MUNICIPAL STORM WATER NPDES PERMIT MI0053902
FISCAL YEAR 2021-2022 ANNUAL REPORT
FOR
THE UNIVERSITY OF MICHIGAN

ANN ARBOR, DEARBORN & FLINT CAMPUSES
& OTHER REGULATED U-M PROPERTIES

UPDATED PER THE REQUIREMENTS OF NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT (NPDES) FOR DISCHARGE OF STORM WATER TO SURFACE WATERS FROM A MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4)

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For clarification purposes, the following acronyms/definitions are used throughout this report:

AEC	UMAA Architecture, Engineering and Construction
ARC	Alliance of Rouge Communities
BMPs	Best Management Practices
CCRB	Central Campus Recreation Building located on the UMAA campus
CGS	Custodial & Grounds Services
City	The City of Ann Arbor, Dearborn or Flint, as appropriate
CPP	Central Power Plant
CSEP	Computer Science, Engineering, and Physics Department on UMF campus
CSW	Construction Storm Water Runoff Control
DPS	Department of Public Safety on the UMD and UMF campuses
DPSS	Division of Public Safety & Security on the UMAA campus
EAAMC	East Ann Arbor Medical Campus
EIC	The Environmental Interpretive Center on UMD campus
EHS-AA	Environment, Health & Safety Department – Ann Arbor
EHS-D	Environmental Health and Safety Department – Dearborn
EHS-F	Environment, Health, and Safety Department – Flint
EP3	Environmental Protection & Permitting Program within EHS-AA
EGLE	Michigan Department of Environment, Great Lakes, and Energy
F&O	Facilities and Operations
FOTR	Friends of the Rouge River
FRWC	Flint River Watershed Coalition
GIS	Geographical Information System
HAZWOPER	Hazardous Waste Operations and Emergency Response
HMM	Hazardous Materials Management within EHS-AA
HRWC	Huron River Watershed Council
HHW	Household Hazardous Waste
HVAC	Heating, Ventilation, and Air Conditioning
IDEP	Illicit Discharge Elimination Program
Illicit Connection	A physical connection to the drainage system that 1) primarily conveys illicit discharges into the drainage system or 2) is not authorized or permitted by the local authority (where a local authority requires such authorization or permit).
Illicit Discharge	Any discharge or seepage that is not composed entirely of storm water into the drainage system, except for discharges specified in Parts I.A.1.b. and c. of the permit. Illicit discharges include dumping of motor vehicle fluids, hazardous wastes, grass clippings, leaf litter, domestic animal wastes, litter or unauthorized discharges of sewage, industrial waste, food services wastes, or any other non-storm water waste into the drain system.
LTP	Logistics, Transportation & Parking
MHI	Middle Huron Initiative
MS4	Municipal Separate Storm Sewer System
NPDES	National Pollutant Discharge Elimination System
NREPA	State of Michigan Natural Resources Environmental Protection Act, Act 451

OCS	Office of Campus Sustainability (OCS) associated with UMAA
Outfall	A discharge point from an MS4 directly to surface waters of the state
P2	Pollution Prevention
P2/GH	Pollution Prevention/Good Housekeeping for Municipal Operations
PCSW	Post-Construction Storm Water Control
PEP	Public Education Program
Permit	The NPDES Storm Water Permit Number MI0053902 issued by EGLE to the U-M, effective October 1, 2001
PIP	Public Involvement and Participation
PIPP	Pollution Incident Prevention Plan
PPE	Personal Protective Equipment
PSA	Public Service Announcement
RCRA	Resources Conservation and Recovery Act
SEMCOG	Southeast Michigan Council of Governments
SESC	Soil Erosion and Sedimentation Control
SPCC	Spill Prevention and Countermeasure Control
SWMPP	Storm Water Management Program Plan prepared for the Permit and approved by EGLE
SWPPP	Storm Water Pollution Prevention Plan
TMDL	Total Maximum Daily Load
TSS	Total Suspended Solids
U-M	The University of Michigan, Ann Arbor, Dearborn & Flint
UMAA	The University of Michigan Ann Arbor Campus
UMD	The University of Michigan Dearborn Campus
UMF	The University of Michigan Flint Campus
UMPD	U-M Police Department, within the U-M DPSS
University	The University of Michigan, Ann Arbor, Dearborn & Flint
U-M SEAS	University of Michigan School for Environment and Sustainability
US EPA	The United States Environmental Protection Agency

THE UNIVERSITY OF MICHIGAN
MUNICIPAL STORM WATER NPDES PERMIT MI0053902
FISCAL YEAR 2021-2022 ANNUAL REPORT

In accordance with Part I, Section C.1.c of National Pollutant Discharge Elimination System (NPDES) Permit MI0053902, the University of Michigan (University; U-M) is required to submit an annual report describing the status of compliance with permit conditions associated with the storm water management program. This program is a requirement of the NPDES Permit issued by the Michigan Department of Environment, Great Lakes, and Energy (EGLE) Surface Water Quality Division on October 1, 2001. This report covers the period July 1, 2021 through June 30, 2022, and follows the format identified in the permit.

1) Compliance Assessment

a) Describe the status of compliance with permit conditions.

The U-M is in compliance with the Storm Water Management Program Plan (SWMPP) for the Ann Arbor (UMAA), Dearborn (UMD), and Flint (UMF) campuses, as revised in May 2010 and approved by the EGLE on June 2, 2010. The University is also continuing to implement the EGLE approved post-construction storm water management requirements outlined in the Storm Water Management – Post-Construction Requirements Guideline (EP3-001) located on the Environment, Health & Safety Department in Ann Arbor (EHS-AA) web site. On May 28, 2013, U-M submitted a Phase II permit renewal application to EGLE in accordance with the notification from EGLE dated February 5, 2013, and provided additional requested updates on May 28, 2015. On January 12, 2021, EGLE provided comments to this information and requested additional updates which were provided to EGLE on April 12, 2021. For the purposes of this report, please note that EHS-AA is associated with UMAA, the Environmental Health and Safety Department in Dearborn (EHS-D) is associated with UMD, and the Environment, Health, and Safety Department in Flint (EHS-F) is associated with UMF.

b) Provide a report of illicit discharges and illicit connections removed.

There were zero cross connections and two illicit discharges to the MS4 identified during this reporting period.

Illicit Discharges:

U-M Ann Arbor – Bishop Street & Beal Avenue – On November 18, 2021, turbid water from a water main break entered the storm system and flowed to an off-site detention pond. Turbid water was noted in the pond, but no turbid water was seen leaving the pond and entering the nearby stream. This was reported via phone call to EGLE at the time, and no further action was required, as the turbidity was captured by the detention pond.

U-M Ann Arbor – North Campus Research Complex (NCRC) Building 800 – On Monday, June 20, 2022, EHS staff were notified that the closed loop chilled water system at the North Campus Research Complex (NCRC) building 800 had required make-up water over the weekend. EHS notified EGLE of a possible discharge to the storm system, with outfall to Millers Creek.

EHS had a subsurface soil assessment study performed adjacent to the suspected leak location on Friday, June 17, 2022. Upon excavation, it was discovered that a geo-probe pierced an approximately 3/8” diameter hole into the top of one of the 20” fiberglass chilled water lines. Chilled water from this leak entered the corresponding pea stone-filled underground utility trench, where it was able to flow to the adjacent storm manhole, and enter the storm system. Chilled water from this discharge flowed to a storm water detention basin with an outlet (U-M outfall O-126), which discharges to Millers Creek.

U-M EHS followed all applicable Miss Dig requirements ahead of performing the subsurface soil investigation, and was given an all clear to proceed with the planned boring locations. It was determined during the excavation of the pierced chilled water line that the actual location of the line was approximately 12 feet west of the Miss Dig marked location. This fiberglass line did not have a tracer wire included in the original installation, which occurred prior to U-M owning the facility.

U-M Ann Arbor - North Campus Facility Services (previously reported) – On June 25, 2018, the HRWC discovered a trickle (estimated at <3 gallons per hour) of water with elevated conductivity emanating from one of our outfalls (O-83) located on North Campus and discharging to Millers Creek. U-M began an investigation, including dye testing at adjacent buildings and televising the storm system and underdrains connected to this outfall. No illicit connections were found. We continue to monitor and investigate the possible source. *Please note, there are other locations within the eastern branch of Millers Creek that are also experiencing high concentrations of chloride and conductivity. Please see Page 12 of the April 2021 Michigan AIPG publication "Geologically Speaking" for additional information.
http://mi.aipg.org/newsletters/pdf/2021%20Q2%20MI%20Newsletter.pdf

Cross-Connections:

Dye testing was completed during the reporting period to verify proper sewer connections by UMAA at the following locations:

- Francis Xavier Bagnoud (FXB) Building from November 1, 2021 to November 5, 2021.
- Fleming Administrative Building from November 29, 2021 to December 3, 2021
- Dental School on June 30, 2022 and July 1, 2022.

No cross-connections were identified.

The following potential and existing illicit connections, as listed in previous reports, are under further investigation.

- Central Campus Recreation Building (CCRB): It was determined through dye testing conducted in August 2012 that the swimming pool main drain and the pool area deck drains are connected to the storm sewer system. Filter backwash water was previously redirected to the sanitary sewer in 2012. The deck drains discharge de minimis amounts of chlorinated splash water while the pool main drain only discharges once the water has been de-chlorinated (and only once per year). Based on the characteristics of the expected discharge water and the travel distance from CCRB to the Huron River outfall at Glen Ct., it is unlikely that chlorinated water will reach the river.
  Note: The CCRB is currently undergoing re-design and an entirely new building is proposed with construction proposed to start at the beginning of 2023. The design calls for pool filter backwash water to be discharged to the sanitary sewer system. When the pool needs to be fully drained, a valve will be switched to allow for the pool (once properly dechlorinated) to be drained to the storm sewer system. EHS will work with the project and EGLE to ensure that appropriate permits are obtained prior to the completion of the project.

c) Assess Best Management Practice Appropriateness and Progress toward Goals Identified in the SWMPP.

This section presents the progress made this reporting period toward meeting the measurable goals which were written in the SWMPP to support the program elements (e.g. Total Maximum Daily Loads, Public Education Program, Public Involvement and Participation, etc.). Each subsection below is prefaced with excerpted language from the SWMPP (*italicized*) followed by a table of measurable goals and the U-M activities, which help to meet the measurable goals. The table also indicates in which fiscal year actions were initiated to support a particular measurable goal and whether U-M is in compliance with that goal. Compliance presents in the form of a discrete set of activities that have previously been completed and reported or an on-going effort with activities that are updated in each report. Additional activities supporting a program element are also noted at the end of each subsection.

i. Total Maximum Daily Loads (TMDL)

The U-M participates in TMDL reduction efforts throughout the permit cycle for Total Phosphorus – Ford & Belleville Lakes; E.coli – Geddes Pond; Biota – Mallets Creek; E.coli – Rouge River; and Biota – Rouge River; E.coli – Flint River.

Table 1 presents the status of each TMDL activity, associated measurable goals as written in the SWMPP, and current or past activities supporting the measurable goals.

Table 1 Total Maximum Daily Load Activities

TMDL Activities Measurable Goals	**Initial Action Reported in:**	**Current Status**		
		In Compliance	*Completed as Previously Reported*	*Ongoing Effort (see below)*
Review existing outfalls to identify major discharge points (≥ 36-inch conveyance) discharging directly to surface waters of the state within the portion of the TMDL.	FY 2011-2012 (Annual)	✓	✓	
By April 15, 2012, U-M will take samples of at least 50% of the major discharge points within the portion of the TMDL watershed in the urbanized area. At a minimum, these samples will be analyzed for the applicable TMDL parameter (E. coli or total phosphorus). The sampling results will be retained and reported in the second progress report.	FY 2011-2012 (Annual)	✓	✓	
By October 1, 2013, sampling results and other available information will be reviewed. A plan will be developed to reduce the discharge of the applicable TMDL parameter (E. coli or total phosphorus). These prioritized actions will be reported with implementation targeted during the 5-year permit cycle that begins 2013. *Note that as of the date of this report, U-M is still operating under the 2010 SWMPP.*	FY 2012-2013 (Annual)	✓	✓	

TMDL Activities

U-M All Campuses

- U-M is aware of updated statewide TMDLs and will continue to work with local watershed groups to meet these goals as necessary.

U-M Ann Arbor – Previously Reported

- As previously reported, outfalls have been evaluated to determine if they are "major" discharge points (greater than 36 inches in diameter). A list of major outfalls is kept on file. UMAA has identified four major discharge points within TMDL reaches. O-47R (NC_OF-005) and O-41 discharge directly into Millers Creek. O-30R (NC_OF-001) and O-88R (NC_OF-003) discharge directly to the Huron River. Outfall O-41, previously reported, is no longer assessed by U-M as it was determined to be a City-owned outfall discharging to Millers Creek. Outfall O-41 is located south of Baxter Road and northwest of the Waste Management Facility and discharges to Millers Creek.

- As previously reported, UMAA conducted sampling and analysis of O-41 and O-47R on March 30, 2012, for E. coli and total phosphorus. This represents 50% of the major discharges.

- As previously reported, based on the sampling results and an overall review of the SWMPP, the U-M has developed a plan to reduce the discharges of the applicable TMDL parameters. In an effort to maximize resources and minimize duplicate efforts, U-M is addressing TMDLs in a consistent manner as the HRWC and other area MS4s. HRWC has written a TMDL Implementation Plan for the Huron River Watershed MS4s in Washtenaw County. Aspects of that Implementation Plan are incorporated in the updated SWMPP as part of the NPDES Application for discharge of storm water to surface waters from an MS4. Management activities addressing the specific TMDLs have been identified and prioritized in Appendix I of the SWMPP.

U-M Dearborn – Previously Reported

- UMD identified three major discharge points, two of which discharge directly into the Rouge River and one that discharges into the City of Dearborn's storm line on Hubbard Drive.

- UMD conducted sampling and analysis on all identified major discharge points. Two discharge points were sampled on November 22, 2011, and the last discharge point was sampled on June 19, 2012.

U-M Flint – Previously Reported

- The Flint River is now included in the statewide *E.coli* TMDL. UMF will continue to work with local watershed groups to address these goals.

ii. Public Education Program (PEP) – Education and Outreach on Storm Water Impacts

Recognizing the need for public involvement in the effort to reduce storm water pollutants, the U-M has developed a broad and aggressive storm water education and outreach program. This multi-faceted program is closely connected to the U-M's pollution prevention (P2) program and its many initiatives. Specifically, the storm water education curriculum is designed to promote, publicize, and facilitate watershed education while encouraging the P2 practices developed under the U-M's environmental stewardship agenda. The intended audience for the program is all persons associated with the University who could potentially affect the quality of storm water discharges, including, but not limited to: campus residents; University faculty, staff, and students; visitors to the campus; contractors and vendors working on the campus; and commercial and industrial operations on campus. U-M's overall goal for the PEP is to bring awareness of storm water issues to 70% of the University community by the end of 2013. Levels of storm water awareness are anticipated to vary widely among the different community groups, with more emphasis given to key staff having greater potential to impact storm water quality during their day-to-day work activities. The remainder of the University community is targeted through other means, such as brochures, posters, websites, storm drain markers, PSAs, etc.

The following is a description of each of the public education topics identified in the permit, to be included as appropriate, based on the potential impact on the receiving waters:

- *Educate the public of hazards associated with illicit discharges and improper disposal of waste. Part of this education is to encourage public reporting of the presence of illicit discharges or improper disposal of materials into the U-M drainage system.*
- *Educate the public concerning the water body that would be potentially impacted by improper actions at or near a person's home.*
- *Educate the public on the availability, location and requirements for household hazardous waste disposal, travel trailer sanitary wastes, chemicals, grass clippings, leaf litter, animal wastes and motor vehicle fluids.*
- *Educate the public regarding acceptable application and disposal of pesticides, herbicides, and fertilizers, including the use of phosphorus-free fertilizer alternatives, as appropriate.*
- *Educate the public on preferred car cleaning agents and procedures for noncommercial car washing.*
- *Educate property owners with a septic system on proper maintenance and how to recognize system failure.*
- *Educate riparian landowners of management of lands to protect water quality.*
- *Educate the public about their responsibilities and stewardship of their watershed.*
- *Educate the public on the benefits of using native vegetation instead of non-native vegetation.*
- *Educate commercial and institutional entities likely to have significant storm water impacts. (At a minimum, commercial food services shall be educated to prevent grease and litter discharges to the MS4).*

Table 2 presents the status of each public education program activity, associated measurable goals as written in the SWMPP, and current activities supporting the measurable goals. Table 3 includes activities that go beyond the expectations of the original measurable goals.

