In accordance with Part I, Section B.1.c. of National Pollutant Discharge Elimination System (NPDES) Certificate of Coverage (COC) #MIS040090, the University of Michigan (UM) is required to submit an annual report covering Phase I Annual Reporting Requirements of the storm water management program. This program is a requirement of the NPDES COC reissued by the Michigan Department of Environmental Quality (MDEQ) Water Bureau on April 15, 2009. This report covers the period July 1, 2008 through June 30, 2009 and follows the format identified in the permit/COC.

1. Implementation Status –
   Describe the status of implementing the components of the SWMPP.
   Note: (Excerpts from the SWMPP are shown in italics.)

a. Discharge Point Requirements
   Efforts to identify the location of each storm water discharge point, including the unique identification code/number, latitude and longitude, and the receiving surface waters of the state are underway. GPS equipment has been purchased and is being used to identify existing outfalls within UM’s campuses. This project is estimated to be completed and submitted to MDEQ by the February 1, 2011 deadline identified in the COC.

b. Storm Water Management Program Plan (SWMPP)
   The University of Michigan (U-M) is continuing to implement the existing Storm Water Management Program Plan (SWMPP) which was revised in June 2005 and approved by MDEQ on June 16, 2005. U-M is preparing a new SWMPP to reflect the new COC requirements, as well as the addition of the U-M Flint and Dearborn campuses, and will submit the SWMPP to MDEQ by February 1, 2010, in accordance with permit requirements.

c. Total Maximum Daily Loads (TMDL)
   UM participates in the Middle Huron Initiative for phosphorus reduction in the Huron River. A TMDL for E. coli is also in place for portions of UM, and participation in reduction activities will continue, along with participation in TMDL meetings as they occur.

d. 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. Below is a description of each of the program's components.

The overall PEP program accomplishes the following goals:

- Educate the public of hazards associated with illicit discharges and improper discharges. 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 regarding acceptable application and disposal of pesticides, herbicides, and fertilizers.
- Educate the public concerning the ultimate discharge point and potential impacts of pollutants from the drainage system serving their places of residence.
- Educate the public about their responsibilities and stewardship of their watershed.
- Educate commercial and institutional entities likely to have significant storm water impacts.

The following BMPs are used to meet the requirements of Part I, Section B.1 of the University of Michigan's NPDES Permit for the Public Education Program (PEP):

PEP -1. Storm Water Education Brochures
In cooperation with the U-M School of Natural Resources and Environment (SNRE), the U-M Department of Occupational Safety and Environmental Health (OSEH) 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. OSEH produces and distributes storm water pollution prevention brochures specifically for Students; Faculty and Staff; and Contractors, to provide each group with appropriate information on user responsibilities, best management practices and procedures for reporting spills and illicit discharges to the storm water system.

Measurable Goal: 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 for subsequent reporting. Additional brochures will be created/revised as new needs are identified. The number
of new brochures, flyers or other educational media created will be tracked on an annual basis for subsequent reporting.

Actions during the reporting period:
An estimated 1,315 brochures were distributed at over 110 training, orientation or workshop sessions throughout the reporting period.

PEP -2. OSEH/SNRE Storm Water Education Web Site
Developed in cooperation with the U-M SNRE and maintained by OSEH, the Storm Water Education Web site builds upon the information contained in the brochures and disseminates it to the general University community and the public at large. This web site 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 website is updated on a regular basis to include pertinent information related to storm water management and pollution prevention. Current material on the web site can be viewed by visiting www.oseh.umich.edu/stormwater/.

Measurable Goal: The number of visitors to the website will be tracked semi-annually for subsequent reporting. The goal is to have at least 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.

Actions during the reporting period:
14,786 website hits were registered as of this report. This is an increase of 2,918 hits over the reported 2008 total. The website is continually being redesigned and updated with new information and/or to create a more user-friendly environment.

PEP -3. Storm Water Management at U-M Video
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 University’s storm water drainage system and it’s 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.

This video is shown every semester on the cable system. In addition, separately offered video viewings, on an as needed basis, are provided in faculty and staff presentations.

Measurable Goal: The video will be aired a minimum of 50 times annually for viewing on the U-M local cable TV station. The number of offerings of the video will be tracked semi-annually for subsequent reporting. Additional viewing of the video during presentations, classes, workshops, etc. will also be tracked.

