housekeeping for Municipal Operations. The storm water management program plan (SWMPP) shall include best management practices (BMPs) for each minimum measure. BMP is a broad term that refers to practices ranging from educational brochures to actual implementation practices. Identified BMPs shall include statements as to legal authority and rationale as to how and why selected. A table of organization identifies the primary point of contact and responsible parties for each BMP. The full text of the permit and other guidance documents can be viewed over the Internet at http://www.epa.ohio.gov/dsw/permits/GP_MS4StormWater.aspx or by calling Jason Fyffe at (614) 728-1793.

2. Development of the SWMP

The City of Gahanna began developing a Storm Water Management Program for MS4 NPDES Storm Water Permit in 2003 during the first generation of this new permit program. At that time a program plan was submitted to Ohio EPA as required by the permit. The program has continued to develop under the direction of the Water Resources Engineer position and with the assistance of outside resources from local consulting firms and Franklin Soil and Water Conservation District. After conducting an Outfall Reconnaissance Inventory of municipal outfalls Gahanna developed an IDDE plan with Franklin Soil and Water, which outlines a program with priorities to identify and eliminate illicit discharges.

Construction site inspections and plan review are conducted by Franklin Soil and Water and City inspectors to ensure erosion and sediment controls are in place on construction sites and storm water pollution prevention plans are adhered to. On all developing sites, Franklin Soil and Water conducts a natural resource review and makes recommendations to ensure streams, wetlands and other environmental features were protected. Post construction requirements have also been met with some assistance from Franklin Soil and Water. Gahanna was one of the first Central Ohio Communities to conduct a full inventory of all post construction BMPs with an initial inspection to insure they are functioning and implemented as intended.

The post construction facilities inventory resulted in a GIS map of the BMPs. Gahanna sends out a notice to landowners with post construction BMPs, reminding them to maintain them and requesting that they provide the City with evidence that maintenance has been completed.

Concurrently with the development of the storm water program, the City convened studies and public meetings to address ongoing flooding and sewer maintenance concerns following frequent and widespread flooding during the summer of 2003. To provide ongoing funding to better address ongoing infrastructure needs for storm water and drainage management the City instituted a storm water utility for residential and business dwellings.

With better understanding of storm water program management and new permit requirements it was decided to revise the City of Gahanna Storm Water Plan in 2011. The plan update began with an organizational meeting with Jeff Feltz, Water Resources Engineer, Mike Andrako, Assistant City Engineer, Brian Hoyt, Public Information Manager, Tony Collins, Director, Parks and Recreation, Daniel Whited, Project Manager, Woolpert, Jennifer Fish, Director, Franklin Soil and Water Conservation District, and Kurt Keljo, Watershed Coordinator Franklin Soil and Water in July, 2011. This meeting provided direction to the overall process of developing the SWMP.

The City of Gahanna and Franklin Soil and Water Conservation District staff partnered to research community needs, permit requirements, and effective options for a storm water management plan outside of formal meetings. OHM Consulting provided a secondary review of SWMP document as it was developed. The results of staff research and meetings provided the substance for the previous SWMP.

In 2016, City of Gahanna and Franklin Soil and Water Conservation District staff met to discuss the requirements of the new permit and identify themes relevant to the TMDLs and appropriate to Gahanna. Past experience, feedback and activities were used to inform the updating of the SWMP.

3. Community Description

The City of Gahanna is comprised of an estimated 33,248 residents, 13,037 households and 13,577 housing units. The median age is 39.4, and 82.1% of the population is White, 11.2% Black, 2.6% Hispanic, and 3.1% Asian. 71.9% of housing units are single family homes, and 30% of the units have been built since 1990.¹

The City of Gahanna encompasses 7950.20 acres of land and approximately 26 miles of streams (based on Franklin Soil and Water GIS data) within the Big Walnut, Rocky Fork and Blacklick watersheds.² According to Gahanna's 2002 updated Land Use Plan the City anticipates approximately 3857 acres of urban/ suburban residential use, 2120 acres of office/commercial/industrial/institutional use, 328 acres of mixed use and 748 acres of parkland.³ Gahanna maintains approximate totals of 151 miles of sanitary sewer lines, 152 miles of water lines and 126 miles of storm sewer lines.⁴ Based on USGS topographic maps the terrain within the City is relatively flat with the exception of the riparian corridors.

¹ City of Gahanna website, <http://www.gahanna.gov/community/profile.aspx>, Accessed 6 December 2016.

² Source: National Hydrography Dataset GIS layer

³ City of Gahanna website, <http://www.gahanna.gov/Uploads/Documents/PDFs/LandUsePlanUpdate.pdf>, Accessed 6 December 2016.

⁴ City of Gahanna website, <http://www.gahanna.gov/departments/service/Service-Department-Annual-Reports.aspx>, Accessed 6 December 2016.

⁵ Source: GIS map layer provided by the City of Gahanna

Approximately 93% of the City is characterized as “upland,” with another 6% identified as some form of wetland.⁵ Many of Gahanna’s riparian areas are managed by the Gahanna Parks and Recreation Department. A progressive program of conservation related activities within many park boundaries have transformed underused areas into both educational and environmentally functional parklands and preserved open space for the city residents. Hannah Park features parking lot bioswales that help treat storm water in addition to

conventional retention ponds. Valuable parkland was added to the park when a local developer needed space for storm water infrastructure. A cooperative land swap was made that created a fishing pond for the park while preserving mature woods and wetlands for addition to the park.



Figure 1: HUC_12 watersheds as they intersect with the boundaries of Gahanna (The watersheds are outline in red.)

The City of Gahanna is located in the “Blacklick Creek-Big Walnut Creek” watershed (HUC: 0506000115). The majority of the City (~65%) is in the “City of Gahanna-Big Walnut Creek” subwatershed (HUC: 050600011502). Most of the remainder (~30%) is in the “Rocky Fork Creek” subwatershed (050600011501). A portion of the southeast corner of Gahanna (~5%) extends into the “Headwaters Blacklick Creek” subwatershed (HUC: 50600011503) (Figure 1).¹

4. TMDL

Background

The “Rocky Fork Creek” and “Headwaters Blacklick Creek” subwatersheds extend up into Delaware County and the latter spreads eastward into Licking County where the primary land use in the headwater streams is agriculture and rural residential. A Total Maximum Daily Load (TMDL) was developed by Ohio EPA and approved by USEPA in 2005. Watershed Action Plans for Lower Big Walnut (December 2006), Rocky Fork (June 2009), and Blacklick Creek (June 2010) were developed with community support and input with a focus on addressing needs stated in the TMDL report. City of Gahanna’s support of this effort was important because watersheds extend across municipal boundaries and that communities need to come together to effectively bring about improvements in water quality and quantity in these watersheds.

Ohio EPA water quality program consists of a suite of rules and study’s designed to classify water quality in streams and identify priorities for impaired streams. Water quality designations include warm water habitat, modified warmwater habitat, and exception warm water habitat. For a full explanation of Water Quality Designations visit: <http://www.epa.ohio.gov/dsw/wqs/index.aspx>.

¹ Source: Franklin County and Watershed Boundary Dataset GIS layers

Ohio EPA is required to identify impaired streams through the states 303(d) list. Total Maximum Daily Load (TMDL) studies are conducted on impaired streams to identify causes of impairment and set load limits that need to be met through permit and voluntary programs. For more information regarding the 303(d) list and TMDL program visit: <http://www.epa.ohio.gov/dsw/tmdl/index.aspx>.

