Stormwater Permit Implementation Plan

In accordance with NPDES Permit No. MI0053856

ANN ARBOR
WATER
Stormwater

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Introduction

The National Pollutant Discharge Elimination System (NPDES), established in 1990 by the United States Environmental Protection Agency Protection Agency (EPA), requires that all communities with a municipally owned separate storm sewer system (MS4) serving between 100,000 and 250,000 people have a program to reduce the impacts of stormwater pollution. The responsibility of administering the program for the EPA in the state of Michigan is the Department of Environment, Great Lakes, and Energy (EGLE). As such, the city is responsible for receiving authorization to discharge by permit coverage from EGLE.

The primary purpose of this document is to identify practices and procedures to be implemented by the City of Ann Arbor, further referenced to as the "city", to reduce the discharge of pollutants from the MS4 to the maximum extent practicable and ensure consistent compliance with the City's MS4 Permit as well as inform the community of actions the city is taking to maintain and monitor compliance with the permit. The activities contained in this document represent only activities completed to meet permit compliance requirements, the city participates in several stormwater management activities and projects that are not represented within this text.

An MS4[1] is defined as all separate storm sewers that are owned or operated by a municipality or other public body created by or pursuant to state law. MS4s can include both open and closed drainages systems that discharge to waters of the state or other regulated MS4s. However, an open channel cannot be both a water of the state and an MS4. Municipalities are subject to NPDES permits if some or all their systems are within a census defined urbanized area. The entirety of the city is within a defined urbanized area. For a map of the Ann Arbor urbanized area, see Appendix A.

The NPDES MS4 permit requires a stormwater management plan contain the following minimum control measures:

- Public Participation and Involvement Program (PPP)
- Public Education Program (PEP)
- Illicit Discharge Elimination Program (IDEP)
- Construction Stormwater Runoff Control Program (CSC)
- Post-Construction Stormwater Program
- Pollution Prevention and Good Housekeeping Program (P2GH)
- Total Maximum Daily Load Implementation Plan (TMDL)
- Industrial Stormwater Program (ISW)

[1] As defined by R 323.2103 of 1994 PA 451, MCL

The city currently works collaboratively with the Huron River Watershed Council (HRWC) and the Washtenaw County Water Resources Commissioner's Office (WCWRC) to implement several of the above programs. Primarily the PPP, PEP, IDEP, and TMDL programs. For a copy of the most recent contract with the Huron River Watershed Council, see Appendix B.

This plan will be reviewed for effectiveness at the time of progress report submittal. The report is due annually on October 1. All revised versions will be reviewed by EGLE and posted in accordance with the PPP.

The city has reviewed its charter, ordinances and other existing authority and determined that it has the authorization to meet the commitments and implement the practices contained within this document.

Outfalls and Points of Discharge

The city utilizes ArcGIS to inventory and map all stormwater assets. A listing of the city's outfalls and points of discharge is provided in Appendix C. For the purposes of Appendix C, outfalls and points of discharges are defined as city owned assets where stormwater leaves the city's owned infrastructure and discharges either directly to waters of the state, or into another MS4.

Enforcement Response Procedure

The city has reviewed its charter, ordinances and other existing authority and determined that it has the authorization to meet the commitments and implement the practices contained within this document.

The city's stormwater enforcement response procedures are outlined in Section 2:221 of Chapter 33 of the City Code, which is included as Appendix D.

Community members are encouraged to submit a report of an illicit discharge or other stormwater code violations via A2Fixit or SeeClickFix.

Should the city determine that the existing authority is inadequate to implement the requirements of the stormwater permit, the city will notify EGLE. That notification will include those actions taken or proposed by the city to secure the legal authority to meet the permit requirements or any appropriate explanation as to why such authority cannot be obtained.