Table 2 Public Education Program Activities

PEP-1 Storm Water Education Brochures

In cooperation with the U-M School for Environment and Sustainability, EHS-AA developed a series of brochures to assist various members of the University community in preventing storm water pollution on campus. The brochures have been designed to meet the overall program objectives for specific audiences.

Over the years, the storm water public education program has evolved and grown. The program has largely converted the educational content from paper brochure format to digital posters in an effort to reduce paper waste and align with the University's sustainability goals. The digital posters use the messages and content from the original brochures. The target audience remains students, faculty, staff, and visitors.

PEP Activity **Measurable Goals**	**Initial Action Reported in:**	**Current Status**		
		In Compliance	*Completed as Previously Reported*	*Ongoing Effort (see below)*
A minimum of 1,800 brochures will be distributed annually during presentations, training courses and new employee orientation sessions. The quantity of brochures distributed throughout the year will be tracked.	FY 2009-2010 (annual)	✓	✓	✓
In 2010-2011, develop/add additional brochures to fill any gaps in the topics needed to meet the permit requirements. Keep a copy of newly developed/added brochures with dates finalized.	FY 2011-2012 (mid-year)	✓	✓	
In 2011-2012, create a dissemination strategy to reach the target audiences and any new audiences identified by U-M. Identify educational information available/developed for each target audience applicable at U-M and keep this information on file.	FY 2011-2012 (annual)	✓	✓	
In 2012-2013, implement the new dissemination strategy/plan for educational brochures. Tally the number of brochures distributed and provide in the annual reports.	FY 2012-2013 (annual)	✓	✓	

PEP-1 Activities

U-M Ann Arbor

- EHS-AA continues to post the storm water digital display; titled "Keep our Michigan Waters BLUE!" which explains what storm water runoff is and why it can pose a threat to surface waters. The digital display was exhibited on flat screen televisions located within the Shapiro Undergraduate Library and the Hatcher Graduate Library from March 7, 2022 to March 13, 2022 and April 4, 2022 to April 10, 2022. The Shapiro Library displays are located in the first-floor lobby next to Bert's Cafe and the third-floor lobby entrance to the Science Library. The digital display was also posted in the lobbies of 18 residence halls and associated dining halls from August 25, 2021 through the end of the academic year. The digital display is scheduled to be posted again at the libraries, residence halls, and dining halls this coming academic year.

- A digital display titled "Never Dump Anything Down a Drain" was posted in the EHS-AA lobby on a digital kiosk from September 1, 2021 to December 31, 2021 and April 1, 2022 to June 30, 2022.

- UMAA was a listed community partner in the 2022 Huron River Watershed Community Calendar and supported its distribution. The 2022 Calendar is a collaborative effort to educate communities about the importance of water stewardship and nonpoint source pollution prevention. In all, the HRWC and its partners distributed 35,000 2022 Calendars to residents, staff, volunteers, constituents, and members of the watershed community. EHS-AA distributed 200 calendars to staff and campus visitors through meetings, trainings, and placement in publicly accessible locations. A 2023 calendar is planned for future distribution.

- In an effort to reach the U-M digital audience, U-M continued to share storm water-related social media posts in this reporting period. Five Twitter posts were made on the University of Michigan Twitter page. See Figure 1 for a copy of the December 3, 2021 Twitter post. The messages are shown in Table 3.

Figure 1 University of Michigan Twitter posting on December 3, 2021.

Table 3 Social Media Posts within Reporting Period

Date	Media Type	Message
12/3/2021	Twitter - University of Michigan	Please do your part to keep our Michigan waters blue by not dumping waste into storm drains. Pollutants flow into rivers, harming wildlife and causing soil erosion.
12/21/2021	Twitter – University of Michigan	Please do your part to keep our Michigan waters blue by not dumping waste into storm drains. The effects of storm water runoff include: Harming wildlife, reduced access to recreational activities, and flooding.
2/20/2022	Twitter – University of Michigan	Keep our Michigan waters Blue! Pollutants wash into storm drains and flow into rivers. Do your part & don't dump waste.
4/10/2022	Twitter – University of Michigan	Keep our Michigan Waters blue! Pollutants wash into storm drains & flow into rivers. Do your part and don't dump waste.
6/3/2022	Twitter – University of Michigan	Do your part in keeping our Michigan waters blue by not dumping waste into storm drains! Pollutants wash into storm drains & flow into rivers.

- U-M's Graham Sustainability Institute is no longer actively distributing paper copies of the 2014-2015 Sustainability Guide. However, duplicative information is located on the Planet Blue website (planetblue.umich.edu). During this reporting period, the Planet Blue homepage received approximately 66,138 unique views.

- There were 93 views of the online visual story of storm water management on campus during this reporting period. There have been 1,292 views since its posting in July 2018. The online visual story was a collaboration between UMAA's Office of Campus Sustainability (OCS), EHS-AA, and Architecture, Engineering and Construction (AEC). The visual story is located here: https://spark.adobe.com/page/WbT3dNsEUwCr4/

- On September 23, 2021, EHS-AA participated in U-M's annual Earthfest by hosting a booth on storm water management on the U-M campus (Figure 2). The function of pervious pavement was demonstrated at the booth along with an information display providing storm water education and copies of our Storm Water Management Summary Sheets describing best management practices installed on campus to manage storm water runoff.

  The event is organized around the four themes of U-M's Campus Sustainability Goals: Climate Action, Waste Prevention, Healthy Environments, and Community Awareness. U-M student organizations, U-M departments, and community groups focused on sustainability promote their work on campus and in the greater university community. Earthfest is designed to engage, entertain, and educate U-M students, faculty, and staff on all aspects of sustainability.

Figure 2 Storm water display at Earthfest 2021.

U-M Dearborn

- EHS-D continues to pass out six pamphlets related to storm water, a bookmark, and a storm water mouse pad at all training events, orientations, and other various campus events. This packet provides general storm water awareness to the campus with additional tips on how to handle household hazardous waste and pet waste as well as information on fertilizers, pesticides, paints, and vehicle maintenance. One of the pamphlets is passed out to contractors titled "Storm Water: A Shared Responsibility" which provides a brief overview of how storm water is discharged from campus and some best management practices for the various types of contractors (food services, custodial services, construction contractors, etc.) to use while working on campus. Storm water brochures and bookmarks continue to be available to our campus community. During this reporting period, there were no in-person employee orientation sessions at which to hand out brochures.

U-M Flint

- EHS-F distributed storm water education bookmarks to the campus bookstore and library. Storm water informational mouse pads continue to be utilized in some select computer labs/stations and other spaces on campus and are replaced when requested or on an as-needed basis.

- EHS-F maintains and updates a bulletin board in the Facilities & Operations break area within the Hubbard Building to promote aspects of storm water management/BMPs. Additionally, a display case is located at the Harrison Parking ramp near a high traffic/pedestrian walkway. Storm water information is displayed in this location with an overall theme of "Healthy Planet, Healthy People".

- EHS-F directs contractors to the U-M Contractor Guidelines webpage which provides information on how to avoid spills and prevent potential releases to storm drains. These resources, along with kick-off meetings, are used to educate contractors and project managers about storm water management and the protection of drains and surface water.

- At UMF, the campus community is instructed through trainings, posters, signage, websites, display boards, bookmarks, flyers, and e-mail communications to contact UMF Public Safety in the event of any emergency, including those involving a potential release of pollutants to a sewer or surface water. Additionally, individuals are instructed to always attempt to protect nearby drains if a material is spilled in the area, if it is safe to do so.

PEP-2 EHS/SEAS Websites

Developed in cooperation with the U-M School for Environment and Sustainability (SEAS) and maintained by EHS-AA, the Storm Water Education Website builds upon the information contained in the brochures and disseminates information to the general University community and the public at large. This website is intended to help students, employees, and visitors in the U-M community understand how the University's storm water system operates, various legal requirements, and what individuals can do to reduce contamination in the storm water system from surface runoff. As viewers move through the site they learn about storm water, what they can do to help protect it, how regulations impact the University's operation, and various safe practices. The UMD and UMF websites also provide topical information for practices potentially impacting storm water.

Storm water website content is updated on a regular basis to include pertinent information related to storm water management and pollution prevention.

Current material on the websites can be viewed via the following links:
UMAA: http://ehs.umich.edu/environmental/water/stormwater/ and
http://ehs.umich.edu/construction-projects/environmental-considerations/storm-water-management/
UMD:https://umdearborn.edu/offices/environmental-health-and-safety/environmental-protection/storm-water
UMF: http://www.umflint.edu/ehs/stormwater-management/

An additional website has been developed through the UMAA Office of Campus Sustainability (OCS) and Planet Blue at http://planetblue.umich.edu/. Through Planet Blue, staff and students can become a Planet Blue Ambassador by completing modules. More information regarding the implementation of this program is outlined in the additional measures taken to achieve the PEP goals at the end of this section.

PEP Activity Measurable Goals	**Initial Action Reported in:**	**Current Status**		
		In Compliance	*Completed as Previously Reported*	*Ongoing Effort (see below)*
The number of visitors to the websites will be tracked annually for subsequent reporting. The goal is to have 2,000 website hits annually. This website is intended to help students, employees, and visitors in the U-M community understand how the University's storm water system operates, various legal requirements, and what individuals can do to reduce contamination in the storm water system from surface runoff. This website tally may also serve as an indication of the community seeking additional storm water information from the link provided in the brochures, as detailed above.	FY 2004-2005 (annual)	✓	✓	✓
Review and update existing websites and perform periodic review. Print a copy of website changes made, noting the date of revision, etc. A copy of these changes will be kept on file.	FY 2009-2010 (annual)	✓	✓	✓

In 2010-2011, create a website information dissemination and coordination strategy (all campuses) to reach the target audiences. Identify educational information available/developed for each target audience applicable at U-M. This information will be kept on file.	FY 2011-2012 (mid-year)	✓	✓	
In 2011-2012, develop/add additional topics, web links, etc. to fill any gaps in the topics needed to meet the permit requirements. Print a copy of website changes made, noting the date of revision, etc. A copy of these changes will be kept on file.	FY 2011-2012 (annual)	✓	✓	
In 2012-2013, implement the new dissemination strategy/plan for the storm water education website. The number of website hits will be tracked for reporting (above).	FY 2012-2013 (annual)	✓	✓	

PEP-2 Activities

U-M Ann Arbor

- A QR code is provided on printed materials and digital posters, which can be scanned by smart phones to direct viewers to the EHS-AA storm water website.

- The EHS-AA storm water web pages have received approximately 10,620 unique hits from their inception on September 30, 2016 to June 30, 2022. During this reporting period, from July 1, 2021 to June 30, 2022, there were approximately 3,091 unique hits to the storm water web pages.

- EHS-AA Storm Water Web Page unique hits this reporting period:
  http://ehs.umich.edu/environmental/water/stormwater/ (535 unique hits)
  http://ehs.umich.edu/construction-projects/environmental-considerations/storm-water-management/ (132 unique hits)
  http://ehs.umich.edu/environmental/water/stormwater/storm-water-control-measures/ (937 unique hits)
  http://ehs.umich.edu/environmental/water/stormwater/storm-water-video/ (1487 unique hits)

- The 2020-2021 annual storm water NPDES report was added to the EHS-AA website on October 7, 2021. The 2022 mid-year report was added to the EHS-AA website on May 11, 2022.
  http://ehs.umich.edu/environmental/environmental-data-and-reports/

- In addition to the EHS web pages there are several other U-M AA departments that maintain websites that discuss relevant sustainability and best management practices including the Athletics Department, Grounds Services, and Architecture, Engineering and Construction.

U-M Dearborn

- The UMD storm water website received 3,347 page visits during this reporting period. The website provides the UMD campus community with information on how the storm water system operates, what the laws require, and what can be done to reduce contamination in our storm system and ultimately, the Rouge River. The website offers links to various external organizations such as Friends of the Rouge (FOTR), Alliance of Rouge Communities (ARC), EGLE, Southeast Michigan Council of Governments (SEMCOG), and Earth 911. The storm water webpage also provides links to two storm water awareness videos.
  https://umdearborn.edu/offices/environmental-health-and-safety/environmental-protection/storm-water

U-M Flint

- EHS-F maintains a storm water website which is available at the following link: http://www.umflint.edu/ehs/stormwater-management/
- The website provides a wide range of storm water educational information including UMF program documents, Flint River watershed information, and links to the Flint River Watershed Coalition (FRWC) and Flint River Corridor Alliance (FRCA). These groups encourage protection of the Flint River, describe how to get involved in local initiatives, and more.
- During the July 1, 2021 through June 30,2022 reporting period, there were approximately 3,984 unique page views of the EHS-F website. Approximately 118 views were specifically of storm water pages.
- EHS-F and Facilities & Operations maintain a website, located at http://www.umflint.edu/facilities/contractor-guidelines/ to help contractors and project managers quickly locate environmental health and safety information. EHS-F also maintains a separate departmental link with reference materials and environmental programs for contractors, located at: http://www.umflint.edu/ehs/project-review/
- Website topics include: storm water management, SESC, and environmental due care requirements. All of the topics are critical in ensuring contractors clearly understand and comply with the University's storm water management program and University expectations when working on University property. The web links for the U-M construction safety requirements, storm water management requirements, and SESC requirements are all incorporated into contractor bid specifications and contract documents. Additionally, a fact sheet specifically for contractors working on UMF campus is available.

PEP-3 Video & Public Service Announcements

The video 'Storm Water Management at the University of Michigan' provides viewers with an overview of storm water issues as they pertain to University operations and activities. The video begins with an overview of the UMAA's storm water drainage system and its receiving bodies followed by a synopsis of the legal requirements that mandate the NPDES permit and the development of a storm water management program. The remainder of the video focuses on how storm water can become polluted because of human activities. It proceeds to inform viewers of the University's actions to protect storm water quality in the following areas: salt use and deicing activities, waste management and spill response, campus planning and expansion, cleaning outdoor equipment and vehicles, chemical disposal practices, and food vendor training.

PEP Activity Measurable Goals	**Initial Action Reported in:**	**Current Status**		
		In Compliance	*Completed as Previously Reported*	*Ongoing Effort (see below)*
The number of offerings of storm water videos will be tracked annually for subsequent reporting in the progress reports. A listing of available storm water videos will be kept on file.	FY 2009-2010 (annual)	✓	✓	✓

Storm water, waste disposal, and recycling related Public Service Announcements will be distributed annually for use during the Football season home games. These short educational messages will provide storm water information to visitors, students, staff and contractors attending the U-M football games. The total anticipated audience for these messages is over 109,000 per game.	FY 2009-2010 (annual)	✓	✓	✓

PEP-3 Activities

U-M Ann Arbor

- An online storm water educational video is available for viewing on the EHS-AA website. The video is used on an as-needed basis for inclusion in faculty and staff presentations, classes, workshops, general storm water education tool, etc. All new employees are sent a welcome email directing them to the online U-M storm water educational video as well. The video had 1487 unique views during this reporting period and is located here: http://ehs.umich.edu/environmental/water/stormwater/storm-water-video
  [ALSO PART OF PEP-4 BELOW]

- A digital message was posted on the 27-ft x 48-ft football stadium marquee located outside the stadium during seven home football games from September 2021 through November 2021 and a spring game in April 2022 (up to 20 times per game) (Figure 4). A message was also posted on the stadium digital boards approximately one hour before the game with one accompanying public service announcement (PSA) as noted below (Figure 3). This PSA was also played at football entrance gates approximately 15 times per game. Attendance at each game is approximately 110,000 potentially reaching an audience of approximately 770,000 over the 2022 football season.

"Michigan fans, help keep our Michigan waters BLUE by properly disposing of trash and recyclables! Did you know that outdoor drains found in parking lots and along roadways are directly connected to rivers, ponds, and lakes? Nothing but storm water should ever be discharged into these storm drains. So do your part and help keep our Michigan waters BLUE!"

Figure 3 Stadium marquee message for football game days

- Since July 1, 2018, outside of football game times, a digital message has been showing on the large stadium marquee. The message is shown approximately six times per hour reaching pedestrians and vehicular traffic on Stadium Blvd. See Figure 4 for the image of the message and Figure 5 for an image of the display screen outside the stadium.

