

2015-2016 (Due by March 31, 2017)

For the Cities of Fitchburg, Madison, Middleton, Monona, Sun Prairie, and Verona; the Villages of DeForest, Maple Bluff, McFarland, Shorewood Hills, Waunakee, and Windsor; the Towns of Blooming Grove, Burke, Madison, Middleton, and Westport; Dane County; and the University of Wisconsin – Madison.

This document is for the purpose of biennial reporting on activities undertaken pursuant to WPDES Permit No. WI-S058416-3 for the above listed municipalities. An owner or operator of a municipal separate storm sewer system covered by a municipal storm water discharge permit under ch. NR 216, Wis. Adm. Code, is required to submit a biennial report to the Department of Natural Resources by March 31 of every odd numbered year to report on activities for the previous two (2) calendar years. Information in the biennial report will be used by the Department of Natural Resources to assist with assessing permit compliance. Use of this specific form is optional. The Department of Natural Resources has created this form for the user's convenience and believes that the information requested on this form meets the reporting requirements for an owner or operator of a municipal separate storm sewer system covered by WPDES Permit No. WI-S058416-3. However, an owner or operator of a municipal separate storm sewer system that uses and completes this form will not automatically be deemed to be in compliance with other requirements of WPDES Permit No. WI-S058416-3.

Complete and submit the biennial report by March 31, 2017, to the following address: Storm Water Management Specialist, Wisconsin Dept. of Natural Resources, South Central Region, 3911 Fish Hatchery Rd., Fitchburg, WI 53711

I. MUNICIPAL INFORMATION

Name of municipality University of Wisconsin-Madison	Contact person and title Chris Egger
Mailing Address UW-Madison Environment, Health & Safety Department 30 East Campus Mall Madison, WI 53715	Telephone no. 608-263-6708
	Fax no. 608-262-6767
	E-mail address christopher.egger@wisc.edu

Does the municipality have an internet website? Yes No

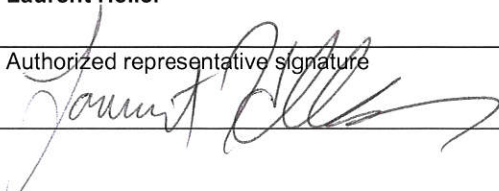
If yes, provide internet address:
www.ehs.wisc.edu

If the municipality has an internet website, is there current information posted about or links provided to the municipal storm water discharge permit and the municipality's storm water management program? Yes No

If yes, provide internet address:
www.ehs.wisc.edu/environmentalcompliance.htm

II. CERTIFICATION

I certify that the information contained in this document and all attachments were gathered and prepared under my direction or supervision. Based on my inquiry of the person or persons under my direction or supervision involved in the preparation of this document, to the best of my knowledge, the information is true, accurate, and complete. I further certify that the municipality's governing body or delegated representatives have reviewed or been apprised of the contents of the biennial report.

Authorized representative printed name Laurent Heller	Authorized representative title Vice Chancellor for Administration & Finance
Authorized representative signature 	Date signed 3/27/17

III. GENERAL INFORMATION

a. Has the municipality made any changes under its legal authority that affects implementation of the requirements of the municipal storm water discharge permit (e.g., changes to ordinances)? Yes No
 If yes, describe the changes in **Appendix A**.

b. List the people who attended quarterly meetings on behalf of the municipality and indicate the quarterly meetings in which the municipality was represented for the reporting years.

<u>Name</u>	<u>Title</u>	<u>Affiliation</u>
Matt Collins	Civil Engineering Advisor	UW-Madison
Chris Egger - New Representative *Did not attend quarterly meetings in 2015/2016.	Environmental Compliance Specialist	UW-Madison
Marisa K. Trapp	Senior Environmental Health Specialist	UWSA

c. Quarterly meetings represented: February 2015 May 2015 August 2015 November 2015
 February 2016 May 2016 August 2016 November 2016

d. Describe in **Appendix A** how the municipality internally coordinates implementation of the requirements of the municipal storm water discharge permit between the municipality's agencies, departments, and programs. Provide any documentation on how this was accomplished, such as meeting agendas, minutes, memos, etc.

e. Describe in **Appendix A** how elected and municipal officials and appropriate staff are kept apprised of the municipal storm water discharge permit. Provide any documentation on how this was accomplished, such as meeting agendas, minutes, memos, etc.

f. What is the date of the latest municipal-wide storm water management plan update? **September 2008, September 2012 (West Campus)**

See Appendix A for supplemental information

IV. Permit Conditions

a. Public Education and Outreach

Dane County only:

1. Has any municipality failed to submit its financial contribution in accordance with the *Intergovernmental Agreement to Create and Fund a Position Responsible for Storm Water Management Education and Outreach*? Yes No

If yes, list municipalities:

2. Describe in **Appendix B** the Information and Education plan implementation and activities for the reporting years, including any materials produced and their distribution. Provide examples. Include an assessment of the effectiveness of reaching targeted audiences and delivery of intended messages.

All municipalities:

3. Describe in **Appendix B** how any materials produced by Dane County on behalf of the municipality have been used and/or distributed. Provide examples.

4. Describe in **Appendix B** any individual information and education activities undertaken for the reporting years, including any materials produced and their distribution. Provide examples. Include an assessment of the effectiveness of reaching targeted audiences and delivery of intended messages.

b. Public Involvement and Participation

1. The group permit requires that the information in this biennial report be an agenda item for discussion before the appropriate governing board(s) or council(s) contemporaneous with the submittal of the biennial report to the Department of Natural Resources. Accordingly, please provide the following information:

2. Name of board(s)/council(s):

University Chemical Safety Committee

3. Date(s) of meeting(s) to discuss the biennial report:

The finalized report will be provided to the Chemical Safety Committee and other campus stakeholders at the 2017 second quarterly meeting.

4. Describe in **Appendix B** the opportunities and types of forums for public involvement and participation in permit related activities that occurred during the reporting years. Include an assessment of the effectiveness of efforts to involve the public and the level of participation.

c. Illicit Discharge Detection and Elimination

1. Describe in **Appendix B** the illicit discharge detection and elimination program developed to comply with the permit. Include information on the municipality's strategy to prevent, detect, and eliminate all types of illicit discharges; how priorities are established for field screening and the methodologies to be used for field screening; and procedures for responding to and rectifying illicit discharges to the MS4, including spills, improper disposal of waste or dumping. Also include an assessment of the effectiveness of detection and elimination of illicit discharges, prevention of improper disposal of waste and dumping, the handling of spills, and any enforcement efforts involving these activities.

2. Has the municipality performed any field screening for the reporting years? Yes No
If yes, please provide documentation in **Appendix B** the results of the field screening.

3. Has the municipality investigated any instances of spills, improper disposal of waste or dumping? Yes No
If yes, please provide documentation in **Appendix B** the results of the investigations.

4. Describe in **Appendix B** how the municipality facilitates public reporting of illicit discharges.

d. Construction Site Pollution Control

1. Does the municipality notify landowners who apply for local construction or land disturbing permits of the possible applicability of subch. III of ch. NR 216, Wis. Adm. Code, *Construction Site Storm Water Discharge Permits*, to the landowners' construction projects? Yes No

If yes, please explain the process for providing this notification. If no, please explain why this notification is not provided.

N/A

2. Describe in **Appendix B** the procedures the municipality employs to incorporate timely consideration of potential water quality impacts from construction sites and that ensure implementation of the standards of ss. NR 151.11 and 151.23, Wis. Adm. Code, or equivalent local standards. Be specific of when in the review and approval process this is done, and how the municipality ensures compliance with the standards.

3. Describe in **Appendix B** the procedures the municipality employs for the inspection of construction sites and enforcing erosion control standards. Provided documentation of any enforcement actions taken that resulted in the issuance of a stop work order, citation, or summons for a construction site where one or more acre of land is disturbed. Include the name and address of the landowner, the site name and location, date(s) of violation(s), type of violation(s), and the status of resolution of the enforcement action.

4. List the name, title, address, telephone number, e-mail address, and duties of all persons designated with the responsibility to ensure implementation of the standards of ss. NR 151.11 and 151.23, Wis. Adm. Code, or equivalent local standards.

See Appendix B

5. Include in **Appendix B** an assessment of the municipality's construction site pollution control program effectiveness in meeting the standards of ss. NR 151.11 and 151.23, Wis. Adm. Code, including enforcement efforts.

e. Post-Construction Site Storm Water Management

1. Describe in **Appendix B** the procedures the municipality employs to incorporate timely consideration of potential water quality impacts from construction sites and that ensure implementation of the standards of ss. NR 151.12 and 151.24, Wis. Adm. Code, or equivalent local standards. Be specific of when in the review and approval process this is done, and how the municipality ensures compliance with the standards.