The city will track non-compliance as required under the permit including the following:

- Name of responsible party
- Date and location of the violation
- Business/Agency/Organization, as appropriate

- Description of the violation
- Description of the enforcement response
- Schedule of compliance
- Resolution date

Public Participation and Involvement

The city's PPP is facilitated by the HRWC and shared across the Middle-Huron Partners. Public participation is solicited in several ways to encourage involvement in stormwater activities.

The city follows all legal public notice requirements, as appropriate, when notifying the public that a stormwater management program will be implemented.

The city will provide electronic copies of this plan, as both draft and final version, to share with the public. HRWC will notify the public that the plan was developed and will encourage public input in the revision process. This will be done primarily through the following:

- Posting to the HRWC website
- Sending out electronic notices to the HRWC public contacts list
- Publicizing the review process via the HRWC website and press releases
- Posting to the city website
- Sending out electronic notices to the city's contact lists

In addition to the above, the city will also utilize any or some of the following in any current or future updates:

- Printing notice in the local news media (CTN)
- Announcing/updating boards and associations other than those marketed to by HRWC
- Publish in articles and local news letters
- Provide copies and information at public meetings
- Publish on the City stormwater website
- Announce or publish at public events

This plan is being completed as part of the MS4 Permit application process. The draft will be made available as part of the public notice period of the NPDES draft permit review process. It will also be published on the HRWC website. If additional revisions are proposed during the permit process, public notice and comment processes will be followed as described in the collaborative PPP in Appendix E.

Public Education Program

The city partners with other governments and non-profit organizations to implement a regional public education program. The group establishes high-priority watershed areas and issues by conducting a thorough review of the following:

1. The watershed management plans of the Middle Huron and the Huron Chain of Lakes, and any Total Maximum Daily Load (TMDL) data for the area
2. The Water Quality Monitoring Program data
3. The effectiveness of prior years' PEP activities

The group meets quarterly and hosts periodic subcommittee group meetings to discuss topics throughout the permit cycle, potential public outreach opportunities and programs. The group recognizes some topics may be entity specific and not need to be applied across the entire watershed.

The group has identified the following issues as high-priority watershed-wide and targeted issues:

- High levels of phosphorus in stormwater runoff from most monitored tributaries indicating broad sources.
- High E. coli counts in some targeted tributaries including Mill and Honey Creeks, and tributaries that discharge directly to the Huron River between Argo and Geddes Ponds.
- High conductivity levels, indicating potential dissolved contaminants, in most Middle Huron tributaries.
- Flashy flows in Middle Huron streams indicating the need for increased volume and rate control throughout the watershed.
- A need for greater protection of riparian areas to reduce erosion and slow and treat runoff.
- A need for continued education about stormwater pollution and residential responsibilities, as shown by current survey results.

Appendix F contains HRWC Collaborative PEP Plan and PEP Table.

The PEP is evaluated by measuring the output of each of the activities in the program. Educational programs are measured by tracking metrics specific to the activity. Tracking mechanisms are contained in Appendix F. When applicable, public comments may be used as a measurement of program effectiveness alongside level of public participation and other gauges of behavior change.

In addition to the activities overseen by the HRWC, the city surveys residents once a permit cycle to measure public awareness of stormwater pollution and possible solutions, environmental attitudes, capacity constraints, behaviors, and effectiveness of specific public education activities. The respondents for the web-based survey are recruited by mail, email, social media, advertising and in-person contact. The results are used to guide PEP decision making and to benchmark PEP activities.

The city also maintains a stormwater smart webpage. Reviews of material on the site take place annually as part of the annual report and may include miscellaneous updates as the city deems necessary. Comments received and number of visitors are used as a metric for use and reported with the annual report.

Illicit Discharge Elimination Program

The focus of the illicit discharge elimination program is to effectively eliminate illicit discharges and connections to the MS4. Illicit connection means any physical connection to the MS4 that primarily discharges non-stormwater, excluding uncontaminated groundwater, into the system or a connection that is not authorized or permitted by the local authority.