Results

In 2000 as part of a TMDL study, the OEPA sampled two sites on Rocky Fork Creek that are affected by Gahanna—one at Clark State Rd. and the other at Hamilton Rd. The first of these is outside of Gahanna, while the second is within the City limits. Both were identified as in partial attainment of water quality standards based on the biological communities present. The stream at these sites is expected to attain Exceptional Warmwater Habitat standards—a higher goal than that set for the upstream portions of Rocky Fork. The last sample site prior to the Clark State Rd. location—the Thompson Rd. site—did not meet Warmwater Habitat criteria in 2000. While Rocky Fork Creek watershed as a whole appears on the OEPA's 303(d) list of impaired watersheds, it is not considered one of the high priority (highly impaired) watersheds on that list.

The Lower Big Walnut mainstem was assessed as meeting water quality standards at the sample site in Gahanna (just downstream from the confluence with Rocky Fork Creek) and the one immediately below the City (below the airport tributary). However, it was noted that the site just below the Rocky Fork confluence had higher bacteria counts and total suspended solid levels than it had in the past. McKenna Creek, a small tributary of Big Walnut with its confluence and much of its watershed in Gahanna, was assessed as not meet use attainment standards, receiving ratings for aquatic life. Pathogens, nutrients, total suspended solids and ammonia were all identified as problems. Unzinger Ditch which leaves the southeast corner of Gahanna and enters Blacklick Creek is identified as an impaired stream with contaminated sediments, elevated nutrient levels and habitat alteration are named as causes of impairment. Other potential impacts on Blacklick resulting from runoff from Gahanna are minimal.

According the 2000 Big Walnut Technical Support Document (TSD), the Rocky Fork generally was impaired by storm sewers, sanitary sewers, construction sites, surface runoff, and failing HSTSS. Primary pollutants of concern identified in the Big Walnut TMDL are *E. coli* and phosphorus levels. Both of these parameters were somewhat elevated in at least one of the samples taken at the Clark State Rd. and Hamilton Rd. sites on Rocky Fork Creek.

Ammonia, nitrite, biological oxygen demand, and total suspended solids were measured at the 75th percentile or higher in samples taken at one or both sample sites. The wastewater treatment plant on Windrush Rd. in Jefferson Township appears to have had a significant impact on the pollutant concentrations found at the Hamilton Rd. sampling site. This WWTP has since been taken offline.

Problems in the Big Walnut in and just below Gahanna were linked to urban runoff. The sources of impairment for McKenna Creek were identified as urban runoff and home sewage treatment systems. The impairment in Unzinger Ditch was attributed to industrial site runoff, raw sewage discharge and channelization.



Figure 2: Storm water infiltration project on Farmwood Pl

There are several elevated levels of heavy metals in Rocky Fork Creek, most of which are identified components of surface runoff. However, there is no evidence that the heavy metals are affecting the biological communities. Heavy metal concentrations in the sediments at Hamilton Rd. in Gahanna are lower than those measured in samples taken at Old 161 above Gahanna. Sediment contamination in the mainstem of Big Walnut was identified as metals, PAHs and pesticides, which were attributed to suburban runoff.

TMDL Targets

TMDL targets were set for the Rocky Fork and Blacklick watershed for pathogens and nutrients, and a QHEI goal was established for Rose Run. A 77% reduction in *E. coli* levels discharged to the stream by failing HSTSs was established as the target for Rocky Fork, while a 78% reduction was set for the Headwaters of Blacklick Creek. A 62% reduction in total phosphorus discharged from failing HSTSs was put in place for both Rocky Fork and Blacklick creeks. An 8.2% improvement in the QHEI score is the habitat goal for Rose Run.

2% and 5% reductions in *E. coli* counts were set as the targets for the mainstem of Big Walnut Creek as it flows through Gahanna, while a 58% total phosphorus reduction goal was set for McKenna Creek.



Figure 3: Storm water infiltration project on Ashmead Dr.

Discharging HSTSs were identified as the primary problem to be addressed in order to get the needed reductions.

Past Actions Related to TMDL

Changes to facilities in Gahanna are expected to have improved the water quality of affected creeks. The decommissioning and removal of the Jefferson Township's wastewater treatment plant on Windrush Rd. has likely had a positive effect on the water quality of Rocky Fork Creek in Gahanna. Sewer projects in Gahanna have eliminated 58 home sewage treatment systems over the last six years. Progress in implementing the agreement between Franklin Steel Company and the Ohio Environmental Protection Agency to address problems with toxics at the Franklin Steel site should result in water quality

improvements to Unzinger Ditch, a tributary of Blacklick Creek. Storm water projects have been implemented on Souder Ditch (Figures 2 and 3) in the Rocky Fork watershed and on McKenna Creek, which ought to have benefited both those creeks. A stream restoration project was constructed on Sycamore Run, a tributary to Rocky Fork Creek that also should have improved habitat and potentially water quality. Future options for addressing unsewered areas in the City are being studied.

6. Definitions

Best Management Practice (BMP): The most effective, practical methods for the prevention or reduction of pollution from non-point sources (e.g. urban pollutant runoff). Storm water best management practices include a structural or non-structural methods designed to temporarily treat or store storm water runoff to reduce pollution and mitigate flooding.

Home Sewage Treatment System (HSTS): As defined in the Ohio Administrative Code, Chapter 3701-29, a HSTS is any onsite sewage disposal or treatment system for a single-family, two-family, or three-family dwelling that serves as a collection point for sewage.

Hydrologic Unit Code (HUC): A two to twelve digit code in the hydrologic unit system that is used to identify all the drainage basins within the United States. The HUC is based on the four levels of classification in the hydrologic unit system: regions (largest), sub-regions, accounting units, and cataloging units (smallest).

Illicit Discharge Detection and Elimination (IDDE): One of the six minimum control measures that is required to be included in the storm water management program of an operator of a Phase II regulated small municipal separate storm sewer system in order to obtain its National Pollutant Discharge Elimination System permit.

Maximum Extent Practicable (MEP): Although not directly defined by US EPA, this term refers requiring compliance with regulation requirements to the maximum ability of the permittee.

Minimum Control Measure (MCM): One of six technical areas in a storm water management program (SWMP) of the NPDES Phase II regulations. These six technical areas are: (1) Public Education and Outreach, (2) Public Participation/Involvement, (3) Illicit Discharge Detection and Elimination, (4) Construction Site Runoff Control, (5) Post-Construction Runoff Control and (6) Pollution Prevention/Good Housekeeping.

Municipal Separate Storm Sewer System (MS4): A conveyance or system of conveyances that is owned by a state, city, town, village, or other public entity that discharges to waters of the U.S., designed or used to collect or convey storm water (e.g., storm drains, pipes, ditches), not a combined sewer, and not part of a sewage treatment plant, or publicly owned treatment works (POTW).

National Pollutant Discharge Elimination System (NPDES): Federally mandated permit system established by Section 402 of the Clean Water Act, used in the regulation of point sources (e.g. discharges from industrial and municipal facilities, storm water discharges from discrete conveyances such as pipes or channels).

Ohio Revised Code (ORC): Legal document containing all of the acts that have been passed by the Ohio General Assembly and that have been signed by the Ohio governor.

Qualitative Habitat Evaluation Index (QHEI): Index designed by the Ohio EPA to establish a measurement of habitat quality that is generally interrelated to physical factors that affect fish communities and other aquatic life, such as macroinvertebrates.

Storm Water Management Program (SWMP): The SWMP is organized by MCMs and includes BMPs, measurable goals, rationale, decision process, responsible parties, time schedules and other appropriate information.

Storm Water Pollution Prevention Plan (SWPPP): A SWPPP identifies all potential pollution sources from a construction site or regulated facility; addresses measures to prevent potential pollutant discharges into water bodies and wetlands; and assists in the compliance with the conditions and terms of the permit.