Actions during the reporting period:
The Storm Water Management video at the University of Michigan was not aired during the reporting period. The viewing schedule was modified by the cable station without OSEH’s knowledge for the 2006-7 year. The video was shown during a few training events held during this reporting period. In addition, storm water public service announcements from the “Stormwater Savvy – Don’t’ Let a Good Drop Go Bad” series, as provided by the MDEQ via the Center for Environmental Study, were shown at various training sessions throughout the reporting period. U-M is reviewing the need to replace this goal with other public education efforts, to reach a more wide-spread audience on a consistent basis and will incorporate changes into the new SWMPP due to MDEQ by February 1, 2010.

PEP -4. Storm Water Public Service Announcements (PSAs)
Measurable Goal: Storm water, waste disposal, and recycling related Public Service Announcements will be distributed annually for use during the seven 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 107,000 per game.

Actions during the reporting period:
Public Service Announcements were made at the seven UM football home games during the 2008 season, potentially reaching an audience of 759,997 people.
Examples of the announcements made include:
Protect our environment! Dump no drinks on the pavement or down the storm drains. They drain directly to the river without any treatment. Help keep our Michigan waters BLUE!

Stop trash, food, and drink wastes from going down the storm drain and to the Huron River! Please recycle and properly dispose of your trash, food, and drink wastes. Help keep our Michigan waters BLUE!

What happens to water when it runs into a storm drain? Nothing. No filtering, no treatment. The storm drains empty directly into our creeks and rivers. And so does anything you dump on the ground - pop, food waste, cigarette butts, and litter. So keep them out of our water! Help keep our Michigan waters BLUE!

Would you pour your beverage in your fish tank? Of course not, which is why you should never pour pop, juice, coffee, or alcohol down a storm drain or on the pavement. It goes straight to the river untreated. So do your part and help keep our Michigan waters BLUE!

While the Wolverines score today, you too can score points for the environment. Anything that enters a storm drain goes straight to the river untreated. Pop, juice, coffee, alcohol and tobacco should be disposed of properly. So do your part and help keep our Michigan waters BLUE!

Dumping pop, juice, coffee, alcohol and cigarette butts into the storm drain or on the pavement might seem like the easiest way to get rid of your trash, but it’s also the easiest way to pollute the river. Anything that enters a storm drain goes straight to the river untreated. Dispose your trash in the proper receptacles to help keep our Michigan waters BLUE!

Did you know that 70% of Washtenaw County’s drinking water comes from the Huron River? Caffeine, sugar, acids, alcohol and tobacco end up in the river when beverages and cigarettes are not disposed of properly. Never dump anything down a storm drain because it goes straight to the river untreated! So do your part and help keep our Michigan waters BLUE!

PEP -5. Presentations, Training Sessions, Workshops, etc.
Measurable Goals: Storm water topics will be included in a minimum of 50 classes, workshops or presentations sponsored annually by OSEH. The number of sessions including training on storm water issues will be tracked for subsequent reporting.
Actions during the reporting period:
Storm water topics were included in over 110 classes, workshops or presentations during the reporting period. Examples of classes include: OSEH New Hire Training for Laboratory Personnel, Foundations of Supervision, Safety Supervisor’s Workshop, Spill Prevention Control & Countermeasure and Plant Academy-Law and Policy.

Measurable Goals: 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.

Actions during the reporting period:
A total of 769 laboratory rooms were inspected by OSEH personnel during the reporting period.

Measurable Goals: 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.

Actions during the reporting period:
All outdoor food vendors are required to attend training / orientation sessions prior to seasonal work at the U-M. A total of 175 inspections were performed by OSEH sanitarians on temporary food establishments during the reporting period.

Additional measures taken to achieve goals:
- U-M participated with stakeholders and SEMCOG in creation of the Low Impact Development manual. The manual provides technical information on the design and implementation of low impact storm water management techniques to aid in promotion of their use.
- OSEH 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 these operations during the 2008 football season to reinforce proper waste management for these temporary operations.
• Presentations are provided to students and staff by OSEH personnel to inform, educate and increase awareness of storm water quality issues. Responses from attendees in the campus community include requests for brochures, consultations and additional presentations on related storm water pollution prevention issues.