An illicit discharge is any discharge or seepage into the MS4 that is not composed entirely of stormwater or uncontaminated groundwater. Examples of illicit discharges include dumping of motor vehicle fluids, household hazardous wastes, grass clippings or animal wastes and unauthorized discharges of sewage, industrial waste, or restaurant wastes.

The city has opted not to prioritize specific areas for IDEP inspection, but instead inspects all areas over the course of the permit cycle. All field observations will at minimum include the following information:

- Presence or absence of flow
- Water clarity and color
- Prescence of floatable material
- Prescence of deposits or stains on the discharge structure or bank
- Vegetation condition
- Odor
- Structural condition of outfall
- Prescence of any bacterial sheens, algae, or slime

Appendix G includes a non-interactive printout of the field collection form that is utilized by Public Works (DPW) staff when taking samples. An additional procedural document is also included in Appendix G.

A sample will be taken anytime there is flow during dry weather that is suspected to not be purely stormwater or uncontaminated groundwater. Things that may trigger a sample may include odor, discoloration, or floatable material.

If a sample is taken, the pH and temperature tests are done in the field, and the sample is delivered to the Water Treatment Plant where it is tested for E. coli, surfactants, and physical signs of pollution within 24-hours. The following will be utilized to determine the next steps after laboratory results are reviewed:

- E. coli testing registering 10,000 CFU/100 mL or more will instigate immediate follow up including resample. If resample is elevated appropriate jurisdictions will be notified of findings
- E. Coli testing registering >1,000 CFU/100mL but less than 10,000 CFU/100mL represents a potential "hot spot" that will be isolated and require follow-up investigation. If resample is elevated appropriate jurisdictions will be notified of findings
- Surfactant >0.5mg/L represents a potential "hot spot". Re-sample will determine if elevated results are confirmed. If resample is elevated appropriate jurisdictions will be notified of findings
- Physical signs: odor, color, presence of sanitary debris. Schedule re-check outfall to determine if "hot spot" can be confirmed

Follow-up sampling and activities will be completed at minimum within two weeks of the receipt of analytical results. If resample confirms possible illicit connection the following mechanisms may be used to identify the source:

- Closed circuit camera (CCTV)
- Dye testing
- Clear water reporting
- Desk audit of as-builts in the area
- Upstream manhole sampling

In addition to regular inspection the city utilizes resident complaints to identify illicit connections and spills. Resident reports of illicit discharges can be submitted through the A2FixIt. Reports are triaged according to the nature of the complaint. If a sample is taken, the same procedure as listed above is followed to determine the source.

All staff with stormwater related duties or field work are trained in IDEP within one year of hiring. All existing staff are trained annually. Training includes techniques for identifying an illicit discharge or connection, field observation and screening, source investigation and procedures for reporting and responding to discharges.

IDEP program effectiveness is gauged on the number of illicit discharges discovered and the time it takes to correct deficiencies. Effectiveness is evaluated as part of progress reporting.

Construction Stormwater Runoff Control Program

The City of Ann Arbor is an authorized Soil Erosion and Sedimentation Municipal Enforcing Agency (MEA). The city has developed procedures to ensure all soil erosion and sedimentation controls (SESC) are included on site plans, and to ensure they are installed and maintained properly to prevent the discharge of sediment to the MS4 or adjacent properties. The city takes public complaints through the A2FixIt system. All complaints of discharge of sediment or soil from a construction site will be inspected within 24 hours. If a violation is found upon inspection, the contractor will be notified. The city also provides notice to EGLE when pollutants are discharged to the MS4 from construction activities. Appendix H contains the SESC Inspection Standard Operating Procedure (SOP), the SESC Inspection Checklist and the SESC Plan Review SOP.

Post-Construction Stormwater Runoff Program

The city has adopted the Rules of the Washtenaw County Water Resources Commissioner as defined in the Unified Development Code. The WCWRC Rules are included in Appendix I and the UDC is included in Appendix J. Per the city's permit, all development or redevelopment projects that disturb one or more acres are required to meet the following Performance Standards:

1. Water Quality Treatment: Treat the runoff from 90% of all runoff-producing storms, or the first inch. BMPs must be designed on a site-specific basis to achieve a minimum of 80% TSS removal or a concentration of less than 80 milligrams per liter.
2. Channel Protection: The runoff rate and volume of discharge shall not exceed the pre-development rate and volume for all storms up to the 2-year, 24-hour event.