Figure 4 Stadium marquee message for off-game times

Figure 5 Stadium marquee located outside the football stadium

- Through the Planet Blue Ambassador program, students, faculty, and staff can complete the online training modules on different relevant topics (e.g., water). Individuals from every major school and unit on the Ann Arbor campuses (including most F&O units and the Health System) have participated. Approximately 7,885 students, faculty, staff, alumni, and community members have been certified as Planet Blue Ambassadors since the January 2013 inception of the program. Five hundred twenty-eight (528) people completed the Planet Blue Ambassador program during this reporting period. For the Water module portion of the Planet Blue Ambassador Training, students and staff are encouraged to make pledges including, but not limited to:
  - I will always properly dispose of extra household hazardous waste (HHW).
  - I will fix any oil or other automotive fluid leaks on my vehicle immediately.
  - I will wash my vehicle on a permeable surface or at a carwash that reuses water.
  - I will properly dispose of my extra medications and not flush them. [ALSO PART OF PEP-4 BELOW]

  The videos may be viewed on YouTube at the following link:
  https://www.youtube.com/playlist?list=PLkpBjHvzRryplN_ahL0_TQ7f4E12tFixN

- All new employees are sent a welcome email directing them to an on-line U-M storm water management training video. There were 1,759 new employees during this reporting period. The video is available for viewing here: http://ehs.umich.edu/environmental/water/stormwater/ [ALSO PART OF PEP-4 BELOW]

U-M Dearborn

- EHS-D created an online storm water training course which is offered on the storm water webpage. The training consists of a video and an eight-question quiz. Contractors working on U-M projects are the primary enrollee of the course. Thirty-nine (39) individuals completed the online storm water training during the reporting period. https://umdearborn.edu/offices/environmental-health-and-safety/environmental-protection/storm-water [ALSO PART OF PEP-4 BELOW]

- The exhibit area at the U-M Dearborn's Environmental Interpretive Center (EIC) is open to the public six days a week from 10 am until 5 pm. The exhibit area contains several interactive exhibits that allow the visitors to learn about various aspects of the Rouge River Watershed, water quality concerns and conservation efforts and practices. These exhibits are also used in our formal education programs and university courses. The exhibits begin with an overview of the concept of a watershed and aerial photo of the Rouge River so visitors can get a perspective of the entire area of southeastern Michigan. The multi-media videos offer three, six-minute videos about the watershed, hydrologic cycle, and the problems facing the Rouge River. The exhibit area also houses several kiosks that encourage visitors to find ways to be a part of the solution with steps you can take at home to improve water quality.

- To celebrate Earth Day 2022, EHS-D partnered with the Alliance of Rouge Communities (ARC) to display storm water awareness banners in the University Center, a hub for campus activities (Figure 6).

Figure 6 Storm water awareness banners in UMD University Center for Earth Day 2022.

U-M Flint

- UMF implements campus wide recycling in all buildings and encourages proper management of waste whether one is on campus or at home. UMF also provides campus email communications promoting community household hazardous waste and consumer electronic waste collection days in the fall and spring of each year. These are sent to faculty, staff and students on an event group email (> 6,000 individuals).

PEP-4 Presentations (training sessions, workshops, etc.)

Storm water education presentations are provided to key staff having greater potential to impact storm water quality during their day-to-day work. The remainder of the University community is targeted through other means. The presentations discuss the storm water drainage system; the need for protecting the quality of storm water discharges; the NPDES permit, its legal requirements, and the storm water management program; and the most common storm water pollutants and ways to limit their effects on storm water. The presentations can also feature the storm water video.

Storm water education is provided during new employee orientation sessions (all employees at the U-M), new laboratory employee training classes and at new Facilities & Operations employee training classes. In addition, presentations including storm water topics are provided on an annual basis to UMAA Facilities & Operations staff, which includes the following sub-groups:

- *Architecture, Engineering and Construction,*
- *Custodial & Grounds Services,*

- *Environment, Health, & Safety,*
- *Logistics, Transportation & Parking,*
- *Maintenance Auxiliaries & Central Shops,*
- *Maintenance Regions,*
- *Office of Campus Sustainability,*
- *Operational Support,*
- *Real Estate Office, and*
- *Utilities*

PEP Activity **Measurable Goals**	**Initial Action Reported in:**	**Current Status**		
		In Compliance	*Completed as Previously Reported*	*Ongoing Effort (see below)*
Storm water topics will be included in a minimum of 50 classes, workshops or presentations annually. The number of sessions including training on storm water issues will be tracked for subsequent reporting.	FY 2009-2010 (annual)	✓	✓	✓
A minimum of 500 laboratories will be inspected annually. The inspections will include a review of issues impacting storm water quality, chemical storage, waste management and disposal. These inspections may also serve as an indicator of the effectiveness of storm water education received, or the need for additional education. The number of inspections performed annually will be tracked for subsequent reporting.	FY 2009-2010 (annual)	✓	✓	✓
All outdoor food vendors will receive training/education including related storm water issues annually. Food establishment inspections will include items to ensure storm water BMPs are being followed. These inspections may also serve as an indicator of the effectiveness of storm water education received, or the need for additional education. The number of inspections performed will be tracked for subsequent reporting.	FY 2009-2010 (annual)	✓	✓	✓

PEP-4 Activities

U-M Ann Arbor

- Contractors are provided information on construction site storm water-related topics at kick-off meetings and then throughout the construction phase by the Part 91 SESC inspectors. The information provided covers storm water regulations and SESC procedures and practices.

- Over this reporting period, July 1, 2021 to June 30, 2022, 55 U-M staff members completed the online Storm Water Pollution Prevention Plan (SWPPP) training module. EHS-AA continues to use the online training module for refresher training of U-M staff members associated with SWPPP facilities.

- Three (3) individuals completed the "Environmental Considerations for U-M Project Managers" online course this reporting period. This course educates project managers on typical environmental considerations for construction projects including chemical and oil storage, contamination, dye testing, storm water, and soil erosion.

- EHS-AA held several online 8-hour Emergency Response Technician Refresher training sessions in December 2021, to train applicable facility staff and on-call Environment, Health, & Safety staff on emergency response activities. The training includes outdoor spill response and appropriate protocol to protect waterways. Seventy-one (71) U-M staff attended the training sessions.

- Storm water topics were included in classes, workshops or presentations that reached nearly 1,240 people during the reporting period. Examples of classes include: Storm Water Pollution Prevention Plan (SWPPP) training, Spill Prevention Control and Countermeasure (SPCC) training, Laboratory Waste Disposal Training, Housing New Employee Orientation, Grounds Annual Safety Training, and Annual HAZWOPER Refresher training. Participants include staff from EHS-AA, Facilities & Operations staff, Athletics Dept., researchers, and other groups.

- A total of 3,441 laboratory rooms (1,232,889 ft^2 of lab space) and 171 shop rooms (189,302 ft^2 of shop space) were inspected during the reporting period at UMAA.

- Seventy-one (71) inspections were performed by EHS-AA sanitarians on temporary food establishments during the reporting period. The inspections include checking that the appropriate food safety poster is displayed at each location. The posters indicate proper grease disposal and wastewater management tips.

- EHS-AA continues to work with U-M football stadium vendors/concession stands to prevent potential discharges into the storm water system. Concession stands were posted with signage detailing procedures for proper grease and wastewater management for the 2021 football season to reinforce proper waste management for these temporary operations. Posters will again be provided to vendors ahead of the 2022 football season.

U-M Dearborn

- UMD offered online storm water training for 39 contractors. Additionally, 362 students, staff, and faculty participated in our online laboratory safety training, which includes storm water-specific training.

- UMD conducted a total of 87 lab inspections during this reporting period.

- UMD provides informal verbal training for their food vendors even though they typically do not perform any outdoor cooking activities.

U-M Flint

- During the reporting period, EHS-F provided online training to 40 individuals in two storm water related courses, "Storm Water Pollution Prevention" and "Spill Prevention, Contingency and Countermeasures." One hundred and twelve (112) employees have taken the online Hazard Communications training which touches on safe handling of chemicals, avoiding spills, and cleanup practices. Another 75 individuals have taken the online small spill cleanup training. Some classroom training sessions covered storm water protection practices as well. Storm water protection is also covered in HAZWOPER training courses, for which nine (9) employees attended.

- Twenty-six (26) Residential Advisors completed health and safety training that included storm water information in August 2021.

- In addition to the routine area inspections related to the SWPPP and SPCC programs, EHS-F conducted eight (8) lab inspections and 76 hazardous waste area inspections, however, this number does not include lab self-audits conducted by the individual departments including, Biology, Computer Science, Engineering, and Physics (CSEP) and Chemistry/Biochemistry, etc., who each complete their own regular inspections.

- EHS-F routinely inspects loading dock areas that are used by food service vendors and their suppliers to ensure waste materials, such as grease, are being properly stored and managed.

Table 4 Additional Public Education Program Activities

Activities
All Campuses • U-M campuses continue to maintain recycling programs. The programs divert waste from entering landfills; reduce carbon dioxide emissions; and save gallons of water, energy, and trees. Proper disposal of potentially hazardous materials prevents contamination to the environment including surface waters. **U-M Ann Arbor** • The U-M Graham Sustainability Institute Water Center periodically publishes newsletters. The U-M Water Center supports and engages in research focusing on water quality, water quantity, coastal infrastructure, water policy, and more. Collaborative research teams provide users in the region, such as community leaders, legislators, resource managers, and environmental non-government organizations (NGO), with usable information and practical tools to support and enhance the protection, restoration, and management of Great Lakes and its watershed. • As part of the UMAA SPCC, initial and annual refresher training are provided to applicable staff. Appropriate staff are trained in the laws and regulations regarding spills, releases, and pollution control; the contents of SPCC; and the operation and maintenance of equipment to prevent discharges. Between July 1, 2021 and June 30, 2022, 134 staff were trained. • UMAA continues to work with the U-M Outdoor Events Coordinator to provide environmental guidelines for events that may impact storm water. As part of this effort, EHS-AA recommends storm water BMPs and provides requirements to event staff to ensure waters of the State are properly protected from potential impacts. • Helping to keep waste out of our waterways and encourage waste-reducing behavior, U-M participated in the national Campus Race to Zero Waste (formerly known as RecycleMania) competition in Winter 2022. During the eight weeks of the national competition, we collected more than 748,400 pounds of recyclables and 349,600 pounds of compost. U-M placed first in the large-campus division for zero waste. • Earthfest was held on September 23, 2021. This event promoted overall sustainability practices including waste prevention and healthy environments.

Activities

- U-M College of Pharmacy hosts biannual Safe Medication Disposal Events. During this reporting period, events were held on October 5, 2021 and March 29, 2022. Since the event's inception in March 2014, U-M has collected more than two tons of medication. This event helps keep medications from reaching receiving waters. An October 2022 event is currently being planned.

U-M Dearborn

- The Dearborn campus started their single stream recycling program campus wide on July 1, 2012. The program is projected to divert 1.1 million pounds of waste from entering landfills; 1,750 metric tons of carbon dioxide emissions (equivalent to taking 69 cars off of the road); and will save 4.1 million gallons of water, 3.3 million kWh of energy, and 9,900 trees over a 5-year period. https://umdearborn.edu/facplan_recycling/

- EHS-D partners with several internal groups around campus to pass out storm water materials. This includes Mailing/Parking and the University Center who pass out Car Care brochures with parking passes to all faculty, staff, and students; University Police Department who pass out our storm water brochure packets during student orientation; and the campus library and bookstore who pass out bookmarks throughout the year.

- The EIC hosts monthly Stewardship Saturdays. Volunteers are called upon to participate in the removal of invasive species and garbage from the EIC grounds near the Rouge River.

- As of 2019, the Friends of the Rouge (FOTR) has moved their offices from the UMD campus and relocated to another building in the area. They host monthly Public Involvement Task Force Meetings, Rouge Education Project Task Force Meetings and board meetings. FOTR facilitates several volunteer monitoring programs including benthic macroinvertebrate monitoring, frog and toad surveying, and fish monitoring. Additionally, FOTR provides various workshops and educational presentations as well as play active roles in restoration projects within southeastern Michigan. Reports and additional information on their services can be found on their website at http://therouge.org/.

- UMD maintains three pet waste stations along the Rouge River Gateway Greenway Trail.

- All UMD Comprehensive Laboratory safety training classes include information on our storm water program.

- Facilities Operations field staff receive initial and annual storm water training via the SafetySkills web-based Learning Management System (LMS). Fifty-two (52) staff completed the training during this reporting period.

U-M Flint

- Hazard Communication, Hazardous Waste, HAZWOPER, and other general safety classroom training offered by EHS-F address the difference between sanitary and storm drains, illicit discharges, reporting spills, protection of drains, and who to call if an illicit discharge or spill is observed. Classroom training was limited during this reporting period due to COVID-19 restrictions on in-person meetings.

Activities

- UMF promotes the local Genesee County Household Hazardous Waste Collection to the campus community.

- EHS-F meets with contractors prior to starting jobs to go over environmental and occupational safety requirements; this includes discussion of soil management, University's construction safety requirements, protection of storm drains, etc. EHS-F staff also conducts random inspections of work sites to ensure cautionary measures are in place prior to, and during, contractor work. If needed/required, SESC weekly inspections are conducted.

- The web links for the U-M construction safety requirements, storm water management requirements, and SESC requirements are all incorporated into contractor bid specifications and contract documents during the reporting year.

- SPCC/PIPP and SWPPP training is provided to select employees in Facilities & Operations. The training is offered annually and provides interactive online training modules for select employees. Training covers BMPs, housekeeping, protection of storm drains, reporting and responding to spills, and other topics relating to SWPPP and SPCC/PIPP compliance. Forty (40) employees completed these trainings during the reporting period.

- At UMF, the campus community is instructed through training, posters, signage, websites, display boards, bookmarks, flyers, and e-mail communications to contact UMF Public Safety in the event of any emergency, including those involving a potential release of pollutants to a sewer or surface water. Additionally, individuals are instructed to protect nearby drains if a material is spilled in the area and it is safe to do so.

- UMF is partnering with the City of Flint on sustainability goals to combat climate change. Faculty, staff, and students from UMF are working with city officials to co-create an environmental sustainability plan for the city. In fall 2021, a UMF Sustainability Committee was also created to coordinate the progress of helping the UMF campus towards its carbon neutrality goals.

iii. Public Involvement and Participation

The University encourages public input in all aspects of its storm water management program. In order to facilitate public participation, this plan and information related to the storm water management program are made available on the storm water web site. By viewing the Annual Reports that are placed on the web site, the general public and members of local stream and watershed protection organizations can make themselves aware of activities the University carries out under its storm water management program. In addition, when new storm water management program plans are developed and finalized, the City, County, and interested local stream and watershed protection organizations are allowed to review and comment on them. Website feedback link(s) will be provided to facilitate feedback on the Storm Water Management Program Plan (SWMPP) from the community.

One public awareness group that UMAA works with on a regular basis is the Huron River Watershed Council (HRWC). Many of the HRWC's goals are consistent with the University's ideals for the preservation and protection of the surrounding natural water bodies. As a result, the University has established an informal partnership with the HRWC and has provided input to the HRWC on issues concerning the Total Maximum Daily Load program for water bodies that lie within the Huron River Watershed.

Table 5 presents the status of each Public Involvement and Participation activity, associated measurable goals as written in the SWMPP, and current or past activities supporting the measurable goals.

Table 5 Public Involvement and Participation Activities

PIP Activity **Measurable Goals**	**Initial Action Reported in:**	**Current Status**		
		In Compliance	*Completed as Previously Reported*	*Ongoing Effort (see below)*
The SWMPP and NPDES reports will be made available on the U-M storm water web site, http://ehs.umich.edu/environmental/environmental-data-and-reports/ The date of addition to the website will be tracked for subsequent reporting.	FY 2009-2010 (annual)	✓	✓	✓
• The annual report for FY 2020-2021 was added to the EHS-AA storm water website on October 7, 2021, and the mid-year report for FY 2021-2022 was added to the EHS-AA storm water website on May 11, 2022.				
U-M will attend a minimum of 10 meetings annually with local watershed/creekshed organizations like the HRWC, Washtenaw County Drain Commission, City of Ann Arbor, the Millers Creek Action Team (MCAT), Flint River Corridor Alliance, FOTR, or other local stream protection organizations for collaboration on storm water issues in the community. U-M's participation in meetings, community events, etc. with these groups will be tracked for subsequent reporting.	FY 2009-2010 (annual)	✓	✓	✓

U-M All Campuses

- Twenty-eight (28) local watershed/creekshed meetings were attended during the reporting period across all three campuses. Details are noted below.