• The University of Michigan 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 and pollution prevention brochures, to report illicit discharges and spills to OSEH and the Department of Public Safety so appropriate measures can be taken to correct issues which may impact storm water quality.

e. Public Involvement and Participation

The University encourages public input in all aspects of its storm water management program. In order to facilitate public participation, information related to the storm water management program, including the Storm Water Management Program Plan (SWMPP), is made available on the storm water web site at www.oeh.umn.edu/stormwater. 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, Ann Arbor Public Schools and interested local stream and watershed protection organizations are allowed to review and comment on them. A website feedback link will be provided to facilitate feedback on the SWMPP from the community.

The overall PIP program accomplishes the following goals:

• Provide information to the public on the Storm Water Management Plan and related information.

• Provide public access to make them aware of activities the University carries out under its storm water management program by viewing Annual Reports.

• Encourage local stream and watershed protection organizations to review and comment on new storm water management program plans.

The following BMPs are used to meet the requirements of Part I, Section B.1 of the University of Michigan’s NPDES Permit for Public Involvement and Participation (PIP):

PIP -1. Storm Water Annual and Semi-Annual Reports

Measurable Goal: The SWMPP and NPDES annual and semi-annual reports will be made available on the U-M storm water web site. The date of addition to the website will be tracked for subsequent reporting.
**Actions during the reporting period:**
The semi-annual report for 2009 was added to the U-M OSEH storm water website in July 2009.

**PIP -2. Community Meeting Participation**
**Measurable Goal:** The U-M will attend a minimum of ten (10) meetings annually with the Huron River Watershed Council (HRWC), Washtenaw County Drain Commission, City of Ann Arbor (A2), the Millers Creek Action Team (MCAT) 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.

**Actions during the reporting period:**
Ten meetings were attended during the reporting period including Miller’s Creek Action Team, Mallett’s Creek Coordinating Committee, Huron River Watershed Council, Dr. Lehman’s Annual Phosphorus Seminar, Middle Huron Initiative, and Best Management Practice Seminars.

**PIP -3. Storm Water Management Program Plan - Community Feedback**
**Measurable Goal:** The U-M SWMPP (and subsequent revisions) will be provided to the City, County, Ann Arbor Public Schools and other interested parties for review and comment on the same frequency the information is provided to the MDEQ. The SWMPP will be accessible on the U-M website for review and suggestions. Any comments received will be reviewed and evaluated for inclusion in the SWMPP by U-M OSEH. A reply to the comments submitted will be provided documenting the outcome.

**Actions during the reporting period:**
The revised SWMPP was provided to interested parties above when it was revised. The SWMPP is also available for review on the OSEH website.

**PIP -4. Middle Huron Initiative Participation / Phosphorus TMDL Participation**
**Measurable Goal:** The U-M will participate in semi-annual meetings of the Middle Huron Initiative to address the Ford & Belleville Lake TMDL on phosphorus reduction throughout the permit cycle. Attendance at these meetings will be tracked for subsequent reporting.

**Actions during the reporting period:**
Semi-annual Middle Huron Initiative meetings were attended during this reporting period.
PIP -5.  **E. coli TMDL Participation**

**Measurable Goal:** The U-M will participate in the 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.

**Actions during the reporting period:**
No meetings were held during this reporting period.

PIP -6.  **Environmental Stewardship / Volunteer Opportunities**

**Measurable Goal:** The 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.

**Actions during the reporting period:**
A total of 3 volunteer events were sponsored by OSEH during this reporting period. Volunteer invasive species removal events were held on October 4, 2008; October 26, 2008; and March 29, 2009. Semi-annual events are planned for the 2009-2010 reporting period.

**Additional measures taken to achieve goals:**

- OSEH staff members continue to create, improve, and revise project/contract specifications for inclusion of Best Management Practices (BMPs) during construction and renovation projects on campus.
- The University of Michigan continues to work with the City of Ann Arbor on improving storm water quality. This is accomplished through sharing information and resources.

**f. 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 U-M will continue to encourage reporting of water quality problems and possible illicit connections and discharges to the storm water system. OSEH and/or Plant Operations will receive reports of water quality problems and possible illicit connections and perform follow-up investigations, leading to elimination where appropriate.

The overall IDEP program accomplishes the following goals:

- Identification and removal of Illicit Discharges on campus.
- Encourage reporting of water quality problems and possible illicit connections and discharges.