Specific exemptions or alternatives may be found in the UDC or the Rules of the WCWRC.

In addition to the above minimum performance standards, all developments subject to the post-construction control regulatory mechanism require long-term operation and maintenance agreements for installed BMPs. The maintenance agreements shall be recorded with the register of deeds to ensure operation and maintenance in perpetuity, even in the event of transfer or sale of the property.

In the event the owner is not maintaining BMPs onsite, the agreement gives the city the authority to enact the enforcement procedure and perform maintenance and bill the user.

Pollution Prevention and Good Housekeeping Program

The city maintains a geodatabase with all facilities. Facilities are ranked by their potential to discharge pollutants to waters of the state. All facilities are assessed and inspected annually as part of the SWPPP reporting process. The categories for ranking are:

- High: Facilities with active use, vehicle storage or maintenance, and a direct connection to open water/creek
- Medium: Facilities with some active use that store chemicals or potential pollutants on site.
- Low: facilities with no active use, that have no chemical or potential to discharge pollutants on site IE parks and office buildings

For a list of all city owned facilities and Best Management Practices (BMPs), refer to Appendix K.

Facilities that are ranked with a high potential to discharge pollutants are required to maintain a Stormwater Pollution Prevention Plan (SWPPP). Written SWPPPS contain specific procedures based on site conditions and pollutants of concern stored on site. Each facility with a SWPPP is inspected regularly for compliance with their approved SWPPP.

Catch basins are inspected and cleaned at minimum once every three years. The city aims to inspect or clean a minimum of 35% of catch basins annually. High traffic and problem areas are cleaned at a higher frequency. If a complaint is received regarding a clogged catch basin, it is assessed or cleaned as soon as possible. Catch basin inspections and cleanings are tracked and scheduled via Cityworks.

The city sweeps all streets at minimum four times annually. The city aims to sweep all major roads monthly, bike lanes twice monthly, and residential streets once in spring and summer and twice in the fall. The city maps residential street sweeping activities and publishes them on the street sweeping dashboard. They are also tracked internally via Cityworks.

The city does not do curbside leaf pickup. The city maintains approximately 12 miles of gravel roads. The roads are inspected monthly and graded as needed but weather conditions and use may change the frequency. The city applies liquid calcium chloride to control dust primarily during summer months but more frequently as needed depending on weather conditions and resident complaints. Treatments do not occur during wet weather.

All spoils from catch basin cleaning and street sweeping are taken to Wheeler Service Center's storage yard. Liquids are decanted and directed into the sanitary sewer collection system and the solids are hauled to a Type 2 landfill.

The city utilizes Cityworks to track and schedule maintenance activities for approximately 23,000 catch basins. A map of all catch basins is available online for community review. Cityworks is also utilized to schedule and maintain record of maintenance activities of non-catch basin stormwater assets.

The Catch Basin Cleaning SOP, in Appendix L, is utilized for catch basin cleaning.

The SWPPPs for the high-level facilities operation and maintenance activities are included in Appendix M.

The city's winter maintenance objective is to provide roadways that are safe to use at reasonable speed while protecting water quality. The city is broken up into seven major snow routes that primarily consist of major roads, but also includes some local roads. The included local roads are primarily school routes or areas that have been deemed problem areas. All seven routes are plowed and salted each time it snows. Anti-icing is applied to the routes in advance of snow events. The city follows standard industry guidelines to determine the amount of salt to apply based on the ground temperature. Residential area plowing is initiated at 4" of accumulation or when deemed appropriate by the DPW Manager. Salt applicators are calibrated annually at the beginning of the application season. Staff responsible for salt application are also trained on handling salt spills and calibration. Salt storage SOPs are contained in the Wheeler SWPPP.