Total Maximum Daily Loads (TMDL): The Ohio EPA TMDL program, established under Section 303(d) of the Clean Water Act (33 U.S.C. 1313), focuses on identifying and restoring polluted rivers, streams, lakes and other surface water bodies. A TMDL is a written, quantitative assessment of water quality problems in a water body and contributing sources of pollution. It specifies the amount a pollutant needs to be reduced to meet water quality standards (WQS), allocates pollutant load reductions, and provides the basis for taking actions needed to restore a water body.¹



Rocky Fork Creek in Gahanna

¹ Ohio EPA website: <http://www.epa.ohio.gov/dsw/tmdl/index.aspx#Ohio's TMDL Process>

The Plan

This Storm Water Management Program is organized by Minimum Control Measures (MCMs). The SWMP includes best management practices, measurable goals, rationale, decision process, responsible parties, time schedules and other appropriate information. This section is designed to correspond with Ohio EPA annual reporting requirements. This plan can be updated annually and used as a tool to complete required annual reporting.

1. *Public Education and Outreach*

A. Introduction

The first minimum control measures requires the City to distribute educational materials or conduct equivalent outreach activities to the community about the impacts of storm water discharges and steps the public can take to reduce pollutants to water bodies. An informed and knowledgeable community is important to a successful storm water program. This lays the foundation for community participation in responsible land management, compliance with local and state regulations, and support for community projects and programs needed for a successful storm water program.

Benefits to the City include a successful storm water program, pride in the community, and support of the City of Gahanna's vision "to be an innovative model community" that endeavors to conserve and preserve the natural environment.

Summarized Requirements:

- Develop a plan to inform and involve individuals and households about steps they can take to reduce storm water pollution including measurable goals, target audiences, target pollutants, outreach strategy, and input to the development of the SWMP.
- Develop five different storm water themes or messages to be conveyed to target audiences during the permit term. The Development community will be the target audience for one theme or message.
- Develop rationale for target audiences and pollutants that will make the greatest difference for improving storm water quality.
- Identify approaches and mechanisms (e.g., printed brochures, newspapers, media, workshops, etc.) to reach target audiences, and how many people will be reached over the permit term (Figure 4). At least 50 percent of the population needs to be reached over the permit term.
- Evaluate the success of this minimum measure.

B. Decision Process

To address this minimum control measure the City has will create a public education and outreach program that utilizes a comprehensive approach to maximize the effectiveness of education and outreach to inform the public and encourage changes in attitude and behavior. The program will target the development community, individuals, households, businesses, and students K-12. Existing educational programs will provide a foundation for this community-wide plan. Any interest groups in the community that could play a role in the storm water management planning and implementation process will be identified during planning meetings. These groups will be engaged in the outreach, education and involvement processes.

C. Best Management Practices

The Water Resources Engineer will be responsible for the overall management and implementation of the storm water public education and outreach program. Franklin Soil and Water Conservation District will provide assistance with educational materials and presentations. Planned activities are well within the authority and ability of the City of Gahanna in partnership with Franklin Soil and Water Conservation District. Parks and Recreation will incorporate storm water into existing programs and practices.



Figure 4: Storm water management webpage

E. Themes

The City of Gahanna will address five different education themes during the duration of this permit. The themes will target the primary existing causes of creek impairment in Gahanna as identified in the TMDL as introduced above in the community description. Target audiences will be chosen on the basis of the probable sources in Gahanna of the pollutants causing this impairment. Restaurants and businesses with parking lots will receive information relevant to parking lot runoff and the impact of activities undertaken on parking lots on runoff (e.g. car washing, power washing of restaurant equipment, automobile fluid leaks etc.). The development community will receive information on sediment controls, storm water BMPs, and OEPA expectations. Facts on HSTS maintenance will be provided to landowners with HSTS systems. Homeowners generally will be provided information on the ways that they can reduce their impacts on storm water quality and volume.

The main educational themes can be summarized as follows:

1. “Keep waste out of streams (e.g. lawn waste and trash)”

Rationale

Trash can be a source of pathogens in waterways, while lawn waste contributes nutrients and increases the biological oxygen demand in streams. Trash and lawn waste are also the most visible and readily identifiable sources of pollution in Gahanna’s streams. As such they also provide an opportunity to educate people regarding the nature of non-point source pollution.

D. Responsible Party and Legal Authority

The Water Resources Engineer will be responsible for the overall management and implementation of the storm water public involvement/ participation minimum control measure. Under a working agreement with the city, Franklin Soil and Water Conservation District will assist with program implementation.

These activities are well within the authority and ability of the City of Gahanna in partnership with Franklin Soil and Water. No additional regulation development will be required.

2. “Protect water quality through the implementation of homeowner BMPs”

Rationale

Gahanna has a history of supporting rain garden and rain barrel installation, both of which reduce nutrient runoff and sediment in streams. Storm water runoff carries nutrients in an urban setting, and these two practices reduce that runoff. Similarly, runoff increases sediment loads in streams by increasing stream

flow and thereby adding to the erosion caused by the creeks. Any reduction to that runoff decreases both pollutants. Maintaining HSTSs is also a component of implementing homeowner BMPs, which reduces both pathogens and nutrients.

3. “Keep pet and animal waste from polluting our streams”

Rationale

Studies from Seattle found that dog waste in particular contributes nearly 20% of the bacteria load in storm water samples (http://www.epa.gov/safewater/sourcewater/pubs/fs_swpp_petwaste.pdf). Pathogens were identified by the TMDL as the second major problem that needs to be addressed to improve water quality in Blacklick and Rocky Fork creeks. While bacteria levels from failing HSTSs are cited as the primary targets for reduction, cutting down on bacteria loading from pet waste can only enhance efforts to remediate failing HSTSs. Under this theme, information on the hazards associated with storm water will be addressed.

4. “Improving water quality with riparian vegetation”

Rationale

Vegetation planted along our waterways provides multiple water quality benefits. Roots stabilize the soil, reduce erosion and limiting siltation. They can also provide improved habitat in the stream, offering refuge for a variety of organisms. In addition, water entering and leaving creek channels via groundwater movement is filtered by the roots, reducing nutrient loading.

5. “Install and maintain proper storm water management controls on development sites”

Rationale

The OEPA’s TMDL and TSD reports indicate that development has contributed to siltation in creeks in the Big Walnut watershed. The failure to maintain proper sediment controls on construction sites can be a major direct contributor of silt to our streams. Seeing that construction sites are appropriately managed so as to minimize the sediment that leaves those sites is a critical component of protecting streams from the impact of sediment runoff.

F. Goals and Activities MCM 1. PUBLIC EDUCATION AND OUTREACH						
BMP (mechanism) & Responsible Party	Measurable Goal	Theme or Message	Target Audience	% of Target Audience to be Reached	Summary of Planned Activities	Proposed Schedule
i. Communicate with residents using established methods in Gahanna Jennifer Fish, FSWCD and staff	Inform 50% of households over five-year permit period of City of Gahanna's (Gahanna) storm water program and what individuals, households, developers and businesses can do to protect and improve surface water quality	1. Keep waste out of streams 2. Implementation of homeowner BMPs 3. Keep pet and animal waste from polluting our streams 4. Improving water quality with riparian vegetation 5.	Gahanna residents	10% of total of 11,199 or 1,200 annually	1. Continue the storm water page on City of Gahanna's website, information in water bill, use of social media program, articles in e-newsletter, storm water education in schools and summer camps, and educational signage, updating as necessary. 2. Encourage households to sign up for Franklin Soil and Water quarterly newsletter Frankly speaking.	1. Ongoing
						2. Ongoing
ii. Provide direct information to all homeowners with discharging HSTs Franklin County Public Health FSWCD Staff	Inform 100% of unsewered households of HSTS responsibilities.	1. Implementation of homeowner BMPs	Unsewered households	100% of unsewered households annually	1. Distribute information on homeowner HSTS responsibilities via annual mailing. 2. Inspect systems annually. 3. Continue and update fact sheet on Gahanna website	1. Annually
						2. Annually 3. Ongoing
iii. Provide storm water education to students FSWCD Staff	Provide storm water education to 400 students	1. Keep waste out of streams 2. Implementation of homeowner BMPs 3. Keep pet and animal waste from polluting our streams 4. Improving water quality with riparian vegetation	K-12 students and teachers in Gahanna	400 students – 100% annually	1. Provide classroom activities and presentations on storm water related topics 2. Organize a conservation poster contest for K-12	1. Ongoing
						2. Annually