2. Describe in **Appendix B** the procedures the municipality employs for inspecting the construction and installation of storm water best management practices and enforcement actions to ensure compliance with post-construction storm water management standards. Provided documentation of any enforcement actions taken that resulted in the issuance of a stop work order, citation, or summons for non-compliance with post-construction storm water management standards for sites where one or more acre of land is disturbed. Include the name and address of the landowner, the site name and location, date(s) of violation(s), type of violation(s), and the status of resolution of the enforcement action.

3. List the name, title, address, telephone number, e-mail address, and duties of all persons designated with the responsibility to ensure implementation of the standards of ss. NR 151.12 and 151.24, Wis. Adm. Code, or equivalent local standards, and the requirements of subch. III of ch. NR 216, Wis. Adm. Code, *Construction Site Storm Water Discharge Permits*, where applicable.

See Appendix B

4. Include in **Appendix B** an assessment of the municipality's post-construction site storm water management program effectiveness in meeting the standards of ss. NR 151.12 and 151.24, Wis. Adm. Code, including enforcement efforts.

f. Municipal Pollution Prevention

1. List in **Appendix B** an inventory of long-term storm water best management practices owned, operated, managed, or maintained by the municipality. Include storm water basins, infiltration practices, treatment structures, and other practices for long-term water quality treatment. For each best management practice, provide the name, location, type of practice, and any maintenance activities undertaken for the practice during the reporting years. Also in **Appendix B**, provide a description of the maintenance procedures used and schedules for each long-term storm water best management practice and the approximate amount of solids collected (tons or cubic yards) from any structural control receiving maintenance.

2. Does the municipality perform catch basin cleaning? Yes No
If yes, approximate amount of solids collected (tons or cubic yards): 16.51 tons. Describe in **Appendix B** the procedures used and schedules for catch basin cleaning. If no, explain:

See Appendix B

3. Does the municipality perform street sweeping? Yes No
If yes, approximate number of street miles swept: 500-550 cumulative miles; approximate amount of solids collected (tons or cubic yards): 715.5 cubic yards. Describe in **Appendix B** the procedures used and schedules for street sweeping. If no street sweeping is performed, explain:

See Appendix B

4. Describe in **Appendix B** the municipality's procedures for roadway snow removal and de-icing. Provide information on what practice and procedures the municipality has implemented in consideration of water quality impacts from snow removal and de-icing. Include an estimate of the annual amount of salt and/or sand used for roadway de-icing.

5. Does the municipality haul snow to off-site disposal locations? Yes No
If yes, provide in **Appendix B** the location of all off-site snow disposal locations and describe what practices and procedures are used to protect water quality from snow and ice melt from the disposal site.

6. Does the municipality own or operate salt storage facilities? Yes No
If yes, provide in **Appendix B** the locations of all salt storage facilities. Are all salt storage facilities managed in accordance with ch. Trans 277, Wis. Adm. Code? Yes No

7. Does the municipality provide curbside pickup service for leaves, yard waste, and grass clippings? Yes No
If yes, approximate amount of material collected (tons or cubic yards): N/A
8. Describe in **Appendix B** the municipality's procedures for the collection of leaves, yard waste, and grass clippings, and/or instruction to citizens for on-site management of these items. Provide the location of sites used by the municipality or citizens for the disposal of leaves, yard waste, and grass clippings.
9. Describe in **Appendix B** the municipality's policies and procedures for the use and application of lawn and garden fertilizers on municipally controlled properties. Include information on how these policies and procedures address pollution prevention efforts.
10. Describe in **Appendix B** any local program the municipality employs to regulate the private use of lawn and garden fertilizers.
11. Include in **Appendix B** an assessment of the effectiveness of the municipality's pollution prevention efforts through the municipal pollution prevention program.

V. STORM SEWER SYSTEM MAP

City of Madison only:

- a. Has any municipality failed to submit its hard copy changes for the storm sewer system map by January 31, 2017?
 Yes No If yes, list municipalities:

- b. Attach in **Appendix C** a copy of the updated storm sewer system map.

All municipalities:

- c. Has the municipality updated and maintained documentation of all storm sewer outfalls from its MS4 to waters of the state?
 Yes No

VI. Water Quality Concerns

- a. Does any part of the MS4 discharge to outstanding resource water (ORW) or exceptional resource water (ERW) listed under s. NR 102.10 or 102.11, Wis. Adm. Code? A list of ORWs and ERWs may be found on the Department's Internet site at: <http://dnr.wi.gov/topic/SurfaceWater/orwerw.html>
- b. Yes No If yes, list:

b. Does any part of the MS4 discharge to an impaired waterbody listed in accordance with section 303(d)(1) of the federal Clean Water Act, 22 USC § 1313(d)(1)(C)? A list of the most current Wisconsin impaired waterbodies may be found on the Department's Internet site at: <http://dnr.wi.gov/topic/impairedwaters/> Yes No

If yes, identify the following information in **Appendix D**:

- Impaired Waterbody to which the MS4 discharges.
- Description of actions municipality has taken to comply with section A(13) of the MS4 permit for discharges of pollutant(s) of concern to an impaired waterbody.

c. In **Appendix D**, identify any known water quality improvements in the receiving water to which the MS4 discharges during the reporting period.

d. In **Appendix D**, identify any known water quality degradation in the receiving water to which the MS4 discharges during the reporting period and what actions are being taken to improve the water quality in the receiving water:

VII. ADDITIONAL INFORMATION

a. Provide in **Appendix E** a description of any revisions or proposed revisions to any element of the municipality's storm water management program.

b. Provide in **Appendix E** an updated listing and contact information for any new industrial facilities that may be regulated under subch. II of NR 216, Wis. Adm. Code, and that have commenced operation during the reporting period.

c. Provide in **Appendix E** a summary of any other activities undertaken to comply with the conditions of this permit or other information you feel the Department of Natural Resources should be aware of.

d. Complete the fiscal analysis table provided below.

Program Element	2015 Annual Expenditure	2016 Annual Expenditure	2017 Budget	2018 Budget	Source of Funds
Public Education and Outreach	\$5,351	\$5,420	N/A	N/A	See VII.e below
Public Involvement and Participation	\$13,920	\$13,920	N/A	N/A	See VII.e below
Illicit Discharge Detection and Elimination	\$720	\$720	N/A	N/A	See VII.e below
Construction Site Pollution Control	\$76,185	\$77,176	N/A	N/A	See VII.e below
Post-Construction Site Storm Water Management	Combined with construction site pollution control.	Combined with construction site pollution control.	N/A	N/A	See VII.e below
Municipal Pollution Prevention	\$200,875	\$186,996	N/A	N/A	See VII.e below

e. What is the overall estimated annual cost to the municipality for compliance with the permit in 2015? **\$297,051** 2016? **\$284,231**
 Program elements are funded by a variety of University accounts. University monies can only be used for University related purposes and may not be used for any expenditure related to University Hospital & Clinical services. The various program elements that comprise the permit are not budgeted for. University staff make reasonable efforts within their job duties to achieve the goals of the permit. Annual expenditures have been determined by a summary of professional time (best estimate) and actual expenditures (e.g., labor cost for street sweeping). Public Education & Outreach totals do not include group permit expenditures.

f. Has the municipality implemented a storm water utility? Yes No, but considering No, and not considering
 If yes, provide a description of the storm water utility in **Appendix E** and any additional information that will assist the Department of Natural Resources in understanding how the utility works in your municipality.

GROUP MUNICIPAL STORMWATER DISCHARGE PERMIT:

2015-2016 Biennial Report for University of Wisconsin-Madison

APPENDIX A General Information

III.d. & III.e. UW-Madison internally coordinates implementation of the requirements of the municipal stormwater discharge permit between the University's agencies, departments and programs; and keeps elected and municipal officials and appropriate staff apprised of the municipal stormwater discharge permit in the following ways:

Staff members of the following campus units are responsible for implementing the various requirements of the stormwater permit:

- Arboretum
- Athletic Department
- Campus Planning & Landscape Architecture
- Capital Planning & Development (major projects; includes architectural and engineering staff)
- Eagle Heights/University Houses (faculty and student housing)
- Environmental and Occupational Health Program, University Health Services
- Environment, Health & Safety Department (EH&S)
- Environmental Services, Grounds Department
- Physical Plant Landscape Architect
- Plumbing Shop
- Recreational Sports
- Transportation Services
- University Housing

The electronic version of the current permit has been shared with the Director of Campus Planning & Landscape Architecture, the Capital Planning & Development's Civil Engineering Advisor, the Physical Plant's Landscape Architect and the UW-Madison Legal Counsel (Office of Legal Affairs).