The city maintains a fleet of vehicles for use by various departments including police and fire, parks and DPW. All vehicles have maintenance activities, including washing, done indoors where excess wash water is sent to the sanitary sewer collection system.

City Parks staff maintain several vegetated properties and natural areas. The supervisor of the application of pesticides must be certified by the Michigan Department of Agriculture and Rural Development (MDARD). All staff working for the Park's Department are certified and perform in-house applications. The parks department maintains records in the department files.

All new staff at facilities with potential to discharge pollutants receive P2GH training within their first year of hire, all remaining staff receive at minimum one good housekeeping specific training per year. Additionally, all employees receive monthly emails with a variety of topics, stormwater is included at minimum twice annually. Field operations staff receive informational updates from the water quality manager at minimum twice a year. All contractors receive education on stormwater education at the pre-

construction or pre-bid meeting. The Public Works Supervisor reviews the performance of all work on a regular basis.

Total Maximum Daily Load Implementation Plan

Total Maximum Daily Loads (TMDLs) are established when a water body is deemed impaired by EGLE. Impaired means the water does not meet the Water Quality Standards established for its designated use. The BMPs identified in previous sections of this PIMP include actions that support achieving the pollutant load reduction requirements for each TMDL listed below.

FORD LAKE & BELLEVILLE LAKE (HURON RIVER IMPOUNDMENT)

The Ford and Belleville Lakes experience frequent algal blooms brought on by excess phosphorus which significantly reduce the ecological quality, the recreational uses, and the aesthetics of the lakes. As such, the Ford and Belleville Lakes have an established phosphorus TMDL.

The most recent HRWC TMDL Plan for Ford and Belleville Lakes is included in Appendix N.

HURON RIVER FROM ARGO POND TO GEDDES POND

Escherichia coli (E. coli) is a group of fecal coliform bacteria found in the lower intestine of warm-blooded organisms such as humans, wildlife, and domestic animals. The presence of E. coli in a lake or river indicates the water has been contaminated by fecal material from animals or humans. The city works collaboratively to implement BMPs to reduce E. coli sources from impacting the river and its tributaries.

The most recent HRWC TMDL Plan for the Huron River from Argo to Geddes Ponds is included in Appendix N.

SWIFT RUN AND MALLETTS CREEK BIOTA

Biota is defined as the animal and plant life of a region or habitat. Swift Run has reduced macroinvertebrate communities. It is likely decreased populations are caused by high imperviousness in the Swift Run creekshed which contributes to flashy flows, bank erosion and sedimentation issues within the stream. Malletts Creek's TMDL addresses warm water fish and macroinvertebrate communities. Like Swift Run, the Malletts Creek area has high amounts of impervious surface which leads to unstable flows, streambank erosion and sedimentation.

The TMDL Plans for Swift Run and Malletts Creek can be found in Appendix N

Industrial Stormwater Program

The city is currently working to establish an Industrial Stormwater Program. An in-effect program will be submitted according to the timeline EGLE establishes within the Final MS4 Permit.

ACRONYMS

BMP	Best Management Practice
CSC	Construction Stormwater Program
DDA	Downtown Development Authority
GIS	Geographic Information System
HRWC	Huron River Watershed Council
IDEP	Illicit Discharge Elimination Program
ISW	Industrial Stormwater Program
MEA	Municipal Enforcing Agency
MS4	Municipal Separate Storm Sewer System
P2GH	Pollution Prevention and Good Housekeeping Program
PEP	Public Education Program
PPP	Public Participation and Involvement Program
SESC	Soil Erosion and Sedimentation Control
SOP	Standard Operating Procedure
SPU	Systems Planning Unit
SWPPP	Stormwater Pollution Prevention Plan
TMDL	Total Maximum Daily Load
UDC	Unified Development Code
WCWRC	Washtenaw County Water Resources Commissioner