U-M Ann Arbor

- Over the reporting period, EHS-AA staff attended three (3) Middle Huron Initiative (MHI) Watershed Meetings, two meetings with the Fleming Creek Advisory Committee, three (3) Coalition for Action on Remediation of Dioxane (CARD) meetings, and two (2) School Girls Glen Advisory Team meeting.

- UMAA was a listed community partner in the 2022 Huron River Watershed Community Calendar and supported its distribution. The 2022 Calendar is a collaborative effort to educate communities about the importance of water stewardship and nonpoint source pollution prevention. In all, the HRWC and its partners distributed 35,000 2022 calendars to residents, staff, volunteers, constituents, and members of the watershed community. EHS-AA distributed 200 calendars to staff and campus visitors through meetings, trainings, and placement in publicly accessible locations. A 2023 calendar is currently being developed.

U-M Dearborn

- EHS-D is an active member of the Alliance of Rouge Communities (ARC) and attended two (2) virtual committee meetings during the reporting period.

- UMD is a partner of Friends of the Rouge and currently has a faculty member serving on the Board of Directors.

- At the U-M Dearborn's Environmental Interpretive Center (EIC) we also support various off-campus community organizations that are involved in a variety of initiatives to improve the surrounding watershed and educate the public about the importance of being good stewards of our water resources and surrounding land. We host events, meetings and are involved in various activities involved in education and outreach with the following organizations that are directly related to water quality concerns:
  -Friends of the Rouge
  -Friends of the Detroit River
  -Southeast Michigan Land Conservancy
  -Stewardship Network: Lakeplain Cluster
  -Sustainable Business Forum

U-M Flint

- UMF is involved in local watershed planning and outreach-related activities both by attending meetings as well as playing a leadership role on various committees.

  - The UMF Director of University Outreach is a Board member of the Flint River Watershed Coalition and attended seven (7) meetings during this reporting period.

  - UMF Director of EHS participates in Flint River Restoration Project stakeholder meetings, scheduled at least monthly. Nine (9) meetings were attended during this reporting period.

PIP Activity Measurable Goals	Initial Action Reported in:	Current Status		
		In Compliance	*Completed as Previously Reported*	*Ongoing Effort (see below)*
The City, County and interested local stream and watershed protection organizations will be notified of the online availability of the U-M SWMPP for review and comment on the same frequency the information is provided to the Department. The SWMPP will be accessible on the U-M website for review by the public. Any comments received will be reviewed by EHS-AA and evaluated for inclusion in the SWMPP. Comments submitted and any actions taken in response to comments will be documented and kept on file.	FY 2009-2010 (annual)	✓	✓	
The U-M will participate in meetings of the MHI (typically semi-annual) to address the Ford & Belleville Lake TMDL on phosphorus reduction throughout the permit cycle. Attendance at these meetings will be tracked for subsequent reporting.	FY 2009-2010 (annual)	✓	✓	✓
• U-M participated in three (3) MHI meetings during this reporting period. The MHI partnership continues to contract with the HRWC to perform monitoring of the Middle Huron tributaries.				
U-M will participate in Geddes Pond – E. coli TMDL efforts throughout the permit cycle. Management activities addressing E. coli include dry weather screening and illicit discharge elimination, semi-annual catch basin cleaning, pollution prevention, and public education. These efforts as well as attendance at meetings/events on this issue will be documented for subsequent reporting.	FY 2009-2010 (annual)	✓	✓	✓
• No meetings were held during this reporting period; however, U-M staff attends HRWC meetings and other creekshed meetings to help address regional TMDLs. The management activities are reported in other portions of this report.				
U-M will sponsor/offer a semi-annual volunteer opportunity for participants to get involved with storm water improvement and education programs. Examples of opportunities include storm drain stenciling/marking and invasive species removal projects. The number of volunteer events offered will be tracked annually for subsequent reporting. The number of participants in volunteer stewardship events will be tracked for subsequent reporting.	FY 2009-2010 (annual)	✓	✓	✓

U-M Ann Arbor

- On Earth Day 2021, the McNeil lab organized the inaugural Huron River Cleanup. Graduate and undergraduate students in U-M's Department of Chemistry picked up thousands of pieces of trash from about 20 parks along the Huron River in Ann Arbor and Ypsilanti. The event was so successful that the group repeated the event in September 2021, when 75 volunteers picked up 13,575 items, including 4,494 cigarette filters. An event was also held on April 23, 2022 where 80 volunteers picked up 6,530 pieces of trash. The next event is planned for October 1, 2022.
  News article: https://lsa.umich.edu/chem/news-events/all-news/search-news/cleaning-up-the-huron-river-watershed.html Video: https://www.youtube.com/watch?v=nWYTgpOI2SY

- A campus cleanup event occurred on September 26, 2021 in connection to Earthfest. Roughly 20 volunteers collected approximately six (6) bags of trash and four (4) bags of recyclables in and around campus. Thirty (30) storm drains near campus were also labeled during this event.

- U-M continues its Michigan Turfgrass Environmental Stewardship Program (MTESP) campus-wide. MTESP certification is designed to encourage strategies to prevent pollution and recognize environmentally sound management practices. The program includes sections dedicated to promoting fish and wildlife habitat, indigenous vegetation and water quality protection.

- The U-M was the first campus to receive a Tree Campus USA recognition in 2008 from the Tree Campus USA program, sponsored by the Arbor Day Foundation and Toyota and has continued to be part of the program annually since 2008. Some of the efforts that earned the certification include having a tree advisory committee, maintaining a campus tree-care plan, dedicating annual funding for routine tree maintenance, and hosting volunteer days to remove invasive species from the North Campus woodlots.
  https://www.arborday.org/programs/tree-campus-higher-education/campuses.cfm

U-M Dearborn

- As of August 2019, the Friends of the Rouge (FOTR) has moved their offices from the UMD campus. They relocated to another building in the area. Reports and additional information on their services can be found on their website at http://therouge.org/.

U-M Flint

- EHS-F partners with Mott Community College and Kettering University to hold an annual Earth Day Celebration Community event. More than 30 organizations were scheduled to participate and 500 – 750 attendees from the public were anticipated. Unfortunately, due to COVID-19, the community event was cancelled again this past year.

PIP Activity **Measurable Goals**	**Initial Action Reported in:**	**Current Status**		
		In Compliance	*Completed as Previously Reported*	*Ongoing Effort (see below)*
In 2010-2011, meet with local watershed/creek groups to identify joint activities and opportunities to meet permit requirements. Identify local creek/watershed groups, etc. timeframes, staffing and participation opportunities. This information will be kept on file.	FY 2011-2012 (mid-year)	✓	✓	
In 2011-2012, develop a participation plan for all campuses. Keep records of meetings attended, possible opportunities for coordination with local groups, etc. This information will be kept on file.	FY 2011-2012 (annual)	✓	✓	
In 2012-2013, implement the participation plan. Tally the number of meetings attended for annual reporting (as detailed in goals above).	FY 2012-2013 (annual)	✓	✓	

iv. Illicit Discharge Elimination Program (IDEP)

The removal of illicit discharges is an ongoing program being conducted by the U-M. As illicit discharges are identified, they are discontinued or otherwise corrected. The program described in this section will be used to determine the existence, location, and extent of possible illicit connections and discharges to the storm water drainage system. At a minimum, it will address the elements presented in Part I, Section B.3 of the Permit.

The UMAA has been involved in an ongoing program for identifying and controlling non-point source pollution to the Huron River. The Huron River Pollution Abatement Project was developed from a grant from the federal Clean Water Act and used by the UMAA to identify illicit connections to the storm water system. The project was completed in 1990.

The U-M will continue to encourage reporting of water quality problems and possible illicit connections and discharges to the storm water system. EHS-AA, Utilities, Maintenance – Auxiliaries & Central Shops, and/or Maintenance Regions will receive reports of water quality problems and possible illicit connections and perform follow-up investigations, leading to elimination where appropriate.

Table 6 presents the status of each Illicit Discharge Elimination Program activity, associated measurable goals as written in the SWMPP, and current or past activities supporting the measurable goals. Table 7 includes activities that go beyond the expectations of the original measurable goals.

Table 6 Illicit Discharge Elimination Program Activities

IDEP-1 Storm Sewer Map *A storm sewer system map is required in Part I.A.7.b.1 of the Permit. The map must include the location of all discharge points the permittee owns or operates, and the names and location of all surface waters of the state which receive discharges from the MS4.*				
IDEP Activity **Measurable Goals**	**Initial Action Reported in:**	**Current Status**		
		In Compliance	*Completed as Previously Reported*	*Ongoing Effort (see below)*
By February 1, 2011, the U-M will create a storm sewer system map identifying the location of all if its discharge points and the names and locations of all the surface waters that the MS4 discharges into.	FY 2010-2011 (Mid-year)	✓	✓	
The storm sewer system map will be updated periodically as discharge points are identified or added. The dates of modification of the system map will be tracked and kept on file.	FY 2010-2011 (Mid-year)	✓	✓	✓

- UMAA continues to work with F&O Geographic Information System staff to review and update the storm sewer maps as changes/updates are needed.

- UMD updates campus storm water maps as needed. Updated information is sent to a vendor to provide up-to-date master copies. In January 2019, UMD added the Fairlane Center campus to its storm mapping system.

- At UMF, updates to current storm sewer maps are made as needed.

IDEP-2 Survey of Facility Discharge Points into the System

EHS-AA has implemented a program to identify discharge points from facilities into either the sanitary sewer or storm water systems. The first phase of this program began several years ago and resulted in the identification of facility discharge points on the Ann Arbor Campus. Information collected included water usage rates, category of activity, and categorization of water flows as domestic or non-domestic based on the activity occurring at the facility.

The second phase of the identification of facility discharge points will be implemented as part of this SWMPP. The second phase will consist of a continual observation process performed by EHS-AA, EHS-D, EHS-F, and Department of Public Safety & Security (DPSS) personnel as they perform other activities across campus facilities. The activities associated with this program are conducted as illicit discharges are identified. They are prioritized and discontinued or otherwise corrected.

IDEP Activity **Measurable Goals**	**Initial Action Reported in:**	**Current Status**		
		In Compliance	*Completed as Previously Reported*	*Ongoing Effort (see below)*
U-M will create a prioritized listing for the performance of dry-weather screening considering the criteria in Part I.A.7.b.2 of the permit. The list will be developed in 2011 to ensure the use of the most up to date storm sewer system map/information will be utilized. The list will be kept on file.	FY 2011-2012 (Mid-year)	✓	✓	

IDEP-3 Dry Weather Screening

In accordance with Part I, Section A.7.b of the permit, the purpose of dry weather field screening is to determine the existence, location, and extent of possible illicit discharges into the U-M storm water drainage system. The screening program has been designed to target discharge points within the storm water system that will help identify non-storm water flow. The current procedure used for dry weather screening is attached as Appendix E [of the SWMP]. This procedure will be updated periodically, and the most current copy of the procedure will be available for review in the EHS-AA, EHS-D, EHS-F, and DPSS offices.

For the purposes of dry weather screening, the U-M will be divided into five regions. The UMD and UMF will comprise one region for screening purposes. The remaining four regions will be comprised of UMAA areas determined from the outfall prioritization task in section 5.2 above. The regions are as follows:

- *UMD & UMF*
- *UMAA I*
- *UMAA II*
- *UMAA III*
- *UMAA IV*

IDEP Activity Measurable Goals	**Initial Action Reported in:**	**Current Status**		
		In Compliance	*Completed as Previously Reported*	*Ongoing Effort (see below)*
U-M will perform dry weather screening on each MS4 discharge point at least once every 5 years beginning on February 1, 2010, (per Part I.A.7.b.3) to determine the existence, location, and extent of possible illicit discharges into the U-M storm water drainage system on all three campuses. This is typically done during four to five rounds of screening. Any issues identified for further investigation or correction will be tracked for subsequent reporting. The number of illicit discharges and connections identified and subsequently corrected or removed will be tracked for subsequent reporting.	FY 2009-2010 (annual)	✓	✓	✓

U-M Ann Arbor

- In conformance with the revised, EGLE approved (November 4, 2013), dry weather screening program guideline, UMAA completed dry weather screening of all outfalls with a direct discharge to surface waters of the State in the summer and fall of 2019. Based on the most up-to-date UMAA GIS data, it was determined that there are 76 discharge points that meet the screening requirement criteria. Of these 76 outfalls screened, it was determined that five outfalls had flow that warranted follow-up sampling. The outfalls are located on the Medical Campus (O-24, O-26) and North Campus (O-86, O-30R, O-126). Initial visual and olfactory screening did not indicate any potential concerns from these five outfalls. Evaluation of the sampling analytical data indicates that these flows are not a significant contributor of pollution and do not pose a threat to human health or the environment; however, follow-up investigation activities will be conducted in conjunction with other construction and utility replacement projects.

U-M Dearborn

- UMD performed dry weather screening at the two outfalls that discharge into the Rouge River on July 15, 2019. There was no outflow observed.

U-M Flint

- UMF completed dry weather inspections on all 13 outfalls associated with the campus between the months of November and December 2019. The inspections were performed following the guidance in U-M's *2013 Dry Weather Screening Program Guideline for the University of Michigan*. Flow was observed at four of the outfalls during dry weather conditions. All four outfalls were sampled. Evaluation of the sampling analytical data indicates that these flows are not a significant contributor of pollution and do not pose a threat to human health or the environment, however; follow-up investigation activities are ongoing.

IDEP-4 Public Reporting of Illicit Discharges

Public involvement in the reporting of illicit discharges to the storm water system is a voluntary program. Custodial & Grounds Services (CGS) and Logistics, Transportation & Parking (LTP) currently coordinate extensive recycling promotions with student housing and individual colleges on campus. These promotions include information regarding reporting of illicit discharges to EHS-AA, EHS-D, or EHS-F for follow-up. By means of its public education program, U-M advises the University community to report discharges for appropriate investigative and follow-up action.

The University maintains a 24-hour 911 emergency response system, which is coordinated and manned by DPSS on UMAA campus and DPS on UMD and UMF campuses. Any calls reporting dumping, accidental spills, etc. are dispatched from DPSS or DPS to EHS-AA, EHS-D, or EHS-F, respectively, for emergency response, containment, and control. In addition, calls can be made to EHS-AA, EHS-D, or EHS-F directly reporting such incidents for emergency response.

IDEP Activity **Measurable Goals**	**Initial Action Reported in:**	**Current Status**		
		In Compliance	*Completed as Previously Reported*	*Ongoing Effort (see below)*
The emergency response system on campus will be maintained by the University of Michigan Division of Public Safety & Security (DPSS) (24/7) for use by the public to report illegal dumping, spills or suspicious discharges at the University throughout the permit term. The number of calls received by the DPSS/EHS emergency response call system on potential discharges to the storm water system will be tracked for subsequent reporting. The number of incidents remedied as a result of these calls will also be tracked and reported annually.	FY 2009-2010 (annual)	✓	✓	✓

All Campuses

- A total of 28 outdoor incidents were reported via the UMPD/EHS-AA/EHS-D/EHS-F emergency response systems over the reporting period. Typically, the spilled materials were contained with spill kits; cleaned up using absorbent materials and removed for appropriate disposal by U-M's on-call emergency response team. Response activities involved leaks and spills of materials such as automotive fluids (gasoline, hydraulic oil, glycol, transmission fluid, diesel, power steering fluid, brake fluid, antifreeze, and motor oil), water treatment chemicals, and blood.

U-M Ann Arbor

- During this reporting period, UMAA personnel responded to 28 outdoor incidents. Most of the spills were small, ranging from a few milliliters to several gallons. While none of the incidents resulted in material directly entering waters of the state, one water main break did result in a sediment release to a private, non-U-M detention pond and the NCRC closed loop chiller water transfer system leak entered a storm water detention basin that outlets to Millers Creek.