Meetings have been held with staff members from the Arboretum, Campus Planning & Landscape Architecture, Capital Planning & Development, Eagle Heights/University Houses, Environmental and Occupational Health Program, Grounds Department, the Physical Plant Landscape Architect and the Plumbing Shop to discuss permit requirements that are pertinent to their respective campus units. Data collection forms are sent annually to the staff of the Arboretum, Eagle Heights/University Houses, Environmental and Occupational Health Program, Grounds Department, Plumbing Shop and Transportation Services. Any data needed from departments not listed above is collected through e-mails sent to pertinent staff.

III.f. (Supplemental Information) UW-Madison incorporates the requirements of the municipal stormwater permit into all University projects, master planning activities, neighborhood plans, development plans and other comprehensive planning activities in the following ways:

Erosion/sediment controls are included in all project specifications, with reference to the Wisconsin DNR stormwater best management practices. This includes all DFD (Division of Facilities Development) managed projects, University-delegated projects, in-house projects and emergency projects (e.g., chilled water line break). Other specific plans and policies that incorporate the municipal stormwater permit requirements include:

- The UW-Madison Policy for Stormwater Management, adopted by the Campus Planning Committee in October 2003. This policy represents a significant commitment by campus staff to use sound stormwater management practices in all campus development. The 2005 Campus Master Plan incorporates this policy.
- The West Campus Stormwater Management Plan finalized in July 2004.
- The 2005 Utilities Master Plan project.
- The Stormwater Runoff Management manual put together in 2005 by several campus graduate students for Facilities Planning and Management staff. The manual includes procedures for assessing stormwater runoff, a discussion of best management practices that could be used on campus and a selection/discussion of potential mitigation sites for reducing stormwater runoff volumes.
- The UW-Madison Lakeshore Nature Preserve Master Plan finalized in March 2006.
- The UW Arboretum Facility Storm Water Management Plan finalized in July 2006.
- The UW Arboretum Stormwater Management Plan draft in September 2006.
- The UW-Madison Stormwater Quality Management Plan finalized in September 2008.
- The UW Arboretum Curtis & Coyote Ponds Stormwater Management Plan draft in March 2011.
- The Stormwater Quality Management Plan, West Campus Technical Revision finalized June 2011.
- The Stormwater Management Plan, West Campus Stormwater Facilities Project finalized September 2012.
- The UW-Madison Curtis Prairie Stormwater Plan finalized November 2012.
- The collaborative Lake Response Analysis study for Lake Wingra (began 2012) draft in 2014.
- The UW Builds Green (LEED Certification) initiative, 2008-2016 with 11 currently certified building projects and four projects seeking certification.
- The Near West Neighborhood Stormwater Study (began 2016, expected completion 2017).

APPENDIX B

Storm Water Management Program

IV.a.3. Materials produced by Dane County on behalf of UW-Madison have been used and/or distributed in the following ways:

Copies of the fall leaf campaign pamphlet "Love Your Lakes, Don't Leaf Them" and the spring rain garden campaign pamphlet "Plant Dane! Rain Garden Plant Cost-Share Program," developed by the I&E subcommittee of the Madison Area Municipal Storm Water Partnership, were made available in the UW-Madison Environment, Health & Safety Department reception area along with links to www.myfairlakes.com posted on the department website. Campaign materials, including pamphlets and the "Love Your Lakes, Don't Leaf Them – Leafism" coasters, were also distributed at various informational expos on campus throughout the academic years of 2014/2015 and 2015/2016.

IV.a.4. The following information and education (I&E) articles were published and I&E activities undertaken by campus and Arboretum staff in 2015 and 2016:

- 1) An annual spring notice regarding pesticide use on campus was published in the *Inside UW* newsletter (insideuw.wisc.edu) on April 27, 2016. In addition, the following articles and notices regarding water quality and conservation were also published in UW news publications:
 - "Study shows many lakes getting murkier, but gives hope for improvement," UW News, November 2016.
 - "Zebra mussels invade Lake Mendota," UW News, November 2016.
 - "Campus Master Plan open house Sept. 13," UW News, September 2016.
 - "What Can Snails Tell Us About Water Quality?" UW-Madison Center for Limnology, August 2016.
 - "The Hidden Knowledge of Groundwater," University of Wisconsin-Madison Sea Grant Institute podcasts, July & October 2016.
 - "Town of Dunn award highlights UW role in local land ethic," UW News, April 2016.
 - "UW-Madison Campus Master Plan open house scheduled for April 13," UW News, April 2016.
 - "Moving fast to study nitrate in the Mississippi, algae in Mendota," UW News, November 2015.
 - "Small landscape changes can mean big freshwater gains," UW News, November 2015.
 - "Communities have turned to water resources program for 50 years," UW News, August 2015.
 - "Researchers study Wisconsin's deepest natural lake to help preserve 'an ecological jewel,'" UW News, August 2015.
 - "New online tool puts Madison lakes on the map — and in the forecast," UW News, July 2015.
 - "Business will implement new phosphorus recycling process in Midwest," UW News, April 2015.
 - "Changes in land use, climate and agriculture undermine efforts to clean up Madison lakes," UW News, April 2015.
- 2) The Arboretum offers many education and outreach programs. Examples of these opportunities include: Designing Native Gardens (including rain garden sessions and demonstration plantings), Friends of the Arboretum (volunteers) Native Plant Sale and participation in Madison's rain garden tours.
- 3) The UW Cooperative Extension offers many stormwater and watershed modeling related courses throughout the year through the Department of Engineering Professional Development, which are open to University faculty, staff and the general public. Faculty and staff are routinely involved in

educational and outreach activities, such as producing written publications, teaching and committee membership in Madison, surrounding communities and at the national level.

- 4) The Sierra Student Coalition at UW-Madison, with support from the UW-Madison EH&S department, Nelson Institute and Dane County Office of Lakes & Watersheds, conducted volunteer storm drain marking events during Earth Week (April 25, 2015 and May 7, 2016). Areas targeted for storm drain marking included the lakeshore dorms, UW Hospital streets, west campus recreational areas and streets and neighborhoods adjacent to Camp Randall Stadium and the Kohl Center.
- 5) Madison Metropolitan Sewerage District (MMSD) Wisconsin Salt Wise Partnership: UW-Madison collaborated in and promoted materials developed by MMSD for the Wisconsin Salt Wise education outreach program in 2015 and 2016 (<https://www.wisaltwise.com/>), alongside Dane County, the City of Madison, Madison Water Utility, MAMSWaP and Public Health Madison & Dane County (PHMDC).
- 6) UW-Madison MAMSWaP representative(s) also actively participate in and serve on the MAMSWaP Information & Education (I&E) Committee, helping to drive I&E stormwater goals and outcomes for the group municipal stormwater permit.

These articles, fact sheets, classes and outreach activities are all designed to raise awareness of stormwater management issues, encourage people to think about how their individual actions can lead either to degradation or improvement in water quality and encourage a personal relationship with our local bodies of water.

IV.b.4. UW-Madison offered the following opportunities and types of forums for public involvement and participation in permit-related activities in 2015 and 2016:

The 2015-2016 Biennial Stormwater Report will be distributed to the UW-Madison Chemical Safety Committee, Arboretum and Lakeshore Nature Preserve committee chairs and other interested parties. The report is also posted along with past reports and campus stormwater information on the UW-Madison Environment, Health & Safety Department website at: www.ehs.wisc.edu. Comments on the report and/or the campus stormwater management program are always welcome.

The University solicits comments and advice from the public in all public information and training endeavors. In significant new developments, stormwater management is a topic for discussion when developing Environmental Impact Statements (EIS) or in Environmental Impact Assessments (EIA). These statements are distributed widely for public comment and are also discussed at public hearings.

Two University committees, the Joint Southeast Campus Area Committee and the Joint West Campus Area Committee, are used as forums for discussion regarding development on the southeast and west portions of the campus. Stormwater management plays a significant role in many group discussions. Membership includes representatives from various University committees and departments, the City of Madison Mayor's office, various City of Madison committees and departments, City of Madison Alders representing pertinent districts and various neighborhood organizations representing neighborhoods located in close proximity to the University.