BMP (mechanism) & Responsible Party	Measurable Goal	Theme or Message	Target Audience	% of Target Audience to be Reached	Summary of Planned Activities	Proposed Schedule
iv. Distribute educational information to development community FSWCD staff Jeffrey Feltz	Developing lands newsletter will be distributed to design, construction, development, and regulatory community three times each year.	<ol style="list-style-type: none"> 1. Install and maintain proper storm water management controls on development sites 	Members of the design, construction, development, and regulatory community,	773 Members of the design, construction, development, and regulatory community, 100% of developers known to be doing work in Gahanna	<ol style="list-style-type: none"> 1. <i>The Urban Review</i> will continue to be distributed to all parties engaged in development in Gahanna 2. Provide all permit applicants with information on sediment and storm water control BMPs and Gahanna's expectations 3. Hold pre-construction meetings with all developers 4. Provide feedback on all SWPPP 	<ol style="list-style-type: none"> 1. Semi-Quarterly FSWCD 2. Ongoing 3. Ongoing 4. Ongoing
v. Informational workshop FSWCD Staff	Backyard Conservation workshop	<ol style="list-style-type: none"> 1. Keep waste out of streams 2. Implementation of homeowner BMPs 3. Keep pet and animal waste from polluting our streams 4. Improving water quality with riparian vegetation 	Gahanna homeowners	An average of 25 homeowners/year over the term of the permit	Implement a Backyard Conservation program including a workshop, brochures, and educational materials for interested residents on practices related to storm water such as rain barrels.	Annually
vi. Provide onsite storm water education FSWCD Staff	Provide guidance and education to approximately ten property owners with significant natural resource, soil erosion, or drainage concerns	<ol style="list-style-type: none"> 1. Implementation of homeowner BMPs 2. Improving water quality with riparian vegetation 	Gahanna homeowners	An average of 3 households (< 1% of households)/year over the term of the permit	Suggest stream stabilization BMPs, vegetation plantings, etc.	Ongoing

BMP (mechanism) & Responsible Party	Measurable Goal	Theme or Message	Target Audience	% of Target Audience to be Reached	Summary of Planned Activities	Proposed Schedule
vii. Provide storm water education to teachers FSWCD Staff	Provide soil and water information to educators in Gahanna	1. Keep waste out of streams 2. Implementation of homeowner BMPs 3. Keep pet and animal waste from polluting our streams 4. Improving water quality with riparian vegetation	All elementary teachers and curriculum coordinators; all middle and high school science and special education teachers and science curriculum coordinators.	+ or > 314 – 100%	1. Target audience receives SWIFT (Soil and Water Information for Teachers.) 2. Letter to teachers re available resources. 3. Inform target audience via SWIFT of conservation related continuing education opportunities	1. Three times a year 2. Annually 3. Annually
viii. Advertising Jeffrey Feltz	Advertise all events that support SWMP at council meetings, on the Gahanna Web site and in city quarterly newsletter	1. Keep waste out of streams 2. Implementation of homeowner BMPs 3. Keep pet and animal waste from polluting our streams 4. Improving water quality with riparian vegetation 5. Install and maintain proper storm water management controls on development sites	All targeted communities	90% of households	1. Advertise city projects relating to storm water BMPs in Gahanna City newsletter	1. Advertising activities are ongoing
ix. Meetings with developers Jeffrey Feltz	Provide information to developers on sediment control and storm water BMPs	1. Install and maintain proper storm water management controls on development sites	Developers	100% of developers doing work in Gahanna	1. Provide all permit applicants with information on sediment and storm water control BMPs and Gahanna's expectations 2. Hold pre-construction meetings with all developers 3. Provide feedback on all SWPPP	1. Ongoing 2. Ongoing 3. Ongoing

2. Public Participation and Involvement

A. Introduction

This minimum measure requires the City of Gahanna to engage the public for input and involvement in the City SWMP. Public participation provides valuable input and assistance for the SWMP with opportunities to engage in the development and implementation of the program. Public involvement results in broader public support, improvements to the program plan and implementation, shorter implementation schedules, additional resources and greater benefits to water quality in the City and watershed wide.

Benefits to the City include identification of resources and opportunities outside of existing City operations. Participation supports the City's tradition of serving the community.

Summarized Requirements:

- Describe public involvement opportunities in developing and implementing your storm water management plan.
- Describe target audiences for public involvement including ethnic, economic groups, and stakeholder groups.
- Describe public involvement activities with a minimum of five public involvement activities over the permit term.
- Evaluate the success of this minimum measure, including how you selected the measurable goals for each of the BMPs.

B. Decision Process

To address this minimum control measure the City has will create a public education and outreach program that utilizes a comprehensive approach to maximize the effectiveness of education and outreach to inform the public and encourage changes in attitude and behavior. The program will target the development community, individuals, households, businesses, and students K-12. Existing educational programs will provide a foundation for this community-wide plan. Any interest groups in the community that could play a role in the storm water management planning and implementation process will be identified during planning meetings. These groups will be engaged in the outreach, education and involvement processes.

C. Best Management Practices

The following BMPs will be used for public involvement/ participation.

- Provide opportunity for and consideration of public input into storm water management plan.
 - Publicize information on the SWMP and provide opportunity for public comment
 - Upload information on the plan to the City website (<http://www.gahanna.gov/departments/service>) with contact information for various City Departments.
 - Discuss the plan at a regular City Council meeting that is open to and attended by City residents.

- Involve the public in implementing the storm water program and improving the storm water system.
 - Maintain a partnership with the Franklin Soil and Water Conservation District for storm water program management support.
 - Provide guidance and education to property owners with significant natural resource, soil erosion, or drainage concerns.
 - Develop a Backyard Conservation program including an annual workshop, brochures, and educational materials for interested residents focusing on NPDES Phase II requirements.
 - Work with individual landowners to install rain gardens (Figure 5).
 - Conduct annual stream clean-up.
 - Publicize City-initiated storm water projects, as well as opportunities for resident-based storm water projects.
 - Publicize existing system for public complaints, developing a special category for storm water issues.
- Support existing watershed protection efforts that complement and support the City SWMP.
 - Publicize and support attendance at annual the Central Ohio Storm Water Expo.



Figure 5: Cost share rain garden in Gahanna

D. Responsible Party and Legal Authority

The Water Resources Engineer will be responsible for the overall management and implementation of the storm water public involvement/ participation minimum control measure. Under a working agreement with the city, Franklin Soil and Water Conservation District will assist with program implementation.

These activities are well within the authority and ability of the City of Gahanna in partnership with Franklin Soil and Water. No additional regulation development will be required.

E. Themes

The City of Gahanna will address all 5 different education themes identified above during the duration of this permit. The themes will target existing and potential community pollution sources as identified in the relevant TMDL.