The following BMPs are used to meet the requirements of Part I, Section B.1 of the University of Michigan’s NPDES Permit for the Illicit Discharge Elimination Program (IDEP):

**IDEP -1. Dry Weather Screening**

**Measurable Goal:** The U-M will perform dry weather screening on the entire campus over the 5-year permit cycle to determine the existence, location, and extent of possible illicit discharges into the U-M storm water drainage system. 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 annually for subsequent reporting.

**Actions during the reporting period:**

No new dry weather screening was performed during this reporting period. Additional investigation activities occurred in 2008-2009. UM will be creating a new dry weather screening program to reflect the new storm water Certificate of Coverage requirements. The new program will incorporate all required elements and frequencies.

The following potential illicit connections are under further investigation.

- OSEH staff completed building surveys and preliminary field investigations for the following sites during this reporting period: Cook Law Library (MH-1); East Quad (MH-3); and East Hall (MH-7). Dye testing is scheduled for completion in 2009.

- The UM Plumbing Shop is continuing follow-up investigations at the following locations: LSA/SAB (MH-5): News & Information Services (MH-8); Modern Languages Building (MH-14); BSRB (MH-20); Tennis Center; Wolvering Tower; Briarwood; M-Stores; Northwood III (MH-4); Northwood II (MH-8). Follow-up investigation activities by the UM Plumbing Shop were delayed due to a heavy work load and water main replacement projects. Additional activities/results will be reported in 2010.
- **EECS (MH-9):** Building surveys conducted at Lay Automotive Lab, Lurie Engineering Center, Industrial Operations & Engineering Building and Cooley E. Mortimer Memorial identified the potential for condensate as the source of flow during dry weather conditions. Additional investigation may be performed, including dye testing to confirm actual discharge to sanitary or storm locations.

Remediation is underway for the following illicit connections:

- Additional reviews of the building and plan sets continue in an effort to confirm the proposed work and tie-ins identified below are properly routed. Individual projects will be prioritized for correction. Updated activity reports will be provided in 2010.

- Non-contact cooling water was identified as the source of flow during dry weather screening at the following locations: Mary Markley Hall (and 1 hand-washing sink); Natural History Museum; and the Kresge Medical Research III. No additional work is planned for Kresge III as it is scheduled for demolition. The Plumbing Shop is reviewing the Markley Hall site for correction planning.

- **Kraus Natural Science Building:** Floor drains in the basement level of room 1015-B were identified for further investigation to confirm whether they discharge to storm or to sanitary. Investigations to date have been inconclusive. Additional investigation is needed, and dye testing may be repeated.

- **Burton Tower:** Floor drains in the basement level were identified for further investigation to confirm whether they discharge to storm or to sanitary. Investigations to date have been inconclusive. Additional investigation is needed, and dye testing may be repeated.

- **Chemistry Building:** Floor drains in room 408-B were identified for further investigation to confirm whether they discharge to storm or to sanitary. Investigations to date have been inconclusive. Additional investigation is needed, and dye testing may be repeated.

- The following illicit connections have been addressed:

  - **Unit for Laboratory Animal Medicine:** Dry weather screening identified flow in this area. The source of the flow was tracked back to the Medical Science II building, mechanical room where a backflow preventer was leaking potable water which was discharging into a floor drain. Repairs were made to the equipment, and this discharge has ceased. This location
will be tracked to retrofit the floor drains for discharge to sanitary, as appropriate.

- **Lurie**: One potential illicit discharges was identified during this reporting period near the Lurie building on north campus. Flow was observed by OSEH staff in a storm manhole during dry weather conditions. Further investigation identified the source as ground water from area drains. No additional investigation is needed.

- **Sports Services Building (MH-10)**: Irrigation water was determined to be the source of storm water flow in this area after completion of a building survey and field investigation by OSEH staff.

- **West Hall**: OSEH staff identified clear water flow in the north-west storm manhole in the West Hall courtyard during this reporting period. Additional investigation in 2007 did not show flow in this manhole over 5 different dates. No additional investigation is planned at this time.

### IDEP -2. Public Reporting of Illicit Discharges

**Measurable Goal**: The emergency response system on campus will be maintained by DPS (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 DPS/OSEH 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.

**Actions during the reporting period**:  
A total of 49 calls of outdoor incidents were reported via the DPS/OSEH emergency response system. A majority of these outdoor incidents were remedied (45), while 4 incidents resulted in discharges to surface waters which were reported to the appropriate agencies.