- The U-M has a 24-hour Emergency Response Team to quickly and efficiently respond to and mitigate releases of polluting materials on campus. The campus community is encouraged, through presentations, training, signage, and other educational materials, to report illicit discharges and spills to EHS-AA/EHS-D/EHS-F and to the U-M Police Department (UMPD) so appropriate measures can be taken to correct issues, which may impact storm water quality. The response team is primarily comprised of U-M staff as well as 24-hour emergency response vendors to efficiently respond to and mitigate releases on campus.

U-M Dearborn

- UMD had no reportable illicit discharges during the reporting period.

U-M Flint

- UMF had no reportable illicit discharges during the reporting period.

Table 7 Additional Illicit Discharge Elimination Program Activities

Activities
All Campuses • Recycling Efforts – The U-M promotes environmental awareness by sponsoring recycling programs on campus. Educational materials have been developed that address student contributions to the U-M recycling effort, educate students on the types of recyclables and where they may be taken for recycling, and educate students on the impact that recycling has on the environment. • The University continues to review owned facilities in an effort to identify discharges into the storm and sanitary systems. As part of this survey, any areas that contain suspect flows are noted for potential dye testing. • Erosion Control – Part 91 of the Natural Resources Environmental Protection Act (NREPA) provides for a statewide soil erosion and sedimentation control program. This program outlines the proper provisions for water disposal and the protection of soil surfaces during and after construction and is adhered to by the U-M. • Employee Training and Education – U-M personnel involved in the application of herbicides, pesticides, and fertilizers have been trained and are certified applicators through the State of Michigan Integrated Pest Management program. In addition to the courses taken through the Michigan

Activities

Department of Agriculture, U-M trains all of its Grounds employees. Training programs will also be conducted to address the purpose and operation of BMP activities under this SWMPP. In addition, staff in various departments have received, or are in training to receive, certification from EGLE in Storm Water Management – Construction Site, Storm Water Management – Industrial Site or Soil Erosion & Sedimentation Control.

- Hazardous Materials Response – EHS-AA, EHS-F & EHS-D are instrumental in maintaining a safe and healthy environment for faculty, staff, students, and visitors. Routine training is provided to new faculty, staff, and students regarding hazardous materials and conditions at U-M facilities. The University also maintains spill response teams (U-M staff and contracted vendors) for each campus that can quickly and efficiently respond to and mitigate releases of hazardous materials.

- Hazardous Waste Disposal – EHS-AA is responsible for the appropriate collection and disposal of hazardous waste and hazardous materials used and generated by the Ann Arbor campus and other off-site U-M units. The program ensures tracking of the materials from point of generation through collection and ultimate disposal. Personnel are properly trained and appropriately licensed to handle the material and transport the waste on campus. Qualified contractors are used for ultimate transport and disposal off site. The EHS-D and EHS-F oversee the disposal of hazardous wastes on their respective campuses. EHS-D, EHS-AA, and EHS-F personnel are properly trained in the Resources Conservation and Recovery Act (RCRA) and the University utilizes qualified contractors for transport and proper disposal of waste off site.

- Plan Review – EHS-AA, EHS-D, and EHS-F review plans for the renovation of existing structures and the construction of new facilities. The plans are reviewed to identify potential environmental concerns and to ensure the protection of storm water quality and the storm water drainage system.

- Storm Water Basins – Storm water management basins are used to control storm water discharges from campus locations. The basins are designed to manage peak flows and remove sediment which can significantly reduce pollutant loads in receiving waters. A number of basins also provide for infiltration, reducing the total volume of runoff to surface waters of the State.

U-M Ann Arbor

- UMAA recycled approximately 137 tons of e-waste and 107,792 fluorescent lightbulbs this past fiscal year.

- UMAA oversees the disposal of hazardous waste. UMAA personnel are properly trained in RCRA regulations and the University utilizes qualified contractors for transport and proper disposal at approved off-site facilities.

- EHS-AA continues to work with U-M football stadium vendors/concession stands to prevent potential discharges into the storm water system. To reinforce proper waste management for these temporary operations, signage detailing procedures for proper grease and wastewater disposal will again be provided for the 2022 football season.

- EHS-AA requires that new building construction and building renovation projects resulting in new and/or modified internal piping be dye tested to confirm proper connection to the sanitary system. This requirement is in place for projects where more than 10 fixtures are impacted.

Activities

- EHS-AA conducts quarterly SWPPP inspections at seven fleet maintenance facilities. EHS-AA has also developed an online Storm Water Pollution Prevention Plan (SWPPP) training module for all applicable operational staff and facility managers at fleet maintenance and storage yards involved in the U-M SWPPP program. Fifty-five (55) staff completed the online training between July 1, 2021 and June 30, 2022. EHS-AA continues to use the online training module for refresher training of U-M staff members.

- During this reporting period, thirty-eight (38) UMAA staff completed the SEMCOG IDEP Alert Observer Training and six (6) staff completed the SEMCOG IDEP Investigator Training.

U-M Dearborn

- UMD recycled a total of 726 fluorescent lightbulbs and 13.2 tons of e-waste. In addition, approximately two (2) tons of various battery types (e.g. lead acid, nickel-cadmium, lithium ion) were recycled.

- EHS-D oversees the disposal of hazardous waste. EHS-D personnel are properly trained in RCRA and the University utilizes qualified contractors for transport and proper disposal off site.

- EHS-D routinely walks the campus and inspects loading dock areas, dumpsters, facilities operations and vehicle maintenance/storage areas, and refueling operations and construction activities to ensure that materials continue to be stored properly, secondary containment is functioning, and any outdoor storage containers remain in good condition.

U-M Flint

- UMF recycled 3,939 lightbulbs (including fluorescent, mercury vapor, high pressure sodium, and incandescent bulbs) and other e-waste, totaling approximately 11 tons.

- EHS-F oversees the disposal of hazardous waste. EHS-F personnel are properly trained in RCRA regulations and the University utilizes qualified contractors for transport and proper disposal off site.

- EHS-F routinely walks the campus and inspects loading dock areas, dumpsters, facilities operations and vehicle maintenance/storage areas, and refueling operations and construction activities to ensure that materials continue to be stored properly, secondary containment is functioning, and any outdoor storage containers remain in good condition.

v. Post-Construction Storm Water Control for New Development and Redevelopment Projects

The U-M has a program to address storm water runoff from new development and redevelopment projects. As part of this program, the U-M manages, reviews, and continually updates campus-wide planning to address storm water runoff from each new regulated development and redevelopment project. This program helps to ensure that controls are in place that will minimize and in some cases prevent impacts on water quality from new development and redevelopment projects that disturb areas greater than one acre or disturb areas less than one acre but which are part of a larger common plan of development.

Table 8 presents the status of each Post-Construction Storm Water Control activity, associated measurable goals as written in the SWMPP, and current or past activities supporting the measurable goals. Table 9 includes activities that go beyond the expectations of the original measurable goals.

Table 8 Post-Construction Storm Water Control Activities

PCSW-1 Post-Construction Storm Water Runoff

The University continues to review options for regional storm water management systems at locations where current or future construction is anticipated. This regional detention would include storage for construction or renovation projects that have limited space for on-site systems. The goal of the University is to protect receiving water quality and limit the rate at which surface water runoff discharges from any specific site during and following development or redevelopment to not exceed the pre-development hydrologic regime.

On previous projects where detention on site is not feasible the University has required a minimum of structural BMPs to improve the water quality leaving the site (sedimentation traps, etc.) and proposed regional containment within the runoff basin as the quantity control.

PCSW Activity Measurable Goals	**Initial Action Reported in:**	**Current Status**		
		In Compliance	*Completed as Previously Reported*	*Ongoing Effort (see below)*
By August 1, 2009, the Post-Construction Storm Water Requirements guideline which details the minimum treatment volume standard and the channel protection criteria was issued by U-M. The guideline is available on the EHS-AA website and in Appendix G of the SWMPP.	FY 2010-2011 (Mid-year)	✓	✓	

PCSW-2 Non-structural & Structural Best Management Practices

To meet the objectives, U-M may implement various non-structural and structural BMPs where appropriate. Non-structural BMPs are preventative actions that involve management and source controls. Examples of issues that are covered in non-structural BMPs used on campus include but are not limited to the following:

- *Buffers along sensitive water bodies*
- *Education programs for developers and the public about project designs that minimize water quality and quantity impacts*
- *Minimum disturbance of soils and vegetation;*

- *Restrictions on directly connected impervious areas;*
- *Preservation of the natural environment;*
- *Minimization of impervious surfaces; and*
- *Use of vegetated swales and natural storage.*

Structural BMPs are physical controls, including storage practices, which improve water quality. Examples of issues covered in structural BMPs used on campus include but are not limited to the following:

- *Wet ponds and extended detention outlet structures;*
- *Filtration practices such as grassed swales, sand filters, and filter strips; and*
- *Infiltration practices such as infiltration basins and infiltration trenches.*

PCSW Activity Measurable Goals	**Initial Action Reported in:**	**Current Status**		
		In Compliance	*Completed as Previously Reported*	*Ongoing Effort (see below)*
EHS-AA and/or AEC will review all construction and renovation plans for use of structural and non-structural BMPs to prevent receiving water quality from the impacts of development and limit the rate at which surface water runoff discharges from any specific site to not exceed the pre-development hydrologic regime. The number of sites implementing various non-structural and structural BMPs will be tracked annually for subsequent reporting.	FY 2008-2009 (annual)	✓	✓	✓

- The U-M utilizes a variety of structural BMPs. Some are installed to comply with post-construction standards and others are installed as acts of good environmental stewardship and community benefit. Storm water controls installed during this reporting period include the following:

  - Dental School addition: An underground detention system and two water quality units.

  - Central Campus Classroom Building: A water quality unit, pervious pavement, and underground infiltration and detention systems.

  - Murchie Science Building (Flint): A bioswale, a small area of pervious pavement, and a water quality unit.

- There are over 288 structural storm water BMPs installed throughout the UMAA, UMF, and UMD campuses. http://ehs.umich.edu/environmental/water/stormwater/storm-water-control-measures/

PCSW-3 Operation & Maintenance of Best Management Practices

Any non-structural BMPs that are implemented at a facility are incorporated into day to day activities for the operation of the facility or into maintenance schedules. Structural BMPs related to storm water detention and retention basins are subject to scheduled maintenance inspections. Non-scheduled activities are completed as they arise.

PCSW Activity Measurable Goals	**Initial Action Reported in:**	**Current Status**		
		In Compliance	*Completed as Previously Reported*	*Ongoing Effort (see below)*
Storm water management basins on campus will be inspected annually, at a minimum. The number and frequency of inspections of storm water basins will be tracked for subsequent reporting. Maintenance issues identified during these inspections will be tracked until corrected.	FY 2008-2009 (annual)	✓	✓	✓

U-M Ann Arbor

- Annual inspections were completed on 70 of 70 surface storm water management basins on campus by U-M personnel during this reporting period in spring 2022. Storm water management basins were also maintained through mowing, invasive plant removal, and controlled burns.

U-M Dearborn

- UMD does not have any aboveground storm water management basins.

U-M Flint

- UMF does not have any retention/detention basins on campus, but a bioswale was recently installed as part of the Murchie Science Building expansion. UMF Facilities & Operations conducts routine grounds area inspections. Drains and areas around drains are also visually inspected. If problems are observed, they are reported and corrected.

PCSW-4 Site Plan Review

The U-M has established programs to control the quality of storm water runoff from development or redevelopment activities through the review of site plans. This program is the same as that used for controlling storm water runoff on construction sites.

EHS-AA and/or AEC review all plans to ensure projects have adequate post-construction storm water management controls. The number of plan reviews will be tracked for subsequent reporting.	FY 2008-2009 (annual)	✓	✓	✓

U-M All Campuses

- U-M completed 121 plan reviews between July 1, 2021 and June 30, 2022, with four (4) requiring a formal SESC Plan review and approval. Sites with greater than one acre of earth disturbance are evaluated to ensure they meet the PCSW control requirements.

Table 9 Additional Post-Construction Storm Water Control Activities

Activities
All Campuses • Construction sites are stabilized with the addition of permanent controls and vegetation to reduce the amount of sedimentation that could impact receiving waters. • EHS-AA, EHS-D, and EHS-F work with contractors and facilities staff to implement standard protocols to dye test the internal piping in new building construction and building renovation projects to confirm proper connections to the storm and sanitary sewer system. A program for confirmation of taps to exterior pipes is already in place.

vi. Construction Storm Water Runoff Control

In 1982, the U-M received approval from the Michigan Department of Natural Resources to operate as an Authorized Public Agency (APA) under the authority of Part 91, Soil Erosion and Sedimentation Control (SESC) of the Natural Resource & Environmental Protection Act, 1994 PA 451, as amended (Part 91). Reauthorization of U-M's APA status was received in 2004 from the Michigan Department of Environmental Quality. APA status allows the U-M to establish and manage the Soil Erosion and Sedimentation Control procedures on its properties. Construction activity at U-M may involve contractor or in-house construction activities performed by Facilities & Operations.

The overall CSW program accomplishes the following goal:

Provide and implement controls to minimize or prevent impacts on water quality from construction activity.

Table 10 presents the status of each Construction Storm Water Runoff Control activity, associated measurable goals as written in the SWMPP, and current or past activities supporting the measurable goals. Table 11 includes activities that go beyond the expectations of the original measurable goals.

Table 10 Construction Storm Water Runoff Control Activities

CSW-1 Site Plan Reviews

The U-M has established programs to control the quality of storm water runoff from development or redevelopment activities. Plans for new development are subjected to a U-M internal review process to ensure that storm water quality is adequately controlled during construction and after completion of the new development. Efforts are underway to insert storm water management controls into the front end of all projects. Examples of efforts on projects include control of sedimentation using silt screens or other measures, controlling sediment tracking from construction areas through increased street sweeping, and using hydroseeding to control runoff once construction efforts are completed. Reviews of all projects are performed by EHS-AA, EHS-D, or EHS-F.

CSW Activity **Measurable Goals**	**Initial Action Reported in:**	**Current Status**		
		In Compliance	*Completed as Previously Reported*	*Ongoing Effort (see below)*
Formal SESC plans are required for sites with earth disturbance (greater than 24 hours) of 1 acre or greater and projects (of any size) within 500 feet of "Waters of the State." The number of SESC site plan reviews will be tracked annually for subsequent reporting. This review process allows EHS-AA, EHS-D, or EHS-F to require projects to insert storm water management controls into the front end of all projects.	FY 2008-2009 (Annual)	✓	✓	✓

U-M Ann Arbor

- During this reporting period, four (4) projects required a formal SESC Plan review and approval. No projects were required to apply for an EGLE Notice of Coverage during this reporting period.

U-M Dearborn

- UMD had one SESC plan review during this reporting period.

U-M Flint

- UMF had no SESC plan reviews during this reporting period.

CSW-2 Best Management Practices (for SESC on construction sites)

Best Management Practices are used for construction projects to prevent soil erosion and sedimentation from leaving the property. The following list represents examples of erosion and sedimentation controls for which specific BMPs have been developed. Copies of the BMPs can be found in the Manual and are used, as appropriate, based on the specific needs for a construction site. Note that not all sites will need to use all of these practices.

- *Access Roads*
- *Construction Barriers*
- *Tree Protection*
- *Buffer and Filter Strips*
- *Filter Fencing*
- *Storm Drain Inlet Filter Fabric*
- *Street Sweeping*

CSW Activity Measurable Goals	**Initial Action Reported in:**	**Current Status**		
		In Compliance	*Completed as Previously Reported*	*Ongoing Effort (see below)*
The use of BMPs is required on all projects under the approved SESC Procedures for the University. The number of projects using the BMPs identified above for SESC will be tracked annually for subsequent reporting. BMPs will be selected as appropriate for site conditions.	FY 2008-2009 (annual)	✓	✓	✓

U-M All Campuses

- Fifty-two (52) projects during this reporting period used a variety of SESC BMPs on their sites. Examples of BMPs included, but are not limited to, the use of vegetation, inlet filter bags, silt fence, erosion eels, erosion blankets, turf re-enforcement mats, rip-rap, check dams, and dewatering filter bags.

CSW-3 SESC Inspections

Inspections of work sites are essential to controlling erosion and sedimentation concerns. Personnel from several departments have received SESC training from the EGLE. This provides a strong base of personnel to draw upon to regularly review maintenance, renovation, and construction sites. The inspections focus on requirements of site-specific erosion and sedimentation control plans for the project. Conditions can change at maintenance, renovation, and construction sites and the inspectors should make adjustments to the erosion and sedimentation control measures, as needed.