F. Goals and Activities

MCM 2. PUBLIC INVOLVEMENT/PARTICIPATION

BMP (Activity) & Responsible Party	Measurable Goal	Theme or Message	Target Audience	Estimate of People to Participate	Summary of Planned Activities	Proposed Schedule
<p>i. Install backyard conservation practices</p> <p>FSWCD Staff</p>	<p>Hold Backyard Conservation workshops, maintain website and distribute brochures</p>	<p>1. Keep waste out of streams 2. Implementation of homeowner BMPs 3. Keep pet and animal waste from polluting our streams 4. Improving water quality with riparian vegetation</p>	<p>Gahanna homeowners</p>	<p>An average of 10 homeowners installed rain barrels, rain gardens, native plants or trees each year over the permit term</p>	<p>Implement a Backyard Conservation program including a workshop, brochures, and educational materials for interested residents on practices related to storm water such as rain barrels.</p>	<p>Annually</p>
<p>ii. Stream Clean-up</p> <p>City Department of Parks and Recreation</p>	<p>Organize at least three community riparian litter pick-up events during the permit term</p>	<p>1. Implementation of homeowner BMPs</p>	<p>Gahanna residents; youth, civic, and faith-based organizations; and watershed group</p>	<p>5-10 people will clean up 5000 feet of stream cleaned, at least twelve garbage bags of trash removed per clean-up during the permit term</p>	<p>Sponsor a community clean-up event.</p>	<p>Annually</p>
<p>iii. Publicize storm water issues and invite public comment</p> <p>Jeffrey Feltz</p>	<p>Accept and respond to public comments on storm water issues</p>	<p>1. Keep waste out of streams 2. Keep pet and animal waste from polluting our streams 3. Install and maintain proper storm water management controls on development sites</p>	<p>Residents of and businesses in Gahanna</p>	<p>75 complaints received and investigated each year</p>	<p>Well-publicized and easy-to-use forms for complaint or comment on Gahanna website.</p>	<p>Ongoing</p>
<p>iv. Publicize storm water issues and encourage public comment</p> <p>Jeffrey Feltz</p>	<p>Encourage Gahanna residents/businesses to participate in all phases of SWMP implementation</p>	<p>1. Keep waste out of streams 2. Implementation of homeowner BMPs 3. Keep pet and animal waste from polluting our streams 4. Improving water quality with riparian vegetation 5. Install and maintain proper storm water management controls on development sites</p>	<p>Residents of and businesses in Gahanna</p>	<p>There will be comments on the SWMP from at least five people over the course of the permit term.</p>	<p>Post SWMP on website, publicize SWMP related activities and provide ongoing storm water education on website and in newsletters</p>	<p>Ongoing</p>

BMP (Activity) & Responsible Party	Measurable Goal	Theme or Message	Target Audience	Estimate of People to Participate	Summary of Planned Activities	Proposed Schedule
v. Implement a pet waste management program	Install at least one station in City park providing pet waste bags and cans designated for disposing pet waste	1. Keep pet and animal waste from polluting our streams	Pet owners in Gahanna	25 people over the permit term will commit to picking up their pets' waste and disposing of it properly	Install appropriate pet waste station and solicit pledges from residents to pick up and properly dispose of their pets' waste	Once during permit term
Jeffrey Feltz						
vi. Host a stream buffer planting event	An event will be held to plant a stream buffer along a stream in Gahanna	1. Improving water quality with riparian vegetation	Residents of Gahanna	10 people over the permit term will plant a 50' stream buffer along a stream in Gahanna	Volunteers will plant a stream buffer along one of the City's streams	Once during permit term
Jeffrey Feltz						

3. Illicit Discharge Detection and Elimination

A. Introduction

This minimum measure requires the City of Gahanna to implement and enforce a program to detect and eliminate illicit discharges. An illicit discharge is any discharge to an MS4 that is not composed entirely of storm water with some exceptions. The exceptions defined by the permit are: waterline flushing, springs, water from crawl space and sump pumps, footing drains, landscape irrigation, lawn watering, diverted stream flows, rising ground waters, individual residential car washing, uncontaminated groundwater, foundation drains, uncontaminated pumped groundwater, air conditioning condensation, dechlorinated swimming pools, potable water sources, flow from riparian habitats and wetlands, street wash water, discharges or flows from fire fighting activities. Addressing this minimum measure includes mapping, legal prohibition and enforcement, and a plan to detect and address discharges.

Benefits to the City include: leading by example to improve water quality in the City, improved ability to identify pollution paths for spills, opportunity to display storm sewer, stream, drainage and other information together electronically for desktop analysis and planning, information available to support sewer extension if and where needed, and promotion of the City as a Green Pact member community with an exceptional quality of life.

Summarized Requirements:

- Develop, implement and enforce a program to detect and eliminate illicit discharges into your MS4.
- Complete a comprehensive storm sewer system map, showing the location of all outfalls and the names and location of all surface waters of the State that receive discharges from those outfalls. The comprehensive storm sewer system map shall also include your MS4 system, including catch basins, pipes, ditches, flood control facilities (retention/detention ponds), post-construction water quality BMPs and private post construction water quality BMPs.
- Mapping must contain a list of all on-site sewage disposal systems (HSTSs) connected to discharge to your MS4. This map shall include details on the type and size of conduits/ditches in your MS4 that receive discharges from HSTSs, as well as the water bodies receiving the discharges from your MS4 incorporation of additional water quality protection devices and practices.
- Prohibit, through ordinance, or other regulatory mechanism, illicit discharges into your storm sewer system and implement appropriate enforcement procedures and actions.
- Develop and implement a plan to detect and eliminate non-storm water discharges, including illegal dumping, to your system.
 - Identify residences with existing individual discharging HSTSs that can legally, feasibly and economically connected to central sewers.
 - Work with local board(s) of health to develop or enhance an operation and maintenance program which determines if existing HSTSs are operating as designed and intended and if not, then a program that requires elimination, upgrade or replacement of the systems.
 - Monitor your MS4 by dry weather screening and track down the source of any dry weather flows.
 - Work with local waste water authorities to evaluate the planned or possible future installation of sewers for areas which contain high densities of discharging HSTSs.
- Inform public employees, businesses and the general public of hazards associated with illegal discharges and improper disposal of waste.
- Identify and address non-storm water discharges as illicit discharges if they have been identified as significant contributors of pollutants to your MS4, such as landscape irrigations, lawn watering,

diverted stream flows, etc... and develop a list of other similar occasional incidental non-storm water discharges that will not be addressed as illicit discharges, if the need exists.

B. Decision Process

To address the IDDE minimum control measure the City uses a combination of mapping, monitoring, education and enforcement. The City of Gahanna has its municipal storm water system mapped in a GIS. All surface drainage, intersections and outlets have been mapped in ArcGIS to submeter accuracy by Franklin Soil and Water Staff (Figure 6) as part of a larger county-wide stream and drainage mapping effort. Included in the database are the outfalls locations, a description of the outfall and the names of the waters of the State that receive discharges from those outfalls.

As of 2013, an initial Dry Weather Screening (DWS) of MS4 outfalls and system outlets had been completed and an evaluation of the system was completed to allow for a prioritization for future DWS for the City. It was determined that most of the issues found were related to HSTS and sewage issues, or from commercial areas showing some petroleum and suds.

Future DWS will be concentrated in areas where discharging HSTS still exist and at strategic system locations which will allow for detection of possible illicit discharges for significant portions of the City at one location. The City will continue their relationship with Franklin County Public Health in working with owners of HSTS in the unsewered areas.

Please see Gahanna's Illicit Discharge Detection and Elimination Program Plan for an elaboration of the activities associated with this minimum control measure.



Figure 6: GIS mapping in Gahanna

C. Best Management Practices

The City will undertake the following activities as a part of its illicit discharge detection and elimination program:

- Review and update ordinances as necessary and implement appropriate enforcement procedures. Maintain comprehensive MS4 mapping, locations of aerators, and waters of the state.
- Reference and update an IDDE Plan to guide the City's IDDE Program.
- Conduct ongoing dry weather screening of the City's MS4 for dry weather flows and illicit discharges.
- Continue to provide education about proper maintenance of HSTS and the hazards associated with illegal discharges and improper disposal of waste; see MCM I and MCM2.
- Continue to utilize the City's service request system to record and address pollution and illicit discharges from the public
- Annually review the program and provide reporting to OEPA on these BMPs.

In addition, the City has undertaken or is studying the feasibility of the following projects as part of its IDDE Program. Dates are subject to change and the projects are contingent on funding and feasibility.