During this reporting period OSEH personnel responded to approximately 49 incidents, involving spills and leaks of materials that could have potentially impacted storm water. The majority of the spills were small, ranging from a few milliliters to a few gallons. The materials were contained with spill kits; cleaned up using absorbent materials, and removed for appropriate disposal by OSEH'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, battery acid), concrete sealer, paint, trash/leaf fire, soil/sediment (from water main breaks), ballasts/bulbs and bodily fluids/materials like blood/feaces, etc. A few examples of such releases and the corresponding response actions are provided below.
Approximately 5 gallons of wash water with detergent and 3 gallons of a diatomaceous earth neutralizing agent was discharged into the storm water drainage system by contractors performing power washing activities at UM. OSEH staff immediately contacted the contractor and instructed them to cease discharge. OSEH contacted the UM project manager to advise them of the issue and reiterate the proper management of wash water. This discharge was reported to the MDEQ Water Bureau – Jackson District Office.

A hydraulic line on a UM truck leaked approximately 2 gallons of hydraulic oil onto the parking lot where it was collecting a roll-off dumpster. The driver and OSEH staff applied oil dri and absorbent pads and booms to clean up the impacted area. The waste material was collected for proper disposal.

Approximately 100 milliliters of diesel fuel leaked from a delivery truck onto the pavement at a loading dock. UM personnel responded to the scene and utilized oil dri and absorbent booms to clean up the fuel. All waste materials were collected for proper disposal. The driver of the truck contacted a mechanic to make repairs on site.

Additional measures taken to achieve goals:
- OSEH sanitarians continue to work with kitchen and food vendors on campus to ensure proper waste management and disposal methods are used. In addition, OSEH 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 these operations during the 2008-2009 football season to reinforce proper waste management for these temporary operations.
- The Department of Occupational Safety and Environmental Health (OSEH) continues to review University owned/managed 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.
- Additional campus programs which assist in maintaining or improving the quality of storm water discharges include: recycling, training and education of staff and students, designing to minimize seepage and erosion control. In 2009 the University of Michigan participated in RecycleMania a 10-week nationwide collegiate recycling and waste reduction competition. UM placed 5th in the “Gorilla Prize” category with 744,529 pounds of recyclables over the 10-week period. The gorilla prize recognizes schools that collect the highest gross tonnage of recyclables, regardless of campus population, and was created to honor schools...
with outstanding recycling programs that have the infrastructure in place to handle a large volume of recyclables.

g. **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 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.

The overall PCSW program accomplishes the following goal:

- Provide and implement controls to minimize or prevent impacts on water quality from new development and redevelopment projects.

The following BMPs are used to meet the requirements of Part I, Section B.1 of the University of Michigan’s NPDES Permit for Post Construction Storm Water (PCSW):

**PCSW -1. Formal SESC Plans**

**Measurable Goal:** 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 OSEH to require projects to include storm water management controls in the design of all projects. The SESC plan also required final site stabilization and the maintenance program for permanent SESC.

**Actions during the reporting period:**

Seventeen (17) U-M sites required formal SESC plans which were reviewed and approved by OSEH-EP3 (Environmental Protection & Permitting Program) during the reporting period.

**PCSW -2. SESC Plan Review for Permanent Storm Water BMPs**

**Measurable Goal:** OSEH and the University Planner’s Office department 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.
Examples of BMPs to be tracked for reporting may include but are not limited to those identified above.

**Actions during the reporting period:**
Approximately 17 U-M projects during this reporting period used a variety of BMPs. Examples of BMPs included the use of hydrodynamic separators, in-ground detention systems, storm water basins (detention and retention), bioretention islands, and connection to regional storm water management systems (detention or retention).

**PCSW -3. Operation & Maintenance of BMPs**
**Measurable Goal:** Storm water management basins on campus will be inspected annually, at a minimum. The number and frequency of inspection of storm water basins will be tracked for subsequent reporting. Maintenance issues identified during these inspections will be tracked until corrected.

**Actions during the reporting period:**
Annual inspections of the storm water management basins on campus were completed by UM personnel during this reporting period.