Arboretum and University staff developed a stormwater management plan for the Arboretum (completed in July 2006). City of Madison staff and the Friends of Lake Wingra were also involved in the development of the plan. A master plan has also been developed for the UW-Madison Lakeshore Nature Preserve (completed in March 2006), which identifies and makes recommendations for addressing stormwater and erosion issues in the Preserve and surrounding area.

Welcoming the public into the planning process has worked well for the University and the public. The participatory framework of meetings, hearings and reviews often results in solutions that everyone can feel a part of.

IV.c.1.& IV.c.2. An Illicit Discharge and Elimination program was submitted with the original stormwater discharge permit in 1995; the following describes how the UW-Madison program is implemented, along with field screening results for 2015 and 2016:

Illicit discharge detection, investigation and elimination require a joint effort between the Physical Plant Plumbing Shop and the Environmental and Occupational Health Program, a division of University Health Services. Illicit discharges are reported to the Environmental and Occupational Health Program, Plumbing Shop, Central Answering and Response Service (CARS) and/or the Environment, Health & Safety Department. All discharges are reported to the Wisconsin DNR. If necessary, discharges are reported to the Wisconsin DNR and to the City of Madison if the discharge was to the City's storm sewer system.

Inspections are conducted of older buildings on campus to detect and remove illicit connections to the storm sewer system. Such inspections may include field sampling, dye testing or other methods of detection. Environmental and Occupational Health Program staff walked the lakeshore throughout the spring, summer and fall of 2015 and 2016. All pipes that enter Lake Mendota were monitored; no unusual discharges were found. Environmental and Occupational Health Program staff conducted annual environmental surveys of other key areas on campus with the potential to impact stormwater runoff, such as the areas along Willow Creek/Herrick Drive and the Lakeshore Dorms; no illicit discharges were noted in 2015 and 2016. Environmental and Occupational Health Program staff also conducted walk-through inspections of the agricultural campus several times throughout the summer and fall of 2015 and 2016. These periodic inspections ensure the following:

- Storm inlets are clear of straw and debris.
- Manure is properly managed.
- Farm equipment is washed indoors so that wash waters flow into the sanitary sewer.
- Berm around the horse barn yard is functioning properly. The berm contains rainwater and directs it to the inlet located in the barn yard; this inlet drains to the sanitary sewer.

The program works well. If an illicit discharge is discovered, people know who to call; participants in the program can respond quickly to an incident. Prevention activities, such as the annual walk along the lakeshore and inspections conducted on older buildings help to avert potential illicit discharges to the lake. University Police also have the power (UWS 18.03 (1)) to enforce UWS 18.06 (1), which prohibits dumping on University lands and illicit discharges into storm sewers. Outdoor spills are responded to by either or all of the following: Environment, Health & Safety department staff, University Police or by the individual(s) responsible for the spill if the spill can be easily contained. If the spill cannot be easily contained, 911 is called and Madison's Hazardous Incidence Team will respond.

IV.c.3. UW-Madison investigated the following instances of spills, improper disposal of waste or dumping for 2015-2016:

2015:

Teacher Education sidewalk oil spill July 2015

UW-Madison Environment, Health & Safety (EH&S) staff received notification of an oil spill on the south sidewalk (Dayton Street) of the Teacher Education building on July 28, 2015. EH&S staff responded to the spill and performed cleanup (i.e., application of oil dri and removal of oil spill waste). The oil spill was completely contained on the pavement and believed to be hydraulic fluid originating from nearby construction equipment. An incident report was filed by the campus environmental compliance specialist with the UW-Madison EH&S department.

Computer Science roof generator spill September 2015

A backup generator diesel spill occurred over the weekend of September 26-27, 2015 on the roof of the Computer Science building (1325 Computer Sciences and Statistics). The spill was completely contained on the roof of the building and cleaned up on Monday morning, September 28, 2015 by the generator

maintenance contractor, Fabco Equipment, Inc. The contractor had recently installed a replacement hose on the generator the week prior and estimated that approximately nine gallons of diesel spilled on the roof from the generator, which had a total capacity of 12 gallons of diesel. The contractor promptly notified the appropriate University personnel and an internal incident report was filed with the UW-Madison EH&S department.

2016:

HSLC ramp spill June 2016

A leak of hydraulic fluid occurred after hours in the Health Sciences Learning Center (HSLC) parking ramp on June 21, 2016. UW-Madison Transportation Services staff responded to the spill and both UW Police and UW-Madison EH&S department staff were notified and arrived on site at the time of the incident. The spill was limited to pavement and a contained sump. UW-Madison Transportation Services staff cleaned up the spill and filed an incident report with the UW-Madison EH&S department.

Lot 17 oil spill September 2016

A diesel spill from an experimental car owned by the College of Engineering occurred in the Lot 17 parking ramp on September 9, 2016. The vehicle had been parked in the lower level of the ramp and had been leaking in the parking stall unbeknownst to the driver. The vehicle continued to spill diesel fuel through the parking ramp to the parking attendant station. While at the station, the vehicle continued to leak diesel fuel enough to cause pooling. The parking attendant informed the driver that the vehicle was leaking and the driver responded that it was "just coolant." The driver proceeded out of the ramp down the lot access lane, left onto Engineering Drive, onto the Engineering Mall to the Northeast corner of the Engineering Centers Building where the College of Engineering garage is located. The driver then parked the still-leaking vehicle in the immediate vicinity of a storm drain where the vehicle continued to leak and the diesel fuel subsequently flowed into the drain. The driver noticed the spill at this point and promptly notified UW-Madison Transportation Services and UW Police, who quickly moved to limit traffic to the incident area. UW-Madison Transportation Services in turn reported the incident to UW-Madison EH&S, who responded to the incident with staff, vehicles and clean up materials. It was determined that diesel had entered the storm drain where the vehicle was parked and EH&S staff removed the storm drain cover and pumped the spilled diesel from the standing water surface in the drain. EH&S staff also cleaned the pavement area between Lot 17 and the College of Engineering garage where the spill occurred. The diesel spill was limited to pavement and the single storm drain. EH&S notified the WDNR spill hotline within two hours of the incident.

IV.c.4. UW-Madison facilitates public reporting of illicit discharges in the following ways:

The Wisconsin DNR is always notified of any spills into the University storm sewer system; an internal report is kept on file and any written reporting to the Wisconsin DNR is completed as appropriate. Major spills that would have a major impact on lakes Mendota or Monona would also be reported to University Communications (262-3571, 27 Bascom Hall) who would manage information collection and dissemination.

For discharges originating from the UW-Madison permitted area that discharge to a City of Madison municipal separate storm sewer or property (no other adjacent municipalities), the Illicit Discharge Notification form or Illegal Discharge or Storm Sewer Dumping online resource (located at <https://www.cityofmadison.com/reportaproblem/dischargedumping.cfm>) is used to report spills to the City of Madison. This is in addition to any necessary phone calls to the City of Madison Engineering and the Wisconsin DNR. Copies of the form are sent to the Wisconsin DNR and the City's Engineering and Health departments.

Parts D and E are combined because the processes and personnel are similar for both stages of construction.

IV.d.2. and IV.e.1. The procedures UW-Madison employs to incorporate timely consideration of potential water quality impacts from construction sites and ensure implementation of the standards of ss. NR 151.11, 151.12, 151.23 and 151.24, Wis. Adm. Code, or equivalent local standards are described below:

Major Projects >\$185,000 and Small Projects (not delegated to UW) \$50,000 to <\$185,000

These are construction projects (development and re-development) that are managed by the Department of Administration (DOA) - Division of Facilities Development (DFD). Construction site authority is granted to DFD by Chap. 16, Stats. Section 16.85(1) stats. This statute declares that the DOA shall “take charge of and supervise all engineering or architectural services or construction work.....performed by, or for, the state...” Section 16.85(12) stats. gives DOA the authority to review plans and specifications for all UW System projects (including UW Hospitals & Clinics Authority). DOA is also empowered to periodically review the progress of all construction activities to ensure compliance with plans and contract specifications.