EHS-AA, EHS-D, EHS-F or their designee, who have received a EGLE SESC certificate of training, will inspect sites weekly during maintenance, renovation, and construction activities and following significant rain events to ensure compliance with the U-M SESC procedures and Part 91. Sites one acre and above will be inspected within 24 hours of the rain event to comply with National Pollution Discharge Elimination System (NPDES) inspection requirements.

Issues and concerns will be referred to the project/construction manager or designee for correction. The contractor will make any necessary repairs or corrections to the control measures within 24 hours, if waters of the state are being impacted. Other corrections, not impacting waters of the state will be made within 5 days. The project/construction manager will report any issues that cannot be corrected within 5 days to EHS-AA, EHS-D, or EHS-F. Additional detail as to why the correction cannot be made in that time frame will be required.

CSW Activity Measurable Goals	**Initial Action Reported in:**	**Current Status**		
		In Compliance	*Completed as Previously Reported*	*Ongoing Effort (see below)*
Sites will be inspected weekly and after significant rain events until final stabilization of the project site. The number of SESC inspections performed annually on U-M sites will be tracked for subsequent reporting.	FY 2008-2009 (annual)	✓	✓	✓

U-M Ann Arbor

- Approximately 838 weekly and after storm SESC inspections were performed between July 1, 2021 and June 30, 2022.

U-M Dearborn

- UMD conducted one (1) SESC inspection on one site between July 1, 2021 and June 30, 2022.

U-M Flint

- No SESC inspections were required/completed during this reporting period.

CSW Activity Measurable Goals	Initial Action Reported in:	Current Status		
		In Compliance	*Completed as Previously Reported*	*Ongoing Effort (see below)*
Select staff from EHS-AA, EHS-D, EHS-F, and AEC will be SESC trained by EGLE. The number of U-M staff who have received EGLE SESC training will be tracked annually for subsequent reporting.	FY 2008-2009 (annual)	✓	✓	✓
• Five (5) U-M staff have received comprehensive SESC training from EGLE and are current with the associated Certificate of Training.				
Select U-M staff from EHS-AA, EHS-D, EHS-F and AEC will be certified in Storm Water Management for Construction Sites. The number of U-M staff who have received EGLE certification will be tracked annually for subsequent reporting.	FY 2008-2009 (annual)	✓	✓	✓
• Ten (10) U-M staff are Certified Storm Water Operators in the State of Michigan for construction sites at the time of this report. • Five (5) U-M staff are Certified Storm Water Operators in the State of Michigan for industrial sites at the time of this report.				

CSW-4 Sedimentation Control During Maintenance Activities

Some maintenance activities do not typically have a formal design or specification prepared. They are performed on a work order or emergency basis by Facilities & Operations or other U-M departments such as Michigan Medicine or Athletics. The supervisor overseeing the maintenance activity will be responsible for ensuring appropriate sedimentation control measures are implemented during field work. These procedures will be used for routine operations; however, in emergency situations human life and the safety and operation of the facilities and infrastructure are of overall importance. In those cases, work will be performed to minimize any immediate danger and stabilize the situation, and sedimentation control actions will follow. This chain of actions may require the use of an outside contractor to clean the storm water drainage system following the maintenance activities to prevent or minimize sediment transport to the Huron River. In addition to the BMPs listed above, the following BMPs will be used by the maintenance supervisor during activities that disturb soil to the degree where sediment transport could occur.

CSW Activity Measurable Goals	Initial Action Reported in:	Current Status		
		In Compliance	*Completed as Previously Reported*	*Ongoing Effort (see below)*
The use of SESC controls is required for all maintenance projects involving earthwork. The number of SESC inspections performed annually on U-M sites will be tracked for subsequent reporting.	FY 2010-2011 (annual)	✓	✓	✓
• During this reporting period, U-M staff performed SESC inspections, as described above in CSW-3.				

Table 11 Additional Construction Storm Water Runoff Control Activities

Activities
All Campuses • Contractors at U-M are required to clean/sweep construction areas and adjacent areas to prevent track-out from a work site. • The web links for the U-M construction safety requirements, storm water management requirements, and SESC requirements are all incorporated into contractor bid specifications and contract documents during the reporting year. This ensures that contractors are made aware of university policies and requirements to protect surface water while working on university property. • Three (3) individuals viewed the "Environmental Considerations for U-M Project Managers" online training module during this reporting period. • A street sweeper is recommended by U-M for contractor usage at construction sites to reduce the amount of sediment that could potentially reach receiving waters. • Cleaning of the storm water drainage system is on a preventative maintenance schedule to remove sediment buildup within the system and to lessen potential sediment impacts to receiving waters. • The post-construction storm water guidelines and soil erosion and sedimentation control requirements for construction projects are incorporated into the project specifications and bid documents. • EHS personnel from all campuses are circulating around campus daily to address reported issues as well as checking on various project areas (e.g. covering a dumpster, debris/litter, inappropriate outdoor storage by contractors, etc.). • Street sweeping of roads and parking lots/structures is implemented regularly on all campuses at least twice per year and on an as-needed basis. At UMF, the street sweepers are used in high priority areas more frequently such as at loading docks, near compost areas, and the Hubbard Parking area. • U-M personnel pick up litter and debris on a regular basis ranging from weekly to daily throughout the year.

vii. Pollution Prevention/Good Housekeeping for Municipal Operations

The University's storm water pollution prevention and good housekeeping initiatives include, but are not limited to the following six areas:

- *Structural Controls*
- *Roadways*
- *Fleet Maintenance*
- *Storm Sewer Labeling*
- *Flood Control Projects*
- *Pesticides and Fertilizers*

Each area has operation and maintenance Best Management Practices with the ultimate goal of reducing and in some cases preventing pollutant runoff from University operations to the maximum extent practicable. The overall P2/GH program accomplishes the following goal:

Develop and implement a program of operational and maintenance Best Management Practices to prevent or reduce pollutant runoff from University operations.

Table 12 presents the status of the activities supporting Pollution Prevention/Good Housekeeping for Municipal Operations, associated measurable goals as written in the SWMPP, and current or past activities supporting the measurable goals. Table 13 includes activities that go beyond the expectations of the original measurable goals.

Table 12 Pollution Prevention/Good Housekeeping for Municipal Operations

P2/GH-1 Structural Controls

Structural controls are permanent physical features that control and prevent storm water pollution. Each structural control has routine scheduled maintenance and long-term inspection procedures to ensure that they remove storm water pollutants to the maximum extent practicable.

Several retention and detention basins have been identified as part of the U-M storm water system. These structures receive direct run-off from the U-M storm water system and are defined in Appendix F [of the SWMPP]. *The U-M has provided a spreadsheet identifying additional structural controls with inspection and maintenance schedules in Appendix K* [of the SWMPP].

P2/GH Activity Measurable Goals	**Initial Action Reported in:**	**Current Status**		
		In Compliance	*Completed as Previously Reported*	*Ongoing Effort (see below)*
Storm water management basins will be inspected annually during the permit term. The number and frequency of inspections on the U-M retention and detention basins will be tracked for subsequent reporting.	FY 2008-2009 (annual)	✓	✓	✓

- Annual inspections were completed on 70 of 70 surface storm water management basins on campus by U-M personnel in spring 2022. Storm water management basins were also maintained through mowing and invasive plant removal.

P2/GH Activity Measurable Goals	Initial Action Reported in:	Current Status		
		In Compliance	*Completed as Previously Reported*	*Ongoing Effort (see below)*
Maintenance cleaning of the catch basins and storm sewer system piping will be performed periodically, with higher traffic areas and those identified via service requests receiving more attention. The goal will be to clean all catch basins in the system at least once per 5-year cycle. The number of catch basins maintained will be tracked for subsequent reporting.	FY 2008-2009 (annual)	✓	✓	✓

U-M Ann Arbor

- Catch basins across the UMAA campus are cleaned and the sewer lines water-jetted. Liquid waste is decanted and drained to approved sanitary sewer locations and the remaining non-hazardous sediment and debris is transported off-site for disposal at an approved facility. To more effectively handle the storm and sanitary cleaning solids, UMAA constructed a covered storage pad for drying the solids. The solids are then loaded onto a dump truck or a roll-off container and transported to a sanitary landfill for proper disposal as non-hazardous waste.

- The UMAA has moved to a GIS-based system for catch basin cleanout which has improved tracking for reporting. During the reporting period, 1,278 catch basins were cleaned and approximately 240 cubic yards of debris was removed from storm lines, catch basins, manholes, and street sweeping activities.

- Sixty-four (64) underground structures including hydrodynamic separators, diversion structures, underground storage, and other water quality devices were inspected and maintained during the reporting period.

U-M Dearborn

- UMD continued implementing their 5-year cycle catch basin cleaning strategy and cleaned a total of 28 storm drain structures during this reporting period, resulting in 1,800 gallons of storm drain cleanout residue (water and sediment).

U-M Flint

- At UMF, catch basins are inspected and cleaned out as needed by F&O staff. EHS-F is currently reviewing having an outside contractor complete targeted catch basin cleanout during fall 2022.

By October 1, 2011, a list of municipal properties and structural storm water controls owned or operated by U-M will be created, which includes the type and number of properties and structural controls. This list will be kept on file.	FY 2011-2012 (mid-year)	✓	✓	✓

P2/GH-2 Roadways and Parking Structures

The University maintains numerous parking structures and surface parking lots throughout its campuses. Maintenance of the U-M roadways and parking structures incorporates sediment control activities. Street sweeping removes potential storm water pollutants before they are carried into receiving waters in runoff from a storm event. Street sweeping and leaf and litter collection is performed by the University in an effort to prevent large debris from entering the storm water system. Litter is disposed as normal municipal waste and leaves are composted in two locations that are well away from system catch basins or inlet structures. Maintenance activities on these structures and surfaces include street sweeping, leaf pick-up, litter and pollution controls, snow and ice removal, and roadside vegetative maintenance. These activities are discussed in greater detail below.

P2/GH Activity Measurable Goals	**Initial Action Reported in:**	**Current Status**		
		In Compliance	*Completed as Previously Reported*	*Ongoing Effort (see below)*
Street sweeping, leaf and litter collection will be performed periodically throughout the permit term. The cost for disposal and estimated quantity of debris, trash, dirt, etc. disposed from the maintenance and cleaning/sweeping of numerous parking structures, surface lots and roadways throughout the University will be tracked for subsequent reporting.	FY 2008-2009 (annual)	✓	✓	✓

U-M Ann Arbor

- Approximately 396 cubic yards of waste were sent for disposal from the cleaning and maintenance of parking lots and parking structures throughout the UMAA campus. This does not include parking lot sweeping waste as that is accounted for in a total street sweeping amount, which includes street sweeping and catch basin clean out [SEE P2/GH-1 ABOVE]. The combined estimated cost for disposal, labor, and vehicle expenses is approximately $1,362,190. Labor costs include all maintenance related to the parking structures and surface lots including street sweeping, leaf pick-up, litter, snow and ice removal (including snow pile storage management), and roadside vegetative maintenance.

- UMAA personnel spent approximately 21,117 hours collecting litter campus-wide, which resulted in about 3,496 cubic yards of waste.

U-M Dearborn

- UMD personnel spent approximately 2,746 hours collecting litter campus-wide, which resulted in about 20 cubic yards of waste. Approximately, $6,500 were spent cleaning/sweeping parking surfaces, structures and streets.

U-M Flint

- At UMF, 22.5 hours of labor at a cost of $707 was spent for street sweeping. Approximately 239.5 hours of labor at the cost of $9,071 was conducted for sweeping/cleaning parking lots and structures. Approximately, 7.5 cubic yards of waste was disposed from the sweeping and cleaning of parking lots and streets. Daily litter pickup for the remainder of campus involved more than 3,331 hours over the reporting period. The labor costs associated with cleaning, sweeping and litter pick up on campus

during the reporting period is approximately $99,448. The total of all sweeping and litter waste yielded an estimated 302 cubic yards for disposal. Disposal costs are estimated at $2,700.

P2/GH Activity Measurable Goals	Initial Action Reported in:	Current Status		
		In Compliance	*Completed as Previously Reported*	*Ongoing Effort (see below)*
A strategy to reduce the runoff of TSS from paved surfaces to the maximum extent practicable, with a goal of reducing the annual TSS loading by 25% as compared to annual loading with no suspended solids controls will be developed (2010-2012) and implemented (2013) at the University. An estimate of the TSS loading reduction achieved through this strategy will be documented.	FY 2012-2013 (annual)	✓	✓	
Develop BMPs to control dust and suspended solids in runoff from unpaved roads and parking lots. A list of unpaved roads and parking lots will be created (2010-2011).	FY 2011-2012 (mid-year)	✓	✓	
The use of coal tar emulsions to seal asphalt surfaces will be prohibited, as required in the permit. Plan reviews for construction and renovation projects involving asphalt will include comments from EHS-AA prohibiting the use of coal tar emulsions for U-M projects. Comments on construction and renovation projects are kept on file at the EHS-AA office.	FY 2009-2010 (annual)	✓	✓	
Incremental annual reduction in the use of salt for de-icing to reach 50% reduction based on an average annual use of 2600 tons per year at UMAA from 1989 to 1999. The quantity of salt used for deicing will be tracked on an annual basis.	FY 2008-2009 (annual)	✓	✓	✓

U-M Ann Arbor

- UMAA used approximately 2,550 tons of bulk rock salt during this reporting period, which is a decrease of approximately 1.9% from the average annual use amount of 2,600 tons per year from 1989 to 1999. The running average of bulk rock salt usage from July 1, 2008 to June 30, 2021 is 2,202 tons, which is a 15% reduction from the baseline of 2,600 tons per year.

U-M Dearborn

- UMD used approximately 350 tons of rock salt and six (6) tons of a magnesium and calcium chloride mixture in (5) gallon capacity pails and 25-pound bags.

U-M Flint

- UMF used approximately 151 tons of bulk salt during this reporting period. Additionally, 39.8 tons of bagged de-icing material (mixture of calcium, potassium, magnesium, and sodium chlorides) were used. Also, 4,469 gallons of MeltDown Apex-C that contains a portion of calcium and magnesium chlorides were used. The University continues to use salt alternatives where possible as part of the management of snow and ice on campus.

Increase the use of alternative de-icers annually to replace/supplement salt use. The quantity of alternative de-icers will be tracked on an annual basis.	FY 2008-2009 (annual)	✓	✓	✓

In the 2021-22 season, **UMAA** used the following alternative deicers:
Caliber M-1000 (magnesium chloride): 4,000 gallons

UMD used six (6) tons of a magnesium and calcium chloride mixture in five (5) gallon capacity pails and 25-pound bags.

The following alternative deicer was used at **UMF**:
MeltDown Apex-C (calcium chloride, magnesium chloride): 4,469 gallons.

P2/GH Activity Measurable Goals	**Initial Action Reported in:**	**Current Status**		
		In Compliance	*Completed as Previously Reported*	*Ongoing Effort (see below)*
All applicators (technicians) will be trained in pesticide and fertilizer use. The number of pesticide and fertilizer technicians will be tracked on an annual basis.	FY 2008-2009 (annual)	✓	✓	✓

U-M Ann Arbor

- The UMAA currently employs approximately 74 certified pesticide applicators and five (5) certified in Integrated Pest Management.

U-M Dearborn

- UMD has four (4) certified pesticide applicators.
- UMD has a contract with TruGreen to conduct large treatments/spraying. TruGreen has a non-phosphorus policy.

U-M Flint

- UMF employs eight (8) certified pesticide applicators.

Eliminate the need for vegetative replacement due to salt damage to the maximum extent practicable. The need for replacement vegetation will be tracked for subsequent reporting.	FY 2008-2009 (annual)	✓	✓	✓

U-M Ann Arbor

- At UMAA, only de minimis amounts of vegetative replacement was required during the 2021-2022 fiscal year. Replacement costs were not tracked due to the limited nature.

U-M Dearborn

- To replace vegetation damaged from deicing agents and vehicle tire damage during the reporting period, UMD used approximately 300 pounds of grass seed and approximately 500 pounds of recycled paper mulch across the campus.

U-M Flint

- Limited vegetation replacement was needed at UMF during the reporting period involving approximately 150 pounds of grass seed to address approximately 3,000 square feet of damaged turf.