During this reporting period, maintenance dredging along with improvements to the outlet structures were completed at the State Street Commuter Lot basin, the UM Hospital basin, and the five (5) basins at the North Campus Administrative Complex. Maintenance dredging was also performed at the Matthaei Botanical Gardens Willow Pond and Parker Pond basins. Maintenance activities and improvements are under consideration for the North Campus Commuter Lot basins, Arbor Lakes basins, and the Varsity Tennis Center basin.

**PCSW -4. SESC Plan Review for PCSW Controls**
**Measurable Goal:** OSEH and the University Planner’s Office 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.

**Actions during the reporting period:**
Approximately 129 plan reviews were performed during this reporting period.

**Additional measures taken to achieve goals:**
- U-M OSEH is working with the Southeast Michigan Council of Governments (SEMCOG) in the creation of a Low Impact Development (LID) guidance document.
- Construction sites are stabilized with the addition of permanent controls and vegetation to reduce the amount of sedimentation that could impact receiving waters.
OSEH is working with Construction Management to implement standard protocols to dye test the internal piping in new building construction to confirm proper connection to the sanitary sewer system. A program for confirmation of taps to exterior pipes is already in place.

Flood control and soil erosion and sedimentation control projects continue to be researched and implemented. Bioretention traffic islands, porous pavement and a parking lot storm water treatment system to remove sediments, oil, grease and trash have been installed at various locations on campus and are being evaluated for viability in future construction projects. Additional low impact development options such as green roofs are also under construction at the Ross School of Business and are being considered for other construction/renovation locations on campus. Examples of additional storm water controls installed include a rain garden and porous pavement parking lot on Fuller Road at NC-78 (across from Mitchell Field), and a hydrodynamic separator at the Museum of Art loading dock.

h. 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 Plant Operations.

The overall CSW program accomplishes the following goal:
- Provide and implement controls to minimize or prevent impacts on water quality from construction activity.

The following BMPs are used to meet the requirements of Part I, Section B.1 of the University of Michigan’s NPDES Permit for Construction Storm Water (CSW):

CSW -1. Formal SESC Plans
Measurable Goal: 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 OSEH to require projects to insert storm water management controls into the front end of all projects.
Actions during the reporting period:
Seventeen (17) U-M sites required formal SESC plans which were reviewed and approved by OSEH-EP3 during the reporting period.

CSW -2. SESC Plan Review for BMPs
Measurable Goal: The use of BMPs is required on all projects under the approved SESC Procedures for the University. The number of projects using the Best Management Practices identified above for SESC will be tracked annually for subsequent reporting. BMPs will be selected as appropriate for site conditions.

Actions during the reporting period:
A total of 82 U-M projects during this reporting period used a variety of BMPs on their sites. Examples of BMPs included the use of vegetative buffers, silt fences, catch basin filters, water diversions, and anti-tracking pads.

CSW -3. SESC Inspections
Measurable Goal: Sites will be inspected weekly and after 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.

Actions during the reporting period:
Approximately 1,842 weekly and after storm SESC inspections were performed during this reporting period.

CSW -4. SESC Training by MDEQ
Measurable Goal: Select staff from OSEH and the University Planner’s Office will be SESC trained by MDEQ. The number of U-M staff who have received MDEQ SESC training will be tracked annually for subsequent reporting.

Actions during the reporting period:
Twelve (12) U-M staff have received SESC training from MDEQ and are current with the associated Certificate of Training.

CSW -5. Storm Water Operator Certification for Construction Sites
Measurable Goal: Select U-M staff from OSEH University Planner’s Office and Construction Management will be certified in Storm Water Management for Construction Sites. The number of U-M staff who have received MDEQ certification will be tracked annually for subsequent reporting.

Actions during the reporting period:
Ten (10) U-M staff are Certified Storm Water Operators in the State of Michigan for Construction sites as of this reporting period.
Additional measures taken to achieve goals:

- A street sweeper is in operation at construction sites to reduce the amount of sediment that could potentially reach receiving waters.

- The storm water drainage system is vacuumed semi-annually to remove sediment buildup within the system and to lessen potential sediment impacts to receiving waters.

i. Pollution Prevention/Good Housekeeping for Municipal Operations
The University's storm water pollution prevention and good housekeeping initiatives are divided into the following six areas:

- **Structural Controls** - 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.

- **Roadways** - The University maintains numerous parking structures and surface parking lots throughout the Ann Arbor campus. 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. 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.