DOA requires compliance with the standards written into NR 151.11, 151.23, 151.12 and 151.24. Compliance is achieved through specifications and requirements contained in contracts for state construction projects. DFD has issued a Policy and Design Manual for architects and engineers that details stormwater management and erosion control requirements for state construction projects (those in progress and post construction). The manual states that contract requirements pertaining to stormwater management and erosion control apply to all construction projects, regardless of size. “Chapter 151.....includes rules and performance standards for site design and management and shall be strictly adhered to,” and “DFD expects the A/E to design the site-work in compliance with local codes and zoning requirements related to stormwater discharge, even if more restrictive than [the normal state requirements], with the concurrence of the project manager.” State contracts empower DOA with the responsibility and authority to inspect construction sites to ensure compliance with contract requirements for stormwater management and erosion control. In 2006, DFD, with input from the Wisconsin DNR, re-wrote the General Conditions section of the Construction Contract. The new language requires contractors to strictly adhere to the NR151 standard.

Small Projects \$50,000 to <\$185,000 (delegated to UW), UW-Managed Projects <\$50,000

UW-Madison’s Planning and Design Team is cognizant of the need to consider a project’s impact on the quality of Madison’s lakes and the need for strict adherence to best management practices for stormwater controls, both during and post construction. Projects in this category have contract or project specifications that delineate requirements for stormwater management and erosion control – all contractors and University personnel are required to follow these specifications. In October 2003, the Campus Planning Committee adopted a campus stormwater management policy that applies to all projects – DFD and UW managed – “.....that ensures that the amount of runoff from newly developed and redeveloped areas be no greater than the amount that occurred under native conditions.”

Project Review Process for DFD and UW-Managed Projects

Project review for Major Projects is conducted by DFD and UW staff. The project review process consists of three phases: 35%, 65% and 100%. Early project review enables staff to identify and correct errors and problems before they become more difficult to remedy. Contracts and project specifications for Small Projects (DFD or UW delegated) and UW-managed projects (<\$50,000) are reviewed by various departments and staff at UW-Madison; multi-department review and cooperation on campus projects helps to ensure issues related to campus stormwater management are identified and addressed in a timely manner.

IV.d.3. and IV.e.2. The procedures UW-Madison employs for the inspection of construction sites, installation of stormwater best management practices, enforcement of erosion control standards

and other enforcement actions to ensure compliance with post-construction stormwater management standards are described below:

Inspection of DFD managed project sites can be performed by three individuals: the DFD Project Manager, DFD Field Representative and the UW-Madison Physical Plant Landscape Architect (LA; also appointed by DFD as their representative). The majority of site inspections are conducted by the LA; however, as DFD projects are managed by the State (and not the University), the LA has no enforcement authority. If problems are encountered, the LA will inform the DFD Project Manager who, in turn, will inform the contractor.

Inspection of UW-Madison managed project sites is conducted by the LA. As above, any problems encountered will be brought to the attention of the campus Project Manager. University staff have developed an inspection sheet titled "Erosion and Sediment Control Inspection Sheet," which is now used on all construction sites. In addition, an annual notice on construction activity and erosion prevention guidance is published in the campus facility manager bulletin and posted on the Environment, Health & Safety department website.

IV.d.4 and IV.e.3. Contact information of all persons designated with the responsibility to ensure implementation of the standards of ss. NR 151.11, 151.12, 151.23 and 151.24, Wis. Adm. Code, or equivalent local standards, and the requirements of Subchapter III of Chapter NR 216, Wis. Adm. Code, Construction Site Storm Water Discharge Permits, where applicable, is provided below:

A list of duties is not included in this report; the individual titles should, in most cases, explain the responsibilities of the position. A position description will be provided upon request. Furthermore, there are other DFD project managers, not listed below, who have the potential to manage University construction projects.

Wisconsin Department of Administration

Katherine Kalscheur, DFD, Project Manager, Engineer: Katherine.kalscheur@wisconsin.gov; 608-267-0509; 101 E. Wilson, 7th floor, Madison, WI 53703.

Jim McMillan, DFD, Project Manager, Engineer: jim.mcmillan@wisconsin.gov; 608-266-3855; 101 E. Wilson, 7th floor, Madison, WI 53703.

Tammy Olson, DFD, Construction Quality Control: tammy.olson@wisconsin.gov; 608-264-9560; DFD Beltline Office.

UW-Madison Administration

Laurent Heller, Vice Chancellor for Finance and Administration: lheller@wisc.edu; 608-263-2467; 100 Bascom Hall, 500 Lincoln Dr., Madison, WI 53706.

Margaret Tennesen, Interim Associate Vice Chancellor for Facilities Planning & Management: margaret.tennesen@wisc.edu; 608-265-3444; Room 414, 30 N. Mills St., Madison, WI 53715.

UW-Madison Facilities Planning & Management

Gary Brown, Director, Campus Planning & Landscape Architecture: gary.brown@wisc.edu; 608-263-3023; Room 452, 30 N. Mills St., Madison, WI 53715.

Rhonda James, Landscape Architect Senior, Campus Planning & Landscape Architecture: rhonda.james@wisc.edu; 608-263-3032; Room 474, 30 N. Mills St., Madison, WI 53715.

Matt Collins, Civil Engineering Advisor, Capital Planning & Development: matt.collins@wisc.edu; 608-263-3031; Room 474, 30 N. Mills St., Madison, WI 53715.

Julie Grove, Architect/Project Manager, Capital Planning & Development: jbgrove@wisc.edu; 608-265-0465; Room 474, 30 N. Mills St., Madison, WI 53715..

Ann Hayes, Architect/Project Manager, Capital Planning & Development: ann.hayes@wisc.edu; 608-265-4673; Room 474, 30 N. Mills St., Madison, WI 53715.

Pete Heaslett, Architect/Project Manager, Interim Director, Capital Planning & Development: peter.heaslett@wisc.edu; 608-263-3012; Room 474, 30 N. Mills St., Madison, WI 53715.

Stuart LaRose, Interim University Architect, Capital Planning & Development: stu.larose@wisc.edu; 608-263-3004; Room 423, 30 N. Mills St., Madison, WI 53715.

Chris Egger, Environmental Compliance Specialist, Environment, Health & Safety Department: christopher.egger@wisc.edu; 608-263-6078; 30 East Campus Mall, Madison, WI 53715.

Paul Umbeck, Director, Environment, Health & Safety Department: paul.umbeck@wisc.edu; 608-262-9739; 30 East Campus Mall, Madison, WI 53715.

Kris Ackerbauer, Assistant Director, Physical Plant: kris.ackerbauer@wisc.edu; 608-265-2758; Room 201a Service Building, 1217 University Ave., Madison, WI 53706.

Ellen Agnew, Grounds Department Supervisor, Physical Plant: ellen.agnew@wisc.edu; 608-262-7266; 700 Service Building, 1217 University Ave., Madison, WI 53706.

Robert Lamppa, Director, Physical Plant: robert.lamppa@wisc.edu; 608-263-3077; Room 201 Service Building, 1217 University Ave., Madison, WI 53706.

Marcella Otter, Plumbing Shop Supervisor, Physical Plant: marcella.otter@wisc.edu; 608-265-3967; Room 402, 30 N. Mills St., Madison, WI 53715.

Faramarz Vakili-zadeh, Associate Director, Physical Plant: fvakiliz@wisc.edu; 608-265-2757; Room 201b Service Building, 1217 University Ave., Madison, WI 53706.

Chris Velie, Engineering Specialist, Shops: chris.velie@wisc.edu; 608-263-3018; Room 402 Service Building, 1217 University Ave., Madison, WI 53706.

Troy Ruland, Field Services Manager, Transportation Services: troy.ruland@wisc.edu; 608-265-6108; 124 Warf Building, 610 Walnut Street, Madison, WI 53726.

UW-Madison University Health Services

Randy Hentschel, Environmental Health Program Manager: rjhentsc@uhs.wisc.edu; 608-262-0924; Room 8305, 333 East Campus Mall, Madison, WI 53715.

IV.d.5. and IV.e.4. An assessment of the effectiveness of UW-Madison's construction-site pollution control and post-construction site stormwater management programs in meeting the standards of ss. NR 151.11, 151.12, 151.23 and 151.24, Wis. Adm. Code, including enforcement efforts is provided below:

The project planning and review process works very well. As previously stated, the University is strongly committed to considering not only the impact of individual projects on lake quality but also the incremental impact of all projects on lake quality.

Inspection frequency is somewhat limited by personnel and campus unit resources; however, the campus Landscape Architect (LA) in the Physical Plant does an excellent job of communicating with contractors and assisting them in correcting erosion and sediment controls that have not been installed properly. Contractors frequently begin a project using an incorrect approach to erosion control. When the LA observes this on their inspection rounds, they will help contractors choose the correct controls and explain why the recommended controls are necessary.