P2/GH-3 Fleet Maintenance

The U-M owns and operates a large fleet of vehicles, including buses and cars, which is maintained by Logistics, Transportation & Parking. The U-M also owns and operates a fleet of equipment, including lawn mowers and rototillers that is maintained by Custodial & Grounds Services. All vehicles and equipment are regularly maintained to ensure proper and effective operation as well as prevent impacts on storm water quality.

P2/GH Activity Measurable Goals	**Initial Action Reported in:**	**Current Status**		
		In Compliance	*Completed as Previously Reported*	*Ongoing Effort (see below)*
In 2010-2012, Develop SWPPPs for all fleet maintenance and storage yards/facilities at U-M.	FY 2012-2013 (mid-year)	✓	✓	
In 2013, implement all SWPPP for fleet maintenance & storage yards at U-M.	FY 2013-2014 (mid-year)	✓	✓	✓

- On-going quarterly inspections are conducted at fleet maintenance and storage yards/facilities on all campuses. An annual review and update of each SWPPP is also conducted. Documentation is kept on file for a minimum of three years.

P2/GH-4 Storm Sewer Labeling

As of March 10, 2004, any outfall structure that the U-M constructs or installs that discharges storm water directly to waters of the State will provide permanent identification (e.g. label, color coding, or other identifying characteristic).

The storm drains placed on campus come with the message "Dump No Waste - Drains to Waterways" engraved on it. Storm drain grates already in place will be marked with a curb marker with the message "Keep our Michigan Waters Blue: Dump No Waste - Flows to River" or similar.

All U-M storm drains will be marked with the message "Dump No Waste - Drains to Waterways", "Keep our Michigan Waters Blue: Dump No Waste - Flows to River" (or similar message) during the permit cycle. The number of storm drains marked will be tracked annually for subsequent reporting.	FY 2008-2009 (annual)	✓	✓	✓

U-M Ann Arbor

- Approximately 60 storm drain markers were installed/replaced at UMAA during the reporting period on catch basins, storm drain inlets, and trench drains draining to the storm water network throughout campus. Special attention is given to higher use walkways on Central Campus (the Diag, Medical campus, Law Quad). Existing storm drain markers are replaced, as needed, due to wear, fading, or loss.

U-M Dearborn

- UMD did not install/replace labels this past fiscal year.

U-M Flint

- UMF did not install/replace labels this past fiscal year.

P2/GH-5 Pesticides and Fertilizers

The application of pesticides and fertilizers is controlled by several departments including Custodial & Grounds Services, Facilities Maintenance, Athletics, Matthaei Botanical Gardens, Radrick Farms and Nichols Arboretum, depending on the location. The University employs Integrated Pest Management (IPM) methodology, an ecological approach to pest management, in University buildings. All available techniques are used to reduce pest populations to acceptable levels while minimizing the potential impact of pesticides upon humans and the environment.

P2/GH Activity Measurable Goals	**Initial Action Reported in:**	**Current Status**		
		In Compliance	*Completed as Previously Reported*	*Ongoing Effort (see below)*
In 2010-2011, develop an education program for U-M staff involved in fertilization of turfgrass at U-M. Also include a strategy to disseminate the requirements to contractors at U-M.	FY 2011-2012 (mid-year)	✓	✓	
In 2011-2012, implement a turfgrass fertilization education program for appropriate U-M staff and contractors. Identify educational information available/developed for each target audience applicable at U-M.	FY 2011-2012 (mid-year)	✓	✓	✓

All Campuses

- U-M provides on-going training to applicable staff about the NPDES permit restrictions on the use of fertilizer containing phosphorus. Applicable staff also stay current on new information/technologies as it relates to turf and landscape management.

U-M Ann Arbor

- Seventy-four (74) staff are certified pesticide applicators and five (5) staff are certified in Integrated Pest Management. Staff attend State of Michigan training routinely to maintain their certification.
- On July 23, 2021, UMAA received a Rule 97 Certification of Approval for the use of Phoslock on the Arbor Lakes pond to control the amount of phosphorus and reduce the growth of algae.
- UMAA has a campus-wide certification from the Michigan Turfgrass Environmental Stewardship Program (MTESP). MTESP certification is designed to encourage strategies to prevent pollution and recognize environmentally sound management practices. The program includes sections dedicated to promoting fish and wildlife habitat, indigenous vegetation and water quality protection.
- As part of reaching the U-M goal to "Reduce the Volume of Synthetic Land Management Chemicals Used on Campus by 40%," organic fertilizer now comprises an estimated 75% of fertilizer used by Grounds Services and 20% of that used by Radrick Farms and U-M Golf Courses. Ground Services is also piloting a low impact broadleaf weed control on approximately 25% of campus, including the Diag. Additionally, only certified organic products are being used in the Northwood Community Apartments 4 and 5 areas (except cases of tough-to-remove poison ivy).
  https://ocs.umich.edu/wp-content/uploads/2020/01/2019-Goal-Fact-Sheets-Final.pdf

Table 13 Additional Activities for Pollution Prevention/Good Housekeeping for Municipal Operations

Activities
U-M Ann Arbor • Three (3) UMAA staff completed the SEMCOG Pollution Prevention/Good Housekeeping training, including two SWPPP facility managers. • In February 2020, U-M renewed its partnership with the City of Ann Arbor, Ann Arbor Area Transportation Authority, and the Ann Arbor Downtown Development Authority to relaunch the bike share program called, ArborBike, as a year-round service. ArborBike consists of thirteen bike share locations, with a total of 125 bikes. • The Radrick Farms and U-M Golf courses have extensive green certifications for their responsible land management practices, including the Washtenaw County Community Partners for Clean Streams, which specifically targets water quality. They also utilize expertise from the Michigan Turfgrass Environmental Stewardship Program (MTESP), the Michigan Clean Corporate Citizens Program, the ePar environmental management system and the Audubon Cooperative Sanctuary Program. While the Radrick Farms Golf Course is outside of the urban area boundary, U-M still considered these certifications worth mentioning.

Activities

- The UMAA Radrick Farms Golf Course and University of Michigan Golf Course were awarded the Clean Corporate Citizen (C3) designation from the EGLE in 2014 and 2015, respectively. According to Jim Sygo of the EGLE, "Michigan's C3 program is one of the most rigorous and long-standing environmental stewardship programs in the nation, requiring facilities to have an active Environmental Management System; a strong environmental compliance history; and pollution prevention goals and measures in place." While the Radrick Farms Golf Course is outside of the urban area boundary, U-M still considered this award worth mentioning.

- UMAA updated the snow storage guidance document in December 2019. In an effort to reduce negative impacts associated with snow storage on UMAA campus, EHS-AA developed improved general requirements for all approved snow storage sites on campus and also developed new site specific requirements. In addition, EHS-AA met with appropriate parties (e.g., Athletics, Parking & Transportation) to review inspections of snow storage locations and discuss findings, if any.

- In September of 2011, former U-M President Mary Sue Coleman revealed several sustainability goals for the entire University. One such goal is to reduce synthetic land management chemicals by 40% by the year 2025, as compared to a 2006 baseline measurement. These sustainability metrics are tracked on a calendar-year basis (Figure 6). For the 2021 calendar year, the use of synthetic land management chemicals has been reduced by 41%, as compared to the 2006 values.

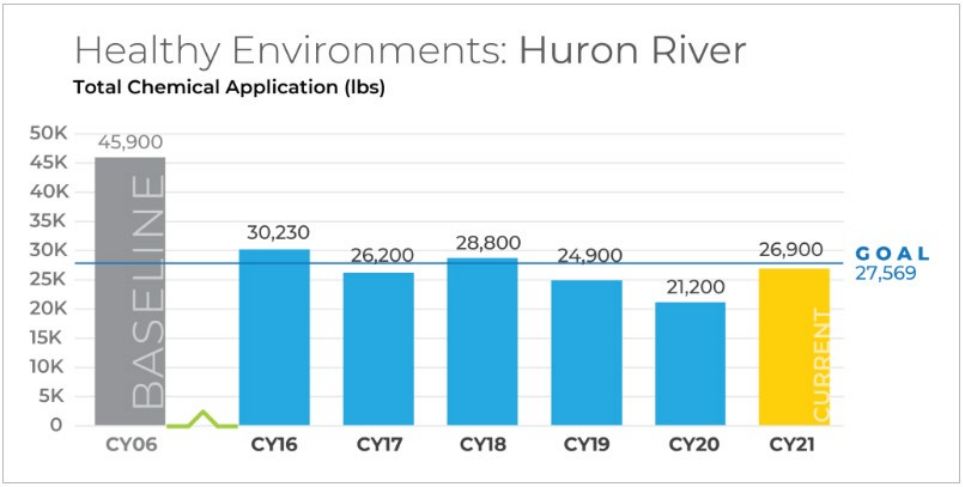

Figure 6 Graph excerpted from the U-M Office of Campus Sustainability web page.

- In October 2015, current U-M President Mark Schlissel reiterated the importance of the sustainability goals and especially the need for education and community awareness programs. U-M's progress toward reaching these goals are tracked on the Planet Blue and Office of Campus Sustainability web pages:
  Planet Blue: http://sustainability.umich.edu/
  Office of Campus Sustainability: http://sustainability.umich.edu/ocs

- UMAA implements campus wide recycling in all buildings and encourages proper management of waste whether one is on campus or at home. Building compost collection is also an available service on campus. UMAA promotes and provides support with various 'Zero Waste' events, including zero

Activities

waste at Michigan Stadium, to further promote the proper disposal of waste. Nearly all materials purchased in Michigan Stadium can be recycled or composted.

- Helping to keep waste out of our waterways and encourage waste-reducing behavior, U-M participated in the national Campus Race to Zero Waste (formerly known as RecycleMania) competition in Winter 2022. During the eight weeks of the national competition, we collected more than 748,400 pounds of recyclables and 349,600 pounds of compost.

- U-M College of Pharmacy hosts biannual Safe Medication Disposal Events. During this reporting period, collection events took place on October 5, 2021 and March 29, 2022.Since the event's inception in March 2014, U-M has collected more than two tons of medication. This event helps keep medications from reaching receiving waters. An October 2022 event is currently being planned.

- The U-M "no smoking" policy has significantly reduced cigarette debris from campus grounds.

U-M Dearborn

- The two rain gardens on the UMD campus are located at the Environmental Interpretive Center and they demonstrate methods of keeping storm water on site. A collaboration of various organizations including Wayne County Master Gardeners, the Student Environmental Association, and individuals from the surrounding communities has helped this garden grow. They are maintained by two student interns and many volunteers who have put in approximately 100 hours maintaining the rain gardens and the Community Organic Garden.

U-M Flint

- A new wing of the Murchie Science Building has received LEED Silver certification for energy efficient design, construction, and operations. This is UMF's first building to attain this status for a commitment to sustainability. The building's storm water management system reduced the amount of runoff from the site. Additionally, the new system will improve water quality by removing sediment that would otherwise flow into local water sources.

2) Environmental Impacts –

Provide an assessment of the pollution reduction and probable receiving water quality impacts associated with program implementation. Include any negative water quality impacts that may have occurred as a result of any illicit discharges or accidental spills during the past year.

A major goal of the many BMPs identified and implemented at the University is to reduce the discharge of sediment and associated pollutants to receiving waters. The control program begins in the project design phase, by providing guidelines for storm water management and soil erosion and sedimentation controls and continues through the construction phase of the many projects on campus. The BMPs below have been implemented at the University. Probable impacts to water quality from these BMPs are taken from the EGLE's *Index of Best Management Practices/Individual Best Management Practices*.

- Catch Basins/Cleanout Procedures: These procedures are reasonably effective in protecting sewers from receiving loads of coarse solids.

- Oil/Water Separators and Hydrodynamic Separators: These devices remove coarse sediment and oils from storm water prior to delivery to a storm drain network, the ground, or other treatment.

- Storm Water Management Basins (surface and underground): Although the primary function of these basins is to detain/retain large quantities of storm water, the design also provides for sediment deposition within the basin structure, which can significantly reduce sediment and the pollutants (e.g., phosphorus) associated with them. Detention basins can be effective at removing sediment, non-soluble metals, organic matter and nutrients through settling. Storm water management basins can be very effective in reducing sedimentation of downstream areas. Coarse and medium size particles and associated pollutants will settle out in the basin. Suspended solids, attached nutrients, and absorbed non-persistent pesticides may break down before proceeding downstream. Basins designed to infiltrate storm water also increase recharge to ground water.

- Street Sweeping: This practice removes 50-90% of street pollutants from impervious surfaces that could potentially enter surface waters through storm sewers or direct surface discharges. Street sweeping can also make road surfaces less slippery in light rains, improve aesthetics by removing litter, and control pollutants.

- Illicit Connections – none

- Illicit Discharges: U-M's 24-hour emergency response team and onsite personnel were able to prevent a majority of outdoor spills (22 of 28) from entering the storm sewer system. Of the six spills that did enter the MS4, only two required notification to EGLE, as the other four were able to be mitigated with no discharges to surface waters of the State or another MS4.

  Turbid water from a water main break entered the storm system and flowed to an off-site detention pond, but no turbid water was seen leaving the pond or entering the nearby stream. This was reported via phone call to EGLE at the time, and no further action was required, as the turbidity was captured by the detention pond.

  The other reported incident involved a leak from a closed loop chilled water system at NCRC that entered the MS4. The water contained 0.2% ChemTreat CL6034. Chilled water from this discharge flowed into a stormwater detention basin with an outlet that discharges to Millers Creek.

- As was previously reported, there is an ongoing investigation of a low-flow discharge (<3 gallons per hour) to Millers Creek on U-Ms North Campus. Field screening and laboratory follow-up testing indicate that the discharge has an elevated conductivity. The water is clear, with no odor or staining noted at the outfall. Initial investigation including dye testing and televising of the storm lines and underdrains has indicated that there are no cross-connections present. U-M continues to evaluate the possible source of the discharge.

3) Water Quality Assessment –

Provide an assessment of the water quality conditions within the jurisdiction.

Huron River

The following information was compiled by the HRWC. Note that this discusses a water quality monitoring program in the watershed as a whole and is not exclusive to UMAA.

Permittees within the Middle Huron River Watershed agreed to work with the Huron River Watershed Council to develop and conduct a water quality monitoring program to collect data and assess the water quality within the river and its tributaries. There are five stormwater-related TMDLs in the middle Huron River watershed. While the current permit does not specifically require reporting on TMDLs, UMAA and watershed partners have funded monitoring to determine progress toward meeting each TMDL. This monitoring program is also used determine status and trends of water quality within the Middle Huron River Watershed affected by storm water discharges. HRWC submitted a plan for this monitoring as an appendix to Storm Water Management Plans (SWMPs), and subsequent permit applications, submitted by permittees within the watershed. That plan was titled "Middle Huron Stormwater Plan for Addressing Total Maximum Daily Loads (TMDLs)."

Subsequently, HRWC conducts water quality monitoring annually from April through September at eleven long-term sites in the Middle Huron River and its tributaries. Long-term sites help HRWC to determine changing conditions over time. HRWC also monitors at investigative sites located upstream of selected long-term sites to gain a better understanding of upstream conditions. Further, HRWC collaborates with the University of Michigan to install water level and flow sensors, maintain them, and provide real-time data to partners and the public. They present the results of all this monitoring and update a dynamic report following the inclusion of results through September. The current report is available at http://www.hrwc.org/washtenaw-results. Additional data presentations can be accessed at http://www.hrwc.org/chemistryandflow. Further, HRWC developed a geographically navigable, interactive data explorer web tool called Info Stream (http://www.hrwc.org/maps). This portal includes all water quality, habitat, biota, and natural area information collected within the watershed, and it is continuously updated as data is generated and quality-assured. Water level and flow sensor data is available at http://maps.open-storm.org/.

During the reporting period, samples were collected bimonthly from the eleven long-term sites across the middle Huron River and its tributaries as well as four investigative sites, including the Huron River at Central Street in Dexter, Mill Creek at Jerusalem Road, Willow Run at Van Buren Park, and Letts Creek at Veterans Park. Samples were processed and analyzed by the Ann Arbor Drinking Water Treatment Plant for total phosphorus, total suspended solids, *Escherichia coli,* sulphate, nitrate, nitrite, and chloride concentrations. Volunteers, along with support from HRWC staff, directly measured in-stream conductivity, pH, total dissolved solids, temperature, and dissolved oxygen with handheld sondes.