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

- **Storm Sewer Labeling** - As of March 10, 2004, any outfall structure that the U-M constructs or installs that discharges storm water to waters of the State will include 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 have 4 inch plastic circle curb markers with the message "Keep our Michigan Waters Blue: Dump No Waste - Flows to River."
• **Flood Control Projects** - As construction, renovation or utility improvement projects are undertaken, the buildings identified as candidates for improvements are reviewed for potential flood control projects. Modeling is performed prior to new construction projects in areas identified with flooding issues or concerns to ensure opportunities to alleviate or prevent new flooding issues are appropriately addressed.

Whenever the U-M conducts new flood management projects, the impacts on water quality of the receiving water are taken into consideration. As appropriate, new flood management project include a storm water modeling component to understand the potential impacts to regional detention needs prior to decision-making on design.

In addition, as appropriate, the U-M incorporates flood management considerations into its existing projects to assess the potential for incorporation of additional water quality protection opportunities, as well as regional detention opportunities.

• **Pesticides and Fertilizers** - The application of pesticides and fertilizers is controlled by several departments including Plant Building & Grounds Services, 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.

Each area has operation and maintenance BMPs 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.

The following BMPs are used to meet the requirements of Part I, Section B.1 of the University of Michigan's NPDES Permit for Pollution Prevention & Good Housekeeping (P2/GH):
P2/GH -1. Storm Water Management Basin Inspections
Measurable Goal: Storm water management basins will be inspected annually during the permit term. The number and frequency of inspections on the U-M retention basins and detention basins will be tracked for subsequent reporting.

Actions during the reporting period:
Annual inspections of the storm water management basins on campus were completed by UM personnel during this reporting period.

P2/GH -2. Storm Water Catch Basin Maintenance
Measurable Goal: Maintenance cleaning of the catch basins and storm sewer system piping will be performed semi-annually. The number of catch basins maintained will be tracked for subsequent reporting.

Actions during the reporting period:
Storm sewer cleaning activities occur on a semi-annual basis. Maintenance cleaning was performed on approximately 2,000 catch basins/manholes during this reporting period. Catch basins across the campus are cleaned and the sewer lines rodded out. The liquid waste is drained to approved sanitary locations and the remaining non-hazardous sediment and debris is transported for disposal off-site. To more effectively handle the storm and sanitary cleaning solids, the University of Michigan constructed a 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, non-regulated waste.

P2/GH -3. Street Sweeping, Leaf, and Litter Collection
Measurable Goal: Street sweeping, leaf and litter collection will be performed continually 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 Ann Arbor campus will be tracked annually for subsequent reporting.

Actions during the reporting period:
An estimated 1,800 cubic yards of waste was sent for disposal from cleaning of parking lots and structures throughout campus. Street sweeping operations disposed of approximately 580 cubic yards of waste. Litter pickup and disposal yielded an estimated 320 cubic yards of waste.

P2/GH -4. Snow and Ice Removal – Reduction in Salt Use
Measurable Goal: Incremental annual reduction in the use of salt for de-icing to reach 50% reduction based on an average annual use of 2,600 tons per year from 1989 to 1999. The quantity of salt used for deicing will be tracked on an annual basis.
Actions during the reporting period:
Approximately 1,577 tons of salt was used during this reporting period which is a decrease of 40% from the average annual use amount of 2,600 tons per year from 1989 to 1999.

P2/GH -5. Snow and Ice Removal – Use of Alternative De-icers
Measurable Goal: 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.

Actions during the reporting period:
In the 2008-9 season, the following alternative de-icers were used:
- Magnesium Chloride at 255,200 pounds;
- Calcium Chloride at 4,200 pounds;
- Caliber M-1000 at 15,769 gallons;
- Treated Sand at 50 tons.

P2/GH -6. Pesticide and Fertilizer Technician Training
Measurable Goal: All applicators (technicians) will be trained in pesticide and fertilizer use. The number of trained pesticide and fertilizer technicians will be tracked on an annual basis.

Actions during the reporting period:
The U-M currently employs approximately 62 certified technicians.

P2/GH -7. Roadside Vegetative Replacement
Measurable Goal: Eliminate the need for vegetative replacement due to salt damage. Annual tracking of the need for replacement vegetation will tracked for subsequent reporting.

Actions during the reporting period:
Vegetative replacement due to salt damage throughout campus is minimal due to the efficient use of alternative de-icers. Approximately $10,000 in turf/plant replacement was done during this reporting period is estimated to be spent due to salt damage attributed to the long, hard winter which necessitated salt application.