DFD now requires all pre-construction meetings to include discussion of project-specific erosion control BMPs. Erosion control issues are now also included as an agenda item at all progress meetings. In the fall of 2006, all DFD project managers and field representatives attended "Effective Construction Erosion

Control," a seminar conducted jointly by the Wisconsin DNR, the Wisconsin Department of Commerce and the UW-Madison Department of Engineering Professional Development. Topics included, but were not limited to: regulatory overview, basic principles of hydrology and sedimentology, a review of common erosion control practices and their effectiveness.

No campus authority exists for the enforcement of DFD-managed projects. To date, DFD has never issued a stop work order for lack of or improper installation of erosion and sediment controls. The same can be said for UW-Madison managed projects.

IV.f.1. An inventory of long-term stormwater best management practices owned, operated, managed or maintained by the UW-Madison is provide below, along with a description of the maintenance procedures used and schedules for each long-term stormwater best management practice, and the approximate amount of solids collected from structural controls receiving maintenance:

Charter Street Heating Plant Redesign Project

The Charter Street Heating Plant (CSHP) rebuild project on the UW-Madison campus was completed in August 2013, which converted the plant from coal to natural gas with fuel oil backup. Coal is no longer used or kept onsite at the CSHP and a new Stormwater Pollution Prevention Plan (SWPPP) and Stormwater Management Plan (SWMP) for the heating plant were developed in the fall of 2011 and implemented in 2012. The CSHP WPDES Industrial Wastewater permit was reissued by the WDNR in May 2014, with an effective date of July 1, 2014.

Table 1. UW-Madison Campus Best Management Practices

BMP	Location	Description
Bio-filtration Basin	Center courtyard of the Wisconsin Institutes for Medical Research (WIMR)	Installed and incorporated into the WIMR addition project between 2013 and 2014.
Bioretention Facilities	Carson Gulley Center, Nursing Building, Wisconsin Energy Institute, University Housing apartment complex, Eagle Heights apartment complex and along University Bay Drive	Installed as part of the West Campus Stormwater Facility Project or were incorporated into building renovation projects/new building construction between 2013 and 2014.
Bioswales	Leopold Residence Hall	Installed and incorporated into the new residence hall building project between 2013 and 2014.
Flo-Gard™ + Catch Basin Insert Filters	Walnut Street Research Greenhouses (replacement buildings)	The insert filters were installed in the storm inlets surrounding the Walnut Street Research Greenhouses (completed in 2005). These filters are designed to capture sediment, debris, trash and oils/grease from stormwater before the pollutants reach the storm sewers.
Detention Pond Series (4)	Recreational Sports Play Fields (restoration; west campus)	<p>In conjunction with the restoration of the Recreational Sports playing fields, a series of four detention ponds were installed in 2005 on the southern periphery, along Observatory Drive. Each will be either a dry- or wet-detention pond, depending on ground water elevations and seasonal precipitation.</p> <p>The ponds are referred to as a forebay system; the first ponds will receive the highest amounts of sedimentation and will require dredging more often. The first pond fills then overflows via a weir into the next pond and so on. The design allows the heaviest particles and some suspended solids to settle out before the pond over flows into the next. Each pond will settle out more material as the water flows through the system. Finally, water flows from the fourth pond into a pipe that carries the water to an underground detention area. Here, the water is cooled prior to its release into the lake.</p>
Parking Ramp Oil/Sand Separators	Ramp 6 – Helen C. White Library Ramp 7 – Grainger Hall Ramp 17 – Camp Randall Stadium Ramp 20 – McArdle Lab Ramp 23 – Van Hise Hall Ramp 29 – 21 North Park Street Ramp 36 – Steenbock Library Ramp 38 – 15645 Observatory Drive Ramp 46 – Johnson Street Ramp 76 - University Bay Drive Ramp 79 – Clinical Sciences Center Ramp 83 – Fluno Center	<p>All future and existing parking ramps on campus will be or are equipped with oil/sand interceptors. The separator is designed to collect sand and oil, thus preventing these materials from entering the storm sewer. Gradually, the accumulated sand will plug up an inverted elbow on the outlet.</p> <p>Approximately every three years or when needed, Roto-Rooter pumps out the unit(s). The lower-level drains begin to drain slowly when the interceptor becomes clogged with debris; this is an indication that the unit needs to be cleaned out. On average, Roto-Rooter pumps between 30 and 50 cubic yards of debris per year in total from campus parking ramp oil/sand separators.</p>

	Ramp 95 – Health Sciences Learning Center (one-level parking, located in basement underneath bldg.)	
Parking Ramp Oil/Sand Separator with Infiltration Garden	Ramp 76 – University Bay Drive	An infiltration garden was installed on the north side of the parking ramp (completed in 2005). Stormwater flows through the ramp's oil/sand interceptor and then into the native perennial garden to cool the stormwater before it enters the storm sewer system.
Porous Asphalt and Bioretention Basin	Parking Lot 34	Parking Lot 34 was reconstructed in the summer of 2007. Three quarters of the lot was reconstructed using conventional asphalt and one quarter of the lot was paved with porous asphalt that will allow stormwater to infiltrate. New curb and gutter channels any remaining stormwater into a bioretention basin.
Porous Asphalt with Infiltration Bed	Parking Lot 60	A 720-square-foot porous asphalt area with an underlying infiltration bed was installed in Lot 60 in 2009 to alleviate flooding in a low spot in the parking lot.
Rain Gardens	UW Medical Foundation Centennial Building, Nursing Building, Dejope Residence Hall.	A 1,200-square-foot rain garden was installed in 2010 for infiltration of rooftop runoff at the UW Medical Foundation Centennial Building. One rain garden was constructed on the site of the new Nursing Building (Signe Skott Cooper Hall), and three rain gardens and one proprietary sediment control manhole were constructed at the new Dejope Residence Hall between 2013 and 2014.
Recharge Bed	Parking Lot 92	A recharge bed was installed in the middle of Lot 92 in September 2006. This was a pilot project and was funded by UW-Madison Transportation Services. Plans are to install one recharge bed per year.
Roof Water Collection	Wisconsin Institutes for Medical Research (WIMR)	A 1,000-gallon cistern for roof water collection and reuse was installed in 2010 at the Wisconsin Institutes for Medical Research (WIMR).
Wet Detention Pond	North of Parking Lot 60 along the Lakeshore Path	Installed as part of the West Campus Stormwater Facility Project in 2013-2014.
Wash Down Facility	Herrick Drive	In the fall of 2006, a wash down area was constructed behind the Biotron at the corner of Herrick and Linden drives. The facility consists of a drainage swale with several sediment trapping devices along the flow path. Sediments will be captured not only from street runoff but also from washing down the Elgin street sweeper and lawn mowers.
1918 Marsh, Willow Creek, Nielsen Pond	West Campus	These facilities are inspected and assessed, at a minimum, on an annual basis. Problems found and any corrections taken are noted on a form that is then submitted to the campus stormwater permit manager. Nielsen Pond repairs and modifications took place in 2006; the project primarily consisted of dredging and bank stabilization. A stone infiltration trench was installed in 2009 along the south edge of the soccer field at the end of the Class of 1918 Marsh to capture and treat runoff from the soccer field. Discussions are ongoing with the City of Madison on plans for mitigating stormwater and its impacts to Willow Creek.

Arboretum – Stormwater Management Practices

The UW Arboretum Stormwater Facility Maintenance Plan was developed to identify responsibilities and provide direction for maintaining stormwater management facilities within the Arboretum, to prevent deterioration of those facilities, maintain their operating effectiveness and avoid unnecessary or premature repair and rehabilitation. Arboretum personnel are responsible for regular inspection and preventative maintenance of stormwater facilities, while the UW-Madison Department of Facilities Planning & Management (FP&M) is responsible for periodic facility evaluation and corrective maintenance. Arboretum regular inspection and maintenance activities of stormwater facilities are scheduled biannually and after major storms (2-year 24-hour), identify damage (e.g., erosion) or maintenance needs (e.g., repair conveyance), identify vegetation for removal (mow/burn/cut), note pond levels and drainage, and hand clear trash gates. FP&M major maintenance activities of stormwater facilities include: engineering performance evaluation; mechanical clearing of trash gates, weirs and forebays; and cleaning, repair and replant of conveyances. Logs of inspection and maintenance activities of each stormwater facility are kept by the Arboretum and reported to FP&M annually. FP&M and inter-governmental agreement co-signatories are responsible for major facility rehabilitation (e.g., muck-out ponds, replacement of controls structures). It should be noted that TSS reductions modeled for the Arboretum stormwater facilities are not included in the UW-Madison MS4 permit; instead they are included in the City of Madison MS4 permit, per an ongoing intergovernmental agreement.