- Westside Sewer, Phases 1 and 2: The sewer installation was completed in Jan of 2011 (started in Oct, 2010) and the deadline to tie-in was Dec 31, 2012. In all, 57 onsite systems were eliminated.
- Triangle West system: This sewer was constructed in 2011 and eliminated one onsite system and two pump stations—one being on the bank of McKenna creek.
- East Johnstown Sewer (Andalas drive to Larry Lane): This is tentatively set for construction in 2018/2019 and when completed will eliminate approximately 22 onsite systems.
- Triangle East Sewer (Riva Ridge Blvd to Pamela Dr): Phase 1 was constructed in the spring of 2013 and 4 home treatment systems have been eliminated after connecting to sewer. Subsequent phases are programmed in the City’s 5 year capital plan. When completed, the projects will eliminate 30 on-site systems.
- Price Road Sewer, Phase 1: This project was completed in December 2015. One commercial establishment is planning on connecting in 2016 as funds become available.
- Price Road Sewer, Phase 2: Final engineering has been completed and easement acquisition is currently underway. Construction is planned for 2017 and when completed will eliminate approximately 22 on-site systems and A sewer lift station.

D. Responsible Party and Legal Authority

The Water Resources Engineer will be responsible for the overall management and implementation of the Illicit Discharge Detection and Elimination program. Legal authority is provided under the City of Gahanna Codified Ordinances 927.04 and 943.02.

E. Themes and TMDLs

While this MCM covers more than Theme 3 from this SWMP – “Keep pet and animal waste from polluting our streams” – it does address this theme. It also addresses issues with HSTSs which are identified as a sources of impairment in the TMDL and is a tool for reducing pathogens and nutrients, which are identified as causes of impairment in the TMDL.

F. Goals and Activities		MCM 3. ILLICIT DISCHARGE DETECTION & ELIMINATION (IDDE)	
BMP & Responsible Party	Measurable Goal	Summary of Planned Activities	Proposed Schedule
Ordinance or Other Regulatory Mechanism	Review and update ordinances as necessary and implement appropriate enforcement procedures.	1. Maintain Ordinance: 927.24 - Illicit Non-Storm water Discharge And Illegal Connection To The Storm Sewer System. 2. Update ordinance 927.24 and related ordinances as necessary. 3. Enforce ordinances.	1. Ongoing
Jeffrey Feltz			2. Ongoing
Storm Sewer System Map	Maintain comprehensive storm sewer map showing location of outfalls and names and location of surface waters receiving discharges from these outfalls including catch basins, pipes, ditches, flood control facilities, post construction BMP's, private post-construction BMP's.	1. Continue support of Franklin Soil and Waters Conservation Districts Stream Geodatabase. 2. Update map of post- construction BMPs both public and private as necessary.	1. Ongoing
Jeffrey Feltz			2. Ongoing
IDDE Plan	A completed, stand alone, updatable plan that serves as a reference and guide for monitoring the City's MS4 for dry weather flows and illicit discharges.	1. Develop a plan outlining the City's IDDE Plan. 2. Update IDDE plan as needed.	1. Complete
Jeffrey Feltz			2. Ongoing
Dry-Weather Screening of Outfalls	Conduct ongoing dry weather screening of the City's MS4 for dry weather flows and illicit discharges.	1. Follow long-term screening strategy as defined in the IDDE Plan and continue refinement of data and mapping associated with DWS and the MS4.	1. Ongoing
Jeffrey Feltz			

4. Construction Site Storm Water Runoff Control

A. Introduction

This minimum control measure addresses management of storm water runoff from construction activity disturbing one acre or greater. Storm water runoff management addresses both how water is retained and released during and after storm water events and how erosion is minimized through design, management of construction activity, and use of erosion control practices until the site is stabilized with permanent vegetation.

Sediment is the number one pollution of concern in Ohio with construction and urban runoff being the primary contributor in the City of Gahanna and Franklin County. During a short period of time, construction sites can contribute more sediment to streams than can be deposited naturally during several decades. Unmanaged storm water runoff from developed land results in stream bank erosion. The resulting siltation, and the contribution of other pollutants from construction sites, can cause physical, chemical, and biological harm to local streams. Storm water retention and detention on construction sites reduces the volume and velocity of storm water entering ditches and streams. Another benefit of storm water detention is increased infiltration of water into the soil. This replenishes the availability of ground water as a supply for drinking water and maintains base flow in local streams.

Benefits to the City include reduced erosion and sedimentation along waterways and ditches, and improved quality of streams for recreation and fishing.

Summarized Requirements:

- An ordinance or other regulatory mechanism to require erosion and sediment controls, as well as sanctions to ensure compliance. The regulation will be equivalent to the technical requirements set forth in the Ohio EPA General Permit for Construction Site Storm Water.
- Require construction site operators to implement appropriate erosion and sediment control BMPs.
- Require construction site operators to control waste such as, but not limited to, discarded building materials, concrete truck washout, chemicals, litter, and sanitary waste at the construction site that may cause adverse impacts to water quality.
- Procedures for storm water pollution prevention plan review which incorporate consideration of potential water quality impacts.
- Procedures for receipt and consideration of information submitted by the public.
- Procedures for site inspection and enforcement of control measures with a frequency of no less than monthly.

B. Decision Process

The City of Gahanna is required to meet all requirements set forth in the NPDES permit and is committed to doing so. The City will continue to develop, implement and enforce a program to reduce pollutants to control construction site runoff on construction sites that result in a land disturbance of greater than or equal to one acre.

In order to control polluted runoff from construction sites, the City uses existing ordinances to require and enforce erosion and sediment controls at construction sites, including sanctions and enforcement mechanisms.



As a requirement of the NPDES general storm water permit, all on-site operators are to maintain records and reports that keep track of the inspections completed by the on-site operator. The City of Gahanna has procedures for site inspection and enforcement of control measures to deter infractions. Regular inspections by Franklin Soil and Water staff give the City an opportunity to provide additional guidance and education, issue warnings, or assess penalties.

The City will track the receipt and consideration of public inquiries, concerns, and information submitted regarding local construction activities, both written and verbal. This will recognize the important role that the public can play in identifying cases of noncompliance. To ensure sites are inspected for erosion and sediment control as well as for storm water pollution prevention and are in compliance with all current regulations, the building department will inspect all active, permitted construction sites on a regular basis. If any of the sites are found to be out of compliance, the City Zoning Department will enforce the regulations and implement penalties as necessary.

Figure 6: Site inspection photo

C. Best Management Practices

To address this minimum control measure the City will address the following best management practices as a part of its construction site storm water runoff control program:

- Ensure that Gahanna has adequate ordinances and other regulatory mechanisms in place.
- Continue the complaint process already established which follows-up on 100% of received complaints. Create a specific category for storm water related reports from the public.
- Review all construction site plans when construction disturbs more than 1 acre.
 - Review plans for natural resource concerns including soils, drainage, and stream buffers.
 - Review construction plans for issues related to soil erosion and sediment control practices as well as construction sequence.
- Perform site inspections every other week from approved SWPPP.
- Recommend necessary plan changes to appropriate developer representative.
- Perform additional site inspections as necessary to ensure compliance.
- Maintain communication and follow guidelines to ensure enforcement at noncompliant sites.

D. Responsible Party and Legal Authority

The Water Resources Engineer will be responsible for the overall management and implementation of the construction site storm water runoff control program (City of Gahanna Codified Ordinances—Chapter 1193). Franklin Soil and Water will act on behalf of the City of Gahanna for plan review and construction site erosion and sediment control inspections. The Water Resources Engineer will review the success, and document achievement of the measurable goals of the construction site storm water runoff control program and BMPs.

E. Themes and TMDLs

This MCM focuses on Theme 5 above – “Install and maintain proper storm water management controls on development sites” – working to address sediment runoff, an identified cause of impairment, from construction sites, a source of impairment.