P2/GH -8. Storm Sewer Labeling
Measurable Goal: 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.
Actions during the reporting period:
Approximately 70 storm drain markers were installed during the reporting period on catch basins throughout campus. Special attention is given to areas near the annual Art Fair, the Football Stadium and associated parking, as well as higher use walkways. Existing storm drain markers are replaced, as needed, due to wear, etc.

2. Environmental Impacts –

Provide an assessment of the pollution reduction and probable receiving water quality impacts associated with the program implementation. When applicable, a statement shall be included regarding any negative water quality impacts that may have occurred as a result of any illicit discharges or accidental spills during the reporting cycle.

Storm water management is recognized as a significant issue for the campus and control options are given careful consideration. A major goal of the many BMPs identified and implemented at the University is to reduce the discharge of sediment and associated pollutants to the receiving waters. The control program begins in the project design phase, by providing guidelines for storm water management and soil erosion and sedimentation control on campus 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 MDEQ’s Index of BMP’s/Individual BMPs.

- **Catch Basins / Cleanout Procedures** – reasonably effective in protecting sewers from receiving loads of coarse solids.

- **Oil/Grit Separators** – remove coarse sediment and oils from storm water prior to delivery to a storm drain network, the ground, or other treatment.

- **Salt Reduction** – reduced application rates of salt may result in an improvement of surface water quality by reducing chloride and sodium concentrations. Reductions in salt application will also help protect ground water supplies used for drinking water. Other benefits that may occur by reducing salt application rates and encouraging proper salt storage include reducing density stratification in ponds and lakes; reducing corrosion of vehicles and bridges; reducing damage to roadside vegetation; and reducing the deterioration of soil structure.

- **Storm Water Management Basins** – Although the primary function of these basins is to provide first-flush holding capacity for storm water, the design also provides for sediment deposition within the basin structure which can significantly reduce fine 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. Up to 90% of particulates may be removed if the storm water is held for 24 hours or more. Sediment basins can be very effective in preventing 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. Because sediment basins also retain water, they may increase recharge to ground water.

- **Street Sweeping** – can remove 50-90% of street pollutants that potentially can enter surface water through storm sewers. Street sweepers will also make road surfaces less slippery in light rains, improve aesthetics by removing litter, and control pollutants which can be captured by the equipment.

- **Illicit Discharges** – minimal adverse impacts to water quality are anticipated from the currently identified illicit discharges. Priority is given to correction of illicit discharges containing constituents of concern to the Huron River. Water quality is improved as illicit discharges continue to be identified and corrected as a result of the dry weather screening program.

- **Spills** – minimal adverse impacts to water quality are anticipated, as a majority of outdoor spills (45) were contained and removed from the storm water system using OSEH’s 24-hour emergency response team. Four reportable storm water events occurred during this reporting period. Discharges included sediment (2), wash water, and an oily sheen. A portion of the reportable spilled material was cleaned up by OSEH’s emergency response team, the U-M vacuum truck and the U-M sweeper truck, as appropriate, per site.

3. **Revised Fiscal Analysis** –

*Provide a summary of revisions, if necessary, to the fiscal analysis reported during the previous permit.*

No revisions are proposed at this time.

4. **Data Summary** –

*Provide a summary of data, including monitoring data, that is accumulated throughout the reporting year.*

No additional monitoring was performed during this reporting period.
5. **Public Education Program Reporting & Program Enforcement** –

Provide a summary describing the number and nature of enforcement actions, inspections and public education programs.

See descriptions in Item 1 above.

6. **Data & Results** –

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

No additional monitoring was performed during this reporting period.

7. **Annual Budget** –

Provide the previous reporting cycle's expenditures and proposed budget for the reporting cycle following the report.

The expenditures and budget are shown in the table on the next page.
### Annual Budget

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**TOTALS**

$2,761,693  $605,688  $3,008,000

Footnotes: * - Many construction and renovation projects do not have separate tracking of SESC costs, storm water management basins or bmps as they are built in to the contract as a whole. Therefore, the expenditures for these line items are higher than shown. ¹ - University labor costs include estimated base salary, 28% for benefits, and 52% for indirect cost recovery charges. ² - These departments and divisions have moderate storm water costs and are not tracked separately by the University budget system.