Table 2. UW-Madison Arboretum Best Management Practices

BMP	Location	Description
Detention Basin	Curtis Pond	In summer 2009 the culvert downstream of the outlet was replaced. In summer 2010 the outfall pipe was replaced and the slope was redressed with rock. Planting of native plants in the disturbed area followed the work. Curtis and Coyote ponds are currently in the redesign process. In 2014, the berm was monitored for purple loosestrife and other invasive species
Detention Basin	Greene Prairie, adjacent to Dunn's Marsh	In 2007, the City of Madison relocated the existing Seminole Highway outfall that drains onto Greene Prairie, to instead drain onto a new wet detention pond adjacent to Dunn's Marsh. Coordination continues with the City of Fitchburg on drainage modifications related to the new bike path to be built on the railway corridor along the south border of Greene Prairie.
Detention Basin	Ho-Nee-Um Pond	The City of Madison removed the existing stormwater outfall in 2008, as part of a project to upgrade the Pickford Street box channel. The City also dredged accumulated sediment from the around the abandoned outfall. Project cost-sharing is between UW-Madison and the City of Madison.
Detention Basin	Marion Dunn Pond	In 2003/04, 3,900 c.y. of sediment was dredged from the pond; an additional 3,900 c.y. of native material was removed to deepen the pond. The pond will be dredged at 20-year intervals. In 2013, trees and shrubs were removed from the pond berm by City of Madison crews and informational signage was provided to inform visitors of activities related to stormwater management. In 2014, an alum addition was installed to remove sediment and nutrients and efforts were made to manage invasive plants species and planted natives.
Detention Basin	Johannsen Pond (Pond 2)	This project is complete. An off-line wetland basin was constructed south of the existing pond. During 2009-2010, Pond 2 was rehabilitated and a spill-containment forebay added. Total TSS removal for the system is six tons per year (88%). Project cost-sharing is between UW-Madison, the City of Madison and the Town of Madison. As part of the project, an adjoining property owner installed a proprietary device to treat runoff from the Town of Madison upstream of the pond. Pond 2 is designed to remove 12,450 lb/year of TSS.

		In 2013, an aluminum weir plate was affixed to the wetland basin outfall structure to return the basin performance to design specifications; scouring on the downstream side of the Pond 2 berm was stabilized; and stop logs were installed to bypass the wetland basin during the winter months. In 2014, stop logs were installed so stormwater can bypass the wetland basins during the winter months and efforts were made to manage invasive species.
Detention Basin	Pond 3	<p>The UW and the City of Madison have collaborated in repairing Pond 3. During 2009, the City of Madison completed repairs to the conveyance leading into the pond and cleared the pond berm of woody vegetation. UW-Madison made maintenance repairs to the east outlet structure. An engineer was selected by the City of Madison for design of a large regional treatment system combining Pond 3 with two adjoining treatment basins. Construction was completed in 2012; pond and greenway were reconstructed with significant size expansions and debris collection systems.</p> <p>In 2013, Pond 3 had been fully reconstructed and enlarged, with the new pond designed to remove 17.8 tons/year TSS (78% efficiency).</p>
Detention Basin	Pond 4	This project is complete. During 2009-2010 an enlarged wet detention pond was constructed to replace the failed pond. The new pond provides removal of 35 tons per year (65%) of TSS and control of peak flows entering the Southeast Marsh and Gardener Marsh. Project cost-sharing is between UW-Madison, the City of Madison, the City of Fitchburg and the Town of Madison. Pond 4 is designed to remove 69,790 lb/year of TSS.
Stormwater Energy Dissipater Structure, Detention Pond	Secret Pond Trench (AKA Manitou Way Outfall Trench)	<p>A stormwater energy dissipation structure was installed in 2004 to reduce velocities and decrease sediment loads to Lake Wingra from downstream erosion. An October 2009 maintenance inspection revealed blockages of the conveyance and erosion of accumulated sediment from the pond. In summer 2010, the channel was cleared of obstruction. Rehabilitation construction was completed in 2011 to eliminate erosion between Manitou Way and Secret Pond as well as to remove accumulated sediment from the pond.</p> <p>In 2013, plant inspections, reseeding and tree replanting were conducted. In 2014, efforts were made to manage invasive plants species and planted natives.</p>

IV.f.2. Procedures used and schedules for catch basin cleaning at UW-Madison are listed below:

Arboretum: There are no catch basins located in the Arboretum.

Campus: Grounds Department crews begin the cleaning process. Street sweepers clean off the grates that cover basins located in the streets. Crews manually clean the grates of basins located in parking lots, patios and other non-street areas. If the basin is plugged, crews will clean to a depth of two feet. Should the drain be plugged beyond that point, crews will inform the Plumbing Shop and the Plumbing Shop will then call in Roto-Rooter to clean out the line. Once every two weeks, Grounds crews clean the grates on all inlets, including those without catch basins. Plugged inlets, as stated above, are cleaned deeper. Grounds crews inspect all inlets during rain events to ensure rain is entering the drains unobstructed.

Eagle Heights/University Houses: A preventive maintenance schedule is in place for all storm inlets (located in parking areas, drive troughs and grassy areas). All inlets are inspected regularly for any obstructions. Roto-Rooter is called in to clear any drains that staff are unable to clear. When possible, all inlets will be inspected ahead of any predicted heavy rain; inlets will be inspected again during a heavy rain to ensure rainfall is entering the drains unobstructed.

IV.f.3. Procedures used and schedules for street sweeping at UW-Madison are listed below:

The following information does not include the interior of Eagle Heights/University Houses (i.e., parking areas, Eagle Heights Drive and drive troughs).

Arboretum: Arboretum Drive is brushed once in the spring (approximately 3 street miles swept).

Campus: Grounds Department crews begin sweeping sand from the streets as early as January, if weather conditions permit. Cleaning continues through the spring and summer, once per week to once every two weeks. In the fall, leaves are vacuumed from the streets every morning. The streets are then swept once to twice per week. Approximate number of street miles swept in 2015 and 2016: 15 street miles swept each time with 500-550 cumulative miles swept.

Transportation Services: Transportation Services staff call in Roto-Rooter to clean out oil/sand separators in campus parking lots.

IV.f.4. UW-Madison’s procedures for roadway snow removal and de-icing, including an estimate of the annual amount of salt and/or sand used for roadway de-icing are described below:

It should be noted that the sand use reported by the campus and Arboretum represents the 5% salt/sand mix. The campus will add more salt to the mix if weather conditions warrant. The salt use reported by campus represents the quantity of salt that is added to the mix. The Arboretum does not use additional salt. The salt use at Eagle Heights/University Houses represents the quantity of Ice Slicer salt mix product applied. Arboretum, Eagle Heights/University Houses and campus staff must comply with the University’s Outdoor Salt Use Policy, which is available on the Environment, Health & Safety department website: www.ehs.wisc.edu.

The salt and sand use totals for the Arboretum, campus and Eagle Heights/University Houses are for the 2014/2015 and 2015/2016 snow seasons. Totals for Eagle Heights/University Houses include amounts spread on all interior areas. Eagle Heights/University Houses has one road; the rest of the property consists of parking areas, drive troughs and sidewalks.

Table 3. UW-Madison Total Salt/Sand Use on Campus, Eagle Heights/University Houses and Arboretum Streets.

Location	2014/2015		2015/2016	
	Salt (tons)	Sand (tons)	Salt (tons)	Sand (tons)
Arboretum	-	16.88	-	48.75
Campus	226.53	369.6	616.05	274.5
Eagle Heights/University Houses	68	10	88	10

Campus

Broom tractors are utilized on walkways in an attempt to limit salt use, thereby only applying salt as necessary based on temperatures, sun exposure and grade. The Grounds Department uses a salt/sand mixture after pretreating steps and curb cuts with beet juice, brine or similar products when snow is expected over a weekend to minimize bonding with concrete.

During night hours, if conditions warrant, University Police call the Grounds Department Supervisor who, in turn, calls in the snow removal crew. Police are not involved in storms occurring during daytime hours. Depending on conditions, the crew will use either 100% sand or a salt/sand mixture. The mix typically consists of one part salt to two parts sand. If the situation warrants, the salt ratio can be increased.