F. Goals and Activities		MCM 4. CONSTRUCTION SITE RUNOFF CONTROL	
BMP & Responsible Party	Measurable Goal	Summary of Planned Activities	Proposed Schedule
Ordinance or Other Regulatory Mechanism	Ensure that Gahanna has adequate ordinances and other regulatory mechanisms in place.	Continue to actively enforce storm water regulations. Ordinances and regulatory mechanisms are reviewed are all up to date.	Ongoing
Jeffrey Feltz			
Sediment and Erosion Control Requirements	Ensure that Gahanna has adequate ordinances and other regulatory mechanisms in place.	Continue to ensure compliance with sediment and erosion control requirements.	Ongoing
Jeffrey Feltz			
Complaint Process	Continue the complaint process already established which follows-up on 100% of received complaints.	Continue addressing and tracking complaints.	Ongoing
Jeffrey Feltz			
Site Plan Review Procedures	Review all construction site plans when construction disturbs more than 1 acre.	<ol style="list-style-type: none"> 1. Review plans for natural resource concerns including soils, drainage, and stream buffers. 2. Review construction plans for issues related to soil erosion and sediment control practices as well as construction sequence. 3. Evaluate effectiveness 	<ol style="list-style-type: none"> 1. Ongoing 2. Ongoing 3. Annually
Jennifer Fish, Franklin Soil and Water Conservation District (FSWCD)			
Site Inspection Procedures	Ensure that ordinances and policies for compliance are met.	<ol style="list-style-type: none"> 1. Perform site inspections every other week from approved SWPPP. 2. Recommend necessary changes to appropriate developer representative. 3. Perform additional site inspections as necessary to ensure compliance. 4. Follow guidelines to ensure enforcement at noncompliant sites. 5. Evaluate effectiveness 	<ol style="list-style-type: none"> 1. Ongoing 2. Ongoing 3. Ongoing 4. Ongoing 5. Annually
Jennifer Fish, Franklin Soil and Water Conservation District (FSWCD)			

BMP & Responsible Party	Measurable Goal	Summary of Planned Activities	Proposed Schedule
Enforcement Procedures	Ensure that Gahanna has adequate enforcement procedures.	<ol style="list-style-type: none"> 1. Employ enforcement procedures. 2. Evaluate effectiveness 	<ol style="list-style-type: none"> 1. Ongoing 2. Annually
Bonnie Gard, City of Gahanna Planning and Zoning			

5. Post-Construction Storm Water Management in New Development and Redevelopment

A. Introduction

These measures start at development plan review and continue through ongoing management of storm water management practices that remain on site after construction is completed. Good construction site management and use of non structural BMPs, including wise placement of green space and stream buffers, can reduce costs of ongoing maintenance.

As post construction runoff flows over developed land it carries pollutants such as sediment, oil and grease, pesticides, heavy metals, and nutrients (e.g., nitrogen and phosphorus) to nearby ditches and streams. Once deposited, these pollutants impact water quality and viability of aquatic organisms. Post construction runoff also increases the quantity of water delivered to ditches and streams during storm events. Storm water is collected from surfaces such as asphalt and concrete and routed to drainage systems where large volumes of runoff quickly flow to the nearest receiving water. The effects of this process include stream bank erosion and downstream flooding. As storm water is directed into streams and ditches, infiltration of water to replenish the water table is decreased.



Figure 7: Annual post-construction site inspection photo

Benefits to the City from controlling post-construction runoff include reduced erosion and sedimentation along waterways and ditches, improved quality of streams for recreation and fishing, reduced property damage from flooding, and continued availability of a quality drinking water supply

Summarized Requirements:

- Develop, implement and enforce a program to address storm water runoff from new development and redevelopment projects that disturb one-acre of land or greater to help minimize water quality impacts.
- Consideration of non-structural BMPs for storm water management program, including, as appropriate: policies and ordinances that provide requirements and standards to direct growth to identified areas, protect sensitive areas such as wetlands and riparian areas, maintain and/or increase open space, provide buffers along sensitive water bodies, minimize impervious surfaces, and minimize disturbance of soils and vegetation.
- Consideration of structural BMPs in the program, including, as appropriate: storage practices such as wet ponds and extended-detention outlet structures; filtration practices such as grassed swales, bioretention cells, sand filters and filter strips; and infiltration practices such as infiltration basins and infiltration trenches.
- Identify the mechanisms (ordinance or other regulatory mechanisms) to address post construction runoff from development and redevelopment and include reasons for selection of the mechanism(s) within the first two years of the permit.

- The plan should ensure that long-term operation and maintenance (O&M) plans are developed and agreements in place for all applicable sites within the first two years of the permit.

B. Decision Process

The City of Gahanna will address storm water runoff from new development and redevelopment projects that disturb greater than or equal to one acre with controls that prevent or minimize water quality impacts. This may include retrofits to existing basins to improve the water quality of the runoff and decrease the amount of water quantity going into the receiving stream. This may also include an educational component on the specifics of what best management practices will best accomplish these retrofits and what best management practices will accomplish post construction storm water management on new development sites.

As development moves forward in the City, operation and maintenance plans are required for all post-construction BMPs along with an agreement that clearly identifies who is the responsible party for maintaining the BMP. When selecting BMPs for this minimum control measure community demographics, land use, potential pollution sources, existing water quality and storm water system information will be considered.

C. Best Management Practices

To address this minimum control measure the City will address the following best management practices as a part of its post construction management program:

- Ensure that Gahanna has adequate ordinances and other regulatory mechanisms in place, including procedures to review site plans for post-construction requirements as listed in Ohio EPA’s general construction permit and Gahanna chapter 1195.
- Consider adopting ordinances regarding riparian setbacks, wetland setbacks, open space requirements and green infrastructure.
- Provide information to permit applicants regarding post-construction requirements and non-structural and structural BMPs at the time of permitting.
- During pre-construction meeting ensure O&M agreements are in place and responsibilities are understood.
- The entity responsible for a BMP is required to perform annual inspections of the BMP, and provide documentation of and reports on that inspection to the City (Figure 7).
- Put in place procedures for enforcing compliance of post-construction operations and maintenance agreements.
- Follow enforcement procedures.
- Procedures in place to review site plans for post-construction requirements as listed in Ohio EPA’s general construction permit and Gahanna chapter 1195.

D. Responsible Party and Legal Authority

The Water Resources Engineer will be responsible for the overall management and implementation of the post construction storm water management program (City of Gahanna Codified Ordinances—Chapter 1195). Franklin Soil and Water will provide technical guidance, educational opportunities to assist the City in training and meeting this minimum control measure.

E. Themes and TMDLs

This MCM focuses on Theme 5 above – “Install and maintain proper storm water management controls on development sites.” Inasmuch as, landowners are normally responsible for maintaining post-construction, storm water BMPs, this MCM could be seen as an extension of Theme 2, “Implement homeowner BMPs.” Maintaining post-construction storm water BMPs can address sediment, pathogens and nutrients, all identified as causes of impairment in the Big Walnut TMDL.