In total, 15 sites were sampled in 2021 and 2022. Since the beginning of the Chemistry and Flow Monitoring program, over fifty sites have been sampled and hundreds of volunteers from Southeast Michigan have been trained and involved in the program.

Much of this data analysis was also included in the evaluation of four water quality impairments within the watershed. Based on this analysis and discussion with watershed partners, implementation plans were developed and submitted to EGLE for each of the following five TMDLs:

- Ford Lake and Belleville Lake – impaired for excessive phosphorus
- The Huron River between Argo and Geddes Dams – impaired for pathogens
- Malletts Creek – impaired for aquatic life and habitat
- Swift Run -- impaired for aquatic life and habitat
- Honey Creek – impaired for pathogens

An umbrella WMP was developed and revised for the entire Middle Huron River watershed in 2011. Click here to view the 2011 Middle Huron River Watershed Management Plan. That plan is in the process of being revised in sections, starting with Section 2 (Ann Arbor-Ypsilanti), which was completed in 2020. Section 1 (Flook Dam to Barton, Honey, Boyden, and Mill) is anticipated in late 2022 and Section 3 (Fleming Creek to French Landing Dam) is anticipated in 2024.

TMDL Progress Summary

HRWC and watershed partners have engaged in numerous projects to implement recommendations from these plans. Some projects and best management practices (BMPs) have been implemented collectively across the watershed, while others have been implemented locally. Appendix A is a table that includes a list of BMPs that work to address TMDL impairments, which we included with our permit application. The table also includes a summary of progress on each practice.

Water Quality Summary

In general, monitoring data on watershed stressors shows the following key results in the Middle Huron River Watershed:

Concentrations and loading of total phosphorus to Ford and Belleville Lakes have been declining – the most recent loading analysis indicates a 40% reduction in phosphorus loading since the Middle Huron Partnership began in 1996. The most recent annual data indicates a decline in median concentrations down to 0.03 mg/l (mean=0.05 mg/l) in 2021, which is at the updated TMDL target of 0.03 mg/l for Ford and Belleville Lakes. A few urban and suburban tributaries, namely Boyden, Honey, Allens, and Traver Creeks, have shown promising reductions in recent years. Main Huron River sampling sites, including North Territorial Road and Michigan Avenue, have also shown declines. However, a broad examination of total phosphorus concentrations across the eleven long-term sites in the Middle Huron shows that concentration ranges vary quite a bit year to year. The bulk of the concentrations range between 0.02 mg/l and 0.06 mg/l, with a few samples exceeding this range. Typically, these high concentrations are measured during or following rain storms. As such, stormwater runoff is still a major pathway of overall phosphorus loading to the middle Huron River.

Mean concentrations of total suspended solids across the Middle Huron are well below sample standards. As shown in this chart, the vast majority of samples from long-term sites in the middle Huron River watershed had TSS concentrations below the target threshold. The mean TSS concentration across all sites for 2020 was 23 mg/l with a median of 7 mg/l and for 2021 was 9 mg/l with a median of 5 mg/l. This reveals most samples throughout the Middle Huron watershed are quite clear of sediments. However, a few sites, namely Allens Creek, Malletts Creek, and Swift Run, exceed the TSS standard during storms, likely due to erosion and sediment runoff from urban areas.

The data collected on bacteria (as *E. coli*) indicate that most sites in the Middle Huron regularly exceed state standards. Three sites, including Huron River at North Territorial, Huron River at Michigan Avenue, and Boyden Creek, have consistently low E. coli counts with most samples below the state single sample standard for Full Body Contact (300 E. coli cfu per 100 ml). Long-term trends for E. coli in the Middle Huron are steadily declining at urban tributaries (see Traver and Millers Creeks, for example), but not suburban or agricultural tributaries such as Mill and Honey Creeks.

HRWC also coordinates a macroinvertebrate monitoring program, which analyzes benthic communities at 41 sites in the Middle Huron annually in April and October. Most sites in the Middle Huron show a stable aquatic insect community. However, some show significant improvements including highly urban creeks such as Malletts Creek.

In addition to the TMDL-related parameters measured in the HRWC water quality monitoring programs, HRWC also observed the following results on non-regulated parameters:

- All eleven long-term monitoring sites had average values for dissolved oxygen that are within the normal range for Michigan surface waters.
- Six of the eleven long-term sites had average and median conductivity values that exceed the accepted limits, most of which were the urban sites.
- All eleven long-term sites exhibit measured pH values that are within the expected range for Michigan surface waters.

Rouge River

The Rouge River does not meet state and federal water quality standards due to excess nutrient concentrations and *E. coli* pathogen levels. A fish consumption advisory was issued for polychlorinated biphenyls that exceed state levels. The following benthic monitoring information was compiled from the FOTR for the watershed, not exclusive to UMD.

The FOTR Benthic Macroinvertebrate Monitoring Program Fall 2021 Report covers benthic macroinvertebrate monitoring at 36 sites on the Rouge River, tributaries and branches. Of the 36 sites sampled in fall 2021, the average Stream Quality Index (SQI) was fair (30). Sites averaged 13 taxa and 2 EPT (mayfly, stonefly, and caddisfly families). No sites had an excellent SQI. Twelve (12) sites rated good, 21 sites were fair, and two (2) sites scored poor.

Thirty-two (32) sites sampled had three or more years of past data. Of these, 72% were stable, 22% were improving and 6% were declining. Compared to fall 2020, fewer sites are stable, more sites were improving, and more were declining.

The Rouge River Benthic Monitoring Program Spring 2022 Report covers benthic macroinvertebrate monitoring at 29 sites. Forty-five percent (45%) of sampled sites had fair SQI scores. No sites were rated excellent, 10 sites rated good, 13 sites rated fair, and six (6) sites rated poor.

Flint River

The Flint River does not meet state and federal water quality standards due to fish consumption advisory for polychlorinated biphenyls and/or mercury that exceed state levels. The Flint River GREEN citizen-science based program provides information on water quality for the entire Flint River watershed, not exclusive to UMF, through the use of water quality index ratings.

Here is a link to the most recent Flint River GREEN 2021 Annual Report:
http://www.flintrivergreen.org/events/green-training/

Here is a link to the Flint River Watershed Coalition 2021 Annual Report: https://irp.cdnwebsite.com/1bc24252/files/uploaded/2021%20Annual%20Report%20FINAL%20update%202022.04.01%20%281%29.pdf

Typically, the Flint River GREEN program provides water quality index (WQI) ratings for 27 testing locations within the Flint River watershed. The WQI ratings (0-100) are based on the following field tests/parameters: dissolved oxygen, fecal coliform, BOD, pH, nitrates, turbidity, total solids, temperature, and total phosphate. Spring 2022 sampling events did occur and indicated that the closest upstream location relative to the UMF campus, Stepping Stones, received an average weighted WQI, of 78, indicating "good" water quality. The average WQI for the Flint River watershed was 75. The data is posted on the Flint River Green test data web site (http://www.flintrivergreen.org/test-data/). This data may have changed following the Flint River spill from Lockhart Chemical in June 2022.

EGLE Press release: https://www.michigan.gov/egle/newsroom/press-releases/2022/06/17/testing-confirms-chemical-company-as-source-of-flint-river-petroleum-release

EPA website about the incident: https://response.epa.gov/site/site_profile.aspx?site_id=15646

FRWC link regarding the incident: https://www.flintriver.org/frwc-response-to-june-chemical-spill-in-flint-river#:~:text=July%2014%2C%202022%20%E2%80%93%20Flint%20River,the%20June%2015th%20chemical%20spill

4) Data & Results –

Provide a summary of all information collected and analyzed, including monitoring data, if any, during the annual reporting cycle.

UMAA partners with the HRWC for monitoring data collection and analysis. Updated monitoring data is described in the Water Quality Assessment Section, above.

5) Upcoming Activities –

Provide a summary of the storm water activities to be implemented during the next annual reporting cycle. Include schedules for elimination of any illicit connections identified but not disconnected prior to annual report submittal.

The U-M will continue its on-going programs including:

Public Education and Outreach:

- Continue to develop/add additional brochures and guidelines (print or electronic) to fill any gaps in the topics needed to meet the permit requirements.
- Provide storm water educational messages to members of the campus community and new employees.
- Continue to update the UMAA, UMD, and UMF storm water websites.
- Continue to review website information dissemination and coordination strategy (all campuses) so that it can reach the target audiences.

- Install additional storm water curb markers, with the dump no waste, flows to river slogan.

- Continue to provide information on household hazardous waste disposal options in the area via the UMAA, UMD, and UMF storm water websites.

- Continue EHS-AA sanitarian work with kitchen and food vendors on campus to ensure proper waste management and disposal methods are used.

- Continue work with U-M staff to improve waste handling procedures.

- Work with Athletics to request continued storm water educational announcements at the U-M home football games and to request use of the stadium display boards, pending the status of Athletics programs affected by the COVID-19 pandemic.

- Continue to evaluate opportunities to contribute articles to newsletters for the U-M Facilities and Operations website.

- UMD includes storm water education as a topic in monthly new hire training and will continue implementing a notification program that provides all new hires with information on the required storm water training and a link to the UMD storm water website.

- UMF storm water bookmarks are distributed to individuals at the UMF bookstore, library, and information desks. Additionally, UMF has placed storm water educational mouse pads in computer labs on UMF campus.

- UMF coordinates with the other local colleges and has hosted the annual Earth Day Celebration for the campus and surrounding communities that occurs each April. Although the 2022 event had to be cancelled due to the COVID-19 pandemic, we hope to work with our community partners on next year's Earth Day 2023 event.

- EHS-F coordinates Storm Water and Spill Prevention training for key staff on campus using our online training modules and posting related storm water and environmental information on bulletin boards. This annual training typically occurs in late summer and early fall.

- EHS-F will continue to work with facilities and food vendors to improve management of grease from our food venders for off-site recycling while still protecting storm drains.

Public Involvement/Participation:

- Continue to work with the Millers Creek Action Team, Mallets Creek Coordinating Committee, Middle Huron Initiative/Partners and other local watershed/creek groups to identify opportunities for joint activities and outcomes in support of permit requirements.

- Continue to participate in the *E.coli* TMDL implementation plan.

- Continue to offer opportunities for environmental stewardship on campus.

- Continue to update the EHS-AA website, which contains the U-M Storm Water Management Program Plan as well as information for use by students, faculty, staff and the surrounding community.

- Continue to post the U-M NPDES reports on the U-M EHS-AA website to heighten community awareness of storm water management activities on campus.

- UMD will continue to be active partners with FOTR and the ARC.

- UMD will continue to update the EHS-D website, which contains the U-M Storm Water Management Program Plan as well as information for use by students, faculty, staff and the surrounding community.

- UMF will continue to work with local Flint River organizations including Flint River Watershed Coalition, the Genesee County Parks, and the City of Flint. The latest project involves participating in planning discussions of the Flint River Restoration project in downtown Flint with construction planned to start in 2023.

Illicit Discharge Elimination Program:

- Perform/continue dry weather field screening of outfalls per the EGLE-approved, modified IDEP Dry Weather Screening Procedure and per the SWMPP as needed. Initial dry weather screening of the U-M outfalls, which discharge to surface Waters of the State or that have a direct discharge to retention/detention basins, was conducted within the required timeline.

- Follow-up on potential illicit discharges to the storm water system and make repairs as required.

- Identified illicit discharges will be prioritized for correction according to their potential impacts to water quality. Cross connections will take priority; cooling tower discharges will be prioritized based on the frequency of discharge and will be redirected to the sanitary sewer as building improvements and renovations are undertaken.

- Continue to encourage the campus community to report illicit discharges and spills to EHS and the DPSS so appropriate measures can be taken by the 24-hour Emergency Response Team to correct issues that may impact storm water quality.

Post Construction Storm Water Management:

- Review storm water management plans for new construction and large renovation projects to ensure compliance with applicable post-construction storm water management requirements.

- Continue to work with EGLE for approval of project post-construction storm water management plans that seek to utilize detention in lieu when infiltration is not possible or advised.

- Work on implementation of storm water management basin improvement and maintenance projects to improve detention capacity, retention/infiltration, and additional Best Management Practice usage.

Construction Storm Water Runoff Control:

- Continue construction site storm water protection BMPs.

- Training of key personnel to maintain certification as construction site storm water operators.

- Training of key personnel to maintain certification as soil erosion and sedimentation control operators.

- Continue EHS review of site plans. Continue to make recommendations to improve storm water runoff quality in and around construction projects.

- Notify the Department/Agency, as required, for sediment discharges to surface waters.

Pollution Prevention/Good Housekeeping for University Operations:

- Continue to implement BMPs to control dust and suspended solids in runoff from paved roads and parking lots.

- Continue cleaning of storm water inlets, lines, and detention basins, as required.

- Continue tracking the TSS reduction for paved surfaces with a goal of reducing TSS loading by 25% as compared to annual loading with no suspended solids controls. Update TSS reduction strategy if needed.

- Continue salt use reduction strategies and alternative product usage to improve storm water runoff quality.

- Continue to implement BMPs to improve storm water discharge quality.

- Continue to update Facilities & Operations Employee training to reinforce good housekeeping procedures and proper waste management.

- Continue to have pesticide and fertilizer applicators on campus trained and certified in appropriate application amounts and techniques.

- Provide annual SWPPP training for all fleet maintenance and storage yards/facilities at U-M and provide training to applicable storm water management teams at the facilities either in person or electronically.

- Continue the education program and dissemination strategy for U-M staff involved in fertilization of turf grass at U-M. Continue providing turf grass fertilization education for appropriate U-M staff and contractors.

- Develop/add additional topics, web links, brochures, guidelines, posters, etc. to fill any gaps in the topics needed to meet the permit requirements and continue the training plan.

6) Best Management Practice Changes –

Describe any planned changes in identified Best Management Practices or Measurable Goals for any of the minimum measures.

No revisions are proposed at this time.

7) Notice of Changes in Reliance on Permitted Drainage System Operators –

Describe any changes in the need to rely on other permitted drainage system operators to satisfy the terms and conditions of this permit, as defined in Part I.C.1.d.

No revisions are proposed at this time.

8) Drainage System Changes –

Provide an update on areas added to the drainage system due to annexation or other statutory processes (if applicable).

UMAA purchased 7300 West Joy Road and 7224 Joy Road, Dexter, Michigan and UMF sold University Tower located at 324 South Saginaw Street, Flint, Michigan.

9) Revised Fiscal Analysis –

Provide a summary of revisions, if necessary, to the fiscal analysis reported during the previous permit, pursuant to permit application requirements at 40 CFR 122.26(d)(2)(vi).

No revisions are proposed at this time.

10) Annual Budget –

The expenditures and budget for all campuses are shown in Table 14.

Table 14 Annual Expenditures and Proposed Budget

	TOTAL		
ACTIVITY	**2021-2022 U-M LABOR AND MATERIALS**	**2021-2022 CONTRACTOR COST OR DIRECT PAYMENTS**	**2022-2023 BUDGET ESTIMATE**
Permit Administration	$265,840	$8,075	$275,915
Storm and Sanitary Repair	$182,000	$1,106,500	$1,320,000
Construction Site Soil Erosion Control[1] (includes post-construction controls)	$129,800	$295,697	$2,056,079
Storm Water Management Basin Maintenance	$47,980	$17,600	$215,000
Storm Water Education Program	$14,439	$500	$16,400
Catch Basin Maintenance and Cleaning Program	$1,982	$174,200	$465,000
Street Sweeping Program	$10,676	$5,000	$38,090
Waste Management-Litter Collection & Disposal	$1,187,291	$6,612	$1,216,549
Parking Structure and Lot Cleaning Program	$1,300,579	$77,111	$1,608,023
Paid Storm Water Utility Charges to Respective City	$2,073,943	$0	$2,260,007
EHS Spill Response Activity	*[2]	*[2]	*[2]
Architecture, Engineering and Construction	*[2]	*[2]	*[2]
TOTALS	***$5,214,530***	***$1,691,295***	***$9,471,063***

Footnotes: 1 - Many construction and renovation projects do not have separate tracking of SESC costs as they are built into the contract as a whole. Therefore, the expenditures for these line items are higher than shown. Post-construction BMP installation costs are included. 2 - These departments and divisions have moderate stormwater costs and are not tracked separately by the University budget system.