All Grounds supervisors have attended the "Managing Snow and Ice Control" course that is offered by UW Professional Development. In addition, Grounds Department staff attended the Roadway Winter Maintenance and Parking Lot, Driveway & Sidewalk Winter Maintenance salt-reduction workshops sponsored by the Madison Municipal Storm Water Partnership (MAMSWaP) in November 2015 and 2016. Altogether, Grounds Department staff completed 200 total hours in 2015 and 250 total hours in 2016 of combined in-person and classroom snow removal training.

Snow Plowing Scenarios

- 1 inch or less – no plowing. Salt/sand mix is applied to streets.
- 1 inch or more – plow, if necessary. Once streets are plowed, apply sand or salt/sand mix. Plowing and application may be simultaneous.
- Heavy snow that is continuing over several hours – repeat, as often as necessary, plow, apply sand or salt/sand mix.

Eagle Heights/University Houses

Eagle Heights/University Houses personnel shovel and plow the interior areas only. The campus Grounds Department staff plows the exterior streets, i.e., University Bay Drive and Lake Mendota Drive. Snow removal is a collective effort by all staff. Training in plowing operations and salt/sand management are included in orientation activities for new employees. When to plow is a judgment call. The decision factors in safety and road access issues. Typically, plowing will not begin until the snow has ended; however, hilly areas are plowed, if necessary, to facilitate driving. Walk areas are kept clear at all times, even with only a dusting of snow. All steps are salted and sanded. Salt and sand are purchased from Dane County. Salt is mixed into the sand on site; the amount of salt used depends on the intensity of the storm.

Arboretum

Arboretum staff are responsible for their own plowing. A salt/sand mix (supplied by the campus Grounds Department) is applied to Arboretum Drive on hills, curves and intersections. To minimize amounts applied, applications are done once, after the storm has ended.

IV.f.5. The location of all off-site snow disposal locations and practices and procedures used to protect water quality from snow and ice melt from the disposal site at UW-Madison are provided below:

The snow disposal site is not located off campus; however, due to the snow pile's high visibility, the site will be addressed in this report. The campus snow pile melt site has been redesigned and the project completed (2012) in order to provide a stable surface for snow pile storage and melt operations. The site has an access road for dump trucks to queue up for dumping snow and exiting the area. The melting system has been designed to allow snow melt water and sediment to pass through it from the melt coming through the inside of the pile. The snow melt will be collected and sent into drainage ditches and sediment basins. Based on chloride monitoring conducted in previous snow seasons, the snow pile's impact to the 1918 Marsh and Lake Mendota is negligible.

IV.f.6. The locations of all salt storage facilities at UW-Madison are provided below:

The salt storage facility for the campus is located at 515 Herrick Drive and for Eagle Heights/University Houses at 2902 Haight Road. Salt storage at EH/UH is in compliance with Wis. Admin. Code Ch. TRANS 277, Highway Salt Storage Requirements.

IV.f.7. Leaves Collected in 2015 and 2016 at UW-Madison:

- Arboretum – no leaves collected
- Athletic Department + Recreational Sports – no leaves collected
- Eagle Heights/University Houses – 10 tons collected in 2015; 15 tons collected in 2016
- Grounds Department – 75 tons collected in 2015; 86.58 tons collected in 2016

IV.f.8. UW-Madison's procedures for leaf, yard waste and grass clipping collection and/or instruction to personnel for on-site management of these items are described below:

The following units are responsible for mowing lawns and collecting leaves:

- Athletic Department
- Arboretum
- Eagle Heights/University Houses
- Recreational Sports
- Remaining campus lawns (all, including Residence Halls) are mowed by Grounds Department staff

Campus

Grass Clippings

All mowing units keep grass clippings in place, i.e., with the use of mulching or recycling mowers.

Leaf Collection

Approximately 90% of the total leaf drop at Eagle Heights/University Houses is mulched and returned back to the soil. The remaining leaves are collected and taken to the Eagle Heights/University Houses gardens; gardeners use the leaves for compost in their garden plots. All work is conducted by a contractor. Leaves are collected in a central location by Recreational Sports; Grounds Department staff then take the leaves to the West Madison Agricultural Research Station for composting, located at 8502 Mineral Point Road.

Athletic lawns do not have many trees; therefore, no leaves are collected. Grounds Department staff are responsible for collecting leaves on campus streets, residence halls lawns and lawns not managed by Athletics or Eagle Heights/University Houses. Leaves are vacuumed from the streets every morning. This process is followed by street sweeping once to twice per week. Most leaves collected from the streets are composted; however, a small amount is landfilled due to a high dirt content. In the fall, Grounds Department staff clear the lawns of leaves and grass simultaneously. Collected wastes are blown into a hopper and then taken out to Picnic Point for temporary storage. Once the growing season has ended, the only activity is to vacuum leaves, daily, from lawn areas and then transfer them to Picnic Point. Once enough leaves have accumulated at Picnic Point, they are transferred to the West Madison Agricultural Research Station for composting.

Arboretum

Grass Clippings

Grass clippings are left in place.

Leaf Collection

Leaves are not collected in the Arboretum. Leaves that fall in the woods remain on the ground and leaves that fall in lawn areas are shredded by a mulching mower and left to enrich the soil.

IV.f.9. & IV.f.10. UW-Madison's policies and procedures for the use and application of lawn and garden fertilizers on University controlled properties are provided below:

All units on campus and the Arboretum are required to follow the University's Pesticide Use Policy. This policy was updated and reviewed in 2012 by the UW-Madison Chemical Safety Committee and Environment, Health & Safety

department staff; the current policy is available on the Environment, Health & Safety department website at: www.ehs.wisc.edu. The following units are responsible for applying fertilizers, herbicides and pesticides:

- Arboretum
- Athletic Department
- Grounds Department (all lawns, with the exception of Athletics and Recreational Sports)
- Lakeshore Nature Preserve
- Recreational Sports
- Residence Halls

Campus

No generalized application of herbicides or fertilizers are applied at Eagle Heights/University Houses due to the proximity of the Lakeshore Nature Preserve Area and Lake Mendota. However localized application of herbicide did occur at Eagle Heights in both 2015 and 2016 at the request of the Lakeshore Nature Preserve to treat for buttercup, invasive species and poisonous-to-consume vegetation that was encroaching from Eagle Heights housing to the preserve. In addition, in 2015 there was a one-time application of herbicide to treat weed overgrowth in sandboxes, walkways and roadways. The policy for woody plant removal in the Lakeshore Nature Preserve is to repeatedly cut plants as an alternative to applying herbicide to the stump at the first cutting.

Lawn areas in Athletics, Recreational Sports and the remainder of campus (excluding residence halls and Eagle Heights/University Houses) have been soil-tested for phosphorus content. Starter grade fertilizers (phosphorus containing) may be used by Grounds Department staff when sodding and seeding lawn areas. This fertilizer is incorporated into the soil prior to seeding or placing the sod. Slow-release nitrogen sources are used in established turf. An aerator is used prior to fertilizing.

Fertilizers are used, when necessary, on the Recreational Sports and Athletics lawn areas. Phosphorus-containing fertilizers will be used where testing has indicated it is needed. Recreational Sports aerates soils prior to all fertilizer applications; Athletics occasionally aerates soils prior to application. Residence Halls staff are responsible for the financing of and contracting for fertilizer applications; however, the staff work with the Grounds Department for decisions on product selection and application. Herbicides are applied by Recreational Sports and Athletics when necessary, to rid the lawn areas of weeds. Herbicides used on the residence hall lawns are applied by a contractor under the direction of the Grounds Department. All other campus lawns and gardens are scouted for weeds and receive herbicide applications only where necessary. Plantings on campus receive pesticide applications by Grounds Department staff only when required to preserve plant health.

Arboretum

No fertilizers, insecticides, rodenticides or fungicides are currently applied in the Arboretum. Pesticide applications are limited to herbicides.

IV.f.11. An assessment of the effectiveness of UW-Madison's pollution prevention efforts through the municipal pollution prevention program is provided below:

The program works well. University staff are very aware that their methods of operation can have a deleterious impact on lake water quality. UW-Madison is continually searching for ways to improve operations and methods that will result in a steady improvement to lake quality. For example:

- Using phosphorus-containing fertilizers only where testing shows it is needed
- Frequent cleaning/inspections of storm inlets to ensure they will perform during storm events
- Frequent street sweeping
- Vacuuming leaves from the streets, daily in the fall
- Routine inspections of storm sewer outfalls and drains