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F. Goals and Activities MCM 5. POST-CONSTRUCTION STORM WATER MANAGEMENT IN NEW DEVELOPMENT AND REDEVELOPMENT

BMP & Responsible Party	Measurable Goal	Summary of Planned Activities	Proposed Schedule
<p>Ordinance or Other Regulatory Mechanism</p> <p>Jeffrey Feltz</p>	<p>Adopt procedures for enforcing noncompliance of post-construction operations and maintenance agreements.</p>	<p>Continue to comply with and enforce post-construction agreements and regulations.</p>	<p>Ongoing</p>
<p>Post-Construction Requirements</p> <p>Jeffrey Feltz</p>	<p>Ensure that Gahanna has adequate ordinances and other regulatory mechanisms in place.</p>	<p>1. Continue to comply with and enforce post construction requirements. 2. Update map of post-construction BMPs as needed.</p>	<p>1. Ongoing 2. Ongoing</p>
<p>Site Plan Review Procedures</p> <p>Jeffrey Feltz</p>	<p>Procedures in place to review site plans for post-construction requirements as listed in Ohio EPA’s general construction permit and Gahanna chapter 1195.</p>	<p>Continue to review and follow procedures.</p>	<p>Ongoing.</p>
<p>Site Inspection Procedures</p> <p>Jennifer Fish, Franklin Soil and Water Conservation District (FSWCD)</p>	<p>Conduct ongoing inspections to ensure that storm water practice is operating properly for water quality protection.</p>	<p>1. Perform two site inspections per site once the city has accepted the site and the developer is no longer responsible to ensure the BMPs are still functioning as intended and the natural resources continue to be protected. 2. Annual follow-up site visits at previous construction sites.</p>	<p>1. Ongoing 2. Ongoing</p>
<p>Enforcement Procedures</p> <p>Jeffrey Feltz</p>	<p>Put in place procedures for enforcing noncompliance of post-construction operations and maintenance agreements.</p>	<p>Continue to review and follow procedures.</p>	<p>Ongoing</p>
<p>Long-Term O&M Plans/Agreements</p> <p>Jeffrey Feltz</p>	<p>During post construction meeting ensure O&M agreements are in place and responsibilities are understood.</p>	<p>1. Continue to review and follow procedures. 2. Evaluate effectiveness.</p>	<p>1. Ongoing 2. Annually</p>

6. Pollution Prevention and Good Housekeeping

A. Introduction

This measure requires MS4 to examine and alter their own actions to help insure a reduction of pollution that collects on streets, parking lots, open spaces, and storage and vehicle maintenance areas and is discharged to local waterways.

Benefits to the City include leading the example to improve water quality in the City, possible cost savings through timely maintenance of storm sewer systems, reduction in fertilizer and pesticide usage, etc..., and promotion of Gahanna as a Green Pact member community.

Summarized Requirements:

- Must include employee training to prevent and reduce storm water pollution from activities such as park and open space maintenance, fleet and building maintenance, new construction and land disturbances and storm water system maintenance (Figure 8).
- Must include a list of industrial facilities that MS4 owns and operates. Storm Water Pollution Prevention Plans (SWPPP) need to be developed and implemented for listed facilities within the first two years of the permit.
- Must address maintenance activities, schedules, inspection procedures, and proper waste disposal for controls to reduce pollutants to your MS4s.
- Must ensure that new flood management projects are assessed for impacts on water quality and existing projects are assessed for incorporation of additional water quality protection devices and practices.

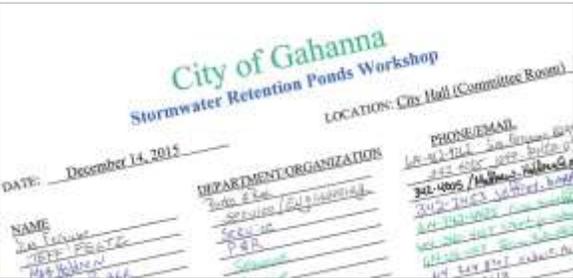


Figure 8: Sign-in sheet from annual good housekeeping workshop

regarding these sites and appropriately handle the disposal of waste, application of fertilizer and salt, and management of pesticide use.

B. Decision Process

The City of Gahanna will maintain and update as necessary good housekeeping/ pollution prevention plans for its two fleet management facilities. A good housekeeping workshop will be held yearly for appropriate departmental staff. The City will maintain appropriate records

C. Best Management Practices

To address this minimum control measure the City will address the following best management practices as a part of its post construction management program:

- Hold one good housekeeping workshop with each city department involved with park and open space maintenance, fleet and building maintenance, new construction and land disturbances, and storm water system maintenance, reviewing the SWPPPs with staff.
- Continue to update list of subject facilities

- Base catch basin repair and storm water line improvement on resident complaints and on yearly maintenance plan.
- Maintain regular schedule for cleaning catch basins and structures.
 - Storm water Rack/basin Maintenance planned and documented.
- Properly manage and dispose of wastes.
- Properly apply salt in a way that minimizes usage.
- Properly manage use of pesticides and herbicides
- Decrease use of fertilizer – especially fertilizer with phosphorus
- Minimize trash, grits, and other pollutants in the street which may be transferred to the storm water system.
- Ensure storm water management is considered for all flood management projects.

D. Facilities List

- 152 Oklahoma Avenue Municipal complex
- 785 Science Boulevard Facility

E. Responsible Party and Legal Authority

The Water Resources Engineer will be responsible for the overall management and implementation of the pollution prevention and good housekeeping program (City of Gahanna Codified Ordinances—Chapters 921, 925, 927 and 1191). The Water Resources Engineer will be responsible for the creation and implementation of a Storm Water System Maintenance Plan.

F. Themes and TMDLs

This MCM is an extension of Theme 2, “Implement homeowner BMPs,” while Theme 1, “Keep waste out of streams,” reflects another aspect of the MCM. Implementing sound pollution prevention practices and good housekeeping for municipal operations can address sediment, pathogens and nutrients, all identified as causes of impairment in the Big Walnut TMDL.

G. Goals and Activities

MCM 6. POLLUTION PREVENTION/GOOD HOUSEKEEPING FOR MUNICIPAL OPERATIONS

BMP & Responsible Party	Measurable Goal	Summary of Planned Activities	Proposed Schedule
Employee Training Program	Hold one good housekeeping workshop yearly in city departments involved with park and open space maintenance, fleet and building maintenance, new construction and land disturbances, and storm water system maintenance.	1. Hold good housekeeping workshop that is appropriate for each department and its specific job duties 2. Walk through SWPPP. 3. Detailed hands-on training for city staff members on sediment and erosion control.	1. Annually 2. Annually 3. Annually
Jeffrey Feltz			
List of Facilities Subject to Program	Continue to update list of subject facilities	152 Oklahoma Avenue Municipal complex	Ongoing
Jeffrey Feltz		785 Science Boulevard Facility	
MS4 Maintenance	Catch basin repair and storm water line improvement based on resident complaints and on yearly maintenance plan. Storm water Rack/basin Maintenance planned and documented.	Maintain regular schedule for cleaning catch basins and structures.	Ongoing
Jeffrey Feltz			
Disposal of Wastes	Properly manage and dispose of wastes.	1. Maintain annual list of wastes disposed. 2. Document how wastes are disposed with amounts. 3. Maintain procedures for proper waste disposal.	1. Ongoing 2. Ongoing 3. Ongoing
Jeffrey Feltz			
Road Salt	Properly apply salt in a way that minimizes usage.	1. Maintain existing street deicing procedures. 2. Document tons of salt used each year. 3. Maintain or refine procedures for reducing salt use.	1. Ongoing 2. Ongoing 3. Ongoing
Jeffrey Feltz			
Pesticide & Herbicide Usage	Properly manage use of pesticides and herbicides	1. Document amount of pesticide and herbicide used. 2. Maintain procedures for reducing pesticide and herbicide use.	1. Ongoing 2. Ongoing
Jeffrey Feltz			

BMP & Responsible Party	Measurable Goal	Summary of Planned Activities	Proposed Schedule
Fertilizer Usage Jeffrey Feltz	Decrease use of fertilizer – especially fertilizer with phosphorus	1. Document general areas where fertilizer is applied. 2. Document amount of fertilizer used. 3. Maintain procedures for reducing fertilizer use.	1. Ongoing 2. Ongoing 3. Ongoing
Street Sweeping Jeffrey Feltz	Minimize trash, grits, and other pollutants in the street which may be transferred to the storm water system.	1. Document and maintain street sweeping schedule. 2. Record amount of material collected and disposed, if possible.	1. Ongoing 2. Ongoing
Flood Management Projects Jeffrey Feltz	Ensure storm water management is considered for all flood management projects.	Incorporate water quality protection devices.	Ongoing